



CRN TECNOPART, S.A.

Sant Roc 30
08340 VILASSAR DE MAR (Barcelona)
Tel 902 404 748 - 937 591 484 Fax 937 591 547
e-mail: crn@crntp.com [http:// www.crntecnopart.com](http://www.crntecnopart.com)



DO-090.45E

HD 404T VERY LOW PRESSURE TRANSMITTER



The series of **HD404T** transmitters is able to measure relative pressures with reference to the atmosphere or differential in their range from 50 to 1000 Pa (0.2" H₂O to 5" H₂O). HD404T transmitters use a silicon "micro-machined" type sensor compensated in temperature that has an excellent linearity, repeatability and stability over time. The output signal from the sensor is amplified and converted into a standard analogical output in current (4-20mA) and in one in voltage (0-10V), which, then, can be transmitted over long distances with a high immunity to noise.

In each model it's possible to choose, through a dip switch, between two measurement ranges in order to select the bottom scale optimal for its own application.

Usually the low pressure transmitters are susceptible to the guidance by which they are mounted. In HD404T series there is available a special auto-zero circuit, which periodically equalize the differential pressure at the input sensor and corrects the offset; the transmitters, provided with this circuit, are insensitive to the mounting position. In addition, the circuit compensates the obsolescence and the sensor gap from zero when the temperature changes: in practice, it allows to remove the maintenance. It's available the (L) "display" option, in which the pressure is visualized on a display with 4 digits in the selected measurement unit.

The (SR) "square root" is especially useful if the transmitter is connected to a pitot tube, as the output is directly proportional to the speed of airflow.

The transmitters are ready to use and are supplied calibrated at 3 points by the manufacturer.

Typical applications for HD404T series are the tracking of rooms, filters' control, flow measures (matched with the Pitot tube), the air conditioning control and the ventilation one.

TECHNICAL COMMON FEATURES @ 20 °C Y

Sensor	Piezoresistive
Measurement range	from 0...50 Pa (0...0,2" H ₂ O) to 0...1000 Pa (0...4" H ₂ O) relative and differential (look at the table downwards)
Signal output	0 ... 10 Vdc, RL > 10k. y 4...20 mA, RL < 500.
Accuracy	It depends on the model (look at the table)
Answer time	1sec. (slow) or 4sec. (fast) selectable through a small bridge
Overpressure limit	25 kPa
Compatible means	Only air and no aggressive gas
Power supply	24 Vca ± 10% or 16...40 Vcc
Absorption	< 1W
Fit on pressure	With Ø 5mm flexible cable
Electrical connections	Terminal board with screw, max 1,5mm ² , PG9 conduit with input cable
Working conditions	-10 ... +60°C (-5...+50°C for models with auto-zero AZ), 0...95% RH
Storage temperature	-20 a 70 °C
Casse sizes	80x84x44 mm
Degree of electronic protection	IP67



