Stock Code: 874248

TEREN

Since 2001



2026

BMS·HVAC·Industrial

INSTRUMENTS

Sensor·Valve·Actuator

Temperature·Humidity·Pressure & Diff. Pressure
Indoor Air quality·Combustible & Toxic gas
Flow Level·Air Velocity/Volume
Sensor/Transmitter/Gage/Switch/Display Unit
Ball/Globe/Butterfly Valve & Actuator



ISO 9001 CE CB PA CNEX

About TEREN



Headquarter



R&D and manufacturing base

Shenzhen TEREN Control Technology Co., Ltd. is a national high-tech enterprise engaged in the research, development, manufacture and sales of automation control systems and products. Since its establishment in 2001, based on BMS, HVAC and various industrial applications, it has been committed to provide comprehensive automation control instruments and services to global market.

The Group takes Shenzhen TEREN Control Technology Co., Ltd. as parents' company, with Beijing, Shanghai and other branches and offices. The headquarter locates in Longhua, Shenzhen and manufacturing base locates in Fenggang, Dongguan. The R&D center locates on both sites. The revenue has been over RMB200M and increased every year. The manufacturing and management area is nearly 7,000 m^2 with the operating team of 180 employees.

For more than 20 years, TEREN has established a complete system of R&D, obtained dozens of intellectual property rights such as invention patents, utility model patents and software copyrights, as well as registered trademarks such as TEREN, DigiSen, TELASIA, MAGHELIX, MAGHEGAGE. We are IS09001, ISO14001 and ISO45001 certificated factory. Most of our products have CE, CB, CNEX and CPA certificates. Along with continuous business growth, TEREN has developed a high-quality R&D, production, and management team, and has been landed in China stock market with stock code 874248.

As one of leading enterprises in the industry, TEREN has been adhering to independent R & D and manufacturing. The products cover most of the BMS, HVAC and other industrial control commonly used measurement and control instruments, including sensors & transmitters of temperature, humidity, pressure, differential pressure, flow, level, CO, C02, PM2.5, PM10, toxic, combustible gases, air flow, air velocity and control valves & actuators of ball valve, globe valve, butterfly valve and corresponding actuator. Our products have been tested by millions of applications in domestic and overseas markets, and have shown stronger competitiveness in performance, quality and price.

As one of the leading brands in China local market, our business covers system integration for BMS, HVAC equipment, pharmaceutical machineries and other fields. Through years of expansion, our overseas market has covered 86 countries and regions and is becoming an emerging force from "Made in China" in the international market.

We will always adhere to the "customer-centered" business philosophy and the continuous enrichment and improvement of products to win the market and grow with customers together.

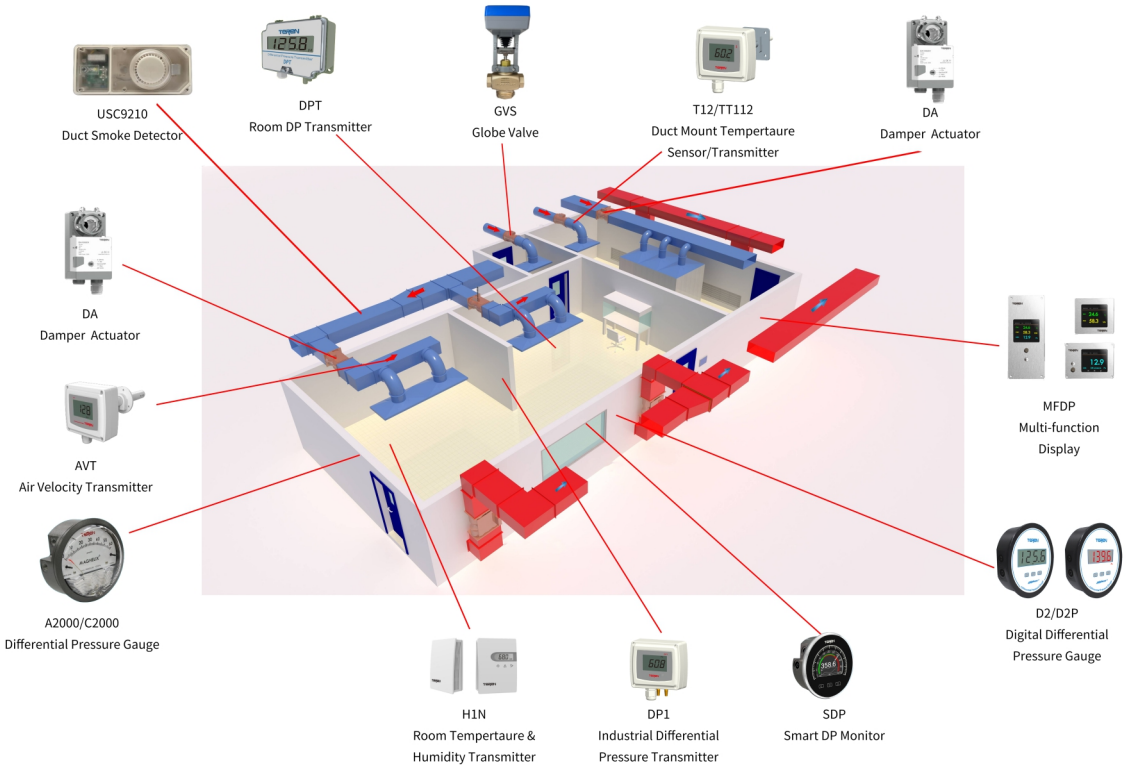


Reception of Headquarter

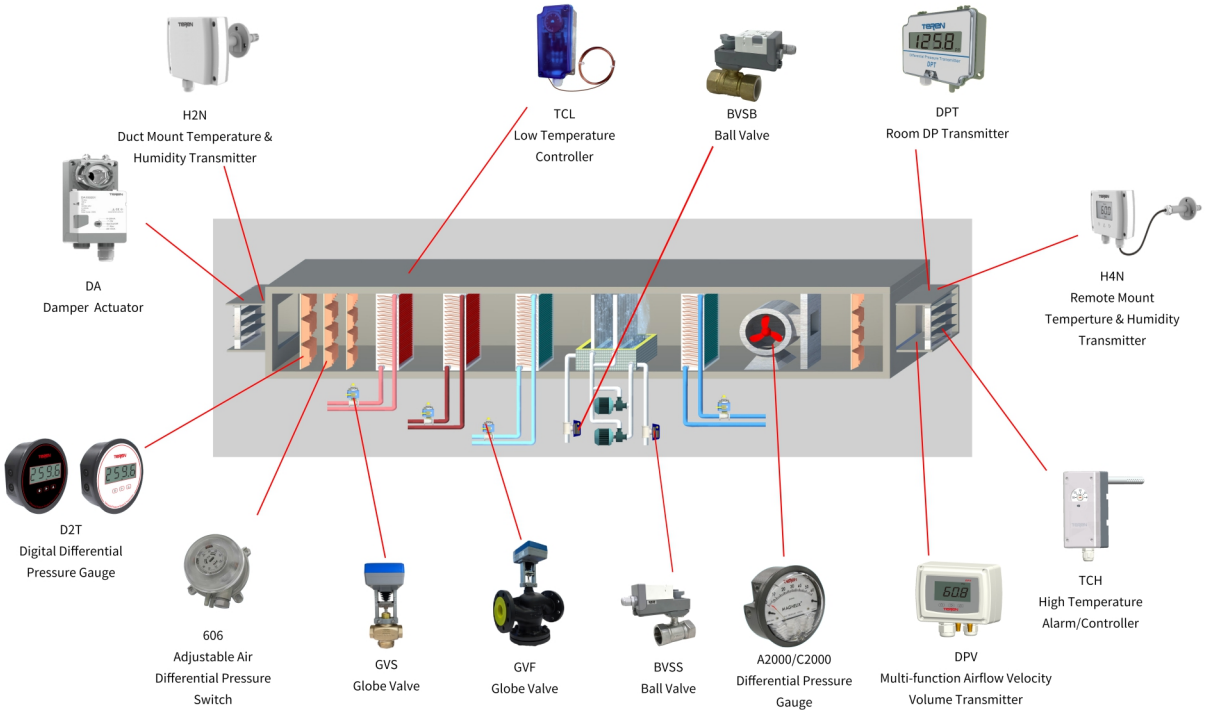


Product Line

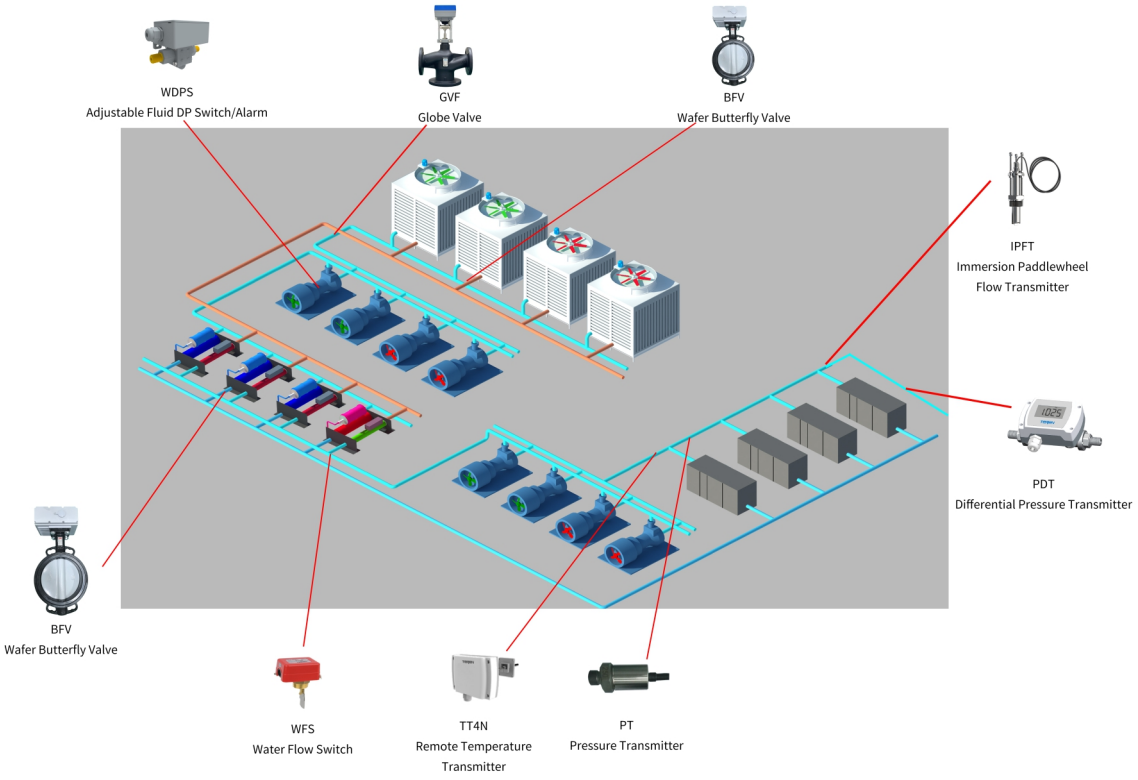
Clean Room



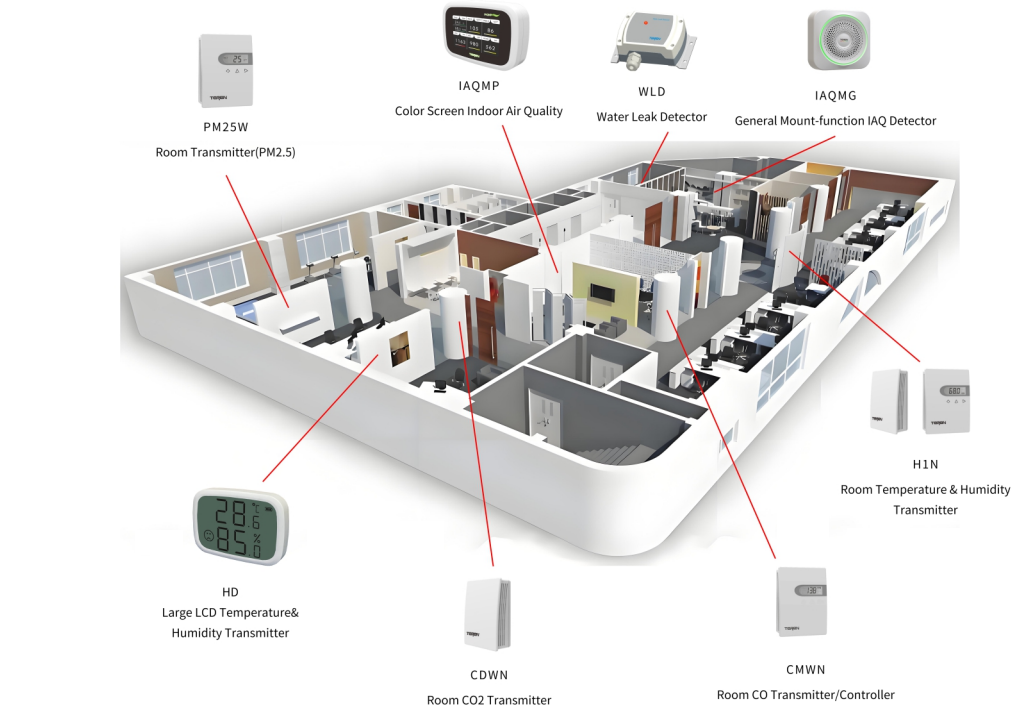
Terminal Unit



Chiller Plant



Building Automation



Content

Temperature

T/TT1N Room Temperature Sensor/Transmitter ----------1
T2/T4/T5, T2N/T3N/T4N/T6N Duct/Outside Air/Immersion/ Cable/Strap-on Temperature Sensor----------2
TT2N/TT3N/TT4N/TT5N Duct/Outside Air/Immersion/Remote Temperature Transmitter----------3
T2,3,4E/TT2,3,4E Temperature Sensor/Transmitter----------4
T/TT12/13/15 Industrial Temperature Sensor/Transmitter/ Controller----------5
TCL Low Temperature Controller----------6
TCH High Temperature Controller----------6

Temperature/Humidity/Differential Pressure Display Unit

MFDP Multi-function Display Unit/Transmitter----------7
THD/THDV/THPD/TD/DPD
Display Screen for Temp/Humidity/DP----------8

Temperature/Humidity

H1N Room Temperature & Humidity Transmitter----------9
H2N/H3N/H4N Duct/Outside Air/Remote Temperature & Humidity Transmitter----------10
H2,3E Duct/Wall Mount/Weather proof T & RH Transmitter --11
HT Large LCD Temp. & Humidity Transmitter----------12
HD Large LCD Temp. & Humidity Display----------12
H3Ex Explosion Proof Temp. /Humidity Transmitter----------13

CO_2/CO/PM2.5/VOC/CH_2O/ Combustible/Toxic Gases

CDWNL/CDDL Economical Carbon Dioxide (CO2) Transmitter----------13
CDWN/CDD/CDWC Room/Duct CO_2 Transmitter/Controller-14
CDT Carbon Dioxide (CO_2)/Temperature Transmitter----------15
CDTH Carbon Dioxide (CO_2)/Temperature/Humidity Transmitter----------16
CDH High concentration CO_2 Transmitter----------17
CDA Large Range CO_2 Transmitter----------17
CMW Wall Mount CO Transmitter----------18
CMWL/CMWNL Economical CO Transmitter----------18
CMWN/CMD Room/Duct CO Transmitter/Controller----------19
PM2.5/PM10 Transmitter/Controller----------20
IAQ Air Quality (VOC)/ Formaldehyde (CH_2O) Transmitter/Controller----------21
IAQM/IAQMG Multi-function Indoor Air Quality (VOC/CH_2O/PM2.5/PM10/CO_2/T/RH) Detector----------22
IAQMD Multi-function IAQ (VOC/CH_2O/PM2.5/PM10/CO_2/T/RH) Detector----------23
IAQMP Color Screen Air Quality (VOC/CH_2O/PM2.5/PM10/CO_2/T/RH) Detector----------24
G3Ex Explosion Proof Gas Detector----------25

Pressure/Differential Pressure

D2/D2P Digital Differential Pressure Gauge----------26
D2T Digital Display Differential Pressure Transmitter----------27
D2M Multifunction Digital DP Transmitter----------28
D5 Mini Digital DP Gauge/Controller/Transmitter----------29
DPG Multifunction Digital Differential Pressure Gauge---------30
DPGT Multifunction Digital DP Transmitter----------31
DPTL Differential Pressure Transmitter----------32
DPT/DPT-F/DPTN/DPTD DP Transmitter----------33
DPTR Rail Mount Differential Pressure Transmitter----------34
DPTM Mini Differential Pressure Transmitter----------34
DP1/DP1C Industrial DP Transmitter/Controller----------35
SDP Smart DP Monitor----------36
DP17/DP17M/DP17H Flush Mount DP Display Unit/Transmitter----------37
A2T Differential Pressure Indicating Transmitter----------38
A2GT Differential Pressure Gauge/Switch/Transmitter---------39
A2000 Differential Pressure Gauge----------40
C2000 Differential Pressure Gauge----------41
606 Adjustable Differential Pressure Switch----------42
610/611/612/615 Adjustable Differential Pressure Switch/Alarm----------43
DPT-OEM Micro OEM DP Transmitter----------44
WDPS Adjustable Fluid DP Switch/Alarm----------44
PT Pressure Transmitter----------45
PDT Differential Pressure Transmitter----------45
PTG Pressure Transmitter----------46

Air Velocity/Volume/Flow

AVT Air Velocity Transmitter----------47
AVTP Probe Air Velocity Transmitter----------47
DPVL Airflow Velocity/Volume Transmitter----------48
SDPV Smart Air Velocity/Volume Monitor----------49
DPV Multifunction Airflow Velocity/Volume Transmitter--------50
AFMB Average Flow Measurement Blades----------51
IPFT Immersion Paddlewheel Flow Transmitter----------51
WFS Water Flow Switch----------52

Occupancy Sensor/Level /Ambient Light Sensor/ Water Leak

OS Occupancy Sensor----------52
LS Cable Float Level Switch----------53
LLS Light Cable Float Level Switch----------NEW----------53
LT(Standard)/LTEx (Explosion proof) Submersible Level Transmitter----------54
ALS Ambient Light Sensor----------54
WLD Water Leak Detector----------55
USC9210 Duct Smoke Detector----------55

Damper Actuator (Fail-safe)

DA03 Damper Actuator, 3 Nm Series----------56
DA05 Damper Actuator, 5 Nm Series----------57
DA10 Damper Actuator, 10 Nm Series----------58
DA20 Damper Actuator, 20 Nm Series----------59
DA40 Damper Actuator, 40 Nm Series----------60
DA03A/S Damper Actuator, 3Nm, BLDC Motor Series---------61
DA05A/S Damper Actuator, 5Nm, BLDC Motor Series---------62
DA10A/S Damper Actuator, 10Nm, BLDC Motor Series------63
DA20A/S Damper Actuator, 20Nm, BLDC Motor Series-------64
DA40A/S Damper Actuator, 40Nm, BLDC Motor Series-------65

Fast Damper Actuator (Fail-safe)

DA03F Fast Damper Actuator, 3 Nm Series----------66

DA05F Fast Damper Actuator, 5 Nm Series----------67
DA10F Fast Damper Actuator, 10 Nm Series----------68
DA20F Fast Damper Actuator, 20 Nm Series----------69
DA40F Fast Damper Actuator, 40 Nm Series----------70

Ball Valve

BVSB Ball Valve, Brass, Screw Connection----------71
BVSS Ball Valve, Stainless Steel, Screw Connection----------72
BVF Ball Valve, Flange Connection----------73

Ball Valve Actuator (Fail-safe)

BVA03/BVA03A/BVA03S Ball Valve Actuator, 3Nm Series---74
BVA05/BVA05A/BVA05S Ball Valve Actuator, 5Nm Series---75
BVA10/BVA10A/BVA10S Ball Valve Actuator, 10Nm Series-76
BVA20/BVA20A/BVA20S Ball Valve Actuator, 20Nm Series-77
BVA40/BVA40A/BVA40S Ball Valve Actuator, 40Nm Series-78

Fast Ball Valve Actuator (Fail-safe)

DA03F Fast Ball Valve Actuator, 3 Nm Series----------79
DA05F Fast Ball Valve Actuator, 5 Nm Series----------80
DA10F Fast Ball Valve Actuator, 10 Nm Series----------81
DA20F Fast Ball Valve Actuator, 20 Nm Series----------82
DA40F Fast Ball Valve Actuator, 40 Nm Series----------83

Globe Valve

GVS Globe Valve, Brass, Screw Connection----------84
GVSS Globe Valve, Stainless Steel, Screw Connection------85
GVF Globe Valve, Two-way, Flange Connection----------86
GVF Globe Valve, Three-way, Flange Connection----------87
GVFH Globe Valve, Two-way, High Temperature----------88

Globe Valve Actuator (Fail-safe)

GVA06 Globe Valve Actuator, 600N Series----------89
GVA10 Globe Valve Actuator, 1000N Series----------90
GVA20 Globe Valve Actuator, 2000N Series----------91
GVA35 Globe Valve Actuator, 3500N Series----------92

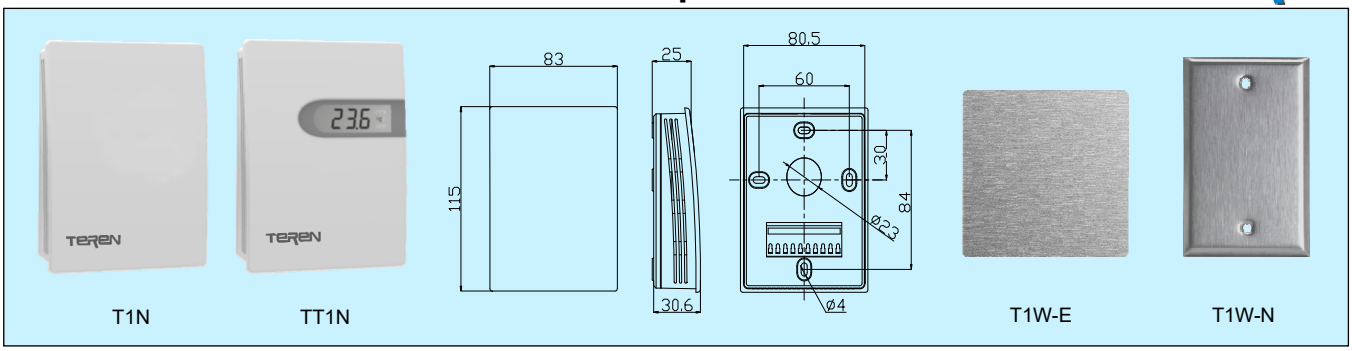
Butterfly Valve & Actuator

BFV Wafer Butterfly Valve----------93
BFVA0020/0040 Butterfly Valve Actuator, 20/40Nm----------94
BFVA Butterfly Valve Actuator, 100~2000Nm----------NEW---95
BFVA Butterfly Valve Actuator, 4000/6000Nm----------96
BFVAH High-Performance Butterfly Valve Actuator----------97

Accessories and Others

Accessories----------99
Global Market Map----------100
Partner----------101

T1N/T1W/TT1N Room/Wall Mount Temperature Sensor/Transmitter



Applications & Features

- Apply for indoor environment temperature measurement. T1N and TT1N are room environment. T1W is flush mount and measures room temperature via the stainless steel plate for wash down or polluted environments. T1N and T1W are sensors only, while the TT1N is transmitter
- light and state of art housing, easy installation
- Transmitter applies high accuracy digital temperature sensor, has good long term stability and accuracy
- Sensor apply various thermistor or RTD selectible
- Multiple output optional, LCD optional, over voltage and reverse polarity protection, high reliability and anti-interference capability
- Wide temperature range and fast response
- All electrical terminals are on the inside bottom, avoid any possible damage to PCB when wiring

Specifications

T1N/T1W series temperature sensor

Sensor: High accuracy thermistor or RTD, see models
Output: thermistor or RTD, see models and resistance table
Accuracy: typical 0.2~0.5°C@ 25°C, see Models
Wiring: 2 wires or 3 wires (RTD)
(3 wires connection could obtain better accuracy)
Work Temp.: -30~70°C, 0~95%RH (Non condensing)

TT1N series temperature transmitter

Sensor: Digital temperature sensor
Range: see Models
Output: 4~20mA (2 wires), 0~10V, 0~5V, RS-485/Modbus
Output Load: ≤500Ω (current), ≥3KΩ (voltage)
Accuracy: ≤±0.3°C @0~100°C
Power: 0~10V:24VDC/24VAC±20%; 4~20mA:24VDC±20%
Display: Optional LCD, resolution 0.1 °C, with unit
Work Temp.: -20~70°C(LCD: 0~70°C), 0~95%RH (Non cond.)

Storage Temperature: -30~70°C
Housing: T1N/TT1N: fire retardant PC(UL94V-0)
T1W: Stainless steel SS304
Protection: IP30
Weight: T1N: 95g; T1W-E: 95g; T1W-N: 80g; TT1N: 115g
Approval: CE

Models

T1N room temp. sensor/T1W wall mount temp. sensor

Model	T1N		Room Temp. sensor
	T1W-E		Wall mount Temp. sensor, China/EU style
	T1W-N		Wall mount Temp. sensor, North America style
Thermistor or RTD*		3	PT1000, ±0.2°C @25°C
		4	PT100, ±0.2°C @25°C
		5	NTC20K, ±0.2°C @25°C
		6	Ni 1000, ±0.5°C @25°C
		7	NTC10K-II, ±0.2°C @25°C
		9	NTC10K-III, ±0.3°C @25°C
		A	NTC10K-A, ±0.3°C @25°C

*See resistance table.

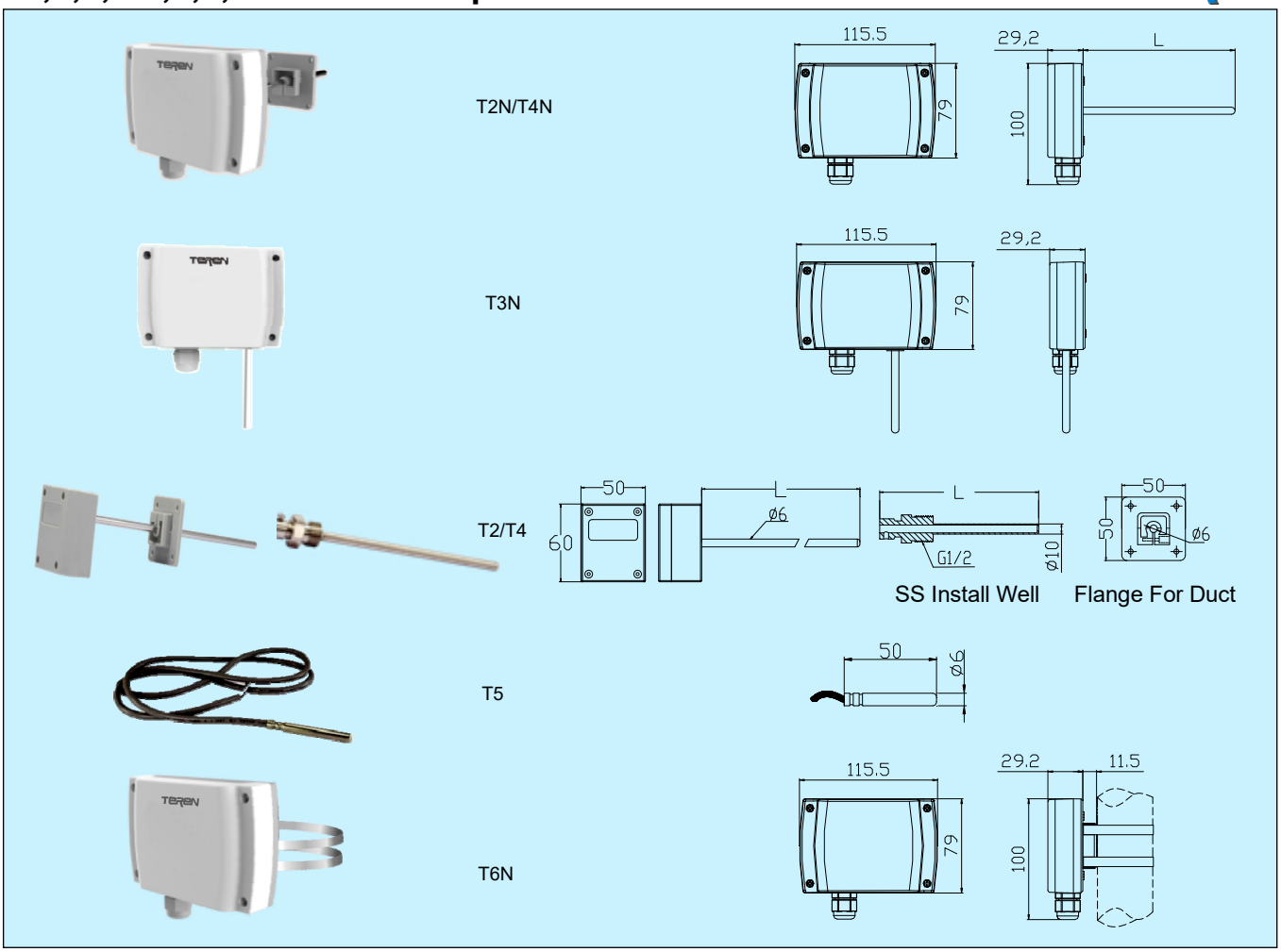
TT1N series room temp. transmitter

Model	TT1N			Room Temp. transmitter
Output		1		0~10VDC
		2		4~20mA (2 wires)
		8		RS~485/Modbus
		E		0~5VDC
Range			1	0~50°C
			2	0~100°C
Display			0	N/A
			1	LCD

Resistance table:

T (°C)	3 PT1000	4 PT100	5 NTC20K	6 Ni1000	7 NTC10K-II	9 NTC10K-III	A NTC10K-A
-40	842.71	84.27	806,400	830.84	325,931	209,800	206,100
-35	862.46	86.25	572,550	851.15	236,365	161,200	155,500
-30	882.22	88.22	411,110	871.69	173,161	123,900	118,400
-25	901.91	90.19	298,440	892.47	128,108	95,590	91,000
-20	921.6	92.16	218,900	913.48	95,674	74,340	70,580
-15	941.23	94.12	162,110	934.74	72,102	58,460	55,240
-10	960.86	96.09	121,200	956.24	54,814	46,120	43,560
-5	980.43	98.04	91,450	977.99	42,022	36,450	34,580
0	**1,000.00**	**100.00**	**69,600**	**1,000.00**	32,477	**28,870**	**27,630**
5	1,019.51	101.95	53,410	1,022.26	25,295	23,130	22,170
10	1,039.03	103.90	41,320	1,044.79	19,848	18,620	17,970
15	1,058.48	105.85	32,210	1,067.59	15,687	15,060	14,690
20	1,077.94	107.79	25,290	1,090.65	12,483	12,240	12,080
25	**1,097.33**	**109.73**	**20,000**	**1,113.99**	**10,000**	**10,000**	**10,000**
30	1,116.73	111.67	15,920	1,137.62	8,062	8,214	8,319.00
35	1,136.07	113.61	12,760	1,161.52	6,539	6,781	6,952.00
40	1,155.41	115.54	10,290	1,185.71	5,335	5,626	5,834.00
45	1,174.69	117.47	8,346	1,210.20	4,378	4,691	4,917.00
50	1,193.97	119.40	6,808	1,234.98	3,611	3,929	4,160.00
55	1,213.20	121.32	5,584	1,260.06	2,995	3,323	3,533.00
60	1,232.42	123.24	4,605	1,285.44	2,496	2,816	3,013.00
65	1,251.59	125.16	3,817	1,311.14	2,090	2,390	2,579.00
70	1,270.75	127.08	3,179	1,337.14	1,758	2,033	2,217.00
75	1,289.86	128.99	2,661	1,363.47	1,486	1,733	1,914.00
80	1,308.97	130.90	2,237	1,390.12	1,261	1,482	1,659.00
85	1,328.02	132.80	1,889	1,417.09	1,075	1,272	1,451.00
90	1,347.07	134.71	1,602	1,444.39	920	1,098	1,265.00
95	1,366.06	136.61	1,363	1,472.03	790	950.20	1,111.00
100	1,385.06	138.51	1,165	1,500.00	681	824.60	978.80

T2,4,5, T2,3,4,6N Series Temperature Sensor



Applications & Features

- Apply for temperature measurement in duct air(T2/T2N), water and steam pipe(T4/T4N), outside air(T3N) and insert or stick(T5) and strap-on(T6N)
- High performance thermistor & RTD, ensure accurate temperature measurement and long term stability
- Light and state of art housing, easy installation
- Multiple thermistor & RTD outputs selection
- Wide temperature range and fast response
- High protection rate up to IP65

Specifications

Sensor: High accuracy thermistor or RTD, see models
Output: thermistor or RTD, se
e models and resistance table
Accuracy: typical ±0.2~0.5°C@25°C, see models
Wiring: 2 wires or 3 wires (RTD)
(3 wires connection could obtain better accuracy)
Work Temp.(Whole product): -40~70°C, 0~95%RH (Non cond.)
Medium Temperature (Probe): -40~100°C
Storage Temperature: -30~70°C
Housing: fire retardant ABS(UL94V-0), SS probe (Φ6mm), SS Well
Cable (T5): Black, silicone, 2*0.3mm², 1m length, -60~180°C,
$R_{conductor}$=0.069Ω/m, $R_{insulation}$ >100MΩ (25°C)
Strap on(T6N): stainless steel, diameter 15~150mm
Protection: IP65(IP68 for T5, 1m water depth)
Weight: T2:160g;T4:340g;T5:35g;T2N:270g;T3N:220g;
T4N:480g;T6N:150g
Approval: CE

Models

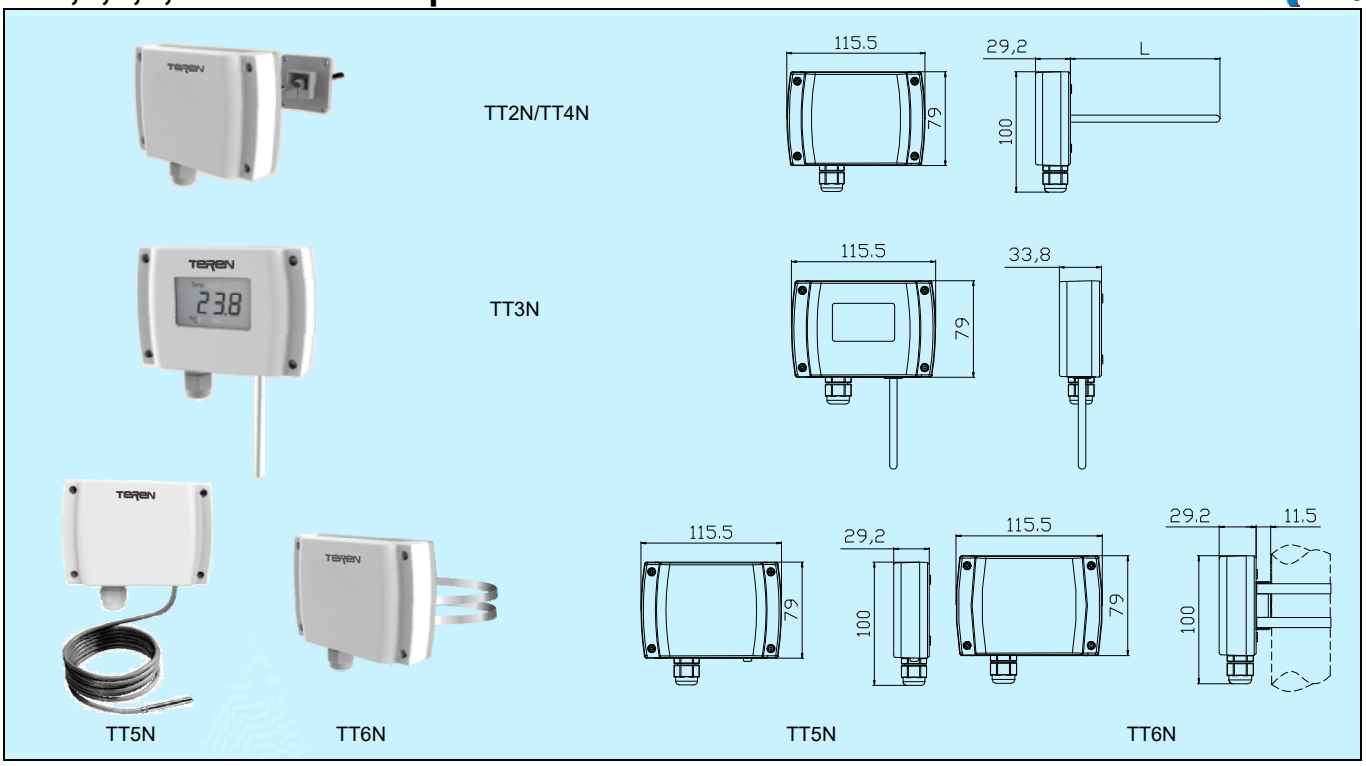
Model	T2/T2N			Duct mount temperature sensor
	T3N			Outside air temperature sensor
	T4/T4N			Immersion temperature sensor
	T5			Cable temperature sensor
	T6N			Strap-on temperature sensor
Thermistor or RTD		3		PT1000, ±0.2°C@25°C
		4		PT100, ±0.2°C@25°C
		5		NTC20K, ±0.2°C@25°C
		6		Ni 1000, ±0.5°C@25°C
		7		NTC10K-II, ±0.2°C@25°C
		9		NTC10K-III, ±0.3°C@25°C
		A		NTC10K-A, ±0.3°C@25°C
Length (T2/T2N/ T4/T4N)			0	75mm
			1	125mm
			2	200mm
			7	Others

1.See resistance table on page 1 of this catalog.
2.The standard cable of T5 is 1m. It can be ordered for other length of integer meters, such as T53-2, which means the cable length is 2 m.
3.T6N's accuracy depends on the material of pipe, installation and ambient temperature, air velocity, etc., may not meet the above accuracy.

T4/T4N/TT4N Install Well

Model	A-T		Stainless Steel Well
Probe Length		0	75mm
		1	125mm
		2	200mm

TT2,3,4,5,6N Series Temperature Sensor/Transmitter



Applications & Features

- TT2N applies for temperature measurement in duct
- TT3N applies for temperature measurement in indoor or outdoor air environment
- TT4N applies for water and steam pipe insertion measurement
- TT5N has very flexible applications for different mediums or installations
- TT6N applies for strap-on application on the surface of pipe and is non-contact measurement
- High performance & digital temp. sensor with accuracy up to 0.3°C and long-term stability
- Multiple outputs and LCD display selection, over voltage and reverse polarity protection, high reliability and anti-interference capability
- High protection rate up to IP65

Specifications

Sensor: Digital temperature sensor
Range: see models
Output: 4~20mA(2w), 0~10VDC, 0~5VDC, RS485/Modbus
Output Load: ≤500Ω (current), ≥3KΩ (voltage)
Accuracy: ≤±0.3°C @0~100°C, ≤±0.5°C @-30~0°C
(TT6N’s accuracy depends on the material of pipe, installation and ambient temperature, air velocity, etc, may not meet this accuracy)
Power: Current 24VDC±20%; Voltage 24VDC/24VAC±20%
Display: Optional LCD, resolution 0.1 °C, with unit
Work Temperature: -30~70°C, 0~95%RH (Non cond.)
Medium Temperature: -40~100°C
Storage Temperature: -30~70°C
Housing: fire retardant ABS (UL94V-0), SS probe (Φ6mm), SS Well
Cable (TT5N): Black, silicone, 2*0.3mm², 1m length, -55~150°C, $R_{conductor}$=0.069Ω/m, $R_{insulation}$ >100MΩ (25°C)
Protection: IP65
Weight: TT2N:245g; TT3N:355g; TT4N:445g; TT5N:345g; TT6N:390g
Approval: CE

Models

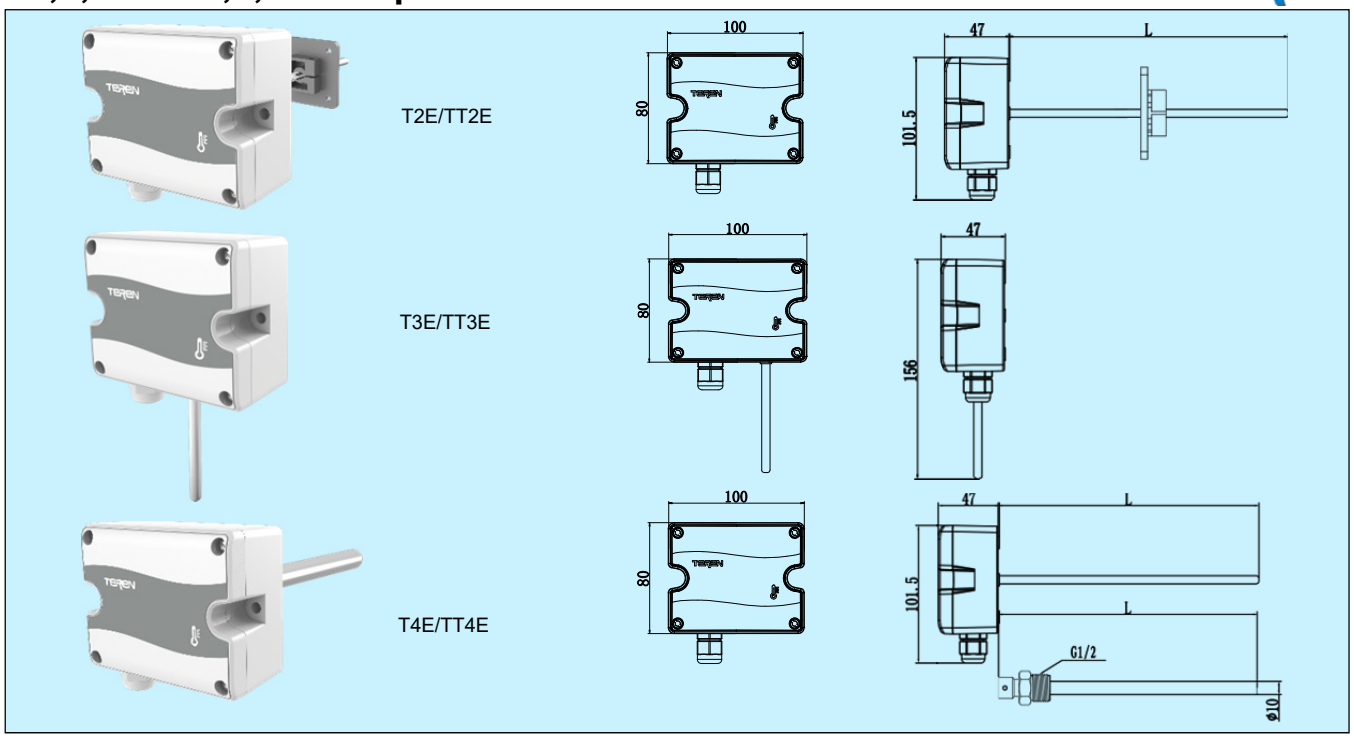
Model	TT2N TT3N TT4N TT5N TT6N				Duct mount temperature transmitter Outside air temperature transmitter Immersion temperature transmitter Remote temperature transmitter Strap-on temperature transmitter
Output		1 2 8 E			0~10V 4~20mA(2 wires) RS485/Modbus 0~5V
Range			1 2 3 7		0~50°C 0~100°C -40~60°C others
Display				0 1	N/A LCD
Probe Length (TT2/4N)				0 1 2 7	75mm 125mm 200mm Others

1. TT4N SS install well is the same as T4, A-T0/T1/T2.
2. The standard cable of TT5N is 1m. It can be ordered for other length of integer meters, such as TT5N11-2, which means the cable length is 2m.

Install Well(TT4N)

Model	A-T		Stainless Stell Well
Probe Length		0 1 2	75mm 125mm 200mm

T2,3,4E /TT2,3,4E Temperature Sensor/Transmitter



Applications & Features

- T2E, TT2E series duct temperature sensors/transmitters can be used for air temperature measurement in ducts of air conditioning and ventilation systems
- T3E, TT3E series outdoor temperature sensors/transmitters can be used for outdoor ambient temperature measurement
- T4E, TT4E series immersion temperature sensors/transmitters can be used for liquid temperature measurement, such as chilled or cooling water or various process water systems. And there are matching wells for different pipe sizes
- Multiple thermistors or RTD, current or voltage outputs selection, compatible with various automatic control systems
- Wide temperature range and fast response
- High protection rate up to IP65

Specifications

T2,3,4E series temperature sensor

Sensor: High accuracy thermistor or RTD, see models
Output: Thermistor or RTD, see models and resistance table
Accuracy: Typical 0.2~0.5°C@ 25°C, see models
Wiring: T2,3E: 2 wires, T4E: 2 or 3 wires

TT2,3,4E series temperature transmitter

Sensor: High accuracy digital temperature sensor
Range: See models
Output: 4~20mA (2 wires), 0~10V, 0~5V, RS485/Modbus
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Accuracy: ≤±0.3°C @0~100°C, ≤±0.5°C @-30~0°C
Power: 0-10V: 24VDC/24VAC±20%; 4-20mA: 24VDC±20%

Work Temp.: -30~70°C, 0~95%RH (Non condensing)
Storage Temperature: -30~70°C
Housing: Fire retardant ABS+PC(UL94V-0)
Protection: IP65
Weight: T2E:330g; T3E:220g; T4E:490g; TT2E:330g; TT3E:240; TT4E:510g
Approval: CE

Models

T2,3,4E temp. sensors

Model	T2E T3E T4E			Duct mount temperature sensor Outside air temperature sensor Immersion temperature sensor
Thermistor or RTD		3 4 5 6 7 9 A		PT1000, ±0.2°C @25°C PT100, ±0.2°C @25°C NTC20K, ±0.2°C @25°C Ni1000, ±0.5°C @25°C NTC10K-II, ±0.2°C @25°C NTC10K-III, ±0.3°C @25°C NTC10K-A, ±0.3°C @25°C
Probe Length (T2/4E)			0 1 2 7	75mm 125mm 200mm Others

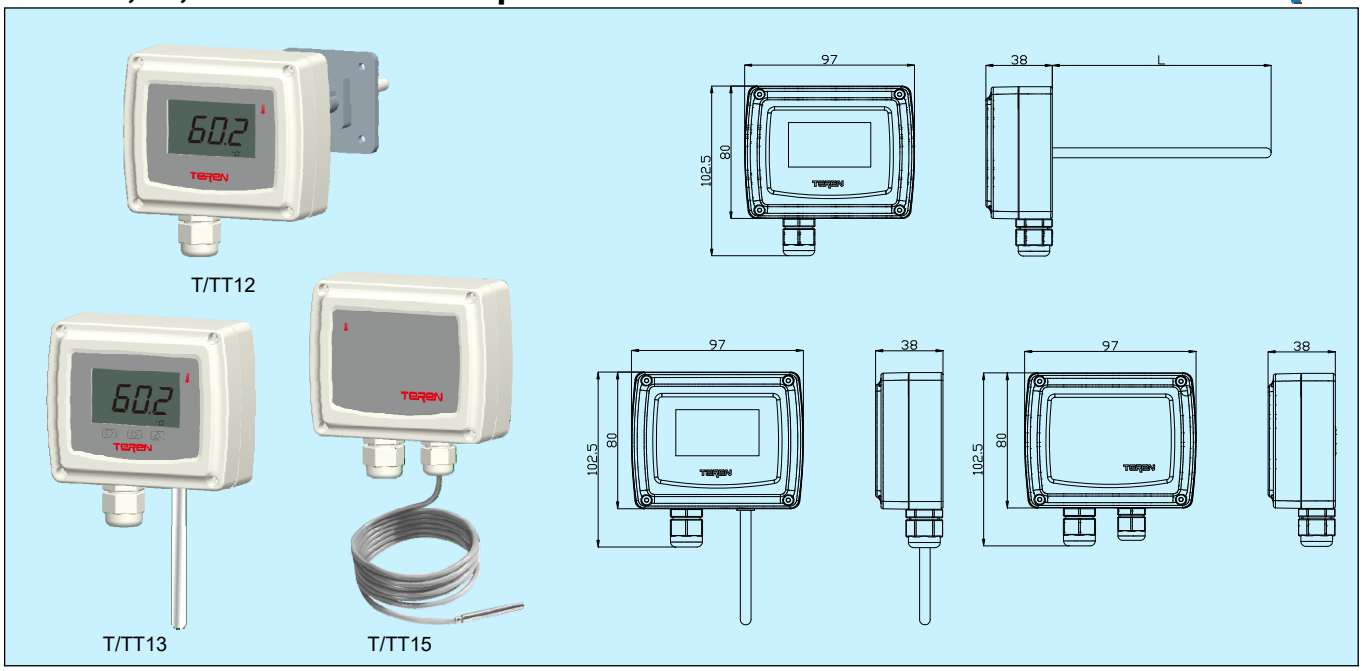
TT2,3,4E temp. transmitter

Model	TT2E TT3E TT4E				Duct mount temperature transmitter Outside air temperature transmitter Immersion temperature transmitter
Output		1 2 8 E			0~10VDC(3 wires) 4~20mA(2 wires) RS485/Modbus 0~5VDC
Range			1 2 3 7		0~50° C 0~100° C -40~60° C Others
Probe Length (TT2/4E)				0 1 2 7	75mm 125mm 200mm Others

Install Well (T4E/TT4E)

Model	A-T		Stainless Steel Well
Probe Length		0 1 2	75mm 125mm 200mm

T/TT12,13,15 Industrial Temperature Sensor/Transmitter/Controller



Applications & Features

- Apply for critical temperature measurement and control in clean rooms and various industrial applications
- Apply for various industrial applications including duct mount (T/TT12), wall mount(T/TT13), remote mount(T/TT15) or immersion mount with install well
- High accuracy temperature sensor and digital circuit with strong EMI capability which meets industrial EMI level 3
- 100% interchangeable sensor without re-calibration
- Wide working temperature range and fast response, multiple outputs selection,over voltage and reverse polarity protection
- Optional relay for alarm or ON/OFF control
- LCD & function keys can set parameters and calibrate output
- High protection rate up to IP65

Specifications

T12, T13, T15 Temperature sensor:
Sensor: passive PT100/1000(Class A)
Accuracy: PT100/1000,Class A,DIN EN60751,±0.2°C @25°C
Output: RTD, see models and resistance table
Work Temp.: -40~85°C, 0~95%RH (Non cond.)

TT12, TT13, TT15 Temperature transmitter/controller:
Sensor: high precision (Class AA) digital temperature sensor
Accuracy: ±0.15°C@-30~100°C, ±0.2°C@-40~150°C
Response time(T63): 5~10s (10~15s with install well)
Drift: ≤±0.03°C (300hours, 100°C)
Output: 4~20mA (2 wires), 0~5/10VDC, RS485/Modbus, relay
Range: Select, see Models
Transmitter output accuracy: linear accuracy ± 0.1% FS
Transmitter output temperature coefficient: ±0.01%FS/°C
Output Load: ≤500Ω(current), ≤5mA(voltage)
Relay: 1xSPST, 0.5A/30VDC(N/A for 4~20mA output)
Communication: RS485/Modbus, R/W enable, 9600 bps, terminal resistance settable
Display and Keys: Optional large LCD, resolution 0.1 °C (or °F, switchable), 47x27mm, figure H 16mm, with unit, backlight (N/A for 4~20mA output) and 3 touch buttons,
Power: current 18.5~35VDC(R_L=500Ω),8.5~35VDC(R_L=0Ω) voltage 16~28VAC/16~35VDC; power consumptio n 1VA

Work Temp.: -40~85°C (LCD: -20~70°C), 0~95%RH (Non cond.)
Storage Temperature: -40~85°C (LCD: -30~85°C)
Medium Temperature: -40~100°C(-40~150°C, remote mount)
Housing: fire retardant PC(UL94V-0), SS probe (Φ6mm)
Cable(T/TT15): white, silicone, 4x0.2mm², 2m length, -60~180C, R_{con}=0.069Ω/m, R_{ins} >100MΩ(25°C)
Protection: IP65(IP68 for T/TT15's probe,1m water depth)
Weight: T12/T15: 285g; T13: 200g; TT12: 325g
TT13: 225g; TT15: 310g
Approval: CE, meet EN61326-1 for industrial equipment

Models

T12, T13, T15 Temperature sensor

Model	T12 T13 T15			Duct mount temp. sensor Wall mount temp. sensor Remote mount temp. sensor
RTD		3 4		Pt1000 Class A DIN EN60751, TC:3850ppm/°C Pt100 Class A DIN EN60751, TC:3850ppm/°C
Probe Length (T12)			0 1 2 7	75mm 125mm 200mm Others

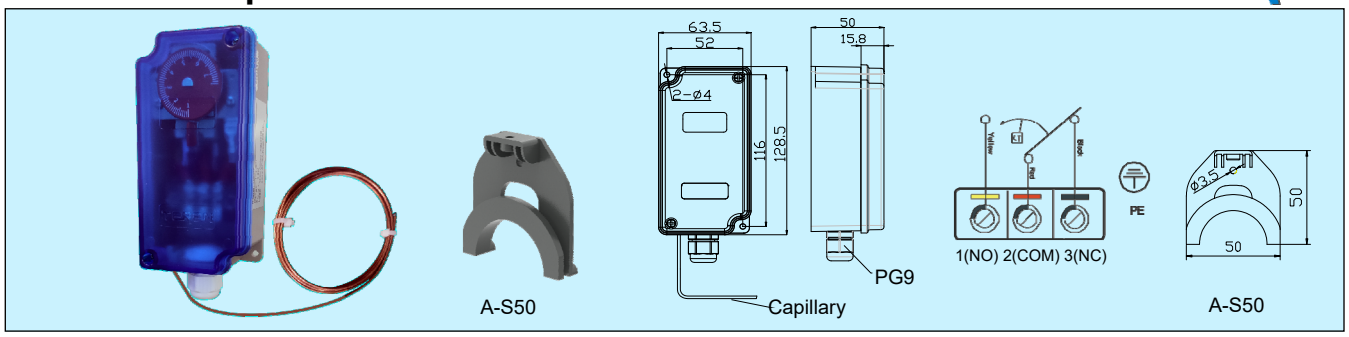
TT12, TT13, TT15 Temperature transmitter/controller

Model	TT12 TT13 TT15						Duct mount temp. transmitter Wall mount temp. transmitter Remote mount temp. transmitter
Output		1 2 E 8					0~10VDC 4~20mA (2 wires) 0~5VDC RS485/Modbus RTU
Range			0 1 2 3				0~50°C 0~100°C 50~150°C -40~60°C
Relay				0 1			N/A 1xSPST (need LCD and keys)
LCD& Keys					0 1 2		N/A LCD (N/A for 4~20mA output) LCD and touch buttons
Probe Length (TT12)						0 1 2 7	75mm 125mm 200mm Others

Install Well (T12/TT12)

Model	A-T		Stainless Steel Well
Probe Length		0 1 2	75mm 125mm 200mm

TCL Low Temperature Controller



Applications & Features

- It has a long sensing capillary filled with vapor. When any part of the component is below the temperature set point, the contact will actuate
- TCL-xA can set the temperature range of 0~7°C, and TCL-xA-W is -14~12°C. Both have different lengths to meet various applications
- It is applicable to cold water coil or other surface temperature alarm for liquid pipe or air in duct
- Contact actuates at the set point and can reset automatically
- Readable scale, easy to operate the set point

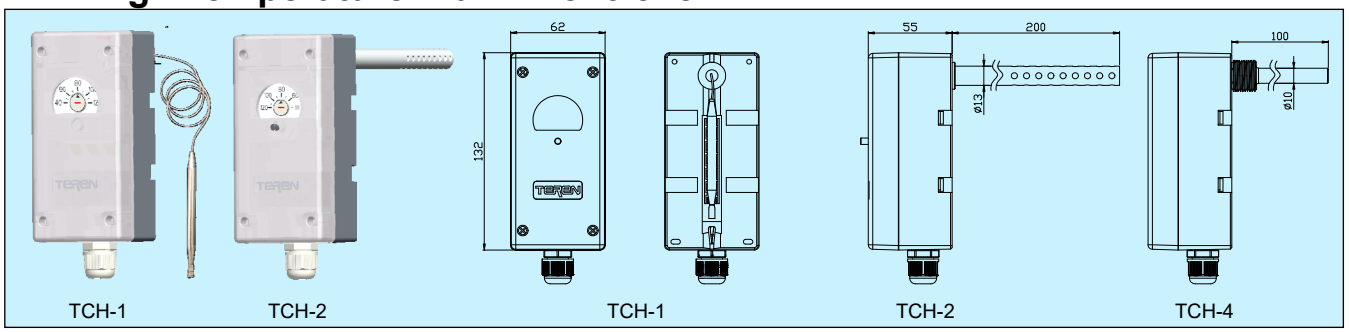
Specifications

Sensing element: copper capillary, Φ2mm, 1.5/3/6m long
Models and parameters: See Models
Controller working environment: -10~70°C, <95%RH, non cond.
Sensing element operating temp. limits: -30~80°C
Accuracy: typical ±2°C
Switch output: SPDT, with temperature decreasing open
Contact load: no inductive 250V/5A, inductive 250VAC/4A
Contact life: ≥ 10^5
Electrical connection: screw terminalx3, 1.5mm² wire, PG9
Electric strength: AC1500V/1min (AC1800V/1s)
Insulation: ≥100MΩ in normal status, ≥10MΩ in moisture status
Housing: cover fire retardant PC(UL94V-0), body fire retardant ABS(UL94V-0)
Protection: IP54
Weight: 1.5m:305g; 3m:335g; 6m:395g
Approval: CE
Accessory: capillary mounting clips, model A-S50-4(4 pcs) and A-S50-8(8 pcs), need to be ordered separately.

Models

Model	Capillary Length	Temp. Range °C	Dead Band °C
TCL-1A	1.5m	0~7	2~4
TCL-3A	3m	0~7	2~4
TCL-6A	6m	0~7	2~4
TCL-1A-W	1.5m	-14~12	2~5
TCL-3A-W	3m	-14~12	2~5
TCL-6A-W	6m	-14~12	2~5

TCH High Temperature Alarm/Controller



Applications & Features

- TCH high temperature controller can close the fan, heater, or provide alarm signal when temperature reaches the set point. TCH-1 is universal type with the sensing bulb to be strapped on the measured surface. TCH-2 has a standard probe for duct mount. TCH-4 has a probe which can be inserted into the pipeline with a well to measure the fluid temperature
- Use stainless steel capillary and temperature bulb, supply accurate temperature measurement
- Optional automatic reset or manual reset
- The set/alarm point can be easily adjusted with scale

Specifications

Sensitive element: stainless steel capillary with total length 700mm, including sensing bulb Φ6mm with length 75~80mm
Working environment: Probe & Bulb: -10~120°C, <95%RH, Housing: -10~100°C, non cond.

