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**Applications & Features**

- Apply for indoor environment temperature measurement
- 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 series temperature sensor**

Sensor: High accuracy thermistor or RTD, see models

Output: thermistor or RTD, see models and resistance table

Accuracy: typical 0.2~0.4°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 (Rload=5000Ω)

Voltage 16~35VDC, 16~28VAC

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

Storage Temperature: -30~70°C

Housing: ABS+PC

Protection: IP30

Weight: T1N:96g; TT1N:116g

Approval: CE

**TT1N accuracy curve:**

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**Resistance table:**

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**Models**

**T1N series wall mount temp. sensor**

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<th>T1N</th>
<th>Temp. sensor</th>
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<tbody>
<tr>
<td>3</td>
<td>PT1000, ±0.2°C@25°C</td>
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<td>4</td>
<td>PT100, ±0.2°C@25°C</td>
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<td>5</td>
<td>NTC20K, ±0.4°C@25°C</td>
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<td>6</td>
<td>Ni 1000, ±0.4°C@25°C</td>
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<td>NTC10K-II, ±0.4°C@25°C</td>
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* See resistance table.

**TT1N series wall mount temp. transmitter**

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<tr>
<td>0-100°C</td>
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</table>
Applications & Features

- Used for temperature measurement in duct air(T2/T2N), water and steam pipe(T4/T4N), outside air(T3/T3N) and insert / stick(T5), strap-on(T6) models
- 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 ±0.2~0.4°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 condensing)
Medium Temperature(Probe): -40~100°C
Storage Temperature: -30~70°C
Housing: fireproof ABS, SS probe, SS Well
Protection: IP65
Approval: CE
Applications & Features
- Used for temperature measurement in duct air (TT2N), water and steam pipe (TT4N), outside air (TT3N).
- High performance temp. sensor and long term stability.
- Light and state of art housing, easy installation.
- Multiple outputs selection, over voltage and reverse polarity protection, high reliability and anti-interference capability.
- Wide temperature range and fast response.

Specifications
- Sensor: PT1000, class A.
- Range: see models.
- Output: 4~20mA (2 wires) or 0~10VDC, 0~5VDC.
- Output Load: ≤500Ω (current), ≥3KΩ (0~10VDC), ≥2KΩ (0~5VDC).
- Total accuracy: ≤±0.5°C @ 0~50°C, see accuracy curve.
- Power: Current 18.5~35VDC (RL = 500Ω), 8.5~35VDC (RL = 0Ω). Voltage 16~35VDC, 16~28VAC.
- Work Temp. (Whole product): -30~70°C, 0~95%RH (Non cond.).
- Medium Temperature (Probe): -40~100°C.
- Storage Temperature: -30~70°C.
- Housing: fireproof ABS, SS probe, SS Well.
- Protection: IP65.

Models
- Model | TT2N | TT3N | TT4N | Duct mount temperature transmitter | Outside air temperature transmitter | Immersion temperature transmitter
- Output | 1 | 2 | 3 | 4-20mA(2 wires) | 0~10V | 4-20mA & 0~10VDC, RS485/Modbus |
- Range | 1 | 2 | 7 | 0~10V | 0~50°C | 0~100°C |
- Probe | 1 | 2 | 7 | 125mm | 125mm | Others |
- Length | 2 | 2 | 2 | 200mm | 200mm | Others |
- Note: TT4N SS install well, same as T4, A-T1(125mm), A-T2(200mm).

Approval: CE

Models
- Model | TTD1N | Temp. transmitter/ controller
- Output | 1 | 4-20mA & 0~10VDC, 4-20mA & 0~10VDC, RS485/Modbus |
- Range | 1 | 0~50°C | 0~100°C |
- Relay | 0 | N/A | 1*SPST |
- LCD & Keys | 0 | N/A | 1 LCD & Keys |
- Note 1: the communication protocol is Modbus RTU.
- 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 also can be set through LCD & function keys.

www.teren.com.cn
Applications & Features

- These transmitters/controllers can be used for temperature monitoring & controlling in duct air (TTD2N), water and steam pipe (TTD4N) or outside air (TTD3N).
- 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)

Accuracy: <±0.5°C@ -10~85°C, see accuracy curve

Power: 16~28VAC/16~35VDC

Work Temp.: -30~70°C (LCD: 0~50°C), 0~95%RH (Non condensing)

Storage Temperature: -30~70°C (LCD: -10~60°C)

Medium Temperature: -40~100°C (TTD2N, TTD4N)

Housing: ABS, SS probe, SS well

Protection: IP65

Weight: TTD2N: 315g; TTD3N: 195g; TTD4N: 511g

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:

Models

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<th>TTD4N</th>
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<td>-10~50°C</td>
<td>-10~90°C</td>
<td>-40~60°C</td>
<td>Others</td>
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<td>Relay (Note2)</td>
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<td>Probe Length (TTD2N/4N)</td>
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</table>

Note 1: Every product can be set ranges with accuracy ≤±0.5°C @-10~85°C through 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 through LCD & function keys.

Accessories

TTD4N Stainless steel well A-T

TTD2N Install Flange

Model: A-T1(T=125mm)

A-T2(T=200mm)
TCL Low Temperature Controller

Applications & Features
- TCL has a long sensing capillary filled with vapor. When any part of the component is below the temperature set point, the contact will actuate.
- It is applicable to cold water coil or other surface temperature alarm for liquid pipe or air in duct.
- Contact actuate quickly at the set point.
- Readable scale.
- Easy to operate the set point.

Specifications
Models and parameters: See below tables (calibration in standard atmospheric pressure).

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<th>Temp. Range °C</th>
<th>Dead Band °C</th>
<th>Capillary Length</th>
<th>Temp. Limit °C</th>
<th>Contact Capacitance</th>
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<tbody>
<tr>
<td>TCL-3A</td>
<td>SPDT(low temp. open)</td>
<td>1.0~7.5</td>
<td>2.0~4.0</td>
<td>3m</td>
<td>80</td>
<td>No inductive Load: 250VAC 5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inductive load: 250VAC 4A</td>
</tr>
<tr>
<td>TCL-6A</td>
<td>SPDT(low temp. open)</td>
<td>1.0~7.5</td>
<td>2.0~4.0</td>
<td>6m</td>
<td>80</td>
<td>No inductive Load: 250VAC 5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inductive load: 250VAC 4A</td>
</tr>
</tbody>
</table>

TCH High Temperature Controller

Applications & Features
- TCH high temperature controller can close off the fan, heater, or provide alarm signal when temperature reaches the set point.
- Automatic reset.
- Temperature set point (alarm point) can be easily adjusted with the readable scale.
- Sensing probe can be directly inserted into duct or installed with accessories.

Specifications
Working environment (housing): -10~70°C, <95%RH, non cond.

Probe operating temperature range: -10~115°C
Set point range: 40~90°C
Dead band: 2.0~4.0 °C
Contact: SPDT, 250VAC/16A
Electrical connection: 3 screw terminals, 1.5mm² wire, PG9
Electrical rate: AC1500V/1min (AC1800V/1s)
Insulation resistance: ≥100MΩ in normal status, ≥10MΩ in moisture status
House: cover PC, body fireproof ABS
Protection: IP54
Contact life: ≥ 10⁵
Approval: CE

www.teren.com.cn
Applications & Features

- It is designed for indoor air temperature and humidity measurement.
- High performance digital sensors & circuits, ensure accurate measurement & temp. compensation.
- Good long term stability and reliability.
- 100% changeable sensors without re-calibration.
- Fast response.
- State of art housing design, easy installation & wiring.
- All electrical terminals are on the inside bottom, avoid any possible destroy to PCB when wiring.
- 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.

Specifications

Relative Humidity
- Sensor: Digital polymer
- Range: 0~100%RH
- Output: 0~10VDC (3 wires), 4-20mA(2 wires), RS485/Modbus
- Accuracy: ±2%RH(0.3°C), ±3%RH(0.4°C)
- 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
- Output: 4~20mA (2wires), 0~10VDC (3wires), RS485/Modbus, or RTD/thermistor: see Models and resistance table
- Accuracy: transmitter: ±0.4°C(0.3°C) @5~60°C
  RTD or thermistor: typical 0.2~0.4°C@25°C, see models
- Temp. Range: 0~50°C
- Relay: 2×SPST(4-20mA N/A)
- LCD & Keys: LCD & Keys

Power
- Current: 18.5~35VDC (R_{load}=500Ω)
- 8.5~35VDC (R_{load}=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 details on LCD & Keys operation
- Display Resolution: 0.1°C, 0.1%RH
- Temp. Limit: -20~70°C, 5~95%RH (Non cond.)
- Storage Temperature: -20~80°C
- Housing: ABS+PC
- Protection: IP30
- Approval: CE

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>H1N</th>
<th>Wall mount Temp./RH transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH Accuracy</td>
<td>2</td>
<td>±2%RH(0.3°C)</td>
</tr>
<tr>
<td>3</td>
<td>±3%RH(0.4°C)</td>
<td></td>
</tr>
<tr>
<td>RH Output</td>
<td>1</td>
<td>0-10VDC(3 wires)</td>
</tr>
<tr>
<td>2</td>
<td>4-20mA(2 wires)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>RS485/Modbus</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp. Output</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>0-10VDC(3 wires)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4-20mA(2 wires)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PT1000, ±0.2°C@25°C</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>PT100, ±0.2°C@25°C</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>NTC20K, ±0.4°C@25°C</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ni1000, ±0.4°C@25°C</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>NTC10K-II, 0.4°C@25°C</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>RS485/Modbus</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>NTC10K-III, 0.4°C@25°C</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>NTC10K-A, 0.4°C@25°C</td>
<td></td>
</tr>
<tr>
<td>LCD &amp; Keys</td>
<td>2</td>
<td>LCD &amp; Keys</td>
</tr>
</tbody>
</table>

- H1N series current products are powered on RH circuit, so the RH circuit must be powered. Otherwise it could not work.
- Only when the temperature output is 1 or 2, the temperature range 1~7 is applicable. Otherwise, always use 0 as temperature range selection.
- 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 environmental 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: ≤±0.4°C @ 5~60°C or 0.3°C @ 5~60°C
- RTD or thermistor: typical 0.2~0.4°C@25°C, see models

Power: Current: 18.5~35VDC (Rload=500Ω)
- 8.5~35VDC (Rload=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: 0~50°C), 5~95%RH (Non condensing)
- Housing: Fireproof ABS housing, UHMW-PE filter (H2/H4N), SS probe and sintered filter (H3N)

Protection: IP65
Weight: H2N:360g; H3N:270g; H4N:430g
Approval: CE

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>H2N</th>
<th>H3N</th>
<th>H4N</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH Accuracy</td>
<td>2±2%RH@0.3°C</td>
<td>2±3%RH@0.4°C</td>
<td></td>
</tr>
<tr>
<td>RH Output</td>
<td>0-10VDC(3 wires)</td>
<td>4-20mA(2 wires)</td>
<td>RS485/Modbus</td>
</tr>
<tr>
<td>Temp. Range</td>
<td>0-50°C</td>
<td>0-100°C</td>
<td>-40-60°C</td>
</tr>
<tr>
<td>Relay</td>
<td>0-10VDC(3 wires)</td>
<td>4-20mA(2 wires)</td>
<td></td>
</tr>
<tr>
<td>LCD &amp; Keys</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

*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.
MFDP Multi-function Display Unit/Transmitter

Applications & Features
- Designed for flush mount, measure and display environment temperature, humidity and diff. pressure
- 316L stainless steel front panel, flat surface, no dust stay
- Alternatively display input channels 1 to 3
- Large high light LED display
- Multiple inputs and outputs for different applications
- High-accuracy sensor, 100% field changeable, do not need recalibration
- Optional 3 analog inputs, 4~20mA/0~10V standard signals
- Standard 3 analog outputs channels supplied
- RS485 communication, Modbus RTU interface
- Standard relay output
- Compatible to any DDC/PLC/SCADA or other data collect and control systems
- Remote controller can support MMI in site parameters and functions setting
- Very high performance/priceto ratio: replace the traditional single channel (temp./humidity/diff. pressure) display instruments, provide value added multi-function combination including local measurement, displaying and networking.

