Climate
Control

IMI TA

TA-Sense-Dp



Smart sensors

Digitally configurable differential pressure sensor

Breakthrough
engineering for
a better world

TA-Sense-Dp

The TA-Sense-Dp combines precise differential pressure measurement with smart connectivity. Thanks to its two static pressure sensors, it enables easy fast and reliable on-site installation. Featuring a compact design, integrated display, and app-based configuration, it enables fast diagnostics and flexible integration into modern hydronic systems.



Key features

Precise differential pressure measurement
Dual relative pressure sensors ensure accurate and stable readings across a wide range of operating conditions.

Convenient and reliable setup
Fully customizable (output signal selection, continuous pressure range) and commissionable using Bluetooth enabled Smart device reducing commissioning and diagnostic time.

Logging
Rapid measurement of differential pressure, enabling quicker troubleshooting.

Intuitive, customizable display
Colour display shows static and differential pressure, with configurable views for fast system diagnostics.

Easy installation
Compact design and prefabricated layout simplify installation and wiring. Built to perform reliably in challenging conditions (IP65).

Technical description

Applications:
Heating (not steam) and cooling systems.

Function:
Measuring (Static and differential pressure)
Logging

Static pressure range:
0-87 psi
0-145 psi
0-232 psi
0-362 psi

Overload pressure:
Maximum static pressure applicable without causing permanent damage.
0-87 psi: 217 psi
0-145 psi: 362 psi
0-232 psi: 580 psi
0-362 psi: 899 psi

Temperature:
Media temperature: 5°F to +248°F
Operating environment: 32°F to 122°F (5-95%RH, non-condensing)
Storage environment: -4°F to 158°F (5-95%RH, non-condensing)

Static pressure accuracy:
± 0.4% Full Scale (FS) @ 77°F, 45% RH.
Temperature dependency:
± 0.02% FS / K.
Long term stability:
± 0.25% FS according to EN 60770-1.

Differential pressure accuracy:
0-87 psi: ± 0.4% FS
0-145 psi: ± 0.6% FS
0-232 psi: ± 0.6% FS
0-362 psi: ± 0.8% FS

Response time:
< 0.35 s

Output signal:
0(2)-10 VDC, max. 8 mA, min. 1,25 kΩ.
0(4)-20 mA, max. 700 Ω.
Ranges:
0-10, 10-0, 2-10 or 10-2 VDC
0-20, 20-0, 4-20 or 20-4 mA
Default setting: 4-20 mA.

Wireless:
Bluetooth Low Energy (BLE)
Thread

Supply voltage:
24 VAC/VDC ±15%.
Frequency 50/60 Hz ±3 Hz.
NOTE: 24 VAC/VDC power supply must be provided only with safety isolating transformer according to EN 61558-2-6.

Power consumption:
< 1,3 W (24 VDC);
< 3,0 VA, 1,6 W (24 VAC)

Protection class:
IP 65 (according to EN 60529)

Protection class:
Class III (according to EN 61140)

Material:
Housing, mounting clip, protection plate: Polycarbonate
Lid: Transparent polycarbonate
Lid gasket: Sulphur cured EPDM
Cable gland and nut: PA

Pressure sensor:
Body: Stainless steel
Sensor: Ceramic Al2O3
Sealing: FPM

Cable jacket: Thermoplastic Polyurethane (TPU).
Wire insulation: PVC

Cable:
9.8 ft., with ferrules and M12 internal 2 pin connector insert.
2x32 AWG (2x0.205 mm^2), aluminium foil and braided shielding.
FT2 fire resistance rating according to UL20549.
Rated temperature: -13°F to 185°F
Rated voltage: 250 VAC/VDC
Insulation resistance: 100 MΩ

Display:
Colour TFT display, 128x128 1.44”

Damping:
Ø (when connecting to TA-Smart-Dp)
4s
8s
Default setting: Ø

Product standard:
Class A (according to EN 60730)

Function

Static pressure
TA-Sense-Dp measures differential pressure by using two static pressure sensors and taking the difference between their outputs p1 and p2. Thanks to this approach, TA-Sense not only provides the differential pressure Δp = p1-p2 but also gives the values of the static pressures p1 and p2.

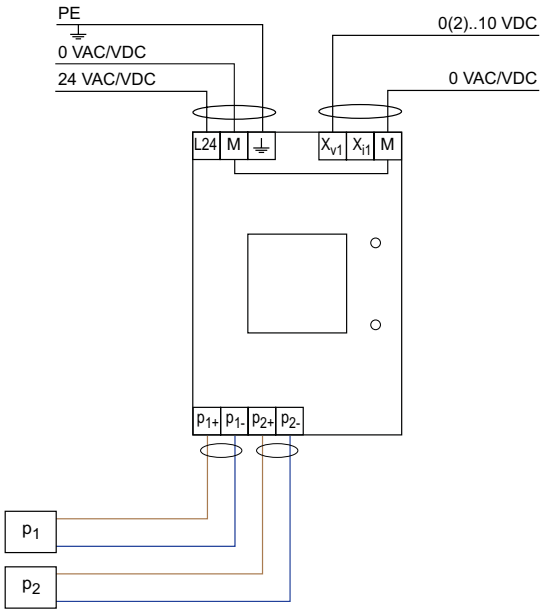
Differential pressure (range mapping)
Measured differential pressure range can be adjusted continuously (depending on the static pressure range) using the buttons or the HyTune app.
The maximum value can be set anywhere between 0.725 psi and p_{max}, and the minimum value can be set to be either 0 or $-p_{max}$.
Default setting: 0-14.5 psi