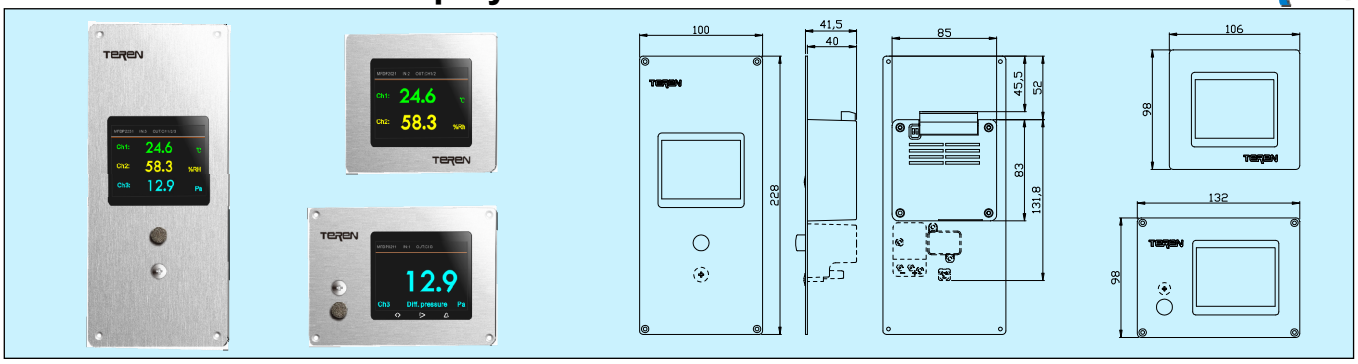
	Automatic Reset	Manual Reset
Accuracy	Typical ±5°C	Typical ±8°C
Dead band	Typical 2~6°C	Typical 10~20°C
Switch output	SPDT	SPST
Connection	Screw terminal×3	Screw terminal×2

Adjustable set point range: Automatic Reset: 40~120°C; Manual Reset: 50~120°C
Contact load: 250VAC/5A (inductive load 4A)
Contact life: ≥10^5 times
Electrical rate: AC1500V/1min
Insulation: ≥100MΩ in normal status, ≥10MΩ in moisture status
Housing: fire retardant PC (UL94V-0)
Probe: TCH-2: 200mm stainless steel tube; TCH-4: 100mm stainless steel probe with well
Protection: IP54 (automatic reset), IP43 (manual reset)
Weight: TCH-1: 360g; TCH-2: 515g; TCH-4: 510g
Approvals: CE

Models

Model	TCH-1		Universal high temp. alarm/controller
	TCH-2		Duct mount high temp. alarm/controller
	TCH-4		Immersion high temp. alarm/controller
Automatic or Manual reset		A	Automatic reset
		M	Manual reset

MFDP Multi-function Display Unit/Transmitter



Applications & Features

- Apply for flush mount, measure and display environment temperature, humidity and diff. pressure
- 316L front panel, PMMA window, flat surface, no dust stays, good for all detergents, sanitizers and bactericides
- Parallel or alternatively display input channels 1 to 3
- Large high light 3.2" color TFT LCD display
- Multiple inputs and outputs for different applications
- High accuracy sensor, 100% field changeable
- Optional 3 analog 4~20mA/0~10V inputs signals
- Optional 3 analog 0~10V outputs signals
- Optional RS485/Modbus RTU and key functions
- Compatible to any DDC/PLC/SCADA or other data collect and control systems
- Very high performance/price ratio: replace the single T/RH/DP instruments, provide value added multi-function combination of local measurement, display and networking

Specifications

Display

Display: high light 3.2" color TFT LCD, resolution 320×240
Display panel material: PMMA
Resolution: ±0.1 engineering unit
Channels: 1~3 channels, parallel (simultaneously) or single line (alternate) display
Engineering unit: 3 preset units, °C/°F, %RH and Pa
Update time: <1s

Housing

Front panel material: 316L stainless steel, 1.5mm thick
Back housing parts: fire retardant ABS+PC(UL94V-0)
Protection: front panel IP65 (built-in temp. & humidity sensor cap IP54)
Weight: MINI: about 380g; Horizontal: about 450g; Vertical: about 650g

Technical Specifications

Power Supply: 16~28VAC/16~35VDC
Consumption: 0.5VA
Built-in sensor:

	Temperature	Relative humidity	Diff. pressure
Range	0~50°C	0~100%RH	0~60Pa
Accuracy	0.4°C (@15~40°C)	3%(@25°C,20~80%RH	1% or 0.5%FS
Nonlinear	/	<0.1%RH	/
Repeatability	±0.1°C	±0.1%RH	/
Hysteresis	/	±1.0%RH	/
Long term drift	<0.02°C/Year	<0.25%RH/Year	<0.5%FS/Year
Response time	<90s (in slow air)	<40s (25°C, in slow air)	0.5~30s
Temp drift	/	/	<0.05%FS/°C(zero) <0.08%FS/°C(span)
Temp. comp.	/	/	0~50°C
Medium Temp.	/	/	0~60°C
Work Temp.			10xFS (over load) 15xFS (burst)

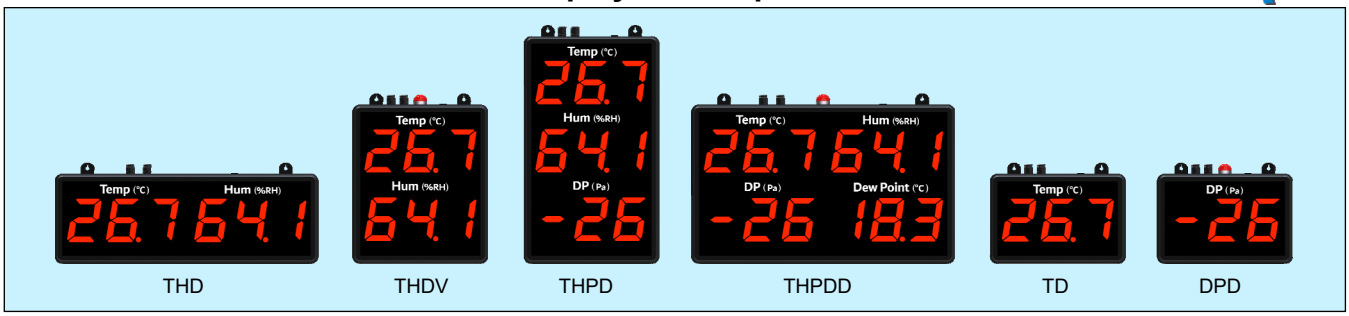
Analog inputs: max. 3×(4~20mA/0~10V); over voltage and reverse polarity protection; accuracy<0.1%FS; R_L<250Ω(4~20mA) or>100KΩ(0~10V); range: default 0~50°C/0~100%RH/0~60Pa, available range -50~100°C/0~100%RH/-100~100Pa
Analog outputs: max. 3×(0~10V); over voltage and reverse polarity protection; accuracy as low as 0.2%FS; R_L>2KΩ; range: same as analog inputs
Keys: set/reset alarm, DP re-zero, calibration, set display mode, etc.
Communication: 1 USB for parameter checking and setting, 1 RS485/Modbus RTU, R/W enable, 9600 baud rate
Terminals: max 1.5mm^2
Work Environment: 0~50°C, 0~95%RH (no cond.)
Storage Environment: -10~70°C
Process connection: Built-in T/RH sensor: a waterproof, air breathable filter and sensing cap on front panel. Built-in diff. pressure sensor: 2 conical nozzles, Ø 5 mm tube connection on back, or 1 pressure sampling screw on front panel.
Approval: CE

Models

Model	MFDP								Multi-function Display Unit
Temp. Hum. Input		0							N/A
		1							Analog signals (2 channels)
		2							Built-in T/Rh sensor
		8							RS485-Modbus RTU
Diff. Press. Input			0						N/A
			1						Analog signal (1 channel)
			2						Built-in DP sensor, accu. 1%
			3						Built-in DP sensor, accu. 0.5%
			8						RS485-Modbus RTU
Output				0					N/A
				1					0~10Vx1 (diff. pressure)
				2					0~10Vx2 (T/Rh)
				3					0~10Vx3 (T/Rh+DP)
				8					RS485-Modbus RTU
Keys					0				N/A
					1				3 keys
Panel Port						0			N/A
						1			1 pressure sampling screw on
Panel Type							M		MINI type
							H		Horizontal type
							V		Vertical type
Screw Hole								0	N/A
								1	4 holes at corner with SS screw

1.When selecting RS485, only the selected channel has the corresponding function, and the other channels do not have.
2.When the built-in temperature/humidity sensor is selected, the front panel has a corresponding sampling cap.
3.The total number of output channels should NOT be more than input.
4.MINI model does not have any built-in sensors and cannot have diff. pressure port on front panel.

THD/THDV/THPD/THPDD/DPD/TD Display for Temp/Hum/DP/Dew Point



Applications & Features

- Temp./hum.: for applications in hospital, factory, library, museum, lab and warehouse, etc.
- Differential pressure: for applications in clean room, lab, pharmaceutical plant, operating room, infectious ward, isolation room, etc.
- Dew point: good for applications in clean room, lab, pharmaceutical plant, electrical plant, etc.
- High accuracy digital sensor, field changeable without any re-calibration
- Large, high light LED display
- Multiple inputs and outputs selection
- Multiple light & up-to-date enclosures selection
- Single point temperature, humidity, DP or dew point measurement and display
- Multiple points temperature, humidity, DP or dew point measurement, display, and networking
- Standard signal input can be compatible with other parameter's display
- Built-in buzzer. Relay or alarm light optional
- Compatible to DDC and PLC systems
- Can be ordered as any 1-4 parameters' display

Models

Model	THD				Temp/Hum Display Screen(Horizontal)
	THDV				Temp/Hum Display Screen(Vertical)
	THPD				Temp/Hum/DP Display Screen
	THPDD				Temp/Hum/DP/Dew Point Display Screen
	TD				Temperature Display Screen
	DPD				Differential Pressure Display Screen
Input		0			Remote sensor, 1.5m cable*
		1			0-10V/4-20mA input, without sensor
		8			RS485/Modbus RTU input, without sensor
Output			0		without any output
			1		0-10V/4-20mA**
			8		RS485, Modbus RTU
			B		0-10V/4-20mA**, RS485/Modbus RTU
Relay/ Alarm				0	N/A
				1	1xSPDT, 3A/30VDC
				2	Red alarm light

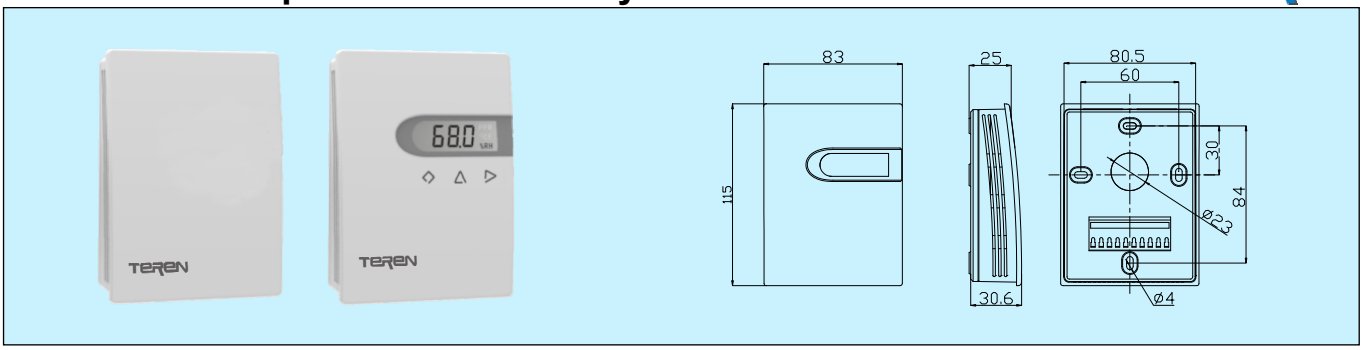
*Remote sensor models: temperature TD-S, temperature and humidity THD-S, differential pressure DPT120, dew point DP-S.
**All products are factory set to 4-20mA as output default, can be ordered as 0-10V.

Specifications

	THD/THDV	THPD	THPDD	TD	DPD
Application	Hospital, clean room, library, museum, lab, pharmaceutical plant, electrical plant, infectious ward, isolation room, etc.				
General Function	Single point or multiple points network data measurement and display				
Work Condition	-10~60°C, 20~90%RH(Non-cond.)				
Power	85~265VAC				
Consumption	<15W	<20W	<25W	<10W	<10W
Display*	3 bits 4 inches red LED (can be ordered for 4 bits display)				
Display Resolution**	0.1°C,0.1%RH	0.1°C,0.1%RH,0.1Pa	0.1°C,0.1%RH,0.1Pa, 0.1°C	0.1°C(-19.9~99.9°C)	0.1Pa(-19.9~99.9Pa)
Display Range**	0~50.0°C,0~99.9%RH	0~50.0°C, 0~99.9%RH, 0~99.9Pa	0~50.0°C, 0~99.9%RH, 0~99.9Pa, -60~60°C	-20~70.0°C	-60~60.0Pa
Display Accuracy (with matched sensors)	<±0.4°C@5~50°C <3%RH@20~85%RH,25°C	<±0.4°C@5~50°C <±3%RH@20~85%RH,25°C <±1Pa @0~99.9Pa,25°C	<±0.4°C@5~50°C <3%RH@20~85%RH,25°C <±1Pa @0~99.9Pa,25°C <±2°C@-60~60°C	<±0.2°C@-20~70°C	<±1Pa @-60~60.0Pa,25°C
Display Accuracy	1%FS (with external standard inputs)				
Standard Input	2x0~10V/4~20mA	3x0~10V/4~20mA	4x0~10V/4~20mA	1x0~10V/4~20mA	1x0~10V/4~20mA
Standard Output	2x0~10V/4~20mA	3x0~10V/4~20mA	4x0~10V/4~20mA	1x0~10V/4~20mA	1x0~10V/4~20mA
Communication	RS485/Modbus RTU, 9600-n-8-1, support read/output and write/input parameters				
Dimension(mm)	THD: W617xH210xD50 THDV: W317xH372xD50	W317xH533xD50	W617xH372xD50	W317xH210xD50	W317xH210xD50
Weight	3.5kg	4.6kg	5.9kg	2.4kg	2.4kg
Material	Dull black color aluminum alloy frame, PMMA panel				
Protection	IP30				
Installation	Wall mount or suspend from ceiling				
Buttons & Functions	Three buttons with parameters calibration, buzzer/relay/alarm light parameters set, RS485 address set, input signals and ranges set, output ranges set, LED inspection, restore default set, etc.				

*The standard display is 3 bits LED. If order the 4 bits instead, the display mode may be complex with ordered software which may cost more.
**The display ranges are for models with matched sensors, and the display is 3 bits. If the external input signal (0-10V/4-20mA/RS485) is selected, the ranges will correspond to the input ranges.

H1N Room Temperature & Humidity Transmitter



Applications & Features

- Apply for indoor air T/RH measurement with good performance digital sensor & circuit. The sensor is 100% field changeable without re-calibration
- Good long-term stability, reliability and fast response
- State of art housing. All electrical terminals are on the inside bottom, avoid any possible destruction to PCB when wiring
- Multiple outputs optional, over voltage and reverse polarity protection, and good anti-interference capability
- LCD & function keys can set parameters and calibrate output, so the product can be a stand alone controller

Specifications

Relative Humidity

Sensor: Digital polymer
Range: 0~100%RH
Output: 4~20mA(2w), 0~10VDC(3w), RS485/Modbus
Accuracy: @25°C, 24VDC
2%: 20~85%: ±2%; 0~95%: ±3%
3%: 20~85%: ±3%; 0~95%: ±4%
4%: 20~85%: ±4%; 0~95%: ±5%
Hysteresis: <±1%RH
Response time: <10s (25°C, in slow air)
Drift: <±0.5%RH/year

Temperature

Sensor: Digital, RTD or thermistor, see Models
Range: 0~50°C,etc.
Output: see Models
Accuracy: transmitter: <±0.2~0.4°C@25°C, 24VDC, see Models
RTD: <±0.2~0.5°C @ 25°C, see Models

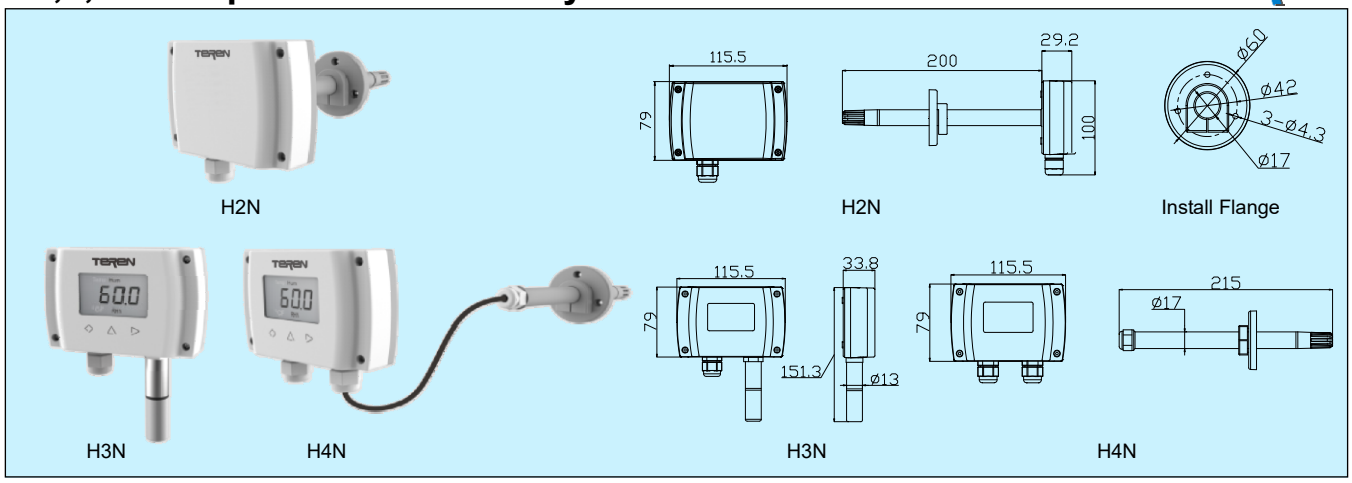
Power: Current: 24VDC±20%
Voltage: 24VDC/24VAC±20%
Output Load: ≤500Ω (current), ≥3KΩ (voltage)
Relay output: 2xSPST, 0.5A/30VDC
Display and Keys: 4 bits LCD, with unit indication, backlight (4-20mA N/A), 3 keys, see details on LCD & Keys operation
Display Resolution: 0.1°C, 0.1%RH
Work Environment: -20~70°C, 5~95%RH (Non cond.)
Housing: fire retardant PC(UL94V-0)
Protection: IP30
Weight: 110g
Approval: CE

Models

Model	H1N							Room T/RH transmitter
RH Accuracy		2 3 4						±2%RH (0.2°C) ±3%RH (0.3°C) ±4%RH (0.4°C)
RH Output			1 2 8					0~10VDC (3 wires) 4~20mA (2 wires) RS485/Modbus
Temp. Output				0 1 2 3 4 5 6 7 8 9 A				No 0~10VDC (3 wires) 4~20mA (2 wires) PT1000, ±0.2°C@25°C PT100, ±0.2°C@25°C NTC20K, ±0.2°C@25°C Ni 1000, ±0.5°C@25°C NTC10K-II, 0.2°C@25°C RS485/Modbus NTC10K-III, 0.3°C@25°C NTC10K-A, 0.3°C@25°C
Temp. Range					0 1 7			No 0~50°C others
Relay						0 1		No 2xSPST(4-20mA N/A)
LCD& Keys							0 1 2	No LCD LCD & Keys

1.Current output products are powered on RH circuit, so RH circuit must be powered.
2. When temp. output is 1 or 2, the range 1-7 is applicable. Otherwise, always use 0.
3. See resistance table on page 1 of this catalog.

H2,3,4N Temperature & Humidity Transmitter



Applications & Features

- Humidity and temperature transmitters H2N(duct), H3N (outside) and H4N (remote) are designed for environment monitoring and controlling in industrial and commercial buildings
- High performance digital sensors and circuits, ensure accurate measurement and temperature compensation
- Digital technology applied, multiple outputs optional, over voltage and reverse polarity protection, high reliability and anti-interference capability
- LCD display temperature and humidity alternatively
- LCD & function keys can set parameters and calibrate output, so the product can be a stand alone controller
- Good long-term stability and reliability
- 100% field changeable sensor without re-calibration
- Fast response
- High protection rate up to IP65

Specifications

Relative Humidity

Sensor: Digital polymer
Range: 0~100%RH
Output: 4~20mA(2w), 0~10VDC(3w), RS485/Modbus
Accuracy: @25°C, 24VDC
2%: 20~85%: ±2%; 0~95%: ±3%
3%: 20~85%: ±3%; 0~95%: ±4%
4%: 20~85%: ±4%; 0~95%: ±5%
Hysteresis: <±1%RH
Response time: <10s (25°C, in slow air)
Drift: <±0.5%RH/year

Temperature

Sensor: Digital, RTD or thermistor, see Models
Range: see models
Output: see Models
Accuracy: transmitter: <±0.2~0.4°C@25°C, 24VDC
RTD: <±0.2~0.5°C@25°C, see Models

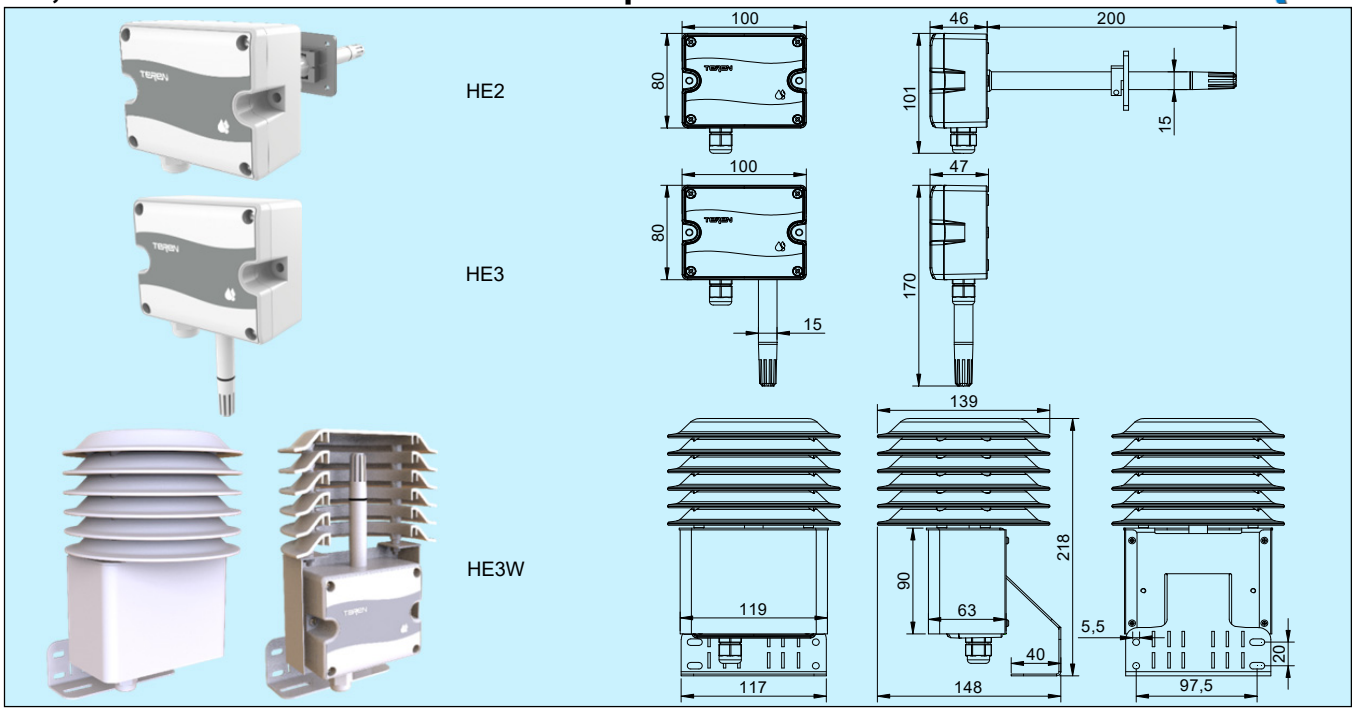
Power: Current: 24VDC±20%, Voltage: 24VDC/AC±20%
Output Load: ≤500Ω (current), ≥3KΩ (voltage)
Relay output: 2xSPST, 0.5A/30VDC
Display and Keys: 4 bits LCD with unit indication, backlight (4-20mA N/A), 3 keys, see details on LCD & Keys operation
Work Environment: -20~70°C, 5~95%RH (Non cond.)
Housing: fire retardant ABS(UL94V-0), UHMW-PE filter (H2/H4N), SS probe and sintered filter (H3N)
Protection: IP65
Weight: H2N:360g; H3N:270g; H4N:430g
Approval: CE

Models

Model	H2N H3N H4N							Duct mount T/RH transmitter Outside air T/RH transmitter Remote mount T/ RH transmitter
RH Accu.		2 3 4						±2%RH (0.2°C) ±3%RH (0.3°C) ±4%RH (0.4°C)
RH Output			1 2 8					0~10VDC (3 wires) 4~20mA (2 wires) RS485/Modbus
Temp. Output				0 1 2 3 4 5 6 7 8 9 A				No 0~10VDC (3 wires) 4~20mA (2 wires) PT1000, ±0.2°C@25°C PT100, ±0.2°C@25°C NTC20K, ±0.2°C@25°C Ni 1000, ±0.5°C@25°C NTC10K-II, 0.2°C@25°C RS485/Modbus NTC10K-III,0.3°C@25°C NTC10K-A, 0.3°C@25°C
Temp. Range					0 1 2 3 7			No 0~50°C 0~100°C -40~60°C others
Relay						0 1		No 2xSPST(4-20mA N/A)
LCD & Keys							0 1 2	No LCD LCD & Keys

1. H2,3,4N series current products are powered by RH circuit, so the RH circuit must be powered. Otherwise, it could not work.
2. Only when the temperature output is 1 or 2, the temperature range 1-7 is applicable. Otherwise, always use 0 as temperature range selection.
3. See resistance table on page 1 of this catalog.

H2,3E T & RH Transmitter/Weather proof T & RH Transmitter



Applications & Features

- H2E duct T/RH transmitter can be used for temp. and humidity measurement in duct air
- H3E wall mount T/RH transmitter can be used for temp. and humidity measurement in indoor or outdoor environments
- H3EW is equipped with a weather shield to protect the H3E transmitter with rain, dust, and sunshine, which is good for critical environments or long-term outdoor applications
- Multiple thermistor & RTD and current, voltage outputs selection, compatible with various automatic control systems
- Wide measurement range, multiple ranges, fast response
- High protection rate up to IP65

Specifications

Relative Humidity

Sensor: Digital polymer
Range: 0~100%RH
Output: 4~20mA (2w), 0~10VDC(3w), RS485/Modbus
Accuracy: @25°C, 24VDC, 20~85%: ±2%; 0~95%: ±3%
20~85%: ±3%; 0~95%: ±4%
20~85%: ±4%; 0~95%: ±5%
Hysteresis: <±1%RH
Response time: <10s (25°C, in slow air)
Drift: <±0.5%RH/year

Temperature

Sensor: Digital, RTD or thermistor, see models
Range: 0~50°C, 0~100°C, -40~60°C
Output: 4~20mA (2w), 0~10VDC (3w), RS485/Modbus or RTD/thermistor, see Models
Accuracy: Transmitter: ±0.2~0.4°C@25°C, 24VDC
RTD/thermistor: ±0.2~0.5°C@25°C, see Models

Power: 0-10V: 24VDC/24VAC±20%; 4-20mA: 24VDC±20%
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Temp. Limit: -20~70°C, 0~95%RH (Non cond.)
Storage Temperature: -30~70°C
Housing: fire retardant ABS+PC(UL94V-0)
Protection: IP65
Weight: H2E:340g; H3E:240g; H3EW: 900g (with WS-6)
Approval: CE

Models

Model	H2E H3E H3EW					Duct mount T/RH transmitter Wall mount T/RH transmitter Weather proof T/RH transmitter
RH Accu.		2 3 4				±2%RH(0.2°C) ±3%RH(0.3°C) ±4%RH(0.4°C)
RH Output			1 2 8			0~10VDC(3 wires) 4~20mA(2 wires) RS485/Modbus
Temp. Output				0 1 2 3 4 5 6 7 8 9 A		No 0~10VDC(3 wires) 4~20mA(2 wires) PT1000, ±0.2°C@25°C PT100, ±0.2°C@25°C NTC20K, ±0.2°C@25°C Ni 1000, ±0.5°C@25°C NTC10K-II, ±0.2°C@25°C RS485/Modbus NTC10K-III, ±0.3°C@25°C NTC10K-A, ±0.3°C@25°C
Temp. Range					0 1 2 3	No 0~50°C 0~100°C -40~60°C

1. When temp. output is 1 or 2, it must be consistent with humidity output.
2. Only when the temperature output is 1 or 2, the temperature range 1-3 is applicable. Otherwise, always use 0 as temperature range selection.
3. HE3W is equipped with WS-6 weather shield.

Weather shield (can be ordered separately)

Application: Protect the inside product from solar radiation, dust, rain, etc., with natural ventilation, shorten response time and ensure accurate measurement under long-term outdoor conditions
Model: WS-6: 6 layers/740g/218mm
WS-8: 8 layers/835g/247mm
WS-10: 10 layers/930g/277mm, with standard bracket
Material: Anti-radiation shield: flame retardant, anti-ultraviolet, anti-oxidation PC+ABS(UL94V-0); Mounting bracket: anti-rust and anti-corrosion paint galvanized sheet
Installation: surface installation on vertical wall or flat roof, or bundled on round column

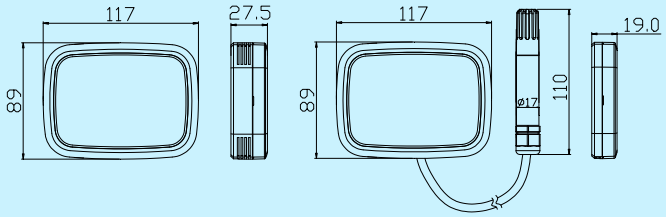
HT Large LCD Temperature & Humidity Transmitter



HT1



HT5(Ultra-Thin Housing)



Applications & features

- HT1 is for room application, HT5 has a separate probe with Ultra-thin fashion enclosure (only 19 mm)
- State of art design with large LCD(101x73mm), good for temp.& humidity display, measurement and transmission applications, like airport, station, museum, archive, commercial center, lab, factory, clean room, hospital, etc.
- High-performance digital sensors and circuits to ensure accurate measurement and compensation. HT5 can change probes without re-calibration
- Good long-term stability, fast response
- The terminal blocks are on the back of the housing to protect the circuit board from possible damage during wiring
- Power and output have over voltage and reverse polarity protection, with high reliability, good anti-interference ability

Technical specifications

Sensor: Digital temperature/humidity sensor
Relative humidity:
Range:0~100%RH
Output:4~20mA (2 wires), 0~10VDC, RS485/Modbus
Accuracy:3%RH@25°C, 20~85%RH
Hysteresis:<±1%RH
Response time:<10s (25°C, slow air flow)
Drift:<±0.5% RH/year
Temperature:
Range:0~50°C
Output:4~20mA (2w), 0~10VDC, RS485/Modbus
Accuracy:0.4°C@0~50°C
Communication:RS485/Modbus RTU, / 9600 baud rate; can be set termination resistor
Display: Large LCD digital display (101x73mm)
Display resolution: 0.1°C (or °F), 0.1%RH
Display refresh time: <1 second
Power: Voltage type 16~28VAC/16~35VDC,
Current 18.5~35VDC (RL=500Ω), 8.5~35VDC (RL=0Ω)
Output load: ≤500Ω (current type), ≥2KΩ (voltage type)
Working environment: -10~60°C, 0~95%RH (non-cond.)
Housing Material: Flame retardant PC housing and probe, UL94V-0
Protection: IP30, probe IP65 (except filter)
Weight: HT1:270g; HT5:390g (with 2m cable)
Approval: CE, meet EN61326-1 for industrial equipment

Models

Model	HT1		Room temp. and hum. display/transmitter
	HT5		Remote temp. & humidity display/transmitter
output		1	2x0~10VDC (3 wires)
		2	2x4~20mA (2 wires)
		8	RS485/Modbus

HT5 has standard cable of 2m. If need more, add suffix -xx, which is the length. 5m or 10m is available, such as HT5x-10, means the cable is 10m.

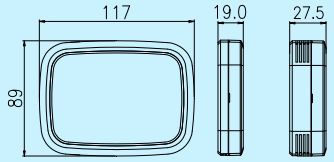
HD Large LCD Temperature & Humidity Display



HD (Ultra-Thin Housing)

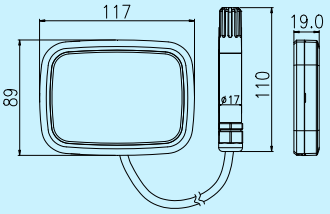
HDP-E

HDP5-E (Ultra-Thin Housing)



HD (Ultra-Thin Housing)

HDP-E



HDP5-E (Ultra-Thin Housing)

Applications & features

- This HD series is designed for applications that require measurement and display only
- State of art enclosure with large LCD (101x73mm), good for home, office, museum, theater, business center, archive, laboratory, hospital, warehouse, workshop, clean room, etc.
- HD is for room application with battery power, can be wall mount or on table. Ultra-thin fashion enclosure (only 19 mm). HDP(battery power) and HDP-E(external power) are high-precision indoor integrated products. HDP5(battery power) and HDP5-E(external power) are remote mount with ultra-thin housings and separated probe
- High-performance digital sensors & circuits for very good measurement accuracy up to 2%RH/0.3°C
- Good long-term stability and fast response

Specifications

Sensor: Digital temperature and humidity sensor
Working range: -40~85°C, 0~100%RH
Display: Large LCD digital display (screen size 101x73mm)
Display resolution:0.1°C (or °F), 0.1%RH
Display refresh time: <1 second
Power: 16~28VAC/16~35VDC or battery(AAAx2), see models
Working environment: -10~60°C, 0~95%RH (non-cond.)
Accuracy:

Model	Temperature	Humidity
HD	0.5°C(0~50°C)	5%RH(25°C，20~85%RH)
HDP	0.4°C(0~50°C)	3%RH(25°C，20~85%RH)
HDP-E	0.4°C(0~50°C)	3%RH(25°C，20~85%RH)
HDP5	0.3°C(0~50°C)	2%RH(25°C，20~85%RH)
HDP5-E	0.3°C(0~50°C)	2%RH(25°C，20~85%RH)

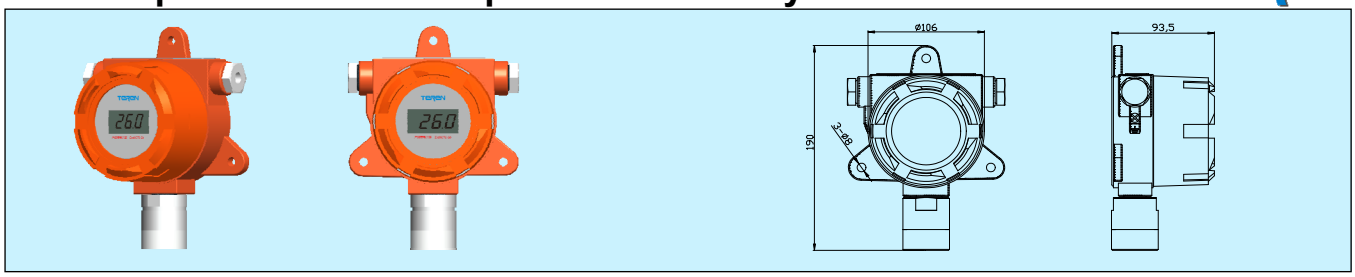
Storage and transportation temperature: -20~70 °C
Housing Material: Flame retardant PC housing and probe, UL94V-0
Protection: IP30, probe IP65 (except filter)
Approval: CE

Models

Model	HD	T/RH display, ultra-thin, ordinary accuracy, battery
	HDP	T/RH display, high accuracy, battery
	HDP-E	T/RH display, high accuracy, power
	HDP5	Remote T/RH display, ultra-thin, high accuracy, battery
	HDP5-E	Remote T/RH display, ultra-thin, high accuracy, power

HDP5 and HDP5-E has standard cable of 2m. If need more, add suffix -xx, which is the length. 5m or 10m is available, such as HDP5-10, means the cable is 10m.

H3Ex Explosion-Proof Temperature/Humidity Transmitter



Applications & Features

- T/RH measurement in harsh and combustible, explosive or toxic areas. Moisture and corrosion resistant, IP66
- Industrial die cast aluminum housing, with the sensor placed in the separated metal chamber, ensure electrically isolated. The sensor assembly is easy to maintain or replace
- High-performance temperature/humidity sensor and circuit, accurate measurement and compensation, high accuracy, fast response, good long-term stability
- Meet Explosion Proof standards GB 3836.1-2010 and GB 3836.2-2010 with certificate Exd II CT6Gb. Suitable for Zone 1 & 2 hazardous areas where there are explosive mixtures of IIA, IIB, IIC, T1-T6 combustible gas, vapor and air

Specifications

Sensor: High precision digital sensor
Power: 18.5~35VDC
Output: 2x4~20mA (3 wires), RS485/Modbus
Range: 0~100%RH/0~50(default)/100/-20~80/-40~60°C selected by switch

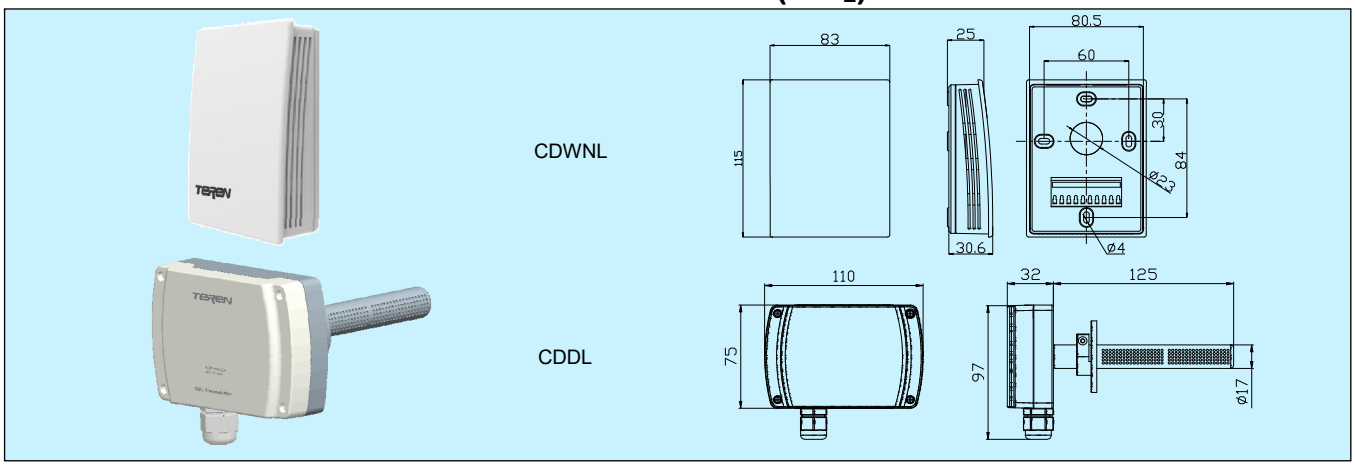
	Hum.	Temp.
Accuracy	Typ. 3%@25°C,20~80%RH	Typ. ±0.5°C@ 0~50°C
Hys. & Rep.	<±0.8%RH@ 25°C	±0.1°C
Response	<60s (25°C, in slow air)	<3min
Drift	<±0.25%RH/year	<±0.1°C /year

Load: ≤500Ω (4-20mA)
Display: LCD, with backlight
Operating condition: -20~60°C, 5~95%RH(Non-cond.)
Housing: die cast aluminum housing, SS probe and SS mesh filter
Protection: IP66
Approval: CE, Exd II CT6Gb, EMC(2014/30/EU, EN50270)
Weight: 1.8kg

Models

Model	H3Ex		Ex-proof Temp. /Hum. Transmitter
Output		2	2 x 4~20mA (3 wires)
		8	RS485/Modbus

CDWNL/CDDL Economical Carbon Dioxide (CO_2) Transmitter



Applications & Features

- This series transmitters are designed for monitoring and controlling indoor air quality (CO_2 concentration)
- CDWNL is for wall mount and CDDL is for duct mount which has patented probe for excellent sampling performance
- Good performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- Over voltage and reverse polarity protection, high reliability and anti-interference capability
- All electrical terminals are on the inside bottom, avoid any possible destroy to PCB when wiring (for CDWNL)
- Dual outputs 0~10V and 4~20mA supply flexible application
- 15 years sensor life without maintenance

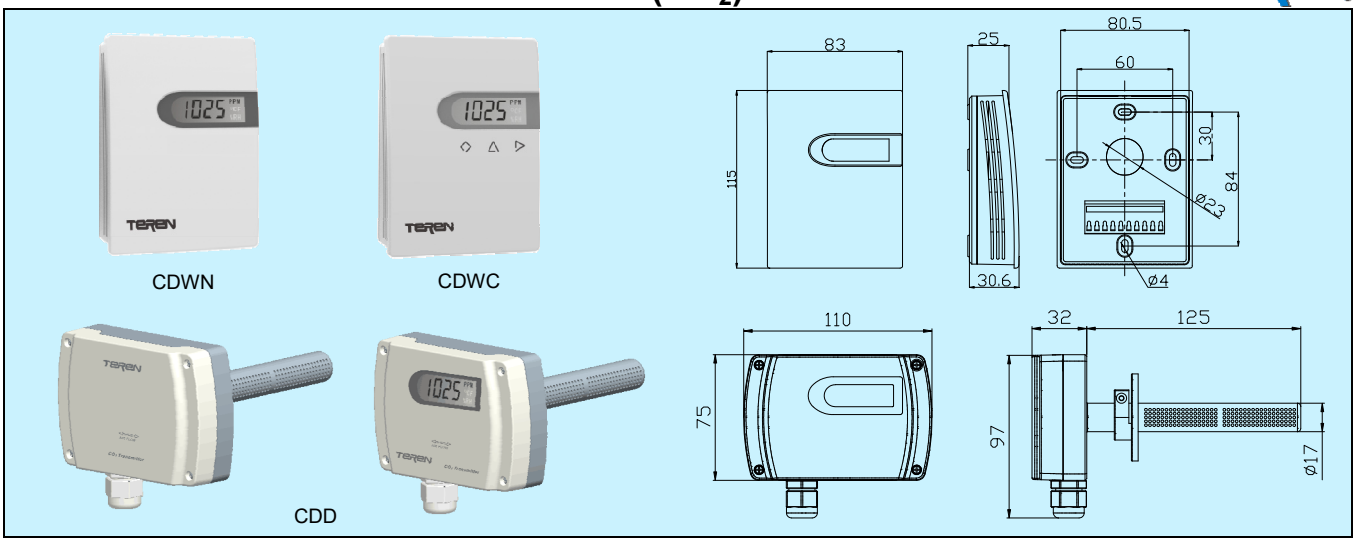
Specifications

Sensor: NDIR sensor, with ABC algorithm
Sampling Method: diffusion
Accuracy: ±(50+5%MV) ppm
Response time(T90): <120s (30cc/min, low air flow)
Drift: <±10ppm/year
Range: 0~2000ppm
Output: 4~20mA & 0~10V
Load resistance: ≤500Ω (Current output), ≥2kΩ (Voltage output)
Power supply: 18~28VAC/16~35VDC
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Temp. Compensation: 10~40°C
Storage temperature: -30~60°C
Housing: fire retardant PC(UL94V-0) (CDWNL), fire retardant ABS+PC(UL94V-0) (CDDL)
Protection: IP30(CDWNL), housing IP65/probe IP30(CDDL)
Weight:150g(CDWNL), 235g(CDDL)
Approval: CE

Models

Model	CDWNL	Room CO_2 Transmitter
	CDDL	Duct mount CO_2 Transmitter

CDWN/CDD&CDWC Carbon Dioxide (CO_2) Transmitter/Controller



Applications & Features

- This series are designed for monitoring & controlling indoor air quality (CO_2 concentration)
- CDWN/CDWC is suitable for wall mount and CDD is suitable for duct mount. CDD uses a patented probe structure for excellent sampling performance
- High performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- Stable, reliable and fast response
- 15 years sensor life without maintenance
- Digital technology applied, over voltage and reverse polarity protection, high reliability and anti-interference capability
- All electrical terminals are on the inside bottom, avoid any possible destruction to PCB when wiring (for CDWN/CDWC)
- Multiple outputs selection
- LCD & function keys can set various parameters, calibrate and adjust output, so the product can be a standalone controller (for CDWC)

Specifications for CDWN & CDD

Sensor: NDIR sensor, with ABC algorithm*
Sampling Method: diffusion
Accuracy: see models
Response time(T90): <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000ppm (measurement range 400~2000 ppm)
Output: 4~20mA, 0~10V, RS485/Modbus
Load resistance: ≤500Ω (Current output), ≥2kΩ (Voltage output)
Power supply: 16~28VAC/18~35VDC
Display: Optional LCD, with unit display
Display resolution: 1ppm
Working environment: 0~50°C, 0~85%RH (Non-cond.)
Temp. Compensation: CDWN0/CDD0:10~40°C
CDWN1/CDD1:0~50°C
Storage temperature: -20~60°C
Housing: fire retardant PC(UL94V-0) (CDWN),
fire retardant ABS+PC(UL94V-0) (CDD)
Protection: IP30 (CDWN), housing IP65/probe IP30(CDD)
Weight: 160g(CDWN), 240g(CDD)
Approval: CE
***ABC algorithm:** Automatic Baseline Correction, it constantly keeps track of the sensor's lowest reading over a few days interval and slowly corrects for any long term drift detected as compared to the expected fresh air value of 400 ppm CO_2.

Models for CDWN & CDD

Model	CDWN CDD				Room CO_2 Transmitter Duct mount CO_2 Transmitter
Accuracy		0 1			50 ppm + 5% reading 40 ppm + 3% reading
Output			1 8		4~20mA/0~10VDC RS485/Modbus
Display				0 1	N/A LCD

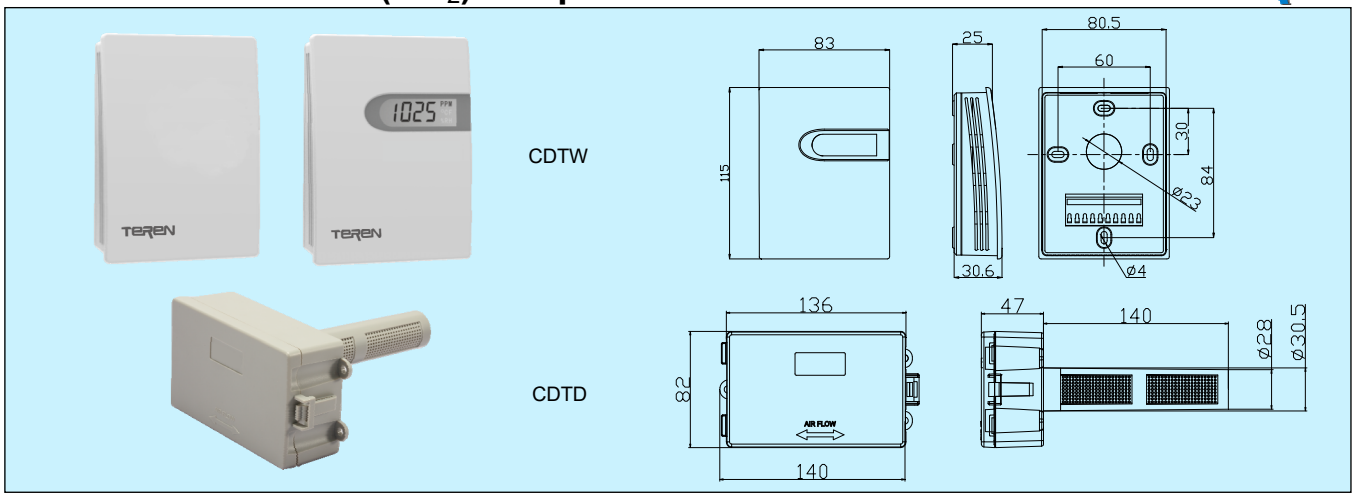
Specifications for CDWC

Sensor: NDIR sensor, with ABC algorithm
Sampling Method: diffusion
Accuracy: see models
Temp. Compensation: CDWC0:10~40°C; CDWC1:0~50°C
Response time(T90): <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000 ppm (measure range 400~2000ppm)
Output: 2xSPST, 3A/30VDC
Communication: optional RS485/Modbus
Power supply: 16~28VAC/16~35VDC
Display and keys: with LCD Display and 3 touch keys, see more details on LCD & Keys operation
Display resolution: 1ppm
Working environment: 0~50°C, 0~85%RH (Non-cond.)
Storage temperature: -20~60°C
Housing: fire retardant PC(UL94V-0)
Protection: IP30
Weight: 180g
Approval: CE

Models for CDWC

Model	CDWC			Room CO_2 Controller
Accuracy		0 1		50 ppm + 5% reading 40 ppm + 3% reading
Commu-nication			0 1	N/A RS485/Modbus

CDT Carbon Dioxide (CO_2)/Temperature Transmitter



Applications & Features

- CDT series carbon dioxide (CO_2) & temperature transmitters are designed for monitoring & controlling indoor air quality and temperature in one unit
- CDTW is for wall mount and CDTD is for duct mount
- High performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- Multiple optional RTD or thermistor sensors, compatible with a variety of control systems
- Stable, reliable and fast response
- 15 years of CO_2 sensor life without maintenance
- All electrical terminals are on the inside bottom, avoid any possible destroy to PCB when wiring (CDTW)
- Digital technology applied, multiple outputs optional, over voltage and reverse polarity protection, high reliability and anti-interference capability
- Large LCD with unit indicator (CDTW), display carbon dioxide (CO_2) and temperature alternatively (no temperature display for RTD or thermistor models)

Specifications

Carbon dioxide (CO_2) measurement

Sensor: NDIR sensor, with ABC algorithm*
Sampling Method: diffusion
Accuracy: (40+3%MV) ppm
Response time(T90): <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000ppm (measure range 400~2000ppm)
Output: 4~20mA, 0~10V, RS485/Modbus

Temperature measurement

Sensor: Digital, RTD or thermistor, see models
Range: 0~50°C
Accuracy: see accuracy table
Output: 4~20mA, 0~10V, RS485/Modbus, RTD/thermistor

Power supply: 16~28VAC/16~35VDC
Load resistance: ≤500Ω (Current output), ≥2kΩ (Voltage output)
Display: Optional LCD Display (CDTW)
Display resolution: 1ppm, 0.1°C
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Temp. compensation: 0~50°C
Storage temperature: -20~60°C
Housing material: fire retardant PC(UL94V-0) (CDTW)
fire retardant ABS(UL94V-0) (CDTD)
Protection: IP30 (CDTW), IP54 (CDTD)
Weight: 175g (CDTW), 415g (CDTD)
Approval: CE

***ABC algorithm:** Automatic Baseline Correction, it constantly keeps track of the sensor's lowest reading over a few days interval and slowly corrects for any long term drift detected as compared to the expected fresh air value of 400 ppm CO_2.

Models

Model	CDTW CDTD				Room CO_2 / Temp. Transmitter Duct mount CO_2 /Temp. Transmitter
CO_2 Output		1 C			4~20mA/0~10VDC RS485/Modbus
Temp. Output			1 3 4 5 6 7 9 A C		4~20mA / 0~10VDC PT1000, ±0.2°C @25°C PT100, ±0.2°C @25°C NTC20K, ±0.2°C @25°C Ni1000, ±0.5°C @25°C NTC10K-II, ±0.2°C @25°C NTC10K-III, ±0.3°C @25°C NTC10K-A, ±0.3°C @25°C RS485/Modbus
Display (CDTW)				0 1	N/A LCD

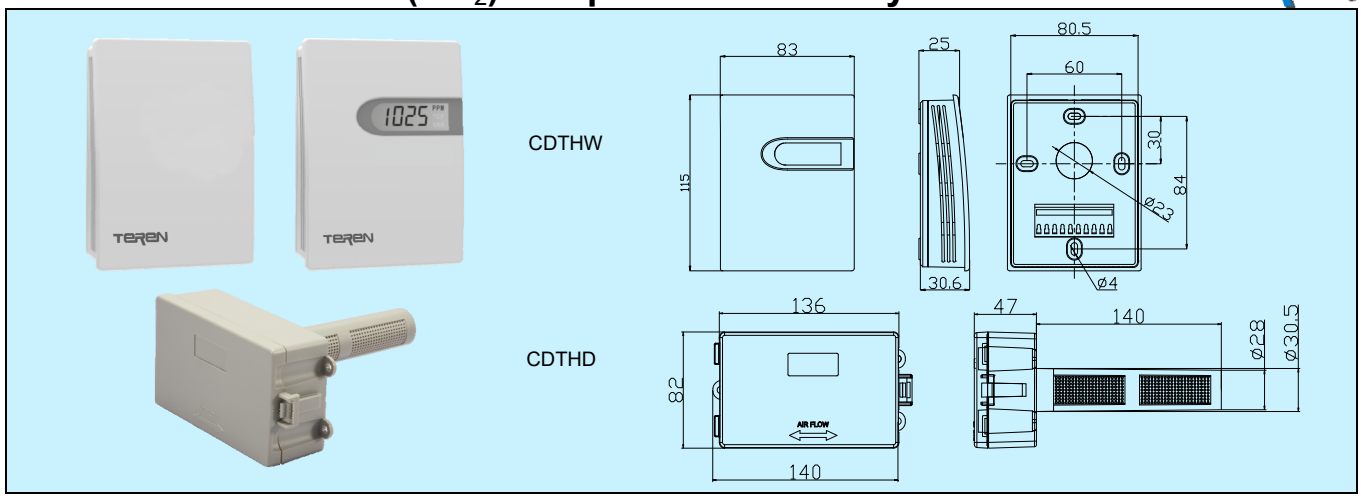
1. All products are factory set to 4~20mA as output default, and can be set to 0~10V by jumper on the PCB.
2. See resistance table on page 1 of this catalog.

Accuracy table for temperature

Outputs	CDTW	CDTD
0~10V DC	<±0.3°C@10~40°C	<±0.3°C@10~40°C
4~20mA	<±0.6°C@10~40°C	<±0.3°C@10~40°C
RS485/Modbus	<±0.3°C@10~40°C	<±0.3°C@10~40°C
RTD/ thermistor	See Models	See Models

When select RTD/ thermistor, CDTW's total error will be 0.5°C more than the accuracy in the models while CDTD's total error is the same as in the models.

CDTH Carbon Dioxide (CO_2)/Temperature/Humidity Transmitter



Applications & Features

- CDTH series CO_2/temperature/humidity transmitters are designed for monitoring & controlling indoor air quality (CO_2), temperature and humidity in one unit
- CDTHW is for wall mount and CDTHD is for duct mount
- High performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- Multiple optional RTD or thermistor sensors, compatible with a variety of control systems
- Stable, reliable and fast response
- 15 years of CO_2 sensor life without maintenance
- All electrical terminals are on the inside bottom, avoid any possible destruction to PCB when wiring (CDTHW)
- Digital technology applied, multiple outputs optional, over voltage and reverse polarity protection, high reliability and anti-interference capability
- Large LCD with unit indicator (CDTHW), display carbon dioxide (CO_2), temperature and humidity alternatively

Specifications

Carbon dioxide (CO_2) measurement
Sensor: NDIR sensor, with ABC algorithm*
Sampling Method: diffusion
Accuracy: (40+3%MV) ppm
Response time(T90): <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000ppm (measure range 400~2000ppm)
Output: 4~20mA, 0~10V, RS485/Modbus

Temperature measurement
Sensor: Digital, RTD or thermistor, see Models
Range: 0~50°C
Accuracy: see accuracy table
Output: 4~20mA, 0~10V, RS485/Modbus or RTD/thermistor

Relative Humidity measurement
Sensor: Digital polymer
Range: 0~100%RH
Accuracy: see accuracy table
Hysteresis: <±1%RH
Response time: <10s (25°C, in slow air)
Drift: <±0.5%RH/year
Output: 4~20mA, 0~10V, RS485/Modbus

Power supply: 16~28VAC/16~35VDC
Load resistance: ≤500Ω(Current output),≥2kΩ(Voltage output)
Display: Optional LCD Display (CDTHW)
Display resolution: 1ppm, 0.1°C, 0.1%RH
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Temp. compensation: 0~50°C
Storage temperature: -20~60°C

Housing: fire retardant PC(UL94V-0) (CDTHW),
fire retardant ABS (UL94V-0) (CDTHD)
Protection: IP30 (CDTHW), IP54 (CDTHD)
Weight: 175g (CDTHW), 415g (CDTHD)
Approval: CE
***ABC algorithm:** Automatic Baseline Correction, it constantly keeps track of the sensor's lowest reading over a few days interval and slowly corrects for any long-term drift detected as compared to the expected fresh air value of 400 ppm CO_2.

Models

Model	CDTHW CDTHD				Room CO_2 /T/RH Transmitter Duct mount CO_2 / T/RH Transmitter
CO_2 /Hum. Output		1 C			4~20mA / 0~10VDC RS485/Modbus
Temp. Output			1 3 4 5 6 7 9 A C		4~20mA / 0~10VDC PT1000, ±0.2°C @25°C PT100, ±0.2°C @25°C NTC20K, ±0.2°C @25°C Ni1000, ±0.5°C @25°C NTC10K-II, ±0.2°C @25°C NTC10K-III, ±0.3°C @25°C NTC10K-A, ±0.3°C @25°C RS485/Modbus
Display (CDTHW)				0 1	N/A LCD

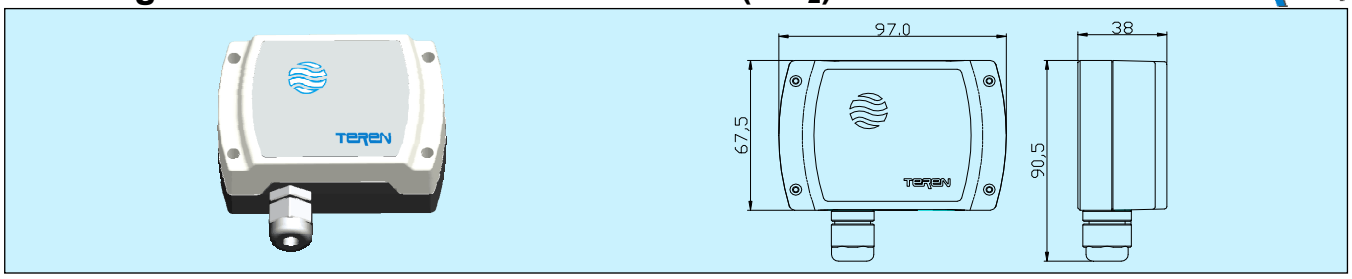
1. All products are factory set to 4~20mA as output default, and can be set to 0-10V by jumper on the PCB.
2. See resistance table on page 1 of this catalog.

Accuracy table for temperature/ humidity

Outputs	**CDTHW**		**CDTHD**	
	T (@10~40°C)	**RH (@25°C, 20~85%RH)**	**T (@10~40°C)**	**RH (@25°C, 20~85%RH)**
0~10V DC	<±0.3°C	3%RH	<±0.3°C	3%RH
4~20mA	<±0.8°C	5%RH	<±0.3°C	3%RH
RS485/ Modbus	<±0.3°C	3%RH	<±0.3°C	3%RH
RTD/ thermistor	See Models	See Models	See Models	See Models

When select RTD/ thermistor, CDTHW's total error will be 0.5°C more than the accuracy in the models while CDTHD's total error is the same as in the models.

CDH High Concentration Carbon Dioxide (CO_2) Transmitter



Applications & Features

- It is designed for monitoring high concentration (20-30% vol.) of carbon dioxide (CO_2)
- Designed specifically for incubator, cement carbonator and other equipment or application
- For wall mount installation, light and state of art housing
- Good performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- 15 years of CO_2 sensor life without maintenance
- Built-in atmosphere air or 0 ppm N_2 calibration function, convenient for user calibration
- Power and output have over voltage and reverse polarity protection, high reliability and anti-interference capability

Specifications

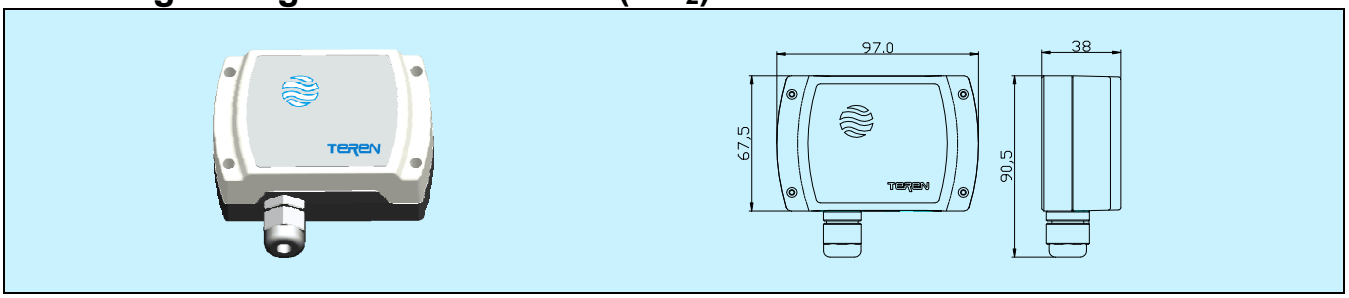
Sensor: NDIR, with atmosphere air calibration function
Sampling Method: diffusion
Range: 0~20% vol. or 0~30% vol.
Accuracy: ± (0.5% vol. +3% reading)
Repeatability: ± (0.1% vol. +2% reading)
Response time(T90): <120s (30cc/min, low airflow)
Output: 0~5V/1~5V/4~20mA/0~10V
Load resistance: ≤500Ω(4~20mA), ≥2kΩ(0~5/10V,1~5V)
Power supply: 12~28VAC/10~35VDC
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Storage temperature: -40~70°C
Housing: fire retardant ABS+PC (UL94 V-0)
Protection: IP65
Weight: 180g
Approval: CE

Models

Models	CDH-20% CDH-30%		High concentration CO_2 Transmitter,0~20% vol. High concentration CO_2 Transmitter,0~30% vol.
Output		1 2 E G	0~10VDC 4~20mA(3 wires) 0~5VDC 1~5VDC

Common incubator: 2~10% vol., can select range 0~20% vol.
Common carbonator: 20+/-2% vol., can select range 0~30% vol.