Specifications

**Display**
- Display: 4 bits 0.8” high light red LED
- Display panel material: PMMA
- Resolution: ±0.1 engineering unit
- Channels: From channels 1 to 3, alternate display
- Engineering unit: 3 preset units, °C, %RH and Pa
- Response time: <1s

**Operating**
- Remote controller: 3 keys on the controller which can operate all parameters setting and calibrate output, so the unit can be a stand alone controller. See details of MMI product.

**Housing**
- Front panel material: 316L stainless steel, 1.5mm thick
- Back housing parts: flush mount, 304L stainless steel
- Protection: front panel IP65
- Housing Dimension: W100*H200*D46 mm, more details see dimensions
- Flush part Dimension: W92*H164 mm (without pressure connecting tap on front cover), W92*H181 mm (with pressure connecting tap on front cover)
- Package Dimension: L255*W155*H90 mm
- Weight: about 1000 g, depending on different models

Technical Specifications

**Power Supply:** 16~28VAC/16~35VDC or 85~265VAC, 50/60Hz

**Separated temp. and humidity sensor:**
- Temperature: range 0-50°C, accuracy 0.3°C
- Humidity: range 0-100%RH, accuracy 2%RH, with calibration data, 100% field changeable

**Built in DP sensor:** range 0~60Pa with accuracy 1%FS

**Analog input signals:** 3 × 4~20mA/0~10V

**Analog output signals:** 3 × 4~20mA/0~10V

**Relay output:** 1 × SPDT, 1A/30VDC, 0.5A/125VAC

**RS485 Communication:** Modbus RTU, 9600 Baud rate

**Power Consumption:** 15 VA

**Terminals:** max Ø1.5mm²

**Work Environment:** 0~50°C, 0~95%RH (no condensing), air and neutral gas

**Storage Environment:** -10~70°C

**Process connection:** the unit with 3 and 4 options takes two 5mm cylindrical nozzles for high and low pressure connection. Each nozzle takes 2 pcs of nut caps, one have a hole and another do not.

**Approval:** CE

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>MFDP</th>
<th>Multi-function Display Unit/Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>3 × 4<del>20mA/0</del>10V standard input signals</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>remote Temp./RH sensor (THD-S), 1.5 m cable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>built in diff. pressure sensor, pressure connecting taps and 1.5m tube</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>remote Temp./RH sensor (THD-S), 1.5 m cable and built in diff. pressure sensor, 1.5 m tube</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>remote Temp./RH sensor (THD-S), 1.5 m cable and built in diff. pressure sensor, 1.5 m tube</td>
</tr>
</tbody>
</table>

1. Standard products power supply is 24VAC/DC. If need 85~265VAC, please add “V” after part number.
2. All products are factory set to 4-20mA as output default, and can be set to 0-10V by jumper on the PCB

Function Descriptions:

**MFDP0:** integral display unit with 3 universal inputs and 3 universal outputs channels

**MFDP2:** temperature & humidity transmitters with display unit

**MFDP3:** diff. pressure transmitter with display unit

**MFDP4:** diff. pressure/humidity/temperature transmitters in one integral display unit
THD/THPD Display Screen For Temp./Humidity / Diff. Pressure

Applications & Features
- High accuracy digital sensor, field changeable without any re-calibration
- Large, high light LED display
- Multiple inputs and outputs selection
- Light and up-to-date enclosure
- Single point temperature, humidity or DP measurement and display
- Multiple points temperature, humidity and DP measurement, display and network data collection
- Compatible to DDC and PLC systems

Models

<table>
<thead>
<tr>
<th>Models</th>
<th>THD</th>
<th>THPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>10V/4-20mA input, without sensor</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>RS485/Modbus RTU input, without sensor</td>
</tr>
<tr>
<td>Output</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>10V/4-20mA</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>RS485/Modbus RTU</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>10V/4-20mA, RS485/Modbus RTU</td>
</tr>
<tr>
<td>Relay</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1×SPDT+ inside buzzer</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>THD</th>
<th>THPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>Clean room, library, museum, lab, etc.</td>
</tr>
<tr>
<td>Function</td>
<td>Single point or multiple points network data measurement and display</td>
</tr>
<tr>
<td>Power</td>
<td>85~265VAC</td>
</tr>
<tr>
<td>Consumption</td>
<td>&lt;10W</td>
</tr>
<tr>
<td>Display</td>
<td>3 Bit 4 inch red LED</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>0.1°C, 0.1%RH</td>
</tr>
<tr>
<td>Display Range</td>
<td>0<del>50.0°C, 0</del>99.9%RH</td>
</tr>
<tr>
<td>Display Accuracy</td>
<td>&lt;0.4°C, &lt;3%RH</td>
</tr>
<tr>
<td>Response Time</td>
<td>Temp. 30s, Hum. 10s</td>
</tr>
<tr>
<td>Sensor</td>
<td>THD-S</td>
</tr>
<tr>
<td>Standard Input</td>
<td>2×0-10V/4-20mA(2-10V)</td>
</tr>
<tr>
<td>Standard Output</td>
<td>3×0-10V/4-20mA</td>
</tr>
<tr>
<td>Communication</td>
<td>RS485/Modbus RTU, 9600-n-8-1, support read/output and write/input parameters</td>
</tr>
<tr>
<td>Dimension</td>
<td>W715<em>H285</em>D50mm</td>
</tr>
<tr>
<td>Material</td>
<td>Dull silver color aluminum alloy frame, PC panel with PVC film</td>
</tr>
<tr>
<td>Protection</td>
<td>IP54</td>
</tr>
<tr>
<td>Installation</td>
<td>Wall mount or suspend from ceiling</td>
</tr>
<tr>
<td>Buttons &amp; Functions</td>
<td>Three buttons with parameters calibration, buzzer/relay parameters set, RS485 address set, input signals/ranges set, output ranges set, LED inspection, restore default set, etc</td>
</tr>
</tbody>
</table>

Note: All products are factory set to 4-20mA as output default, and can be set to 0-10V by jumper on the PCB
Applications & Features

- Designed for flush mount, measure and display environment temperature, humidity and diff. pressure
- 316L stainless steel front panel, flat surface, no dust collect
- Display 1 to 3 channels simultaneously
- Large high light LED display
- Optional built-in temperature/humidity or pressure sensors, to achieve integrated installation
- High accuracy sensor, 100% field changeable without recalibration
- Optional 3 analog inputs or outputs, 4~20mA/0~10V standard signals
- RS485 communication, Modbus RTU interface
- Compatible to any DDC/PLC/SCADA or other data collect and control systems
- Touch keys can support MMI in site parameters and functions setting
- Very high performance/price ratio: replace the traditional single channel (temp./humidity/diff. pressure) display instruments, providing value added multi-function combination including local measurement, displaying and networking.

Specifications

Display
- Display: 1~3 lines 4 bits 0.52" high light red LED
- Resolution: ±0.1 engineering unit
- Channels: From channels 1 to 3, simultaneously display
- Engineering unit: 3 preset units, °C, %RH and Pa
- Response time: <1s

Sensor
- Built-in temperature/humidity sensor: Digital high accuracy sensor (0.5°C/3%RH), with calibration data, 100% field changeable
- Built-in pressure sensor: range 0~60Pa with accuracy 1%FS (others can be customized, up to 20kPa)

Housing
- Front panel material: 316L stainless steel
- Display panel material: PMMA
- Back housing parts: galvanized steel
- Housing Dimension: L125*W85*H38.5 mm, see dimensions
- Package Dimension: L135*W105*H45 mm
- Weight: about 600g, depending on different models

Technical Specifications
- Power Supply: 16~28VAC/16~35VDC
- Analog input signals: 1~3x4~20mA/0~10V
- Analog output signals: 1~3x4~20mA/0~10V

Buzzer: 1 built-in alarm buzzer, with different frequency corresponding to the 1~3 channel

RS485 Communication: Modbus RTU, 9600 Baud rate

Power Consumption: <5 VA

Terminals: max Ø1.5mm²

Work Environment: 0~50°C, 0~95%RH (no cond.)

Storage Environment: -10~70°C

Process connection:
1. Optional waterproof breathable filter hole in front panel with built-in temperature/humidity sensor.
2. Optional 2 tube nozzles in front panel with built-in differential pressure sensor’s pressure connections.

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>MINI</th>
<th>MINI Flush Mount Multi-function Display Unit/Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built-in sensor</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Temp.(1 channel)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Diff. Pressure(1 channel)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Temp./Hum(2 channels)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Temp./Hum./DP(3 channels)</td>
</tr>
<tr>
<td>Input</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1x4<del>20mA/0</del>10V</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2x4<del>20mA/0</del>10V</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3x4<del>20mA/0</del>10V</td>
</tr>
<tr>
<td>Output</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1x4<del>20mA/0</del>10V</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2x4<del>20mA/0</del>10V</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3x4<del>20mA/0</del>10V</td>
</tr>
</tbody>
</table>

Note:
1. Build-in sensors = 0 means no any built-in sensors. At this time, input 1~3 should be selected instead.
2. When select built-in sensors 1~4, input should be selected 0.
3. Output can be selected freely as required, but the number of channels should be the same as the number of sensors or input channels.
CDWN/CDDN&CDWC Carbon Dioxide (CO₂) Transmitter/Controller

Applications & Features
- CD-N series carbon dioxide transmitters/controllers are designed for monitoring & controlling indoor air quality
- CDWN/CDWC is suitable for wall mount and CDDN is suitable for duct mount
- 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 stand alone controller(for CDWC)

Specifications for CDWN&CDDN
Sensor: NDIR sensor, with ABC algorithm*
Sampling Method: diffusion
Accuracy: see models
Response time: <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/16~35VDC
Display: Optional LCD (CDWN), with unit display
Display resolution: 1ppm
Working environment: 0~50°C, 0~85%RH (Non-cond.)
Temp. Compensation: CDWN0/CDDN0:10~40°C; CDWN1/CDDN1:0~50°C
Storage temperature: -20~60°C
Housing: ABS+PC (CDWN), fireproof ABS (CDDN)
Protection: IP30 (CDWN), IP65 (CDDN)
Weight: 135g (CDWN), 230g (CDDN)
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 CO₂.

