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

| T1N/TT1N | | | T1W-E | T1W-N |
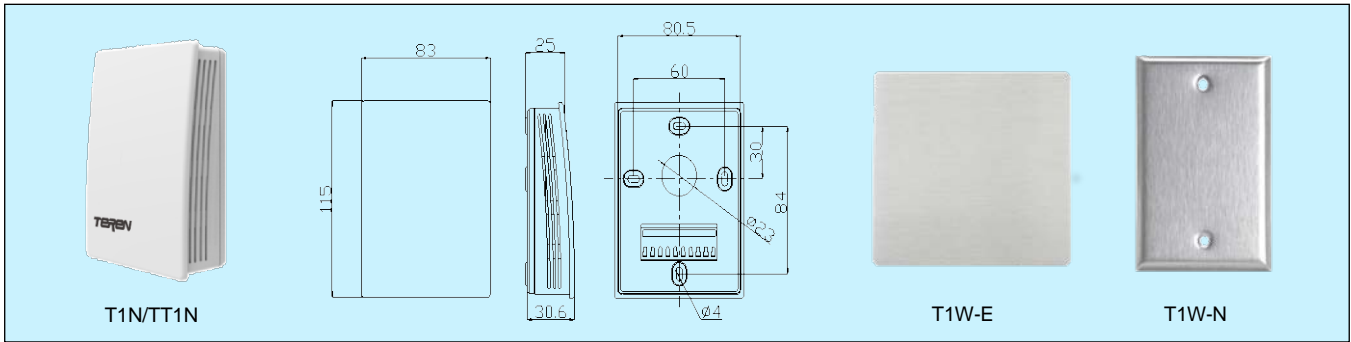
Applications & Features

● 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

● High performance thermistor & RTD, ensure accurate temperature measurement

● Multiple output optional, light and state of art housing, easy installation

● 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: PT1000, Class A
Range: see models
Output: 4~20mA (2 wires) or 0-10VDC
Output Load: ≤500Ω (current), ≥3KΩ (voltage)
Accuracy: < ±0.5°C@ 0~50°C, see accuracy curve
Power: Current 18.5~35VDC (R_L=500Ω); 8.5~35VDC (R_L=0Ω)
     Voltage 16~35VDC, 16~28VAC

Work Temp.: 0~70°C, 0~95%RH (Non cond.)
Storage Temperature: -30~70°C
Housing: T1N/TT1N: fire retardant PC(UL94V-0)
     T1W: Stainless steel
Protection: IP30
Weight: T1N: 95g; T1W-E: 95g; T1W-N: 80g; TT1N: 115g
Approval: CE

TT1N accuracy curve:
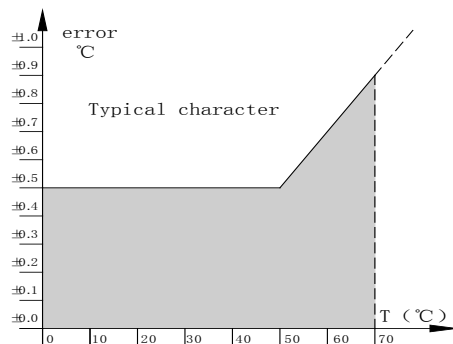
Resistance table:

T	3	4	5	6	7	9	A
(°C)	PT1000	PT100	NTC20K	Ni1000	NTC10K-II	NTC10K-III	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

Models

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

	T1N	Room Temp. sensor
Model	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)
Range		1	0-50°C
		2	0-100°C

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

TEREN

T2N/T4N

T3N

T2/T4

T4/T4N/TT4N/TTD4N SS Install Well

T2/T2N/TT2N/TTD2N Flange

T5

T6N
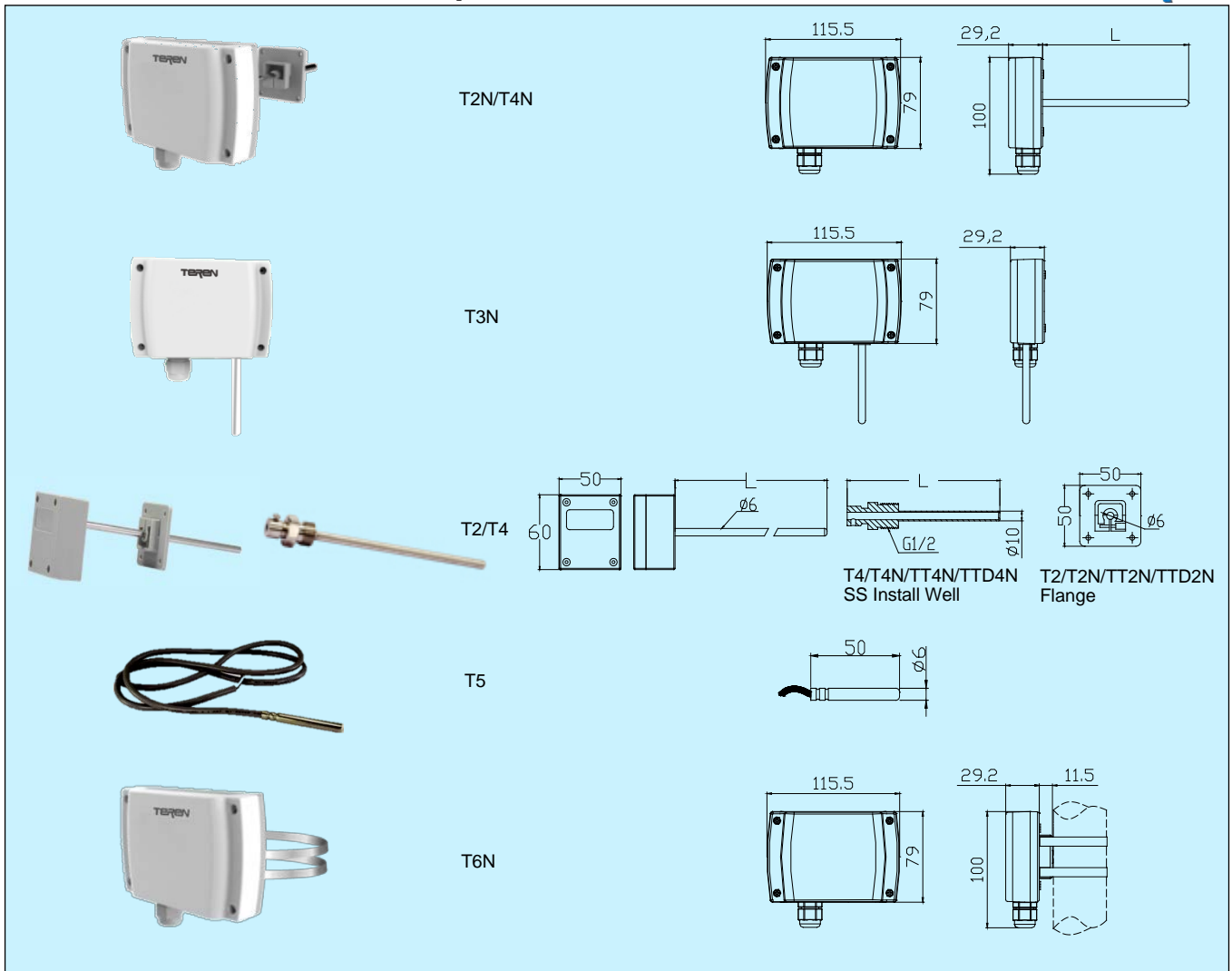
Applications & Features

- 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, 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.(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, $R_{conductor}=0.069\Omega/m$, $R_{insulation} >100M\Omega$ (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			
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 is depending on the material of pipe, installation and ambient temperature, air velocity, etc., may not meet the above accuracy.