SUMMARY TABLE OF MODELS AND PRECISION

MODEL	RANGE		PRECISION %FES (0 a 50°C)	LONG TERM STABILITY (1 YEAR)	
	LOW	HIGH		AZ	NO AZ
	Pa				
HD404T1PG-AZ(-L-SR)	0 ...5 Pa	0 ... 100 Pa	±3%	≤± 1 Pa	
HD404T2PG-AZ(-L-SR)	0 ... 100 Pa	0 ... 250 Pa	±1,5%	≤± 1 Pa	
HD404T3PG(-AZ-L-SR)	0 ... 250 Pa	0 ... 500 Pa	±1%	≤± 1 Pa	≤± 8 Pa
HD404T4PG(-AZ-L-SR)	0 ... 500 Pa	0 ... 1000 Pa	±1%	≤± 1 Pa	≤± 8 Pa
HD404T1PD-AZ(-L)	-50 ... 50 Pa	-100 ... 100 Pa	±1,5%	≤± 1 Pa	
HD404T2PD-AZ(-L)	-100 ... 100 Pa	-250 ... 250 Pa	±1%	≤± 1 Pa	
HD404T3PD(-AZ-L)	-250 ... 250 Pa	-500 ... 500 Pa	±1%	≤± 1 Pa	≤± 8 Pa
HD404T4PD(-AZ-L)	-500 ... 500 Pa	-1000 ... 1000 Pa	±1%	≤± 1 Pa	≤± 8 Pa
	mm H ₂ O				
HD404T1MG-AZ(-L-SR)	0 ... 5 mmH ₂ O	0 ... 10 mmH ₂ O	±3%	≤± 0,1 mmH ₂ O	
HD404T2MG-AZ(-L-SR)	0 ... 10 mmH ₂ O	0 ... 25 mmH ₂ O	±1,5%	≤± 0,1 mmH ₂ O	
HD404T3MG(-AZ-L-SR)	0 ... 25 mmH ₂ O	0 ... 50 mmH ₂ O	±1%	≤± 0,1 mmH ₂ O	≤± 0,8 mmH ₂ O
HD404T4MG(-AZ-L-SR)	0 ... 50 mmH ₂ O	0 ... 100 mmH ₂ O	±1%	≤± 0,1 mmH ₂ O	≤± 0,8 mmH ₂ O
HD404T1MD-AZ(-L)	-5 ... 5 mmH ₂ O	-10 ... 10 mmH ₂ O	±1,5%	≤± 0,1 mmH ₂ O	
HD404T2MD-AZ(-L)	-10 ... 10 mmH ₂ O	-25 ... 25 mmH ₂ O	±1%	≤± 0,1 mmH ₂ O	
HD404T3MD(-AZ-L)	-25 ... 25 mmH ₂ O	-50 ... 50 mmH ₂ O	±1%	≤± 0,1 mmH ₂ O	≤± 0,8 mmH ₂ O
HD404T4MD(-AZ-L)	-50 ... 50 mmH ₂ O	-100 ... 100 mmH ₂ O	±1%	≤± 0,1 mmH ₂ O	≤± 0,8 mmH ₂ O
	inch H ₂ O				
HD404T1IG-AZ(-L-SR)	0 ... 0,2 inchH ₂ O	0 ... 0,4 inchH ₂ O	±3%	≤± 0,004inchH ₂ O	
HD404T2IG-AZ(-L-SR)	0 ... 0,4 inchH ₂ O	0 ... 0,8 inchH ₂ O	±1,5%	≤± 0,004inchH ₂ O	
HD404T3IG(-AZ-L-SR)	0 ... 0,8 inchH ₂ O	0 ... 2 inchH ₂ O	±1%	≤± 0,004inchH ₂ O	≤± 0,04inchH ₂ O
HD404T4IG(-AZ-L-SR)	0 ... 2 inchH ₂ O	0 a...4 inchH ₂ O	±1%	≤± 0,004inchH ₂ O	≤± 0,04inchH ₂ O
HD404T1ID-AZ(-L)	-0,2 .. 0,2inchH ₂ O	-0,4 ... 0,4 inchH ₂ O	±1,5%	≤± 0,004inchH ₂ O	
HD404T2ID-AZ(-L)	-0,4 .. 0,4inchH ₂ O	-1 ... 1 inchH ₂ O	±1%	≤± 0,004inchH ₂ O	
HD404T3ID(-AZ-L)	-1 ... 1 inchH ₂ O	-2 ... 2 inchH ₂ O	±1%	≤± 0,004inchH ₂ O	≤± 0,04inchH ₂ O
HD404T4ID(-AZ-L)	-2 ... 2 inchH ₂ O	-4 ... 4 inchH ₂ O	±1%	≤± 0,004inchH ₂ O	≤± 0,04inchH ₂ O