Models for CDWN&CDDN

<table>
<thead>
<tr>
<th>Model</th>
<th>CDWN</th>
<th>CDDN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Wall mount CO₂ Transmitter</td>
<td>50 ppm + 5% reading</td>
<td></td>
</tr>
<tr>
<td>Duct mount CO₂ Transmitter</td>
<td>40 ppm + 3% reading</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>1</td>
<td>B</td>
</tr>
<tr>
<td>4<del>20mA &amp; 0</del>10VDC</td>
<td>4<del>20mA &amp; 0</del>10VDC</td>
<td></td>
</tr>
<tr>
<td>RS485/Modbus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display (CDWN)</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>1</td>
<td>LCD</td>
<td></td>
</tr>
</tbody>
</table>

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: <120s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000 ppm (measure range 400~2000ppm)
Output: 2×SPST, 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: ABS+PC
Protection: IP30
Weight: 135g
Approval: CE

Models for CDWC

<table>
<thead>
<tr>
<th>Model</th>
<th>CDWC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>0</td>
</tr>
<tr>
<td>Wall mount CO₂ Controller</td>
<td>50 ppm + 5% reading</td>
</tr>
<tr>
<td>40 ppm + 3% reading</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>0</td>
</tr>
<tr>
<td>N/A</td>
<td>RS485/Modbus</td>
</tr>
</tbody>
</table>
CDT Carbon Dioxide (CO₂) / Temperature Transmitter

Applications & Features

- CDT series carbon dioxide (CO₂) & temperature transmitters are designed for monitoring & controlling indoor air quality and temperature.
- CDTW is suitable for wall mount and CDTD is suitable 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.
- 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 (CO₂) and temperature alternatively (no temperature display for RTD or thermistor models).

Specifications

Carbon dioxide (CO₂)
- Sensor: NDIR sensor, with ABC algorithm*
- Sampling Method: diffusion
- Accuracy: (40±3%MV) ppm
- Response time: <10s (30cc/min, low airflow)
- Drift: <±10ppm/year
- Range: 0~2000ppm (measure range 400~2000ppm)
- Output: 4~20mA, 0~10V, RS485/Modbus

Temperature
- 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: ABS+PC(CDTW), fireproof ABS(CDTD)
- Protection: IP30 (CDTW), IP65 (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 CO₂.

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>CDTW</th>
<th>CDTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall mount CO₂ / Temp. Transmitter</td>
<td>4<del>20mA/0</del>10VDC</td>
<td>RS485/Modbus</td>
</tr>
<tr>
<td>Duct mount CO₂ / Temp. Transmitter</td>
<td>4<del>20mA/0</del>10VDC</td>
<td>RS485/Modbus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO₂ Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temp. Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

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

Accuracy table for temperature

<table>
<thead>
<tr>
<th>Outputs</th>
<th>CDTW</th>
<th>CDTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>0~10V DC</td>
<td>±≤0.5°C@10~40°C</td>
<td>±≤0.5°C@10~40°C</td>
</tr>
<tr>
<td>4~20mA</td>
<td>±≤0.8°C@10~40°C</td>
<td>±≤0.5°C@10~40°C</td>
</tr>
<tr>
<td>RS485/Modbus</td>
<td>±≤0.5°C@10~40°C</td>
<td>±≤0.5°C@10~40°C</td>
</tr>
<tr>
<td>RTD/thermistor</td>
<td>See models</td>
<td>See models</td>
</tr>
</tbody>
</table>

*When select RTD/thermistor, CDTW total error will be 0.5°C more than the accuracy in the models.
Applications & Features

- CDTH series carbon dioxide (CO₂) / temperature / humidity transmitters are designed for monitoring & controlling indoor air quality, temperature and humidity in one unit.
- CDTHW is suitable for wall mount and CDTHD is suitable 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 CO₂ sensor life without maintenance.
- All electrical terminals are on the inside bottom, avoid any possible destroy 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 (CO₂), temperature and humidity alternatively.

Specifications

Carbon dioxide (CO₂)

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

Temperature

- Sensor: Digital, RTD or thermistor, see models
- Output: 4~20mA, 0~10V, RS485/Modbus

Relative Humidity

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

Power supply: 16~28VAC/16~35VDC
Load resistance: ≤5000Ω (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 material: ABS+PC (CDTHW), fireproof ABS (CDTHD)
Protection: IP30 (CDTHW), IP65 (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 CO₂.

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>CDTHW</th>
<th>CDTHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ / Hum.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>Wall mount CO₂ / T/RH Transmitter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct mount CO₂ / T/RH Transmitter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4<del>20mA / 0</del>10VDC</td>
<td>RS485/Modbus</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4<del>20mA / 0</del>10VDC</td>
<td>PT1000, ±0.2°C @25°C</td>
</tr>
<tr>
<td>4</td>
<td>PT100, ±0.2°C @25°C</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>NTC20K, ±0.4°C @25°C</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ni1000, ±0.4°C @25°C</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>NTC10K-III, ±0.4°C @25°C</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>NTC10K-A, ±0.4°C @25°C</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>RS485/Modbus</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>N/A</td>
<td>LCD</td>
</tr>
</tbody>
</table>

Accuracy table for temperature / humidity

<table>
<thead>
<tr>
<th>Outputs</th>
<th>CDTHW</th>
<th>CDTHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>T (@10~40°C)</td>
<td>RH (@25°C, 20~80%RH)</td>
<td>T (@10~40°C)</td>
</tr>
<tr>
<td>0~10VDC</td>
<td>&lt;±0.5°C</td>
<td>3%RH</td>
</tr>
<tr>
<td>4~20mA</td>
<td>&lt;±1.0°C</td>
<td>5%RH</td>
</tr>
<tr>
<td>RS485/Modbus</td>
<td>&lt;±0.5°C</td>
<td>3%RH</td>
</tr>
<tr>
<td>RTD/thermistor</td>
<td>See models</td>
<td>See models</td>
</tr>
</tbody>
</table>

*Whenselect RTD/thermistor, CDTHW total error will be 0.5°C more than the accuracy in the models.

*1. All products are factory set to 0~10V as output default, and can be set to 4~20mA by jumper on the PCB.
*2. See resistance table on page 1 of this catalog.
VC1008T/VC1008F Carbon Dioxide (CO₂) Transmitter

Applications & Features
- The transmitters are designed for monitoring & controlling indoor air quality
- VC1008T/VC1008F are suitable for wall mount and VC1008T-KS/VC1008F-KS are suitable for duct mount
- With SenseAir’s patented gold-plated infrared (NDIR) CO₂ sensor, the transmitters can ensure very precise measurement and temperature compensation
- Light and state of art housing, easy installation
- Dual outputs of 0~10V and 4~20mA
- Optional relay output to actuate outside alarm or control function, factory set at 1000 or 800 ppm
- High reliability and anti-interference capability
- More than 15 years sensor life without extra maintenance
- Stable, reliable and fast response

Specifications
Sensor: NDIR sensor, with ABC algorithm (Automatic Baseline Correction)*
Sampling Method: diffusion
Accuracy: VC1008T/VC1008T-KS: ± (30+2%MV) ppm
VC1008F/VC1008F-KS: ± (40+3%MV) ppm
Response time: <10s (30cc/min, low airflow)
Drift: <±10ppm/year
Range: 0~2000ppm or others (0~10000ppm)
Output: Dual outputs 4~20mA & 0~10V
Relay: 1×SPDT, 1A/24V AC/DC, pre-set at 1000 (default) or 800 ppm, deadband 200ppm
Load resistance: ≤500Ω (Current output), ≥5kΩ (Voltage output)
Power supply: 24 VAC/VDC ±20%
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Temp. Compensation: 0~50°C
Storage temperature: -40~70°C
Housing material: PC
Protection: IP20 (VC1008T/VC1008F), IP65 (VC1008T-KS/VC1008F-KS)
Weight: VC1008T: 122g; VC1008F: 110g
VC1008T-KS: 221g; VC1008F-KS: 209g
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 CO₂.

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC1008F</td>
<td>Wall mount CO₂ transmitter, with Relay</td>
</tr>
<tr>
<td>VC1008F-KS</td>
<td>Duct mount CO₂ transmitter, with Relay</td>
</tr>
<tr>
<td>VC1008T</td>
<td>Wall mount CO₂ transmitter</td>
</tr>
<tr>
<td>VC1008T-R</td>
<td>Wall mount CO₂ transmitter</td>
</tr>
<tr>
<td>VC1008T-KS</td>
<td>Duct mount CO₂ transmitter</td>
</tr>
<tr>
<td>VC1008T-KS-R</td>
<td>Duct mount CO₂ transmitter, with Relay</td>
</tr>
</tbody>
</table>

Models

VC1008T/VC1008F

VC1008T-KS/VC1008F-KS
CDH High Concentration Carbon Dioxide (CO2) Transmitter

Applications & Features
- CDH series transmitters are designed for monitoring & controlling carbon dioxide (CO2) concentration.
- Designed specifically for incubator, cement carbonator and other equipment or application.
- For wall mount installation, light and state of art housing.
- High performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation.
- 15 years of CO2 sensor life without maintenance.
- Built-in atmosphere air or 0 ppm N2 calibration function, convenient for user calibration.
- Power and output over voltage and reverse polarity protection, high reliability and anti-interference capability.

Specifications
- Sensor: NDIR sensor, with atmosphere air calibration function.
- Sampling Method: Diffusion.
- Range: 0~20% vol. or other (0~30% vol.)

IAQ Indoor Air Quality Transmitter (VOC)

Applications & Features
- Detect varies air contaminants that influence air quality.
- IAQW for wall mount, IAQD for duct mount, light and state of art housing, easy installation.
- Especially high sensitive for VOC in air content such as wood, paint and other building products produced by toluene, and other air pollutants such as cigarette smoke and ammonia odor.
- Meanwhile high sensitive to CO, alcohol, natural gas and body smell.
- High performance metal oxide semiconductor gas sensor, up to 5~7 years service life, low power consumption, with good temperature and humidity compensation.
- Power and outputs 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(I AQW).
- Bright multi-color light bar, indicating air quality status(I AQW).