T4/T4N/TT4N/TTD4N Install Well

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

TTD2,3,4,5,6N Digital Temperature Transmitter/Controller

TEREN

TTD2N/TTD4N
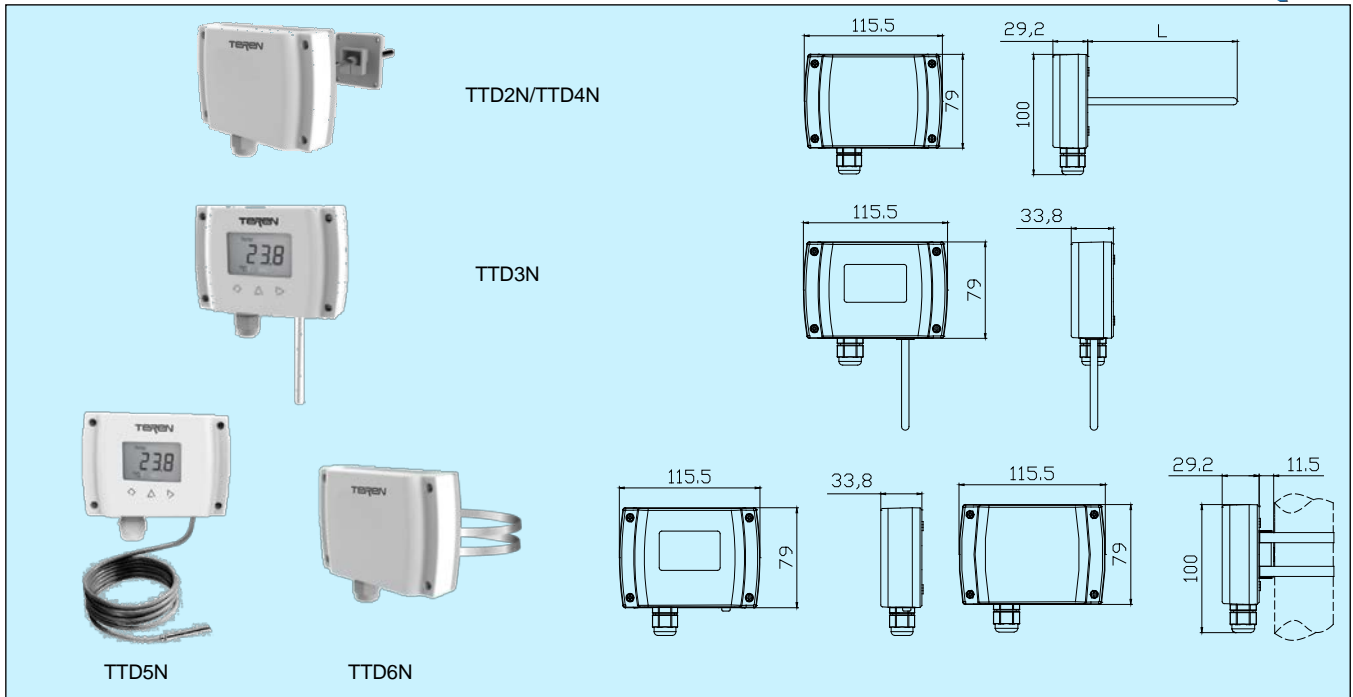
TTD3N

TTD5N   TTD6N

Applications & Features

- Apply for temperature monitoring & controlling in duct (TTD2N), water and steam pipe(TTD4N), outside air(TTD3N), remote(TTD5N) and strap-on(TTD6N)
- High performance digital temperature sensor and digital technology applied, ensure accurate measurement fast response and good long term stability
- Multiple outputs selection, over voltage and reverse polarity protection, high reliability and anti-interference capability
- Optional relay for alarm or ON/OFF control
- Wide working temperature range and fast response
- LCD & function keys can set parameters and calibrate output,so the product can become a stand alone controller
- High protection rate up to IP65

Specifications

Sensor: Digital temperature sensor
Range: see models
Output: 4~20mA (3 wires) &0~10VDC, RS485/Modbus
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Relay: 1×SPST, 3A/30VDC, 3A /250VAC
Accuracy: <±0.5°C@ -10~85°C, see accuracy curve
Power: 16~28VAC/16~35VDC
Work Temp.: -30~70°C (LCD: -20~70°C), 0~95%RH (Non cond.)
Storage Temperature: -30~70°C
Medium Temperature: -40~100°C (TTD2N, TTD4N)
Housing: fire retardant ABS (UL94V-0), SS probe (Φ6mm), SS well
Cable (TTD5N): Black, silicone, 3*0.3mm², 1m length, -60~180°C, $R_{conductor}$=0.069Ω/m, $R_{insulation}$ >100MΩ (25°C)
Strap on (TTD6N): stainless steel, diameter 15~150mm
Protection: IP65(IP68 for TTD5N's probe,1m water depth)
Weight: TTD2N:315g; TTD3N:195g; TTD4N:510g; TTD5N:345g; TTD6N:390g
Approval: CE
Optional Accuracy: 0.25°C@ -20 ~105°C (Add "H" after part number)
Display and Keys: 4 digits LCD, with unit indication, backlight, 3 touch keys, see more details on LCD & Keys operation

Accuracy Curve:

Digital output typical character

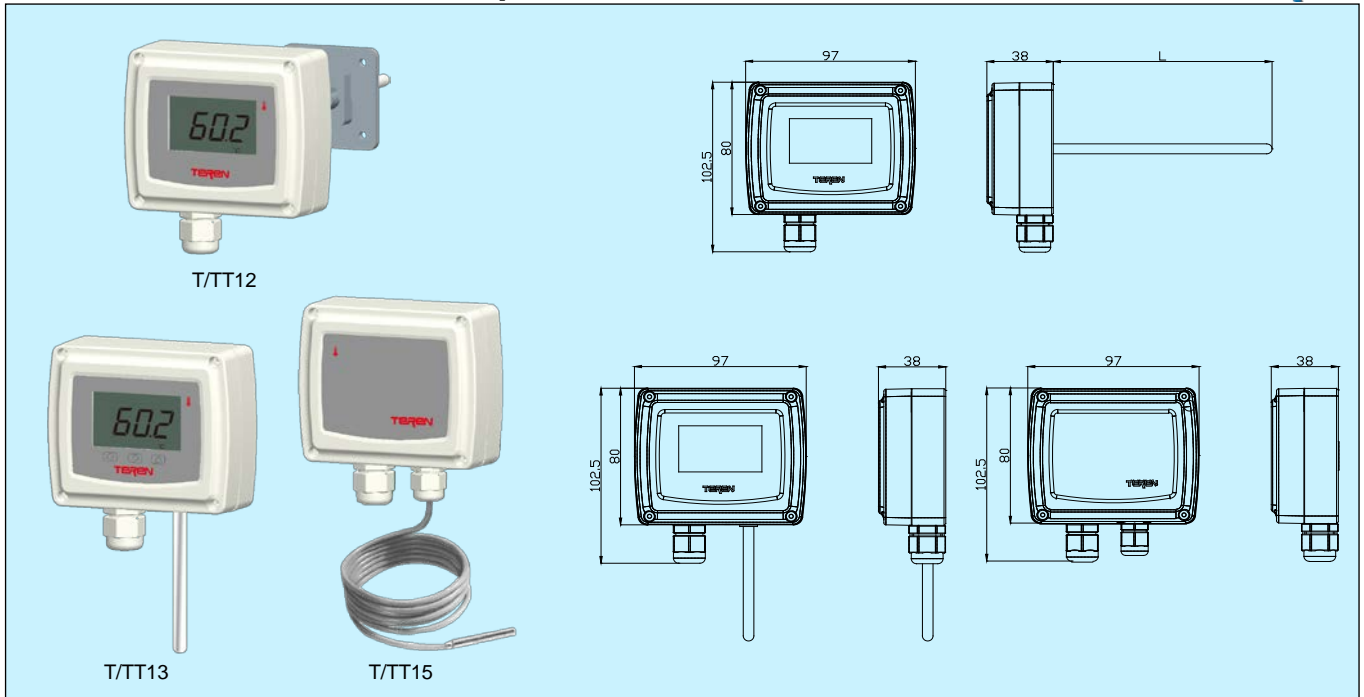Analog / Transmitter output typical character
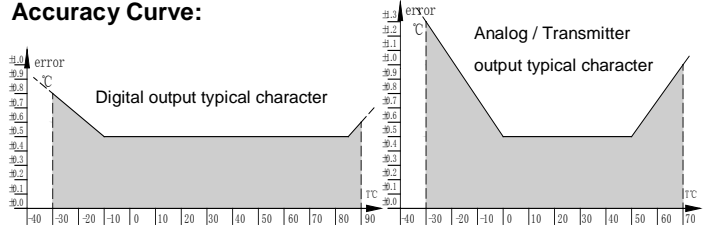
TTD6N's accuracy is depending on the material of pipe, installation and ambient temperature, air velocity, etc., may not meet the above accuracy.

Models

Model						
Model	TTD2N					Duct mount digital temp. transmitter
	TTD3N					Outside air digital temp. transmitter
	TTD4N					Immersion digital temp. transmitter
	TTD5N					Remote digital temp. transmitter
	TTD6N					Strap-on digital temp. transmitter
Outputs		1				4-20mA&0-10VDC
		B				4-20mA&0-10VDCRS 485/Modbus
Range (Note1)			1			-10~50°C
			2			-10~90°C
			3			-40~60°C
			7			Others
Relay (Note2)				0		No
				1		1×SPST
LCD & Keys					0	N/A
					1	LCD
					2	LCD & Keys
Probe Length (TTD2N/4N)						0 75mm
						1 125mm
						2 200mm
						7 Others

Note 1: Every product can be set ranges with accuracy ≤±0.5°C @ -10~85°C by LCD & function keys; code 7 product can be set all ranges in -40~125°C with accuracy ≤±0.5°C.

Note 2: Refer to working environment ambient guide GB/T4200 and WBGT, etc., the relay default settings are ON-30.0°C/OFF-29.5°C and can be customized or set by LCD & function keys.