CDA Large Range Carbon Dioxide (CO_2) Transmitter



Applications & Features

- It is designed for monitoring large range (up to 10,000ppm) of carbon dioxide (CO_2)
- For special applications such as planting, breeding and cultivation of greenhouse, smart farm, or other large range of CO_2 monitor applications like poultry, animal husbandry, factory production workshop, winemaking workshop, etc.
- For wall mount installation, light and state of art housing, IP65 protection for most industrial and harsh environments
- Good performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- Patent structure ensures good sampling performance for long-term, reliable, stable and fast response
- 10 years of CO_2 sensor life without maintenance
- Built-in atmosphere air calibration function, convenient for user calibration
- Power and output have over voltage and reverse polarity protection, high reliability and anti-interference capability

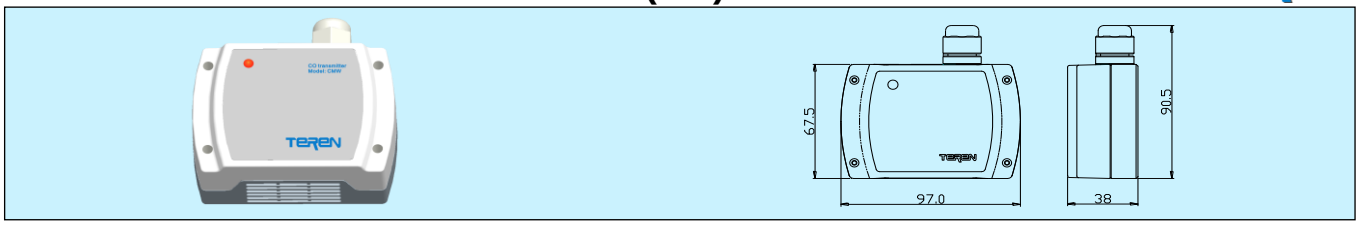
Specifications

Sensor: NDIR, with atmosphere air calibration function
Sampling Method: diffusion
Measuring range: 400~5000/10000 ppm
Accuracy: typical ±(50ppm +5% reading)
Range: 0~5000/10000ppm, DIP select on PCB
Warm-up time： 120s
Response time(T90)： <30~120s (low airflow)
Output： 0~5V, 1~5V, 4~20mA or 0~10V, see Models
Load resistance： ≤500Ω(4~20mA)，≥2kΩ(0~5/10V, 1~5V)
Power supply： 12~28VAC/10~35VDC
Working environment: -10~50°C, 0~95%RH (Non-cond.)
Storage temperature: -20~80°C
Housing: fire retardant ABS+PC (UL94 V-0)
Protection: IP65
Weight: 180g
Approval: CE

Models

Models	CDA		Large range CO_2 Transmitter
Output		1 2 E G	0~10VDC 4~20mA(3 wires) 0~5VDC 1~5VDC

CMW Wall Mount Carbon Monoxide (CO) Transmitter



Applications & Features

- It's necessary to control the ventilation of car park and vehicle maintenance and test workshop according to many building HVAC regulations. Demand-controlled ventilation (DCV) is recommended. It is for these applications
- Better than most other sensors' 1~3 years life span, it gives 7~10 years to protect customer's long-term investment
- Better than most other sensors which may need recalibration every 6~12 months, it only needs periodical recalibration as long as 3~5 years or more, maintaining 5% accuracy
- Digital technology applied, multiple outputs and ranges selections, over voltage and reverse polarity protection, high reliability and anti-interference capability
- LED working status indication, with IP33 protection housing

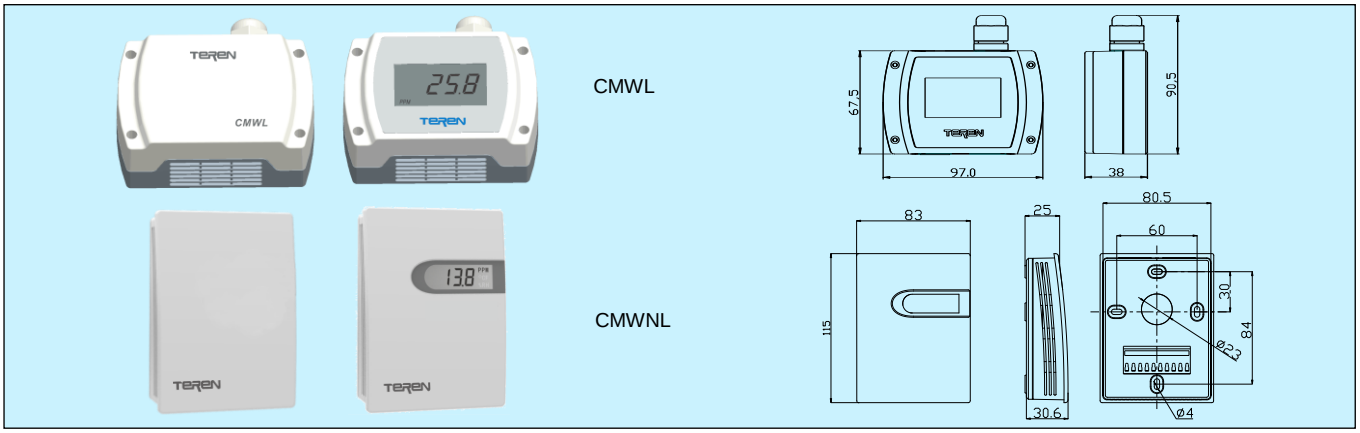
Specifications

Sensor: Electrochemical, with min. 7~10 years life span
Range: 0~100ppm, or others
Accuracy: ±5%FS
Sampling Methods: Diffusion
Response Time: <60 s
Warm up time: <2 mins
Output Load: <500Ω (current), >2kΩ (voltage)
Power: Current：21~35VDC(RL=500Ω), 15~35VDC(RL=100Ω)
Voltage：16~28VAC/16~35VDC
Output: 4~20mA (2 wires), 0~10VDC or RS485/Modbus
Work environment: 0~50°C, 0~90%RH (Non- cond.)
Storage temperature: -5~55°C
Housing: fire retardant ABS+PC(UL94V-0)
Protection: IP33
Weight: 150g
Approval: CE

Models

Model	CMW			Wall Mount CO Transmitter
Output		1		0~10VDC(3 wires)
		2		4~20mA(2 wires)
		8		RS-485/Modbus
Range			0	0~100ppm
			1	0~200ppm
			2	0~400ppm

CMWL/CMWNL Economical Carbon Monoxide (CO) Transmitter



Applications & Features

- It's necessary to control the ventilation of car park and vehicle maintenance and test workshop according to many building HVAC regulations. Demand-controlled ventilation (DCV) is recommended. It is for these applications
- Electrochemical sensor has more than 5 years life span, with long-term stable performance and low drift, only need periodical recalibration every 12 months
- Digital technology applied, multiple ranges and outputs optional, over voltage and reverse polarity protection, high reliability and anti-interference capability
- CMWL is wall mount, CMWNL is general room application

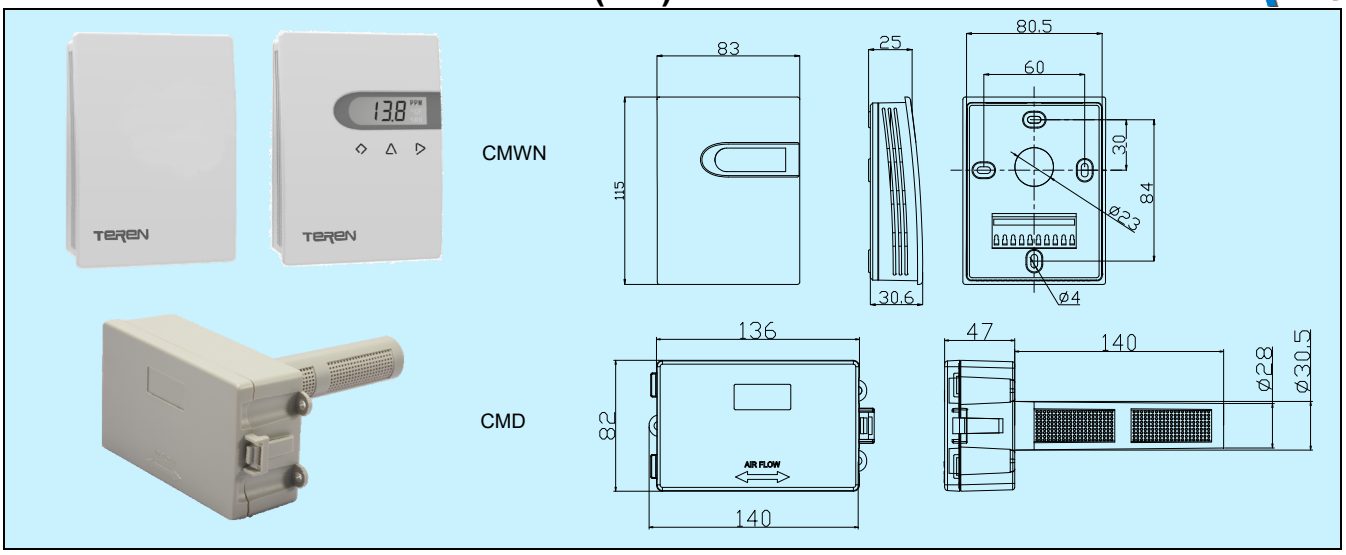
Specifications

CO sensor: Electrochemical, >5 years life span
Sampling Method: Diffusion
Range: 0~100ppm or 0~300ppm
Accuracy: ±5% FS@25°C, typical ±10% FS@5~50°C
Repeatability: <±3%FS
Stability: <±5%/year@0-100ppm, <±10%/year@0-300ppm
Response time (T90): <60s
Warm-up time: <1 min
Load Resistance: ≤500Ω (current), ≥2Kω (voltage)
Power: Current: 18.5~35VDC(R_L=500Ω), 8.5~35VDC(R_L=0Ω)
Voltage: 16~28VAC/16~35VDC
Output: 4~20mA (2 wires), 0-10VDC, RS485/Modbus
Work environment: 5~50°C(continuous), 15~90%RH(Non- cond.)
Storage Temperature: -10~55°C
Housing: fire retardant PC(UL94V-0) (CMWNL),
fire retardant ABS+PC(UL94V-0) (CMWL)
Protection: IP33 (CMWL), IP30 (CMWNL)
Weight: 190g (CMWL), 160g(CMWNL)
Approval: CE

Models

Model	CMWL CMWNL				Wall mount CO transmitter Room CO transmitter
Output		1			0~10VDC(3 wires)
		2			4~20mA(2 wires)
		8			RS485/Modbus
Range			0		0~100ppm
			1		0~300ppm
Display				0	N/A
				1	LCD

CMWN & CMD Carbon Monoxide (CO) Transmitter/Controller



Applications & Features

- It's necessary to control the ventilation of car park and vehicle maintenance and test workshop according to many building HVAC regulations. Considering energy efficiency, demand-controlled ventilation (DCV) is recommended. It is designed for applications which can effectively control ventilation to safety and energy-saving operations
- Environmentally friendly electrochemical sensors give good long-term accuracy, sensitivity and reliability
- Better than most sensors 1~3 years life span, it gives more than 7~10 years sensor life to protect customer's long-term investment
- Better than most other sensors which may need recalibration every 6~12 months, it only need periodical recalibration every 3~5 years, maintaining 5% accuracy
- All electrical terminals are on the inside bottom, avoid any possible destruction to PCB when wiring (for CMWN)
- Digital technology applied, multiple ranges and output selection, over voltage and reverse polarity protection, high reliability and anti-interference capability
- Wide range of operating temperature, optional relays to actuate the alarm or control function output
- LCD & function keys can set various parameters, calibrate and adjust output, so that the product can be a stand-alone controller (for CMWN)

Specifications

CO Measurement

Sensor: Electrochemical, with min 7~10 years life span
Range: 0~100ppm, or others (0-400ppm)
Accuracy: ±5% @0~50°C, 0-400ppm

Temperature Measurement

Sensor: Digital sensor (CMWN), Thermistor (CMD)
Range: 0~50°C
Accuracy: CMWN：±0.5°C@0~50°C (≥1m/s air flow)
CMD：±0.5°C@25°C (≥1m/s air flow)

Output: 4~20mA (3 wires), 0~10VDC, RS485/Modbus;
OUT1: Temperature; OUT2: CO
Relay: 2xSPST, 1A/30VDC, 0.5A /125VAC (for CMD),
0.5A/30VDC (for CMWN)
Alarm: Buzzer + LCD backlight (CMWN)

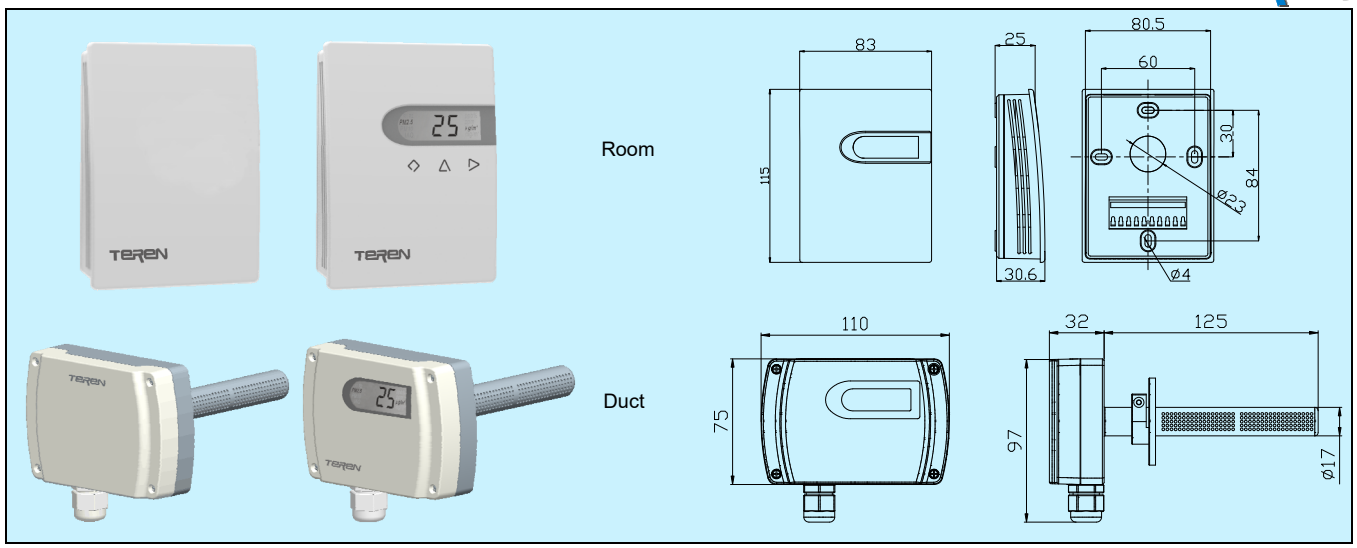
Response Time: ≤60s
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Power: 16~28VAC/16~35VDC (for CMWN)
18~28VAC/18~35VDC (for CMD)
Display & Keys: optional LCD Display & Keys (CMWN), see more details on LCD & Keys operation
Work environment: 0~50°C(continuous)/-5~55°C(intermittent);
5~99%RH (Non- cond.)
Housing: fire retardant PC(UL94V-0) (CMWN)
fire retardant ABS (UL94V-0) (CMD)
Protection: IP30 (CMWN), IP54 (CMD)
Weight: 150g(CMWN), 390g (CMD)
Approval: CE

Models

Model	CMWN CMD					Room CO transmitter/Controller Duct mount CO transmitter/Controller
Output		1 B				4~20mA / 0~10VDC 4~20mA / 0~10VDC, RS485/Modbus
Range			0 7			0~100ppm/0-50°C Other (0~400ppm/ 0-50°C)
Relay output				0 1 2		N/A 2xSPST 1xBuzzer (CMWN)
LCD&Keys (CMWN)					0 1 2	N/A LCD LCD & Keys

All products are factory set to 4-20mA as output default and can be set to 0-10V by jumper on the PCB.

PM2.5/PM10 Particulate Matter Transmitter/Controller



Applications & Features

- PM series are designed for monitoring & controlling environment air quality (particulate matter PM2.5 & PM10)
- PMW/PM25W/PM10W are suitable for wall mount and PMD/PM25D/PM10D are suitable for duct mount. The enclosure of duct mount applies patent design of assembled probe with very good sampling performance
- PM25W/PM25D have single channel output of PM2.5; PM10W/PM10D have single channel output of PM10; PMW/PMD have dual channels which can measure or control PM2.5 and PM10 simultaneously
- The sensor has very good long-term stability, consistency accuracy is up to +/-10% readings or +/-10 ug/m^3, with real-time response and support continuous acquisition
- MBTF is >3 years for continuous service (life can be 8~10 years in typical stable change working conditions and auto(intermittent) work mode), free maintenance
- All electrical terminals are on the inside bottom, avoid any possible destruction to PCB when wiring (room type)
- Digital technology applied, over voltage and reverse polarity protection, high reliability and anti-interference capability
- LCD & touch function keys selectable
- Optional relay output (room type), can set various parameters and functions with LCD and keys, support all alarm or control mode, so it can be a stand-alone controller

Specifications

Sensor: Laser particulate matter sensor, detected particle size 0.3~10 um (PM2.5 & PM10)

Service Life: MBTF more than 3 years in continuous service mode, service life up to 8~10 years in auto (intermittent) service mode

Sampling Method: Laser scattering principle

Range: (measuring range >1000ug/ m^3)
PM2.5: 0~500 μ g/m^3,particle size 0.3~2.5 μ m
PM10:0~600 μ g/m^3,particle size 0.3~10 μ m

Accuracy: +/-10 ug/m^3 @0~100ug/m^3, +/-10% reading@100~500ug/m^3 @25°C/50%RH, see accuracy curve

Resolution: 1 ug/m^3

Response time: in continuous service mode, sample time<1s, response time<10s

Output: Single channel: 4~20mA/0~10V, RS485/Modbus
Dual channels: 4~20mA/0~10Vx2, RS485/Modbus

Relay: 1xSPST, 3A/30VDC (room type only)

Power supply: 16~28VAC/16~35VDC

Load resistance: ≤500Ω (Current output), ≥2kΩ (Voltage output)

Display: Optional LCD for all models

Keys: Optional for room type only

Working environment: 0~50°C, 0~95%RH (Non-cond.)

Storage temperature: -30~70°C

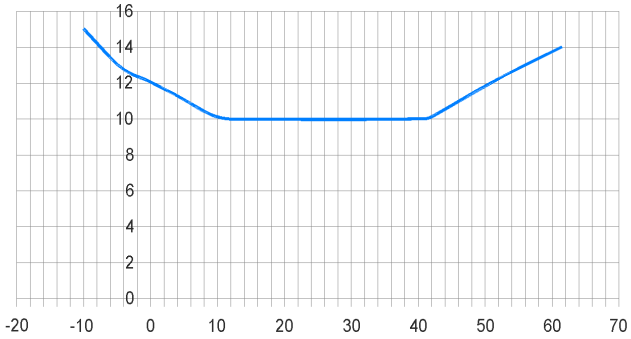
Housing: fire retardant PC(UL94V-0)(PMW/PM10W),
fire retardant ABS+PC(UL94V-0)(PMD/PM10D)

Protection: IP30 (PMW/PM10W), IP65 (PMD/PM10D)

Weight: 200g (PMW/PM10W), 270g (PMD/PM10D)

Approval: CE

Typical consistency accuracy curve:

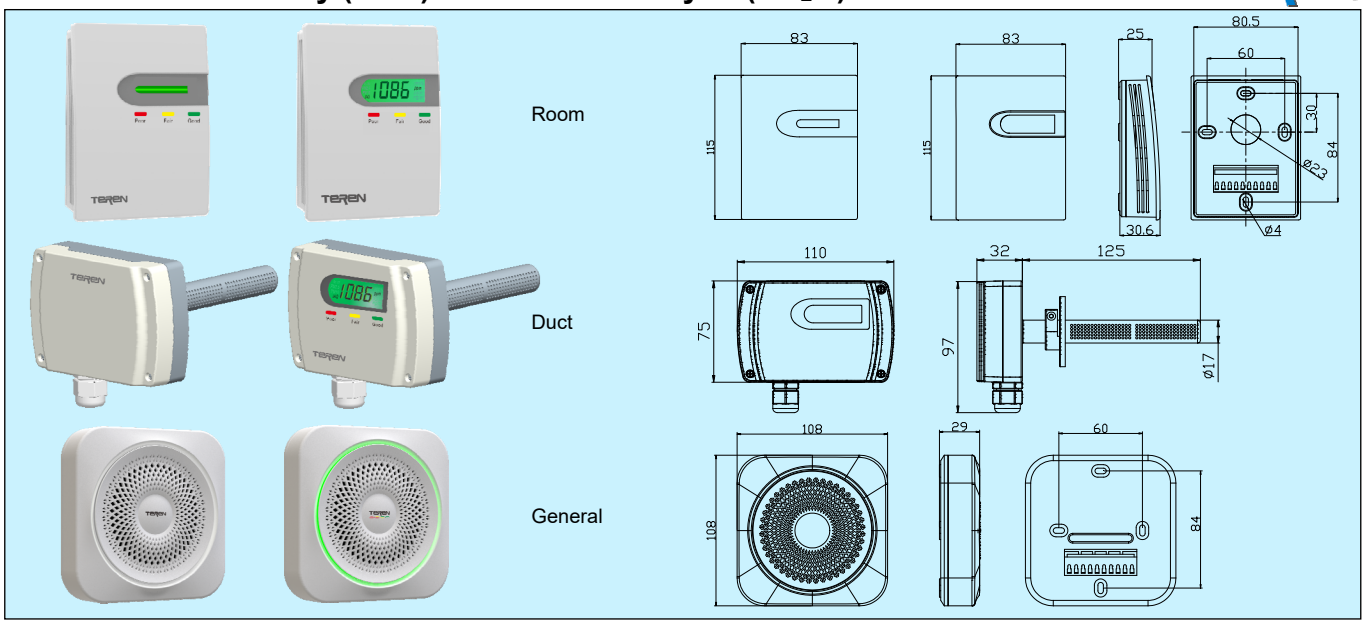


Models

Model	PM25W				Room Transmitter (PM2.5)
	PM25D				Duct mount Transmitter (PM2.5)
	PM10W				Room Transmitter (PM10)
	PM10D				Duct mount Transmitter (PM10)
	PMW				Dual Channel Room Transmitter (PM2.5/10)
	PMD				Dual Channel Duct Transmitter (PM2.5/10)
Output		1			4~20mA/0~10VDC
		B			4~20mA/0~10VDC,RS485/Modbus
Relay			0		N/A
			1		1xSPST*
LCD/ Key				0	N/A
				1	LCD
				2	LCD, with backlight, touch keys**

*Only room products can select 1; **Only room products can select 2.

IAQ Indoor Air Quality (VOC)/IAQF Formaldehyde (CH_2O) Transmitter/Controller



Applications & Features

- IAQW/IAQD/IAQG are designed for detecting various contaminants of Volatile Organic Compounds (VOCs) in the air, including those produced by cigarettes, alcohol and even body smell. While IAQFW/IAQFD/IAQFG are specific only for CH_2O detecting
- IAQW/IAQFW are for wall mount, IAQD/IAQFD are for duct mount, and IAQG/IAQFG can be wall or ceiling mount
- IAQW/IAQD/IAQG use highly sensitive metal oxide semiconductor gas sensors, with up to 5~7 years sensor life
- IAQFW/IAQFD/IAQFG use very good performance electrochemical gas sensors, with more than 5 years of life
- All sensors are low power consumption with very good temperature and humidity compensation
- Power and outputs have over voltage and reverse polarity protection, high reliability and anti-interference capability
- Room and general enclosures have electrical terminals on the inside bottom, avoid any possible destruction to PCB when wiring
- All enclosures have the options of three colors (red/yellow/green) LED, indicating poor/fair/good air quality status. The room and duct types can also have LCD display with the three colors backlight, while the general type may have patented design of three-color light ring

Specifications

Sensor: VOC: High performance metal oxide semiconductor sensor
CH_2O: High performance electrochemical sensor
Power: 16~28VAC/16~35VDC
Range: VOC: 0~2000ppm equivalent CO_2; CH_2O: 0~1000ppb
Accuracy: CH_2O: ±10%FS@25°C
Output: 0~10VDC/4~20mA (default), RS485/Modbus
Display: Optional LED bar (red/yellow/ green) for room type; or optional LCD display with the same three colors backlight for room or duct type; or optional "three-color light ring" for general type
Load resistance: ≤500Ω (Current output), ≥2kΩ (Voltage output)
Relay: 1xSPST, 0.5A/30VDC
Warm up time: 15 min
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Storage temperature: -20~60°C
Housing: fire retardant PC(UL94V-0) (Room and General)
fire retardant ABS+PC(UL94V-0) (Duct mount)
Protection: IP30 (Room and General), IP65 (Duct)
Weight: Room: 190g, General: 210g, Duct: 395g
Approval: CE

Models

Model	IAQW				Room VOC transmitter/controller
	IAQD				Duct mount VOC transmitter/controller
	IAQG				General VOC transmitter/controller
	IAQFW				Room CH_2O transmitter/controller
	IAQFD				Duct mount CH_2O transmitter/controller
	IAQFG				General CH_2O transmitter/controller
Trans./ Com. Output		0			N/A
		1			4~20mA/0~10VDC
		8			RS485/Modbus
Relay Output			0		N/A
			1		1xSPST
Display				0	N/A
				1	Three color LED or light ring
				2	LCD, with R/Y/G backlight

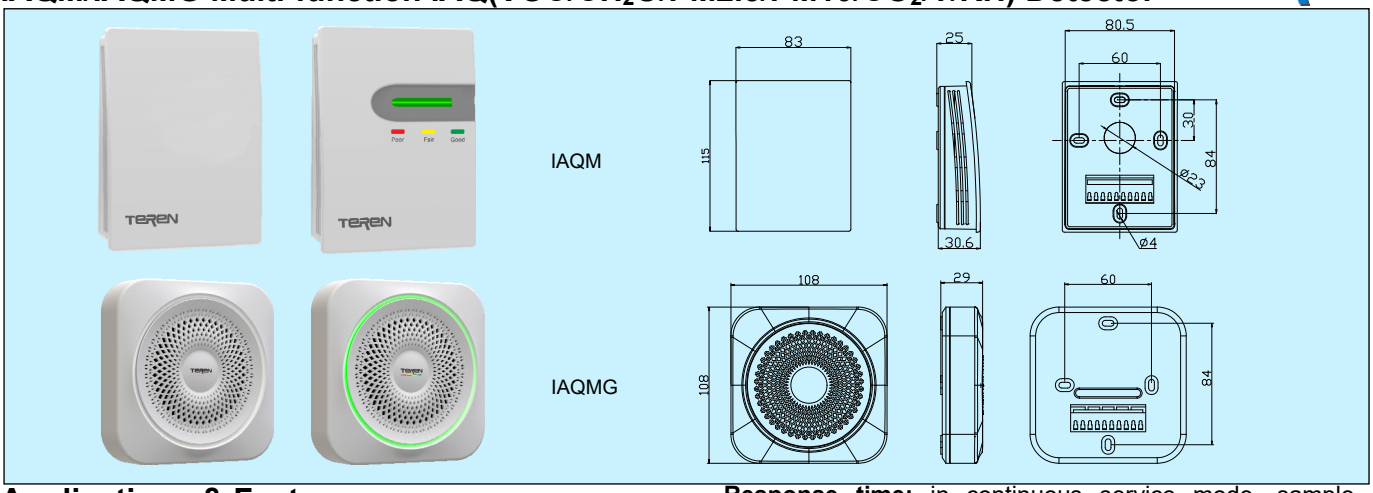
The 3 options should not be "0" at the same time.

Note:
1. VOC is a general term for all kinds of Volatile Organic Compounds, which may include over a thousand kinds of components. The most common are benzene, toluene and xylene, formaldehyde, and TVOC (6-16 carbon alkanes, ketones). These compounds are widely used in footwear, toys, paints and inks, adhesives, cosmetics, indoor and automotive decorative materials and other industrial fields. VOC has great impact on human health, may affect the human liver, kidney, brain and nervous system, resulting in memory loss and other serious consequences, and even cause cancer.
2. The VOC sensor could detect various VOC components with measurement range 0~1000ppb (isobutene), equivalent to 400~2000ppm of CO_2. Its 0~10V/4~20mA output is equivalent to CO_2 concentration of 0~2000ppm, with good long-term stability.
3. The CH_2O sensor could detect only Formaldehyde of 0~1000ppb.
4. Research shows that exposed to 0.5~1.0 ppm VOC concentration environment has little impact on most people health; 1.0~10 ppm has obvious eyes, skin, nose, mouth and throat irritation symptoms on human and cancer rates rise 50% to 90%; above 10 ppm may have serious impact on human health or life threatening.
5. GB/T18883 and GB50325 IAQ regulations specified the average 8 hours TVOC limit 0.50~0.60 mg/m^3 (equivalent to about 500 ppb) and CH_2O limit 0.08~0.10 mg/m^3 (equivalent to about 60-75 ppb).

VOC concentration guidelines (Mainly refer CH_2O for reference)

Source	Concentration	Associated Period	Health Effect(s)
Based on sensory irritation			
California EPA	44 ppb	1 hour	Eye/airway irritation
Health Canada	100 ppb	1 hour	Eye irritation
National Institute for Occupational Safety and Health	100 ppb	15 minutes	
Occupational Safety and Health administration	750 ppb	8h PEL-TWA	Cancer and skin/eye/ respiratory irritation
World Health Organization	81 ppb	30 minutes	Sensory irritation
World Health Organization	100 ppb	short-and long-term	Sensory irritation
Based on respiratory and asthma-like symptoms			
Agency for Toxic Substance and Disease Registry	40 ppb 30 ppb 8 ppb	1-14 days 15-364 days >1 year	Respiratory
California EPA	7 ppb	8h annual average	Respiratory symptoms
Health Canada	40 ppb(target)	8 hours	Respiratory symptoms
Based on cancer risk			
National Institute for Occupational Safety and Health	16 ppb	8 hours	Nasal cancer
Occupational Safety and Health administration	750 ppb	8h PEL-TWA	Cancer and skin/eye/ respiratory irritation
World Health Organization	100 ppb	Long-term	Nasal cancer

IAQM/IAQMG Multi-function IAQ(VOC/CH_2O/PM2.5/PM10/CO_2/T/RH) Detector



Applications & Features

- Simultaneously detect indoor air quality, like VOC, CH_2O, PM2.5/PM10, CO_2, T/RH, up to 7 parameters. Model IAQM is for wall mount and IAQMG can be wall or ceiling mount
- VOC: detect various contaminants (VOCs), including wood, paint and others produced by toluene, cigarette, ammonia odor, CO, alcohol, natural gas and even body smell. Low power consumption and good T/RH compensation
- CH_2O: good accuracy, fast response, excellent anti-interference, extremely low power consumption and good temp. and humidity characteristics, stable and reliable, no need for regular calibration
- PM2.5/PM10: detect PM2.5 and PM10 concentration in air with particle sizes 0.3~10μm. The sensor has good long-term stability, high consistency accuracy and supports continuous service mode. MBTF is 3+ years for continuous service (8~10 years in typical stable working conditions and auto(intermittent) work mode), free maintenance
- CO_2: detect CO_2 concentration of air with Automatic Baseline Correction algorithm, accurate measurement and temp. compensation, good long-term stability and reliability, fast response
- T/RH: use high-precision digital temp. and humidity sensor, ensure good measurement
- Optional red/yellow/green LED indicating the poor/fair/good air quality. The alarm point or interval can be flexibly set through RS485/Modbus. The three-color ring enclosure for IAQMG is patented design by TEREN
- Power and outputs have over voltage and reverse polarity protection, high reliability and anti-interference capability
- All electrical terminals are on the inside bottom, avoid any possible destruction to PCB when wiring

Specifications

VOC

Sensor: High performance metal oxide semiconductor sensor, min. 5~7 years life span
Range: 0(400) ~2000ppm equivalent CO_2

CH_2O

Sensor: Electrochemical sensor, >3 years life span
Range: 0~1000ppb
Accuracy: ±10%FS@25°C

PM2.5/PM10

Sensor: Laser particulate sensor, detected size 0.3~10um
Service Life: MBTF 3+ years in continuous service mode (8~10 years in auto (intermittent) service mode)
Measuring range: >1000 μ g/m^3
Range: PM2.5: 0~500±ug/m^3, particle size 0.3~2.5um
PM10:0~600ug/m^3, particle size 0.3~10um
Accuracy: ±10 ug/m^3 @0~100ug/m^3, ±10% reading @100~500ug/m^3@25°C/50%RH, see accuracy curve
Resolution: 1ug/m^3
Response time: in continuous service mode, sample time<1s, general response time<10s

CO_2

Sensor: NDIR sensor, with ABC algorithm, >15 years
Accuracy: ±50ppm±5% reading @10~40°C
Response time(T90): <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000ppm (measurement range 400~2000ppm)

Temperature

Sensor: Digital temperature sensor
Measurement range: -40~125°C
Accuracy: typical <±1.0°C@10~40°C<±1.5°C@10~40°C(with CO_2 detection)
Repeatability: 0.1°C
Response time: typical 10~30s (25°C, low airflow)
Drift: <±0.04°C/year

Relative Humidity

Sensor: Digital capacitance sensor
Range: 0~100%RH
Accuracy: typical ±5%RH@25°C/20~85%RH
Repeatability: 0.1%RH
Hysteresis: <±1.0%RH
Response time: typical 10s (25°C, low airflow)
Drift: <±0.25%RH/year

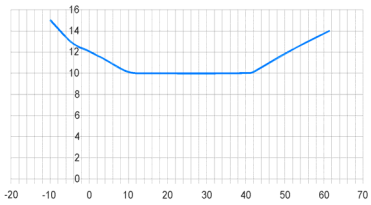
Power: 16~28VAC/16~35VDC
Output: RS485/Modbus, R/W enable, 9600 bps
Warm up time: 15 min
Working environment: 0~50°C, 10~90%RH (Non-cond.)
Storage temperature: -20~60°C
Housing: fire retardant PC (UL94V-0), Protection: IP30
Weight: 170~230g
Approval: CE

Models

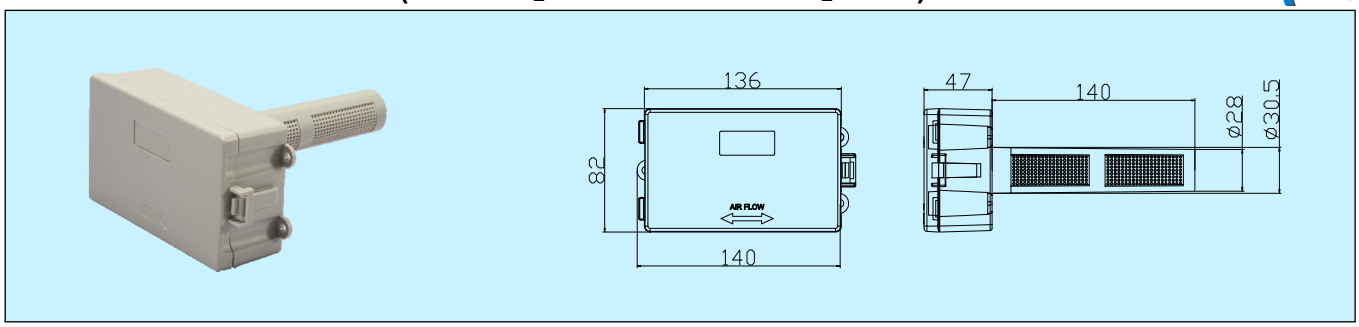
Model	IAQM IAQMG						Wall mount Multi-function IAQ Detector General mount Multi-function IAQ Detector
VOC		0 1					N/A VOC detection
CH_2O			0 1				N/A CH_2O detection
PM				0 1			N/A PM2.5/PM10 detection
CO_2					0 1		N/A CO_2 detection
T/RH						0 1	N/A T/RH detection

For LED indication, add the suffix -LED at the end of the model.

PM2.5/PM10 Typical consistency accuracy curve: max deviation (%):



IAQMD Multi-function IAQ(VOC/CH_2O/PM2.5/PM10/CO_2/T/RH) Detector



Applications & Features

- Simultaneously detect indoor air quality, like VOC, CH_2O, PM2.5/PM10, CO_2, T/RH, up to 7 parameters. Model IAQM is for wall mount and IAQMG can be wall or ceiling mount
- VOC: detect various contaminants (VOCs), including wood, paint and others produced by toluene, cigarette, ammonia odor, CO, alcohol, natural gas and even body smell. Low power consumption and good T/RH compensation
- CH_2O: good accuracy, fast response, excellent anti-interference, extremely low power consumption and good temp. and humidity characteristics, stable and reliable, no need for regular calibration
- PM2.5/PM10: detect PM2.5 and PM10 concentration in air with particle sizes 0.3~10μm. The sensor has good long-term stability, high consistency accuracy and supports continuous service mode. MBTF is 3+ years for continuous service (8~10 years in typical stable working conditions and auto(intermittent) work mode), free maintenance
- CO_2: detect CO_2 concentration of air with Automatic Baseline Correction algorithm, accurate measurement and temp. compensation, good long-term stability and reliability, fast response
- T/RH: use high-precision digital temp. and humidity sensor, ensure good measurement
- Optional red/yellow/green LED indicating the poor/fair/good air quality. The alarm point or interval can be flexibly set through RS485/Modbus. The three-color ring enclosure for IAQMG is patented design by TEREN
- Power and outputs have over voltage and reverse polarity protection, high reliability and anti-interference capability

Specifications

VOC

Sensor: High performance metal oxide semiconductor sensor, min. 5~7 years life span
Range: 0(400) ~2000ppm equivalent CO_2

CH_2O

Sensor: Eectrochemical sensor, >3 years life span
Range: 0~1000ppb
Accuracy: ±10%FS@25°C

PM2.5/PM10

Sensor: Laser particulate sensor, detected size 0.3~10um
Service Life: MBTF 3+years in continuous service mode (8~10 years in auto (intermittent) service mode)
Measuring range: >1000 μ g/m^3
Range: PM2.5: 0~500±ug/m^3, particle size 0.3~2.5um
PM10:0~600ug/m^3, particle size 0.3~10um
Accuracy: ±10 ug/m^3 @0~100ug/m^3, ±10% reading @100~500ug/m^3@25°C/50%RH, see accuracy curve
Resolution: 1ug/m^3
Response time: in continuous service mode, sample time<1s, general response time<10s

CO_2

Sensor: NDIR sensor, with ABC algorithm, >15 years life
Accuracy: ±50ppm±5% reading @10~40°C
Response time(T90): <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000ppm (measurement range 400~2000ppm)

Temperature

Sensor: Digital temperature sensor
Measurement range: -40~125°C
Accuracy: <±0.5°C@10~40°C
Repeatability: 0.1°C
Response time: typical 10~30s (25°C, low airflow)
Drift: <±0.04°C/year

Relative Humidity

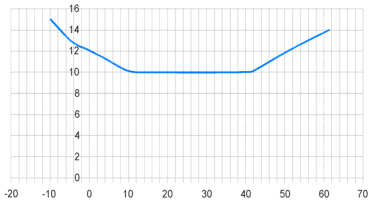
Sensor: Digital capacitance sensor
Range: 0~100%RH
Accuracy: typical ±3%RH@25°C/20~85%RH
Repeatability: 0.1%RH
Hysteresis: <±1.0%RH
Response time: typical 10s (25°C, low airflow)
Drift: <±0.25%RH/year

Power: 16~28VAC/16~35VDC
Output: RS485/Modbus, R/W enable, 9600 bps
Warm up time: 15 min
Working environment: 0~50°C, 10~90%RH (Non-cond.)
Storage temperature: -20~60°C
Housing: fire retardant PC (UL94V-0), Protection: IP54
Weight: 370~410g
Approval: CE

Models

Model	IAQMD						Duct mount Multi-function IAQ Detector
VOC		0 1					N/A VOC detection
CH_2O			0 1				N/A CH_2O detection
PM				0 1			N/A PM2.5/PM10 detection
CO_2					0 1		N/A CO_2 detection
T/RH						0 1	N/A T/RH detection

PM2.5/PM10 Typical consistency accuracy curve: max deviation (%):



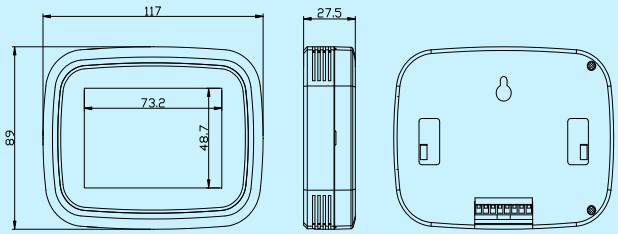
IAQMP Color Screen Indoor Air Quality(VOC/CH_2O/PM2.5/PM10/CO_2/T/RH)Detector



IAQMP53142



IAQMP345



Applications and features

- Simultaneously detect indoor air quality, like VOC, CH_2O, PM2.5/PM10, CO_2, T/RH, up to 7 parameters. Model IAQM is for wall mount and IAQMG can be wall or ceiling mount
- VOC: detect various contaminants (VOCs), including wood, paint and others produced by toluene, cigarette, ammonia odor, CO, alcohol, natural gas and even body smell. Low power consumption and good T/RH compensation
- CH_2O: good accuracy, fast response, excellent anti-interference, extremely low power consumption and good temp. and humidity characteristics, stable and reliable, no need for regular calibration
- PM2.5/PM10: detect PM2.5 and PM10 concentration in air with particle sizes 0.3~10μm. The sensor has good long-term stability, high consistency accuracy and supports continuous service mode. MBTF is 3+ years for continuous service (8~10 years in typical stable working conditions and auto(intermittent) work mode), free maintenance
- CO_2: detect CO_2 concentration of air with Automatic Baseline Correction algorithm, accurate measurement and temp. compensation, good long-term stability and reliability, fast response
- T/RH: use high-precision digital temp. and humidity sensor, ensure good measurement
- Power and output have over voltage and reverse polarity protection, high reliability and anti-interference capability
- All electrical terminals are on the back, avoid any possible damage to PCB when wiring

Specifications

VOC

Sensor: High performance metal oxide semiconductor sensor, min. 5~7 years life span
Range: 0(400) ~2000ppm equivalent CO_2

CH_2O

Sensor: Electrochemical sensor, >3 years life span
Range: 0~1000ppb
Accuracy: ±10%FS@25°C

PM2.5/PM10

Sensor: Laser particulate sensor, detected size 0.3~10um
Service Life: MBTF 3+ years in continuous service mode (8~10 years in auto (intermittent) service mode)
Measuring range: >1000 μ g/m^3
Range: PM2.5: 0~500±ug/m^3, particle size 0.3~2.5um
PM10:0~600ug/m^3, particle size 0.3~10um
Accuracy: ±10 ug/m^3 @0~100ug/m^3, ±10% reading @100~500ug/m^3@25°C/50%RH, see accuracy curve
Resolution: 1ug/m^3
Response time: in continuous service mode, sample time<1s, general response time<10s

CO_2

Sensor: NDIR sensor, with ABC algorithm, >15 years
Accuracy: ±50ppm±5% reading @10~40°C
Response time(T90): <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000ppm (measurement range 400~2000ppm)

Temperature

Sensor: Digital temperature sensor
Measurement range: -40~125°C
Accuracy: typical<±1.0°C@10~40°C
<±1.5°C@10~40°C(with CO_2 detection)
Repeatability: 0.1°C
Response time: typical 10~30s (25°C, low airflow)
Drift: <±0.04°C/year

Relative Humidity

Sensor: Digital capacitance sensor
Range: 0~100%RH
Accuracy: typical ±5%RH@25°C/20~85%RH
Repeatability: 0.1%RH
Hysteresis: <±1.0%RH
Response time: typical 10s (25°C, low airflow)
Drift: <±0.25%RH/year

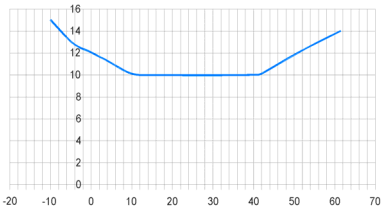
Power: 16~28VAC/16~35VDC
Output: RS485/Modbus, R/W enable, 9600 bps
Warm up time: 15 min
Working environment: 0~50°C, 10~90%RH (Non-cond.)
Storage temperature: -20~60°C
Housing: fire retardant PC (UL94V-0)
Protection: IP30
Weight: 300g
Approval: CE

Models

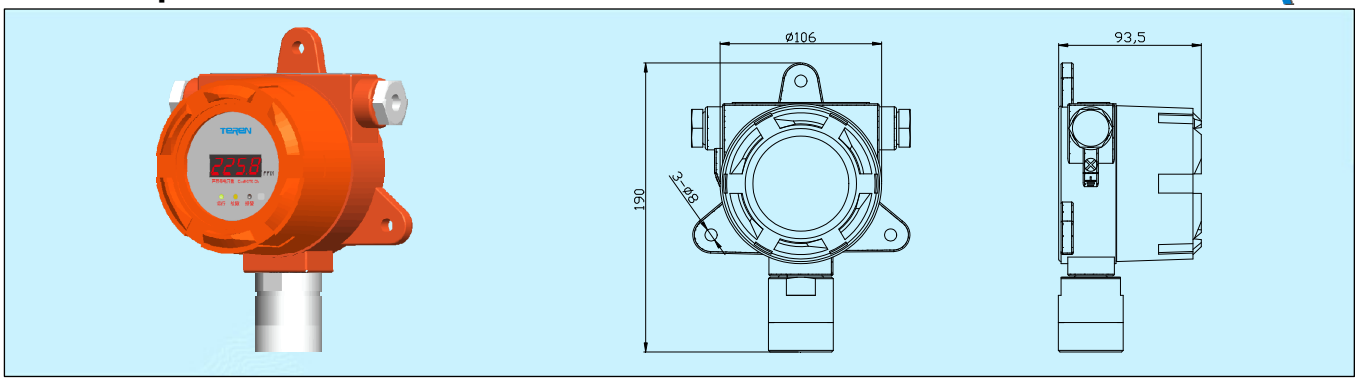
Models	IAQMP	X1	X2	X3	X4	X5	Color screen indoor air quality detector
Sensor code	Sensor codes are: 1:VOC; 2:CH_2O; 3:PM2.5/PM10; 4:CO_2; 5:T/RH						

Instructions: min. 1 sensor, max. 5 sensors are needed. Codes X1-X5 correspond to any one of the codes 1-5, and can be combined in any order, representing the position on the LCD. But any code can only be applied one time. Examples: IAQMP34, IAQMP1345, IAQMP2345, IAQMP43125, etc. Pictures above are IAQMP53142 and IAQMP345. For more models with different LCD examples, please refer to the instruction manual.

PM2.5/10 Typical Accuracy, Maximum Deviation (%):



G3Ex Explosion Proof Gas Detector



Applications & Features

- Industrial die cast aluminum explosion proof housing, with the sensor module placed in a separated metal probe chamber, ensure electrically isolated from the housing
- Moisture and corrosion resistant, IP66 protection rate, can be used in various harsh and hazardous environments
- Professional high sensitivity gas sensors, stable signal, high precision, wide measuring range and good linearity
- State of art housing, easy installation
- Modular sensor assembly, easy replacement and maintenance
- Meet explosion proof standards GB 3836.1 and GB 3836.2 with certificate Ex d II C T6 Gb. Apply for zone 1&2 hazardous area where there are explosive mixtures of IIA, IIB, IIC, T1-T6 combustible gas, vapor and air

Specifications

Gases and specifications: see the table below
Power: DC24V±25%
Output: 0~10V, 4~20mA (3 wires), RS485/Modbus
Relay: SPST, 3A/30VDC
Load: ≥2kΩ (0-10V), ≤500Ω (4-20mA)
Display: LED digital display, power/fault/alarm LED indicator
Operating condition: -20~55°C, 10~95%RH(Non-cond.), pressure 86~106kPa
Housing: die cast aluminum housing, SS probe and SS sintered mesh filter
Protection: IP66
Weight: 1.4kg
Approvals: Ex d II C T6 Gb, ATEX (2014/34/EU), EMC (2014/30/EU, EN50270), CMC Metrological Certificate CPA2020C129-44 (H_2S)

Models

Model	G3Ex				Ex-proof Gas Detector
Gas Type & Range		1 2 7 9			O_2, 0~30% VOL H_2S, 0~100 μ mol/mol NO_2, 0~20 ppm Other
Output			1 2 8		0~10V 4~20mA (3 wires) RS485/Modbus
Relay Output				0 1	NA 1×SPST, 3A/30VDC

Detected Gases and Specifications

GAS	Sensor type	Range	Accuracy	Repeatability	Response time	Sensor Life*	Remark
O_2	Electro chemical	0-30%VOL	0.7%VOL	1%	60S	2-3 year	Resolution 0.1% VOL
H_2S	Electro chemical	0-100 μ mol/mol	5 μ mol/mol	2%	60S	2-3 year	Drift<10 ppm/year
NO_2	Electro chemical	0-20 ppm	3%FS	2%	60S	2 year	Resolution 0.1 ppm

*1: @23±3°C, 40±10%RH

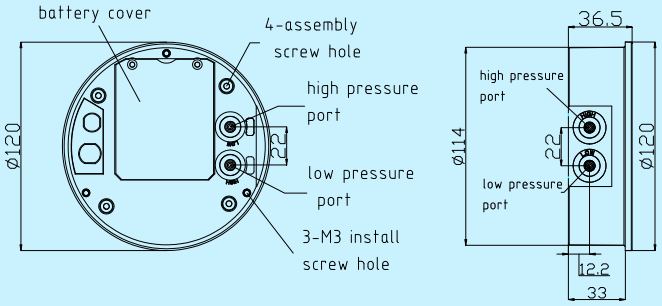
D2/D2P Digital Differential Pressure Gauge



Battery type/Power & LCD



Power & LED type



Applications and features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. It can completely replace the traditional pointer mechanical gauge
- It can measure system pressure of fan, blower, filter, furnace draft and orifice plate and can apply to various clean rooms, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- No movable parts, no effect on vibration, very thin enclosure (the flush thickness is only 33mm), good for surface, panel or flush mount. The opening for flush mount is dia. 115mm, which is the same as those popular gauges in the market
- State of art housing design, with large LCD or LED display
- Function keys: zero reset, units select, display update time, automatic sleep time, sound-light alarm, etc.
- Optional built-in buzzer and backlight for sound-light alarm
- Industrial design, can meet IP65 protection rate

Specifications

Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Work Environment: Battery type -10~50°C
Power type -20~70°C(LED), -10~60°C (LCD)
Medium Temp.: 0~60°C
Temp. Compensation: 0~50°C
Working Pressure: overload 10xFS, burst 15xFS
Accuracy: ±1.0%FS (±2.0%FS@25Pa range)
Long term stability: ±0.5%FS/Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Alarm: by built-in buzzer and LCD backlight / LED flashing
Battery type (D2):
Display: 4 bits large LCD, 68x30.5mm with figure H 22.6 mm, and engineering unit
Power: AA battery×4, recommend LR6 alkaline
Display update time: selectable for 0.5/1/5/10s (default 1s)
Automatic sleep time: selectable for normal open (NO), or 1/5/10min (default 1 min)
Battery service life: when display update time=1s and automatic sleep time=NO, ≥2 years. When display time>1s or automatic sleep time≥1min, will be longer. It also depends on the quality of the batteries.
Power type (D2P):
Display: 4 bits large LCD, 68x30.5mm with figure H 22.6 mm, or 4 bits 0.8" red LED, with engineering unit
Power: 7~28VAC/DC or 85~265VAC
Process Connection: 5mm ID tubing, two pairs (on left & back side)
Key: 3 touch buttons
Housing: fire retardant ABS (UL94 V-0)
Protection: IP65

Weight: 300g (battery type，including batteries), 260g (power type)
Approval: CE
Accessory: Standard accessories include 1002(5mm ID PVC tube 2m) and A-S0 (including 3 brackets and screws). Options are A-S1, A-S2 and A-S7-X. They can be used for surface, panel or flush mount and should be ordered separately. See details in Accessories.

Models

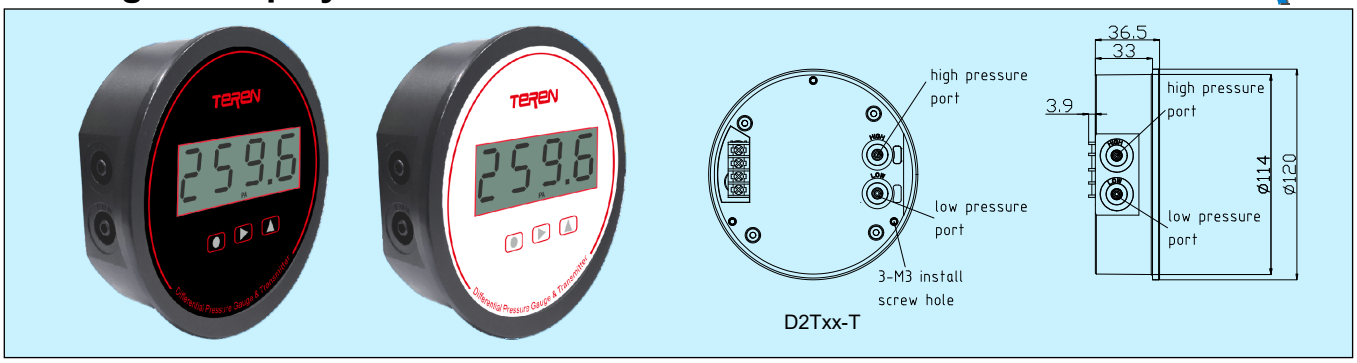
Model	D2 D2P					Digital DP gauge(battery) Digital DP gauge(power)
Range		x				Range selection
Alarm			0 1			N/A sound-light alarm
Display (D2P)				0 1		LCD LED
Power (D2P)					0 1	7~28VAC/DC 85~265VAC

Measuring Ranges

Code	UNIT & Range & Display Resolution					
	Pa	Pa	kPa	in wc	mm wc	mbar
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.000	40.00	1000.0	100.00

1.5 engineering units can be set by the key and related LCD/LED will be on.
2.For zero center models, add "Z" at the end of the model. For example, D210Z, means -30-0-30pa.

D2T Digital Display Differential Pressure Transmitter



Applications and Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure
- It can measure system pressure of fan, blower, filter, furnace draft and orifice plate and can apply to various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- Suitable for surface, panel or flush mount
- Multiple ranges, outputs, engineering units selectable
- No moving parts, no vibration, ultra-thin design (only 33mm)
- State of art housing, big screen LCD display, accuracy up to ±1%FS
- Key functions: zero calibration, engineering unit switching, response time setting, range / signal calibration, etc.

Specifications

Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Medium Temp.: 0~60°C
Work Environment: -20~70°C
Temp. Compensation: 0~50°C
Work Pressure: overload 10xFS(≤1kPa)/8xFS(≥1kPa)
burst 20xFS(≤1kPa)/10xFS(≥1kPa)
Size: 115mm diameter opening/33mm thick for flush mount
Connection: 5mm ID tubing, two pairs (left/back)
Display: 4 bits large LCD, 68x30.5mm with figure H 22.6mm, and engineering unit
Output: 0-10V (3 wires) & 4-20mA (2 wires)
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Digital Output: RS485/Modbus(9600-n-8-1)
Electrical connection: screw terminals
Accuracy: ±1.0%FS (±2%FS@25Pa)
Stability: ±0.5%FS /Year
Thermal effect: <0.05%FS/°C (Zero), <0.08%FS/°C (FS)
Response time: 0.5-30s
Power: 9-28VAC, 9~35VDC
Key: 3 touch buttons
Housing: fire retardant ABS+PC(UL94V-0)
Protection: IP65
Weight: 320g
Approval: CE
Accessory: Standard accessories include 1002(5mm ID PVC tube 2m) and A-S0 (including 3 brackets and screws). Options are A-S1, A-S2 and A-S7-X. They can be used for surface, panel or flush mount and should be ordered separately. See details in Accessories.

Models

Model	D2T			Digital display differential pressure transmitter
Range		x		See Ranges
Output			1	0-10V DC (3 wires)
			2	4-20mA (2 wires)
			8	RS485/Modbus

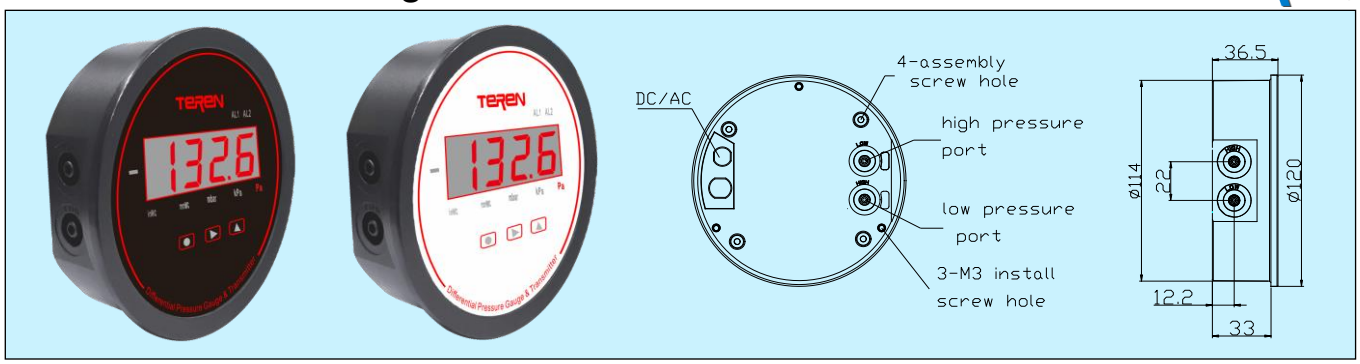
1.The standard electrical connection is cable from the back of enclosure. If select screw terminals instead, add suffix -T after the Model No.
2.The standard front cover is matte black. If select matte white instead, add suffix -W after the Model No.

Ranges

Code	UNIT & Range & Display Resolution					
	Pa	Pa	kPa	in wc	mm wc	mbar
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.000	40.00	1000.0	100.00

1. 5 engineering units can be set by keys and related LCD logo will be on.
2. For zero center models, add “Z” at the end of the model. For example, D2T1xZ, means calibrated range is -30-0-30Pa.

D2M Multi-Function Digital DP Transmitter



Applications and features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. It can replace the traditional pointer mechanical gauge
- As a "three-in-one" product, it combines gauge, two relays, and transmitter in one unit, can supply measurement, digital display, on/off control and transmitter output simultaneously
- It can measure system pressure of fan, blower, filter, furnace draft and orifice plate and can apply to various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- Suitable for surface, panel or flush mount
- Multiple ranges, outputs, alarm, engineering units selectable
- No movable parts, no effect on vibration. Super slim design (only 33mm thick for flush mount)
- The accuracy is up to ±1% FS and the range can be 25Pa
- Optional 2 relays and two LEDs for indicating alarm status
- Function keys: zero calibrate, units select, relay set, etc.

Specifications

Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Medium Temp.: 0~60°C
Work Environment: -20~70°C
Temp. Compensation: 0~50°C
Work Pressure: overload 10xFS(≤1kPa)/8xFS(≥1kPa)
burst 20xFS(≤1kPa)/10xFS(≥1kPa)
Size: 115mm diameter opening/33mm thick for flush mount
Connection: 5mm ID tubing, two pairs (left/back)
Display: 4 bits 0.8" red LED
Output: 0-10V & 4-20mA (3 wires)
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Digital Output: RS485/Modbus(9600-n-8-1)
Relay output: 2xSPST, 0.5A/30VDC or 1xBuzzer
Electrical wiring: Cable from the back of enclosure
Accuracy: ±1.0%FS (±2%FS@25Pa)
Stability: ±0.5%FS /Year
Thermal effect: <0.05%FS/°C (Zero), <0.08%FS/°C (FS)
Response time: 0.5-30s
Power: 9-28VAC, 9~35VDC, optional 85-265V AC
Key: 3 touch buttons
Housing: fire retardant ABS+PC(UL94V-0)
Protection: IP65
Weight: 335g
Approval: CE
Accessory: Standard accessories include 1002(5mm ID PVC tube 2m) and A-S0 (including 3 brackets and screws). Options are A-S1, A-S2 and A-S7-X. They can be used for surface, panel or flush mount and should be ordered separately. See details in Accessories.

Models

Model	D2M					Multi-Function Digital DP Transmitter
Range		x				Range Selection
Relay			0 1 2			N/A 2xSPST 1xBuzzer
Output				0 1 8		N/A 0-10V&4-20mA RS485/Modbus
Power					0 1	9-28VAC, 9~35VDC 85-265V AC

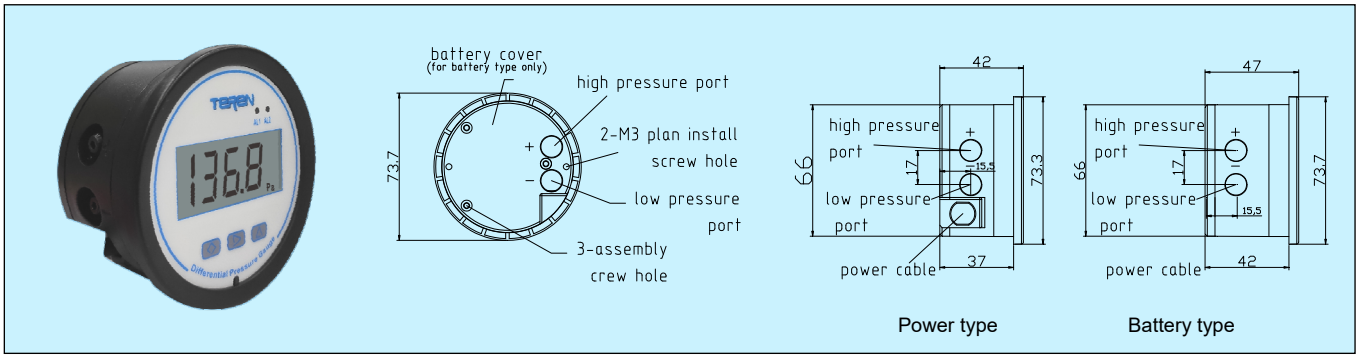
1. Can't select Code "0" for both Relay and Output.
2. When the Output is 1 or 8, Power can be only 16-28V.
3. The standard front cover is matte black. If select matte white instead, add suffix -W after the Model No.

Ranges

Code	UNIT & Range & Display Resolution					
	Pa	**Pa**	**kPa**	**in wc**	**mm wc**	**mbar**
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.000	40.00	1000.0	100.00

1. 5 engineering units can be set by keys and the related LED will be on.
2. For zero center models, add "Z" at the end of the model. For example, D2M1xxxZ, means calibrated range is -30-0-30Pa.

D5 Mini Digital Differential Pressure Gauge/Controller/Transmitter



Applications and features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. It can replace the traditional pointer mechanical gauge
- It can measure system pressure of fan, filter, etc., and can apply to various biological safety cabinet, clean bench, medical or pharmaceutical machine, etc.
- The mini size is very good for small equipment application
- It could be flush, surface or wall mount
- Accuracy is up to ±1% FS, range as low as 25pa, with large LCD display
- Function keys: zero reset, units select, display update time, automatic sleep time, alarm, etc.