Specifications
- Power: 16~28VAC/16~35VDC.
- Output: 0~10VDC/4~20mA (default).
- Display: light bar, green/yellow/red for air quality status.

Accuracy: ± (0.5% vol. +3% reading)
Repeatability: ± (0.1% vol. +2% reading)
Response time: <20s (0.2/min, low airflow)
Output: 4~20mA (default) / 0~5V/0~10V
Load resistance: ≤500Ω (4~20mA), ≥2KΩ(0~5/10V)
Power supply: 10~28VAC/10~35VDC
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Storage temperature: -40~70°C
Housing: fireproof ABS/PC, IP65
Approval: CE

Models

<table>
<thead>
<tr>
<th>Models</th>
<th>CDH</th>
<th>High concentration CO2 Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0</td>
<td>0~20% vol.</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Other (0~30% vol.)</td>
</tr>
</tbody>
</table>

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

Load resistance: ≤5000Ω (Current output), ≥2kΩ (Voltage output)
Working environment: -10~50°C, 0~95%RH (Non-cond.)
Storage temperature: -40~70°C
Housing: ABS+PC (IAQW), fireproof ABS (IAQD)
Protection: IP50 (IAQW), IP65 (IAQD)
Approval: CE

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, ethyl benzene, styrene, formaldehyde, 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.
2. VOC has a 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.
3. Outdoor VOC comes mainly from the combustion of fuel and transport. Indoor VOC comes mainly from coal and natural gas combustion products, smoking, heating and cooking, building and decoration materials, furniture, household appliances, cleaning agents and human body discharge.
CMWN & CMD Carbon Monoxide (CO) Transmitter/Controller

Applications & Features
- It's necessary to control the ventilation of car park and vehicle maintenance and test work shop according to many building HVAC regulations. Considering of energy efficiency, demand controlled ventilation (DCV) is recommended to provide enough fresh air according to CO concentration and temperature. CM transmitter and controller are designed for these applications. It can effectively control the ventilation system to safety and energy-saving operations.
- Environmental friendly electrochemical sensor gives good long term accuracy, sensitivity and reliability.
- Better than most other similar sensors, it gives more than 7~10 years sensor life to protect customer's investment.
- Better than most other similar sensors which maybe need recalibration every 6~12 months, it only need periodical recalibration as long as 3~5 years or more, maintain 5% accuracy.
- All electrical terminals are on the inside bottom, avoid any possible destroy to PCB when wiring(for CMWN).
- Digital technology applied, multiple outputs optional, 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 sensor:** Electrochemical gas sensor
  - **Range:** 0~100ppm, or others (0~400ppm)
  - **Accuracy:** ±5% @ 0~400ppm
- **Temperature sensor:**
  - Digital temperature 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: T, OUT2: CO
- **Relay:** 2×SPST, 1A/30VDC, 0.5A/125VAC (for CMD), 3A/30VDC, 3A/250VAC (for CMWN)
- **Alarm:** buzzer+LCD’s 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: ABS+PC (CMWN), ABS(CMD)

Protection: IP30 (CMWN), IP65 (CMD)

Weight: 150g

Agency Approval: CE

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>CMWN CMD</th>
<th>Wall mount CO transmitter/ Controller</th>
<th>Duct mount CO transmitter/ Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>1 B</td>
<td>4<del>20mA / 0</del>10VDC</td>
<td>4<del>20mA / 0</del>10VDC, RS485/Modbus</td>
</tr>
<tr>
<td>Range</td>
<td>0 7</td>
<td>0<del>100ppm/0</del>50°C</td>
<td>other(0<del>400ppm/ 0</del>50°C)</td>
</tr>
<tr>
<td>Relay output</td>
<td>0 1 2</td>
<td>N/A</td>
<td>2×SPST 1×Buzzer (CMWN)</td>
</tr>
<tr>
<td>LCD&amp;Keys (CMWN)</td>
<td>0 N/A</td>
<td>1 LCD</td>
<td>2 LCD&amp;Keys</td>
</tr>
</tbody>
</table>

Note: All products are factory set to 4-20mA as output default, and can be set to 0-10V by jumper on the PCB.
PM Particulate Matter Transmitter/Controller

Applications & Features
- PM series transmitters/controllers are designed for monitoring & controlling environment air quality (particulate matter)
- PMW is suitable for wall mount and PMD is suitable for duct mount
- Sensor with good long-term stability, consistency accuracy up to +/-10% readings or +/-10 ug/m³, real-time response and support continuous acquisition
- MBTF more than 3 years for continuous service (service life up to 8-10 years in typical stable concentration change working conditions and auto(intermittent) work mode), free maintenance
- All electrical terminals are on the inside bottom, avoid any possible destroy to PCB when wiring(for PMW)
- Digital technology applied, over voltage and reverse polarity protection, high reliability and anti-interference capability
- LCD & touch function keys( PMW)
- Optional relay output, can set various parameters and functions with LCD and keys, support almost all alarm or control mode, so the product can be a stand alone controller(for PMW)

Specifications
Sensor: Laser particulate matter sensor, detected particle size 0.3~10 mu m (PM2.5)
Sampling Method: Laser scattering principle
Range: 0~500ug/m³ (measuring range >1000ug/m³)
Accuracy: +/-10 ug/m³ @0~100ug/m³,
 +/-10% reading@100~500ug/m³
 @25°C/50%RH, see accuracy curve
Resolution: 1 ug/m³
Response time: in continuous service mode, sample time<1s, response time<10s,
Service Life: MBTF more than 3 years in continuous service mode, service life up to 8-10 years in auto(intermittent) service mode
Output: 4~20mA, 0~10V, RS485/Modbus
Load resistance: ≤500Ω (Current output),
≥2kΩ (Voltage output)
Power supply: 16~28VAC/16~35VDC
Display: Optional LCD and touch keys (PMW)
Working environment: 0~50°C, 0~95%RH (Non-cond.)

Storage temperature: -30~70°C
Housing: ABS+PC (PMW), fireproof ABS (PMD)
Protection: IP30 (PMW), IP65 (PMD)
Weight: about 200g
Approval: CE

Typical consistency accuracy curve:

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>PMW</th>
<th>Wall mount PM2.5 Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Duct mount PM2.5 Transmitter</td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td>4<del>20mA / 0</del>10VDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4<del>20mA / 0</del>10VDC</td>
</tr>
<tr>
<td>Relay</td>
<td>0</td>
<td>1×SPST, 3A-30VDC/250VAC</td>
</tr>
<tr>
<td>LCD/Key (PMW)</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>LCD, with backlight</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>LCD, with backlight, touch keys</td>
</tr>
</tbody>
</table>

Note: All products are factory set to 4-20mA as output default, and can be set to 0-10V by jumper on the PCB
D2L/D2PL Economical Digital Differential Pressure Gauge

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 gauges.
- It can measure fan and blower pressures, filter resistance, air velocity, pressure drop across orifice plates, differential pressure of medical or pharmaceutical machine, etc.
- No any movable parts, no any effect on vibration.
- With ultra-thin design of 33mm, it could be flush, surface or wall mount.
- The accuracy is up to ±1% FS, with large LCD or LED display.
- Function keys: zero reset, units select, display update time, automatic sleep time, etc.

Specifications
Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working Temp.: D2L: -10~50°C
D2PL: -20~70°C (LED); -10~60°C (LCD)
Medium Temp.: 0~60°C
Temp Compensation: 0~50°C
Working pressure: over load 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)

Battery type (D2L):
- Display: 4 bits LCD with 18mm character height and unit indication, or 4 bits 0.8" red LED
- Power: 16~28VDC/AC or 85~265VAC

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 year. When display time=1s or automatic sleep time=1min, will be longer. It also depends on the quality of the batteries.

Power type (D2PL):

Models
1. D2L (battery type) Models

<table>
<thead>
<tr>
<th>Model</th>
<th>D2L</th>
<th>Economical digital DP gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See table</td>
<td></td>
</tr>
</tbody>
</table>

2. D2PL (power type) Models

<table>
<thead>
<tr>
<th>Model</th>
<th>D2PL</th>
<th>Economical DP gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See table</td>
<td></td>
</tr>
</tbody>
</table>

Display
- 0: LCD
- 1: LED

Power
- 0: 16~28VAC/DC
- 1: 85~265VAC

Measuring Range

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit &amp; Range &amp; Resolution for Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Pa</td>
</tr>
<tr>
<td>5</td>
<td>0-1000</td>
</tr>
<tr>
<td>7</td>
<td>0-5000</td>
</tr>
<tr>
<td>8</td>
<td>0-10000</td>
</tr>
</tbody>
</table>

1. 5 engineering units can be set by the key and related LCD or LED will be on
2. For zero center models, add “Z” at the end of the model. For example, D2L3Z, means -125~0~125pa. Only ranges 3 and 5 have this selection.
D2H/M Digital Differential Pressure Gauge (Battery 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 gauges.
- It can measure fan and blower pressures, filter resistance, air velocity, pressure drop across orifice plates, differential pressure of medical or pharmaceutical machine, etc.
- No any movable parts, no any effect on vibration.
- With ultra-thin design of 33mm, it could be flush, surface or wall mount.
- Fashion and state of art housing design.
- Function keys: zero reset, units select, display update time, automatic sleep time, sound-light alarm, etc.
- Built-in buzzer and backlight, for sound-light alarm.