Logging
TA-Sense-Dp provides continuous logging of both measured static pressures and the calculated differential pressure to ensure full traceability of system performance. Logged data are stored in TA-Sense’s internal memory and can be easily downloaded and exported in .csv format via the HyTune app when connected to the device. Four logging profiles are available:
- XLong, capturing one data set every hour for up to 1 year;
- Long, capturing one data set every minute for 31 days;
- Fast, capturing one data set every 15 seconds for 7 days;
- XFast, capturing one data set every 5 seconds for 12 hours.

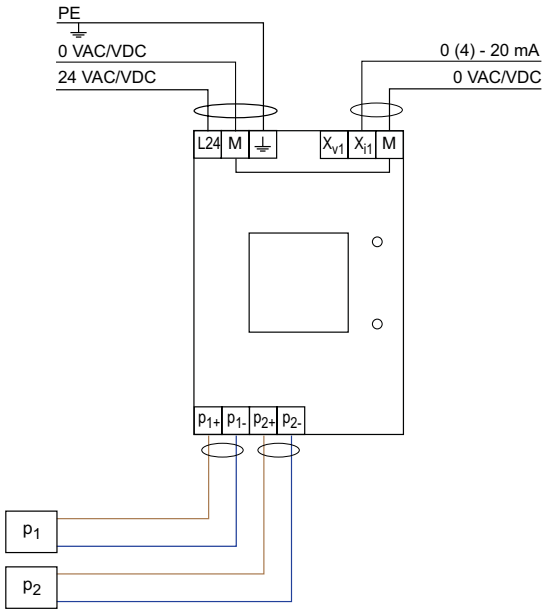
This flexible data logging capability enables both long-term monitoring and high-resolution diagnostics to support efficient commissioning, troubleshooting, and performance optimization.

Connection diagram

VDC analog output



mA analog output



Terminal	Description
L24	Power supply 24 VAC/VDC
M(0)*	Neutral for power supply 24 VAC/VDC and signals.
PE	Protective Earth (ground)
Output	
X_{V1}	Output signal 0(2)-10 VDC, max. 8 mA or min. load resistance 1.25 kΩ
X_{I1}	Output signal 0(4)-20 mA, max. resistance 700 Ω
M(0)*	Neutral for power supply 24 VAC/VDC and signals.
Input	
p_{1+}	Brown wire: 12 VDC power supply for static pressure sensor number 1
p_{1-}	Blue wire: Analog signal (4-20 mA) from static pressure sensor number 1
p_{2+}	Brown wire: 12 VDC power supply for static pressure sensor number 2
p_{2-}	Blue wire : Analog signal (4-20 mA) from static pressure sensor number 2

*) All M(0) terminals are internally connected.

USB/Serial Debug: Only for IMI use.

App functions

App
All configuration, bypassing and reading takes place over a Bluetooth connection to a smart device (phone or tablet). The app can be downloaded from the App Store or Google Play.

Pressure range setting
Selectable outputs and mapping. Reversed voltage curves.

Diagnostics/Logging
The last 10 errors (low power, line break, sensor disconnection, too low/high pressure) with time stamps can be read using the HyTune app. Logged errors will be cleared if the power is disconnected.

Calibration/Altitude compensation
The sensor can compensate for the altitude difference between the points at which the two static pressure sensors are connected, by performing a calibration with the HyTune app or using the buttons on the TA-Sense-Dp itself. This calibration needs to be done at zero flow in the module.

Output selection
Output signal can be defined using the buttons or the HyTune app.
Default setting: 4-20 mA

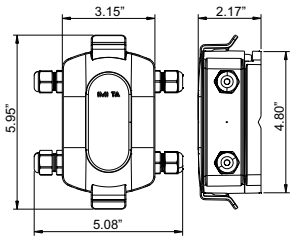
Differential pressure direction
No matter the order of the pressure sensors, can be reverted.

Manual function

Setting
Setting can be changed using the 2 buttons in the TA-Sense-Dp box.



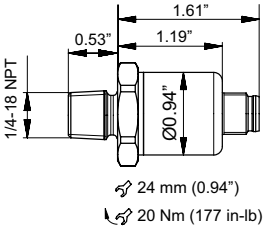
Articles



TA-Sense-Dp - NPT threads

Including 2 static pressure sensors with 1/4”-18 NPT external thread, M12x1 connector and 3 m cable, mounting plate, a sealing insert for M16x1.5 cable gland, 2 screws and 2 plugs.

Max. static pressure [psi]	Article No
87	325020-20011
145	325020-20012
232	325020-20013
362	325020-20014



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