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

T/TT12

T/TT13   T/TT15

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: ±0.2°C@-40~100°C, ±0.3°C@-55~150°C
Response time(T63): 5~10s (10~15s with install well)
Drift: ≤±0.03°C (300hours, 100°C)
Range: 0~50/0~100/0~150/-40~60°C, select by switch
Output: 4~20mA (2 wires), 0~5/10VDC, RS485/Modbus, relay
Transmitter output accuracy: linear accuracy ± 0.1% FS
Transmitter output temperature coefficient: ±0.01%FS/°C
Output Load: ≤500Ω(current), ≤5mA(voltage)
Relay: 1×SPST, 3A/30VDC, 3A/250VAC
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 consumption 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, 4*0.2mm², 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
Relay			0 1		N/A 1×SPST (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 75mm 1 125mm 2 200mm 7 Others

Install Well (for T12/TT12)

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

H2,3,4N Temperature & Humidity Transmitter

TEREN

H2N

H2N

Install Flange

H3N H4N

H3N H4N
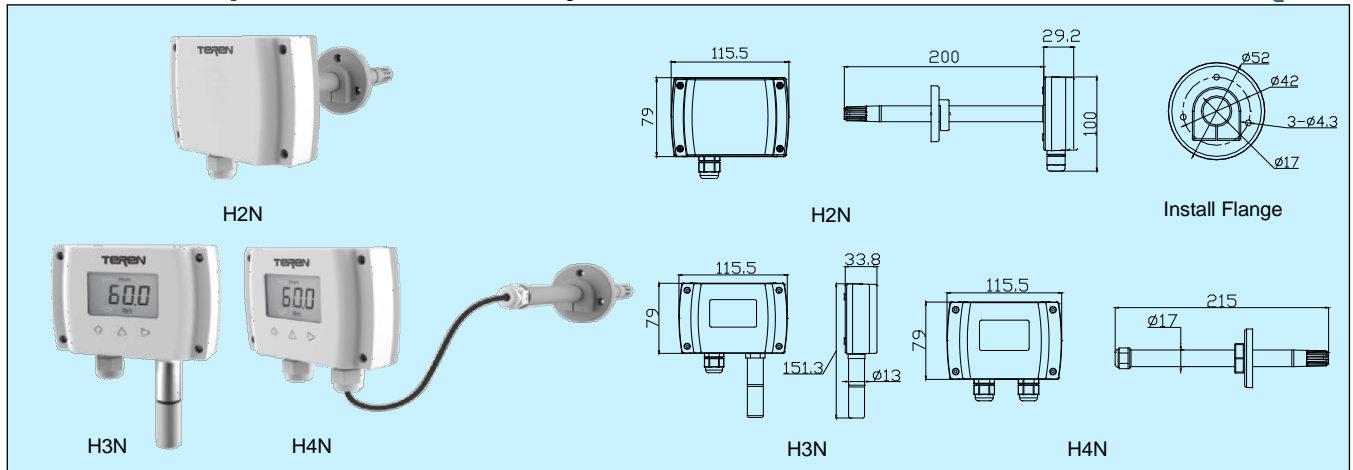
Applications & Features

● 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: see models
Accuracy: 2%, 3%, (25°C, 20~80%RH)
Hysteresis: <±1%RH
Response time: <10s (25°C, in slow air)
Drift: <±0.5%RH / year

Temperature
Sensor: Digital temperature sensor or RTD/thermistor
Range: 0~50°C, 0~100°C, -40~60°C, or others
Output: 4~20mA (2wires), 0~10VDC (3wires), RS485/Modbus, or RTD/thermistor: see Models and resistance table
Accuracy: transmitter: $<\pm0.4$°C @ 5~60°C or 0.3°C@5~60°C
RTD/thermistor: 0.2~0.5°C@ 25°C, see models

Power: Current: 18.5~35VDC (R_L=500Ω); 8.5~35VDC (R_L=0Ω)
Voltage: 16~28VAC/ 16~35VDC
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Relay output: 2×SPST, 3A/30VDC, 3A/250VAC
Display and keys: 4 digits LCD, with unit indication, backlight (4-20mA N/A), 3 touch keys, see more details on LCD & Keys operation
Work Temp.: -30~70°C (LCD: -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							
Model	H2N						Duct mount Temp./RH transmitter
	H3N						Outside air Temp./RH transmitter
	H4N						Remote mount Temp./ RH transmitter
RH Accuracy		2					±2%RH (0.3°C)
		3					±3%RH (0.4°C)
RH Output			1				0~10VDC (3 wires)
			2				4~20mA (2 wires)
			8				RS485/Modbus
Temp. Output				0			No
				1			0~10VDC (3 wires)
				2			4~20mA (2 wires)
				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
				8			RS485/Modbus
				9			NTC10K-III,0.3°C@25°C
				A			NTC10K-A, 0.3°C@25°C
Temp. Range					0		No
					1		0~50°C
					2		0~100°C
					3		-40~60°C
					7		others
Relay						0	No
						1	2×SPST(4-20mA N/A)
LCD & Keys							0 No
							1 LCD
							2 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.

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

CDWN   CDWC

CDD
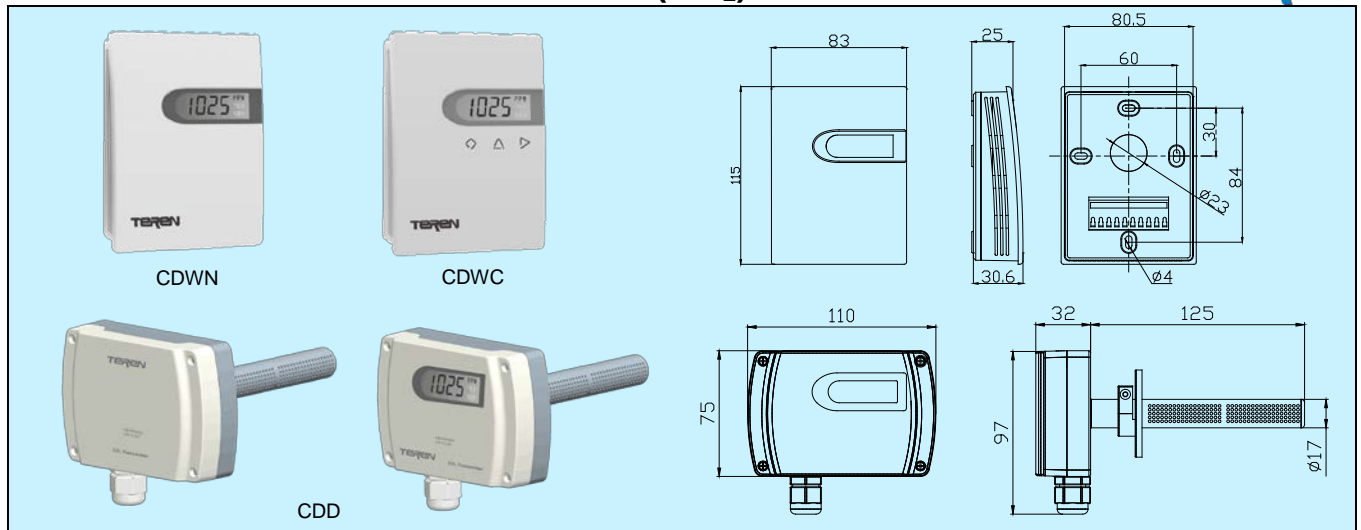
Applications & Features

- 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 destroy 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 N/A 1 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/250VAC
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

TEREN
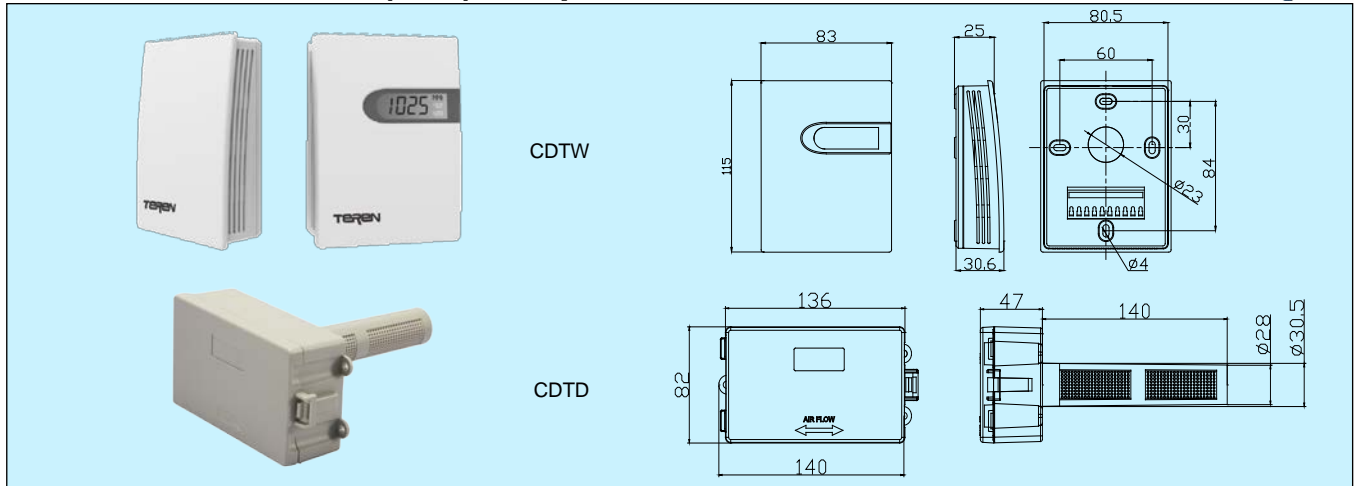
CDTW

CDTD

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 or 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), IP65 (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