Specifications

Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil.
Work Environment: -10~50°C
Medium Temp.: 0~60°C
Temp. Compensation: 0~50°C
Working Pressure: overload 10xFS, burst 15xFS
Accuracy: up to ±1.0%FS, see accuracy table
Long term stability: ±0.5% /Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Display: 4 bits LCD, 18mm character height with units indication

Sound-light alarm: by buzzer and backlight (It needs more battery power)
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 update time>1s or automatic sleep time≥1min, will be longer (when sound-light alarm does not actuate). It also depends on the quality of the batteries.
Process Connection: 5mm ID tubing, two pairs (on left or back side)

Key: 3 touch buttons
Materials: ABS
Protection: IP65
Weight: 300g (including batteries)
Approval: CE
Accessory: A-S0 is standard. 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

<table>
<thead>
<tr>
<th>Model</th>
<th>Code</th>
<th>Range</th>
<th>Medium &amp; Range &amp; Resolution for Display</th>
<th>Accuracy(%FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pa</td>
<td>KPa</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>60.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>0.125</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>0.250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>0.500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>2500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>10000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>20000</td>
</tr>
</tbody>
</table>

Measuring ranges & Accuracy table

<table>
<thead>
<tr>
<th>Code</th>
<th>Maximum Range</th>
<th>Unit &amp; Range &amp; Resolution for Display</th>
<th>Accuracy(%FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-60</td>
<td>60.00 Pa, 0.060 KPa, 0.250 in w.c., 6.000 mm w.c., 0.600 mbar</td>
<td>1% 3%</td>
</tr>
<tr>
<td>2</td>
<td>0-125</td>
<td>125.0 Pa, 0.125 KPa, 0.500 in w.c., 12.50 mm w.c., 1.250 mbar</td>
<td>1% 2%</td>
</tr>
<tr>
<td>3</td>
<td>0-250</td>
<td>250.0 Pa, 0.250 KPa, 1.000 in w.c., 25.00 mm w.c., 2.500 mbar</td>
<td>1% 1%</td>
</tr>
<tr>
<td>4</td>
<td>0-500</td>
<td>500.0 Pa, 0.500 KPa, 2.000 in w.c., 50.00 mm w.c., 5.000 mbar</td>
<td>1% 1%</td>
</tr>
<tr>
<td>5</td>
<td>0-1000</td>
<td>1000 Pa, 1.000 KPa, 4.000 in w.c., 100.0 mm w.c., 10.00 mbar</td>
<td>1% 1%</td>
</tr>
<tr>
<td>6</td>
<td>0-2500</td>
<td>2500 Pa, 2.500 KPa, 10.00 in w.c., 250.0 mm w.c., 25.00 mbar</td>
<td>1%</td>
</tr>
<tr>
<td>7</td>
<td>0-5000</td>
<td>5000 Pa, 5.000 KPa, 20.00 in w.c., 500.0 mm w.c., 50.00 mbar</td>
<td>1%</td>
</tr>
<tr>
<td>8</td>
<td>0-10000</td>
<td>10000 Pa, 10.00 KPa, 40.00 in w.c., 1000.0 mm w.c., 100.0 mbar</td>
<td>1%</td>
</tr>
<tr>
<td>9</td>
<td>0-20000</td>
<td>20000 Pa, 20.00 KPa, 80.00 in w.c., 2000.0 mm w.c., 200.0 mbar</td>
<td>1%</td>
</tr>
</tbody>
</table>

Remarks:
1. 5 engineering units can be set by the key and related LCD will be on.
2. For zero center models, add “Z” at the end of the model. For example, D2M1Z, means -30-0-30pa.
3. Only ranges 1~6 have this selection.
D2PH/M Digital Differential Pressure Gauge (Power 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 gauges
- It can measure fan and blower pressures, filter resistance, air velocity, pressure drop across orifice plates, differential pressure of medical pharmaceutical machine, etc.
- No any movable parts, no any effect on vibration.
- With ultra-thin design of 33mm, it could be flush, surface or wall mount.
- Fashion and state of art housing design.
- Function keys: zero reset, units select, display update time, automatic sleep time, sound-light alarm, etc.
- Built-in buzzer and backlight, for sound-light alarm.

Specifications
- Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
- Working Temp.: LED-20~70°C; LCD-10~60°C
- Medium Temp.: 0~60°C
- Temp. Compensation: 0~50°C
- Working Pressure: overload 10xFS, burst 15xFS
- Accuracy: up to ±1.0%FS, see accuracy table
- Long term stability: ±0.5%FS /Year
- Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)

Display: 4 bits LCD, 18mm character height with unit indication, or 4 bits 0.8” red LED
Sound-light alarm: by buzzer and backlight
Power: 16~28VDC/AC or 85~265VAC
Process Connection: 5mm ID tubing, two pairs (on left or back side)

Key: 3 touch buttons
Materials: ABS
Weight: 260g
Protection: IP65
Approval: CE
Accessory: A-S0 is standard. 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit &amp; Range &amp; Resolution for Display</th>
<th>Accuracy(%FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pa</td>
<td>Pa</td>
<td></td>
</tr>
<tr>
<td>KPa</td>
<td>in w.c.</td>
<td></td>
</tr>
<tr>
<td>mm w.c.</td>
<td>mbar</td>
<td></td>
</tr>
<tr>
<td>0-60</td>
<td>60.00 0.060 0.250 6.000 0.600</td>
<td>1% 3%</td>
</tr>
<tr>
<td>0-125</td>
<td>125.00 0.125 0.500 12.50 1.250</td>
<td>1% 2%</td>
</tr>
<tr>
<td>0-250</td>
<td>250.00 0.250 1.000 25.00 2.500</td>
<td>1% 1%</td>
</tr>
<tr>
<td>0-500</td>
<td>500.00 0.500 2.000 50.00 5.000</td>
<td>1% 1%</td>
</tr>
<tr>
<td>0-1000</td>
<td>1000 1.000 4.000 100.00 10.00</td>
<td>1% 1%</td>
</tr>
<tr>
<td>0-2500</td>
<td>2500 2.500 10.00 250.00 25.00</td>
<td>1%</td>
</tr>
<tr>
<td>0-5000</td>
<td>5000 5.000 20.00 500.00 50.00</td>
<td>1%</td>
</tr>
<tr>
<td>0-10000</td>
<td>10000 10.00 40.00 1000 100.00</td>
<td>1%</td>
</tr>
<tr>
<td>0-20000</td>
<td>20000 20.00 80.00 2000 200.00</td>
<td>1%</td>
</tr>
</tbody>
</table>

Remarks: 1. 5 engineering units can be set by the key and related LCD will on.
2. For zero center models, add “Z” at the end of the model. For example, D2PM100Z, means -30-0-30pa.
3. Only ranges 1~6 have this selection.
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 completely replace the traditional pointer mechanical gauges.
- It can measure fan and blower pressures, filter resistance, air velocity, pressure drop across orifice plates, differential pressure of medical pharmaceutical machine, biological safety cabinets, clean bench, etc.
- It could be flush, surface or wall mount.
- Accuracy is up to ±1% FS, 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, with 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: 2×SPST, 3A/30VDC, 3A/250VAC or 1×Buzzer.
- Accuracy: up to ±1.0%FS, see accuracy table.
- Long term stability: ±0.5%FS/Year.
- Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS).
- Power: AA battery x 4, recommend LR6 alkaline.
- Automatic sleep time: selectable for 0.5/1/5/10s (default 1s).

Measuring ranges & Accuracy table

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit &amp; Range &amp; Resolution for Display</th>
<th>Accuracy(%FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pa</td>
<td>Pa</td>
<td>KPa</td>
</tr>
<tr>
<td>1</td>
<td>0-60</td>
<td>60.00</td>
</tr>
<tr>
<td>2</td>
<td>0-125</td>
<td>125.0</td>
</tr>
<tr>
<td>3</td>
<td>0-250</td>
<td>250.0</td>
</tr>
<tr>
<td>4</td>
<td>0-500</td>
<td>500.0</td>
</tr>
<tr>
<td>5</td>
<td>0-1000</td>
<td>1000</td>
</tr>
<tr>
<td>6</td>
<td>0-2500</td>
<td>2500</td>
</tr>
<tr>
<td>7</td>
<td>0-5000</td>
<td>5000</td>
</tr>
<tr>
<td>8</td>
<td>0-10000</td>
<td>10000</td>
</tr>
<tr>
<td>9</td>
<td>0-20000</td>
<td>20000</td>
</tr>
</tbody>
</table>

Remarks: 1. 5 engineering units can be set by keys and related LCD will be on.
2. For D5 and DSP, only ranges 3,5,7,8 are available.
3. For zero center models, add “Z” at the end of the model. For example, D5T3**Z means -125-0-125pa.

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.
Process Connection: 5mm ID tubing, two pairs (left/back).
Keys: 5mm ID tubing, two pairs (left/back).
Protection: IP54.
Weight: 275g (battery type incl. batteries), 235g (power type).
Materials: ABS.
Approval: CE.
Accessory: a set of brackets and screws, for surface or panel mount. Flush mount should use glue or other accessory.

D5/D5P Models

<table>
<thead>
<tr>
<th>Model</th>
<th>D5</th>
<th>D5P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See Table</td>
<td>Only ranges 3,5,7,8 are available</td>
</tr>
</tbody>
</table>

D5G Models

<table>
<thead>
<tr>
<th>Model</th>
<th>D5G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See Table</td>
</tr>
<tr>
<td>Relay</td>
<td>2×SPST</td>
</tr>
</tbody>
</table>

D5T Models

<table>
<thead>
<tr>
<th>Model</th>
<th>D5T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See Table</td>
</tr>
<tr>
<td>Relay</td>
<td>2×SPST</td>
</tr>
<tr>
<td>Output</td>
<td>0-10V &amp; 4-20mA</td>
</tr>
</tbody>
</table>

Measuring ranges & Accuracy table

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Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. It can replace most of the traditional pointer mechanical gauges.
- It can measure fan and blower pressures, filter resistance, air velocity, furnace draft, pressure drop across orifice plates, liquid level of bubbler systems and pressure amplifier or hydraulic system.
- It can be used in medical care equipment to monitor blood and respiratory pressures.
- Suitable for surface, panel or flush mount
- Multiple ranges and engineering units selectable
- No any movable parts, no any effect on vibration
- The accuracy is up to ±1% FS
- 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
Materials: cast aluminum housing and PC plate
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: 1/8” ID tubing, two pairs (on left side and back)

Display: 4 bits 0.8” red LED
Relay output: 2×SPST, 3A×30VDC/250VAC or 1×Buzzer
Accuracy: up to ±1.0% FS, see accuracy table
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
Protection: IP65
Weight: 340g
Approval: CE
Accessory: A-S0 is standard. 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

<table>
<thead>
<tr>
<th>Model</th>
<th>DPG</th>
<th>Arch LED</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See table</td>
<td>N/A</td>
<td>Ranges selection</td>
</tr>
<tr>
<td>Arch</td>
<td>0</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>LED</td>
<td>0</td>
<td>1</td>
<td>Arch LED</td>
</tr>
<tr>
<td>Relay</td>
<td>0</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>1</td>
<td>2×SPST</td>
<td>1</td>
<td>Buzzer</td>
</tr>
<tr>
<td>Power</td>
<td>0</td>
<td>1</td>
<td>16-28V DC/AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>85-265V AC</td>
</tr>
</tbody>
</table>

Measuring ranges & Accuracy table

<table>
<thead>
<tr>
<th>Code</th>
<th>UNIT &amp; Range</th>
<th>Accuracy(%)FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pa</td>
<td>Pa</td>
<td>kPa</td>
</tr>
<tr>
<td>1</td>
<td>0-60</td>
<td>0.060</td>
</tr>
<tr>
<td>2</td>
<td>0-125</td>
<td>0.125</td>
</tr>
<tr>
<td>3</td>
<td>0-250</td>
<td>0.250</td>
</tr>
<tr>
<td>4</td>
<td>0-500</td>
<td>0.500</td>
</tr>
<tr>
<td>5</td>
<td>0-1000</td>
<td>1.000</td>
</tr>
<tr>
<td>6</td>
<td>0-2500</td>
<td>2.500</td>
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<td>7</td>
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<td>5.000</td>
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<tr>
<td>8</td>
<td>0-10000</td>
<td>10.000</td>
</tr>
<tr>
<td>9</td>
<td>0-20000</td>
<td>20.000</td>
</tr>
</tbody>
</table>