Specifications

Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working Temp.: D5: -10~50°C， **D5P/G/T:** -20~70°C
Medium Temp.: 0~60°C
Temp. Compensation: 0~50°C
Working Pressure: overload 10xFS, burst 15xFS
Display: 5 bits LCD, with engineering unit & backlight (except D5)
Output: 0-10V / 4-20mA (3 wires)
Output load: ≤500Ω (current), ≥2KΩ (voltage)
Digital Output: RS485/Modbus (9600-n-8-1)
Relay Output: 2xSPST, 0.5A/30VDC or 1xBuzzer
Accuracy: up to ±1.0%FS (±2.0%FS@25Pa range)
Battery type (D5):
Power: AA battery x 4, recommend LR6 alkaline
Display update time: selectable for 0.5/1/5/10s (default 1s)
Automatic sleep time: selectable for normal open (NO), or 1/5/10min (default 1min)
Battery service life: when display update time=1s and automatic sleep time=NO, >2 year. When display time>1s or automatic sleep time>1min, will be longer. It also depends on the quality of the batteries
Power type (D5P/D5G/D5T): 16~28VDC/AC
Long term stability: ±0.5%FS /Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C(FS)
Process Connection: 5mm ID tubing, two pairs (left/back)
Keys: 3 touch buttons
Protection: IP54
Weight: 275g (battery type incl. batteries), 235g (power type)
Housing: fire retardant PA66(UL94V-0)
Approval: CE
Accessory: a set of brackets and screws, for surface or panel mount. Flush mount should use glue or other accessories

D5/D5P Models

Model	D5		Mini Digital DP Gauge (Battery type)
	D5P		Mini Digital DP Gauge (Power type)
Range		x	Range selection, only 3,5,7,8 are available

D5G Models

Model	D5G			Mini multi-function Digital DP Gauge
Range		x		Range selection
Relay			1	2xSPST
			2	1xbuzzer

D5T Models

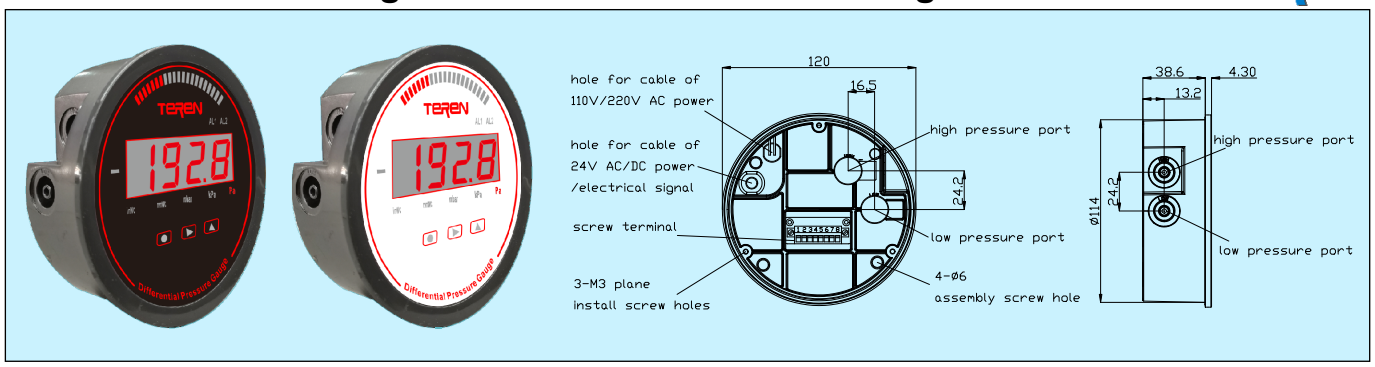
Model	D5T				Mini multi-function Digital DP Transmitter
Range		x			Range selection
Relay			0		N/A
			1		2xSPST
			2		1xBuzzer
Output				0	0-10V&4-20mA
				1	RS485/Modbus

Measuring Ranges

Code	Unit & Range & Display Resolution					
	Pa	**Pa**	**kPa**	**in wc**	**mm wc**	**mbar**
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.50	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.00	40.00	1000	100.0

1. 5 engineering units can be set by keys and related LCD will be on.
2. For D5 and D5P, only ranges 3, 5, 7, 8 are available.
3. For zero center models, add “Z” at the end of the model. For example, D5T3xxZ, means -125-0-125pa.

DPG Multifunction Digital Differential Pressure Gauge



Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. It can replace the traditional pointer mechanical gauges
- It combines a gauge and two relays for control function
- It can measure and control pressure of fan, filter, clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- No movable parts, no effect on vibration, very thin enclosure (the flush thickness is 38.6mm), good for surface, panel or flush mount. The hole for flush mount is 114mm, which is the same as those popular gauges in the market
- Multiple ranges and engineering units selectable
- The accuracy is up to ±1%FS and range as low as 25Pa
- Function keys: zero calibrate, units select, relay set, etc.
- Big and highlight LED digital display, with optional arch LED display for output and alarm
- Industrial design with cast aluminum housing, meet IP65

Specifications

Medium: non-combustible, non-corrosive air, not sensitive to moisture, dust, condensation and oil
Medium Temp.: 0~60°C
Work Environment: -20~70°C
Compensated Temp.: 0~50°C
Work pressure: 1, 2, 5 or 10Kpa for different ranges overload 5xFS, burst 10xFS
Dimension: see diagram
Connection: 5mm ID tubing, two pairs (left/back)
Display: 4 bits 0.8" red LED
Relay output: 2xSPST, 0.5A/30VDC or 1xBuzzer
Electrical wiring: cable or screw terminals
Accuracy: ±1.0% FS (±2.0%FS@25Pa range)
Long term stability: ±0.5%FS /Year
Thermal effect: <0.05%FS/°C(Zero), <0.08%FS/°C(FS)
Response time: 0.5~30s
Power: 16~28V AC/ DC, optional 85~265V AC
Key: 3 touch buttons
Housing: cast aluminum housing and fire retardant PC plate (UL94V-0)
Protection: IP65
Weight: 340g
Approval: CE
Accessory: Standard accessories include 1002(5mm ID PVC tube 2m) and A-S0 (including 3 brackets and screws). Options are A-S1, A-S2 and A-S7-X. They can be used for surface, panel or flush mount and should be ordered separately. See details in Accessories.

Models

Model	DPG					Multifunction Digital Differential Pressure Gauge
Range		x				Range selection
Arch LED			0 1			N/A Arch LED
Relay				0 1 2		N/A 2xSPST 1xBuzzer
Power					0 1	16-28V DC/AC 85-265V AC

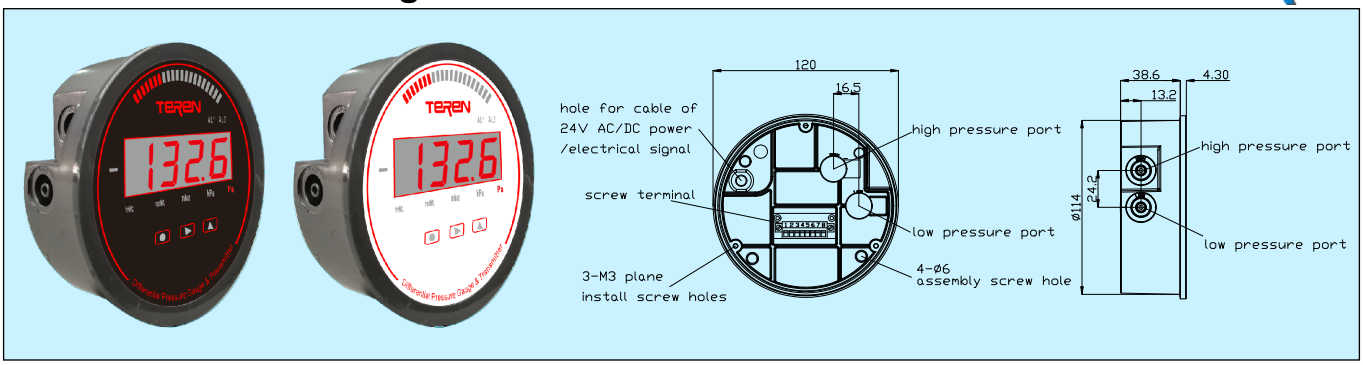
1. The standard electrical connection is cable from the back of enclosure. If select screw terminals instead, add suffix -T after the model number (only for 16-28V DC/AC).
2. The standard front panel is matte black. If choose matte white, add the suffix -W after the model number.

Measuring Ranges

Code	UNIT & Range & Display Resolution					
	Pa	**Pa**	**kPa**	**in wc**	**mm wc**	**mbar**
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.000	40.00	1000.0	100.00

1.5 engineering units can be set by keys and the related LED will be on.
2.For zero center models, add "Z" at the end of the model. For example, DPG1xxxZ, means -30-0-30pa.

DPGT Multifunction Digital Differential Pressure Transmitter



Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure
- It combines gauge, two relays and transmitter in one unit, can supply measurement, digital display, on/off control and transmitter output simultaneously
- It can measure and control pressure of fan, filter, clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- Suitable for surface, panel or flush mount
- Multiple ranges, outputs and engineering units selectable
- No movable parts, no effect on vibration
- The accuracy is up to ±1% and range as low as 25Pa
- Function keys: zero/range calibrate, units select, relay set, output calibrate, etc.
- Optional arch LED display for output and alarm

Specifications

Medium: non-combustible, non-corrosive air, not sensitive to moisture, dust, condensation and oil
Medium Temp.: 0~60°C
Work Environment: -20~70°C
Compensated Temp.: 0~50°C
Work pressure: 1, 2, 5 or 10Kpa for different ranges
overload 5Xfs, burst 10xFS
Dimension: see diagram
Connection: 5mm ID tubing
Display: 4 bits 0.8" red LED
Output: 0~10V & 4~20mA (3 wires), RS485/Modbus
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Digital output: RS485-Modbus RTU (9600-n-8-1)
Relay output: 2xSPST, 0.5A/30VDC or 1xBuzzer
Electrical wiring: cable or screw terminals
Accuracy: ±1.0%FS (±2.0%FS@25Pa range)
Long term stability: ±0.5%FS /Year
Thermal effect: <0.05%FS/°C(Zero), <0.08%FS/°C(FS)
Response time: 0.5~30s
Power: 16~28V AC or 16~35V DC
Key: 3 touch buttons
Housing: cast aluminum housing and fire retardant PC plate (UL94V-0)
Protection: IP65
Weight: 340g
Approval: CE
Accessory: Standard accessories include 1002(5mm ID PVC tube 2m) and A-S0 (including 3 brackets and screws). Options are A-S1, A-S2 and A-S7-X. They can be used for surface, panel or flush mount and should be ordered separately. See details in Accessories.

Models

Model	DPGT					Multifunction Digital Differential Pressure Transmitter
Range		x				Range selection
Arch LED			0 1			N/A Arch LED
Relay				0 1 2		N/A 2xSPST 1xBuzzer
Output					0 1	0-10V&4-20mA RS485/Modbus

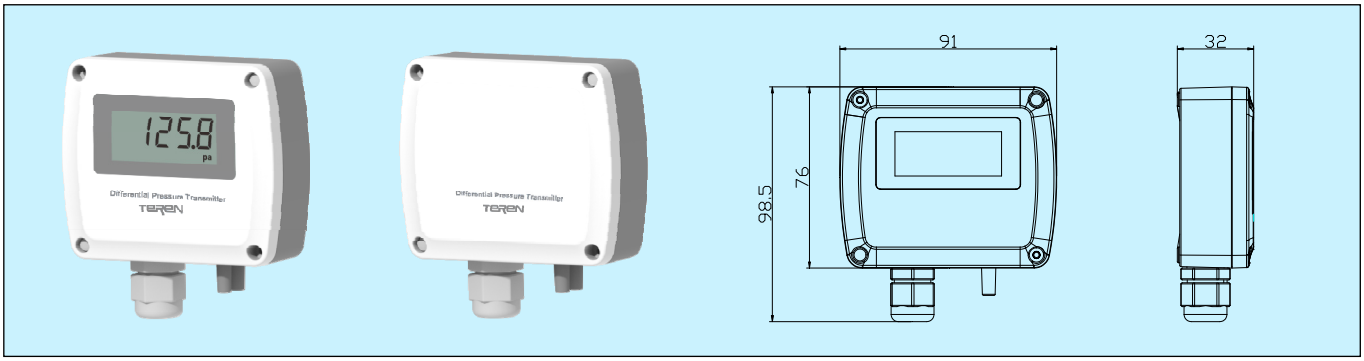
1. The standard electrical connection is cable from the back of enclosure. If select screw terminals instead, add suffix -T after the model number.
2. The standard front panel is matte black. If choose matte white, add the suffix -W after the model number.

Measuring Ranges

Code	UNIT & Range & Display Resolution					
	Pa	**Pa**	**kPa**	**in wc**	**mm wc**	**mbar**
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.000	40.00	1000.0	100.00

1.5 engineering units can be set by keys and the related LED will be on.
2.For zero center models, add "Z" at the end of the model. For example, DPGT1xxxZ, means -30-0-30pa.

DPTL Differential Pressure Transmitter



Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. DPTL is for surface mount and DPTL-F is for flush mount
- It can measure pressure of fan, filter, various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- Multiple ranges, engineering units, outputs and optional LCD
- Over voltage and reverse polarity protection for power inputs and outputs, high reliability
- Good performance with accuracy of 1.0% and range as low as 25Pa
- Function keys: zero calibrate, unit select, response time set, etc.

Specifications

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working Temp.: -20~70°C
Medium Temp.: 0~60°C
Temp. Compensation: 0~50°C
Range: 25Pa(±12.5Pa)~10kPa(±5kPa)
Accuracy: ±1.0%FS (±2.0%FS@25Pa range)
Long term stability: ±0.5%FS/Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Response Time: 0.5/1/2/5s, can be set by DIP switches
Zero set: easy to reset by external key
Process Connection: 5mm ID tubing
Display: 5 digits LCD, size 44x18mm, with unit indication
Units: 5 units, selected by DIP switches
Output: 0~5V/0~10V/4~20mA(2 or 3 wires), RS485/Modbus
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Power: Voltage: 16~28VAC/ 16~35VDC
Current: 18.5~35VDC (R_L=500Ω); 8.5~35VDC (R_L=0Ω)
Housing: PC, fire retardant UL94V-0
Protection: IP65
Weight: 180g
Approval: CE
Accessories: flush mount panel (model DPTL-A), can be ordered separately

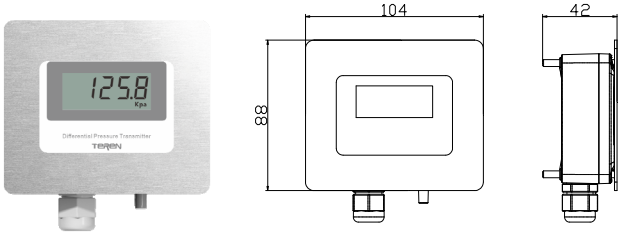
Models

Model	DPTL DPTL-F				DP transmitter Flush mount DP transmitter
Range		x			Range selection
Output			1 2 8		0~5V/0~10V/4~20mA (3 wires) 4~20mA (2 wires) RS485/Modbus
Display				0 1	N/A LCD

DPTL-F Flush Mount DP Transmitter

It's the combination of DPTL (with LCD) and flush mount panel (model DPTL-A). The specifications are the same as DPTL. And the model is DPTL-Fxx1(with LCD).

It's for flush mount in various clean room or equipment. The 316 brushed stainless steel panel does not have any dust collection, easy and safe to clean. The size is W104×H88 ×T1.5(mm). The opening is W94×H78.5×D42(mm). The LCD size is 44x18(mm).

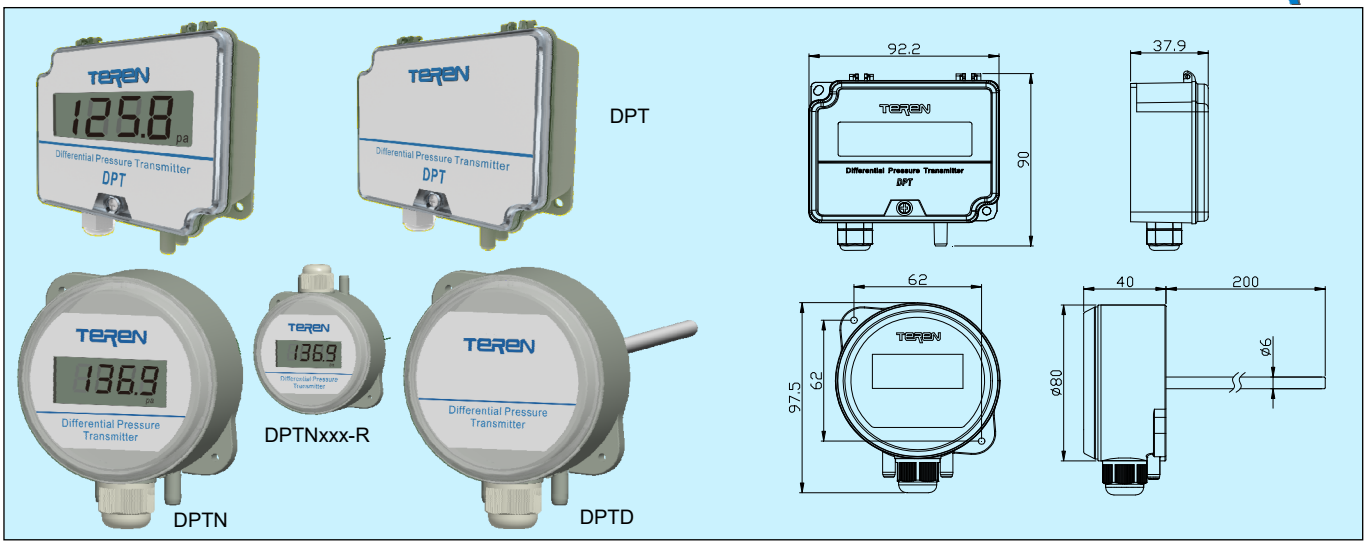


Ranges

Code	UNIT & Range & Display Resolution					
	Pa	**Pa**	**kPa**	**in wc**	**mm wc**	**mbar**
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.000	40.00	1000.0	100.00

1. Set the 5 engineering units by DIP switches and the related LCD indicator will be on.
2. For zero center models, add "Z" at the end of the model. For example, DPTL1xxZ, means the range is -30-0-30Pa.

DPT/DPT-F/DPTN/DPTD Differential Pressure Transmitter



Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. DPT and DPTN are for surface mount, DPT-F is for flush mount, DPTD with static pressure probe is for duct mount
- It can measure pressure of fan, blower, filter, various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- Multiple ranges, engineering units and outputs
- Good accuracy of 1.0% and range as low as 25Pa
- Function keys: zero calibrate, unit select, response time set, etc.
- Field upgradable LCD display module and multiple ranges selectable. The LCD of DPTN/DPTD can have 180° reverse installation

Specifications

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working Temp.: -20~70°C
Medium Temp.: 0~60°C
Temp. Compensation: 0~50°C
Working Pressure: overload 10xFS, burst 15xFS
Accuracy: ±1.0%FS (±2.0%FS@25Pa range)
Long term stability: ±0.5%FS/Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Response Time: 0.5/1/2/5s, can be set by DIP switches
Process Connection: 5mm ID tubing
Display: DPTN/DPTD: 5 digits LCD, size 44x18mm, with unit indication
DPT: 4 digits LCD, size 65x18mm, with unit indication
Output: 0~10V, 4~20mA (2 wires), 0~5V, RS485 selectable
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Power: Voltage: 16~28VAC/ 16~35VDC
Current: 18.5~35VDC (R_L=500Ω); 8.5~35VDC (R_L=0Ω)
Units: 5 units, selected by DIP switches
Zero set: easy to reset by external key
Housing: ABS+PC (housing) & PC(Cover), fire retardant UL94V-0
Protection: DPT: IP54; DPTN/DPTD: IP65
Weight: DPT/DPTN: 165g; DPTD: 200g
Approval: CE
Accessories: LCD display module (model DPT-LCD or DPTN-LCD), including 1 LCD module and 1 panel film, and flush mount panel (model DPT-A), can be ordered separately

Models

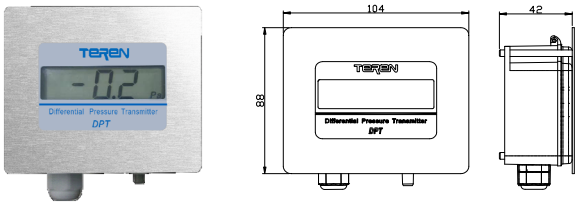
Model	DPT DPTN DPTD DPT-F				Room DP transmitter Room DP transmitter Duct mount DP transmitter Flush mount DP transmitter
Range		x			Range selection
Output			1 2 E 8		0-10V 4-20mA (2 wires) 0-5V RS485/Modbus
Display				0 1	N/A LCD

If select reverse installation for LCD of DPTN or DPTD, add suffix –R after model No.

DPT-F Flush Mount DP Transmitter

It's the combination of DPT (with LCD) and flush mount panel (model DPT-A). The specifications are the same as DPT. And the model is DPT-Fxx1(with LCD).

It's good for flush mount in various clean room or equipment. The 316 brushed stainless steel panel does not have any dust collection, easy and safe to clean. The size is W104×H88×T1.5. The opening is W93×H79×D42(mm).

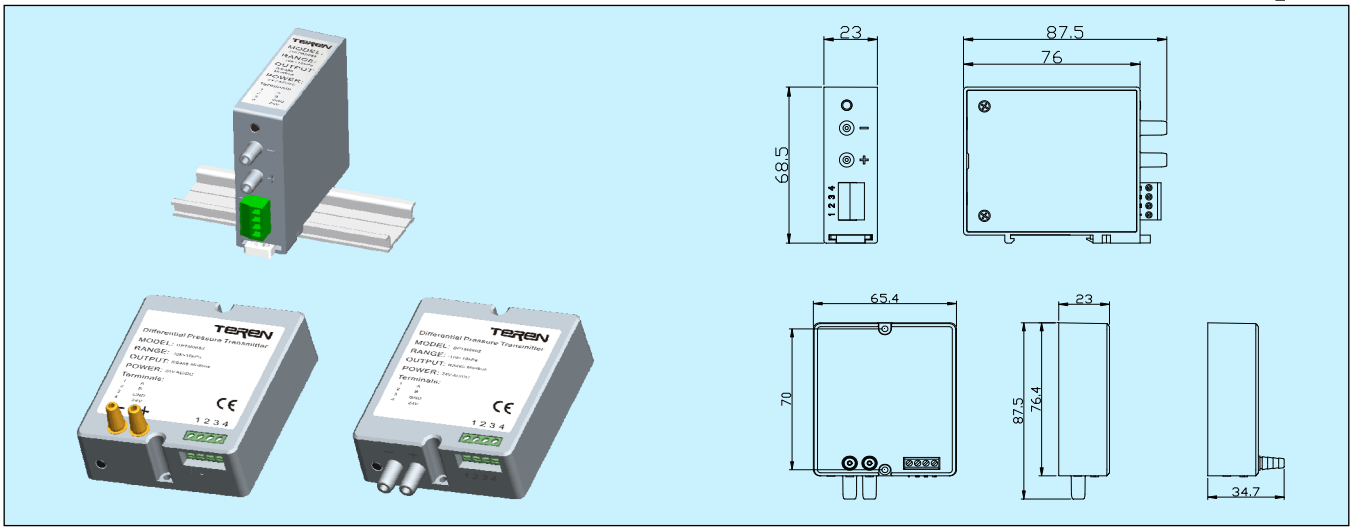


Measuring Ranges

Code	Unit & Range & Display Resolution					
	Pa	Pa	kPa	in wc	mm wc	mbar
1	0-25/60/125	25.0	0.025	0.100	2.50	0.250
		60.0	0.060	0.250	6.00	0.600
		125.0	0.125	0.500	12.00	1.250
3	0-250/500/1000	250.0	0.250	1.000	25.00	2.500
		500.0	0.500	2.000	50.00	5.000
		1000	1.000	4.000	100.0	10.00
6	0-2500/5000/10000	2500	2.500	10.00	250.0	25.00
		5000	5.000	20.00	500.0	50.00
		10000	10.00	40.00	1000	100.0

1. Each model has 3 ranges which could be jumper selected.
2. Set the 5 engineering units by DIP switches and the related LCD indicator will be on.
3. For zero center models, add "Z" at the end of the model. For example, DPT1xxZ, means the range is -30-0-30/-62.5-0-62.5pa. 25Pa does not have this function. DPT3xxZ, means the range is -125-0-125/-250-0-250/-500-0-500pa.
4. For DPT/DPT-F, if the measured value is -0.xxx, the LCD will display -.xxx. When the measured value is -1xxx, the LCD will display "⊣ xxx" .

DPTR/DPTM Rail Mount/Mini Differential Pressure Transmitter



Applications & Features

- DPTR designed specifically for standard 35mm DIN rail mount, DPTM designed for general panel mount. Compact and suitable for installation in tight spaces inside control panels or instrumentation equipment
- Apply high accuracy MEMS sensor and digital technologies, can measure differential pressure on equipment such as isolator, clean bench and cabinet for pharmaceutical, biological safety and medicine research, microelectronics, hazardous chemicals operation and various laboratories
- Multiple ranges, engineering units and outputs selectable
- Good performance, accuracy 1.0% or 0.5%FS selectable
- Other functions: zero reset, response time set, etc.

Specifications

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil

Temp.: Working -20~70°C; Medium 0~60°C; Compensation 0~50°C; Storage -30~70°C

Working Pressure: overload 10xFS, burst 15xFS

Performance:

Accuracy %FS	±1.0%	±0.5%
Thermal Effect %FS/°C(Zero/FS)	±0.05/0.08	±0.03/0.04
Stability %FS/Year	±0.5	±0.3

Response Time: 0.5/1/2/5s, can be set by keys

Process Connection: 5mm ID tubing

Output: 0~10V, 4~20mA (2 wires) or RS485, selectable

Output Load: ≤500Ω (current), ≥2kΩ (voltage)

Power: Current: 18.5~35VDC (R_L=500Ω), 8.5~35VDC (R_L=0Ω)
Voltage: 16~28VAC/ 16~35VDC

Zero reset: outside key to operate easily

Housing: fire retardant ABS+PC(UL94V-0)

Protection: IP30

Approval: CE, meet EN61326-1 for industrial equipment

Models

Model	DPTR DPTM					Rail Mount DP Transmitter Mini DP Transmitter
Accuracy		0 1				±1%FS ±0.5%FS
Range			x			Range selection
Output				1 2 8		0~10V 4~20mA (2 wires) RS485/Modbus
Nozzle					0 1	Horizontal Vertical

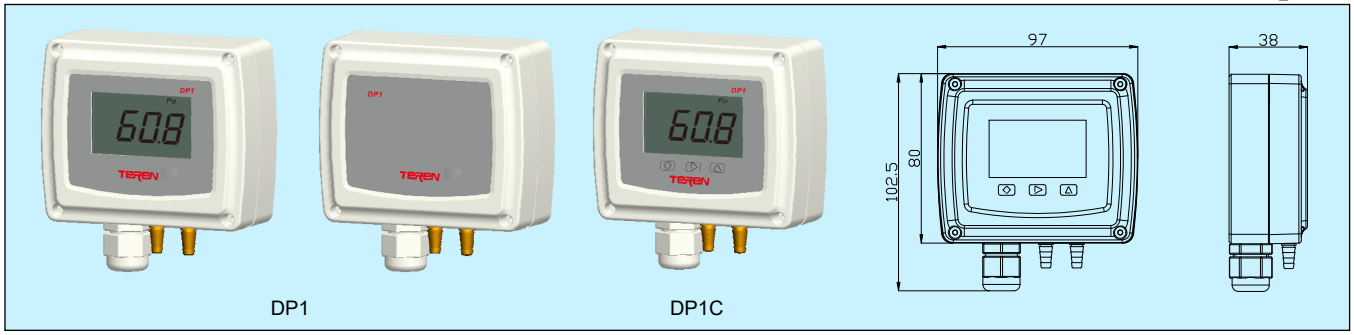
Only DPTM need to select nozzle as 0 or 1. DPTR does not.

Measuring Ranges

Code	Pa	Code	Pa
0	0~25	5	0~1000
1	0~60	6	0~2500
2	0~125	7	0~5000
3	0~250	8	0~10000
4	0~500		

For zero center models, add “Z” at the end of the model. For example, DPTMx0xxZ, means the range is -30-0-30Pa.

DP1/DP1C Industrial Differential Pressure Transmitter/Controller



Applications & Features

- Apply high accuracy MEMS sensor and digital technology, can measure positive, negative or differential pressure
- It can measure pressure of fan, blower, filter, various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- High accuracy, excellent temp. compensation and electromagnetic interference (EMI) ability (industrial EMI level 3), good for applications in complex EMI environments of industrial systems or equipment
- Multiple ranges and engineering units, optional LCD display with unit indication
- Multiple outputs selection, over voltage and reverse polarity protection, high reliability
- Very good performance/price ratio, with accuracy up to 0.5% and range as low as 25Pa
- Function keys: zero reset, unit select, response time set, etc.
- DP1C has relay for independent alarm or ON/OFF control
- High protection rate up to IP65

Specifications

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working/Medium Temp.: -20~70°C
Temp. Compensation: 0~60°C
Range: 0~25/10000Pa, see ranges table
Working Pressure: overload 10xFS(<=1kPa)/8xFS(>1kPa)
burst 20xFS(<=1kPa)/10xFS(>1kPa)
Performance:

Accuracy %FS	±1.0%	±0.5%
Thermal effect %FS/°C(Zero/FS)	±0.05/0.08	±0.03/0.04
Stability %FS/Year	±0.5	±0.3

Response Time: 0.5/1/2/5 s, can be set by DIP switch
Transmitter output: 0~10V, 4~20mA (2 wires), 0~5V
Output Load: ≤500Ω(current), ≥2kΩ(voltage)
Communication: 1 RS485/Modbus, R/W enable, 9600 bps, terminal resistance settable
Display and Keys: Optional large LCD display with unit and backlight (N/A for 4~20mA)
Display resolution: 0.1 Pa (or equivalent), unit switchable
Display update time: <1s
Power: current 18.5~35VDC (R_L=500Ω), 8.5~35VDC (R_L=0Ω)
voltage 16~28VAC/16~35VDC
Power consumption：1.5VA
Process Connection: 5mm ID tubing
Zero set: easy to reset by keys
Work Temp.: -20~70°C, 0~95%RH (Non cond.)
Medium Temperature: 0~60°C
Storage Temperature: -30~85°C, 0~95%RH (Non cond.)
Housing: fire retardant PC(UL94V-0), copper nozzle
Protection: IP65
Weight: 220g
Approval: CE, meet EN61326-1 for industrial equipment

Models

Model	DP1					Industrial diff. pressure transmitter
Accuracy		0				1%FS
		1				0.5%FS
Range			x			Range selection
Output				1		0~10VDC
				2		4~20mA (2 wires)
				E		0~5VDC
				8		RS485/Modbus RTU
Display					0	N/A
					1	LCD (no backlight for 4~20mA output)

DP1C Differential Pressure Controller Specifications

The controller is originated from the DP10x11, with no transmitter output but with 2 relay outputs, LCD display and 3 keys for displaying and setting control parameters. Therefore, most of its technical parameters are the same as those of DP10x11. The different parts are:
Relay: 2×SPST, 3A/30VDC, 3A/250VAC
Display and Keys: large LCD with unit, backlight and 3 keys

Models

Model	DP1C			Industrial differential pressure controller
Range		x		Range selection
Communication			0	N/A
			1	RS485/Modbus RTU

Measuring Ranges

Code	UNIT & Range & Display Resolution					
	Pa	Pa	kPa	in wc	mm wc	mbar
0	0-25	25.0	0.025	0.100	2.50	0.250
1	0-60	60.0	0.060	0.250	6.00	0.600
2	0-125	125.0	0.125	0.500	12.00	1.250
3	0-250	250.0	0.250	1.000	25.00	2.500
4	0-500	500.0	0.500	2.000	50.00	5.000
5	0-1000	1000	1.000	4.000	100.0	10.00
6	0-2500	2500	2.500	10.00	250.0	25.00
7	0-5000	5000	5.000	20.00	500.0	50.00
8	0-10000	10000	10.000	40.00	1000.0	100.00

1. Set the 5 engineering units by DIP switch and the related LCD indicator will be on.
2. For zero center models, add “Z” at the end of the model. For example, DP1**Z, means the range is -30-0-30Pa.
3. If the measured value is -0.xxx, it will be displayed as -.xxx on the LCD.

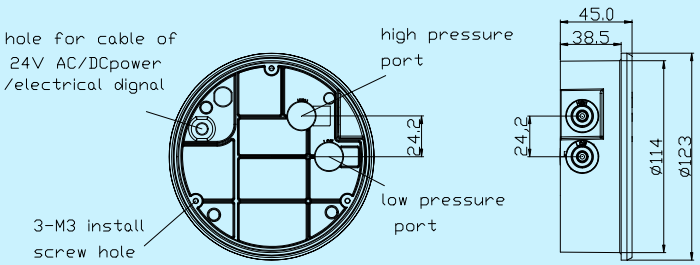
SDP Smart DP Monitor



Cast aluminum housing



ABS housing



The diagram is for cast aluminum housing

Applications & Features

- With the unique design of color TFT-LCD as dial display, it integrates the traditional pointer and digital display can achieve the complex functions of display, output and alarm
- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure
- It can measure and control pressure of fan, filter, various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- State of art design, good for surface, panel or flush mount
- Multiple ranges, outputs, alarm, engineering units selectable
- Optional 2 individual SPST relays for alarm setting
- No movable parts, no effect on vibration
- The accuracy is up to ±0.5% FS and the range can be 25Pa
- Function keys: zero calibrate, units select, relay set, etc.
- High-bright color display, can display analog pointer, trend chart, measured value, alarm color, alarm status, alarm set point, etc., set by the buttons, refers to attached pictures

Specifications

Sensor: high accuracy MEMS sensor
Medium: non-combustible, non-corrosive air, not sensitive to moisture, dust, condensation and oil
Medium Temp.: 0~60°C
Material: ABS or Cast aluminum housing, PC plate and Chrome plated bezel
Size: Φ115mm opening, 38.5mm (cast aluminum) or 33mm (ABS) thick for flush mount
Work Environment: -20~70°C
Compensated Temp.: 0~50°C
Work Pressure: overload 10xFS(≤1kPa)/8xFS(≥1kPa)
burst 20xFS(≤1kPa)/10xFS(≥1kPa)
Performance:

Accuracy %FS	±1.0%	±0.5%
Thermal Effect %FS/°C(Zero/FS)	±0.05/0.08	±0.03/0.04
Stability %FS/Year	±0.5	±0.3

note: ±2%FS and ±1%FS@25Pa range
Response time: 0.5/1/2/5s, can be set by keys
Display: high contrast 3.5" TFT color LCD, resolution 320x480
Output: 0~10V & 4~20mA (3 wires), RS485/Modbus
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Relay output: 2xSPST, 0.5A/30VDC or 1xBuzzer
Key: 3 touch buttons
Electrical wiring: 0.5m cable from back or screw terminal on back (only for Cast aluminum housing)
Power: 16~28VAC, 9~28VDC
Connection: 5mm ID tubing, two pairs (on left & back side)
Weight: 515g (cast aluminum)/400g (ABS)
Protection: IP65
Approval: CE, meet EN61326-1 for industrial equipment

Accessory: Standard accessories include 1002(5mm ID PVC tube 2m) and A-S0 (including 3 brackets and screws). Options are A-S1, A-S2 and A-S7-X. They should be ordered separately. See details in Accessories.

Models

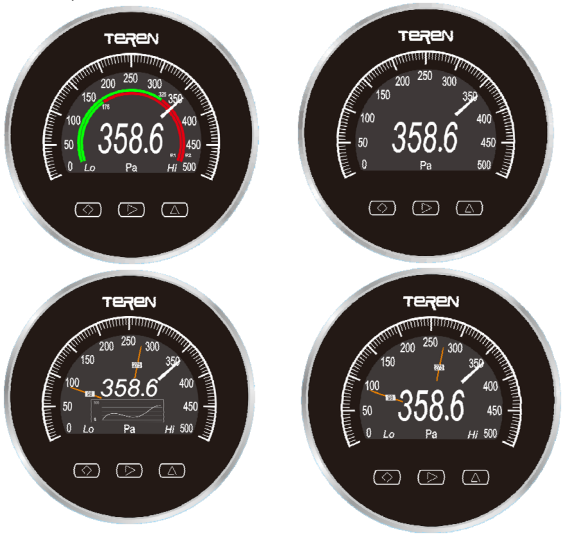
Model	SDP						Smart DP Monitor
Accuracy		0					1%FS
		1					0.5%FS
Range			x				Range selection
Relay				0			N/A
				1			2xSPST
				2			1xBuzzer
				3			1xBuzzer+2xSPST
Output					0		N/A
					1		0-10V&4-20mA
					8		RS485/Modbus
Housing						0	ABS
						1	Casting aluminum

The standard electrical connection is cable from the back. Cast aluminum housing can be screw terminals instead, add suffix -T after the model number.

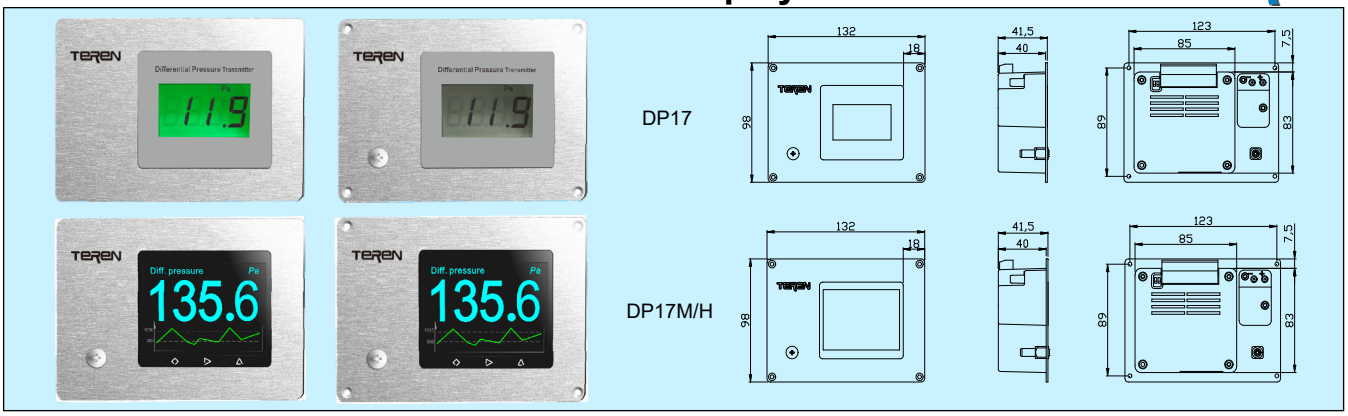
Measuring Ranges

Code	UNIT & Range & Display Resolution					
	Pa	Pa	kPa	in wc	mm wc	mbar
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00
6	**0-2500**	2500	2.500	10.00	250.0	25.00
7	**0-5000**	5000	5.000	20.00	500.0	50.00
8	**0-10000**	10000	10.000	40.00	1000.0	100.00

1. 5 engineering units can be set by keys.
2. For zero center models, add "Z" at the end of the model. For example, SDPx1xxxxZ, means -30-0-30Pa.



DP17/DP17M/DP17H Flush Mount DP Display Unit/Transmitter



Applications & Features

- Designed for flush mount, measure and display environment differential pressure such as cleanrooms in electronics or pharmaceutical plants, hospital and laboratories, etc.
- 316L front panel, PMMA window, flat surface, no dust stays, good for all detergents, sanitizers and bactericides
- Strong EMI capability, compatible with the EMI requirements of EN61326-1 for industrial equipment
- DP17 has large LCD and DP17M/H has 3.2" TFT color LCD
- High performance sensor, accuracy up to 0.5%FS, range as low as 0~25Pa, 100% interchangeable sensor without re-calibration, with 1 channel 4~20mA output
- Compatible to any DDC/PLC/SCADA or other data collect and control systems

Specifications

Different pressure sensor:

DP Measurement	DP17/DP17M	DP17H
Accuracy	1%FS(2%FS@0~25Pa)	0.5%FS(1%FS@0~25Pa)
Range	0~60/0~125 Pa, etc. see range table	
Long term drift	<0.5%FS/Year	
Response time	0.5/1/5/10(switchable)	
Thermal effect	<0.05%FS/°C(Zero)	<0.03%FS/°C(Zero)
Temp. comp.	0~50°C	
Medium Temp.	0~60°C	
Work Pressure	10xFS(overload), 20xFS(burst)	

Display:

(1) DP17: 4 bits LCD (with backlight), display area 47x27mm, with figure H 16mm and unit H 2mm

(2) DP17M/H: 3.2" TFT color LCD (320×240), high light, can be set to DP value and real-time curves by keys

Display panel material: PMMA
Resolution: 0.1Pa (or 0.001 in wc/mbar, 0.01mm wc, etc., switchable)
Update time: <1s
Power supply: 16~28VAC/19~35VDC
Consumption: DP17<1 VA, DP17M/H<2 VA
Analog output: 1×4~20mA (3/4 wires), R_L<500Ω; over voltage and reverse polarity protection; accuracy<0.1%FS(0.5%FS)/0.3%FS(1%FS)
Communication(DP17M/H): 1xRS485/Modbus RTU, R/W 9600 baud rate; can set brightness, display setting functions and parameters calibration, etc. May set terminal resistance
Data curve (DP17M/H): Support real time curve trend display
Keys(DP17M/H): can set display mode/parameter, brightness, unit and communication parameters, etc.
Process connection: Built-in DP sensor: 2 conical nozzles on back, Ø 5 mm tube connection

Zero set: zero button / key
Terminals: max 1.5mm^2
Work environment: 0~50°C, 0~95%RH (no cond.)
Storage environment: -10~70°C
Front panel material: 316L stainless steel, 1.5mm thick
Back housing parts: fire retardant ABS+PC(UL94V-0)
Protection: front panel IP65
Weight: DP17 385g; DP17M/H 440g
Approval: CE, meet EN61326-1 for industrial equipment

Models

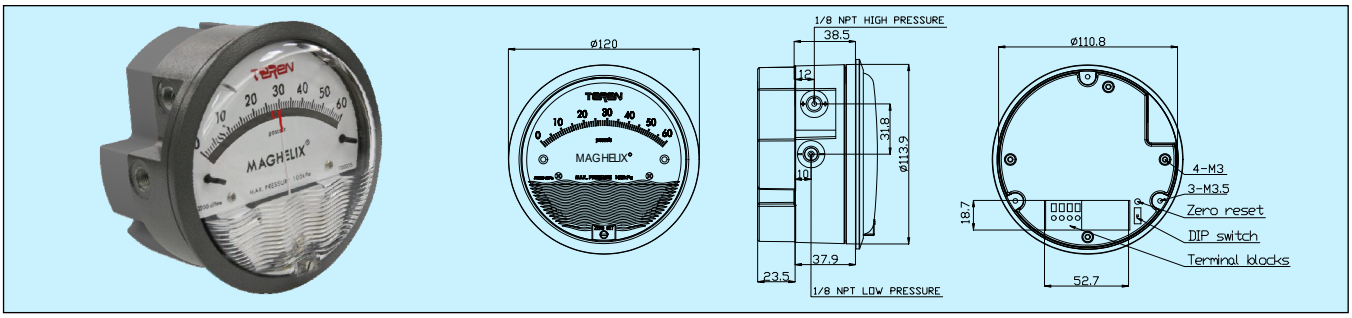
Model	DP17 DP17M DP17H				Flush Mount DP Display Unit/Transmitter
Range		x			Range selection
Pressure Screw			0		N/A
			1		1 pressure sampling screw on front panel
Install Holes				0	N/A
				1	4 holes at corners, with SS screws

Measuring Ranges

Code	UNIT & Range & Display Resolution					
	Pa	Pa	kPa	in wc	mm wc	mbar
0	**0-25**	25.0	0.025	0.100	2.50	0.250
1	**0-60**	60.0	0.060	0.250	6.00	0.600
2	**0-125**	125.0	0.125	0.500	12.00	1.250
3	**0-250**	250.0	0.250	1.000	25.00	2.500
4	**0-500**	500.0	0.500	2.000	50.00	5.000
5	**0-1000**	1000	1.000	4.000	100.0	10.00

1.For DP17, the 5 engineering units can be set by DIP switch, the related LCD indicator will be on. For DP17M/H, the units can be set by keys.
2.For zero center models, add "Z" at the end of the model. For example, DP171xxZ, means the range is -30-0-30Pa.

A2T Differential Pressure Gauge/Transmitter



Applications & Features

- Combined with differential pressure gauge and transmitter as one unit, apply for positive, negative or differential pressure measurement, display and control. It can measure system pressure of fan, filter, etc., and various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- The gauge uses the technology and design of A2000, with simple and frictionless movement, provides precise pointer display with an accuracy of up to 2%FS. The indication function is independent with the electrical transmitter and can work even when the power supply is absent
- The electrical transmitter uses MEMS sensor and digital technology with accuracy up to ±1%FS
- Multiple ranges, outputs, alarm, engineering units selectable, the standard installation is panel mount

Specifications

Service: Air and non-combustible compatible gases
Working temperature: -7~60°C

Gauge

Accuracy: ±2%FS(125Pa：±3%, 60Pa：±4%) @20~26°C
Pressure Limits: -70 to 100 kPa
Zero adjustment: screw at the bottom of front cover

Transmitter

Accuracy: ±1.0%FS
Stability: ±0.5%FS /Year
Output: 0~10V, 4~20mA (2 wires), RS485 selectable
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Temp. Compensation: 0~50°C
Thermal effect: <0.05%FS/°C (Zero), <0.08%FS/°C (FS)
Response time: <5 s
Power: Voltage: 16~28VAC/ 16~35VDC
Current: 18.5~35VDC (R_L=500Ω); 8.5~35VDC (R_L=0Ω)
Zero reset: easy to reset by reset button on back
Electrical connection: screw terminals on back

Work Pressure: overload 10xFS(≤1kPa)/8xFS(≥1kPa)
burst 20xFS(≤1kPa)/10xFS(≥1kPa)
Connections: 1/8 NPT female +/- ports, one pair on side
Housing materials:
Front: Die cast aluminum case and bezel, PC cover
Back: Fire retardant PC(UL94V-0)
Protection: front housing IP67
back housing IP30(except for terminals)
Weight: 0.77kg
Approval: CE

Models

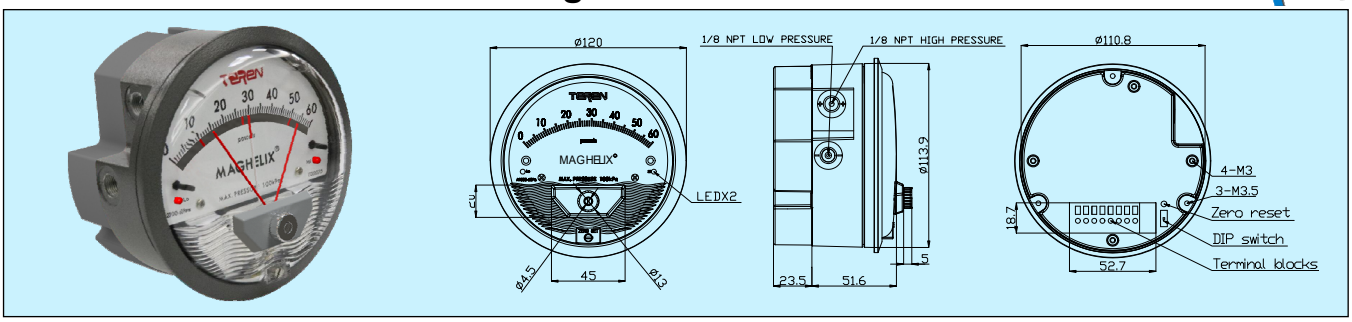
Model	A2T			DP gauge and transmitter
Range		xx		Range selection
Output			1	0~10V
			2	4~20mA(2 wires)
			8	RS485/Modbus

Measuring Ranges

Code	Pa	Code	in wc	Code	mm wc	Code	kPa
01**	0~60	11**	0~0.25	21**	0~6	05	0~1
02*	0~125	12*	0~0.50	22*	0~10	06	0~2
03	0~250	13	0~1	23	0~25	07	0~5
04	0~500	14	0~2	24	0~50	08	0~10
0A**	-30~30	1A**	-0.125~0.125	25	0~100	**Code**	**in wc**
0B*	-60~60	1B*	-0.25~0.25*	**Code**	**cm wc**	15	0~4
0C*	-125~125	1C	-0.5~0.5	36	0~20	16	0~8
				37	0~50	17	0~20
				38	0~100	18	0~40

Accuracy of gauge: ** 4%; * 3%; Others 2%.
Accuracy of the transmitter: 1% FS.

A2GT Differential Pressure Gauge/Switch/Transmitter



Applications & Features

- Combined with differential pressure gauge, switch and transmitter as one unit, apply for positive, negative or differential pressure measurement, display and control. It can measure system pressure of fan, filter, etc., and various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- The gauge uses the technology and design of A2000, with simple and frictionless movement, provides precise pointer display with accuracy of up to 2%FS. The indication function is independent with the electrical transmitter and can work even when the power supply is absent
- The differential pressure switch has two switches which indicate high and low limit. The mechanical settings can be set by knob on the cover and indicated by two red pointers. The electrical settings can be done by RS485
- The electrical switches and transmitter use MEMS sensor and digital technology with accuracy up to ±1% FS
- Multiple ranges, outputs, alarm, engineering units selectable, the standard installation is panel mount

Specifications

Service: Air and non-combustible compatible gases
Temperature Limits: -7~60°C
Power: 16~28VAC/16~35VDC or 85~265VAC, see Models

Gauge

Accuracy: ±2%FS(125Pa：±3%, 60Pa：±4%) @20~26°C
Pressure Limits: -70~100 kPa
Zero adjustment: screw at the bottom of front cover

Switch

Output: 2xSPST, 0.5A/30VDC, with 2 red LEDs and 1 buzzer
Accuracy: ±1%FS
Dead Zone: 1%FS (configurable by RS485)
Alarm setting: knob sets pointers limits position, RS485 sets electrical parameters

Transmitter

Accuracy: ±1.0%FS
Stability: ±0.5%FS/Year
Output: 0~10V, 4~20mA (2 wires), RS485 selectable
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Temp. Compensation: 0~50°C
Thermal effect: <0.05%FS/°C(Zero), <0.08%FS/°C (FS)
Response time: <5 s

Zero reset: easy to reset by reset button on back
Electrical connection: screw terminals on back

Work Pressure: overload 10xFS(≤1kPa)/8xFS(≥1kPa)
burst 20xFS(≤1kPa)/10xFS(≥1kPa)
Connections: 1/8 NPT female +/- ports, one pair on side
Housing: Front: Die cast aluminum case and bezel, PC cover
Back: Fire retardant PC(UL94V-0)
Protection: front IP65，back IP30(except for terminals)
Weight: 0.86kg
Approval: CE

Models

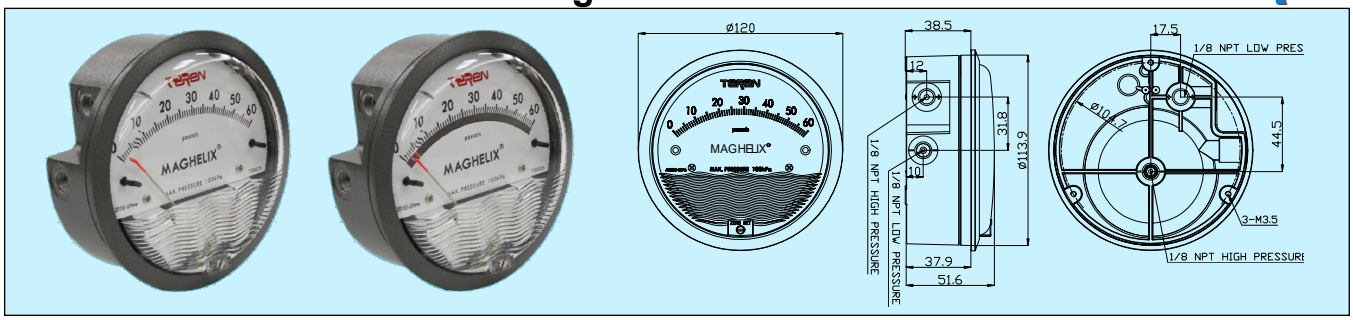
Model	A2GT				DP gauge/switch/transmitter
Range		xx			Range selection
Transmitter Output			0		N/A
			1		0~10V/4~20mA, RS485/Modbus
Power				0	16~28VAC/16~35VDC
				1	85~265VAC(No transmitter output models only)

Measuring Ranges

Code	Pa	Code	in wc	Code	mm wc	Code	kPa
01**	0~60	11**	0~0.25	21**	0~6	05	0~1
02*	0~125	12*	0~0.50	22*	0~10	06	0~2
03	0~250	13	0~1	23	0~25	07	0~5
04	0~500	14	0~2	24	0~50	08	0~10
0A**	-30~30	1A**	-0.125~0.125	25	0~100	**Code**	**in wc**
0B*	-60~60	1B*	-0.25~0.25*	**Code**	**cm wc**	15	0~4
0C*	-125~125	1C	-0.5~0.5	36	0~20	16	0~8
				37	0~50	17	0~20
				38	0~100	18	0~40

Accuracy of gauge: ** 4%; * 3%; Others 2%.
Accuracy of the electrical switches and transmitter: 1% FS.

A2000 Differential Pressure Gauge



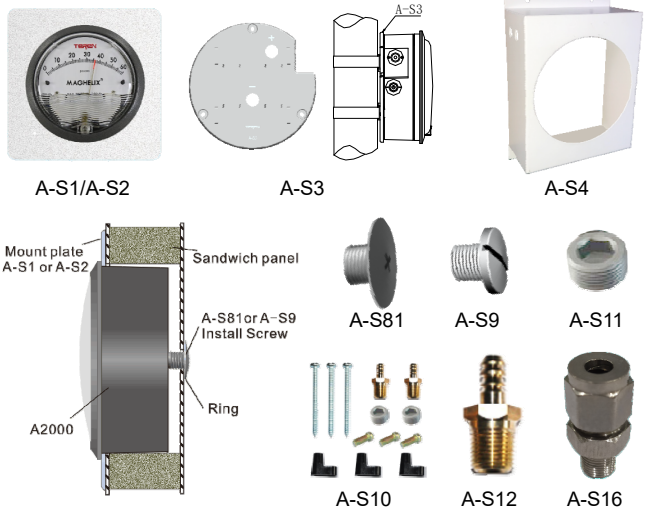
Applications & Features

- Can measure system pressure of fan, filter, various clean rooms, bio-safety cabinet, clean bench, medical equipment, air sampler, pharmaceutical, grain or food machine, etc.
- 69 models available for different ranges and units
- With simple and frictionless movement, it quickly indicates air or gas pressure, either positive, negative or differential
- The design resists shock, vibration and over pressure
- Ultra-thin design, the flushed part is only 38.5mm, and the overall thickness is only 52.2mm
- Patented state of art wave shape decorative front cover
- Standard accuracy up to 2%
- Optional mirror scale overlay eliminating parallax reading error and chrome plated bezel, adjustable signal indicator or customized color scale or logo
- Use very fine parts and assembly procedures to ensure accurate, stable and reliable for long term application. Each one has Test Report for multiple points and fine packing

Specifications

Service: Air and non-combustible compatible gases
Housing: Die cast aluminum case and bezel, with PC cover
Protection: IP67
Accuracy: ±2%FS (125Pa: ±3%, 60Pa: ±4%)@20~26°C
Pressure Limits: -70~100 KPa
Size: Φ101.5mm dial, Φ115 mm opening for flush mount
Temperature Limits: -16~60°C
Connections: 1/8 NPT, 1 or 2 pairs, see pressure connection
Weight: 440g
Mounting method: Flush or surface in vertical position
Standard accessory: Model A-S10 for 2 pairs or A-S19 for 1 pair, see Accessories
Other Accessories: sold separately, see Accessories
Approval: RoHS

Mounting Accessories:



A-S1/A-S2 A-S3 A-S4

A-S81 A-S9 A-S11

A-S10 A-S12 A-S16

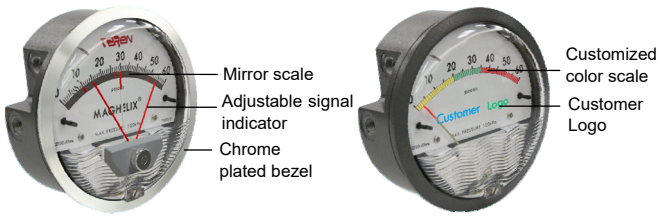
Models

Model Number	Ranges Pa	Model Number	Ranges wc
A2000-60NPa*	10-0-50	A2000-00N**	0.05-0-.2
A2000-60Pa**	0-60	A2000-00**	0-.25
A2000-100Pa*	0-100	A2000-0*	0-.50
A2000-125Pa*	0-125	A2001	0-1.0
A2000-250Pa	0-250	A2002	0-2.0
A2000-500Pa	0-500	A2003	0-3.0
A2000-750Pa	0-750	A2004	0-4.0
Zero Center Ranges Pa		A2005	0-5.0
A2300-60Pa**	30-0-30	A2006	0-6.0
A2300-100Pa*	50-0-50	A2008	0-8.0
A2300-120Pa*	60-0-60	A2010	0-10
A2300-250Pa	125-0-125	A2012	0-12
A2300-500Pa	250-0-250	A2015	0-15
Model Number	Range kPa	A2020	0-20
A2000-1KPa	0-1	A2025	0-25
A2000-1.5KPa	0-1.5	A2030	0-30
A2000-2KPa	0-2	A2040	0-40
A2000-3KPa	0-3	Zero Center Ranges in wc	
A2000-4KPa	0-4	A2300-00**	.125-0-.125
A2000-5KPa	0-5	A2300-0*	.25-0-.25
A2000-8KPa	0-8	A2301	.5-0-.5
A2000-10KPa	0-10	A2302	1-0-1
Zero Center Ranges kPa		A2304	2-0-2
A2300-1KPa	.5-0-.5	A2310	5-0-5
A2300-2KPa	1.0-0-1.0	Model Number	Range cm wc
Model Number	Range mm wc	A2000-15cm	0-15
A2000-6mm**	0-6	A2000-20cm	0-20
A2000-10mm*	0-10	A2000-25cm	0-25
A2000-15mm*	0-15	A2000-50cm	0-50
A2000-25mm	0-25	A2000-80cm	0-80
A2000-30mm	0-30	A2000-100cm	0-100
A2000-50mm	0-50	Zero Center Ranges cm wc	
A2000-80mm	0-80	A2300-4cm	2-0-2
A2000-100mm	0-100	A2300-10cm	5-0-5
A2000-150mm	0-150	A2300-20cm	10-0-10
A2000-250mm	0-250	Zero Center Ranges mm wc	
A2000-300mm	0-300	A2300-6mm**	3-0-3
A2000-500mm	0-500	A2300-10mm*	5-0-5
		A2300-20mm	10-0-10

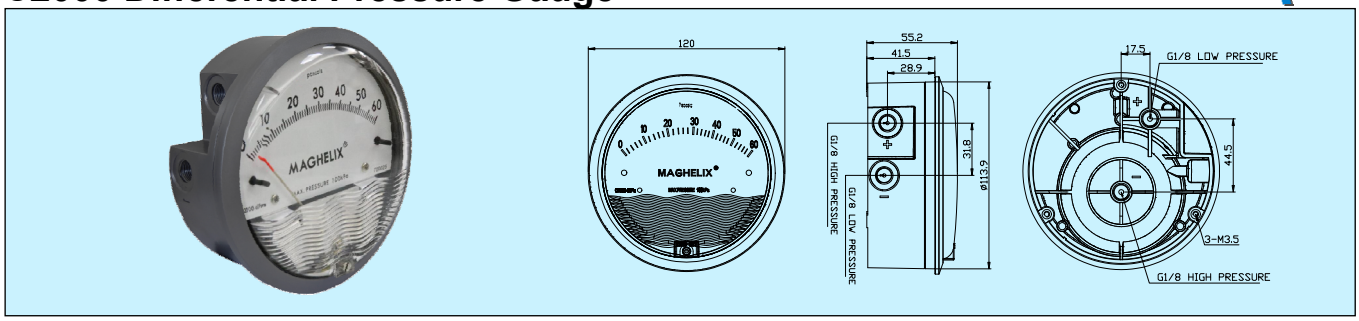
**Accuracy 4%; *Accuracy 3%; Others accuracy 2%

Options

1. **Mirror Scale:** Eliminates parallax reading error, to order add suffix -M.
2. **Chrome plated bezel:** to order add suffix -C.
3. **Adjustable Signal Indicator:** Two mechanical pointers can be set via the knob on the cover, indicating the alarm point or scale. 1 or 2 pointers are available, with suffix -ASI1 or -ASI2 respectively.
4. **Customized color scale: Max. 3** color(red-yellow-green) to indicate the alarm status. to order add suffix -Y.
5. **Customer Logo:** Customers can order their own logo with multi-color. to order add suffix -L.