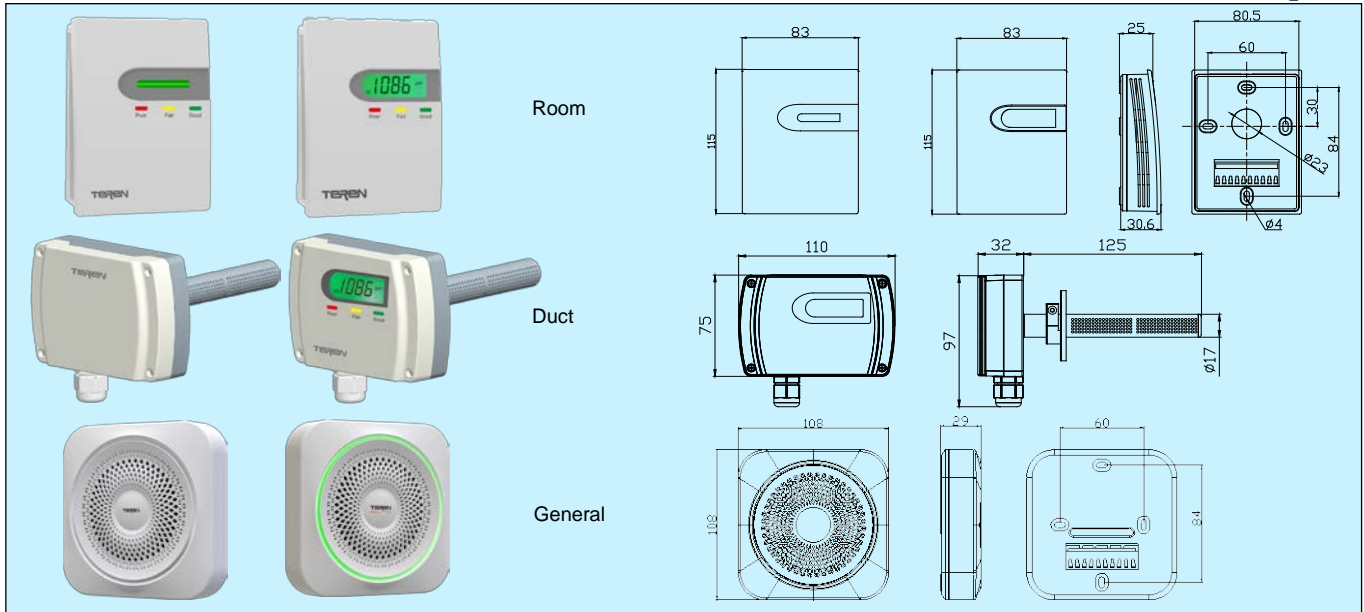| Model	CDTW CDTD				Room CO$_2$ / Temp. Transmitter
					Duct mount CO$_2$ /Temp. Transmitter
CO$_2$ Output		1			4~20mA/0~10VDC
		C			RS485/Modbus
Temp. Output			1		4~20mA / 0~10VDC
			3		PT1000, ±0.2°C @25°C
			4		PT100, ±0.2°C @25°C
			5		NTC20K, ±0.2°C @25°C
			6		Ni1000, ±0.5°C @25°C
			7		NTC10K-II, ±0.2°C @25°C
			9		NTC10K-III, ±0.3°C @25°C
			A		NTC10K-A, ±0.3°C @25°C
			C		RS485/Modbus
Display (CDTW)				0	N/A
				1	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	<±0.5°C@10~40°C	<±0.5°C@10~40°C
4~20mA	<±0.8°C@10~40°C	<±0.5°C@10~40°C
RS485/Modbus	<±0.5°C@10~40°C	<±0.5°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.

IAQ Indoor Air Quality (VOC)/IAQF Formaldehyde (CH$_2$O) Transmitter/Controller TEREN

Room

Duct

General

Applications & Features

- IAQW/IAQD/IAQG are designed for detecting various contaminants of Volatile Organic Compounds (VOCs) in the air, including those produced by cigarette, alcohol and even body smell. While IAQFW/IAQFD/IAQFG are specific only for CH$_2$O detecting
- IAQW/IAQFW are for wall mount, IAQD/IAQFD are for duct mount, and IAQG/IAQFG are for general application, for wall or ceiling mount
- IAQW/IAQD/IAQG use highly sensitive metal oxide semiconductor gas sensor, with up to 5~7 years sensor life
- IAQFW/IAQFD/IAQFG use very good performance electrochemical gas sensor, with more than 3 years sensor 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 destroy 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$_2$O: High performance electrochemical sensor
Power: 16~28VAC/16~35VDC
Range: VOC: 0~2000ppm equivalent CO$_2$; CH$_2$O: 0~1000ppb
Accuracy: VOC: Typical consistency accuracy ±10%FS@25°C
CH$_2$O: ±10%FS@25°C
Output: 0~10VDC/4~20mA (default), RS485/Modbus
Display: Optional LED bar(green/yellow/red) 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: 1×SPST, 3A/30VDC, 3A/250VAC
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 and General: 190g, Duct: 250g
Approval: CE

Models

Model				
Model	IAQW			Room VOC transmitter/controller
	IAQD			Duct mount VOC transmitter/controller
	IAQG			General VOC transmitter/controller
	IAQFW			Room CH$_2$O transmitter/controller
	IAQFD			Duct mount CH$_2$O transmitter/controller
	IAQFG			General CH$_2$O transmitter/controller
Trans./ Com. Output		0		N/A
		1		4~20mA/0~10VDC
		8		RS485/Modbus
Relay Output			0	N/A
			1	1×SPST
Display				0	N/A
				1	Three color LED or light ring
				2	LCD, with G/Y/R 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 component. 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 of 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$_2$O sensor could detect only Formaldehyde of 0~1000ppb.
4. Researches show that exposed to 0.5~1.0 ppm VOC concentration environment have little impact on most people health; 1.0~10 ppm have 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$_2$O limit 0.08~0.10 mg/m^3 (equivalent to about 60-75 ppb).

VOC concentration guidelines (Mainly refer CH$_2$O for reference)

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

IAQMP Color Screen Indoor Air Quality(VOC/CH$_2$O/PM2.5/PM10/CO$_2$/T/RH)Detector TEREN

IAQMP53142   IAQMP345
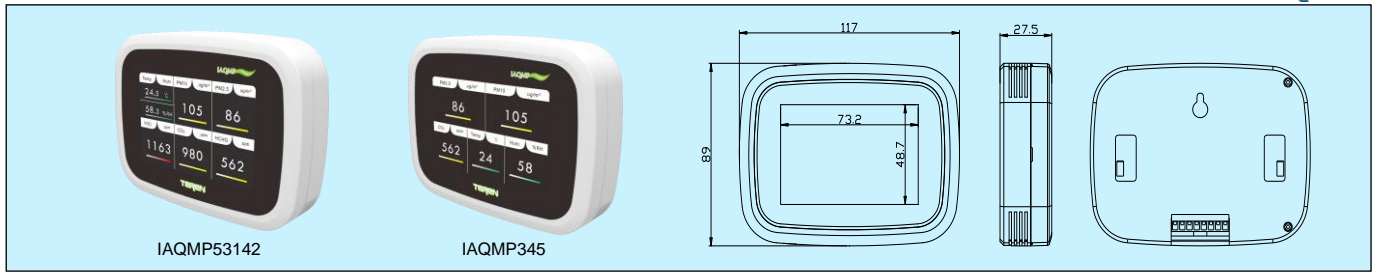
Applications and features

- Simultaneously detect a variety of indoor ambient air quality parameters, including VOC, PM2.5, PM10, CH$_2$O, CO$_2$ and T/RH, up to 7 parameters
- State of art housing, use large-screen color TFT LCD to digital display all air quality real-time parameters and status parameters. All parameters can be flexibly set via RS485
- 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 for high accuracy
- CH$_2$O: good accuracy, fast response, excellent anti-interference, extremely low power consumption and good temperature and humidity characteristics, stable and reliable, no need for regular calibration
- PM2.5/PM10: detect the PM2.5 and PM10 concentration in the air with particle sizes 0.3~10μm. The sensor has good long-term stability, high consistency accuracy, real-time response and supports continuous service mode. MBTF is 3+ years for continuous service (service life can be 8-10 years in typical stable concentration change working conditions and auto(intermittent) work mode), free maintenance
- CO$_2$: detect the CO$_2$ concentration of the air with ABC (Automatic Baseline Correction) algorithm, accurate measurement and temperature compensation, good long-term stability and reliability, fast response
- T/RH: use high-precision digital temperature 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 destroy 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$_2$
Accuracy: Typical consistency/accuracy ±10%FS@25°C

CH$_2$O
Sensor: High performance electrochemical sensor, >3 years life span
Range: 0~1000ppb
Accuracy: ±10%FS@25°C

PM2.5/PM10
Sensor: Laser particulate matter sensor, detected size 0.3~10 um
Service Life: MBTF more than 3 years in continuous service mode, service life up to 8-10 years in auto (intermittent) service mode
Measuring range: >1000 μg/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 span
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: 0~50°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/20~80%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
Sensor code	Sensor codes are: 1:VOC; 2:CH$_2$O; 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, represent 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.