Note: 1. For zero center models, add “Z” at the end of the model. For example, DPG1***Z, means -30-0-30pa.
2. Only ranges 1-6 have this selection.
3. 5 engineering units can be set by the key and then the related LED will be on
**Applications & Features**

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure, and supply local display and output simultaneously.
- It can measure fan and blower pressures, filter resistance, air velocity, furnace draft, pressure drop across orifice plates, liquid levels of bubbler systems and pressure amplifier or hydraulic system.
- It can be used in medical care equipment to monitor blood and respiratory pressures.
- Suitable for surface, panel or flush mount
- Multiple ranges, outputs and engineering units selectable
- No any movable parts, no any effect on vibration
- The accuracy is up to ±1%
- 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  
**Materials:** cast aluminum housing and PC plate  
**Work Environment:** -20-70°C  
**Work pressure:** 1, 2, 5 or 10Kpa for different ranges overload 5xFS. burst 10xFS  
**Dimension:** see diagram  
**Connection:** 1/8” ID tubing, two pairs (on left side and back)  
**Display:** 4 bits 0.8” red LED

**Output:** 0-10V & 4-20mA (3 wires), RS485/Modbus  
**Output Load:** ≤5000 (current), ≥2kΩ (voltage)  
**Digital output:** RS485-Modbus RTU (9600-n-8-1)  
**Relay output:** 2xSPST,3A×30VDC/250VAC or 1×Buzzer  
**Accuracy:** up to ±1.0%FS, see accuracy table  
**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  
**Protection:** IP65  
**Weight:** 340g  
**Approval:** CE  
**Accessory:** A-S0 is standard. 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**

<table>
<thead>
<tr>
<th>Model</th>
<th>DPGT receiver</th>
<th>DPGT transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See table</td>
<td>Ranges selection</td>
</tr>
<tr>
<td>Arch</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>LED</td>
<td>1</td>
<td>Arch LED</td>
</tr>
<tr>
<td>Relay</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2×SPST</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1×Buzzer</td>
</tr>
<tr>
<td>Output</td>
<td>0</td>
<td>0-10V&amp;4-20mA</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>RS485/Modbus</td>
</tr>
</tbody>
</table>

**Measuring ranges & Accuracy table**

<table>
<thead>
<tr>
<th>Code</th>
<th>UNIT &amp; Range</th>
<th>Accuracy(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pa</td>
<td>Pa</td>
</tr>
<tr>
<td>1</td>
<td>0-60</td>
<td>60.00</td>
</tr>
<tr>
<td>2</td>
<td>0-125</td>
<td>125.0</td>
</tr>
<tr>
<td>3</td>
<td>0-250</td>
<td>250.0</td>
</tr>
<tr>
<td>4</td>
<td>0-500</td>
<td>500.0</td>
</tr>
<tr>
<td>5</td>
<td>0-1000</td>
<td>1000</td>
</tr>
<tr>
<td>6</td>
<td>0-2000</td>
<td>2000</td>
</tr>
<tr>
<td>7</td>
<td>0-5000</td>
<td>5000</td>
</tr>
<tr>
<td>8</td>
<td>0-10000</td>
<td>10000</td>
</tr>
</tbody>
</table>

Note: 1. For zero center models, add “Z” at the end of the model. For example, DPGT1***Z, means -30-0-30pa. Only ranges 1-6 have this selection.  
2. 5 engineering units can be set by the key and then the related LED will be on.
**DPT Differential Pressure Transmitter**

**Applications & Features**
- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure.
- It can measure fan and blower pressures, filter resistance, air velocity, pressure drop across orifice plates, differential pressure of medical or pharmaceutical machine, etc.
- Multiple ranges, engineering units and outputs.
- Good performance with accuracy of 1.0%.
- Field upgradable LCD display module.

**Specifications**
- **Medium:** on-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, see accuracy table.
- **Long term stability:** ±0.5% FS /Year
- **Thermal effect:** <0.05% FS/°C (zero), <0.08% FS/°C (FS)
- **Response Time:** 0.5~30s, can be set by keys.
- **Process Connection:** 5mm ID tubing.
- **Display:** 5 digits LCD, with unit indication, field upgradable.
- **Output:** 0~10V, 4~20mA (2 wires), RS485 selectable.
- **Output Load:** ≤500Ω (current), ≥2KΩ (voltage).
- **Power:** Current: 18.5~35VDC (Rload=500Ω), 8.5~35VDC (Rload=0Ω).
- **Voltage:** 16~28VAC/ 16~35VDC.
- **Unit select:** by keys.
- **Zero set:** easy to reset by external key.

**Measuring ranges & Accuracy table**

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit &amp; Range &amp; Display resolution</th>
<th>Accuracy(%FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pa</td>
<td>Pa</td>
</tr>
<tr>
<td>1</td>
<td>0-60/125</td>
<td>60.00</td>
</tr>
<tr>
<td></td>
<td>125.0</td>
<td>0.125</td>
</tr>
<tr>
<td>3</td>
<td>0-250/500/1000</td>
<td>250.0</td>
</tr>
<tr>
<td></td>
<td>500.0</td>
<td>0.500</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>1.000</td>
</tr>
<tr>
<td>6</td>
<td>0-2000</td>
<td>2000</td>
</tr>
<tr>
<td>7</td>
<td>0-5000</td>
<td>5000</td>
</tr>
<tr>
<td>8</td>
<td>0-10000</td>
<td>10000</td>
</tr>
</tbody>
</table>

**Materials:** ABS (housing) & PC (cover)
**Protection:** IP54
**Approval:** CE

**Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>DPT</th>
<th>DP transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>See table</td>
<td>Range selection</td>
</tr>
<tr>
<td>Output</td>
<td>1 2 8</td>
<td>0-10V 4-20mA(2 wires) RS485/Modbus</td>
</tr>
<tr>
<td>Display</td>
<td>0 N/A 1</td>
<td>LCD</td>
</tr>
</tbody>
</table>

**Accessory:**

1. **Flush mount panel**
   - Model: DPT-A
   - 316 SS panel, for flush mount, no duct and easy to clean.
   - **Dimensions:** 103(W) × 91(H) × 1.2(D)mm

2. **Field upgradeable LCD Display**
   - Model: DPT-LCD-1/DPT-LCD-5
   - Each package has the LCD module and the film for the cover 1 set (-1) or 5 sets (-5)
DPTL Economical Differential Pressure Transmitter

Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure.
- It can measure fan and blower pressures, filter resistance, air velocity, pressure drop across orifice plates, differential pressure of medical or pharmaceutical machine, etc.
- Multiple ranges, engineering units and outputs.
- Low cost design, accuracy up to 1%FS
- Function keys: zero calibrate, unit select, response time set, etc.
- Field upgradable LCD display module.

Specifications

Medium: on-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: up to ±1.0%FS, see accuracy table
Long term stability: ±0.5%FS /Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C(FS)
Response Time: 0.5~30s, can be set by keys

Process Connection: 5mm ID tubing
Display: 5 digits LCD, with unit indication, field upgradable
Output: 0~10V, 4~20mA (2 wires), RS485 selectable
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Power: Current: 18.5~35VDC (Rload=500Ω)
Voltage: 16~28VAC/ 16~35VDC

Unit select: by keys
Zero set: easy to reset by external key

Measuring ranges & Accuracy table

<table>
<thead>
<tr>
<th>Code</th>
<th>Unit &amp; Range&amp; Display resolution</th>
<th>Accuracy(%)FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Pa 0-125 Pa 0.125, kPa 0.500, in w.c. 12.00, mm w.c. 1.250, mbar 2%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0-250/500/1000 250.0 Pa, 0.250 kPa, 1.000 in w.c., 25.00 mm w.c., 2.500 mbar, 1%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0-2500 2500 Pa, 2.500 kPa, 10.00 in w.c., 250.0 mm w.c., 25.00 mbar, 1%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0-5000 5000 Pa, 5.000 kPa, 20.00 in w.c., 500.0 mm w.c., 50.00 mbar, 1%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0-10000 10000 Pa, 10.00 kPa, 40.00 in w.c., 1000.0 mm w.c., 100.00 mbar, 1%</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>0-20000 20000 Pa, 20.00 kPa, 80.00 in w.c., 2000.0 mm w.c., 200.00 mbar, 1%</td>
<td></td>
</tr>
</tbody>
</table>

Note: 1. Code 3 has multiple ranges which could be jumper selected.
2. Set the 5 engineering units by button keys and the related LCD indicator will be on.
3. For zero center models, add “Z” at the end of the model. For example, DPTL2**Z, means the range is -62.5-0-62.5pa.
   Only ranges 2~6 have this selection.
Applications & Features
Monitoring over pressure, 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 temperature: -30~75°C
Storage temperature: -30~75°C
Pressure connection: φ6.0mm plastic tube, P1 high and P2 low pressure
Service life: over 10⁶ switching cycles
Electrical Contact: SPDT, 2A/250VAC, 1A/30VDC
Max. switching frequency: 6 switching cycles/min
Electrical connection: screw terminals
Repeatability: ±2%
Materials: housing PC, cover PC, diaphragm silicone and contact silver
Weight: 140g with bracket, 90g without bracket
Installation: vertical, pressure ports P1 and P2 downward. This is the factory-calibrated position. If horizontally installation needed, the switching value should plus about 20pa (cover upward) and minus about 10pa (cover downward). See operation manual
Approval: CE

Accessories (should be ordered separately)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>Individual accessory package: clear PVC tube 2M, connectors(1003) 2PCS, screws 4PCS</td>
</tr>
<tr>
<td>1002</td>
<td>plastic pipe 2m</td>
</tr>
<tr>
<td>1003</td>
<td>1 pc pressure connection part, straight type</td>
</tr>
<tr>
<td>1008</td>
<td>Individual accessory package: clear PVC tube 2M, connectors(1009) 2PCS, screws 4PCS</td>
</tr>
<tr>
<td>1009</td>
<td>1 pc pressure connection part, L type</td>
</tr>
</tbody>
</table>

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Enclosure</th>
<th>Adjustable range</th>
<th>Engineering unit</th>
<th>Part No.</th>
<th>Range</th>
<th>DB</th>
</tr>
</thead>
<tbody>
<tr>
<td>609</td>
<td>With install ear</td>
<td>20~300Pa</td>
<td>Pa</td>
<td>609.X0X</td>
<td>20~300Pa</td>
<td>10±5Pa</td>
</tr>
<tr>
<td></td>
<td>No ear, with bracket</td>
<td>50~500Pa</td>
<td>mbar</td>
<td>609.X1X</td>
<td>50~500Pa</td>
<td>20±8Pa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100~1000Pa</td>
<td>inch wc</td>
<td>609.X2X</td>
<td>100~1000Pa</td>
<td>50±15Pa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.5~2.5KPa</td>
<td>mm wc</td>
<td>609.X3X</td>
<td>0.5~2.5KPa</td>
<td>100±30Pa</td>
</tr>
</tbody>
</table>

Dead Band

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Range</th>
<th>DB</th>
</tr>
</thead>
<tbody>
<tr>
<td>609.X0X</td>
<td>20~300Pa</td>
<td>10±5Pa</td>
</tr>
<tr>
<td>609.X1X</td>
<td>50~500Pa</td>
<td>20±8Pa</td>
</tr>
<tr>
<td>609.X2X</td>
<td>100~1000Pa</td>
<td>50±15Pa</td>
</tr>
<tr>
<td>609.X3X</td>
<td>0.5~2.5KPa</td>
<td>100±30Pa</td>
</tr>
</tbody>
</table>

Re: the DB is factory set.