C2000 Differential Pressure Gauge



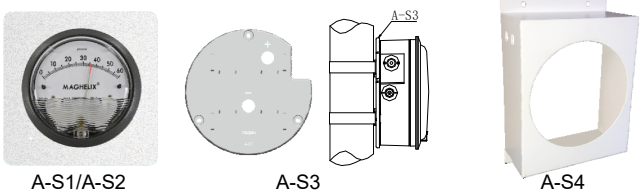
Applications & Features

- Can measure system pressure of fan, filter, various clean rooms, bio-safety cabinet, clean bench, medical equipment, air sampler, pharmaceutical, grain or food machine, etc.
- 69 models available for different ranges and units
- With simple and frictionless movement, it quickly indicates air or gas pressure, either positive, negative or differential
- The design resists shock, vibration and over pressure
- Ultra-thin design, the flushed depth is 41.5mm
- No rusting state of art plastic enclosure, patented wave shape decorative front cover
- Good accuracy up to 2%
- Only one pair of pressure connection models is available, which can minimize the risk of sealing defects and improve the efficiency of installation and pressure connections
- Optional mirror scale to eliminate sight-reading errors and can be customized with color or customer logo
- Apply precise components, fine assembly and commission process, multi-points calibration and inspection, ensure good performance standard

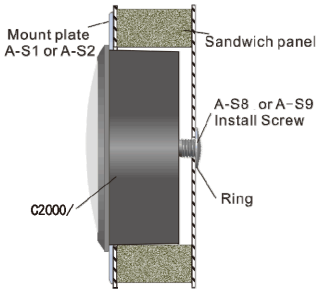
Specifications

Service: Air and non-combustible compatible gases
Housing: PC case and front cover, aluminum alloy bezel
Protection: IP67
Accuracy: ±2%FS (125Pa: ±3%, 60Pa: ±4%)@20~26°C
Pressure Limit: -70~100 KPa
Size: Φ101.5mm dial, Φ115mm opening for flush mount
Temperature Limit: -15~60°C
Connection: G1/8, 1 or 2 pairs, see pressure connections
Weight: 260g
Mounting method: Flush or surface in vertical position
Standard accessory: A-S60(for 2 pairs ports models) or A-S69(for 1 pair ports models), see Accessories
Other Accessories: sold separately, see Accessories
Approval: RoHS

Mounting Accessories



A-S1/A-S2 A-S3 A-S4





A-S61 A-S62 A-S60 A-S69

Models

Model Number	Range Pa	Model Number	Range in wc
C2000-60NPa*	10-0-50	C2000-00N**	0.05-0-.2
C2000-60Pa**	0-60	C2000-00**	0-.25
C2000-100Pa*	0-100	C2000-0*	0-.50
C2000-125Pa*	0-125	C2001	0-1.0
C2000-250Pa	0-250	C2002	0-2.0
C2000-500Pa	0-500	C2003	0-3.0
C2000-750Pa	0-750	C2004	0-4.0
Zero Center Ranges Pa		C2005	0-5.0
C2300-60Pa**	30-0-30	C2006	0-6.0
C2300-100Pa*	50-0-50	C2008	0-8.0
C2300-120Pa*	60-0-60	C2010	0-10
C2300-250Pa	125-0-125	C2012	0-12
C2300-500Pa	250-0-250	C2015	0-15
Model Number	Range kPa	C2020	0-20
C2000-1KPa	0-1	C2025	0-25
C2000-1.5KPa	0-1.5	C2030	0-30
C2000-2KPa	0-2	C2040	0-40
C2000-3KPa	0-3	Zero Center Ranges in wc	
C2000-4KPa	0-4	C2300-00**	.125-0-.125
C2000-5KPa	0-5	C2300-0*	.25-0-.25
C2000-8KPa	0-8	C2301	.5-0-.5
C2000-10KPa	0-10	C2302	1-0-1
Zero Center Ranges kPa		C2304	2-0-2
C2300-1KPa	.5-0-.5	C2310	5-0-5
C2300-2KPa	1.0-0-1.0	Model Number	Range cm wc
Model Number	Range mm wc	C2000-15cm	0-15
C2000-6mm**	0-6	C2000-20cm	0-20
C2000-10mm*	0-10	C2000-25cm	0-25
C2000-15mm*	0-15	C2000-50cm	0-50
C2000-25mm	0-25	C2000-80cm	0-80
C2000-30mm	0-30	C2000-100cm	0-100
C2000-50mm	0-50	Zero Center Ranges cm wc	
C2000-80mm	0-80	C2300-4cm	2-0-2
C2000-100mm	0-100	C2300-10cm	5-0-5
C2000-150mm	0-150	C2300-20cm	10-0-10
C2000-250mm	0-250	Zero Center Ranges mm wc	
C2000-300mm	0-300	C2300-6mm**	3-0-3
C2000-500mm	0-500	C2300-10mm*	5-0-5
		C2300-20mm	10-0-10

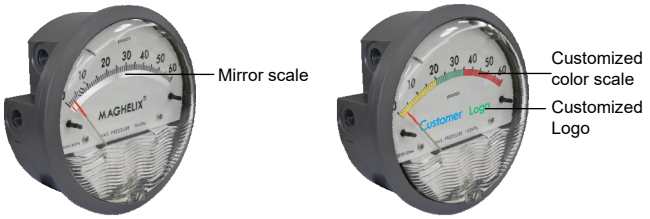
**Accuracy 4%; *Accuracy 3%; Others accuracy 2%

Pressure connection

1. G1/8, only one pair on the side: add suffix -S, with accessory A69.
2. G1/8, only one pair on the back: add suffix -B, with accessory A69.
3. G1/8, two pairs on the side and back: no suffix, with accessory A60.

Options

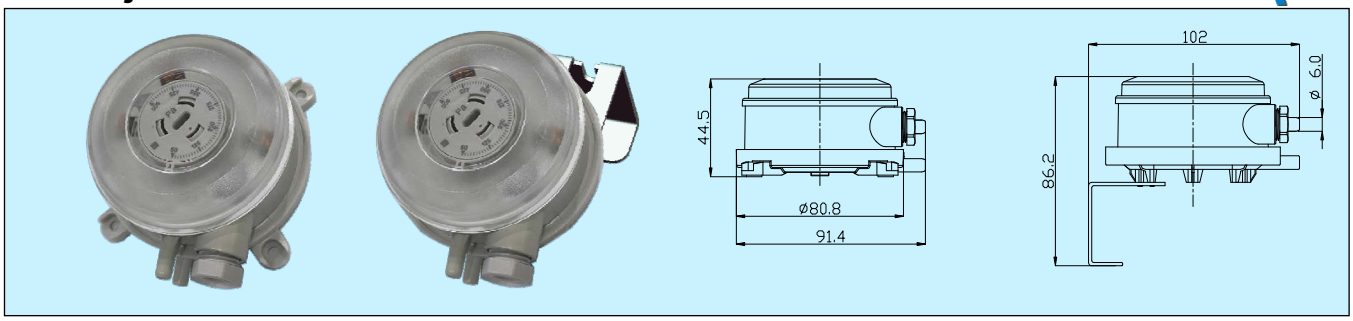
1. **Mirror Scale:** Eliminates parallax reading error. To order add suffix -M.
2. **Customized color scale:** Max. 3 colors(red-yellow-green) to indicate the alarm status. To order add suffix -Y.
3. **Customized Logo:** can be multi-colored. To order add suffix -L.



Model example

C2000-500Pa-S-M: 0-500Pa, G1/8 pressure connection, side pair only, with mirror scale

606 Adjustable Differential Pressure Switch



Applications & Features

Monitoring overpressure, vacuum and differential pressure of the air and other non-combustible, non-aggressive gases

Specifications

Adjustable range: 4 ranges, see models
Pressure limit: 7500Pa (-30~75°C)
Working and storage temperature: -30~75°C
Pressure port: Φ5.0mm ID PVC tube, +/P1 is high, -/P2 is low
Service life: over 10^6 switching cycles
Electrical contact: SPDT, 2A/250VAC, 1A/30VDC
Max. switching frequency: 6 switching cycles/min
Electrical connection: Flag or screw terminals
Repeatability: ±2%
Materials: housing PC, diaphragm silicone, contact silver plated brass
Weight: 135g with bracket, 85g without bracket
Protection: IP54
Approval: CE

Accessories (should be ordered separately)

Model	Description
1001	Individual accessory package: clear PVC tube 2m, static pressure tip (1003) 2 pcs, screws 4 pcs
1003	1 pc static pressure tip, straight type, 0° angle opening
1004	Individual accessory package: clear PVC tube 2m, total pressure tip (1005) 2 pcs, screws 4 pcs
1005	1 pc total pressure tip, straight type, 60° angle opening
1008	Individual accessory package: clear PVC tube 2m, static pressure tip (1009) 2 pcs, screws 4 pcs
1009	1 pc static pressure tip, L type, 0° angle opening
Kit-1001	Accessory kit, clear PVC tube 100m, static pressure tip (1003) 120 pcs, screws 240 pcs
Kit-1004	Accessory kit, clear PVC tube 100m, total pressure tip (1005) 120 pcs, screws 240 pcs
Kit-1008	Accessory kit, clear PVC tube 100m, static pressure tip (1009) 120 pcs, screws 240 pcs

Some accessories may have different Model No. for orders.



1001 1003 1004 1005 1008 1009

Models

Model	606					Adjustable Air Differential Pressure Switch
Enclosure		0				With install ear
		1				No ear, with bracket
Adjustable range			0			20~300Pa
			1			50~500Pa
			2			100~1000Pa
			3			0.5~2.5kPa
Engineering unit				0		Pa
				7		mbar
				8		inch wc
				9		mm wc
Terminal					0	Flag terminal
					1	Screw terminal

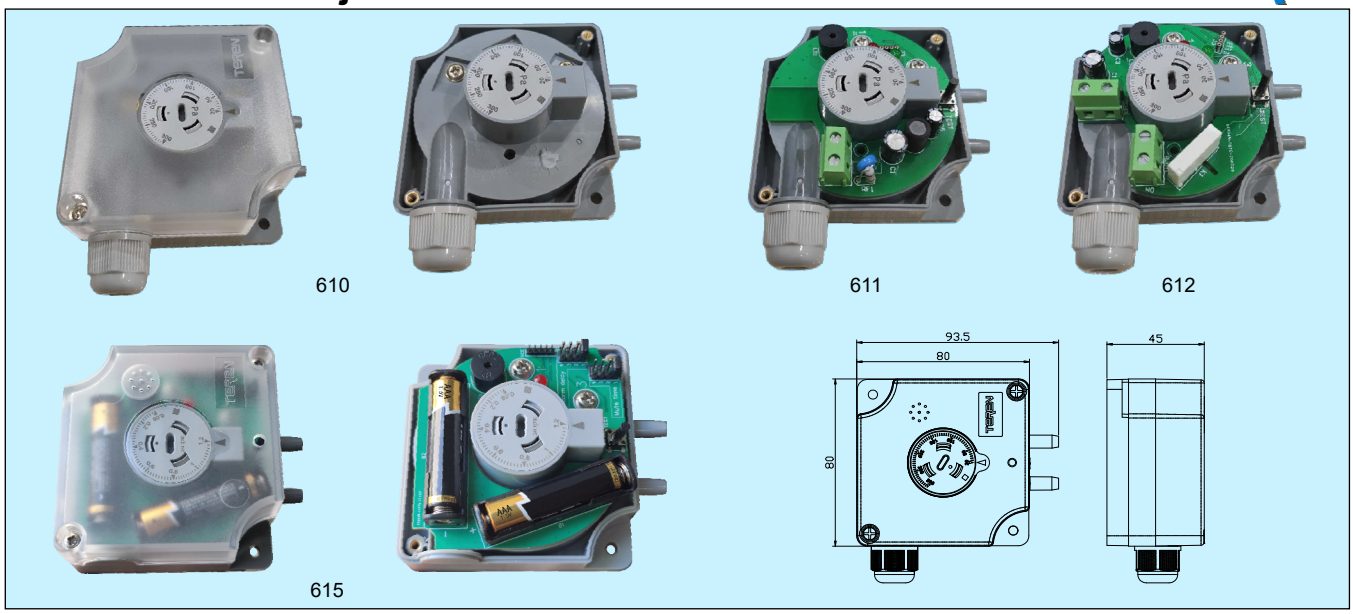
606.0xxx has OEM package with 60 pcs/carton. P/N is 606.0xxx-OEM.
The accessories Kit-1001/1004/1008 can be ordered with the OEM model.

Dead Band

Model	Range	Dead Band
606.x0xx	20~300Pa	Typical 15Pa
606.x1xx	50~500Pa	Typical 25Pa
606.x2xx	100~1000Pa	Typical 50Pa
606.x3xx	0.5~2.5kPa	Typical 100Pa

Dead Band is factory set. Customers can not adjust.

610/611/612/615 Adjustable Differential Pressure Switch/Alarm



Applications & Features

Monitor overpressure, vacuum and differential pressure of air or non-combustible/aggressive gases. 610 has SPDT output only. 611/615 have local sound and light alarm. 611 needs external power supply and 615 is battery powered. 612 has SPST output and local sound & light alarm. All 611/612/615 have mute button to stop local sound alarm. 610 has high protection of IP65 for applications needed.

Specifications

Adjustable range: 4 ranges, see models
Pressure limit: 10kPa(0~50°C)
Working temperature (medium and environment): -30~70°C(610), -10~50°C(611/612/615)
Storage temperature: -40~70°C
Pressure connection: Φ5.0mm ID PVC tube, "+" is high and "-" is low
Service life: over 10^6 switching cycles
Max. switching frequency: 6 switching cycles/min
Repeatability: ±2%
Electrical characteristics:

Model	610	611	612	615
Power	-	85~250VAC	9~28VAC/DC	2xAAA
Sound and light alarm	-	Red LED, Green LED(615 NA), Buzzer/Mute button		
Output	SPDT 2A/250VAC 1A/30VDC	-	SPST 3A,30VDC/AC	
EMC	GB14536.1/GB14536.7, IEC60730-1/IEC60730-2-6			
Connection	Screw terminals			

Battery: 2×AAA (1.5V Alkaline or Lithium), 2+ years working life, see instruction manual for details
Materials: housing fire retardant PC (UL94V-0), diaphragm silicone and contact silver alloy
Weight: 610: 130g; 611/612: 155g; 615: 180g (without batteries)
Protection: 610: IP54 or IP65; 611/612/615: IP40
Certification: CE, RoHS
Installation: vertical, with pressure ports "+" and "-" downward. This is the factory calibrated position. If horizontal installation is needed, the switching value should plus 20pa when cover is upward and minus 10pa when cover is downward. See operation manual.

Models

Model	610 611 612 615			Adjustable Differential Pressure Switch Adjustable Differential Pressure Alarm Adjustable Differential pressure switch, with sound and light alarm Adjustable Differential Pressure Alarm(battery type)
Adjustable range		0 1 2 3		20~300Pa 50~500Pa 100~1000Pa 0.5~2.5kPa
Engineering unit			0 7 8 9	Pa mbar inch wc mm wc

Product 610 can be IP65, add suffix -S at the end of Model No.

Dead Band

Model	Range	DB
61x.0	20~300Pa	10±5Pa
61x.1	50~500Pa	20±8Pa
61x.2	100~1000Pa	50±15Pa
61x.3	0.5~2.5kPa	100±30Pa

Dead Band is factory set. Customers can not adjust.

Accessories (should be ordered separately)

Model	Description
1001	Individual accessory package: clear PVC tube 2m, static pressure tip (1003) 2 pcs, screws 4 pcs
1003	1 pc static pressure tip, straight type, 0° angle opening
1004	Individual accessory package: clear PVC tube 2m, total pressure tip (1005) 2 pcs, screws 4 pcs
1005	1 pc total pressure tip, straight type, 60° angle opening
1008	Individual accessory package: clear PVC tube 2m, static pressure tip (1009) 2 pcs, screws 4 pcs
1009	1 pc static pressure tip, L type, 0° angle opening

Some accessories may have different Model No. for orders.



DPT-OEM Micro OEM DP transmitter



Applications & Features

- Very compact size, good for installing in small equipment such as VAV controllers, medical and lab instruments, etc. Can measure positive, negative or differential pressure
- Apply high accuracy MEMS sensor and digital technologies, excellent temperature compensation and anti-interference ability, suitable for complex electromagnetic environments
- Multiple ranges and outputs, with accuracy 1.0%FS
- Function keys: zero reset, response time set, etc.

Specifications

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Temp.: Working -20~70°C, Medium 0~60°C, Compensation 0~50°C, Storage -30~70°C
Pressure: overload 10xFS, burst 15xFS
Accuracy: ±1.0%FS (25Pa: ±2.0%FS)
Long term stability: ±0.5%FS/Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Response Time: 0.5/1/2/5s, can be set by DIP switch
Power: Voltage: 16~28VAC/ 16~35VDC
Current: 18.5~35VDC (R_L=500Ω), 8.5~35VDC (R_L=0Ω)
Output: 0~10V, 4~20mA (2 wires), RS485 selectable
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Process Connection: 5mm ID tubing
Zero reset: easy to reset by reset button
Housing: fire retardant ABS+PC(UL94V-0)
Protection: IP30
Approval: CE, meet EN61326-1 for industrial equipment

Models

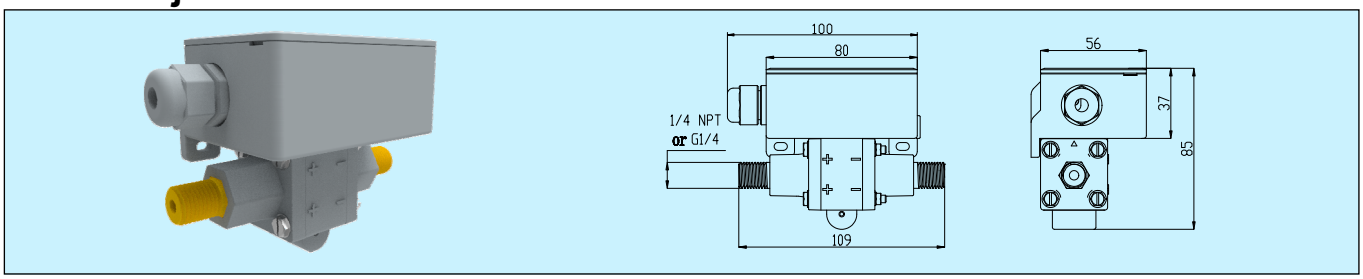
Model	DPT-OEM			Micro OEM DP transmitter
Range		x		Range selection
Output			1	0~10V
			2	4~20mA(2 wires)
			8	RS485/Modbus

Measuring Ranges

Code	Pa	Code	Pa
0	**0~25**	**5**	**0~1000**
1	**0~60**	**6**	**0~2500**
2	**0~125**	**7**	**0~5000**
3	**0~250**	**8**	**0~10000**
4	**0~500**		

For zero center models, add "Z" at the end of the model. For example, DPT-OEM1xZ, means the range is -30-0-30Pa.

WDPS Adjustable Fluid Diff. Pressure Switch/Alarm



Application & Features

Monitor pressure drop, overpressure and other differential pressure of non-combustible/aggressive liquids such as water or oil. It can be used in the control of water flow in various heat exchanger, chiller, water pump or filter.

Specifications

Adjustable ranges and Dead Band (DB): see models
Max. static pressure: 16 bar
Working medium temperature: -10~70°C
Working temperature: -20~70°C
Storage temperature: -30~80°C
Electrical characteristics:

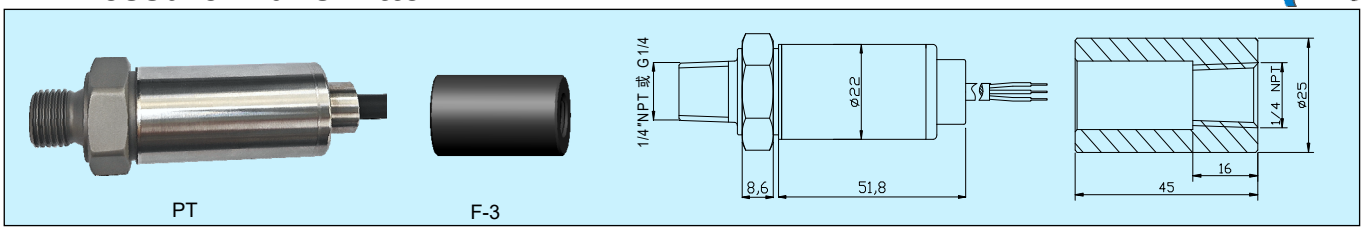
Model	WDPS	WDPS1	WDPS2
Power	-	85~250VAC	9~28VAC/DC
LED Alarm	-	Red/Green LED	Red/Green LED
Relay	SPDT,3A/30VDC, or 3A/250VAC	-	SPST 3A,30VDC/AC
EMC	GB14536.1/GB14536.7, IEC60730-1/IEC60730-2-6		
Electrical wiring	Screw terminals		

Pressure connection: G1/4, 1/4 NPT or others
Repeatability: ±2%
Materials: fire retardant PA66(UL94V-0), hydrolysis resistant nylon housing, copper pressure connector, NBR membrane
Weight: 370g
Protection: IP65
Approval: CE
Accessories (should be ordered separately):
Ball valve, buffer tube or pressure snubber should be applied according to specific application, refer to Accessories.

Models

Model	WDPS			Fluid DP Switch
	WDPS1			Fluid DP Alarm (LED Alarm)
	WDPS2			Fluid DP Switch & LED Alarm
Adjustable Range and Dead Band		0		Range 8~20kPa, DB 4±2kPa
		1		Range 10~40kPa, DB 4±3kPa
		2		Range 10~100kPa, DB 5±4kPa
		3		Range 20~200kPa, DB 10±6kPa
		4		Range 100~400kPa,DB 18±13kPa
Process Connection			2	1/4 NPT
			4	G1/4

PT Pressure Transmitter



Applications & Features

For pressure measurement of compatible fluid and gas

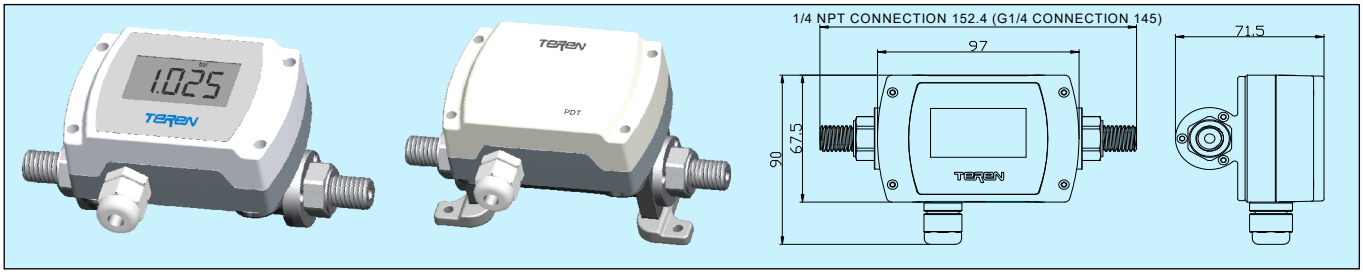
Specifications

Sensor: glass micro fused silicon strain sensor
Power: 10~30VDC
Output: 4~20mA (2 wires)
Load：0~500Ω@10~30VDC
Range: see models
Temp. limit: Work -20~85°C; Medium -40~125°C; Compensation 0~55°C
Accuracy: ±0.5%FS (BFSL)
Stability: ≤0.5%FS/Year
Pressure limits: overload 200%FS, burst 500%FS
Response time: ≤50ms
Medium compatibility: 17-4PH stainless steel
Housing: 304 SS
Protection: IP67
Approval: CE
Accessory: F-3-N for 1/4 NPT and F-3-G for G 1/4 screw thread, should be ordered separately. Use the same package if ordered along with PT transmitter. It is recommended to apply ball valve, buffer tube or pressure snubber, see Accessories

Models

Models	PT					Pressure Transmitter
Output		2				4~20mA
Range			2 3 4 5 6			0~6 bar 0~10 bar 0~16 bar 0~25 bar 0~40 bar
Process Connection				2 4		1/4 NPT G1/4
Electrical Connection					1	Cable (1m)

PDT Differential Pressure Transmitter



Applications & Features

For diff. pressure measurement of compatible fluid and gas

Specifications

Sensor: glass micro fused silicon strain sensor
Power: Current: 18.5~35VDC (R_L=500Ω), 8.5~35VDC (R_L=0Ω),
Voltage output: 16~35VDC, 16~28VAC
Output: 4~20mA (2 wires), 0~10VDC (3 wires) or RS485
Output Load: ≤500Ω (current), ≥2kΩ (0-10VDC)
Accuracy: typical ±0.5%FS (BFSL), see range specifications
Range: see range specifications
Display: LCD, with unit indication (kPa/mbar/in WC/bar/MPa)
Temp. limit: work -20~70°C; medium -20~85°C; compensation 0~55°C
Pressure Limit: see range specifications
Response time: <500ms
Medium compatibility: 17-4PH stainless steel
Housing: sensor: 17-4PH stainless steel; sensor: die cast aluminum;
enclosure: fire retardant ABS+PC(UL94V-0)
Protection: IP65
Weight: 0.5kg
Approval: CE
Install bracket: Included in the package. It is recommended to apply ball valve, buffer tube or pressure snubber, see Accessories

Models

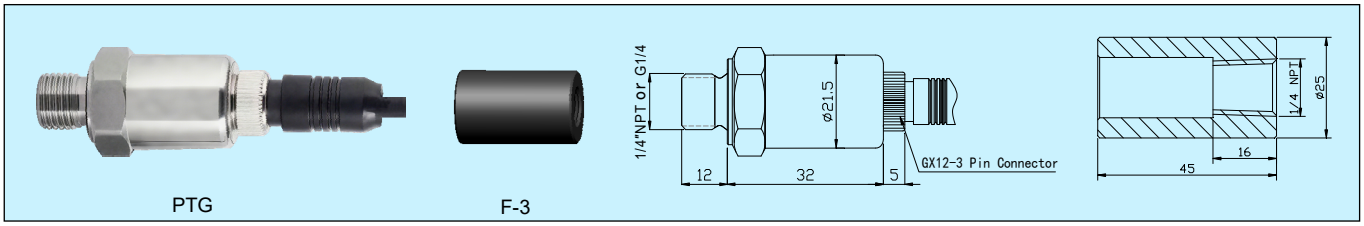
Model	PDT					Diff. Pressure Transmitter
Output		1 2 8				0~10V 4~20mA RS485/Modbus RTU
Range			x			see Range
Process Connection				2 4		1/4 NPT G1/4
Display					0 1	N/A LCD

Range Specifications

Range		Pressure limits in both side ports			Accuracy	Temperature
		Rated	Overload	Burst	(BFSL)	Coefficient
Code	bar	bar	bar	bar	%FS	%FS/°C
0	0~0.5	3.5	7	17.5	1.0	0.15
1	0~1	3.5	7	17.5	0.5	0.1
2	0~2	3.5	7	17.5	0.5	0.05
3	0~4	7	14	35	0.5	0.05
4	0~6	10	20	50	0.5	0.05
5	0~10	10	20	50	0.5	0.05
6	0~10	16	32	80	0.5	0.05
7	0~16	16	32	80	0.5	0.05

The factory set engineering unit is bar. Customers can switch to others with the UNIT button on the PCB.

PTG Pressure Transmitter



Applications & Features

For pressure measurement of compatible fluid and gas

Specifications

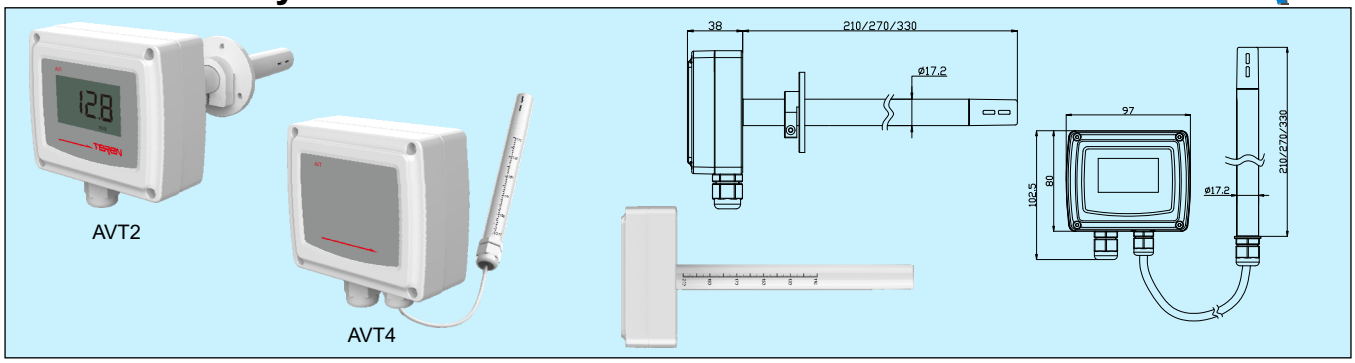
Sensor: ceramic pressure sensor
Power: 12~30VDC
Output: 4~20mA (2 wires), 0-10V
Load: 4-20mA: 0~500Ω@12~30VDC; 0-10V: >10kΩ
Range: see models
Temp. limit: Work -20~85°C; Medium -40~85°C; Compensation 0~50°C
Accuracy: ±1.0%FS(BFSL)
Stability: ≤0.5%FS/Year
Pressure limits: overload 200%FS, burst 300%FS
Response time: ≤50ms
Medium compatibility: ceramic sensor, 304 SS housing, NBR sealing ring
Housing: 304 SS
Protection: IP65
Approval: CE

Accessory: F-3-N for 1/4 NPT and F-3-G for G 1/4 screw thread, should be ordered separately. Use the same packing if ordered along with PT transmitter. And it is recommended to apply ball valve, buffer tube or pressure snubber, see Accessories

Models

Models	PTG						PressureTransmitter
Accuracy		0					1%FS
Output			1 2				0~10V 4~20mA (2 wires)
Range				2 3 4 5 6			0~6 bar 0~10 bar 0~16 bar 0~25 bar 0~40 bar
Process Connection					2 4		1/4 NPT G1/4
Electrical Connection						1	Cable (1m)

AVT Air Velocity Transmitter



Applications & Features

- It is designed for air velocity monitoring in ventilation and reducing energy consumption in BMS and various HVAC applications. It is single point air velocity measurement. AVT2 is for duct mount, AVT4 is for remote installation
- Based on thermal anemometer principle, use innovative and sensitive hot-film sensor, which is insensitive to dust and dirt, easy to install and maintain
- No moving parts, provide accurate, reliable, sensitive and long-term measurement, with good temp. compensation
- Digital technology applied to ensure output accuracy
- Over voltage and reverse polarity protection with high reliability and anti-interference capacity
- Multiple outputs, ranges and optional LCD display
- Innovative probe design with various lengths with scales on

Specifications

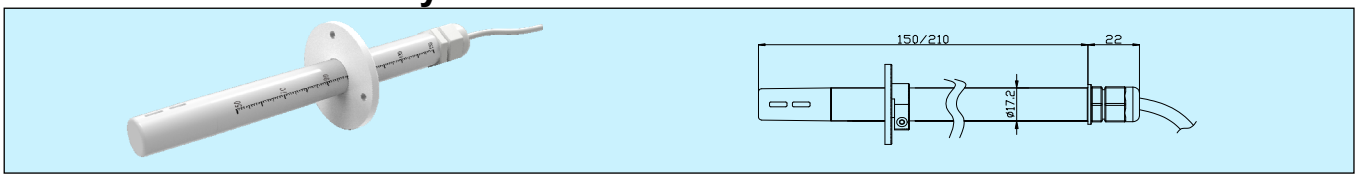
Air velocity sensor: Hot-film sensor
Range: 0~5/10/15/20 m/s or 0~16/32/48/64 ft/s, jumper select
Accuracy: @1~20m/s, 25°C, 55%RH, 1013hPa, see Models
Response time: typical 2s
Angle dependence: < 3% reading @ | Δα | < 10°
Temp. compensation: 10~40°C
Temp. output(option): range 0~50°C, accuracy <±0.5°C@25°C
Output: 4~20mA (3 wires), 0~10/0~5VDC, RS485/Modbus
Output Load: ≤500Ω(current), ≥2kΩ(voltage)
Display: LCD, with unit m/s or ft/s, DIP switch selectable
Power: 16~28VAC/16~35VDC
Working Environment: -20~70°C, 0~95%RH (Non cond.)
Housing: fire retardant PC (UL94 V-0)
Protection: IP65
Weight: 440g
Approval: CE

Models

Model	AVT2 AVT4					Duct mount air velocity Remote mount air velocity
Accuracy		2 3				± (0.2m/s+2% reading) ± (0.2m/s+3% reading)
Output			1 8			4~20mA/0~10V/0~5VDC RS485/Modbus
LCD Display				0 1		N/A LCD
Probe Length					1 2 3	210 mm 270 mm 330 mm

1. All products are factory set to 4-20mA as output default and can be set to 0-10V or 0-5V by DIP switch.
2. When temperature output is needed, add suffix -T after the model number. And the output is the same as air velocity

AVTP Probe Air Velocity Transmitter



Applications & Features

- It is designed for air velocity measurement in ventilation system or equipment. Especially for laminar flow in small cabinets in cleanroom and pharmaceutical industry
- Based on thermal anemometer principle, use innovative and sensitive hot-film sensor, which is insensitive to dust and dirt, easy to install and maintain
- No moving parts, provide accurate, reliable, sensitive and long-term measurement, with good temp. compensation
- Digital technology applied to ensure output accuracy
- Over voltage and reverse polarity protection with high reliability and anti-interference capacity
- Innovative probe design with various lengths with scales on

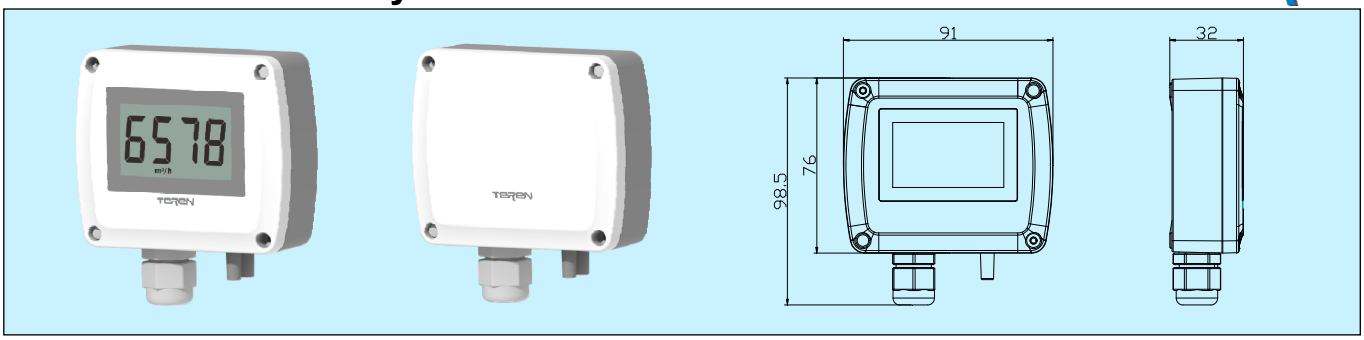
Specifications

Sensor: Hot-film sensor
Range and accuracy: 0~30m/s selectable, see Models
Response time: typical 2s
Angle dependence: < 3% reading @ | Δα | < 10°
Temperature compensation: 10~40°C
Output: 4-20mA (3 wires),0-10V, RS485/Modbus
Power: 24V AC/DC±20%
Electrical Connection: PVC cable, 1m
Working Environment: -20~80°C, 0~95%RH (Non cond.)
Housing: fire retardant PC (UL94 V-0)
Protection: IP65
Weight: depending on different lengths, 130g~160g
Approval: CE

Models

Model	AVTP				Probe air velocity transmitter
output		1 2 8			0~10VDC 4~20mA RS485/Modbus
Range& Accuracy			1 2 5 6 7 8		0~1 m/s, ±(0.03m/s+3%Reading) 0~2 m/s, ±(0.03m/s+3%Reading) 0~5 m/s, ±(0.2m/s+3%Reading) 0~10 m/s, ±(0.2m/s+3%Reading) 0~20 m/s, ±(0.2m/s+3%Reading) 0~30 m/s, ±(0.2m/s+3%Reading)
Probe Length				0 1	150 mm 210 mm

DPVL Airflow Velocity/Volume Transmitter



Applications & Features

- Apply high accuracy MEMS sensor and digital technology. According to Bernoulli's equation, the flow dynamic pressure is proportional to the square of the flow velocity, so the pressure can be converted into airflow velocity, and the instantaneous airflow volume can be further calculated
- Can measure air velocity/volume of various ventilation, air conditioning systems and test equipment, and can set the required range/unit to meet different on-site requirements
- Easy to install, good for surface mount. After assembled with a panel, it can be flush mount
- The engineering unit can be set by the DIP, which determines whether the product is for airflow velocity or volume measurement
- Multiple ranges and outputs selectable, over voltage and reverse polarity protection for power inputs and outputs, high reliability
- Zero reset key for zero calibration, and optional display LCD with unit indication
- Can set parameters including K coefficient, duct size, etc. via UART serial interface, operation panel or RS485 interface

Specifications

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working Temp.: -20~70°C
Medium Temp.: 0~60°C
Temp. Compensation: 0~50°C
Range: 0-10/30/100m/s, see models
Working Pressure: overload 10xFS(<1kPa)/8xFS(>1kPa)
burst 20xFS(<=1kPa)/10xFS(>1kPa)
Accuracy: DP±1.0%FS
Long term stability: ±0.5%FS /Year(pressure)
Thermal effect(pressure): <0.05%FS/°C(DP zero)
<0.08%FS/°C (DP FS)
Response Time: 0.5/1/2/5s, can be set by DIP switches
Process Connection: 5mm ID tubing
Display: 4 digits LCD, size 47x27mm, with unit indication
Display resolution: 0.1 m/s, 1 m^3/h
Display update time: <1s
Unit： m/s, ft/s, m³/h, CFM etc., can be set by DIP switches
Zero set: easy to reset by key
Output: 0~5V/0~10V/4~20mA(3 wires), 4~20mA (2 wires), or RS485/Modbus RTU, selectable
Output Load: ≤500Ω (current), ≥1/2kΩ (0~5V/0~10V)
Serial interface: UART
Power: Voltage: 16~28VAC/ 16~35VDC
Current: 18.5~35VDC (R_L=500Ω); 8.5~35VDC (R_L=0Ω)
Materials: ABS+PC(housing) & PC(Cover), fire retardant UL94V-0
Protection: IP65
Weight: 165g
Approval: CE
Matched Sensor: flow sensor like AFMB or similar pitot

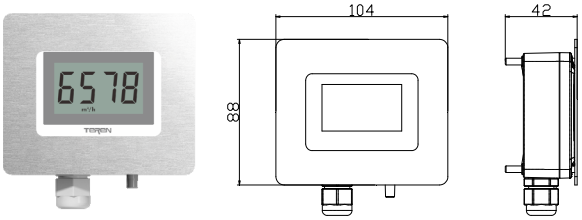
Models

Model	DPVL DPVL-F				Airflow Velocity/Volume transmitter Flush mount airflow Velocity/Volume transmitter
Range		1 2 3			0~10m/s(0-125Pa) 0~30m/s(0-1000Pa) 0~100m/s(0-10000Pa)
Output			1 2 8		0~5V/0~10V/4~20mA(3 wires) 4~20mA(2 wires) RS485/Modbus
Display				0 1	N/A LCD

DPVL-F Flush mount airflow Velocity/ Volume transmitter

It's the combination of DPVL (with LCD) and flush mount panel (model DPVL-A). The specifications are the same as DPVL. And the model is DPVL-Fxx1(with LCD).

It's for flush mount in various clean room or equipment. The 316 brushed stainless steel panel does not have any dust collection, easy and safe to clean. The size is W104×H88 ×T1.5. The opening is W94×H78.5×D42(mm).



DPVL-MMI Operation Panel

It is a tool for operating and setting the DPVL. It has LCD display and 3 buttons. Connect it with the interface on the PCB of DPVL, it can set all parameters including the K factor of the matched pitot tube and duct size. It should be ordered separately.



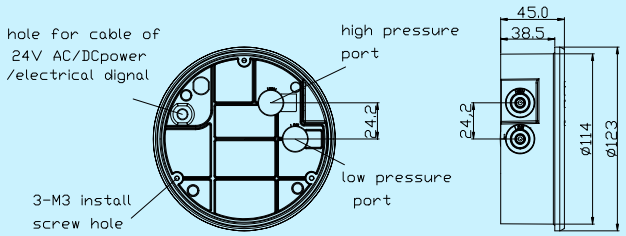
SDPV Smart Air Velocity/Volume Monitor



Cast aluminum housing



ABS housing



Note: the diagram is for cast aluminum housing

Applications & Features

- With unique design of color TFT-LCD as dial display, it integrates the traditional pointer and digital display, which can achieve the complex functions of differential pressure, air velocity, or volume detection, display, output and alarm
- Apply high accuracy MEMS sensor and digital technologies, can measure differential pressure and air velocity/volume of various ventilation, air-conditioning systems and equipment
- High accuracy, excellent temperature compensation and electromagnetic interference ability (industrial EMI level 3), good for applications in complex EMI environments of industrial systems or equipment
- State of art design, good for surface, panel or flush mount
- Multiple ranges, outputs, alarm, engineering units selectable
- Optional 2 individual SPST relays for alarm setting
- Optional external remote temperature probe for temperature measurement and compensation
- Digital circuit, power supply and output over voltage and reverse connection protection, high reliability
- The accuracy is up to ±0.5% FS
- Function keys: zero calibrate, units select, relay set, response time set, range/output signal calibration, DP/air velocity/volume set, compensation/coefficient input etc.
- High-bright color display, can display analog pointer, measured value, alarm color, alarm status, alarm set point, etc., set by the buttons, refers to attached pictures
- No movable parts, high protection rate up to IP65

Specifications

Sensor: high accuracy MEMS sensor, piezoresistive principle, precise calculation of air velocity/volume according to flow dynamic pressure and Bernoulli's equation
Medium: non-combustible, non-corrosive air, not sensitive to moisture, dust, condensation and oil
Medium Temp.: 0~60°C
Material: ABS or Cast aluminum housing, PC plate
Size: Φ115mm opening, 38.5mm (cast aluminum) or 33mm (ABS) thick for flush mount
Work Environment: -20~70°C
Compensated Temp.: 0~50°C
Work Pressure: overload 10xFS(≤1kPa)/8xFS(≥1kPa)
burst 20xFS(≤1kPa)/10xFS(≥1kPa)
Range: 0-10/30/100m/s, see models
Medium temperature compensation (Optional):
Probe: white PVC cable, 4x28AWG, 2m; work temperature -40~85°C, Rins>100MΩ (25°C)
Digital temperature sensor: accuracy 0.2°C@-40~100°C
Range: 0~50°C (others can be set)
Accuracy: DP±0.5%FS
Long term stability: ±0.5%FS /Year(pressure)
Thermal effect(pressure): <0.03%FS/°C(zero), <0.04%FS/°C (FS)
Response Time: 0.5~30s, can be set by keys
Display: high contrast 3.5" TFT color LCD, resolution 320x480
Display resolution: 0.1 m/s, 1 m^3/h, 0.1°C
Display update time: <1s
Output: air velocity/volume 4~20mA(3 wires), temperature 4~20mA (3 wires, selectable),
Output Load: ≤500Ω
Communication: 1 RS485/Modbus, R/W enable, 9600 bps
Relay output: 2xSPST, 0.5A/30VDC or 1xBuzzer
Key: 3 touch buttons
Electrical wiring: 0.5m cable from back
Power: 16~28VAC, 9~28VDC
Connection: 5mm ID tubing, two pairs (on left & back side)
Weight: 515g (cast aluminum)/400g (ABS), w/o temp. probe
Protection: IP65
Approval: CE, meet EN61326-1 for industrial equipment
Matched Sensor: flow sensor like AFMB or similar pitot
Accessory: Standard accessories include 1002(5mm ID PVC tube 2m) and A-S0 (including 3 brackets and screws). Options are A-S1, A-S2 and A-S7-X. They should be ordered separately. See details in Accessories.

Models

Model	SDPV					Smart Air Velocity/Volume Monitor
Range		1				0~10m/s(0-125Pa)
		2				0~30m/s(0-1000Pa)
		3				0~100m/s(0-10000Pa)
Output			2			4~20mA
			8			RS485/Modbus
Alarm				0		N/A
				1		2xSPST
				2		1xBuzzer
				3		1xBuzzer+2xSPST
Housing					0	ABS
					1	Casting aluminum

* Add suffix -T after the model number while selecting temperature probe.

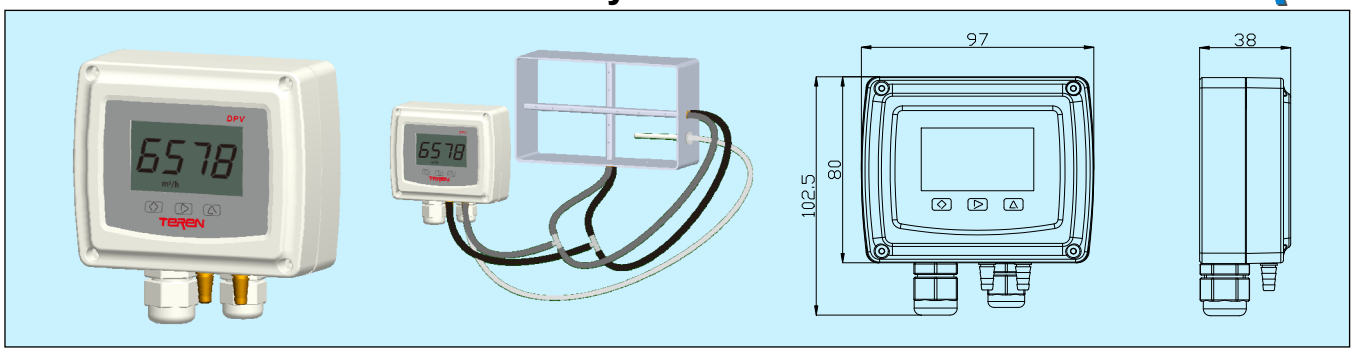








DPV Multi-function Airflow Velocity/Volume Transmitter



Applications & Features

- Apply high accuracy MEMS sensor and digital technology, can measure air velocity/volume of various ventilation, air conditioning systems and equipment
- Good accuracy, temp. compensation and electromagnetic interference (EMI) ability (industrial EMI level 3), for complex EMI environments of industrial systems or equipment
- Multiple ranges, engineering units and outputs selection, over voltage and reverse polarity protection, high reliability
- Optional probe for temp. measurement and compensation
- The LCD display and keys can set zero calibration, unit switching, response time, air velocity or volume mode, compensation/coefficient calibration and parameters, etc.
- High protection rate up to IP65

Specifications

Air velocity/volume:

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil

Medium Temp.: -20~70°C

Temp. Compensation: 0~50°C

Range: 0-10/30/100m/s, see models

Work Pressure: overload 10xFS(<1kPa)/8xFS(>1kPa) burst 20xFS(<=1kPa)/10xFS(>1kPa)

Temperature remote probe (Optional):

Cable: white PVC, 4x0.2mm², 2m, -40~85°C, Rins>100MΩ (25°C)

Digital temp. sensor: accuracy 0.2°C@-40~100°C

Range: 0~50°C (others can be set)

Accuracy: DP±0.5%FS

Long term stability: ±0.5%FS /Year(pressure)

Thermal effect(pressure): <0.03%FS/°C(zero), <0.04%FS/°C (FS)

Response Time: 0.5~30s, can be set by keys

Output: 0~10V, 4~20mA (3 wires), 0-5V, 1 channel for velocity/volume; 2 channels if temperature is selected

Output Load: <500Ω(current), >2kΩ(voltage)

Communication: 1 RS485/Modbus, R/W enable, 9600 bps, terminal resistance settable

Display and Keys: large LCD (with unit and backlight (N/A for 4~20mA output)) and 3 touch keys

Display resolution: 0.1 m/s, 1 m^3/h or 0.1°C

Display update time: <1s

Power: current 18.5~35VDC (R_L=500Ω), 8.5~35VDC (R_L=0Ω), voltage 16~28VAC/16~35VDC； with consumption 1.5VA

Process Connection: 5mm ID tubing

Zero set: easy to reset by keys

Work Temp.: -20~70°C, 0~95%RH (Non cond.)

Storage Temperature: -30~85°C, 0~95%RH (Non cond.)

Housing: fire retardant PC(UL94V-0), copper nozzle

Protection: IP65

Matched Sensor: flow sensor like AFMB or similar pitot

Weight: 220g (without temperature sensor and cable)

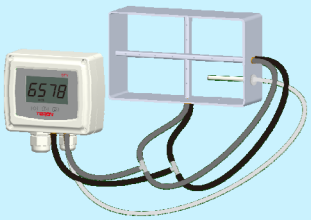
Approval: CE, meet EN61326-1 for industrial equipment

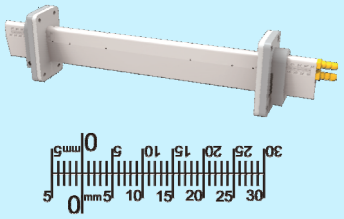
Models

Model	DPV				Multi-function Airflow Velocity/Volume Transmitter
Range		1 2 3			0-10m/s(0-125Pa) 0-30m/s(0-1000Pa) 0-100m/s(0-10000Pa)
Output			1 2 E 8		0-10VDC 4-20mA (3 wires) 0-5VDC RS485/Modbus RTU
Temp.*				0 1	N/A Remote temperature probe

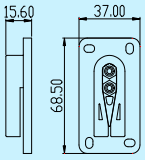
*Temperature option is supplied with a remote temperature probe and provides the same output as velocity/volume output signal

AFMB Average Flow Measurement Blade

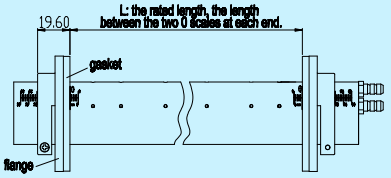




Scale ruler



Mounting flange



Average flow measurement blade

Applications & Features

- Installed in square or circular duct, is an easy and low-cost way of measuring air velocity and volume
- Stably and accurately measure the total, static and velocity pressure, of which the square root is proportional to the air velocity
- Good for various air conditioning systems, vacuum cleaning, especially high temperature and dusty air or high flow rate systems, such as laboratory, air circulation test equipment, smoke purification and exhaust systems, etc.
- Apply with the DPV transmitter, or similar meters or gauges
- There are -5~+30mm scale ruler at two ends, which can help to confirm the insertion is exactly in the middle of the duct, to give better measurement accuracy. And the flange can give reliable duct installation with very good air tightness

Specifications

Length: 100~3000mm, see models
Velocity range: 3~100m/s(9~10000Pa)
Accuracy: <3% (related with the install position, quantity of blades installed and the matched DP transmitter)
Repeatability: <0.3%
Operating temperature: up to 85°C
Max pressure: 1 bar (static pressure)
Coefficient: 0.82
Material: Die cast aluminum, nickel-plated copper nozzle, PC flange
Note: once installed, it is recommended to adjust the readout of the matched transmitter to the value of another precision air flow meter, to complete a calibration to improve accuracy

Models

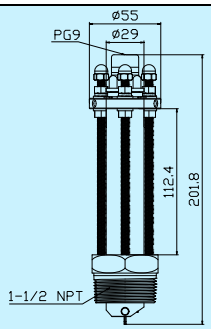
Model	Length L(mm)	Model	Length L (mm)
AFMB-100	100 mm	AFMB-630	630 mm
AFMB-125	125 mm	AFMB-800	800 mm
AFMB-160	160 mm	AFMB-1000	1000 mm
AFMB-200	200 mm	AFMB-1500	1500 mm
AFMB-250	250 mm	AFMB-2000	2000 mm
AFMB-315	315 mm	AFMB-2500	2500 mm
AFMB-400	400 mm	AFMB-3000	3000 mm
AFMB-500	500 mm	Other lengths can be customized	

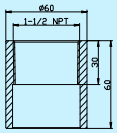
Total length of the blade=L+68(mm). Minus the size of the flange and gasket, the max. size of the duct=L+28.8(mm).

IPFT Insertion Paddlewheel Flow Transmitter


IPFT


F-1





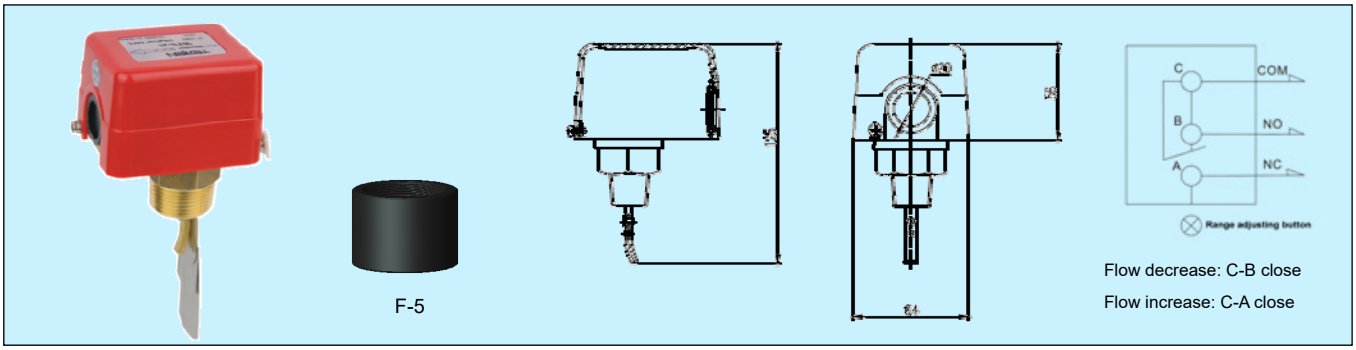
Applications & Features

- Model IPFT. Inserting into liquid pipe, measure the flow rates. Good for pipes of DN40~1000mm (1-1/2~40″) with inside 2 wires 4~20 mA output
- Bearings and shafts offer excellent wear protection even in applications with particulate for long life
- One integral enclosure unit adjustable over large pipe size ranges for very easy and reliable field installation
- Using inductive sensing technology without any magnets, eliminates possible magnetic material's adsorbing on the paddlewheel ensures long term proper operation

Specifications

Service: Water compatible fluids
Effective measuring flow rate： 0.4~6 m/s
Range: 0~6 m/s
Output: 4~20 mA, 2 wires
Linearity: ±1.0%FS
Repeatability: ±0.5%FS
Temperature Limits: -40~100°C
Pressure Limits: 25 bar@25°C, 20 bar@100°C
Process Connection: 1-1/2 NPT male, optional accessory
Power: 18.5~35VDC (RL=500Ω), 8.5~35VDC(RL=0Ω)
Electrical Connection: 2x0.3mm^2(22 AWG) shielded cable, temp. resistance 105°C, 2m
Wetted Materials: Body and fitting: 316SS; O-ring: FKM; paddlewheel: 316SS; shaft: 316SS; bearing: PTFE
Enclosure Rating: IP67
Weight: 1.35 Kg
Approvals: CE
Accessory: Model F-1, stainless steel, for pipelines more than DN60mm, should be ordered separately

WFS Water Flow Switch



Applications & Features

The paddle type WFS is designed to control the flow rate of water, chilled water, cooling water or other liquid system

Accessory: Model F-5, carbon steel, should be ordered separately. When ordered along with the WFS, it is packed in the same package.

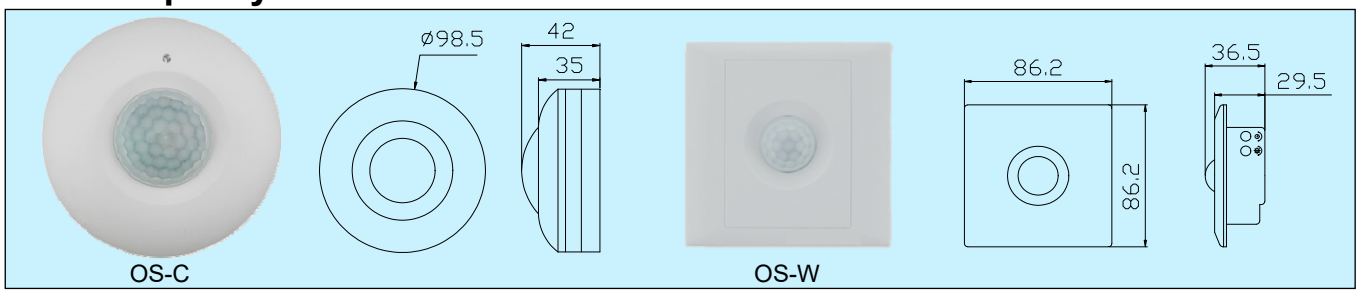
Specifications

Contact: SPDT, 10A/250VAC
Medium connection: Brass, 1 NPT
Electrical connection: Screw terminals
Materials: body: steel; cover: ABS; paddle: stainless steel
Contact cycle: 500K
Environment temp.: 5~50°C
Medium temp.: 5~100°C
Working pressure: 1.0Mpa
Max pressure: 1.6Mpa
Weight: 0.5Kg

Paddles Selection

ITEM	Range liter/min	D Band liter/min	Pipe		Paddle number
			in	mm	
1	16~32	6	1	25	1
2	22~50	8	1.25	32	2
3	30~72	9	1.5	40	2
4	55~110	15	2	50	2
5	70~130	20	2.5	65	3
6	105~200	30	3	80	3
7	250~480	50	4	100	4
8	480~920	90	5	125	4
9	720-1420	120	6	150	5
10	1420-285	200	8	200	5

OS Occupancy Sensor

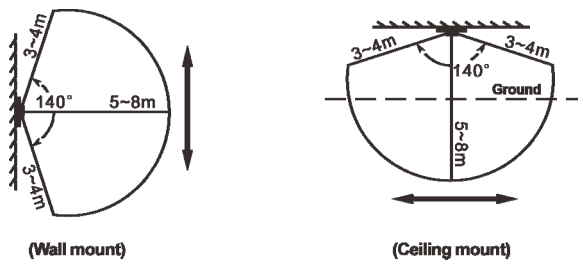


Applications & Features

- Suitable for passageway, corridor, toilet, basement, garage and other public places, such as lighting, exhaust fan and other automatic switch control. OS-W is wall mount and OS-C is ceiling mount
- Based on PIR infrared sensor and photosensitive sensor combination technology, high sensitivity, strong reliability, safe and convenient, intelligent energy saving
- Fully automatic induction, switch on for occupancy, delay off for vacancy automatically
- Application of photosensitive automatic control, no induction in day or high illumination circumstance, illumination can be adjusted
- Automatic random delay, switch on for occupancy and continue to turn on if detecting activity, and delay off until detecting no activity
- Temperature compensation and anti RFI/EMI
- Light and state of art housing, easy installation and using

Specifications

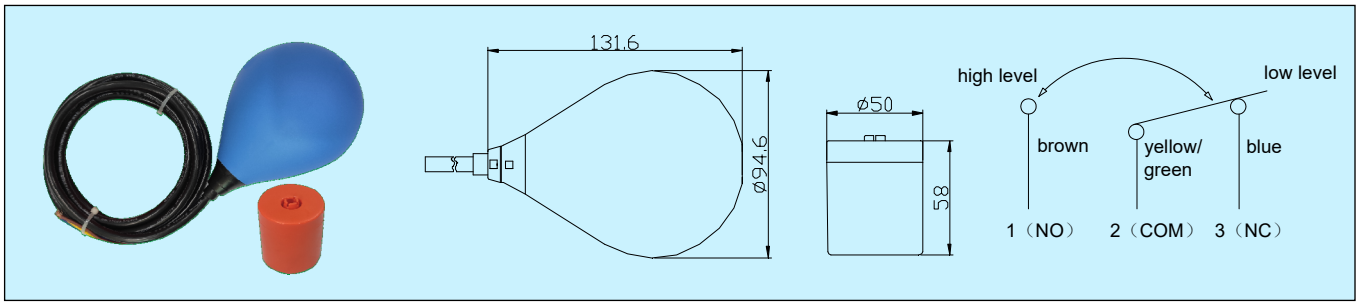
Sensor: PIR infrared sensor, photo resistance sensor
Power: 20~28VDC
Output: SPST, 10A resistive / 4A inductive, 30VDC/250VA
Life circle: 10^5 times
Light control range (adjustable): Night/Full day (default night)
Delay close time (adjustable): OS-W:15s~20 min(default 15s)
OS-C: 2s~30 min(default 16s±30%)
Detect area: cone angle 140°, distance 5-8 m(<=24°)
Mount Height: wall mount height is about 1.5m, and ceiling mount height is about 2~4m
Working environment: -20~50°C, 0~95%RH(Non-cond.)
Storage temperature: -30~70°C
Housing: fireproof ABS(except Fresnel lenses), IP30
Weight: OS-C:120g, OS-W:110g
Approval: CQC
Detect area diagram:



Models

Models		
Models	OS-W	Wall mount occupancy sensor / detector
	OS-C	Ceiling mount occupancy sensor / detector

LS Cable Float Level Switch



Applications & Features

- LS level regulator is a float switch to control the pump, valve or alarm
- Applied to various liquid (non-corrosive, non-high temperature, non-light density or non-turbulence)
- Specially designed multi layer's structure proves the inner chamber very well sealed, and gives safe and reliable protection for inside mechanism
- Non-toxic polypropylene(PP) float body, environmental friend, even for daily life water
- The ball shape has no edges, particularly suitable for sewage water

Specifications

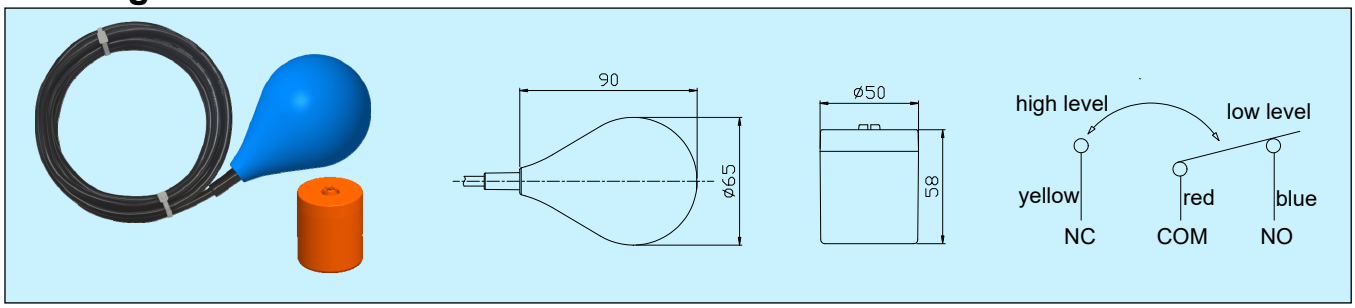
Contact: SPDT, 10A/250VAC
Electrical life: >10^6 cycles
Switch angle: ±40° (±5°)
Cable type: PVC, RVV3x1.0 mm^2, with CCC approval
Operating temperature: 0~60°C
Storage temperature: -20~80°C
Materials: float PP; counterweight ABS
Weight: float 300g; counterweight 200g; cable 80g/m
Volume: 498cm^3
Protection: IP68
Max working pressure: 1.2 bar (12m water depth)
Approval: CE

Models

Model	LS			Cable float level switch
Cable Length		03		3m
		05		5m
		10		10m
		15		15m
Package			0	Carton Package
			1	Individual Package

Each carton packs 14 pcs for 3m or 5m and packs 10 pcs for 10m or 15m.