Note:
1. VOC volatile organic compounds, include over a thousand kinds of component, are widely used in various industries and has great impact on human health, may affect liver, kidney, brain and nervous system, resulting in memory loss and other serious consequences, and even cause cancer.
2. The VOC sensor could detect varies of VOC components. VOC measurement range 0~1000ppb (isobutene), equivalent to 400~2000ppm of carbon dioxide.
3. The CH$_2$O sensor could detect only Formaldehyde of 0~1000ppb.
4. Exposed to 0.5~1.0 ppm VOC concentration environment have little impact on most people health; exposed to 1.0~10 ppm may have obvious irritation symptoms on human and cancer rates rise 50% to 90%; exposed to above 10 ppm may have serious impact on human health or life threatening.
5. China regulations specified the average 8 hours TVOC limit 0.50~0.60 mg/m^3 (equivalent to about 500 ppb) and CH$_2$O limit 0.08~0.10 mg/m^3 (equivalent to about 60-75 ppb).
6. VOC concentration guidelines and recommendations, mainly refer formaldehyde:

Source	Concentration	Associated Period of Exposure	Health Effect(s)
Based on sensory irritation			
California Environmental Protection Agency (EPA)	44 ppb	1 hour	Eye and 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	8-hour 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	Daily:1-14 days 15-364 days > 1 year	Respiratory
California EPA	7 ppb 7 ppb	8-hour annual average	Respiratory symptoms Respiratory symptoms
Health Canada	40 ppb (target)	8 hours	Respiratory symptoms in children
Based on cancer risk			
National Institute for Occupational Safety and Health	16 ppb	8 hours	Nasal cancer
Occupational Safety and Health administration	750 ppb	8-hour PEL-TWA	Cancer and skin/eye/ respiratory irritation
World Health Organization	100 ppb	Long-term	Nasal cancer

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

DPTG Flush Mount Digital DP Monitor

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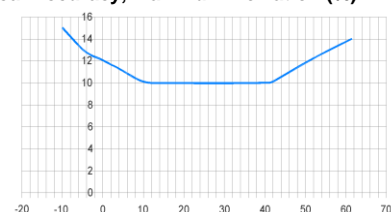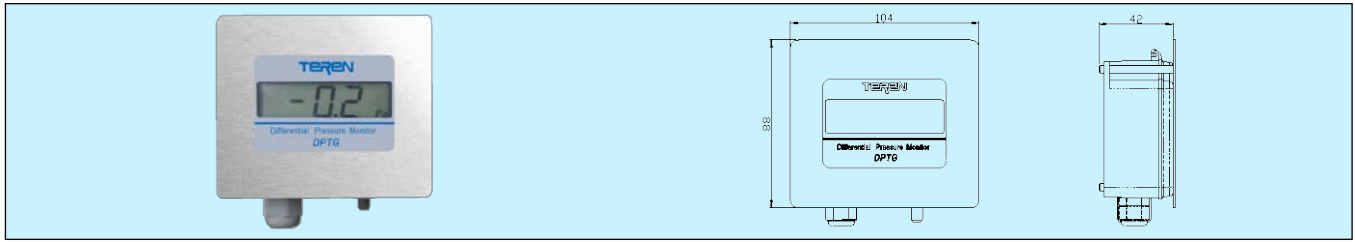
Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure
- Flush mount, 316 SS front panel, no dust stays, easy to clean. It can apply to monitor differential pressure of various clean room, laboratory, surgery room, negative pressure ward and biology safety cabinet, etc.
- The accuracy is up to ±1%FS, and the range can be 25Pa, with intuitive LCD digital display

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 switch
Process Connection: 5mm ID tubing
Display: 5 digits LCD, display area 65x18mm, with unit
Power: Voltage: 16~28VAC/ 16~35VDC
Units: 5 units, selected by DIP switch

Zero set: easy to reset by external key
Materials: ABS+PC (housing) & PC (cover), fire retardant (UL94V-0), 316 SS (front panel)
Protection: IP54
Weight: 300g
Approval: CE

Models

Model	DPTG		Flush Mount Digital DP Monitor
Range		x	0~5, see Measuring Ranges

Measuring Ranges

Code	UNIT & Range & Display Resolution					
	Pa	Pa	kPa	in w.c.	mm w.c.	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. 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, DPTG1Z, means the range is -30-0-30Pa.
3. If the measured value is -0.xxx, it will be displayed as -.xxx on the LCD.

DPT-OEM Micro OEM DP transmitter (NEW)

Applications & Features

- Very compact size, good for installing in very small equipment such as VAV controllers, medical instruments, laboratory 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
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
Process Connection: 5mm ID tubing
Output: 0~10V, 4~20mA (2 wires), 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: 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. Only 1~6 have this selection.

DPTR Rail Mount Differential Pressure Transmitter

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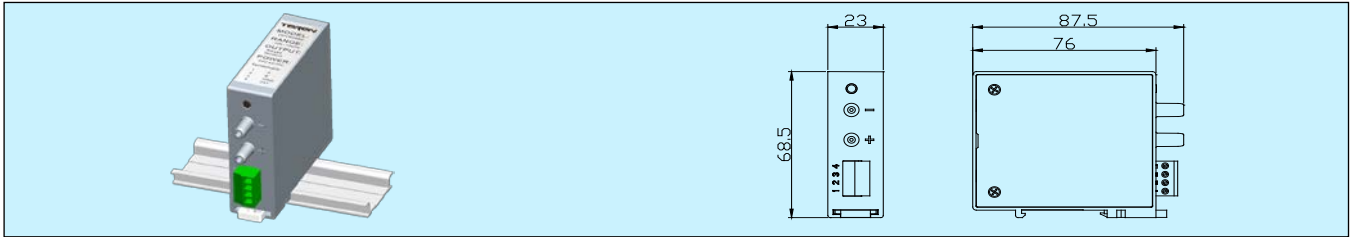
Applications & Features

- Designed specifically for standard 35mm DIN rail mount, for compact installation in control panels and instruments
- 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); IP30

**Approval:** CE, meet EN61326-1 for industrial equipment

Models

Model	DPTR			Rail Mount DP Transmitter
Accuracy		0		±1%FS
		1		±0.5%FS
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, DPTRx1xZ, means the range is -30-0-30Pa. Only 1~6 have this selection.

DPTM Mini Differential Pressure Transmitter
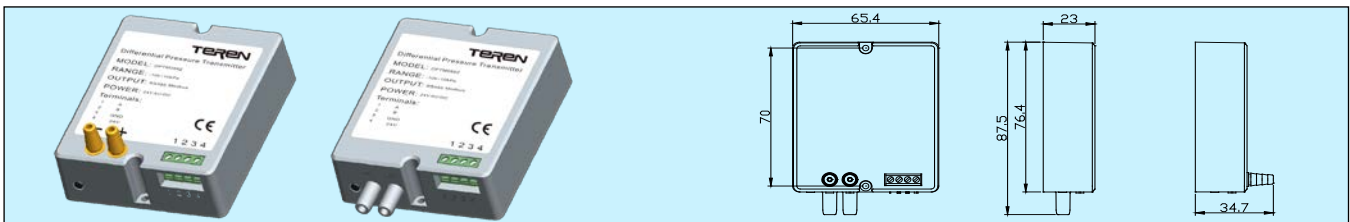
Applications & Features

- Very compact size, good for application in small equipment and instruments
- 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
- 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, two sides selectable

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); IP30

**Approval:** CE, meet EN61326-1 for industrial equipment

Models

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

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, DPTMx1xxZ, means the range is -30-0-30Pa. Only 1~6 have this selection.

www.teren-control.com

606 Adjustable Differential Pressure Switch

TEREN
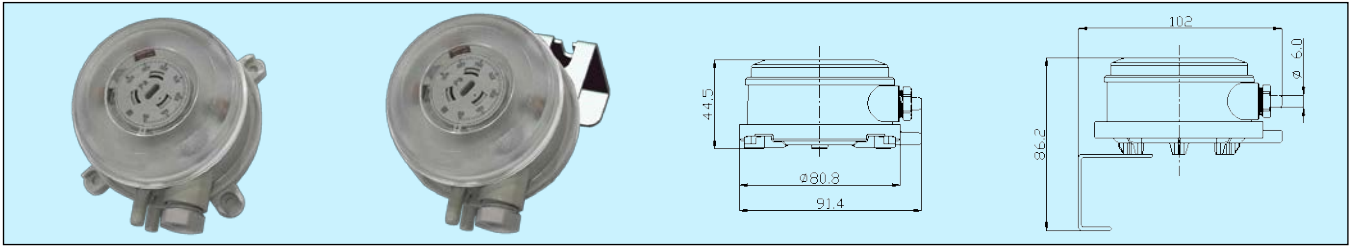
Applications & Features

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 connection: Φ6.0mm PVC tube, P1/ "+" high, P2/ "-" 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 or gold plated
Weight: 135g with bracket, 85g without bracket
Protection: IP54
Approval: CE

Accessories (should be ordered separately)

Part No.	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

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
Contact material					0	Silver plated
					1	Gold plated
Terminal					0	Flag terminal
					1	Screw terminal

606.0xxxx has OEM package with 60 pcs/carton. P/N is 606.0xxxx-OEM.

Dead Band

Part No.	Range	Dead Band
606.X0XXX	20-300Pa	Typical 15Pa
606.X1XXX	50-500Pa	Typical 25Pa
606.X2XXX	100-1000Pa	Typical 50Pa
606.X3XXX	0.5-2.5kPa	Typical 100Pa

Dead Band is factory set. Customers can not adjust.

PT Pressure Transmitter

PT   F-3
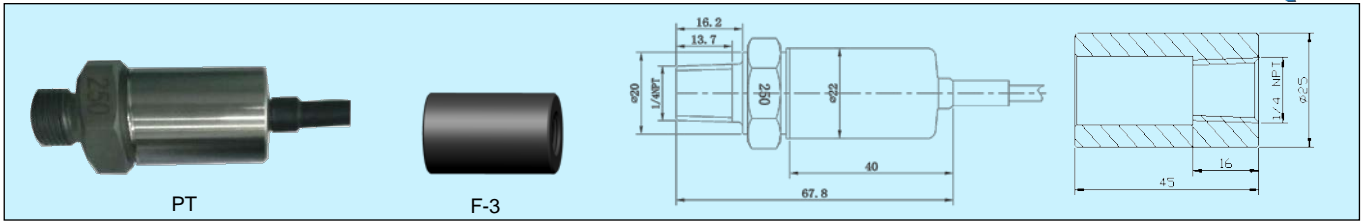
Applications & Features

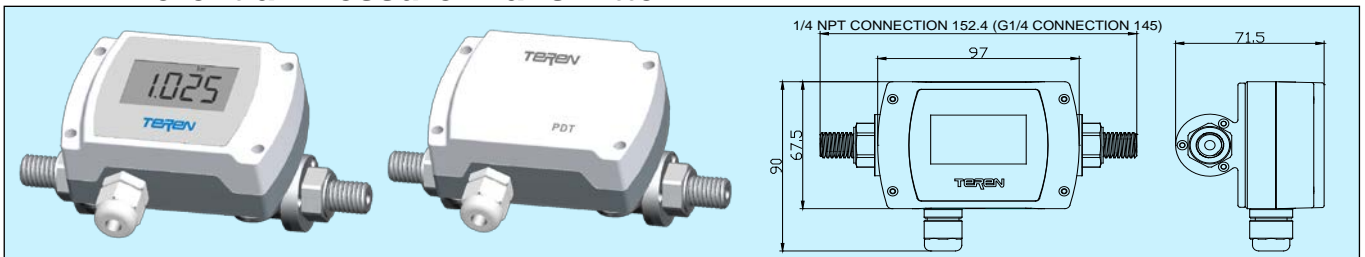For pressure measurement of compatible fluid and gas

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: 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.