Structure
1. Bracket for installation
2. Diaphragm
3. P1 high pressure or low vacuum
4. P2 low pressure or high vacuum
5. Scale dial (switching point setting)

Remarks:
It is for the one with bracket. Another style is with installation ear. The two styles are for different applications. Their internal structures and all specifications are the same.
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 at 10~30VDC
Range: see models
Working temperature: -20~85°C
Medium temperature: -40~125°C
Compensation temperature: 0~55°C
Accuracy: ±0.5%FS (BFSL)
Overload pressure: 200%FS
Burst pressure: 500%FS
Medium compatibility: 17-4PH stainless steel
Stability: ≤0.5%FS/Year
Response time: ≤50ms
Protection: IP65
Approval: CE

Models
<table>
<thead>
<tr>
<th>Models</th>
<th>PT Pressure Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>4~20mA</td>
</tr>
<tr>
<td>Range</td>
<td>0~6 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~10 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~16 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~25 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~40 bar</td>
</tr>
<tr>
<td>Process Connection</td>
<td>1/4 NPT</td>
</tr>
<tr>
<td>Process Connection</td>
<td>G1/4</td>
</tr>
<tr>
<td>Process Connection</td>
<td>Others</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>1 Cable (1m)</td>
</tr>
</tbody>
</table>

PDT Differential Pressure Transmitter

Applications & Features
For differential 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 at 10~30VDC
Range: see models
Working temperature: -20~70°C
Medium temperature: -20~85°C
Compensation temperature: 0~55°C
Accuracy: ±0.5%FS (BFSL)
Overload pressure: 200%FS
Burst pressure: 500%FS
Medium compatibility: 17-4PH stainless steel
Stability: ≤0.5%FS/Year
Response time: ≤50ms
Protection: IP65
Approval: CE

Models
<table>
<thead>
<tr>
<th>Models</th>
<th>PDT Diff. Pressure Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>4~20mA</td>
</tr>
<tr>
<td>Range</td>
<td>0~0.5 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~1 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~2 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~4 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~6 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~10 bar</td>
</tr>
<tr>
<td>Range</td>
<td>0~16 bar</td>
</tr>
<tr>
<td>Process Connection</td>
<td>1/4 NPT</td>
</tr>
<tr>
<td>Process Connection</td>
<td>G1/4</td>
</tr>
<tr>
<td>Process Connection</td>
<td>Others</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>Hirschmann Standard interface</td>
</tr>
</tbody>
</table>

www.teren.com.cn
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.

Specifications
Contact: SPDT, 10A/250VAC
Paddle materials: Stainless Steel
Medium connection: Brass, 1” NPT
Electrical connection: Screw terminals
Switch body materials: Steel
Cover materials: ABS
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

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Range</th>
<th>D Band</th>
<th>Pipe</th>
<th>Paddle number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16~32</td>
<td>6</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>22~50</td>
<td>8</td>
<td>1.25</td>
<td>32</td>
</tr>
<tr>
<td>3</td>
<td>30~72</td>
<td>9</td>
<td>1.5</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>55~110</td>
<td>15</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>70~130</td>
<td>20</td>
<td>2.5</td>
<td>65</td>
</tr>
<tr>
<td>6</td>
<td>105~200</td>
<td>30</td>
<td>3</td>
<td>80</td>
</tr>
<tr>
<td>7</td>
<td>250~480</td>
<td>50</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>480~920</td>
<td>90</td>
<td>5</td>
<td>125</td>
</tr>
<tr>
<td>9</td>
<td>720~1420</td>
<td>120</td>
<td>6</td>
<td>150</td>
</tr>
<tr>
<td>10</td>
<td>1420~2850</td>
<td>200</td>
<td>8</td>
<td>200</td>
</tr>
</tbody>
</table>

AVT Air Velocity Transmitter

Applications & Features
- It is designed for air velocity monitoring and controlling, can meet most HVAC applications.
- 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 any moving parts, provide accurate, reliable, sensitive and long-term measurement, with wide range temperature compensation.
- Digital technology applied to ensure output linearity and accuracy.
- Over voltage and reverse polarity protection with high reliability and anti-interference capacity.
- Multiple outputs available, optional relay for alarm or ON/OFF control.
- 4 field jumper selectable ranges: 0~5/10/15/20 m/s.
- Optional LCD & function keys, supports a variety of functions as parameters setting, modifying and calibrating, etc. See more details on LCD & Keys operation.

Specifications
Air velocity
Sensor: Hot-film sensor
Range: 0~5/10/15/20m/s or other (0~25m/s optional)
Accuracy: ±(0.4m/s+3% reading)
Response time: 2 s
Angle dependence: <3 % reading @ | Δα | < 10°
Temperature compensation: 10~40°C
Temperature
Sensor: Digital temperature sensor
Range: 0~50°C
Accuracy: ±0.5°C @ 0~50°C
Response time: 10s
Output: 4~20mA (3 wires), 0~10VDC, RS485/Modbus
Relay: 1×SPDT, 1A/30VDC, 0.5A/125VAC
Output Load: ≤500Ω (current), ≥2KΩ (voltage)
Power: 16~28VAC/16~35VDC
Working Temperature: -20~65°C, 0~95%RH (Non cond.)
Housing: Fire-proof ABS
Protection: IP65
Approval: CE

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>AVT1</th>
<th>AVT4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>4<del>20mA / 0</del>10VDC</td>
<td>4<del>20mA / 0</del>10VDC &amp; RS 485/Modbus</td>
</tr>
<tr>
<td>Relay</td>
<td>1×SPDT</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note: All products are factory set to 4-20mA as output default, and can be set to 0-10V by jumper on the PCB.
FTP Paddlewheel Flow Transmitter

**Applications & Features**
- For monitoring liquid flow rates in pipes from 1-1/2 to 40”
- Frequency proportional pulsed or integral 4-20 mA output
- Bearings and shaft offer excellent wear protection even in applications with particulate for long life
- One unit adjustable over a large pipe size range
- Sensor technology uses inductive sensing to sense the blades of the impeller therefore does not use magnets allowing low flow rate monitoring with no concerns regarding magnetic material in the flow

**Specifications**
- **Service:** Water-based fluids.
- **Range:** 1.2 to 25 ft/s (0.37 to 7.62 m/s).
- **Wetted Materials:** Body and fitting: Brass; O-ring: FKM; impeller: 316 SS; shaft: Tungsten carbide; bearing: PTFE.
- **Linearity:** ±1.0%FS (Repeatability ±0.5%FS)
- **Temperature Limits:** -40 to 212°F (-40 to 100°C).
- **Pressure Limits:** 400 psig (27.6 bar) @ 100°F (37.8°C), 325 psig (22.4 bar) @ 212°F (100°C).
- **Process Connection:** 1-1/2” NPT male.
- **Output:** Pulse: NPN open collector with square wave output, rated 60 V @ 50 mA max; Frequency: 3.2 to 200 Hz. Pulse width: 2.5 ms ±25%; 4-20 mA: 4 mA is 0 and 20 mA is 25 ft/s.
- **Power Requirement:** 10 to 35 VDC, 40 mA (max.).
- **Electrical Connection:** 22 AWG shielded UL type PTLC rated 105°C, 20´ (6.1 m) long with cable gland.
- **Enclosure Rating:** IP67
- **Weight:** 3 lb (1.36 kg)
- **Approvals:** CE

**Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Insertion Paddlewheel Flow Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>I</td>
</tr>
</tbody>
</table>

**EX Insertion Electromagnetic Flow Sensor**

**Applications and Features**
- For various liquids flow measurement in 1” to 48” pipe
- No moving parts, durable, maintenance free, easy to install
- FT420 can be used for transmitter, display and totalizer, AO55 can be used for analog output

**Specifications**
- **Sensor**
  - **Power:** 12~25VDC, 250mA max
  - **Temperature:** ambient -10~70℃,fluid 0~93℃
  - **Pressure:** 200 psi (13.8 bar)
  - **Flow rate range:** 0.08~6.09 m/s
  - **Minimum Conductivity:** 20 micro Siemens/cm
  - **Calibration Accuracy:** ±1%FS
  - **Output:** Square wave, opto isolated,550HZ@20ft/sec
  - **Empty Pipe Detection:** Software,defaults to zero flow
  - **Electric conduit:** PG13.5
  - **Materials:** 316SS/Brass (probe), Hastelloy Electrodes), Cast powder-coated aluminum(Housing), PVDF Kynar(Electrode Cap / EX8 O-ring)
  - **Protection:** IP66

<table>
<thead>
<tr>
<th>AO55 Analog Transmitter</th>
<th>FT420 totalizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>24~36VDC</td>
</tr>
<tr>
<td>Temperature</td>
<td>0~55°C</td>
</tr>
<tr>
<td>Response Time</td>
<td>2~60s</td>
</tr>
<tr>
<td>Output</td>
<td>4~20mA</td>
</tr>
<tr>
<td>Output load</td>
<td>700Ω@24VDC</td>
</tr>
<tr>
<td>Protection</td>
<td>IP66</td>
</tr>
<tr>
<td>Install</td>
<td>inside the housing(meter mount) or remote installed (wall mount)</td>
</tr>
</tbody>
</table>

**Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Insertion Electromagnetic Flow Sensor and Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitting pipe</td>
<td>EX81</td>
</tr>
<tr>
<td></td>
<td>EX82</td>
</tr>
<tr>
<td></td>
<td>EX83</td>
</tr>
<tr>
<td></td>
<td>EX21</td>
</tr>
<tr>
<td>Output and Display</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Materials</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>S</td>
</tr>
</tbody>
</table>
LS Level Switch

Applications & Features
- LS level regulator is a float switch to control the pump, valve or alarm.
- Applied to various kinds of liquid (non-corrosive, high temperature, light density or turbulence)
- Special designed multi layers structure proves the inner chamber very well sealed, gives safety and reliable protection for inside mechanism
- Non-toxic polypropylene (PP) float body and VDE cable, environmentally friendly, even safe for daily life water
- Its shape has no any edges (it is almost a ball), is particularly suitable for sewage water