LLS Light Cable Float Level Switch



Applications & Features

- It can control the pump, valve or provide liquid level alarm signal. It is especially suitable for controlling the levels of sumps and various water tanks and basins in building automation control systems
- Applied to various liquid (non-corrosive, non-high temperature, light density or turbulence)
- Specially designed multi seals structure proves the inner chamber very well sealed, gives safe and reliable protection for inside mechanism, excellent waterproof performance, reliable for long-term application
- High-quality materials, environmentally friend, no polluting
- The ball shape has no edges, particularly suitable for sewage water

Specifications

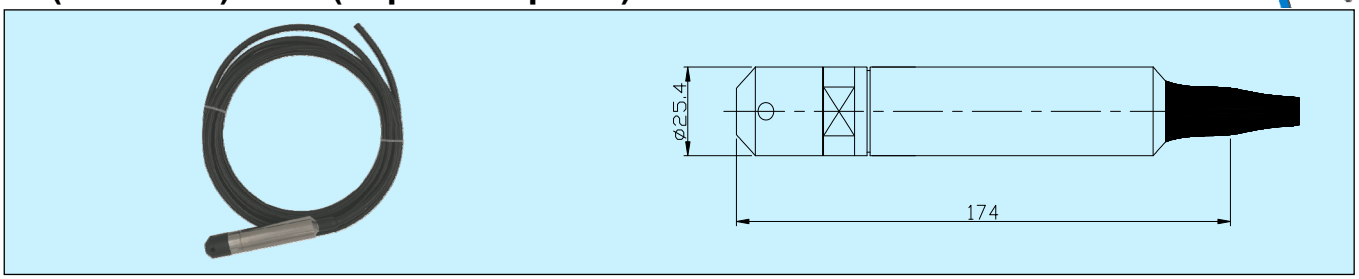
Contact: SPDT, 5A/250VAC
Electrical life: >10^6 cycles
Switch angle: ±45°, on/off level difference about 18 cm
Cable type: PVC, RVV3x0.3 mm^2
Operating temperature: 0~60°C
Materials: ABS, corrosion-resistant
Weight: float 120g; counterweight 200g; cable 34g/m
Volume: 162cm^3
Protection: IP68
Max working pressure: 1.0 bar (10m water depth)
Approval: CE

Models

Model	LLS			Light Cable float level switch
Cable Length		3		3m
		5		5m
Package			0	Carton Package
			1	Individual Package

1. Carton package has 10 pcs/carton.
2. When selecting the optional counterweight, add suffix W at the end of Model No.

LT(Standard)/LTEx(Explosion-proof) Submersible Level Transmitter



Applications & Features

- Measuring liquid level, based on the proportion principle of liquid static pressure with height
- Applied to water supply, industrial process control, water conservancy, environmental protection, chemical industry and other liquid level measurement and control
- Full stainless steel integrated structure, anti-blocking, anti-shock, multiple waterproof design, easy to install
- Built-in circuit with good precision, stability and reliability
- Ventilation waterproof cable with internal condensation prevention design
- LTEx transmitters strengthen and optimize the enclosure and inside structure such as material, flameproof surface form, gap, width and roughness. And strictly produce and assemble all parts to meet China National Standard GB3836.1/GB3836.2 requirements. The Explosion Proof certificate is Ex d II C T6 Gb, which meets Zone 1 and Zone 2 hazardous areas where there is explosive mixture of IIA, IIB, IIC, T1-T6 combustible gas, vapor and air

Specifications

Power: 9~36VDC
Range: see models
Output: 4~20mA (2 wires)
Accuracy: ±0.5%FS (BFSL)
Load: <(U-9)/0.02 Ω, U is power supply voltage
Overload pressure: 200%FS
Response time: ≤50ms
Working temperature: -20~60°C
Storage environment: -40~85°C, ≤95%RH
Stability: ±0.1%FS/Year
Thermal effect: ±0.05%FS/°C
Materials: Body 304 SS; Diaphragm 316L SS
Protection: IP68
Approval: CE, Ex d II C T6 Gb (LTEx)

Models

Model	LT LTEx			Standard Level Transmitter Exp-proof Level Transmitter
Range		xx		1~50m height H_2O
Cable			Cxx	Cable length, m

Frequently used ranges:1,2,3,4,5,6,8,10,12,15m H_2O
Frequently used cables: 3,4,5,6,7,8,10,12,14,16m
Frequently used models: LT/LTEx03C05, LT/LTEx05C06, LT/LTEx10C12

ALS Ambient Light Sensor/Transmitter



Applications & Features

- It is for detecting ambient light level, can be widely used for lighting control in various indoor or outdoor environments such as warehouse, computer room, workshop, library, school, shopping mall, hotel, park, airport and station, etc.
- Highly sensitive sensor and precise linear amplifier circuit, accurate measurement and temperature compensation, good long-term stability and reliability
- Light and state of art housing supplies two different install and wiring ways, with high protect rate, delicate structure
- Power and output have over voltage and reverse polarity protection, high reliability and anti-interference capability

Specifications

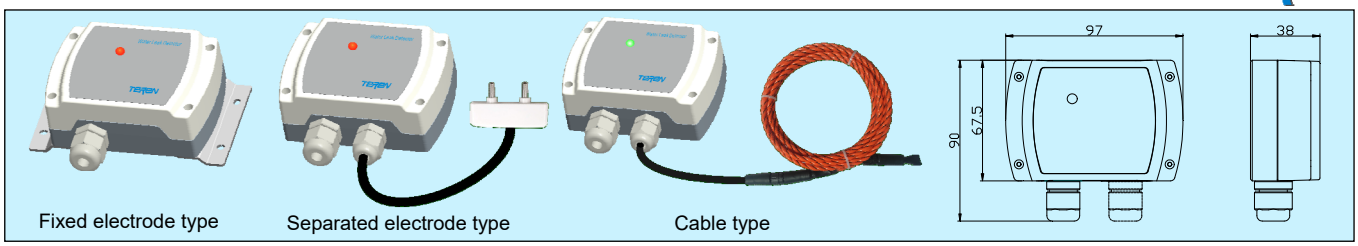
Sensor: highly sensitive light sensor
Measurement wave length: 400~700nm, peak response 550nm, with match degree 99%(typical)
Range: 0~1000/2000/5000/10000 lux (jumper selectable)
Accuracy: ±5%FS@25°C
Repeatability: <4%FS
Thermal effect: <0.01%FS/°C(typical)
Response time: <1s
Output: 0~10V/4~20mA (default), RS485/Modbus RTU
Display: 4 bits LCD, optional
Load resistance: ≤500Ω (4-20mA), ≥2kΩ (0-10V)
Power supply: 16~28VAC/16~35VDC
Working environment: -20~70°C, 0~95%RH (Non-cond.)
Storage temperature: -20~70°C
Housing: fire retardant ABS+PC (UL94V-0)
Protection: IP65 (except for the hole on the basement)
Approval: CE

Models

Model	ALS				Ambient Light Sensor/Transmitter
Output		1 8			0~10V/4~20mA RS485/Modbus
Display			0 1		N/A LCD
Housing				0 1	PG9 gland inlet cable Basement inlet cable

1. Illumination is the engineering unit of light intensity, which is defined as flux (lm) on unit area(m^2), also known as lux.
2. Generally, in summer's sunny day the illumination will be 30~300,000 lux; cloudy day is 3~10,000 lux; sun rise/sun set is 300~400 lux. Illumination for indoor is 10~2000 lux for different lighting status and <1 lux during night without any lighting.

WLD Water Leak Detector



Applications & Features

- Use the conductive principle of water for detection, apply for water leakage, overflow or immersion detection
- The electrode type is for small areas like machine room, lab, communication station, equipment cabinet, or water storage equipment like water tank, water cellar or pool. The cable type is for large areas such as flood monitoring in data center, IDC room, library, museum, warehouse, etc.
- Various alarm modes selectable, can be integrated into various monitoring systems for remote alarm or control
- High sensitivity and circuit, multiple detect sensitivity
- Cable length can be customized, which is fire retardant, dust proof, short circuit proof and error free
- With overvoltage and reverse protection, power, electrode and output relay are isolated, meet industrial EMC standards, have strong anti-interference ability and high reliability
- Indication light and self-diagnostic key, easy for checking status and troubleshooting
- Protection up to IP65, good for long term operation in any critical environment

Specifications

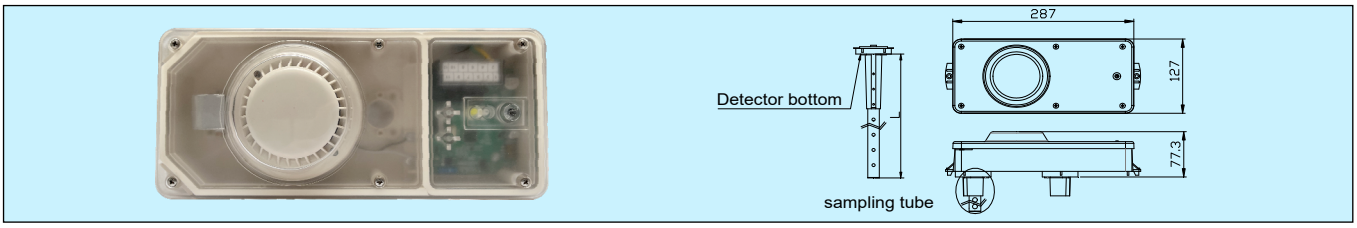
Sensor: Conducting electrode or cable
Detect objects: Conductive living water and water leakage of air conditioning system or equipment, etc.
Power: 9~30VDC
Working current: ≤200mA@12VDC
Power consumption: <2.5W
Detect frequency: 1K hz
Detect cable: 2 wires cable, max. Length 200m (default 3m)
Response time: <2s
Detect sensitivity: 5 levels selectable
Display: LED, green for normal, red for alarm status
Buzzer Alarm: Optional
Relay: 1xSPST (3A/30VDC)
Communication: RS485/Modbus
Working environment: -10~50°C, 5~95%RH (Non-cond.)
Storage environment: -20~70°C, 5~95%RH (Non-cond.)
Installation: Fixed, separated electrode or cable type
Housing: fire retardant ABS+PC (UL94V-0)
Protection: IP65
Weight: Fixed type:245g; Separated type:265g; Cable type:415g
Approval: CE, meet EN61326-1 for industrial equipment

Models

Model	WLD				Water leak detector
Type		2			Fixed electrode type
		3			Separated electrode type
		5			Cable type
Output			1		1xSPST
			8		RS485/Modbus
Alarm				0	N/A
				1	Buzzer

WLD5 may need extended cable. Model C3, 3m, independent package.

USC9210 Duct Smoke Detector



Applications & Features

- Designed for detecting earlier smoke presence from various ducts of HVAC or ventilation systems
- Utilizes photoelectric technology, senses the air sampled from the sampling tube extended into the ventilation duct. When sufficient smoke is sensed, an alarm signal will be initiated for shutting off fans or other equipment, to prevent the toxic smoke and fire gases from entering protected areas, and stop the spread of fire through ventilation ducts
- Alarm, supervisory and auxiliary relay contacts are available for control panel interface, HVAC equipment and other similar functions
- With self-diagnosis technology, it can diagnose power supply abnormal, communication failure, cover dislocation, etc., and judge the problem through the flashing LED, to improve stability and reliability
- Supports 2-bus input for accessing the fire bus system
- Sampling tubes are available in various lengths and are recommended to cross the entire length of the duct

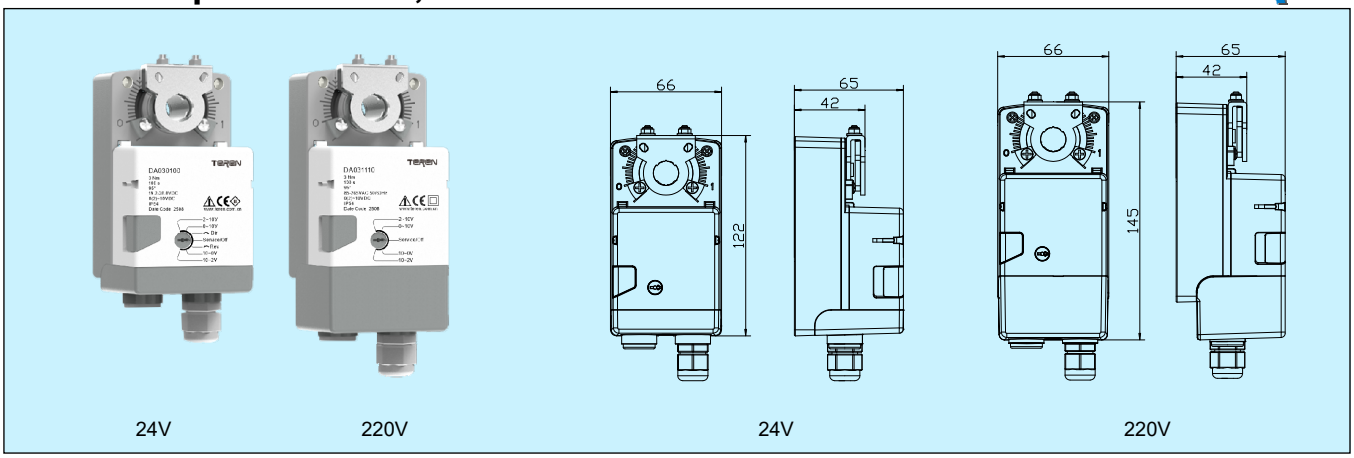
Specifications

Sensor: photoelectric smoke detector
Air Velocity: 1.0~20 m/s
Environment: work, -20~70°C, 0~95%RH (Non-cond.); storage, -30~70°C
Power: (20~29VDC) ±1V or 2-bus input
Monitor current: 35mA@24VDC
Alarm current: 55mA@24VDC
Alarm response time: 15s
Alarm relay: SPST, 2A@30VDC/125VAC
Failure relay: SPST, 2A@30VDC/125VAC
Auxiliary relay: 2xSPST, 2A@30VDC/125VAC, can be set to alarm or failure relay by DIP switch
LED Indicators: Running (red/green), Fault (yellow)
Electrical connection: screw terminals
Enclosure: Gray PC bottom box and transparent upper cover (UL94-V0)
Protection: IP54
Weight: 1kg (excluding sampling tube)
Approval: CCCF

Models of Sampling Tube (should be ordered separately)

Model	Insert Length	Apply for Duct Width
ST1	300mm (1 ft)	0.3m (1 ft)
ST1.5	450mm (1.5 ft)	0.3-0.6m (1-2 ft)
ST3	900mm (3 ft)	0.6-1.2m (2-4 ft)
ST5	1500mm (5 ft)	1.2-2.4m (4-8 ft)
ST10	3000mm (10 ft)	2.4-3.7m (8-12 ft)

DA03 Damper Actuator, 3Nm Series



Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life

Models

Model	DA03					Damper Actuator, 3Nm
Power		0 1				24VAC/DC 85~265VAC
Control signal			0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback				0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch					0 1	N/A 2xSPDT, 0.5A/30VDC

When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

Specifications

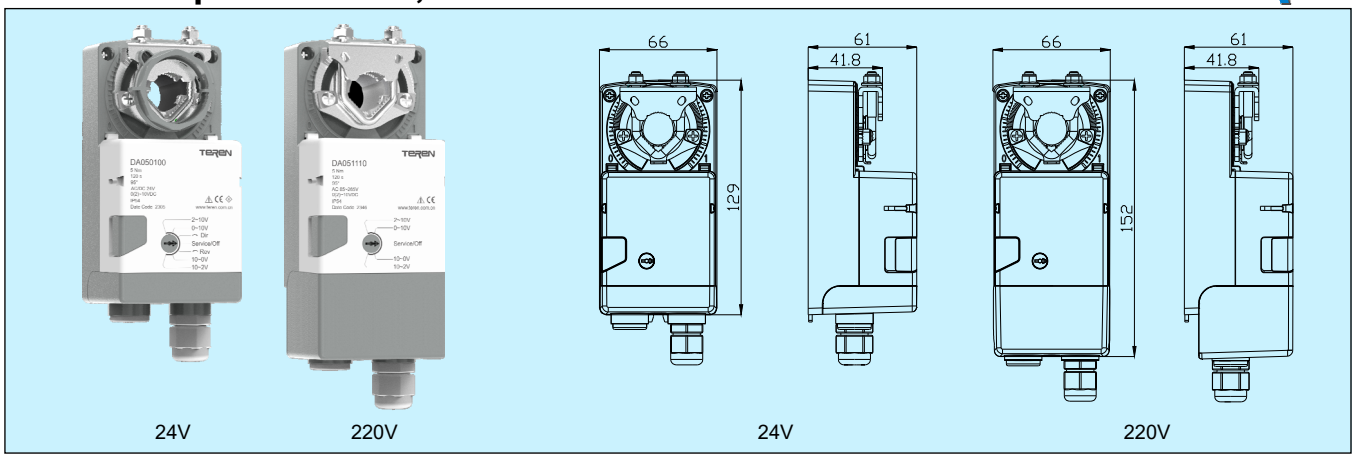
Torque: 3 Nm
Damper size: ≤0.5 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 100s
Connected shaft: Circular Φ6~14mm, square 4.5~10mm, min. length 45mm

Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 0.8W, Hold 0.5W	Act 1.5W, Hold 1W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
Electrical connection: Screw terminal
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤30dB
Housing: Housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.5kg (24V models)
Approval: CE

DA05 Damper Actuator, 5Nm Series



Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 5 Nm
Damper size: ≤1 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 120s
Connected shaft: Circular Φ6~15mm, square 4.5~11mm, min. length 43mm
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 1W, Hold 0.5W	Act 1.5W, Hold 0.8W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Electrical connection: Screw terminal
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤35dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.58kg (24V models)
Approval: CE

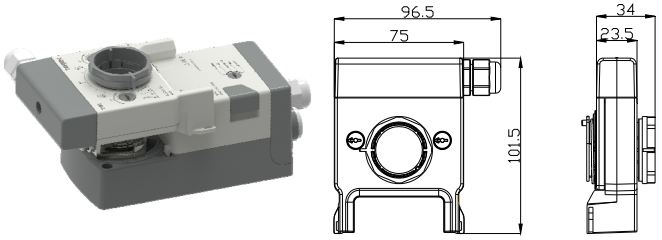
Models

Model	DA05					Damper Actuator, 5Nm
Power		0 1				24VAC/DC 85~265VAC
Control signal			0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback				0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch					0 1	N/A 2xSPDT, 0.5A/30VDC

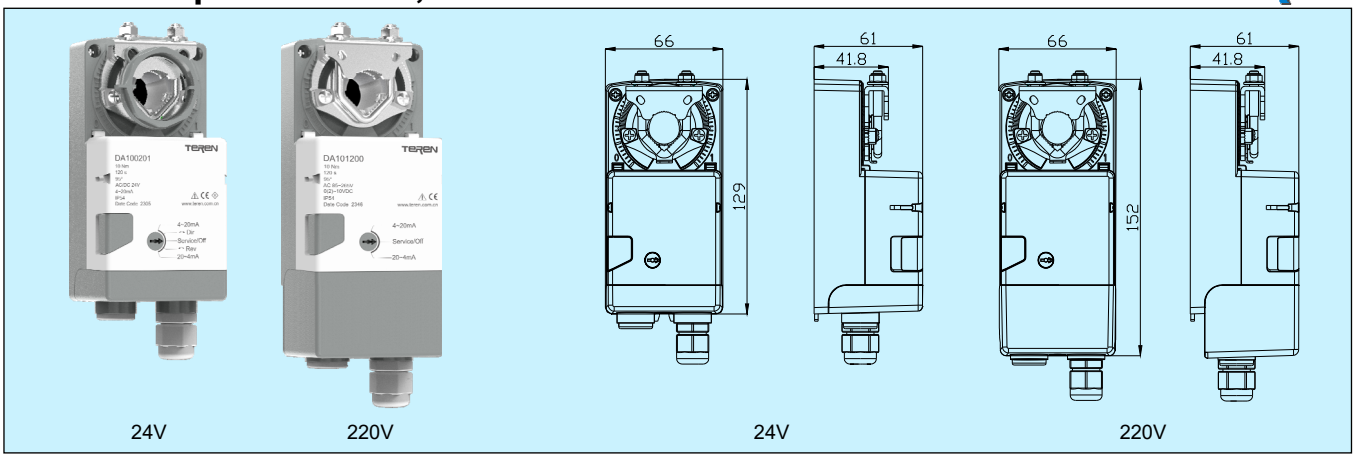
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch (must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, can replace the function of the internal switch and can adjust the position set point freely.

Model: SW1(1xSPDT,0.5A/250VAC); SW2(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg



DA10 Damper Actuator, 10Nm Series



Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 10 Nm
Damper size: ≤2 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 120s
Connected shaft: Circular Φ8~17mm, square 5.8~12mm, min. length 43mm
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 1.5W, Hold 0.5W	Act 2.5W, Hold 0.8W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Electrical connection: Screw terminal
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.64kg (24V models)
Approval: CE

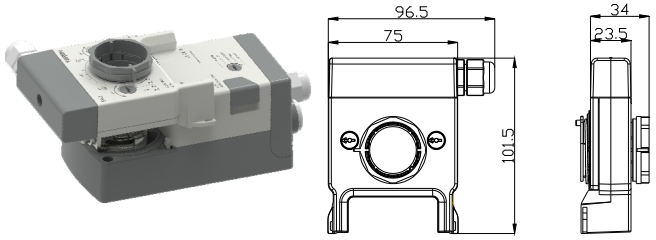
Models

Model	DA10					Damper Actuator, 10Nm
Power		0				24VAC/DC
		1				85~265VAC
Control signal			0			on/off, 3-pos
			1			0(2)~10VDC
			2			4~20mA
			8			RS485/Modbus RTU
Internal feedback				0		N/A
				1		0(2)~10VDC
				2		4~20mA
				8		RS485/Modbus RTU
Internal switch					0	N/A
					1	2xSPDT, 0.5A/30VDC

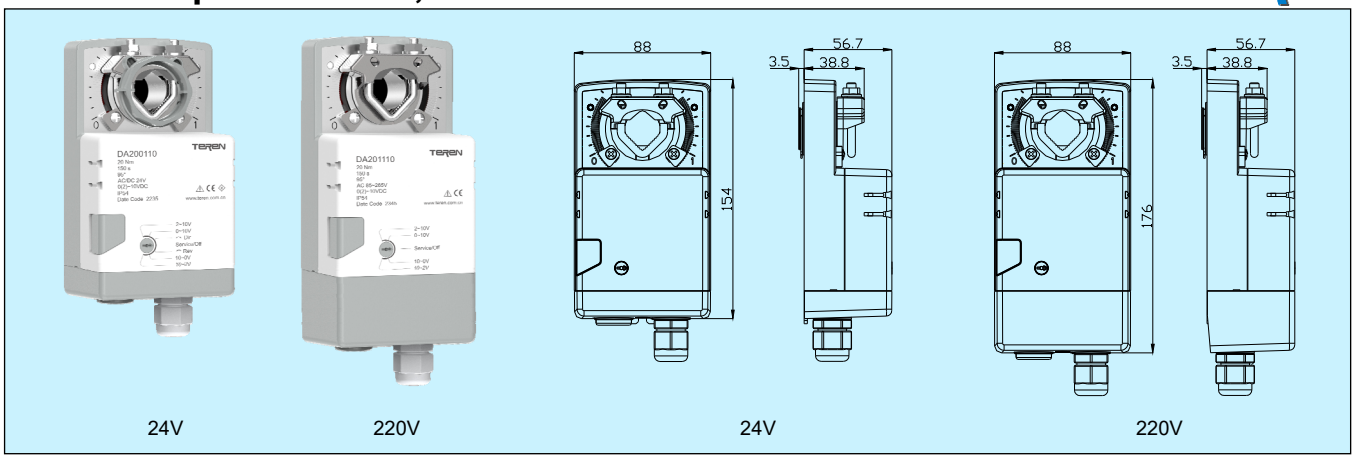
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model: SW1(1xSPDT,0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg



DA20 Damper Actuator, 20Nm Series



Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 20 Nm
Damper size: ≤4 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 150s
Connected shaft: Circular Φ10~20mm, square 8~14mm, min. length 43mm
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 3W, Hold 0.8W	Act 3.5W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Electrical connection: Screw terminal
Mode of operation: Type1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1kg (24V models)
Approval: CE

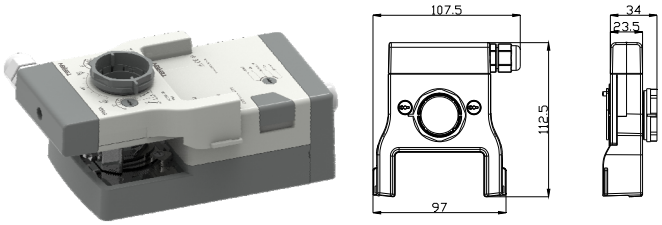
Models

Model	DA20					Damper Actuator, 20Nm
Power		0 1				24VAC/DC 85~265VAC
Control signal			0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback				0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch					0 1	N/A 2xSPDT, 0.5A/30VDC

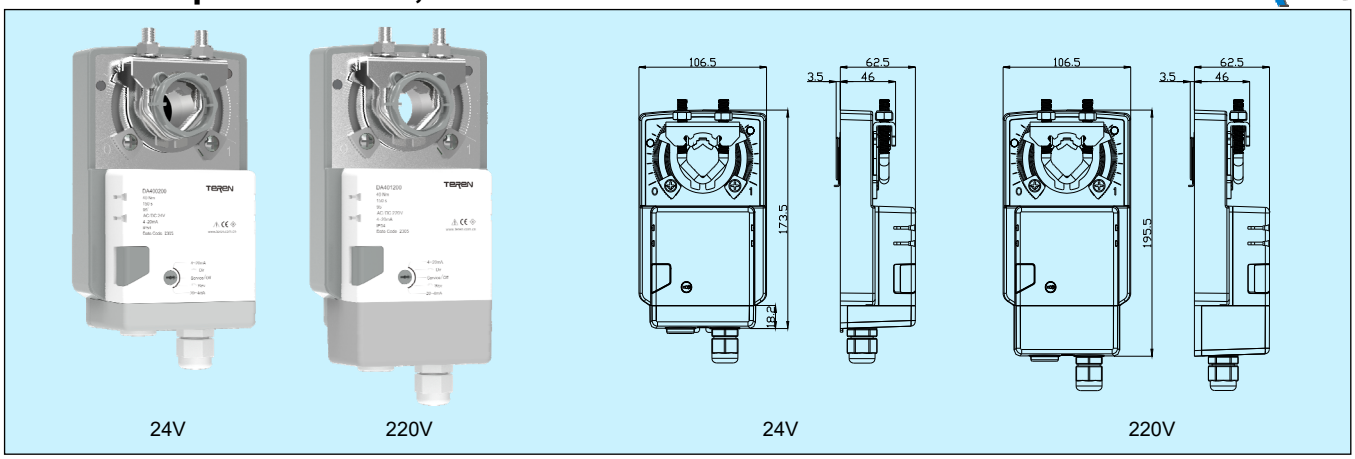
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg



DA40 Damper Actuator, 40Nm Series



Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 40 Nm
Damper size: ≤8 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 150s
Connected shaft: Circular Φ12~26.7mm, square 12~18mm, min. length 50mm
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 8W, Hold 1.5W	Act 8.5W, Hold 1.5W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos;0~10V(input impedance 250KΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA(max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Electrical connection: Screw terminal
Mode of operation: Type1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤45dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.65kg (24V models)
Approval: CE

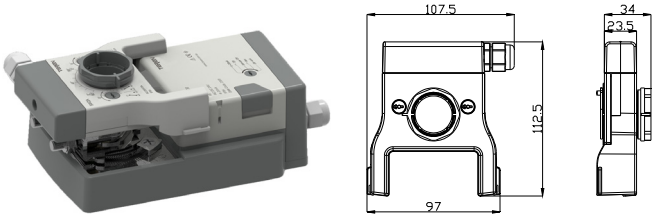
Models

Model	DA40					Damper Actuator, 40Nm
Power		0				24VAC/DC
		1				85~265VAC
Control signal			0			on/off, 3-pos
			1			0(2)~10VDC
			2			4~20mA
			8			RS485/Modbus RTU
Internal feedback				0		N/A
				1		0(2)~10VDC
				2		4~20mA
				8		RS485/Modbus RTU
Internal switch					0	N/A
					1	2xSPDT, 0.5A/30VDC

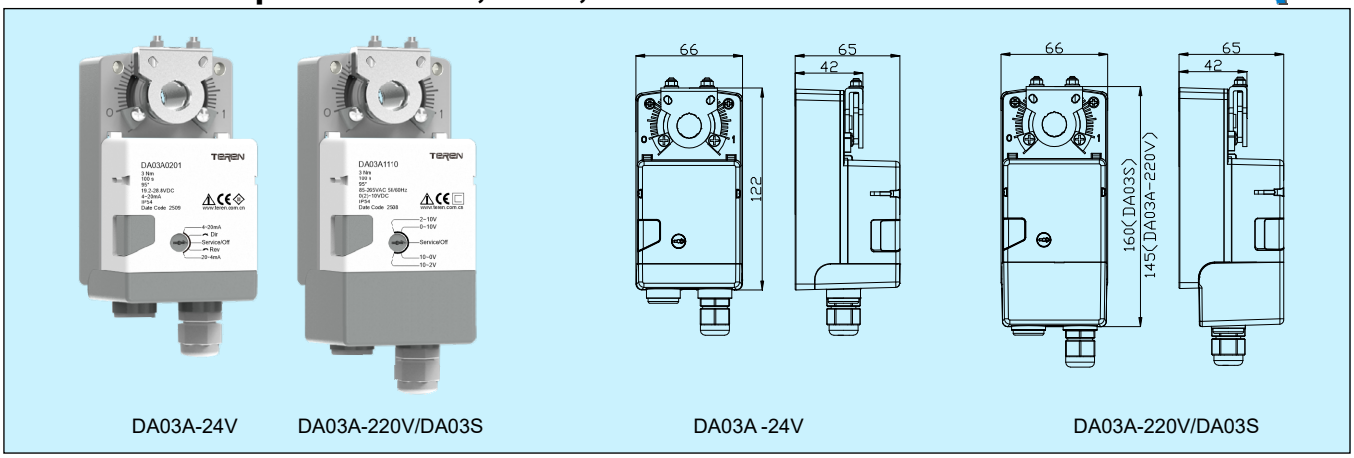
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch: (must be ordered separately)**:** The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg



DA03A/S Damper Actuator, 3Nm, BLDC Motor Series



DA03A-24V DA03A-220V/DA03S DA03A -24V DA03A-220V/DA03S

Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Standard or medium speed optional
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life

Specifications

Torque: 3 Nm
Damper size: ≤0.5 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 100s, medium speed 60s optional
Connected shaft: Circular Φ6~14mm, square 4.5~10mm, min. length 45mm
Driver: Brushless DC motor (BLDC)
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 1.5W, Hold 1W	Act 2.2W, Hold 1W
Protection	class III-low voltage safe	class II-totally insulated

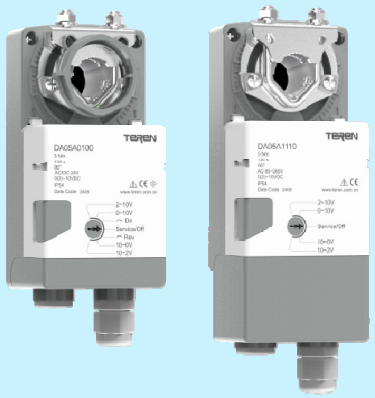
Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <28s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤30dB
Housing: Housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.49kg (DA03A), 0.55kg (DA03S)
Approval: CE

Models

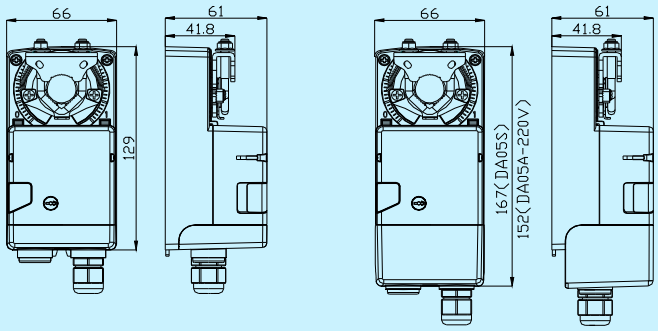
Model	DA03A0 DA03A1 DA03S				Damper Actuator, 3Nm, 24VAC/DC Damper Actuator, 3Nm, 85~265VAC Damper Actuator, 3Nm/24V, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. If select medium speed 60s, add suffix M to the model.

DA05A/S Damper Actuator, 5Nm, BLDC Motor Series



DA05A-24V DA05A-220V/DA05S



DA05A -24V DA05A-220V/DA05S

Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Standard or medium speed optional
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 5 Nm
Damper size: ≤1 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 120s, medium speed 75s optional
Connected shaft: Circular Φ6~15mm, square 4.5~11mm, min. length 43mm
Driver: Brushless DC motor (BLDC)
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 1.8W, Hold 1W	Act 2W, Hold 1W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <32s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤35dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.57kg (DA05A), 0.78 kg (DA05S)
Approval: CE

Models

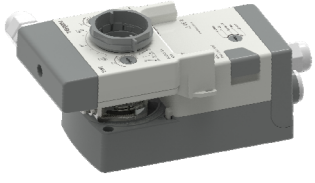
Model	DA05A0 DA05A1 DA05S				Damper Actuator, 5Nm, 24VAC/DC Damper Actuator, 5Nm, 85~265VAC Damper Actuator, 5Nm/24V, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

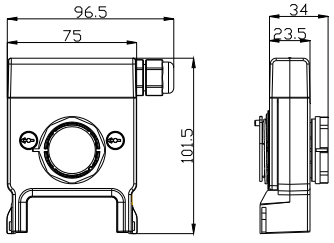
1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. If select medium speed 75s, add suffix M to the model.

External Position Switch (must be ordered separately):

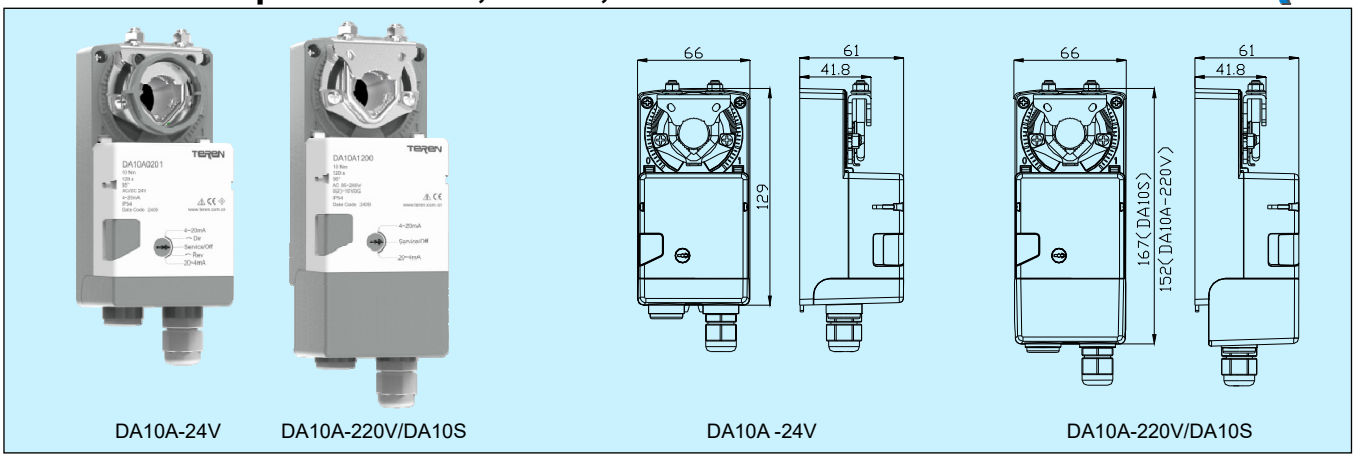
The external position switch can feedback the position status of the actuator. Suitable for field installation, can replace the function of the internal switch and can adjust the position set point freely.

Model: SW1(1xSPDT, 0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg





DA10A/S Damper Actuator, 10Nm, BLDC Motor Series



DA10A-24V DA10A-220V/DA10S DA10A -24V DA10A-220V/DA10S

Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Standard or medium speed optional
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 10 Nm
Damper size: ≤2 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 120s, medium speed 75s optional
Connected shaft: Circular Φ8~17mm, square 5.8~12mm, min. length 43mm
Driver: Brushless DC motor (BLDC)
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 2.3W, Hold 1W	Act 3W, Hold 1W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ) 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <32s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.63kg (DA10A), 0.84 kg (DA10S)
Approval: CE

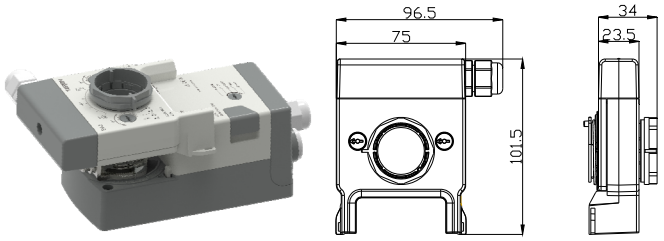
Models

Model	DA10A0 DA10A1 DA10S				Damper Actuator, 10Nm, 24VAC/DC Damper Actuator, 10Nm, 85~265VAC Damper Actuator, 10Nm/24V, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

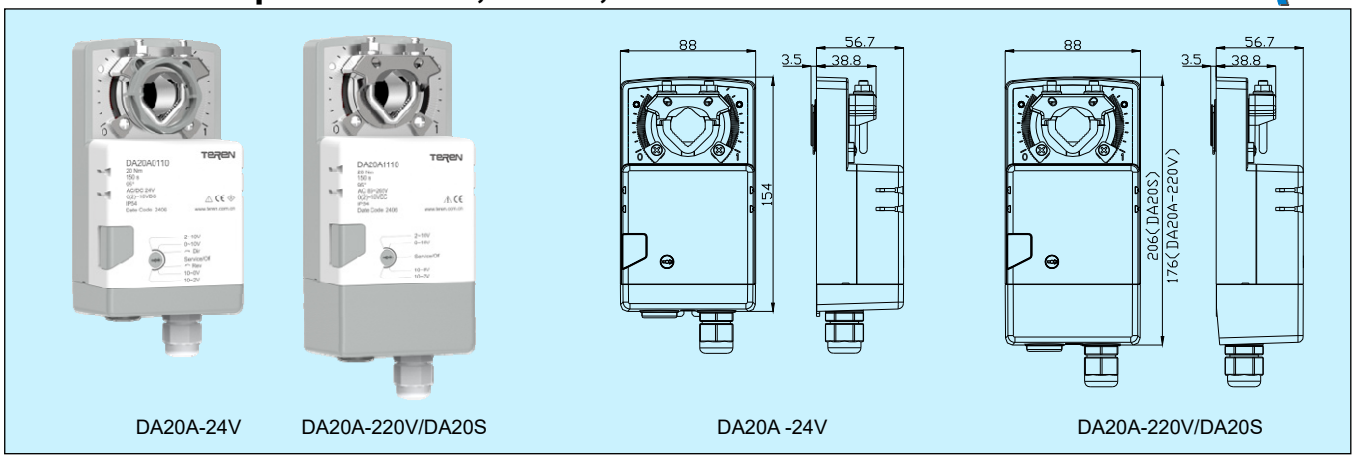
1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. If select medium speed 75s, add suffix M to the model.

External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model: SW1(1xSPDT, 0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg



DA20A/S Damper Actuator, 20Nm, BLDC Motor Series



DA20A-24V DA20A-220V/DA20S DA20A -24V DA20A-220V/DA20S

Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Standard or medium speed optional
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 20 Nm
Damper size: ≤4 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 150s, medium speed 90s optional
Connected shaft: Circular Φ10~20mm, square 8~14mm, min. length 43mm
Driver: Brushless DC motor (BLDC)
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 3.5W, Hold 0.8W	Act 4W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <36s (-20~50°C)
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.1kg (DA20A), 1.3 kg (DA20S)
Approval: CE

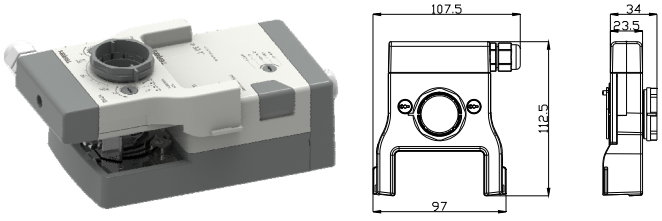
Models

Model	DA20A0 DA20A1 DA20S				Damper Actuator, 20Nm, 24VAC/DC Damper Actuator, 20Nm, 85~265VAC Damper Actuator, 20Nm/24V, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. If select medium speed 90s, add suffix M to the model.

External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg



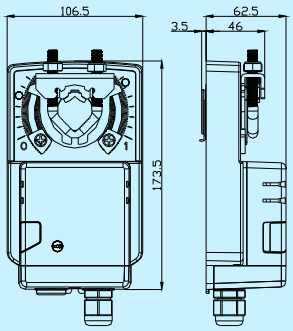
DA40A/S Damper Actuator, 40Nm, BLDC Motor Series



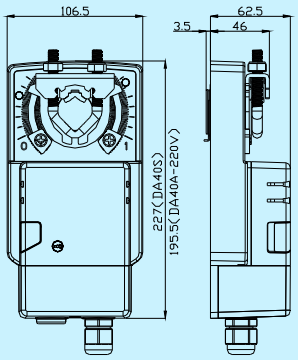
DA40A-24V



DA40A-220V/DA40S



DA40A -24V



DA40A-220V/DA40S

Applications & Features

- Special designed for the control of dampers of various HVAC system and equipment
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Standard or medium speed optional
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 40 Nm
Damper size: ≤8 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 150s, medium speed 90s optional
Connected shaft: Circular Φ12~26.7mm, square 12~18mm, min. length 50mm
Driver: Brushless DC motor (BLDC)
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 4.5W, Hold 0.8W	Act 5W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos;0~10V(input impedance 250KΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA(max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <45s
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤45dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.8kg (DA40A), 1.9 kg (DA40S)
Approval: CE

Models

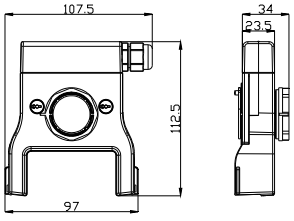
Model	DA40A0 DA40A1 DA40S				Damper Actuator, 40Nm, 24VAC/DC Damper Actuator, 40Nm, 85~265VAC Damper Actuator, 40Nm/24V, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. If select medium speed 90s, add suffix M to the model.

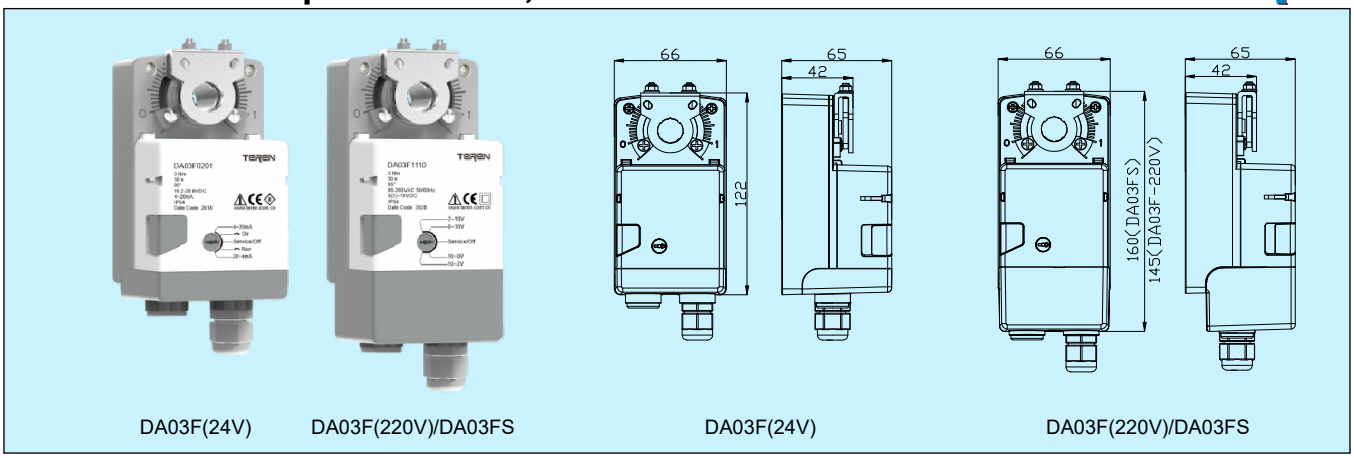
External Position Switch: (must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg





DA03F Fast Damper Actuator, 3Nm Series



DA03F(24V) DA03F(220V)/DA03FS DA03F(24V) DA03F(220V)/DA03FS

Applications & Features

- Special designed for the fast control of dampers of various HVAC system and equipment, with a full stroke operation time of only 30s
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life

Specifications

Torque: 3 Nm
Damper size: ≤0.5 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 35s
Connected shaft: Circular Φ6~14mm, square 4.5~10mm, min. length 45mm
Driver: Brushless DC motor (BLDC)
Power: DA03F: 24VAC/DC or 85~265VAC; DA03FS: 24VAC/DC

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 2.5W, Hold 1W	Act 3W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <28s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤32dB

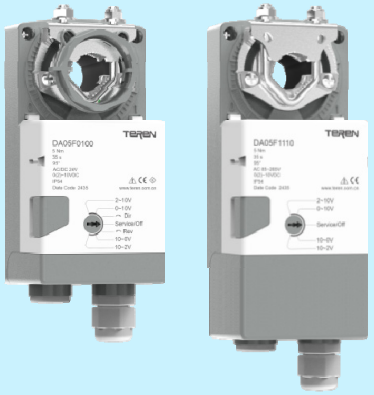
Housing: Housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.5kg (24V models)
Approval: CE

Models

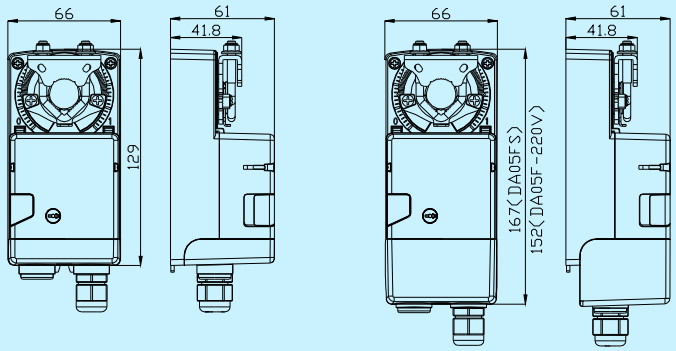
Model	DA03F0 DA03F1 DA03FS				Fast Damper Actuator, 3Nm, 24V Fast Damper Actuator, 3Nm, 220V Fast Damper Actuator, 3Nm, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

DA05F Fast Damper Actuator, 5Nm Series



DA05F(24V) DA05F(220V)/DA05FS



DA05F(24V) DA05F(220V)/DA05FS

Applications & Features

- Special designed for the fast control of dampers of various HVAC system and equipment, with a full stroke operation time of only 35s
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 5 Nm
Damper size: ≤1 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 40s
Connected shaft: Circular Φ6~15mm, square 4.5~11mm, min. length 43mm
Driver: Brushless DC motor (BLDC)
Power: DA05F: 24VAC/DC or 85~265VAC; DA05FS: 24VAC/DC

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 2.9W, Hold 1W	Act 4W, Hold 1.3W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <32s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles

Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤35dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.57kg (24V models)
Approval: CE

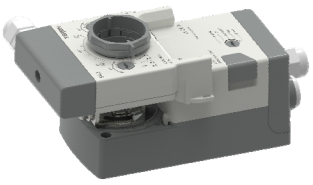
Models

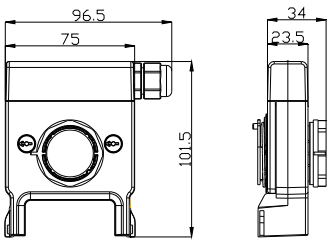
Model	DA05F0 DA05F1 DA05FS				Fast Damper Actuator, 5Nm, 24V Fast Damper Actuator, 5Nm, 220V Fast Damper Actuator, 5Nm, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch (must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, can replace the function of the internal switch and can adjust the position set point freely.

Model: SW1(1xSPDT, 0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg





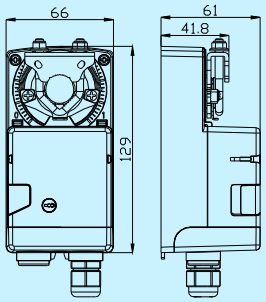
DA10F Fast Damper Actuator, 10Nm Series



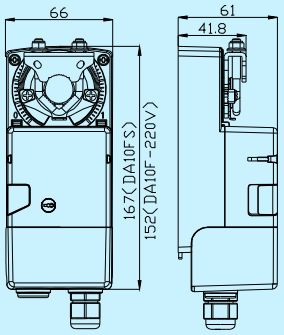
DA10F(24V)



DA10F(220V)/DA10FS



DA10F(24V)



DA10F(220V)/DA10FS

Applications & Features

- Special designed for the fast control of dampers of various HVAC system and equipment, with a full stroke operation time of only 40s
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 10 Nm
Damper size: ≤2 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 45s
Connected shaft: Circular Φ8~17mm, square 5.8~12mm, min. length 43mm
Driver: Brushless DC motor (BLDC)
Power: DA10F: 24VAC/DC or 85~265VAC; DA10FS: 24VAC/DC

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 3.5W, Hold 1.5W	Act 4W, Hold 1.8W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <32s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles

Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.63kg (24V models)
Approval: CE

Models

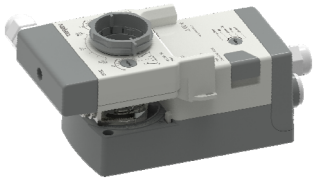
Model	DA10F0				Fast Damper Actuator, 10Nm, 24V
	DA10F1				Fast Damper Actuator, 10Nm, 220V
	DA10FS				Fast Damper Actuator, 10Nm, Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

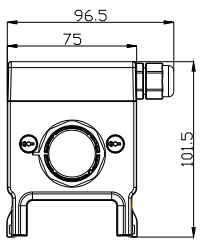
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

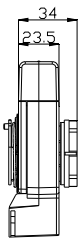
External Position Switch(must be ordered separately):

The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model: SW1(1xSPDT, 0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg



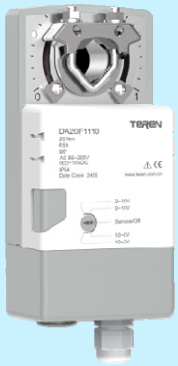




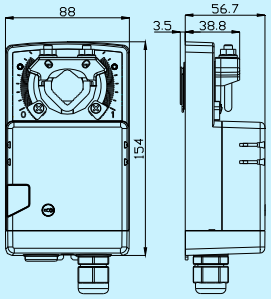
DA20F Fast Damper Actuator, 20Nm Series



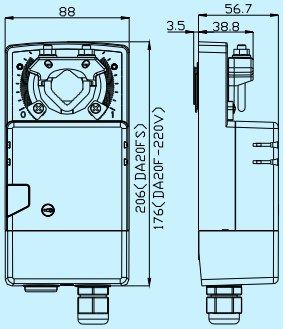
DA20F(24V)



DA20F(220V)/DA20FS



DA20F(24V)



DA20F(220V)/DA20FS

Applications & Features

- Special designed for the fast control of dampers of various HVAC system and equipment, with a full stroke operation time of only 45s
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off or the control signal input is absence
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 20 Nm
Damper size: ≤4 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 50s
Connected shaft: Circular Φ10~20mm, square 8~14mm, min. length 43mm
Driver: Brushless DC motor (BLDC)
Power: DA20F: 24VAC/DC or 85~265VAC; DA20FS: 24VAC/DC

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 4.5W, Hold 1.8W	Act 5W, Hold 2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <36s (-20~50°C)
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles

Mode of operation: Type1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤45dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.1kg (24V models)
Approval: CE

Models

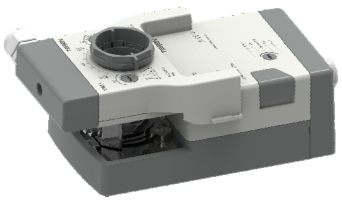
Model	DA20F0 DA20F1 DA20FS				Fast Damper Actuator, 20Nm, 24V Fast Damper Actuator, 20Nm, 220V Fast Damper Actuator, 20Nm, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

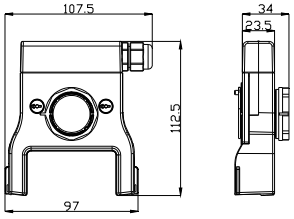
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch(must be ordered separately):

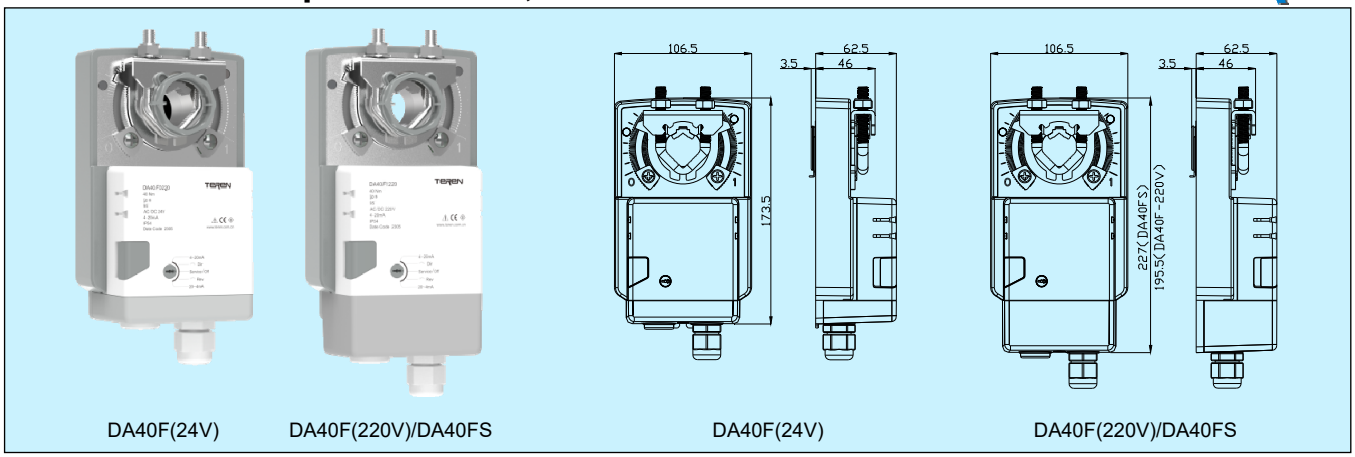
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg





DA40F Fast Damper Actuator, 40Nm Series



DA40F(24V) DA40F(220V)/DA40FS DA40F(24V) DA40F(220V)/DA40FS

Applications & Features

- Special designed for the fast control of dampers of various HVAC system and equipment, with a full stroke operation time of only 50s
- Easily assemble: connect the damper and actuator, the adapter can self-centered the connection shaft. Can be applied to dampers with different size shaft
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- In case of external power failure, the actuator can still run to the selected fail-safe position with internal capacitors
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 40 Nm
Damper size: ≤8 m^2(see details in the manual)
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 65s
Connected shaft: Circular Φ12~26.7mm, square 12~18mm, min. length 50mm
Driver: Brushless DC motor (BLDC)
Power: DA40F: 24VAC/DC or 85~265VAC; DA40FS: 24VAC/DC

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 6W, Hold 2W	Act 7W, Hold 2.5W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos;0~10V(input impedance 250KΩ); 4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA(max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <45s
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles

Mode of operation: Type1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤45dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.8kg (24V models)
Approval: CE

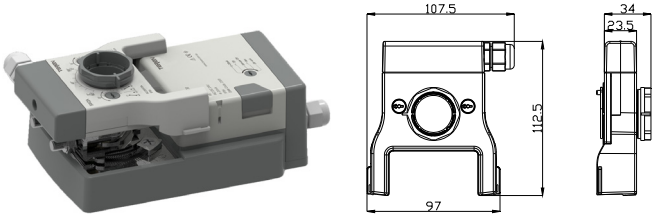
Models

Model	DA40F0 DA40F1 DA40FS				Fast Damper Actuator, 40Nm, 24V Fast Damper Actuator, 40Nm, 220V Fast Damper Actuator, 40Nm, Fail-safe
Control signal		0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback			0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal switch				0 1	N/A 2xSPDT, 0.5A/30VDC

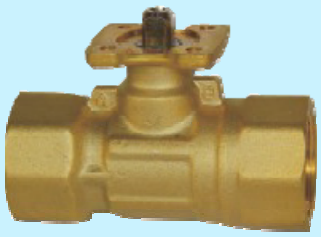
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

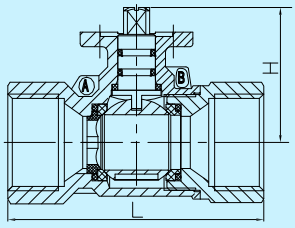
External Position Switch: (must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg

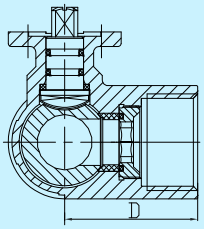


BVSB Ball Valve, Brass, Screw Connection









Structure/Dimension/Weight

Two-way Model	Dimension(mm)			Connect Screw	Weight kg
	L	H	D		
BVSB2015	59.5	39.5	-	G1/2	0.25
BVSB2020	68	43.5	-	G3/4	0.33
BVSB2025	88.5	46.5	-	G1	0.51
BVSB2032	102.5	52	-	G1-1/4	0.76
BVSB2040	113	56.5	-	G1-1/2	1.09
BVSB2050	128	61.5	-	G2	1.74

Structure/Dimension/Weight

Three-way Model	Dimension(mm)			Connect Screw	Weight kg
	L	H	D		
BVSB3015	59.5	39.5	31	G1/2	0.31
BVSB3020	68	43.5	32	G3/4	0.39
BVSB3025	88.5	46.5	46	G1	0.65
BVSB3032	102.5	52	49	G1-1/4	0.98
BVSB3040	107	56.5	53	G1-1/2	1.38
BVSB3050	123	61.5	69	G2	2.11

Applications & Features

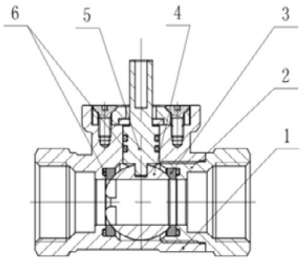
- Two and three-way control ball valve, screw connection, can be applied in the flow control of hot or cold water in various HVAC systems or equipment, such as AHU, coil, etc.
- Compatible with ISO5211, can work with TERENs' ball valve actuator BVA series or other applicable actuators
- equal percentage flow characteristics
- Compact and simple structure, easy to install in small installation space
- Special design for small torque but big closing pressure
- Direct flow, big flow rate, small flow resistance, no slag blocking
- Low leakage rate, open/close softly, can prevent water hammer

Specifications

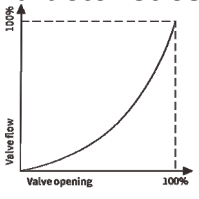
Size: DN15~50
Medium: cool or hot water, 50% or lower glycol water
Medium temperature: -10~95°C
Pressure: PN20
Flow characteristics: Two-way equal percentage; three-way A-AB equal percentage but B-AB linear with 50% Kvs
Leakage rate: Two-way: ≤0.01%Kvs, no leak on stem
Three-way: A-AB≤0.01%Kvs, B-AB 1%~2% Kvs, no leak on stem
Angle of rotation: 90°
Pipe connection: screw, comply with ISO7-1 Rp
Actuator connection: comply with ISO5211, Flange F03(4×M5); stem rhombic key 9×9(M5)
Install direction: Valve stem upward or horizontal

Structure & Material

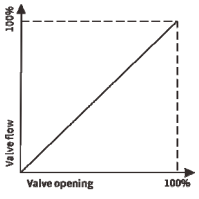
1. Valve body: Brass
2. Valve deck: Brass
3. Valve seat: PTFE
4. Ball core: SS
5. Valve stem: Brass plating
6. Sealing ring: PTFE, HNBR



Flow Characteristics



A-AB Equal percentage



B-AB Linear

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is 1g/cm^3, the flow through the valve, unit m^3/h

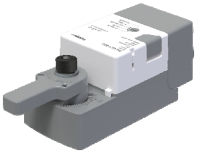
Models and Closing Diff. Pressure

Model	Two/ Three way	DN		Kvs	DP (kPa)					
		mm	in	m^3/h	Torque 3Nm		Torque 5Nm		Torque 10Nm	
					ΔPs	ΔPm	ΔPs	ΔPm	ΔPs	ΔPm
BVB2015	Two-way	15	1/2	4	1400	350				
BVB2020	Two-way	20	3/4	6.3	1400	350				
BVB2025	Two-way	25	1	10			1400	350		
BVB2032	Two-way	32	1-1/4	16			1400	350		
BVB2040	Two-way	40	1-1/2	25			1400	350		
BVB2050	Two-way	50	2	40					1400	350
BVB3015	Three-way	15	1/2	4	1400	350				
BVB3020	Three-way	20	3/4	6.3	1400	350				
BVB3025	Three-way	25	1	10			1400	350		
BVB3032	Three-way	32	1-1/4	16			1400	350		
BVB3040	Three-way	40	1-1/2	25					1400	350
BVB3050	Three-way	50	2	40					1400	350