Models

Models	PT					Pressure Transmitter
Output		2				4~20mA
Range			2			0~6 bar
			3			0~10 bar
			4			0~16 bar
			5			0~25 bar
			6			0~40 bar
Process Connection				2		1/4 NPT
				4		G1/4
				7		Others
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 packing

Models

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

Range Specifications

Range		Pressure limits in both sides			Accurac (BFSL)	Temperature Coefficient
		Rated	Overload	Burst		
Code	bar	bar	bar	bar	%FS	%FS/°C
0	0~0.	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. Customer can switch to others with the UNIT button on the PCB.

AVT Air Velocity Transmitter

![TEREN logo]

AVT2

AVT4
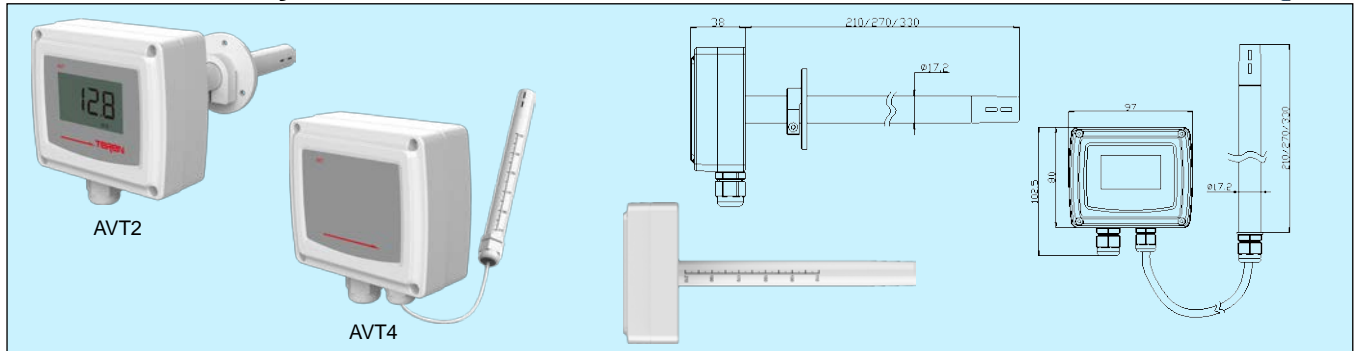
Applications & Features

- It is designed for air velocity monitoring and controlling in the ventilation system and reducing energy consumption in BMS and various HVAC application. It is applied for 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 available with scales on

Specifications

Air velocity sensor: Hot-film sensor
Range: 0~5/10/15/20m/s or 0~16/32/48/64ft/s, jumper selectable
Accuracy: m/s: ± (0.2m/s+5% reading) or ± (0.2m/s+3% reading) @0.5~20m/s; ft/s: ± (0.65ft/s +5% reading) or ± (0.65ft/s +3% reading) @1.6~64ft/s 25°C, 55%RH, 1013hPa
Response time: typical 2s
Angle dependence: < 3%reading @ | Δα | < 10°
Temperature 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					Duct mount air velocity transmitter
Model	AVT2				Duct mount air velocity transmitter
	AVT4				Remote mount air velocity transmitter
Accuracy		3			± (0.2m/s+3% reading)
		5			± (0.2m/s+5% reading)
Output			1		4~20mA/0~10V/0~5VDC
			8		RS485/Modbus
LCD Display				0	N/A
				1	LCD
Probe Length				1	210 mm
				2	270 mm
				3	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
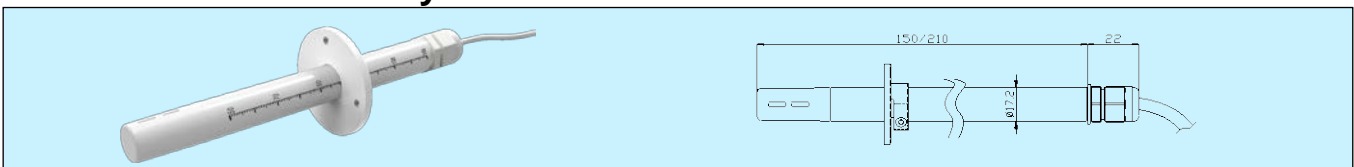
Applications & Features

- It is designed for air velocity measurement in the 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 available with scales on

Specifications

Sensor: Hot-film sensor
Range and accuracy: 0~30m/s with different accuracy, 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

Output Load: ≤500Ω (current), ≥2KΩ (voltage)
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		0~10VDC
		2		4~20mA
		8		RS485/Modbus
Range& Accuracy			1	0~1 m/s, ±(0.03m/s+5%Reading)
			2	0~2 m/s, ±(0.03m/s+5%Reading)
			5	0~5 m/s, ±(0.2m/s+5%Reading)
			6	0~10 m/s, ±(0.2m/s+5%Reading)
			7	0~20 m/s, ±(0.2m/s+5%Reading)
			8	0~30 m/s, ±(0.2m/s+5%Reading)
Probe Length			0	150 mm
			1	210 mm

IPFT Insertion Paddlewheel Flow Transmitter

IPFT   F-1
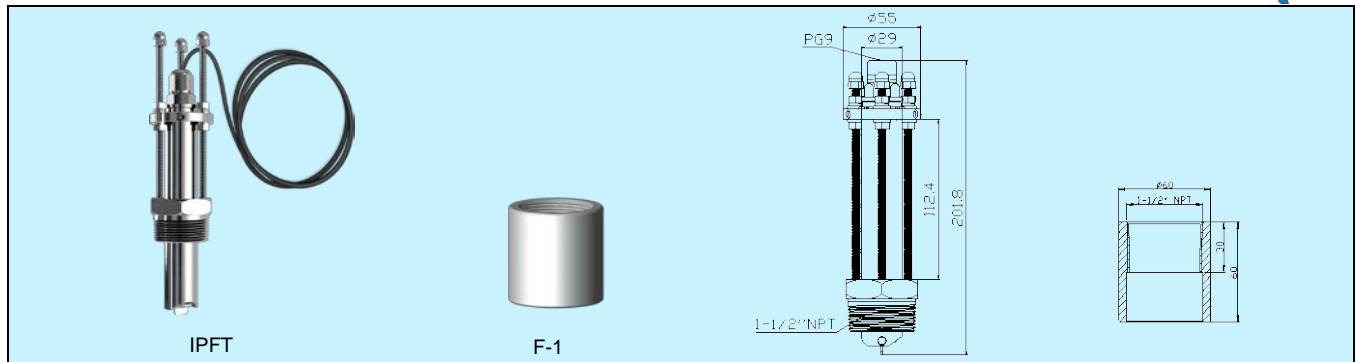
Applications & Features

- 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 shaft 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
- Uses inductive sensing technology without any magnets, eliminates possible magnetic material's adsorbing on the paddlewheel, ensures long term proper operation

Specifications

Service: Water based 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 Requirement: 18.5~35VDC.(RL=500Ω), 8.5~35VDC(RL=0Ω)
Electrical Connection: 2x0.3mm^2(22 AWG) shielded cable, rated 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, should be ordered separately

WFS Water Flow Switch

F-5

Flow decrease: C-B close
Flow increase: C-A close
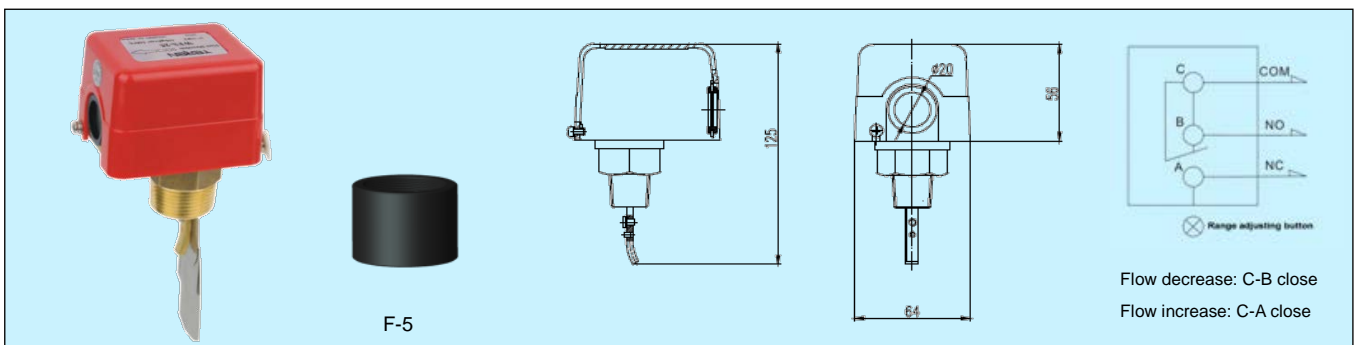
Applications & Features