Specifications
Contact: SPDT, 10A/250VAC, 3 cord conduct, 1.0mm²
Electrical life: >10⁶ cycles
Switch angle: ±40° (±5°)
Operating temperature: 0~60°C

Storage temperature: -20~80°C
Float N.W.: 300g (without cable and weight)
Volume: 498cm³
Housing: Non-toxic polypropylene (PP)
Cable: H05RN-F 3GX1 (VDE)
Protection: IP68
Max working pressure: 1 bar (10m water depth)
Approval: CE

Models
<table>
<thead>
<tr>
<th>Model</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>3m</td>
</tr>
<tr>
<td>05</td>
<td>5m</td>
</tr>
<tr>
<td>10</td>
<td>10m</td>
</tr>
<tr>
<td>15</td>
<td>15m</td>
</tr>
</tbody>
</table>

LT 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
- All stainless steel integrated structure, anti-blocking, anti-shock, multiple waterproof design, easy to install
- Built-in circuit with high precision, stability and reliability
- Ventilation waterproof wire, internal condensation prevention design

Specifications
Power: 11~28VDC
Range: see models
Output: 4~20mA (2 wires)
Accuracy: ±0.05%FS(BFSL)
Load: < ( U-11 ) /0.02Ω, U for power
Overload pressure: 150%FS
Response time: ≤50ms
Working temperature: -10~80°C

Medium temperature: ≤40~100°C
Stability: ±0.02%FS/°C (≤10mH₂O), ±0.05%FS/°C (> 10mH₂O)
Thermal effect: Zero ±0.05%FS/°C (≤10mH₂O), ±0.02%FS/°C (> 10mH₂O)
Materials: Body, 1Cr18Ni9Ti stainless steel; O-ring, FKM; Cable, φ 7.5mm polyethylene ventilating cable; Diaphragm, 316 stainless steel
Protection: IP68
Approval: CE

Models
<table>
<thead>
<tr>
<th>Model</th>
<th>LT</th>
<th>Range</th>
<th>Cable</th>
<th>xx</th>
<th>1~200m H₂O</th>
<th>Cxx</th>
<th>Cable length, m</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT03C05, LT05C06, LT10C12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ALS Ambient Light Sensor / Transmitter

**Applications & Features**
- ALS series are designed for detecting ambient light level and lighting control applications.
- Can be widely used in warehouse, computer room, workshop, record room, library, school, shopping mall, smart home, building control, airport, railway station and other fields.
- Suitable for wall mount, light and state of art housing.
- High sensitive sensor and precise linear amplifier circuit, accurate measurement and temperature compensation, good long-term stability and reliability.
- High linearity, high protect rate, delicate structure, easy to install and wiring.
- Power and output over voltage and reverse polarity protection, high reliability and anti-interference capability.

**Specifications**
- **Sensor:** High sensitive light sensor
- **Range:** 0~1000/2000/5000/10000/20000/50000lux
- **Accuracy:** ±5 %FS@25°C
- **Repeatability:** <1%FS

**Long term stability:** <1%FS/Year
**Thermal effect:** <0.2%FS/°C
**Response time:** <1s
**Output:** 0~10V/4~20mA(default), RS485/Modbus RTU
**Load resistance:** ≤500Ω(4-20mA), ≥2KΩ(0-10V)
**Power supply:** 16~28VAC/16~35VDC
**Working environment:** -30~70°C, 0~95%RH(Non-cond.)
**Storage temperature:** -30~70°C
**Housing:** fireproof ABS/PC, IP65
**Approval:** CE

**Models**
- **Models**
- **Output**
  - ALS 1: 0~10V/4~20mA
  - ALS B: 0~10V/4~20mA, RS485

**Note:**
1. Illumination is the light intensity of the unit, popular defined as flux (Lm) on unit area (m²), also known as lux (lx).
2. General summer illumination: sunny day 30~300,000 lux, cloudy day 3~10,000 lux, sunrise/sunset 300~400 lux. Indoor is 10~2000 lux and <1lux during night.

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OS Occupancy Sensor / Detector

**Applications & Features**
- Suitable for passage way, corridor, toilet, basement, garage and other public places, such as lighting, exhaust fan and other automatic switch control.
- 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/AC
- **Output:** SPDT, 10A resistive / 4A inductive, 30VDC/250VAC

**Light control range (adjustable):** 5(default) ~ 500Lux ± 20%
**Delay closing time (adjustable):** 16(default) ~ 350s ± 30%
**Detect area:** distance 5-12m, 140°, shown as below, 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 plastic, IP30
**Approval:** CE

**Models**
- **Models**
  - OS-W: Wall mount occupancy sensor / detector
  - OS-C: Ceiling mount occupancy sensor / detector
DA Damper Actuator

Applications & Features
- Special designed for damper or ball valve control in HVAC system
- Assembling: Easily connect damper or ball valve and actuator with allen screw
- Long life: The design makes the actuator get longer life
- Manual: It can be manual operated with the button
- Safety: The actuator has overload protection design and does not need any limit switch
- High-level protection and low noise: up to IP65

Specifications
Torque: 5/10/20/40Nm
Direction of rotation: set by switch
Position indicator: mechanical
Manual override: set by push button
Angle of rotation: max. 95°
Power: 24VAC/DC: 19.2~28.8V AC/DC power 3W, hold 1W protection: class III-low voltage safe
110~220VAC: 95~265V, 50/60Hz power 3.5W, hold 1W protection: class II-totally insulated
Control Signal: on/off, 3 pos 4~20 mA (input impedance 200Ω)
Feedback Signal: SPDT/250V, 3A 0~10VDC, 4~20mA (Max. 500Ω)
Connectors: cable, 1m 3 x 0.75mm² or 4 x 0.5mm²
Mode of operation: Type1 to EN60730-1
Work temp.: -30~+50°C, 95%RH, no condensing
Storage temp.: -40~+80°C
Protection: up to IP65 (IP54 – DA05)
Approval: CE

Spindle Die:

<table>
<thead>
<tr>
<th>Torque</th>
<th>Circular axial diameter</th>
<th>Square axial dimension</th>
<th>Shortest axial length</th>
</tr>
</thead>
<tbody>
<tr>
<td>5Nm</td>
<td>6-18mm</td>
<td>4.5-12.5mm</td>
<td>50mm</td>
</tr>
<tr>
<td>10Nm</td>
<td>8-20mm</td>
<td>5.8-14.0mm</td>
<td>54mm</td>
</tr>
<tr>
<td>20Nm</td>
<td>8-20mm</td>
<td>5.8-14.0mm</td>
<td>50mm</td>
</tr>
<tr>
<td>40Nm</td>
<td>14-26mm</td>
<td>10.0-18.2mm</td>
<td>62mm</td>
</tr>
</tbody>
</table>

General parameters:

<table>
<thead>
<tr>
<th>Torque</th>
<th>Weight</th>
<th>Noise level</th>
<th>Running time</th>
<th>Suggest damper area</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Nm</td>
<td>0.8kg</td>
<td>&lt; 30dB</td>
<td>120s</td>
<td>&lt; 0.8m²</td>
</tr>
<tr>
<td>10 Nm</td>
<td>1.1kg</td>
<td>&lt; 40dB</td>
<td>120s</td>
<td>&lt; 1.5m²</td>
</tr>
<tr>
<td>20 Nm</td>
<td>1.2kg</td>
<td>&lt; 40dB</td>
<td>150s</td>
<td>&lt; 3.5 m²</td>
</tr>
<tr>
<td>40 Nm</td>
<td>1.75kg</td>
<td>&lt; 45dB</td>
<td>150s</td>
<td>&lt; 7.0 m²</td>
</tr>
</tbody>
</table>

Re: Suggest damper area is for general application. Torque calculation should be different according to specific damper structure, installation and air flow condition

Models

<table>
<thead>
<tr>
<th>Model</th>
<th>DA</th>
<th>Damper Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque</td>
<td></td>
<td>05 10 20 40 0 5Nm 10Nm 20Nm 40Nm</td>
</tr>
<tr>
<td>Power</td>
<td>0 1</td>
<td>24VAC/DC 110/220VAC</td>
</tr>
<tr>
<td>Control signal</td>
<td>0 1 2</td>
<td>on/off,3pos 0<del>10VDC 4</del>20mA</td>
</tr>
<tr>
<td>Feedback signal</td>
<td>1 2 3 4</td>
<td>0<del>10VDC 4</del>20mA 1 SPDT/250V,3A 2 SPDT/250V,3A</td>
</tr>
</tbody>
</table>

Re: If control signal is 0, feedback may be 3 or 4,
If control signal is 1, feedback may be 1,
If control signal is 2, feedback may be 2.
**Accessories**

**Part No** | **Description**
---|---
1001 | Individual accessory package: clear PVC tube 2M, connectors (1003) 2PCS, screws 4PCS. Suitable for all DP products including 609,D2,D5,DPG,DPGT,DPT,DPTL,MFDP, etc., for pressure connecting
1002 | Plastic pipe 2m only. Suitable for all DP products including 609,D2,D5,DPG,DPGT,DPT,DPTL,MFDP, etc., for pressure connecting
1003 | 1 pc pressure connection part only. Suitable for all DP products for pressure connecting
1008 | Individual accessory package: clear PVC tube 2M, connectors (1009) 2PCS, screws 4PCS. Suitable for all DP products including 609,D2,D5,DPG,DPGT,DPT,DPTL,MFDP, etc., for pressure connecting
1009 | 1 pc pressure connection part only. Suitable for all DP products for pressure connecting
A-S0 | Include 1.5m/5mm ID tube, 3 pairs of screws and brackets, for installing the D2, DPG and DPGT series
A-S1 | Flat mounting plate for panel or flush mounting of D2/DPG/DPGT/2000. Stainless Steel with 2mm thick and pressure sensor on back side. 154(W)×154(H)×2(D)mm
A-S2 | Flat mounting plate for panel or flush mounting of D2/DPG/DPGT/2000, with 4 install holes. Stainless Steel with 2mm thick and pressure sensor on back side. 154(W)×154(H)×2(D)mm
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 | Install screw, stainless steel, for Dwyer 2000 Magnehelic, flush mount, 1/8 NPT, L=13mm
P-24AC | 24VAC transformer, 220VAC supply, 50~75~100~150VA output ranges, ordered by detail requirement
P-24DC | 24VDC power module, 220VAC supply, 1.8A~6.5A output ranges, ordered by detail requirement
Pitot-L | L pitot, coefficient of 0.99~1.01; S pitot, coefficient of 0.81~0.86; stainless steel construction, for air flow/volume measuring, idea for use with differential pressure gauge and transmitter, models φ3/100~400mm and φ6/300~1200mm, ordered by detail requirement