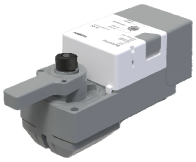
ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.
ΔPm: (under the actuator force), in the strike, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Actuator Applied(for water)

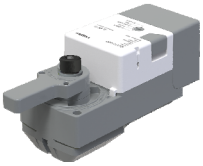
BVA03(3Nm)



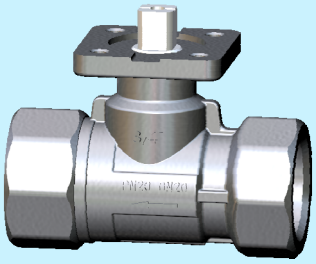
BVA05(5Nm)

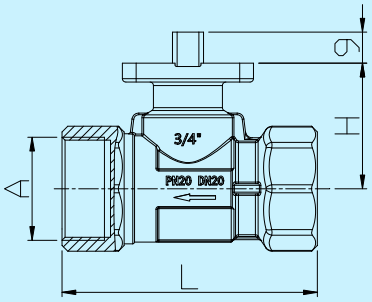


BVA10(10Nm)



BVSS Ball Valve, Stainless Steel, Screw Connection





Structure/Dimension/Weight

Model	Dimension(mm)		Connection	Weight kg
	L	H		
BVSS2020	74	46	G1/2	1.1
BVSS2025	89	49	G1	1.4
BVSS2032	98	55	G1-G1/4	1.8
BVSS2040	112	57	G1-G1/2	2.0
BVSS2050	123	60	G2	2.5

Applications & Features

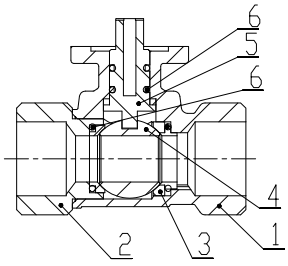
- Two-way control ball valve, made of stainless steel, screw connection, can be applied in the flow control of hot, cold water or steam in various HVAC systems or equipment, such as AHU, coil, etc.
- Comply with ISO5211, can work with TERENs' ball valve actuator BVA series or other applicable actuators. If applied in steam application, it's better to use actuators with fail-safe function
- equal percentage flow characteristics
- Compact and simple structure, easy to install in small installation space
- Specially design for small torque but big closing pressure
- Direct flow, big flow rate, small flow resistance, no slag blocking
- Low leakage rate, open/close softly, can prevent water hammer

Specifications

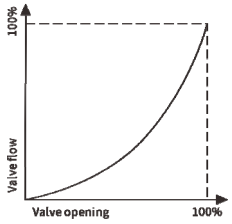
Size: DN20~50mm
Pressure: PN20
Medium: Cool/hot water, 50% or lower glycol water, or steam
Medium temperature: -10~95°C(water); 0~200°C(steam)
Valve type: Two way
Flow characteristics: Equal percentage
Leakage rate: ≤0.01%Kvs, no leak on stem
Regulating ratio: >100: 1
Angle of rotation: 90°
Pipe connection: Screw ISO7-1 Rp
Actuator connection: comply with ISO5211, flange F03(4×M5); stem rhombic key 9×9(M5)
Install direction: Valve stem upward or horizontal

Structure & Material

1. Valve body: 304 SS
2. Valve deck: 304 SS
3. Valve seat: RPTFE
4. Ball core: 304 SS
5. Valve stem: 304 SS
6. Sealing ring: PTFE



Flow characteristic



A-AB Equal percentage

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is 1g/cm^3, the flow through the valve, unit m^3/h

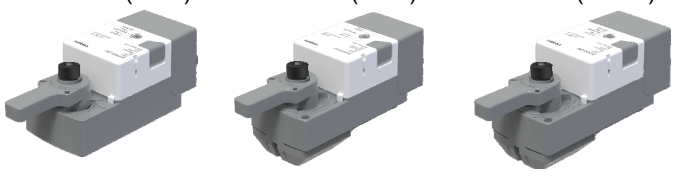
Models and Closing Diff. Pressure(for water)

Model	DN		Kvs	Diff. Pressure(kPa)					
	mm	in	m^3/h	Torque 3Nm		Torque 5Nm		Torque 10Nm	
				ΔPs	ΔPm	ΔPs	ΔPm	ΔPs	ΔPm
BVSS2020	20	3/4	6.3	1400	350				
BVSS2025	25	1	10			1400	350		
BVSS2032	32	1-1/4	16			1400	350		
BVSS2040	40	1-1/2	25					1400	350
BVSS2050	50	2	40					1400	350

ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.
ΔPm: (under the actuator force), in the strike, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Actuator Applied(for water)

BVA03(3Nm) BVA05(5Nm) BVA10(10Nm)



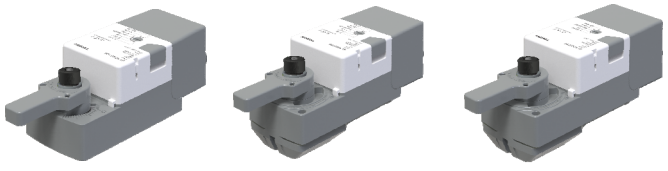
Models and Closing Diff. Pressure(for steam)

Model	DN		Kvs	Diff. Pressure(kPa)					
	mm	in	m^3/h	Torque 3Nm		Torque 5Nm		Torque 10Nm	
				ΔPs	ΔPm	ΔPs	ΔPm	ΔPs	ΔPm
BVSS2020S	20	3/4	6.3	1400	300				
BVSS2025S	25	1	10			1400	300		
BVSS2032S	32	1-1/4	16			1400	300		
BVSS2040S	40	1-1/2	25					1400	300
BVSS2050S	50	2	40					1400	300

ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.
ΔPm: (under the actuator force), in the strike, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

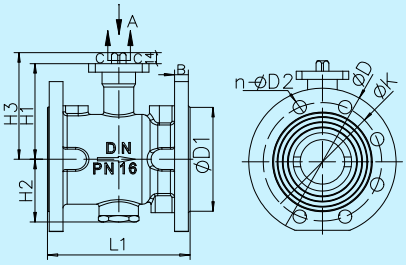
Actuator Applied(for steam)

BVA03S(3Nm) BVA05S(5Nm) BVA10S(10Nm)



BVF Ball Valve, Flange Connection





Dimension/Weight

Model	Dimension(mm)							Connection		Weight
	L	H1	H2	D	ØD	ØK	n-ØD2	Type	□KxK	kg
BVF2040	136	79.5	58.5	121	150	110	4-18	F03	9	5.2
BVF2050	136	82	65	134	165	125	4-18	F03	9	6
BVF2065	136	94	69	146	185	145	4-18	F05	11	7.5
BVF2080	170	122.5	80	199	200	160	8-18	F05	11	11
BVF2100	183	124	92	219	220	180	8-18	F07	14	13
BVF2125	215	132	106	249	250	210	8-18	F07	14	20
BVF2150	252	156	118	285	285	240	8-22	F07	14	31

Applications & Features

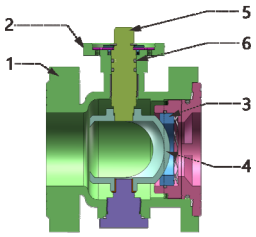
- Two-way control ball valve, flange connection. Applied in the flow control of hot, cold water and steam in various HVAC systems or equipment, such as AHU, coil, etc.
- Comply with ISO5211, can work with TERENs' ball valve actuator BVA series or other applicable actuators. If applied in steam pipeline, it's better to choose actuators with fail-safe function
- equal percentage flow characteristics
- Compact and simple structure, easy to install in small installation space
- Special design for small torque but big closing pressure
- Direct big flow rate, small flow resistance, no slag blocking
- Low leakage rate, open/close softly, can prevent water hammer

Specifications

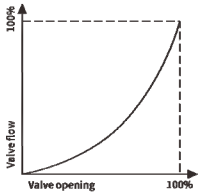
Size: DN40~150
Medium: Cool, hot water, 50% or lower glycol water or steam
Medium temperature: Water -10~120°C; steam 0~200°C
Pressure: PN16
Flow characteristics: Equal percentage
Regulating ratio: >100: 1
Leakage rate: ≤0.01%Kvs, no leak on stem
Angle of rotation: 90°
Pipe connection: Flange, comply with ISO7005-2
Actuator connection: Comply with ISO5211
Install direction: Valve stem upward or horizontal

Structure & Materials

1. Valve body: Nodular cast iron
2. Valve deck: Nodular cast iron
3. Valve seat: PTFE
4. Valve core: SS
5. Valve stem: SS
6. Sealing ring: EPDM



Flow Characteristics



A-AB Equal percentage

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is 1g/cm^3, the flow through the valve, unit m^3/h

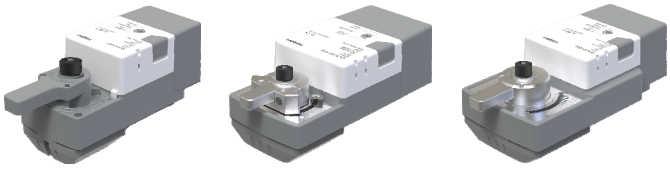
Models and Closing Diff. Pressure (For water)

Model	DN		Kvs	Diff. Pressure(kPa)					
	mm	in	m^3/h	Torque 10Nm		Torque 20Nm		Torque 40Nm	
				ΔPs	ΔPm	ΔPs	ΔPm	ΔPs	ΔPm
BVF2040	40	1-1/2	40	1400	350				
BVF2050	50	2	78	1400	350				
BVF2065	65	2-1/2	120			700	350		
BVF2080	80	3	160			700	350		
BVF2100	100	4	275					700	350
BVF2125	125	5	395					700	350
BVF2150	150	6	544					700	350

ΔPs: (under the actuator torque), the max. permitted diff. pressure for ensuring the valve is 100% close.
ΔPm: (under the actuator torque), in the strike, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Applied Actuators

BVA10(10Nm) **BVA20(20Nm)** **BVA40(40Nm)**



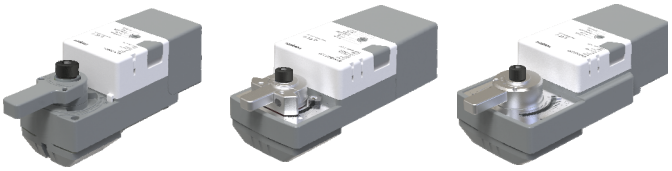
Models and Closing Diff. Pressure (For steam)

Model	DN		Kvs	Diff. Pressure(kPa)					
	mm	in	m^3/h	Torque 10Nm		Torque 20Nm		Torque 40Nm	
				ΔPs	ΔPm	ΔPs	ΔPm	ΔPs	ΔPm
BVF2040	40	1-1/2	40	1400	300				
BVF2050	50	2	78	1400	300				
BVF2065	65	2-1/2	120			700	300		
BVF2080	80	3	160			700	300		
BVF2100	100	4	275					700	300
BVF2125	125	5	395					700	300
BVF2150	150	6	544					700	250

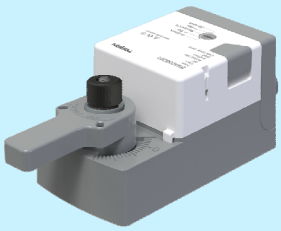
ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.
ΔPm: (under the actuator force), in the strike, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Applied Actuators

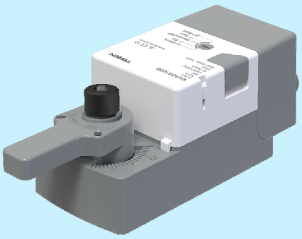
BVA10S(10Nm) **BVA20S(20Nm)** **BVA40S(40Nm)**



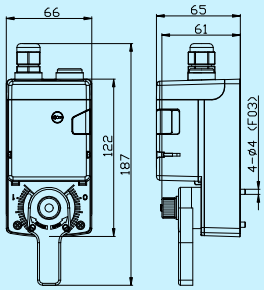
BVA03/BVA03A/BVA03S Ball Valve Actuator, 3Nm Series



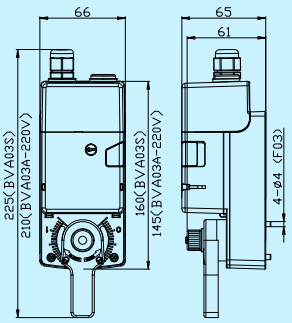
BVA03/A(24V)



BVA03/A(220V), BVA03S



BVA03/A(24V)



BVA03/A(220V), BVA03S

Applications & Features

- Special designed for the control of ball valves of various HVAC system and equipment. Can apply with TEREN's BV(for water) or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient for user to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fail, the actuator can still run to the selected fail-safe position with internal capacitors(BVA03S)
- Standard or medium speed optional(BVA03A/S)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life

Specifications

Torque: 3 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F03 Flange and 9x9 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 100s, medium 60s optional (BVA03A/S)
Driver: BVA03: brush motor; BVA03A/S: brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	BVA03: Act 0.8W, Hold 0.5W BVA03A: Act 1.5W, Hold 1W	BVA03: Act 1.5W, Hold 1W BVA03A: Act 2.2W, Hold 1W
Protection	class III-low voltage safe	class II-totally insulated

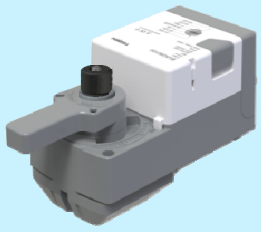
Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA)
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <30s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤30dB
Housing: Housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.5kg (24V models)
Approval: CE

Models

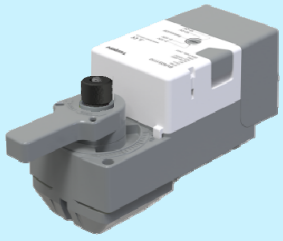
Model	BVA030				Ball valve actuator, 3Nm, 24VAC/DC
	BVA031				Ball valve actuator, 3Nm, 85~265VAC
	BVA03A0				Ball valve actuator, 3Nm, 24VAC/DC
	BVA03A1				Ball valve actuator, 3Nm, 85~265VAC
	BVA03S				Ball valve actuator, 3Nm/24V, Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. BVA03A/S can be medium speed 60s, add suffix M to the model.

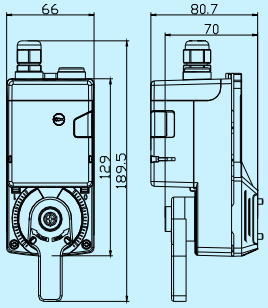
BVA05/BVA05A/BVA05S Ball Valve Actuator, 5Nm Series



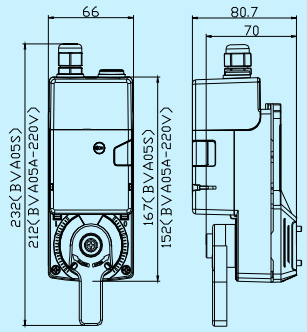
BVA05/A(24V)



BVA05/A(220V), BVA05S



BVA05/A(24V)



BVA05/A(220V), BVA05S

Applications & Features

- Special designed for the control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fail, the actuator can still run to the selected fail-safe position with internal capacitors(BVA05S)
- Standard or medium speed optional(BVA05A/S)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 5 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F03 Flange and 9x9 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 120s, medium 75s optional (BVA05A/S)
Driver: BVA05: brush motor; BVA05A/S: brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	BVA05: Act 1W, Hold 0.5W BVA05A: Act 1.8W, Hold 1W	BVA05: Act 1.5W, Hold 0.8W BVA05A: Act 2W, Hold 1 W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA)
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <30s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤35dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.7kg (24V basic model)
Approval: CE

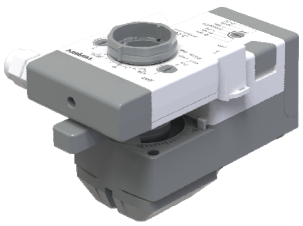
Models

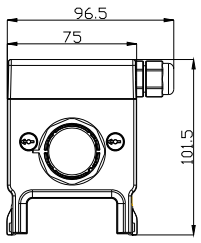
Model	BVA050				Ball valve actuator, 5Nm, 24VAC/DC
	BVA051				Ball valve actuator, 5Nm, 85~265VAC
	BVA05A0				Ball valve actuator, 5Nm, 24VAC/DC
	BVA05A1				Ball valve actuator, 5Nm, 85~265VAC
	BVA05S				Ball valve actuator, 5Nm/24V, Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

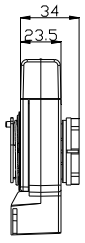
1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. BVA05A/S can be medium speed 75s, add suffix M to the model.

External Position Switch (must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, can replace the function of the internal switch and can adjust the position set point freely.

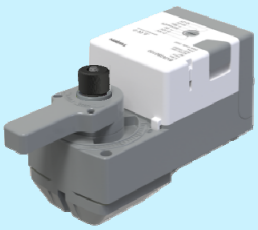
Model: SW1(1xSPDT, 0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg



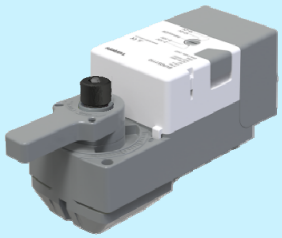




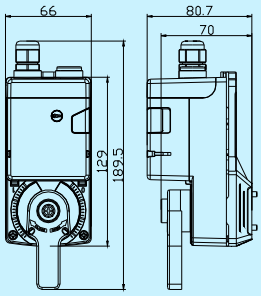
BVA10/BVA10A/BVA10S Ball Valve Actuator, 10Nm Series



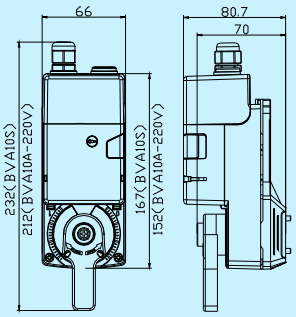
BVA10/A(24V)



BVA10/A(220V), BVA10S



BVA10/A(24V)



BVA10/A(220V), BVA10S

Applications & Features

- Special designed for the control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fail, the actuator can still run to the selected fail-safe position with internal capacitors(BVA10S)
- Standard or medium speed optional(BVA10A/S)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 10 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F03 Flange and 9x9 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 120s, medium 75s optional (BVA10A/S)
Driver: BVA10: brush motor; BVA10A/S: brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	BVA10: Act 1.5W, Hold 0.5W BVA10A: Act 2.3W, Hold 1W	BVA10: Act 2.5W, Hold 0.8W BVA10A: Act 3W, Hold 1W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA);
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <32s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.8kg (24V basic model)
Approval: CE

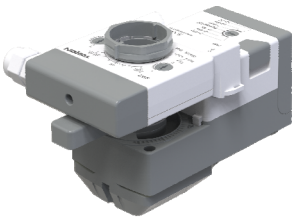
Models

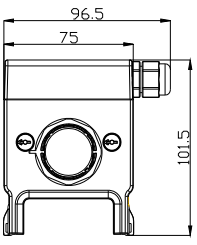
Model	BVA100				Ball valve actuator, 10Nm, 24VAC/DC
	BVA101				Ball valve actuator, 10Nm, 85~265VAC
	BVA10A0				Ball valve actuator, 10Nm, 24VAC/DC
	BVA10A1				Ball valve actuator, 10Nm, 85~265VAC
	BVA10S				Ball valve actuator,10Nm/24V,Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

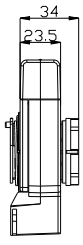
1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. BVA10A/S can be medium speed 75s, add suffix M to the model.

External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

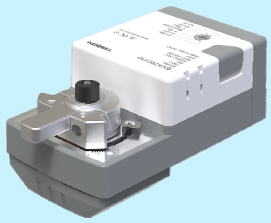
Model:SW1(1xSPDT,0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg



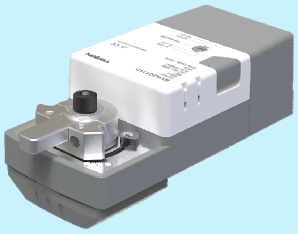




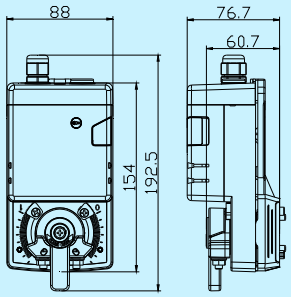
BVA20/BVA20A/BVA20S Ball Valve Actuator, 20Nm Series



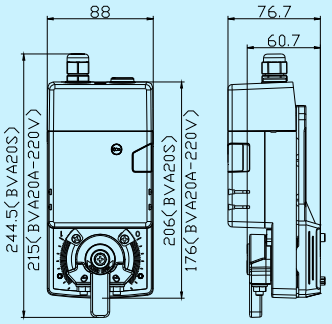
BVA20/A(24V)



BVA20/A(220V), BVA20S



BVA20/A(24V)



BVA20/A(220V), BVA20S

Applications & Features

- Special designed for the control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fail, the actuator can still run to the selected fail-safe position with internal capacitors(BVA20S)
- Standard or medium speed optional(BVA20A/S)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 20 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F07 Flange and 11x11 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 150s, medium 90s optional (BVA20A/S)
Driver: BVA20: brush motor; BVA20A/S: brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	BVA20: Act 3W, Hold 0.8W BVA20A: Act 3.5W, Hold 0.8W	BVA20: Act 3.5W, Hold 1.2W BVA20A: Act 4W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA)
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <36s
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.12kg (24V basic model)
Approval: CE

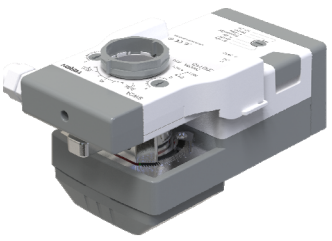
Models

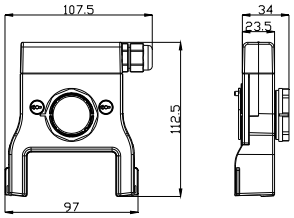
Model	BVA200				Ball valve actuator, 20Nm, 24VAC/DC
	BVA201				Ball valve actuator, 20Nm, 85~265VAC
	BVA20A0				Ball valve actuator, 20Nm, 24VAC/DC
	BVA20A1				Ball valve actuator, 20Nm, 85~265VAC
	BVA20S				Ball valve actuator,20Nm/24V,Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. BVA20A/S can be medium speed 90s, add suffix M to the model.

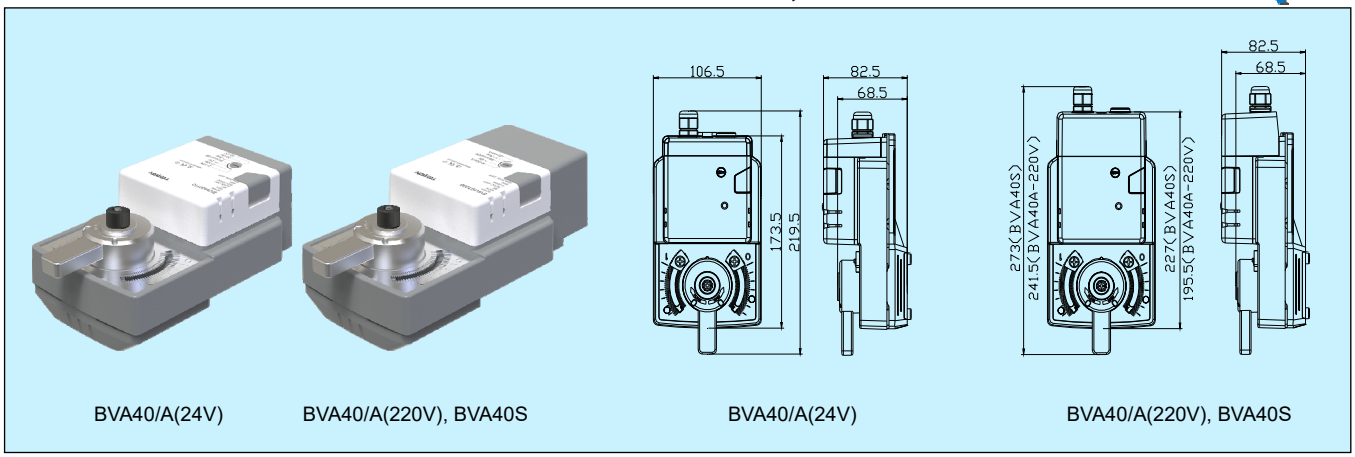
External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg





BVA40/BVA40A/BVA40S Ball Valve Actuator, 40Nm Series



BVA40/A(24V) BVA40/A(220V), BVA40S BVA40/A(24V) BVA40/A(220V), BVA40S

Applications & Features

- Special designed for the control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fail, the actuator can still run to the selected fail-safe position with internal capacitors(BVA40S)
- Standard or medium speed optional(BVA40A/S)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 40 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F07 Flange and 14x14 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: Standard 150s, medium 90s optional (BVA40A/S)
Driver: BVA40: brush motor; BVA40A/S: brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	BVA40: Act 8W, Hold 1.5W BVA40A: Act 4.5W, Hold 0.8W	BVA40: Act 8.5W, Hold 1.5W BVA40A: Act 5W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA)
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <45s
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles (full stroke, standard speed)
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤45dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.9kg (24V basic model)
Approval: CE

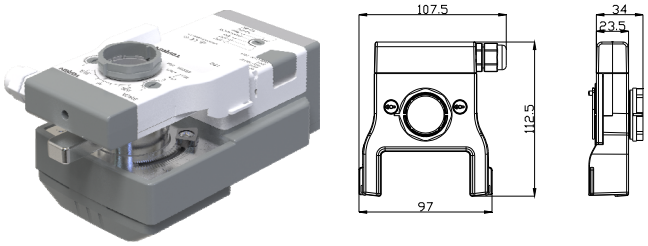
Models

Model	BVA400				Ball valve actuator, 40Nm, 24VAC/DC
	BVA401				Ball valve actuator, 40Nm, 85~265VAC
	BVA40A0				Ball valve actuator, 40Nm, 24VAC/DC
	BVA40A1				Ball valve actuator, 40Nm, 85~265VAC
	BVA40S				Ball valve actuator,40Nm/24V,Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

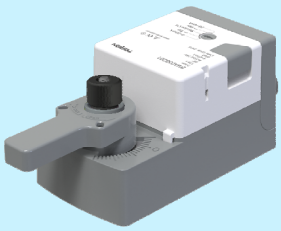
1. When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.
2. BVA40A/S can be medium speed 90s, add suffix M to the model.

External Position Switch: (must be ordered separately):
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

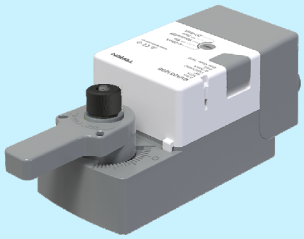
Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg



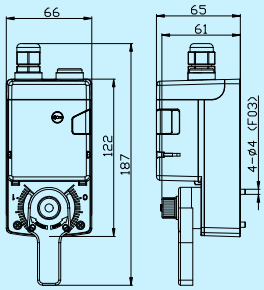
BVA03F Fast Ball Valve Actuator, 3Nm Series



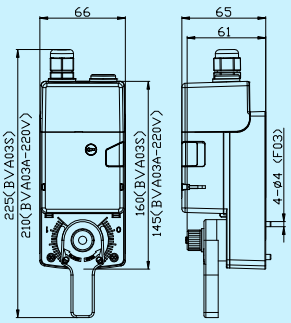
BVA03F(24V)



BVA03F(220V), BVA03FS



BVA03F(24V)



BVA03F(220V), BVA03FS

Applications & Features

- Special designed for the fast control of ball valves of various HVAC system and equipment. Can apply with TEREN's BV(for water) or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Can be manual operated with the button, for manually adjust the actuator when the power is off, or control input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fails, the actuator can still run to the selected fail-safe position with internal capacitors(BVA03FS)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life

Specifications

Torque: 3 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F03 Flange and 9x9 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 35s
Driver: Brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 1.5W, Hold 1W	Act 2.2W, Hold 1W
Protection	class III-low voltage safe	class II-totally insulated

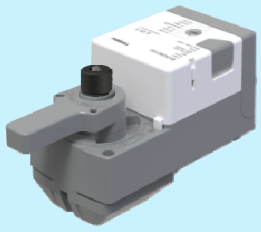
Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA)
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <28s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond.(EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤30dB
Housing: Housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.6kg (24V models)
Approval: CE

Models

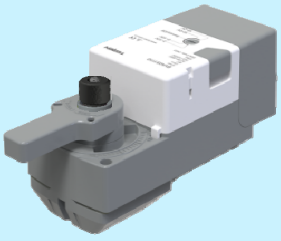
Model	BVA03F0				Fast Ball valve actuator, 3Nm, 24VAC/DC
	BVA03F1				Fast Ball valve actuator, 3Nm, 85~265VAC
	BVA03FS				Fast Ball valve actuator, 3Nm/24V, Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

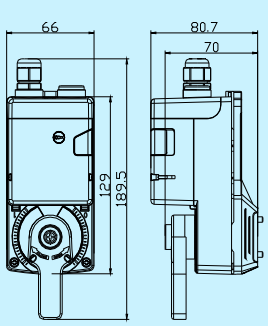
BVA05F Fast Ball Valve Actuator, 5Nm Series



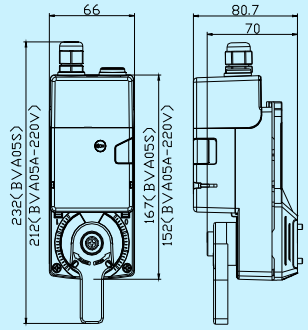
BVA05F(24V)



BVA05F(220V), BVA05FS



BVA05F(24V)



BVA05F(220V), BVA05FS

Applications & Features

- Special designed for the fast control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fails, the actuator can still run to the selected fail-safe position with internal capacitors(BVA05FS)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 5 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F03 Flange and 9x9 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 40s
Driver: Brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 1.8W, Hold 1W	Act 2.5W, Hold 1.2 W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <30s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤35dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.7~0.9kg
Approval: CE

Models

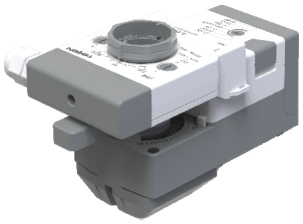
Model	BVA05F0				Fast Ball valve actuator, 5Nm, 24VAC/DC
	BVA05F1				Fast Ball valve actuator, 5Nm, 85~265VAC
	BVA05FS				Fast Ball valve actuator, 5Nm/24V, Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

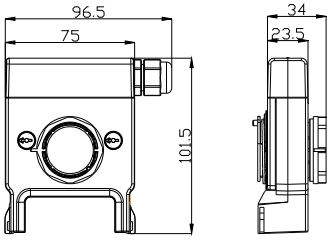
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch (must be ordered separately):

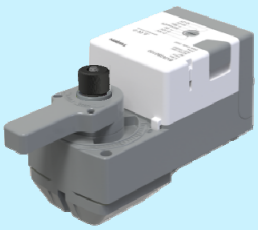
The external position switch can feedback the position status of the actuator. Suitable for field installation, can replace the function of the internal switch and can adjust the position set point freely.

Model: SW1(1xSPDT, 0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg

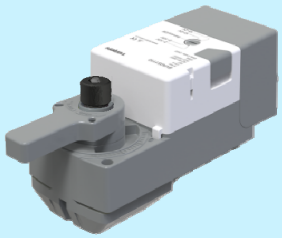




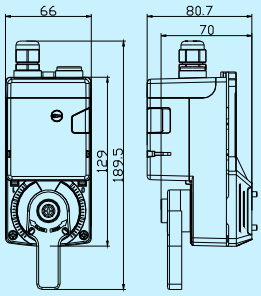
BVA10F Fast Ball Valve Actuator, 10Nm Series



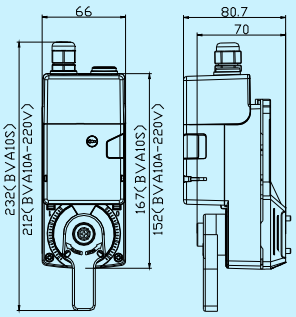
BVA10F(24V)



BVA10F(220V), BVA10FS



BVA10F(24V)



BVA10F(220V), BVA10FS

Applications & Features

- Special designed for the fast control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fails, the actuator can still run to the selected fail-safe position with internal capacitors(BVA10FS)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 10 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F03 Flange and 9x9 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 45s
Driver: Brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 2.3W, Hold 1W	Act 3.5W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA);
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <32s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: screw terminal
Service life: 100,000 cycles
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PA66/cover PC(UL94V-0)
Protection: IP54
Weight: 0.8kg (24V basic model)
Approval: CE

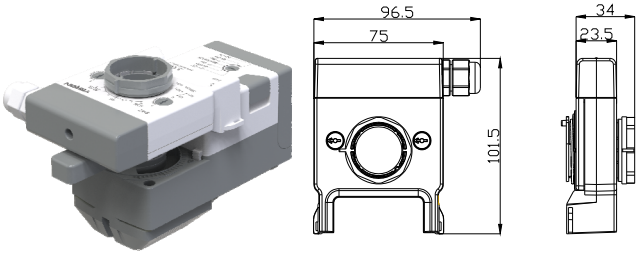
Models

Model	BVA10F0				Fast Ball valve actuator, 10Nm, 24VAC/DC
	BVA10F1				Fast Ball valve actuator, 10Nm, 85~265VAC
	BVA10FS				Fast Ball valve actuator,10Nm/24V,Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

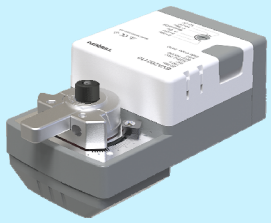
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

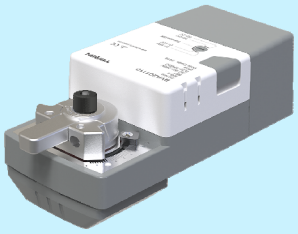
Model:SW1(1xSPDT,0.5A/250VAC); SW2(2xSPDT, 0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.12kg



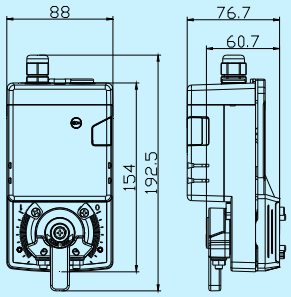
BVA20F Fast Ball Valve Actuator, 20Nm Series



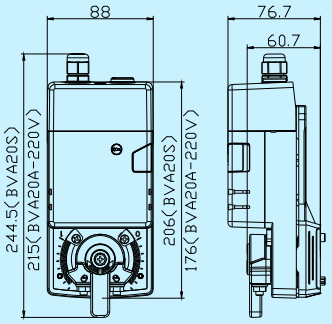
BVA20F(24V)



BVA20F(220V), BVA20FS



BVA20F(24V)



BVA20F(220V), BVA20FS

Applications & Features

- Special designed for the fast control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fails, the actuator can still run to the selected fail-safe position with internal capacitors(BVA20FS)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 20 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F07 Flange and 11x11 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 50s
Driver: Brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 3.5W, Hold 0.8W	Act 4W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ); 4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <36s
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤40dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.12kg (24V basic model)
Approval: CE

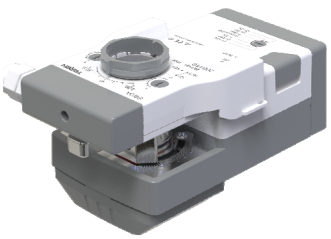
Models

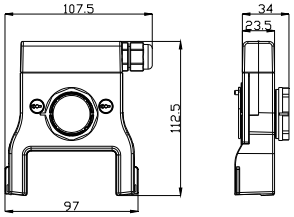
Model	BVA20F0				Fast Ball valve actuator, 20Nm, 24VAC/DC
	BVA20F1				Fast Ball valve actuator, 20Nm, 85~265VAC
	BVA20FS				Fast Ball valve actuator,20Nm/24V,Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

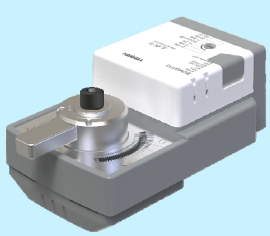
External Position Switch(must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg

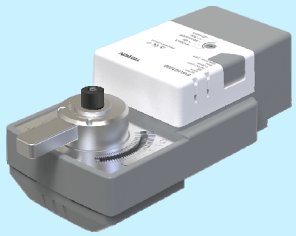




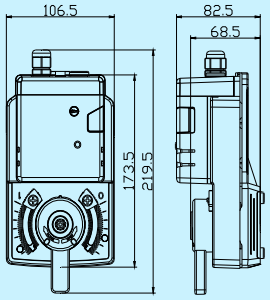
BVA40F Fast Ball Valve Actuator, 40Nm Series



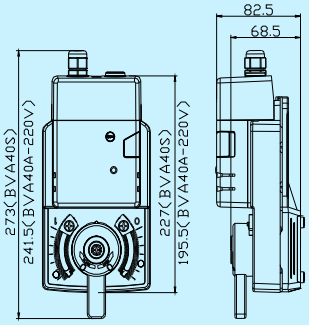
BVA40F(24V)



BVA40F(220V), BVA40FS



BVA40F(24V)



BVA40F(220V), BVA40FS

Applications & Features

- Special designed for the fast control of ball valves of various HVAC systems and equipment. Can apply with TEREN's BV series or other brands' ball valves
- Easily assemble: connect the actuator and ball valve, then install the handle to finish the assembly
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- When external power fails, the actuator can still run to the selected fail-safe position with internal capacitors(BVA40FS)
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life
- External position switch: the position setpoint can be adjusted freely and installed on site. The wiring direction can be conveniently set to left or right

Specifications

Torque: 40 Nm
Medium temp.: -10~200°C
Valve connection: ISO5211 F07 Flange and 14x14 square key
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: 65s
Driver: Brushless DC motor
Power:

Power Range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 4.5W, Hold 0.8W	Act 5W, Hold 1.2W
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA)
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2xSPDT, 0.5A/30VDC
External position switch: 1 or 2, SPDT, 0.5A/250VAC, must be ordered separately, see External Position Switch
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <45s
Capacitor charge time: <15min
Capacitor service life: >10 years
Electrical connection: Screw terminal
Service life: 100,000 cycles
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤45dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Weight: 1.9kg (24V basic model)
Approval: CE

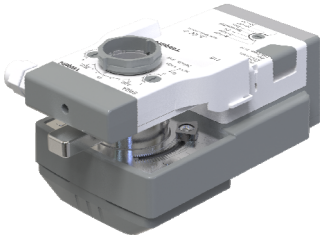
Models

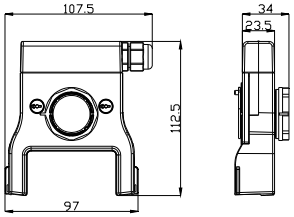
Model	BVA40F0				Fast Ball valve actuator, 40Nm, 24VAC/DC
	BVA40F1				Fast Ball valve actuator, 40Nm, 85~265VAC
	BVA40FS				Fast Ball valve actuator,40Nm/24V,Fail-safe
Control signal		0			on/off, 3-pos
		1			0(2)~10VDC
		2			4~20mA
		8			RS485/Modbus RTU
Internal feedback			0		N/A
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 0.5A/30VDC

When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

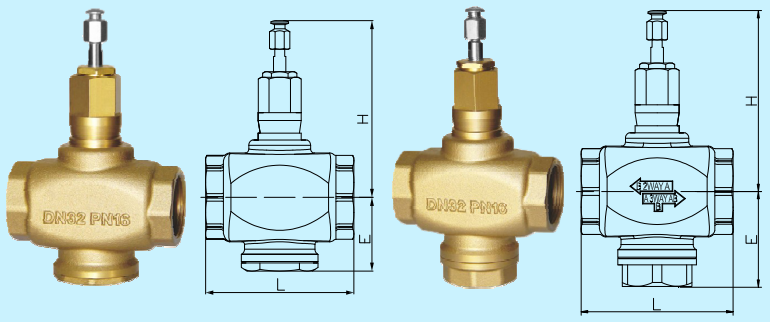
External Position Switch: (must be ordered separately)**:**
The external position switch can feedback the position status of the actuator. Suitable for field installation, it can replace the function of the internal switch and can adjust the position set point freely.

Model:SW1A(1xSPDT,0.5A/250VAC);SW2A(2xSPDT,0.5A/250VAC)
Work temp.: -30~50°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Power Protection: Class II-totally insulated
Enclosure Protection: IP54
Weight: 0.13kg





GVS Globe Valve, Brass, Screw Connection



Dimension/Weight

Model	Dimension(mm)			Screw	Weight kg
	L	H	E		
GVS2015	84	118.5	37.5	G1/2	0.88
GVS2020	84	118.5	37.5	G3/4	0.88
GVS2025	104	124	48	G1	1.27
GVS2032	110	127	50	G1-1/4	1.45
GVS2040	120	129.5	54	G1-1/2	1.93
GVS2050	130	134	57.5	G2	2.61
GVS3015	84	118.5	48.5	G1/2	0.93
GVS3020	84	118.5	48.5	G3/4	0.93
GVS3025	104	124	59	G1	1.416
GVS3032	110	127	63	G1-1/4	1.68
GVS3040	120	129.5	67	G1-1/2	2.05
GVS3050	130	134	72.5	G2	2.9

Applications & Features

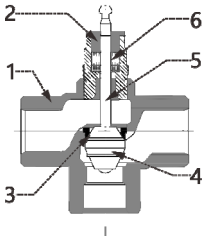
- 2/3-way globe valve, screw connection, can be applied in the flow control of hot, cold water in various HVAC systems or equipment, such as AHU, coil, etc.
- Can work with TERENs' globe valve actuator GVA series or other applicable actuators. It can be installed with actuators easily without any accessories
- equal percentage flow characteristics
- Valve stem can be positioned accurately, ensures the precise flow control
- Direct big flow rate, small flow resistance
- Compact and simple structure, easy to install in small installation space
- Special design for small force but big closing pressure
- Low leakage rate, open/close softly, can prevent water hammer

Specifications

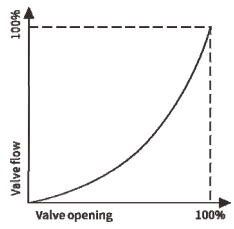
Size: DN15~50
Pressure: PN16
Medium: Cool, hot water, 50% or lower glycol water
Medium temperature: -10~95°C
Flow characteristics: A-AB: Equal percentage; B-AB: Linear
Leakage: A-AB≤0.05%Kvs; B-AB: 1~2%Kvs; no leak on stem
Valve type: 2/3-way
Regulating ratio: >100: 1
Stroke: 10~20mm, see Models
Pipe connection: Screw, comply with ISO7-1 Rp
Action direction: Close when stem goes up
Install direction: Valve stem upward or horizontal

Structure & Materials

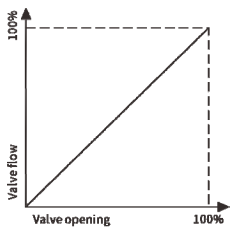
1. Valve body: Brass
2. Valve deck: Brass
3. Valve seat: RPTFE
4. Valve core: Nickel-plated copper
5. Valve stem: SS
6. Valve ring: PTFE, EPDM



Flow Characteristics



A-AB Equal percentage



B-AB Linear

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is $1g/cm^3$, the flow through the valve, unit m^3/h

Models and Closing Diff. Pressure

Model	DN		Kvs	Stroke	Closing Diff. Pressure(kPa)			
	mm	in	m^3/h	mm	600N		1000N	
					ΔPs	ΔPm	ΔPs	ΔPm
GVS2015	15	1/2	4.3	15	1600	800		
GVS2020	20	3/4	6.2	15	1600	800		
GVS2025	25	1	9.7	20	1600	800		
GVS2032	32	1-1/4	14.8	20	1250	700		
GVS2040	40	1-1/2	20	20	850	500	1600	800
GVS2050	50	2	45	20	550	350	1250	600
GVS3015	15	1/2	3.1	20		800		
GVS3020	20	3/4	5	20		800		
GVS3025	25	1	7.4	20		800		
GVS3032	32	1-1/4	11.5	20		700		
GVS3040	40	1-1/2	15.2	20		500		800
GVS3050	50	2	44	20		350		600

ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.

ΔPm: (under the actuator force), in the stroke, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

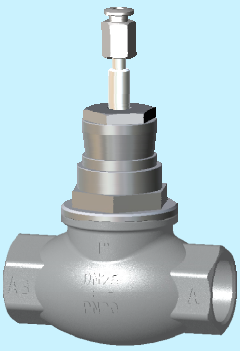
Applied Actuators

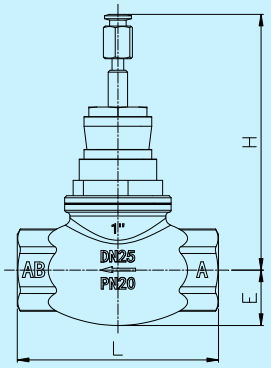
GVA06/GVA10

600N/1000N(20mm)



GVSS Globe Valve, Stainless Steel, Screw Connection





Structure/Dimension/Weight

Model	Dimension(mm)			Screw	Weight
	L	H	E	Conn.	kg
GVSS20	82	117	21	G3/4	1.1
GVSS25	104	119	29	G1	1.4
GVSS32	116	125	32	G1-1/4	1.7
GVSS40	125	129	35	G1-1/2	1.8
GVSS50	148	137	44	G2	2.5
GVSS20S	82	117	21	G3/4	1.1
GVSS25S	104	119	29	G1	1.4
GVSS32S	116	125	32	G1-1/4	1.7
GVSS40S	125	129	35	G1-1/2	1.8
GVSS50S	148	137	44	G2	2.5

Applications & Features

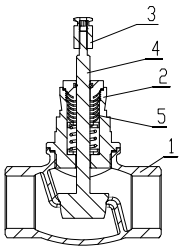
- Applied in the flow control in various HVAC systems or equipment, such as AHU, coil, etc.
- Can work with TERENs' globe valve actuator GVA series or other applicable actuators. It can be installed with actuators easily without any accessories
- equal percentage flow characteristics
- Valve stem can be positioned accurately, ensures the precise flow control
- Direct big flow rate, small flow resistance
- Compact and simple structure, easy to install in small installation space
- Special design for small force but big closing pressure
- Low leakage rate, open/close softly, can prevent water hammer

Specifications

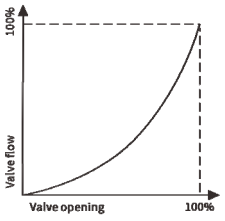
Size: DN15~50mm
Pressure: PN20
Medium: Cool, hot water, 50% or lower glycol water, steam
Medium temp.: -10~95°C for water; 0~200°C for steam
Valve type: Two way
Flow characteristics: Equal percentage
Leakage: ≤0.01%Kvs, no leak on stem
Regulating ratio: >100: 1
Stroke: 10~20mm, see Models
Pipe connection: Screw, comply with ISO7-1 Rp
Action direction: Close when stem goes down
Install direction: Valve stem upward or horizontal

Structure & Materials

1. Valve body: SS304
2. Valve deck: SS304
3. Valve stem nut: SS304
4. Valve stem: SS304
5. Valve ring/packing: PTFE



Flow Characteristics



A-AB Equal percentage

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is $1g/cm^3$, the flow through the valve, unit m^3/h

Models and Closing Diff. Pressure

Model	DN		Kvs	Stroke	Closing Diff. Pressure(kPa)			
	mm	in	m³/h	mm	600N		1000N	
					ΔPs	ΔPm	ΔPs	ΔPm
GVSS20	20	3/4	6.3	10	1600	800		
GVSS25	25	1	10	15	1600	800		
GVSS32	32	1-1/4	16	20	1200	700		
GVSS40	40	1-1/2	25	20	800	500	1600	800
GVSS50	50	2	40	20	500	350	1200	600
GVSS20S	20	3/4	6.3	10	1600	800		
GVSS25S	25	1	10	15	1600	800		
GVSS32S	32	1-1/4	16	20	1200	600		
GVSS40S	40	1-1/2	25	20	800	400	1600	800
GVSS50S	50	2	40	20	500	300	1200	600

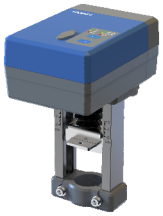
ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.

ΔPm: (under the actuator force), in the stroke, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Applied Actuators

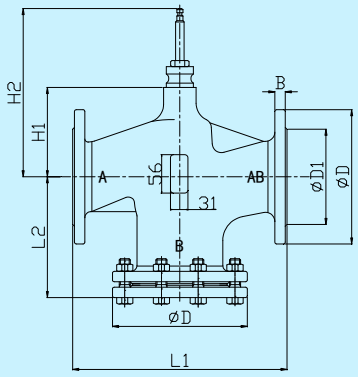
GVA06/GVA10

600N/1000N(20mm)



GVF Globe Valve, Flange Connection





Dimension/Weight

Model	Dimension(mm)				Weight kg
	L1	L2	H1	H2 A-AB Close	
GVF2015	130	87	63	159	4.2
GVF2020	150	99	63	159	5.4
GVF2025	160	104	63	159	6.1
GVF2032	180	119	60	156	8.8
GVF2040	200	129	60	156	10.2
GVF2050	230	146	100	196	12.7
GVF2065	290	178	115	231	21.8
GVF2080	310	190	115	231	28.1
GVF2100	350	206	146	262	38
GVF2125	400	233	159	275	51.9
GVF2150	480	275	186	303	74.1
GVF2200	495	200	243	360	120
GVF2250	622	240	275	391	160

Applications & Features

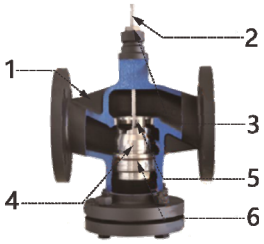
- Two-way globe valve, flange connection, can be applied in the flow control of hot, cold water in various HVAC systems or equipment, such as AHU, coil, etc.
- Can work with TERENs' globe valve actuator GVA series or other applicable actuators. It can be installed with actuators easily without any accessories
- Standard flange complies with ISO7005 and HG20592
- Lengthened stem gives better heat release
- Balanced valve core can compensate for pressure, assembled piston sealing structure makes the valve work very stable even under high differential pressure
- equal percentage flow characteristics
- Valve stem can be positioned accurately, ensures the precise flow control
- Direct big flow rate, small flow resistance, no slag blocking
- Multiple sealing, very low leakage rate

Specifications

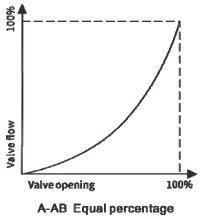
Size: DN15~250
Pressure: PN16
Medium: Cool, hot water, 50% or lower glycol water
Medium temperature: -10~120°C
Valve type: Two-way
Stroke: 10~40mm, see Models
Flow characteristics: Equal percentage
Regulating ratio: DN15~50：50: 1; DN65~250: 100: 1
Leakage rate: ≤0.01% Kvs (DN15~DN150)
≤0.02% Kvs (DN200~DN250); no leak on stem
Pipe connection: Flange, comply with ISO7005, HG20592
Action direction: Close when stem goes up
Install direction: Valve stem upward or horizontal

Structure & Materials

1. Valve body: Nodular cast iron
2. Valve stem: 2Cr13 SS
3. Valve box: 304 SS
4. Valve core: 304 SS
5. Valve ring: 304 SS
6. Balancing cylinder: 304 SS



Flow Characteristics



A-AB Equal percentage

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is 1g/cm^3, the flow through the valve, unit m^3/h

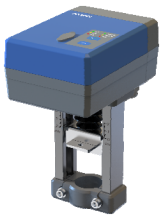
Models and Close Diff. Pressure

Mode	DN		Kvs	Stroke	Close Diff. Pressure(kPa)			
	mm	in	m^3/h	mm	600N		1000N	
					ΔPs	ΔPm	ΔPs	ΔPm
GVF2015	15	1/2	4	10	1600	1600		
GVF2020	20	3/4	6.3	10	1600	1600		
GVF2025	25	1	10	15	1600	1200		
GVF2032	32	1-1/4	16	20	1600	1200		
GVF2040	40	1-1/2	25	20	1600	1000		
GVF2050	50	2	40	20	1600	1000		
GVF2065	65	2-1/2	63	20	1600	600	1600	1000
GVF2080	80	3	100	20	1600	400	1600	800
					2000N		3500N	
					ΔPs	ΔPm	ΔPs	ΔPm
GVF2100	100	4	150	40	1600	1000		
GVF2125	125	5	220	40	1600	1000		
GVF2150	150	6	315	40	1600	800		
GVF2200	200	8	450	40			1600	800
GVF2250	250	10	630	40			1600	800

ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.
ΔPm: (under the actuator force), in the stroke, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Applied Actuators

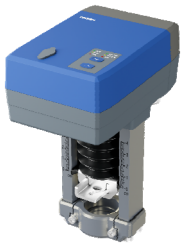
GVA06/GVA10
600N/1000N(20mm)



GVA20
2000N(20/40mm)

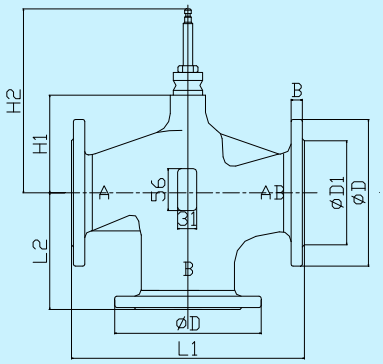


GVA35
3500N(40mm)



GVF Globe Valve, Three-way, Flange Connection





Dimension/Weight

Model	Dimension(mm)				Weight kg
	L1	L2	H1	H2 A-AB Close	
GVF3015	130	65	63	159	4.1
GVF3020	150	75	63	159	5.3
GVF3025	160	80	63	159	6.0
GVF3032	180	90	60	156	8.6
GVF3040	200	100	60	156	10.0
GVF3050	230	115	100	196	12.5
GVF3065	290	145	115	231	21.5
GVF3080	310	155	115	231	27.8
GVF3100	350	166	146	262	37.6
GVF3125	400	200	159	275	51.5
GVF3150	480	240	186	303	73.6
GVF3200	495	165	243	360	119
GVF3250	622	203	275	391	159

Applications & Features

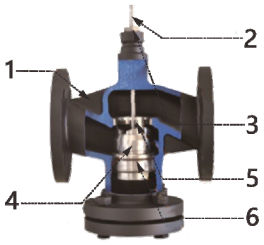
- Three-way globe valve, flange connection, can be applied in the flow control of hot, cold water in various HVAC systems or equipment, such as AHU, coil, etc.
- Can work with TERENs' globe valve actuator GVA series or other applicable actuators. It can be installed with actuators easily without any accessories
- Standard flange complies with ISO7005 and HG20592
- Lengthened stem gives better heat release
- Balanced valve core can compensate for pressure, assembled piston sealing structure makes the valve work very stable even under high differential pressure
- equal percentage flow characteristics
- Valve stem can be positioned accurately, ensures the precise flow control
- Direct big flow rate, small flow resistance, no slag blocking
- Multiple sealing, very low leakage rate

Specifications

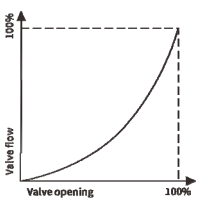
Size: DN15~250
Pressure: PN16
Medium: Cool, hot water, 50% or lower glycol water
Medium temperature: -10~120°C
Valve type: Three-way
Stroke: 10~40mm, see Models
Flow characteristics: A-AB: equal percentage; B-AB: linear
Regulating ratio: DN15~50: 50: 1; DN65~250: 100: 1
Leakage rate: A-AB: ≤0.01% Kvs (DN15~DN150), ≤0.02% Kvs(DN200~DN250); B-AB: 0.5%~2%Kvs; no leak on stem
Pipe connection: Flange, comply with ISO7005, HG20592
Action direction: A-AB close when stem goes up
Install direction: Valve stem upward or horizontal

Structure & Materials

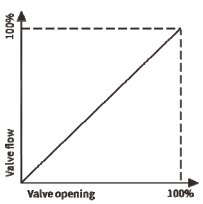
1. Valve body: Nodular cast iron
2. Valve stem: 2Cr13 SS
3. Valve box: 304 SS
4. Valve core: 304 SS
5. Valve ring: 304 SS
6. Balancing cylinder: 304 SS



Flow Characteristics



A-AB Equal percentage



B-AB Linear

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

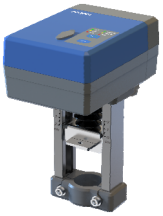
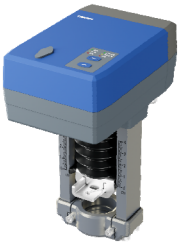
ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is $1g/cm^3$, the flow through the valve, unit m^3/h

Models and Close Diff. Pressure

Model	DN		Kvs	Stroke	Close Diff. Pressure(ΔPm, kPa)			
	mm	in	m³/h	mm	600N		1000N	
					Mix	Split	Mix	Split
GVF3015	15	1/2	4	10	400	100		
GVF3020	20	3/4	6.3	10	300	75		
GVF3025	25	1	10	15	300	75		
GVF3032	32	1-1/4	16	20	300	75		
GVF3040	40	1-1/2	25	20	300	75	400	100
GVF3050	50	2	40	20	200	75	400	100
GVF3065	65	2-1/2	63	20			300	100
GVF3080	80	3	100	20			200	75
					2000N		3500N	
					Mix	Split	Mix	Split
GVF3100	100	4	150	40	300	100		
GVF3125	125	5	220	40	200	75		
GVF3150	150	6	315	40	200	50		
GVF3200	200	8	450	40			150	50
GVF3250	250	10	630	40			75	40

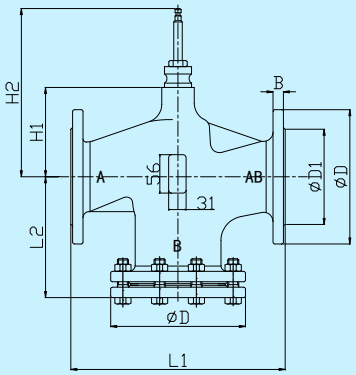
ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.
ΔPm: (under the actuator force), in the stroke, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Applied Actuators

GVA06/GVA10	GVA20	GVA35
600N/1000N(20mm)	2000N(20/40mm)	3500N(40mm)
		

GVFH Globe Valve, Two-way, High Temperature





Dimension/Weight

Model	Dimension(mm)				Weight kg
	L1	L2	H1	H2 A-AB Close	
GVFH2015	130	87	63	159	4.2
GVFH2020	150	99	63	159	5.4
GVFH2025	160	104	63	159	6.1
GVFH2032	180	119	60	156	8.8
GVFH2040	200	129	60	156	10.2
GVFH2050	230	146	100	196	12.7
GVFH2065	290	178	115	231	21.8
GVFH2080	310	190	115	231	28.1
GVFH2100	350	206	146	262	38
GVFH2125	400	233	159	275	51.9
GVFH2150	480	275	186	303	74.1

Applications & Features

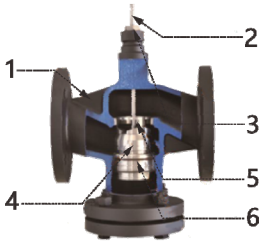
- Two-way globe valve, flange connection, high temperature, can be applied in the flow control of hot water or steam in various HVAC systems or equipment, such as AHU, coil, etc.
- Can work with TERENs' globe valve actuator GVA series or other applicable actuators. It can be installed with actuators easily without any accessories. If applied in steam applications, it's better to select the actuators with fail-safe function
- Standard flange complies with ISO7005 and HG20592
- Lengthened stem gives better heat release
- Balanced valve core can compensate for pressure, assembled piston sealing structure makes the valve work very stable even under high differential pressure
- equal percentage flow characteristics
- Valve stem can be positioned accurately, ensures the precise flow control
- Direct big flow rate, small flow resistance, no slag blocking
- Multiple sealing, very low leakage rate

Specifications

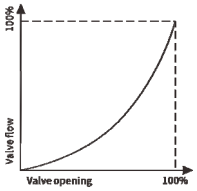
Size: DN15~150
Pressure: PN16
Medium: Hot water or steam
Medium temperature: 0~200°C
Valve type: Two-way
Stroke: 10~40mm, see Models
Flow characteristics: Equal percentage
Regulating ratio: DN15~50: 50: 1; DN65~150: 100: 1
Leakage rate: ≤0.01% Kvs; no leak on stem
Pipe connection: Flange, comply with ISO7005, HG20592
Action direction: Close when stem goes up
Install direction: Valve stem upward or horizontal

Structure & Materials

1. Valve body: Nodular cast iron
2. Valve stem: 2Cr13 SS
3. Valve box: 304 SS
4. Valve core: 304 SS
5. Valve ring: 304 SS
6. Balancing cylinder: 304 SS



Flow Characteristics



A-AB Equal percentage

Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

ΔP：Differential pressure when valve is 100% open, unit kPa
F：Flow rate when differential pressure is ΔP, unit m^3/h
Kvs：When valve is 100% open, differential pressure is 100kpa, medium density is 1g/cm^3, the flow through the valve, unit m^3/h

Models and Close Diff. Pressure

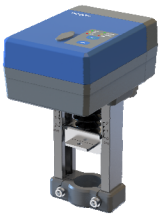
Model	DN		Kvs	Stroke	Close Diff. Pressure(kPa)			
	mm	in	m^3/h	mm	600N		1000N	
					ΔPs	ΔPm	ΔPs	ΔPm
GVFH2015	15	1/2	4	10	1600	800		
GVFH2020	20	3/4	6.3	10	1600	800		
GVFH2025	25	1	10	15	1600	600		
GVFH2032	32	1-1/4	16	20	1600	400	1600	1200
GVFH2040	40	1-1/2	25	20			1600	1000
GVFH2050	50	2	40	20			1600	800
GVFH2065	65	2-1/2	63	20			1600	800
GVFH2080	80	3	100	20			1600	600
					2000N		3500N	
					ΔPs	ΔPm	ΔPs	ΔPm
GVFH2100	100	4	150	40	1600	800		
GVFH2125	125	5	220	40	1600	800		
GVFH2150	150	6	315	40	1600	600		

ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close.