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

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

Paddles Selection

ITEM	Range liter/min	D Band liter/min	Pipe in	Pipe mm	Paddle number
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

TEREN

OS-C

OS-W
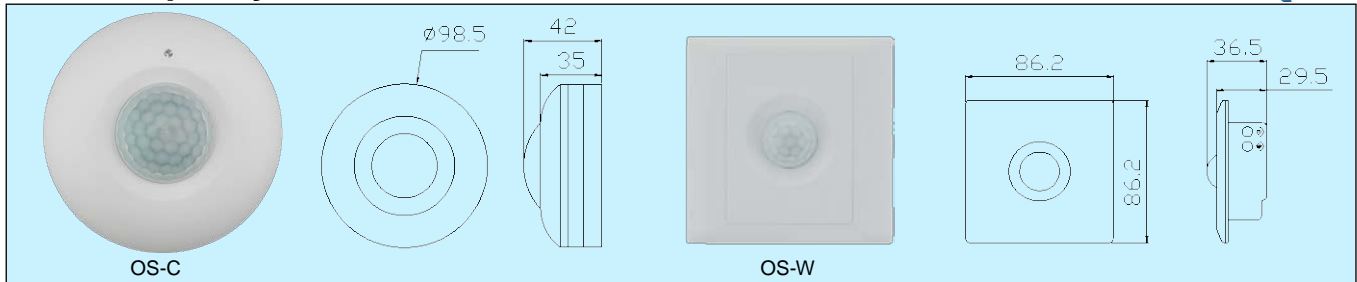
Applications & Features

- 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 supply: 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 closing 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
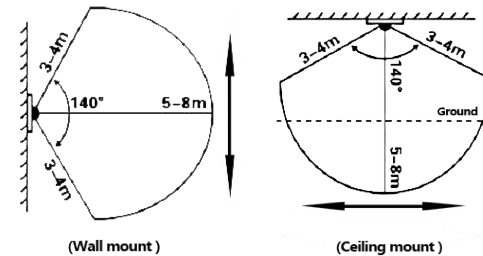**Working environment:** -20~50°C, 0~95%RH(Non-cond.)
Storage temperature: -30~70°C
Housing: fireproof ABS(except Fresnel lenses), IP30
Weight: OS-C:120g, OS-W:110g
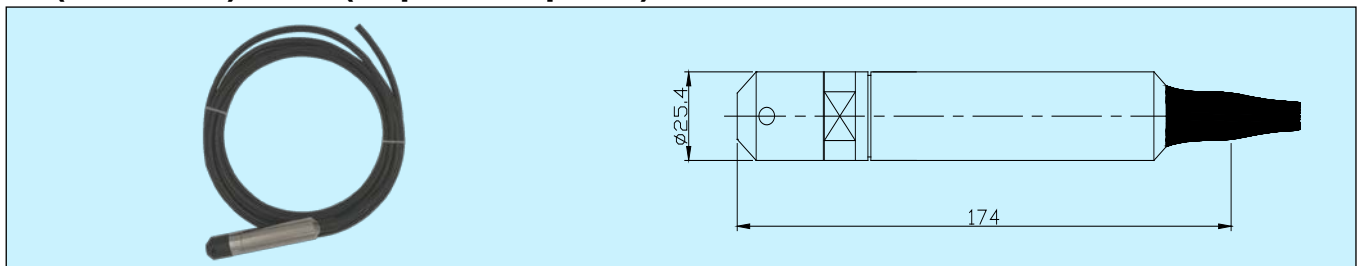**Approval:** CQC
Detect area diagram:

(Wall mount)   (Ceiling mount)

Models

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

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			Standard Level Transmitter
	LTEx			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

ALSx00   ALSx11

Applications & Features

- ALS series are designed for detecting ambient light level. They can be widely used for lighting control in various indoor or outdoor environments such as warehouse, computer room, workshop, record room, library, school, shopping mall, smart home, hotel, park, airport and railway 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(m²), 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

TEREN

Fixed electrode type | Separated electrode type | Cable type
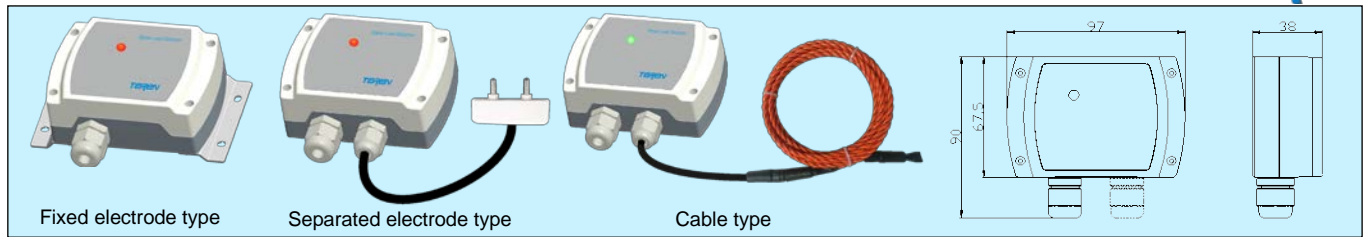
Applications & Features

- Use the conductive principle of water for detection, apply for water leakage, overflow or immersion detection
- There are two types. The electrode type is for small areas such as small machine room, lab, communication station, equipment cabinet, or places of water storage equipment such as water tank, water cellar or pool. The cable type is suitable for flood monitoring in data center, IDC room, library, museum, warehouse and other large areas
- 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
- The power supply and output are protected by overvoltage and reverse connection. Power supply, electrode and output relay are isolated, meet industrial EMC standards, strong anti-interference ability and high reliability
- Indication light and self-diagnostic key, easy for checking status and troubleshooting
- Protection up to IP65, suitable 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: 1×SPST (3A, 30VDC or 250VAC)
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
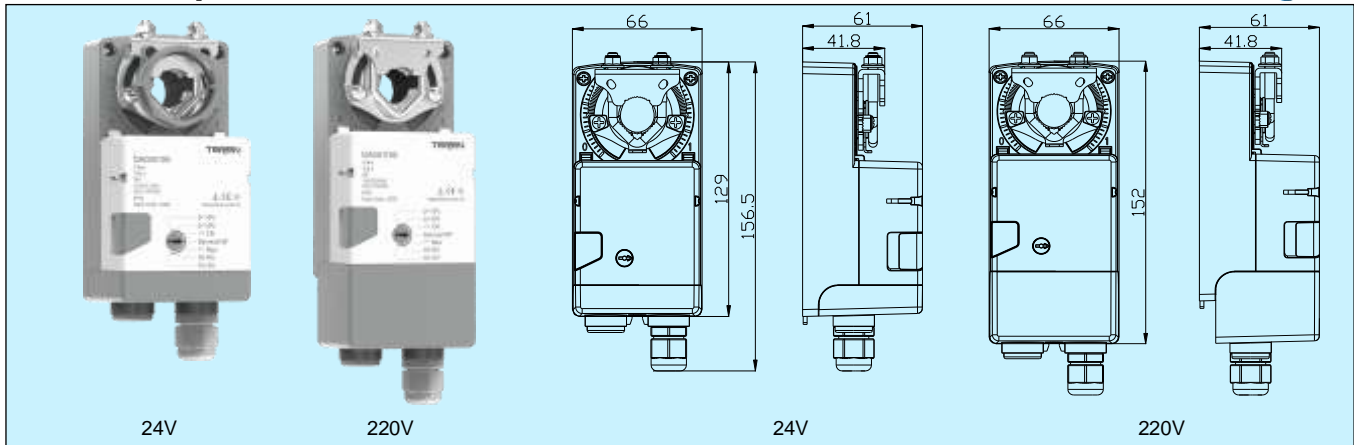**Approval:** CE, meet EN61326-1 for industrial equipment

Models

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

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

DA05 Damper Actuator, 5Nm Series

TEREN

| 24V | 220V | 24V | 220V |

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 for user 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
● 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
● High service life: using 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
Direction of rotation: set by knob
Position indicator: mechanical
Manual override: set by push button
Angle of rotation: max. 95°
Running time: 120s
Connection 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: 2×SPDT, 250V/3A
External position switch: 1 or 2, SPDT, 250V/3A, 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
**Protection:** IP54
Weight: 0.58kg (24V models)
Approval: CE

Models

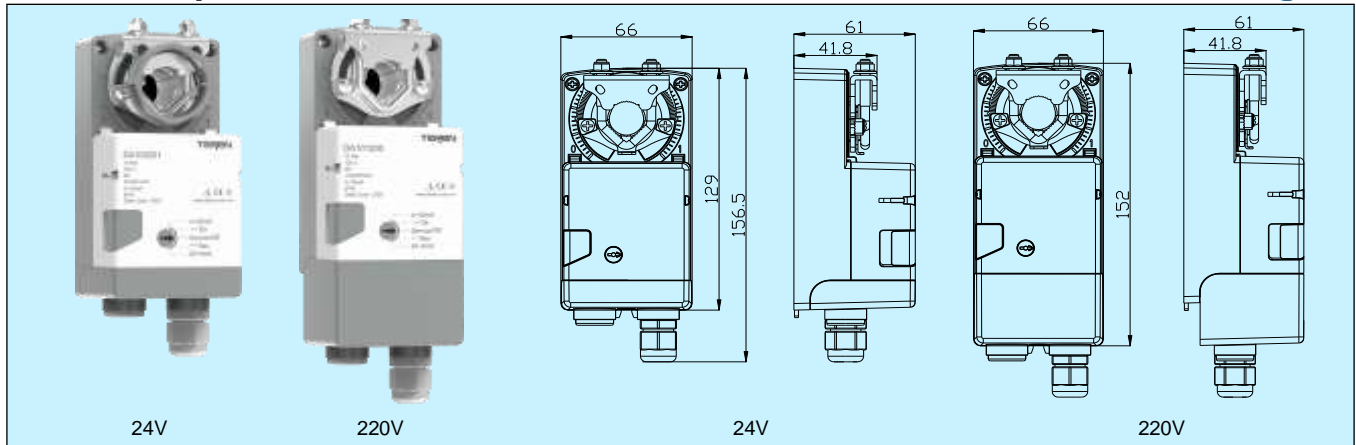| Model	DA05				5Nm Damper Actuator
Power		0			24VAC/DC
		1			85~265VAC
Control signal			0		on/off, 3-pos
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal feedback				0	N/A
				1	0(2)~10VDC
				2	4~20mA
				8	RS485/Modbus RTU
Internal switch					0 N/A
					1 2xSPDT, 250V/3A

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(1×SPDT, 250V/3A); SW2(2×SPDT, 250V/3A)
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: 0.1kg
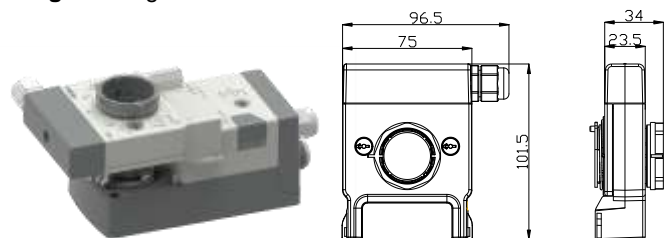
DA10 Damper Actuator, 10Nm Series

| 24V | 220V | 24V | 220V |

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 for user 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
● 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
● High service life: using 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
Direction of rotation: set by knob
Position indicator: mechanical
Manual override: set by push button
Angle of rotation: max. 95°
Running time: 120s
Connection 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: 2×SPDT, 250V/3A
External position switch: 1 or 2, SPDT, 250V/3A, 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
Protection: IP54
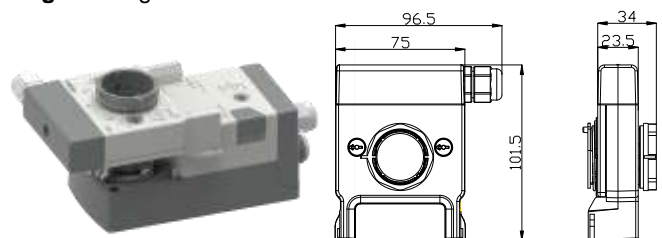**Weight:** 0.64kg (24V models)
Approval: CE

Models

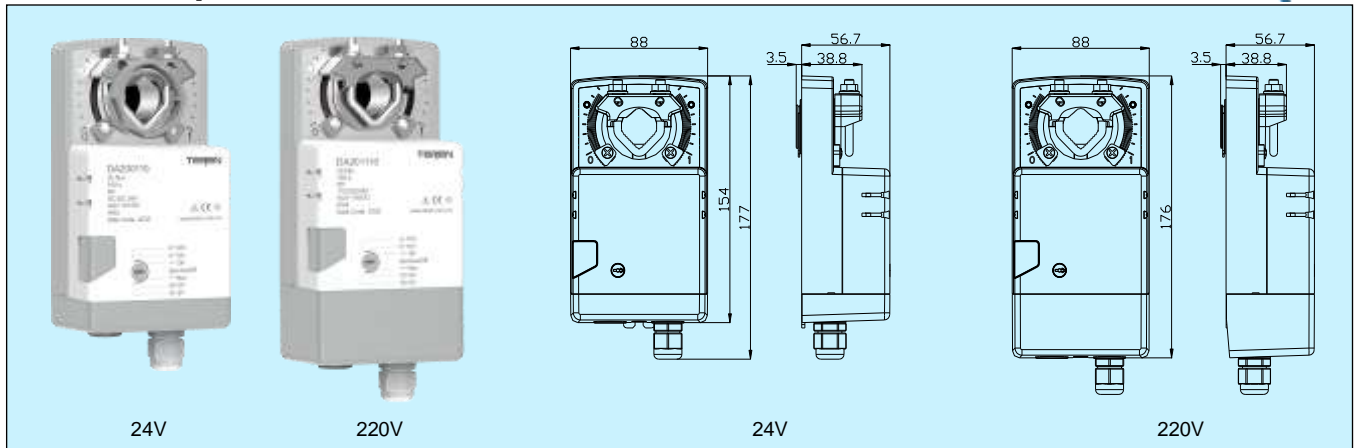| Model	DA10				10Nm Damper Actuator
Power		0			24VAC/DC
		1			85~265VAC
Control signal			0		on/off, 3-pos
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal feedback				0	N/A
				1	0(2)~10VDC
				2	4~20mA
				8	RS485/Modbus RTU
Internal switch					0 N/A
					1 2×SPDT, 250V/3A

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(1×SPDT, 250V/3A); SW2(2×SPDT, 250V/3A)
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: 0.1kg

DA20 Damper Actuator, 20Nm Series

TEREN

24V	220V	24V	220V

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 for user 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
- 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
- High service life: using 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
Direction of rotation: set by knob
Position indicator: mechanical
Manual override: set by push button
Angle of rotation: max. 95°
Running time: 150s
Connection 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: 2×SPDT, 250V/3A
External position switch: 1 or 2, SPDT, 250V/3A, 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
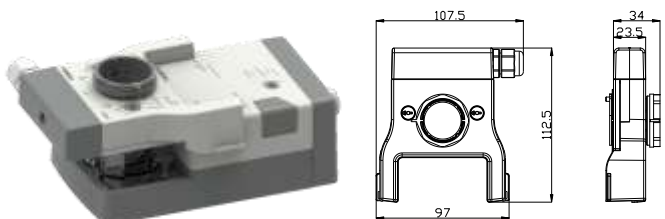**Protection:** IP54
Weight: 1kg (24V models)
Approval: CE

Models

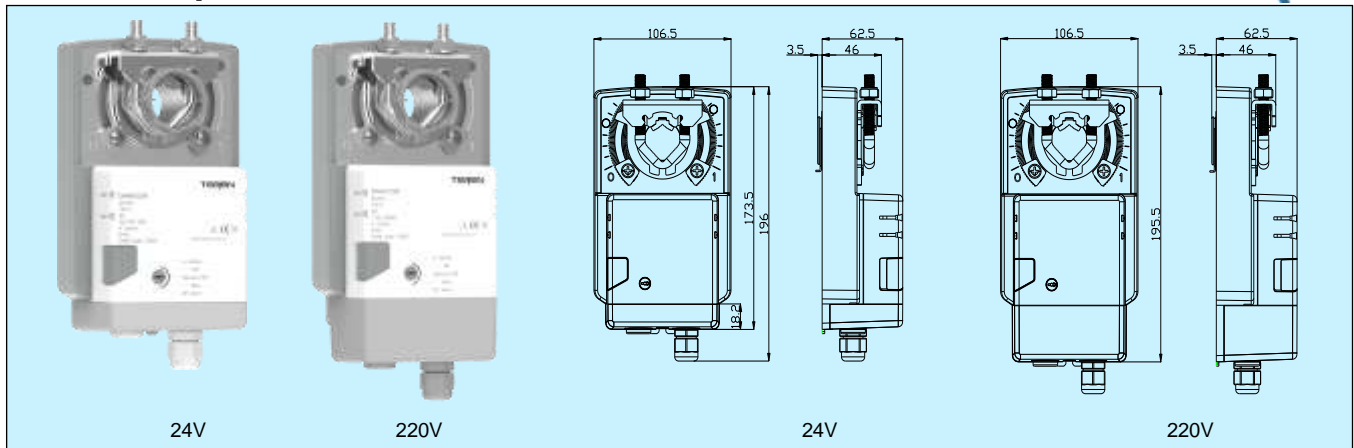| Model	DA20				20Nm Damper Actuator
Power		0			24VAC/DC
		1			85~265VAC
Control signal			0		on/off, 3-pos
			1		0(2)~10VDC
			2		4~20mA
			8		RS485/Modbus RTU
Internal feedback				0	N/A
				1	0(2)~10VDC
				2	4~20mA
				8	RS485/Modbus RTU
Internal switch				0	N/A
				1	2xSPDT, 250V/3A

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(1×SPDT,250V/3A); SW2A(2×SPDT,250V/3A)
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: 0.1kg

DA40 Damper Actuator, 40Nm Series

TEREN

| 24V | 220V | 24V | 220V |

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 for user 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
- 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
- High service life: using 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
Direction of rotation: set by knob
Position indicator: mechanical
Manual override: set by push button
Angle of rotation: max. 95°
Running time: 150s
Connection 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: 2×SPDT, 250V/3A
External position switch: 1 or 2, SPDT, 250V/3A, 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
Protection: IP54
Weight: 1.5kg (24V models)
Approval: CE

Models

Model	DA40				40Nm Damper Actuator
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, 250V/3A

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(1×SPDT, 250V/3A); SW2A(2×SPDT, 250V/3A)
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: 0.1kg