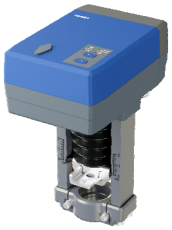
ΔPm: (under the actuator force), in the stroke, the max. permitted diff. pressure for ensuring the valve is in normal working condition.

Applied Actuators

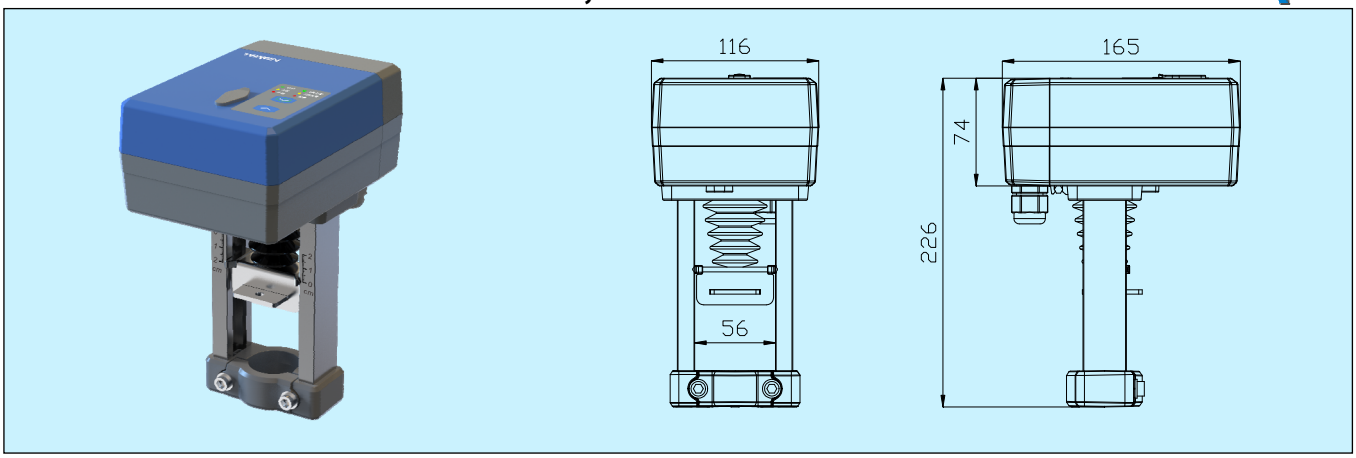
GVA06/GVA10
600N/1000N(20mm)



GVA20
2000N(20/40mm)



GVA06 Globe Valve Actuator, 600N Series



Applications & Features

- Special designed for the control of globe valves in various HVAC systems and equipment. Can apply with TEREN's GVS/GVF (for water) or GVSH/GVFH(for steam) or other brands' compatible globe valves
- Easily assemble: connect the actuator and valve, the adapter can self-centered the valve stem and can turn 360° on the neck of the valve
- Mechanical position indication and limit: can be adjusted within the full stroke
- Self-adaptive within max. 25mm stroke, with full stroke overload protection function
- Can be local controlled through the two buttons on top cover, for controlling any position of the valve
- Manual operation: can be mechanically manual operated when the power is off or the control signal input is absent, for modulating, repairing or maintenance
- Fail position can be set by DIP switch, for the valve to stop at safe position when signal input is absence (Hold/0/50/100%)
- Three colors LED can display various status of the actuator
- DIP switches can set direction, speed, etc.
- Fail-safe function optional. When external power is failed, the actuator can still operate to the full open or close position which can be set by DIP switch.
- Multiple power, control and feedback signals can be selected
- Industrial design, stable and reliable operation, long life

Specifications

Force: 600N
Stroke: 20mm, self-adaptive range 10~25mm
Medium temp.: Water or steam, -10~200°C
Working temp.: -20~70°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Direction of operation: DIP switchable
Position indicator: Mechanical
Manual operation: By two push buttons
Running time: Standard 60s(3s/mm) or medium speed 40s(2s/mm), DIP switchable
Driver: Brushless DC motor (BLDC)
Power supply:

Power range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 10VA, Hold 2VA Charge 9VA	Act 11VA, Hold 2VA Charge 10VA
Protection	class III-low voltage safe	class II-totally insulated

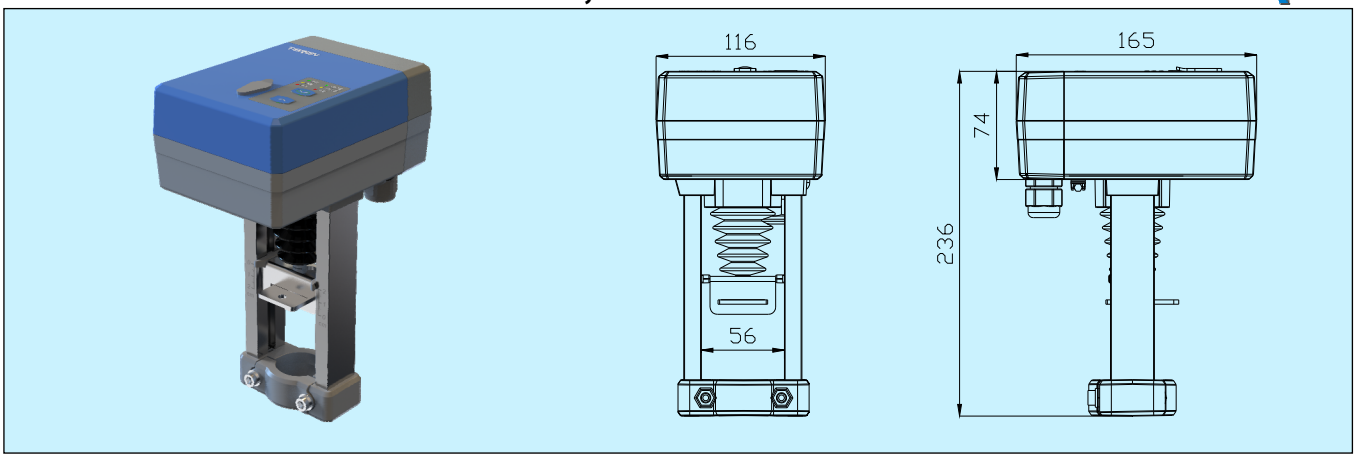
Control Signal: on/off, 3 pos; 0(2)~10V(input impedance 100kΩ)/(0)4~20mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10V (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus RTU
Internal switch: 2xSPDT，0.5A/30VDC
Service life: 100,000 cycles (full stroke, standard speed)
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 1s
Fail-safe running time: <26s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: PG11, screw terminal
Mode of operation: Type 1 to EN60730-1
Noise: ≤45dB
Protection: IP65
Material: Top and terminal cover: fire retardant PC(UL94V-0); box: fire retardant PBT(UL94V-0); holder: aluminum alloy; base: die-casting aluminum; clip: SS
Weight: 1.8 kg (24V basic model)
Approval: CE

Models

Model	GVA06					Globe valve actuator, 600N
Stroke		0				20mm
Power			0 1			24V AC/DC 85~265V AC
Control Signal				1 2 8		ON/OFF, 3-Pos 0(2)~10V/(0)4~20mA RS485/Modbus RTU
Feedback Signal					0 1 2 8	N/A 2xSPDT 0(2)~10V/(0)4~20mA RS485/Modbus RTU

1. When control signal is 1, feedback may be 0 or 1; If control signal is 2, feedback may be 0 or 2. Meanwhile, the control signal will be the same as the feedback signal (whether it is current or voltage type, depends on the DIP set). If control signal is 8, feedback may be 0 or 8.
2. If select fail-safe function, add suffix S to the model.

GVA10 Globe Valve Actuator, 1000N Series



Applications & Features

- Special designed for the control of globe valves in various HVAC systems and equipment. Can apply with TEREN's GVS/GVF (for water) or GVSH/GVFH (for steam) or other brands' compatible globe valves
- Easily assemble: connect the actuator and valve, the adapter can self-centered the valve stem and can turn 360° on the neck of the valve
- Mechanical position indication and limit: can be adjusted within the full stroke
- Self-adaptive within max. 25mm stroke, with full stroke overload protection function
- Can be local controlled through the two buttons on top cover, for controlling any position of the valve
- Manual operation: can be mechanically manual operated when the power is off or the control signal input is absent, for modulating, repairing or maintenance
- Fail position can be set by DIP switch, for the valve to stop at safe position when signal input is absence (Hold/0/50/100%)
- Three colors LED can display various status of the actuator
- DIP switches can set direction, speed, etc.
- Fail-safe function optional. When external power is failed, the actuator can still operate to the full open or close position which can be set by DIP switch.
- Multiple power, control and feedback signals can be selected
- Industrial design, stable and reliable operation, long life

Specifications

Force: 1000N
Stroke: 20mm, self-adaptive range 15~25mm
Medium temp.: Water or steam, -10~200°C
Working temp.: -20~70°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Direction of operation: DIP switchable
Position indicator: Mechanical
Manual operation: By two push buttons
Running time: Standard 60s(3s/mm) or medium speed 40s(2s/mm), DIP switchable
Driver: Brushless DC motor (BLDC)
Power supply:

Power range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 15VA, Hold 2VA Charge 11VA	Act 18VA, Hold 2VA Charge 14VA
Protection	class III-low voltage safe	class II-totally insulated

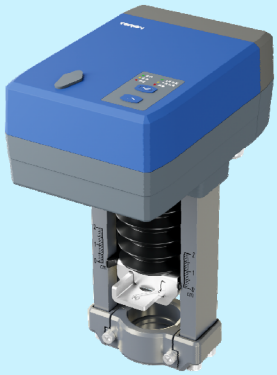
Control Signal: on/off, 3 pos; 0(2)~10V(input impedance 100kΩ)/(0)4~20mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10V (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus RTU
Internal switch: 2xSPDT，0.5A/30VDC
Service life: 100,000 cycles (full stroke, standard speed)
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 1s
Fail-safe running time: <26s
Capacitor charge time: <6min
Capacitor service life: >10 years
Electrical connection: PG11, screw terminal
Mode of operation: Type 1 to EN60730-1
Noise: ≤45dB
Protection: IP65
Material: Top and terminal cover: fire retardant PC(UL94V-0); box: die-casting aluminum; holder: aluminum alloy; base: die-casting aluminum; clip: SS
Weight: 2.1 kg (24V basic model)
Approval: CE

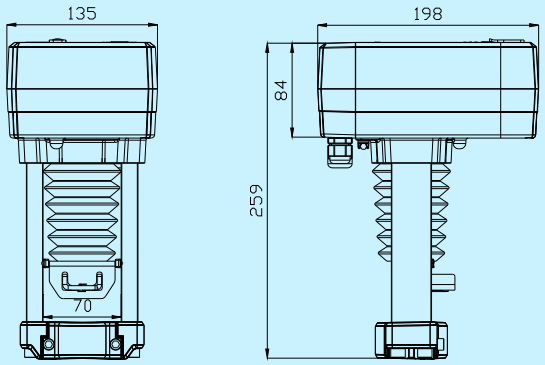
Models

Model	GVA10					Globe valve actuator, 1000N
Stroke		0				20mm
Power			0 1			24V AC/DC 85~265V AC
Control Signal				1 2 8		ON/OFF, 3-Pos 0(2)~10V/(0)4~20mA RS485/Modbus RTU
Feedback Signal					0 1 2 8	N/A 2xSPDT 0(2)~10V/(0)4~20mA RS485/Modbus RTU

1. When control signal is 1, feedback may be 0 or 1; If control signal is 2, feedback may be 0 or 2. Meanwhile, the control signal will be the same as the feedback signal (whether it is current or voltage type, depends on the DIP set). If control signal is 8, feedback may be 0 or 8.
2. If select fail-safe function, add suffix S to the model.

GVA20 Globe Valve Actuator, 2000N Series





Stroke 20mm, product height is 259mm
Stroke 40mm, product height is 326mm

Applications & Features

- Special designed for the control of globe valves in various HVAC systems and equipment. Can apply with TEREN's GVS/GVF (for water) or GVSH/GVFH (for steam) or other brands' compatible globe valves
- Easily assemble: connect the actuator and valve, the adapter can self-centered the valve stem and can turn 360° on the neck of the valve
- Mechanical position indication and limit: can be adjusted within the full stroke
- Self-adaptive within max. 50mm stroke, with full stroke overload protection function
- Can be local controlled through the two buttons on top cover, for controlling any position of the valve
- Manual operation: can be mechanically manual operated when the power is off or the control signal input is absent, for modulating, repairing or maintenance
- Fail position can be set by DIP switch, for the valve to stop at safe position when signal input is absence (Hold/0/50/100%)
- Three colors LED can display various status of the actuator
- DIP switches can set direction, speed, etc.
- Fail-safe function optional. When external power is failed, the actuator can still operate to the full open or close position which can be set by DIP switch.
- Multiple power, control and feedback signals can be selected
- Industrial design, stable and reliable operation, long life

Specifications

Force: 2000N
Stroke: 20 or 40mm, self-adaptive range 15~30 or 35~50mm
Medium temp.: Water or steam, -10~200°C
Working temp.: -20~70°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Direction of operation: DIP switchable
Position indicator: Mechanical
Manual operation: By two push buttons
Running time: DIP switchable
20mm: Standard 60s(3s/mm) or medium speed 40s(2s/mm)
40mm: Standard 120s(3s/mm) or medium speed 80s(2s/mm)
Driver: Brushless DC motor (BLDC)
Power supply:

Power range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 15VA, Hold 2.4VA Charge 10VA	Act 30VA, Hold 5VA Charge 15VA
Protection	class III-low voltage safe	class II-totally insulated

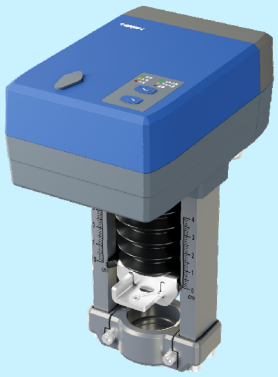
Control Signal: on/off, 3 pos; 0(2)~10V(input impedance 100kΩ)/(0)4~20mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10V (max. output 1mA);
4~20mA (max. load 500Ω); RS485/Modbus RTU
Internal switch: 2xSPDT，0.5A/30VDC
Service life: 100,000 cycles (full stroke, standard speed)
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: 20mm: <30s; 40mm: <60s
Capacitor charge time: 20mm: <10min; 40mm: <15min
Capacitor service life: >10 years
Electrical connection: PG11, screw terminal
Mode of operation: Type 1 to EN60730-1
Noise: ≤45dB
Protection: IP65
Material: Top and terminal cover: fire retardant PC(UL94V-0); box: die-casting aluminum; holder: aluminum alloy; base: die-casting aluminum; clip: SS
Weight: 3.6 kg (20mm, 24V basic model)
3.7 kg (40mm, 24V basic model)
Approval: CE

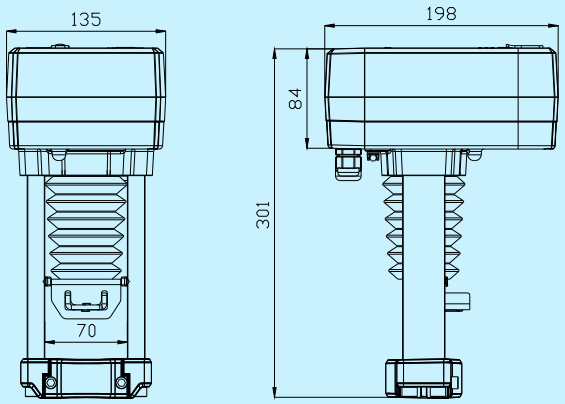
Models

Model	GVA20					Globe valve actuator, 2000N
Stroke		0				20mm
		1				40mm
Power			0			24V AC/DC
			1			85~265V AC
Control Signal				1		ON/OFF, 3-Pos
				2		0(2)~10V/(0)4~20mA
				8		RS485/Modbus RTU
Feedback Signal					0	N/A
					1	2xSPDT
					2	0(2)~10V/(0)4~20mA
					8	RS485/Modbus RTU

1. When control signal is 1, feedback may be 0 or 1; If control signal is 2, feedback may be 0 or 2. Meanwhile, the control signal will be the same as the feedback signal (whether it is current or voltage type, depends on the DIP set). If control signal is 8, feedback may be 0 or 8.
2. If select fail-safe function, add suffix S to the model.

GVA35 Globe Valve Actuator, 3500N Series





Applications & Features

- Special designed for the control of globe valves in various HVAC systems and equipment. Can apply with TEREN's GVS/GVF (for water) or GVSH/GVFH (for steam) or other brands' compatible globe valves
- Easily assemble: connect the actuator and valve, the adapter can self-centered the valve stem and can turn 360° on the neck of the valve
- Mechanical position indication and limit: can be adjusted within the full stroke
- Self-adaptive within max. 50mm stroke, with full stroke overload protection function
- Can be local controlled through the two buttons on top cover, for controlling any position of the valve
- Manual operation: can be mechanically manual operated when the power is off or the control signal input is absent, for modulating, repairing or maintenance
- Fail position can be set by DIP switch, for the valve to stop at safe position when signal input is absence (Hold/0/50/100%)
- Three colors LED can display various status of the actuator
- DIP switches can set direction, speed, etc.
- Fail-safe function optional. When external power is failed, the actuator can still operate to the full open or close position which can be set by DIP switch.
- Multiple power, control and feedback signals can be selected
- Industrial design, stable and reliable operation, long life

Specifications

Force: 3500N
Stroke: 40mm, self-adaptive range 35~50mm
Medium temp.: -10~200°C
Working temp.: -20~60°C, 0~95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Direction of operation: DIP switchable
Position indicator: Mechanical
Manual operation: By two push buttons
Running time: Standard 120s(3s/mm) or medium speed 80s(2s/mm), DIP switchable
Driver: Brushless DC motor (BLDC)
Power supply:

Power range	19.2~28.8V AC/DC	85~265V, 50/60Hz
Consumption	Act 28VA, Hold 3.6VA Charge 12VA	Act 53VA, Hold 9VA Charge 20VA
Protection	class III-low voltage safe	class II-totally insulated

Control Signal: on/off, 3 pos; 0(2)~10V(input impedance 100kΩ)/(0)4~20mA(input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10V (max. output 1mA); 4~20mA (max. load 500Ω); RS485/Modbus RTU
Internal switch: 2xSPDT，0.5A/30VDC
Service life: 100,000 cycles (full stroke, standard speed)
Fail-safe position: Zero or Full scale, set by DIP switch
Fail-safe delay time: 2s
Fail-safe running time: <50s
Capacitor charge time: <16min
Capacitor service life: >10 years
Electrical connection: PG11, screw terminal
Mode of operation: Type 1 to EN60730-1
Noise: ≤45dB
Protection: IP65
Materials: Top and terminal cover: fire retardant PC(UL94V-0); box: die-casting aluminum; holder: aluminum alloy; base: die-casting aluminum; clip: SS
Weight: 4.1 kg (24V basic model)
Approval: CE

Models

Model	GVA35					Globe valve actuator, 3500N
Stroke		0				40mm
Power			0			24V AC/DC
			1			85~265V AC
Control Signal				1		ON/OFF, 3-Pos
				2		0(2)~10V/(0)4~20mA
				8		RS485/Modbus RTU
Feedback Signal					0	N/A
					1	2xSPDT
					2	0(2)~10V/(0)4~20mA
					8	RS485/Modbus RTU

1. When control signal is 1, feedback may be 0 or 1; If control signal is 2, feedback may be 0 or 2. Meanwhile, the control signal will be the same as the feedback signal (whether it is current or voltage type, depends on the DIP set). If control signal is 8, feedback may be 0 or 8.
2. If select fail-safe function, add suffix S to the model.

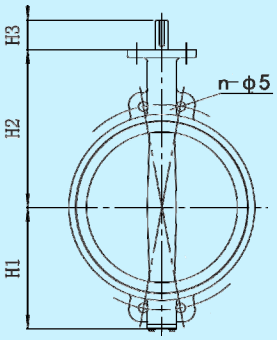
BFV Wafer Butterfly Valve



DN50-300



DN350-800



DN350-800

Dimension, Connection and Weight

Model	Dimension(mm)			Connection		Weight
	H1	H2	H3	Type	□KxK	kg
BFV050	70	130	15	F05	11	1.8
BFV065	76	143	15	F05	11	2.3
BFV080	89	155	12	F05	11	2.7
BFV100	104	170	12	F07	11	4.0
BFV125	120	190	19	F07	14	5.5
BFV150	139	210	19	F07	14	6.6
BFV200	175	243	25	F10	17	10.9
BFV250	203	282	30	F10	22	15.8
BFV300	242	310	30	F10	22	24.4
BFV350	277.5	368	30	F12	27	31
BFV400	309	400	40	F12	27	42.5
BFV450	337	422	40	F14	36	58.1
BFV500	361	480	40	F14	36	79.1
BFV600	459	562	40	F16	36	124
BFV700	527	629	46	F16	46	220
BFV800	594	666	46	F16	46	250

Applications & Features

- Apply in the flow control of hot or cold water in various HVAC systems, such as chillers, cooling towers, heat exchangers, etc.
- Comply with ISO5211, can work with TERENs' butterfly valve actuator BFVA series or other applicable actuators
- Compact and simple structure, easy to install with dual directions seal
- Special design of narrow brim sealing surface, compatible for popular butterfly flanges' connection
- With back structure's valve seat, make the sealing very reliable and long life
- Strengthened valve disc with nylon coating, corrosion preventive, erosion resistant and high temperature resistant. SS304 disc is optional for corrosive medium
- The design of no shaft pin can avoid the leak of the hole
- Good reliability, small driving torque and big closing differential pressure

Specifications

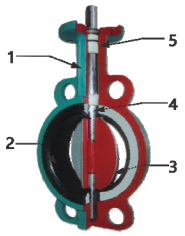
Size: DN50~800
Medium: Cool or hot water, 50% or lower glycol water
Medium temperature: -10~90°C
Pressure: PN16
Closing pressure(ΔPs): Max. 1000kPa, see Models
Flow characteristics: 0~60%: near equal percentage
0~100%: S shape
Leakage rate: Class A, comply with ISO 5208(tight sealing)
Angle of rotation: 90°
Pipe connection: Flange, comply with ISO7005
Actuator connection: Flange comply with ISO5211
Face to Face dimension: DIN EN 558, series 20
Install direction: Valve stem upward or horizontal

Kv Value of Different Valve Opening

DN	Kv Value of Different Valve Opening								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
DN50	0.1	4.3	10.4	20.8	38.9	55.4	77.9	108	116
DN65	0.2	6.9	17.3	32.0	56.2	84.8	124	176	190
DN80	0.3	10.4	19.0	33.7	60.6	100	158	237	261
DN100	0.4	14.7	31.1	67.5	120	199	314	472	519
DN125	0.7	25.1	52.8	115	205	339	536	804	884
DN150	1.7	38.9	82.2	177	316	523	828	1243	1365
DN200	2.6	77.0	162	352	628	1039	1646	2468	2712
DN250	3.5	130	276	600	1070	1770	2802	4203	4619
DN300	4.3	202	428	927	1653	2735	4329	6493	7136
DN350	5.2	292	618	1340	2388	3951	6254	9380	10308
DN400	6.9	401	850	1842	3284	5434	8600	12900	14176
DN450	9.5	532	1126	2441	4349	7197	11391	17086	18776
DN500	12.1	684	1448	3138	5592	9254	14646	21968	24140
DN600	19.0	1057	2237	4848	8641	14297	22627	33941	37297
DN700	31.1	1568	3147	5740	8650	12931	19696	30188	42820
DN800	38.9	2064	4144	7557	11927	17831	27158	41623	59039

Structure & Material

1. Valve body: Nodular cast iron
2. Valve seat: EPDM
3. Valve disc: Nylon coating
   Nodular cast iron
   (SS304 Optional)
4. Valve stem: SS
5. Sealing ring: EPDM



Formula for Flow Rate & Diff. Pressure

$$Kvs = \frac{F}{\sqrt{\frac{\Delta P}{100}}}$$

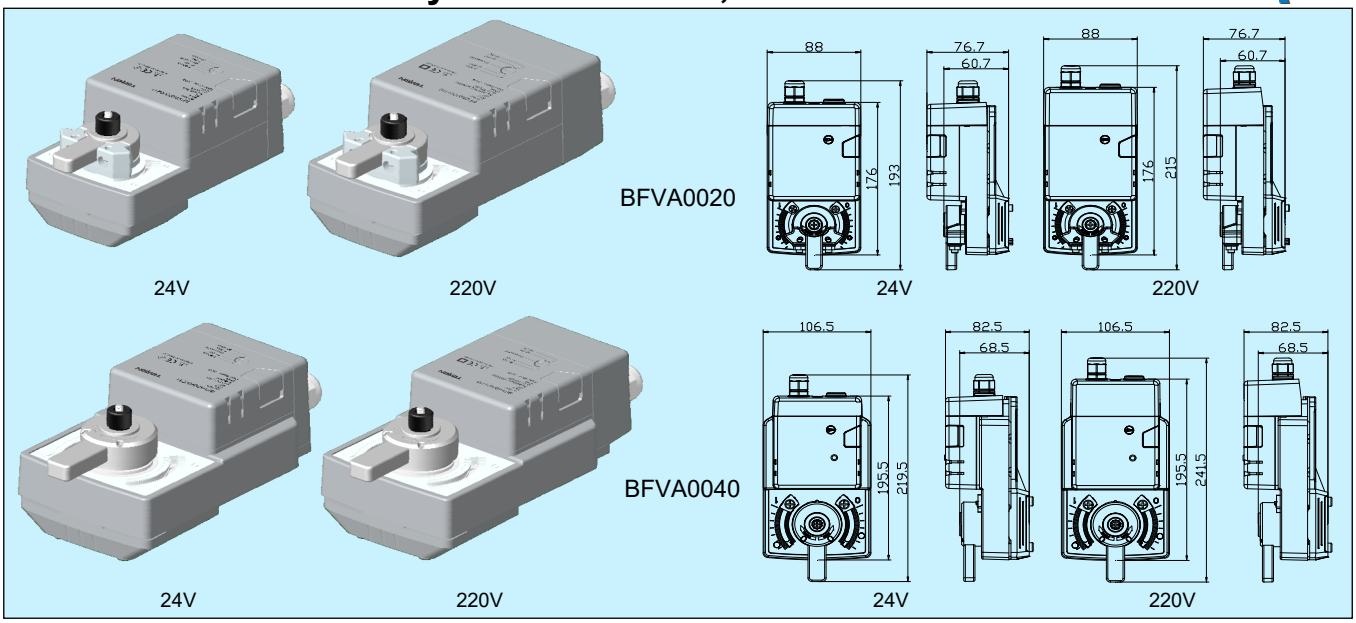
ΔP: Differential pressure when valve is 100% open, unit kPa
F: Flow rate when differential pressure is ΔP, unit m^3/h
Kvs: When valve is 100% open, differential pressure is 100kpa, medium density is $1g/cm^3$, the flow through the valve, unit m^3/h

Models and Close Diff. Pressure

Model	DN		Close Differential Pressure (ΔPs，kPa)									
	mm	in	Actuator Toque(Nm)									
			20	40	100	150	250	500	1000	2000	4000	6000
BFV050	50	2	1000									
BFV065	65	2.5	800	1000								
BFV080	80	3		1000								
BFV100	100	4		800	1000							
BFV125	125	5			1000							
BFV150	150	6			800	1000						
BFV200	200	8				800	1000					
BFV250	250	10					600	1000				
BFV300	300	12						600	1000			
BFV350	350	14							1000			
BFV400	400	16							500	1000		
BFV450	450	18								1000		
BFV500	500	20								500	1000	
BFV600	600	24									1000	
BFV700	700	28										800
BFV800	800	32										500

1.SS304 disc models: add suffix S at the end of the model. For example: BFV300S.
2. ΔPs: (under the actuator torque), the max. permitted diff. pressure for ensuring the valve is 100% close.
3.The data in this table is for the BFV series valve matching with BFVA series actuator. If applied with other actuators, the closest data could be used.

BFVA0020/0040 Butterfly Valve Actuator, 20/40 Nm



Applications & Features

- Special designed for the control of butterfly valves of various HVAC systems and equipment. Can apply with TEREN's BFV series(DN50~100) or other brands' butterfly valves
- Very easy to connect the actuator and butterfly valve
- Mechanical limit: can be adjusted within the full stroke
- Mechanical position indication:can adjust the indicator freely
- Manual operation: can be manual operated with the button, convenient for user to manually adjust the actuator when the power is off, or the control signal input is absent
- Multi-function selection knob: select control signal, rotate direction and stop/shutdown status, very convenient to set multiple operating modes
- Highly reliable: full stroke overload protection function, no limit switch, self-stop at the end point
- Removable terminal cover design, convenient and easy for installation and wiring
- Industrial design, stable and reliable operation, long life

Specifications

Torque: 20/40 Nm
Medium temp.: -10~120°C
Butterfly valve connection: comply with ISO5211 standard
Direction of rotation: Set by knob
Position indicator: Mechanical
Manual override: Set by push button
Angle of rotation: Max. 95°
Running time: see Butterfly Valve and Actuator Matching Reference
Driver: Brushless DC motor (BLDC)
Control signal: on/off, 3 pos; 0~10V(input impedance 250kΩ)
4~20 mA (input impedance 200Ω); RS485/Modbus
Internal feedback: 0(2)~10VDC (max. output 1mA)
4~20mA (max. load 500Ω); RS485/Modbus-RTU
Internal switch: 2×SPDT, 0.5A/30VDC
Electrical connection: Screw terminal
Service life: 100,000 cycles
Mode of operation: Type 1 to EN60730-1
Work temp.: -30~50°C, 95%RH, no cond. (EN60730-1)
Storage temp.: -40~80°C
Noise level: ≤45dB
Housing: Bottom SPCC, housing PC(UL94V-0)
Protection: IP54
Approval: CE

Models

Model	BFVA0020 BFVA0040 BFVA0040A					Butterfly valve actuator, 20Nm Butterfly valve actuator, 40Nm Butterfly valve actuator, 40Nm
Power		0 1				24VAC/DC 85~265VAC
Control Signal			0 1 2 8			on/off, 3-pos 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal feedback				0 1 2 8		N/A 0(2)~10VDC 4~20mA RS485/Modbus RTU
Internal Switch					0 1	N/A 2xSPDT, 0.5A/30VDC

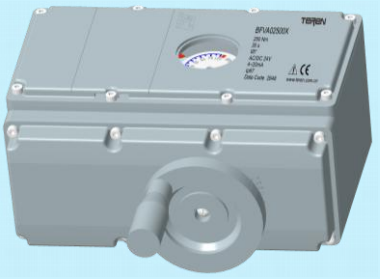
When control signal is 0, feedback should be 0. If control signal is 1, feedback may be 0 or 1. If control signal is 2, feedback may be 0 or 2. If control signal is 8, feedback may be 0 or 8.

Butterfly Valve & Actuator Matching Reference

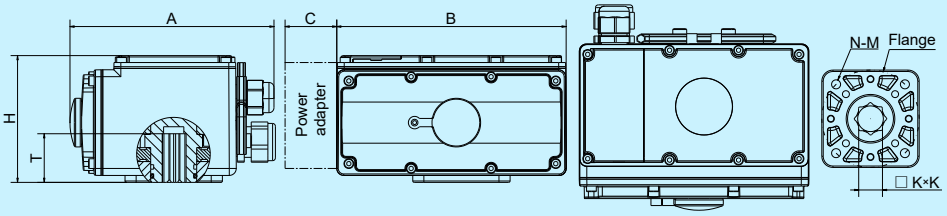
Butterfly Valve			Actuator							DP
Model	DN mm	DN in	Model	Torque Nm	Running time s	Cons. w	Flange	□KxK mm	Weight kg	kPa
BFV050	50	2	BFVA0020	20	60	5	F05	11	1.3	1000
BFV065	65	2.5	BFVA0020	20	60	5	F05	11	1.3	1000
BFV080	80	3	BFVA0040	40	75	7	F05	11,14	1.8	1000
BFV100	100	4	BFVA0040A	40	75	7	F07	11,14	1.8	1000

DP means ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close. See Models and Close Diff. Pressure for BFV.

BFVA Butterfly Valve Actuator, 100~2000Nm



The picture shows 24VDC model BFVAxxxx0x. Model BFVAxxxx1x is 85-265VAC product with an extra power adapter, as shown in the diagram. The hand wheel is optional.



Structure and Dimension

Unit: mm

Model	A	B	C	H	T	□KxK	N-M	Flange	Cable Gland	Weight
BFVA0100xx	145	165	37	91	35	17x17	4-M6/M8	F05,F07	PG11, PG13.5	4.5kg
BFVA0150xx	145	165	37	91	35	17x17	4-M6/M8	F05,F07	PG11, PG13.5	4.5kg
BFVA0250xx	175	212	49	110	45	22x22	4-M8/M10/M12	F07,F10,F12	2xPG13.5	9kg
BFVA0500xx	175	212	49	110	45	22x22	4-M8/M10/M12	F07,F10,F12	2xPG13.5	9kg
BFVA1000xx	223	285		171	50	27x27	4-M10/M12	F10,F12	2xPG11	17kg
BFVA2000xx	223	285		171	50	36x36	4-M16	F14	2xPG11	17kg

Applications & Features

- Special designed for the control of butterfly valves in various HVAC systems and equipment. Can apply with TEREN's BFV series or other brands' butterfly valves
- Very easy to connect the actuator and butterfly valve, comply with ISO5211 standard flange
- The turbine and output shaft are fitted with involute splines, with small clearance and high strength. Made of special brass alloy, has high strength, good wear resistance, high transmission accuracy and structural self-locking
- In case of power failure, it can be manually operated through the attached hex wrench or hand wheel, which can be installed on the actuator or as handheld tool
- Bracket, coupling and screw are stainless steel made, can be water and rust proof without refueling or maintenance. Mechanical position indicator is made of tempered glass
- State of art die-casting aluminum enclosure, reduce electromagnetic interference
- Optional power and control signals. The feedback signals are exactly the same as the control signals.
- Pass AC1800V voltage withstand test, class F insulated motor, independent wiring room, ensures safe operation
- Heat and overload protection, electrical and mechanical dual limit protection
- Condensation protect design of heating dehumidification can avoid electrical failure
- High protection rate of IP67

Specifications

Torque: 100/150/250/500/1000/2000 Nm
Medium and temp.: Cold or hot water, -10~120°C
Butterfly valve connection: comply with ISO5211
Angle of rotation: 90°
Run time: See Other Parameters. 60Hz is 5/6 times of 50Hz
Position indicator: Mechanical with tempered glass
Power: 85~265VAC, 50/60Hz; 24VDC±10%(100~500Nm)
Driver: BLDC Motor
Consumption: 53-330VA, see details in Other Parameters
Control signal: ON/OFF: on/off, 3 pos;
Modulating: 4~20mA, optional 0~10V/2~10V
RS485: RS485/Modbus RTU
Feedback signal: Modulate: 4~20mA/0(2)~10VDC
ON/OFF: 2xSPDT(dry contact) aux.switch,30VAC/0.5A
RS485: RS485/Modbus RTU
Moisture protect: Heater, 2~8W, see Other Parameters
Motor working mode: Intermittent work, S4-40%
Electrical connection: Screw terminal
Cable Interface: PG11/13.5, see Structure and Dimension
Work temp.: -25~60°C, 5~95%RH, no cond.
Enclosure: Die-casting aluminum with PC cover(UL94V-0)
Protection: IP67
Weight: See Dimensions
Approval: CE

Models

Model	BFVA0100			Butterfly valve actuator, 100Nm
	BFVA0150			Butterfly valve actuator, 150Nm
	BFVA0250			Butterfly valve actuator, 250Nm
	BFVA0500			Butterfly valve actuator, 500Nm
	BFVA1000			Butterfly valve actuator, 1000Nm
	BFVA2000			Butterfly valve actuator, 2000Nm
Power		0		24VDC
		1		85~265VAC
Control			0	on/off, 3 pos
			2	4~20mA/0(2)~10VDC
			8	RS485/Modbus RTU

1. BFVA1000 and BFVA2000 are only available for 85-265VAC power.
2. Add suffix H when selecting moisture-proof heater; add suffix W when selecting handwheel.

Other Parameters

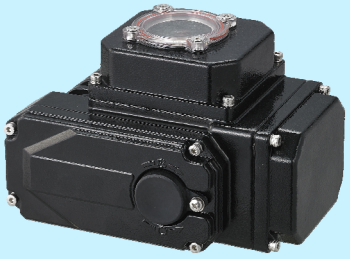
Model	Torque Nm	Runtime s/50Hz	Consumption VA		Heater W
			24VDC	85-265VAC	
BFVA0100xx	100	25	45	65	2
BFVA0150xx	150	30	53	77	2
BFVA0250xx	250	25	60	87	4
BFVA0500xx	500	30	120	180	4
BFVA1000xx	1000	50		330	5
BFVA2000xx	2000	100		660	5

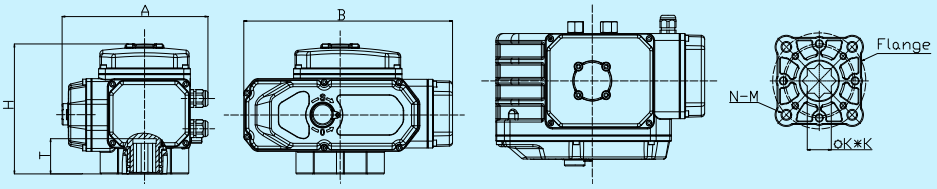
Match of Butterfly Valve and Actuator

Model	DN		Close Diff. Pressure(ΔPs，kPa)									
	mm	in	Torque(Nm)									
			20	4	100	150	250	500	1000	2000	4000	6000
BFV050	50	2	1000									
BFV065	65	2.5	800	1000								
BFV080	80	3		1000								
BFV100	100	4		800	1000							
BFV125	125	5			1000							
BFV150	150	6			800	1000						
BFV200	200	8				800	1000					
BFV250	250	10					600	1000				
BFV300	300	12						600	1000			
BFV350	350	14							1000			
BFV400	400	16							500	1000		
BFV450	450	18								1000		
BFV500	500	20								500	1000	
BFV600	600	24									1000	
BFV700	700	28										800
BFV800	800	32										500

1. ΔPs: (under the actuator torque)，the max. permitted diff. pressure for ensuring the valve is 100% close.
2. The data in this table is for the BFV series valve matching with BFVA series actuator. If applied with other actuators, the closest data could be used.

BFVA Butterfly Valve Actuator, 4000~6000Nm





Unit: mm

Structure and Dimension

Model	A	B	H	T	□K*K	N-M	Flange	Weight
BFVA4000*	293	439	309	82	46×46	4-M20,8-M16	F16,F25	43.7kg
BFVA6000*	293	439	309	82	46×46	4-M20,8-M16	F16,F25	57.3kg

Applications & Features

- Special designed for the control of butterfly valves of various HVAC systems and equipment. Can apply with TEREN's BFV or other brands' butterfly valves
- Very easy to connect the actuator and butterfly valve, comply with ISO5211 standard flange
- The whole-in-one design of turbine and output shaft avoid the gap of key connection. Made of special brass alloy, has high strength, good wear resistance, high transmission accuracy and structural self-locking
- In case of power failure, it can be manually operated through the attached hex wrench
- Holder, coupling and screw are stainless steel made, can be water and rust proof without refueling or maintenance
- Mechanical position indicator made of tempered glass
- State of art die-casting aluminum enclosure, reduce electromagnetic interference
- Pass AC1800V voltage withstand test, class F insulated motor, independent wiring room, ensures good safety
- Heat and overload protection, electrical and mechanical dual limit protection
- Condensation protection of heating dehumidification can avoid electrical failure
- High protection rate of IP67

Specifications

Torque: 4000, 6000Nm
Medium and temp.: Cold or hot water, -10~120°C
Butterfly valve connection: comply with ISO5211
Angle of rotation: 90°
Running time: See Models. 60Hz is 5/6 times of 50Hz
Position indicator: Mechanical made of tempered glass
Power: 220VAC±10%, 50/60Hz
Driver: AC Motor
Consumption: 462VA, see details in Models
Control signal: ON/OFF: on/off, 3 pos;
Modulating: 4~20mA, optional 0~10V/2~10V
Feedback signal: Modulate: 4~20mA,optional0~10V/2~10V
ON/OFF: 2(dry+wet contact)xSPDT aux.switch, 250VAC/5A
Moisture protect: Heater, AC220V/5~15W
Motor protect: Class F insulated, with overheat protector, start temp. at 125±5°C
Motor working mode: Intermittent work, S4
Electrical connection: Screw terminal
Cable Interface: 1-M20x1.5(ON/OFF),2-M20x1.5(Modulating)
Work temp.: -25~60°C, 5~95%RH, no cond.
Enclosure: Die-casting aluminum
Protection: IP67
Weight: See Dimensions
Approval: CE

Models

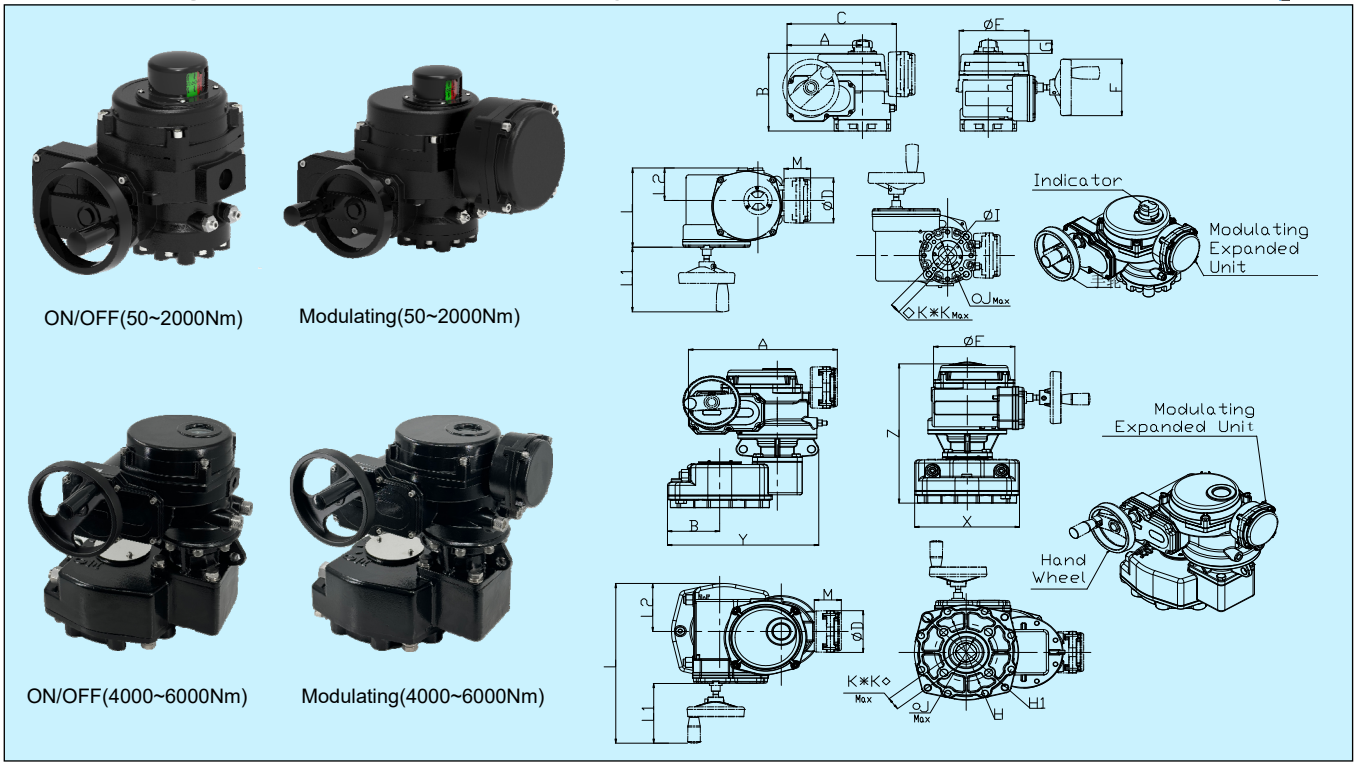
Model ON/OFF	Model Modulating	Torque Nm	Run time S/50Hz	Cons. VA	Heater W
BFVA4000	BFVA4000M	4000	100	462	15
BFVA6000	BFVA6000M	6000	150	462	15

Match of Butterfly Valve and Actuator

Butterfly Valve			Actuator			DP
Model	DN		Model ON/OFF	Model Modulating	Torque Nm	kPa
	mm	in				
BFV500	500	24	BFVA4000	BFVA4000M	4000	1000
BFV600	600	24	BFVA4000	BFVA4000M	4000	1000
BFV700	700	28	BFVA6000	BFVA6000M	6000	1000
BFV800	800	32	BFVA6000	BFVA6000M	6000	1000

DP means ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close. See Models and Close Diff. Pressure for BFV.

BFVAH High-Performance Butterfly Valve Actuator, 50~6000Nm



Applications & Features

- Special designed for the control of butterfly valves of various HVAC systems and equipment. Can apply with TEREN's BFV or other brands' butterfly valves
- Very easy to connect the actuator and butterfly valve, comply with ISO5211 standard flange
- 3D Dual color ribbon position indicator. Very high efficiency transmission mechanism design with structural self-locking.
- Very unique modulating cam makes the valve control more accurate. High accurate of valve position control up to 1%
- In case of power failure, it can be manually operated through the mechanic handwheel
- Condensation protection of heating dehumidification can avoid electrical failure
- Independent electrical unit design, strong protective circuit, ensure the safe operation and long life
- High protection rate of IP67

Specifications

Torque: 50~6000Nm
Medium and temp.: Cold or hot water, -10~120°C
Work temp.: -25~70°C
Butterfly valve connection: comply with ISO5211
Angle of rotation: 90°
Running time: See Models. 60Hz is 5/6 times of 50Hz
Position indicator: 3D Dual color ribbon position indicator
Power: 220VAC±10%, 50/60Hz
Consumption: see details in Models
Power protection: 1500V/1 min.
Insulated resistance: 100MΩ/500VDC
Control signal: ON/OFF: on/off, 3 pos;
Modulating: 4~20mA(default)/0~10V/2~10V/0~20mA
Feedback signal: ON/OFF:2(dry+wet contact) x SPDT aux. switch, 250VAC/5A;
Modulating: 4~20mA(default)/0~10V/2~10V/0~20mA
1(dry contact)xSPDT aux. switch, 250VAC/5A
Status of power failure: Hold
Status of signal failure: 4~20mA/2~10V: open/close/hold, can be set; 0~10V: close
Moisture protect: heater of 220VAC/25W and breather valve
Motor protect: Class F insulated, overheat protector start at 125±5°C
Inside counter: record running cycles(200Nm+ products)
Electrical connection: Screw terminal
Cable Interface: 2xM20x1.5
Enclosure: Aluminum alloy, polyester epoxy powder coating
Weight: See Models
Protection: IP67
Approval: CE

Models

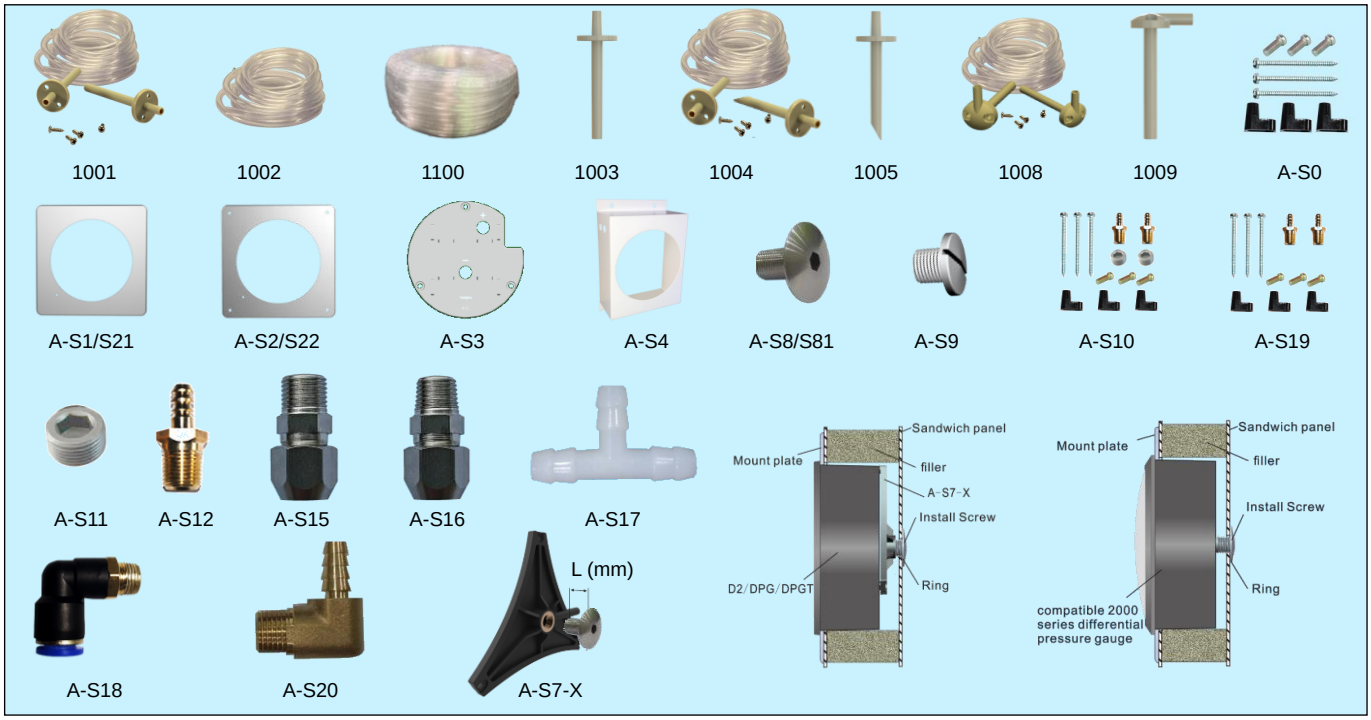
Model ON/OFF	Model Modulating	Torque Nm	Run time S/50Hz	Cons. VA	Heater W	Weight Kg
BFVAH0050	BFVAH0050M	50	20	48	25	4
BFVAH0080	BFVAH0080M	80	30	48	25	4
BFVAH0200	BFVAH0200M	200	30	92	25	5
BFVAH0400	BFVAH0400M	400	30	136	25	8
BFVAH0800	BFVAH0800M	800	35	220	25	18
BFVAH1000	BFVAH1000M	1000	54	220	25	19
BFVAH2000	BFVAH2000M	2000	40	286	25	28
BFVAH2500	BFVAH2500M	2500	50	286	25	28
BFVAH4000	BFVAH4000M	4000	216	286	25	52
BFVAH6000	BFVAH6000M	6000	120	286	25	62

Match of Butterfly Valve and Actuator

Butterfly Valve			Actuator			DP
Model	DN		Model ON/OFF	Model Modulating	Torque Nm	kPa
	mm	in				
BFV050	50	2	BFVAH0050	BFVAH0050M	50	1000
BFV065	65	2.5	BFVAH0050	BFVAH0050M	50	1000
BFV080	80	3	BFVAH0050	BFVAH0050M	50	1000
BFV100	100	4	BFVAH0050	BFVAH0050M	50	1000
BFV125	125	5	BFVAH0080	BFVAH0080M	80	1000
BFV150	150	6	BFVAH0200	BFVAH0200M	200	1000
BFV200	200	8	BFVAH0200	BFVAH0200M	200	1000
BFV250	250	10	BFVAH0400	BFVAH0400M	400	1000
BFV300	300	12	BFVAH0400	BFVAH0400M	400	1000
BFV350	350	14	BFVAH0800	BFVAH0800M	800	1000
BFV400	400	16	BFVAH1000	BFVAH1000M	1000	1000
BFV450	450	18	BFVAH2000	BFVAH2000M	2000	1000
BFV500	500	20	BFVAH2000	BFVAH2000M	2000	1000
BFV600	600	24	BFVAH2500	BFVAH2500M	2500	1000
BFV700	700	28	BFVAH4000	BFVAH4000M	4000	1000
BFV800	800	32	BFVAH6000	BFVAH6000M	6000	1000

DP means ΔPs: (under the actuator force), the max. permitted diff. pressure for ensuring the valve is 100% close. See Models and Close Diff. Pressure for BFV.

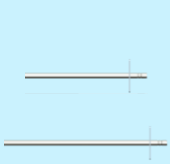
Accessories

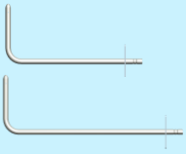


Models

Model	Description
1001	Individual accessory package: clear PVC tube 2m, static pressure tip (1003) 2 pcs, screws 4 pcs. Suitable for all DP products including 606,
1002	Clear PVC tube 2m only. Suitable for all DP products including 606, D2, D5, DPG, DPGT, DPT, DPTN, MFDP, etc., for pressure connecting
1100	Clear PVC tube 100m with carton pack
1003	1 pc static pressure tip, straight type, 0° angle opening. Suitable for all DP products for pressure connecting
1004	Individual accessory package: clear PVC tube 2m, total pressure tip (1005) 2 pcs, screws 4 pcs
1005	1 pc total pressure tip, straight type, 60° angle opening
1008	Individual accessory package: clear PVC tube 2M, static pressure tip (1009) 2 pcs, screws 4 pcs. Suitable for all DP products including 606,
1009	1 pc static pressure tip, L type, 0° angle opening. Suitable for all DP products for pressure connecting
A-S0	Includes 3 long screws, 3 short screws, and 3 brackets, for assembling or mounting of D2/DPG/DPGT/A/C2000 and compatible 2000 series
A-S1	Flat mounting plate for panel or flush mount of D2/DPG/DPGT and A/C2000 and compatible 2000 series. 304 Stainless Steel with pressure sensor on back side, 154(W)×154(H)×2(D)mm
A-S2	Flat mounting plate for panel or flush mount of D2/DPG/DPGT and A/C2000 and compatible 2000 series, with 4 install holes. 304 Stainless Steel with pressure sensor on back side, 154(W)×154(H)×2(D)mm
A-S21	Flat mounting plate for panel or flush mount of D2/DPG/DPGT and A/C2000 and compatible 2000 series. 304 Stainless steel, 154(W)×154(H)×2(D)mm
A-S22	Flat mounting plate for panel or flush mount of D2/DPG/DPGT and A/C2000 and compatible 2000 series, with 4 install holes. 304 Stainless steel, 154(W)×154(H)×2(D)mm
A-S3	Back mounting plate for round pipe mount for D2, DPG, DPGT and A/C2000 and compatible DP gauges, 304 Stainless Steel
A-S4	Mounting bracket, for flush mount of D2/DPG/DPGT/A/C2000 and compatible DP gauges, finally complete surface mount. 1.2mm galvanized steel with powder coated and white color RAL9016
A-S7-X	Bracket with stainless steel pressure sensor on back, for D2/DPG/DPGT's panel or flush mounting. According to different mount styles and applications, the size of L is different. Here is the table for selection: A-S7-1: L=4.5mm; A-S7-2: L=7.5mm; A-S7-3: L=10mm; A-S7-4: L=12.5mm; A-S7-5: L=15.5mm
A-S8/S81	Install screw, with pressure sampling hole, stainless steel, 1/8 NPT. A-S81: L=18mm, for A2000's back mount and pressure connection; A-S8: L=14.5mm, for C2000 and compatible DP gauges' back mount and pressure connection
A-S9	Install screw, without pressure sampling hole, stainless steel, for all 2000 series DP gauge's back mount, 1/8 NPT, L=11.5mm
A-S10	Include 2 pcs 1/8 NPT plugs for 2 pressure taps, 2 pcs 1/8" pipe threads for tubing and 3 flush mount adapters with 3 screws (M3.5x8). For all compatible gauge installation
A-S11	1/8 NPT plug, inner hexagon, steel
A-S12	1/8 NPT to ID 5mm pipe connection adapter, copper
A-S15	Compression fitting, nickel plated brass, G1/8 to metal tube Φ6.0mm (15/64"), for C2000 series pressure connection
A-S16	Compression fitting, nickel plated brass, 1/8 NPT to metal tube Φ6.0mm (15/64"), for A2000 and compatible 2000 series pressure connection
A-S17	"T" assembly, for ID 5mm tube, ABS
A-S18	Adapter, 1/8 NPT to OD 8mm PU pneumatic tube, L type, brass+PC, for all A/C2000 and compatible 2000 series gauge installation
A-S19	Include 2 pcs 1/8 NPT pipe threads for tubing and 3 pcs flush mount adapters with 3 screws (M3.5x8). For all compatible gauge installation
A-S20	Adapter, 1/8 NPT to ID 5mm tube, L type, brass, for all A/C2000 and compatible 2000 series gauge installation
A-S31	Sandwich panel flush mount accessories, include A-S81, A-S21 and plastic mount box, with carton package, for A2000 and compatible gauge
A-S33	Sandwich panel flush mount accessories, include A-S8, A-S21 and plastic mount box, with carton package, for C2000 and compatible gauge
A-S35	Sandwich panel flush mount accessories, include A-S81, A-S1 and plastic mount box, with carton package, for A2000 and compatible gauge
A-S37	Sandwich panel flush mount accessories, include A-S8, A-S1 and plastic mount box, with carton package, for C2000 and compatible gauge

Accessories


A-S40


A-S41


A-S43


A-S45


A-S46


A-S50-N/A-S50-G


A-S51-N/A-S51-G


A-S52-N/A-S52-G


A-S53-N/A-S53-G


A-S60


A-S61


A-S62


A-S69

Models

Model	Descriptions
A-S40	Static pressure probe, straight type, A-S40-1: 125mm; A-S40-2: 200mm
A-S41	Static pressure probe, L type, A-S41-1: 125mm; A-S41-2: 200mm
A-S43	Static pressure sampling port, room type
A-S45	Static pressure sampling port, panel for flush mount with CN/EU standards
A-S46	Static pressure sampling port, panel for flush mount with North American Standards
A-S50-N	Ball valve, Brass, temperature 100°C, PN16, 1/4 NPT, one end is external thread and the other is internal. Can be applied along with A-S51-N、A-S52-N、A-S53-N
A-S50-G	Ball valve, Brass, temperature 100°C, PN16, G1/4, one end is external thread and the other is internal. Can be applied along with A-S51-G、A-S52-G、A-S53-G
A-S51-N	Buffer tube, straight connect, for protecting pressure instruments in water systems. SS304, temperature 150°C, pressure 2MPa, 1/4 NPT, one end is external thread and the other is internal
A-S51-G	Buffer tube, straight connect, for protecting pressure instruments in water systems. SS304, temperature 150°C, pressure 2MPa, G1/4, one end is external thread and the other is internal
A-S52-N	Buffer tube, 90° angle connect, for protecting pressure instruments in water systems. SS304, temperature 150°C, pressure 2MPa, 1/4 NPT, one end is external thread and the other is internal
A-S52-G	Buffer tube, 90° angle connect, for protecting pressure instruments in water systems. SS304, temperature 150°C, pressure 2MPa, G1/4, one end is external thread and the other is internal
A-S53-N	Pressure snubber, for protecting pressure instruments in water systems by dampening surges and pulsations. SS304, temperature 150°C, pressure 3.5MPa, 1/4 NPT, one end is external thread and the other is internal
A-S53-G	Pressure snubber, for protecting pressure instruments in water systems by dampening surges and pulsations. SS304, temperature 150°C, pressure 3.5MPa, G1/4, one end is external thread and the other is internal
A-S60	Include 2 G1/8 plugs for 2 pressure taps, 2 G1/8 pipe threads for tubing and 3 flush mount adapters with 3 screws (M3.5x8). For C2000 and all compatible gauge installation
A-S61	G1/8 plug, inner hexagon, PC. For C2000 and all compatible gauge installation
A-S62	G1/8 to ID 5mm pipe connection adapter, PC. For C2000 and all compatible gauge installation
A-S69	Include 2 G1/8 pipe threads for tubing and 3 flush mount adapters with 3 screws (M3.5x8). For C2000 and all compatible gauge installation

Some accessories may have different Model No. for orders.

Global Market Map



TEREN's business have been developed to 86 countries and regions covering 5 continents. We are proud of continuously supplying more products globally. As one of the most active original manufacturing sources, we are basing from Shenzhen, China, will spread and deliver excellence to everyone, no matter wherever you are from.

Cooperative Partner



Stock Code: 874248

TEREN

Since 2001

Shenzhen TEREN Control Technology Co.,Ltd

: Headquarter: 14F, Building 8, Fashion Valley, Shanghenglang, Dalang,Longhua, Shenzhen, Guangdong, China

: Factory: 11F, Building 29, 179 Dongshen Rd., Fenggang, Dongguan, Guangdong, China

: +86 755 23935155 : +86 755 23935156

: sales@teren.com.cn

: www.teren-control.com(EN),www.teren.com.cn(CN)

TEREN CONTROL (MALAYSIA) SDN BHD

: A-22-10 Block A, Residensi O'hako Jalan Pipit,
Bukit Tandang 47170, Puchong, Selangor D.e, Malaysia.

: (+60)164435605

: alvin@teren.com.cn

Data Sheet

TEREN website

Alibaba shop