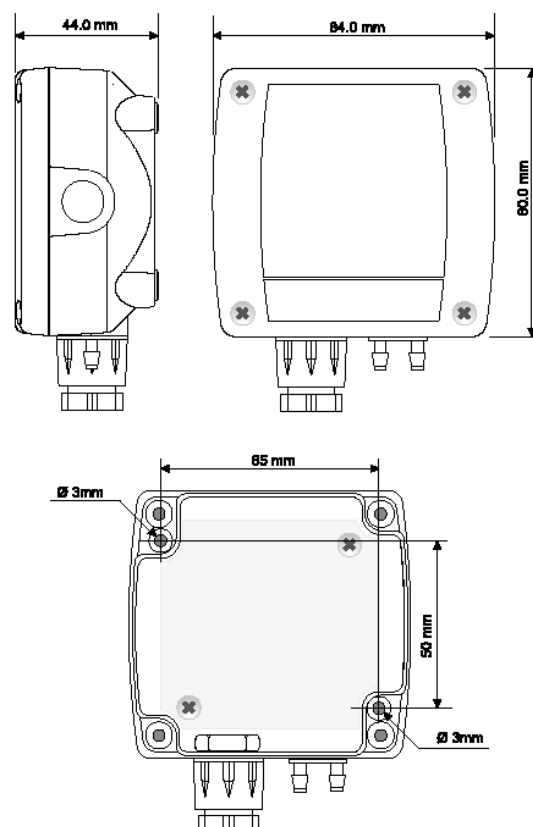
INSTALLATION

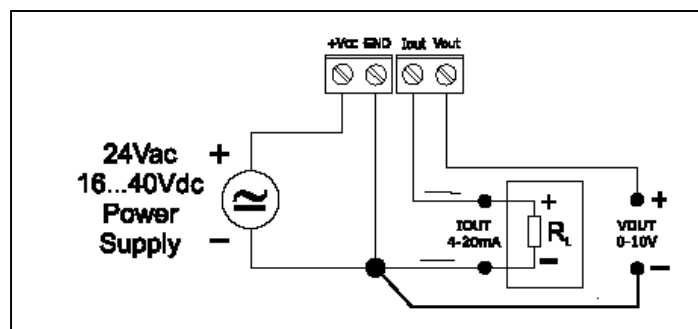
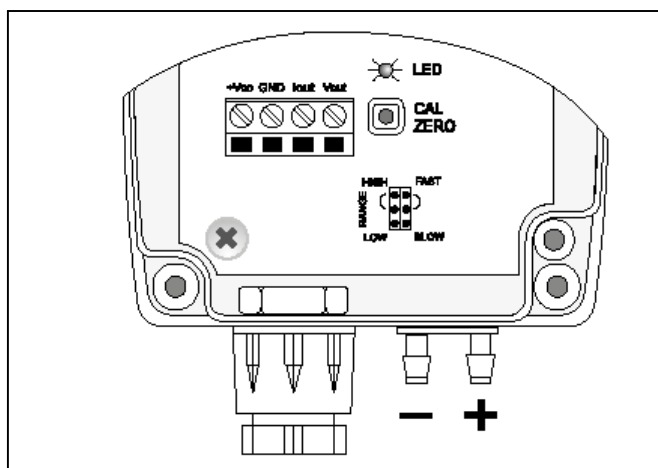
In all the models, the sensor and the electronic are contained in a sturdy plastic case with an IP67 protection degree. Opening the lid are available 3 mm diameter holes that let you set the base of the transmitter directly to a panel or a wall.

HD404T can be mounted in any position, but typically on a vertical wall with the pressure facing downwards. The gap from zero due to the mounting position can be compensated using CAL ZERO button. The procedure to follow for manual calibration of zero is the following one:

- Make sure that the transmitter is powered by at least 1 hour;
- Disconnect both tubes from the + and – pressure bows;
- Press CAL ZERO button until the red LED starts to flash;
- When the red led turns off, the reset procedure is completed and you can reconnect the tubes to pressure fits.

We suggest you to perform the auto-zero procedure at least once a year under normal working conditions. In models with auto-zero circuit (AZ option), this procedure is regularly performed every 15 minutes without disconnecting the tubes from pressure bows. During the reset, which takes about 4 seconds, the analogical outputs and the display will remain frozen at the measured value. Models with auto-zero don't need to have any maintenance.





Electrical connections

CAL ZERO button and configuration small bridges

CONFIGURATION

Setting the output range: the bridge named RANGE allows you to choose between an output range: with LOW you choose the low range, with HIGH the extended range.
Answer time setting: the FAST SLOW small bridge let you choose the answer time of the transmitter: in FAST position the measurement is integrated on 1 sec., while SLOW position is integrated on 4 sec. We suggest SLOW position if there are conditions of turbulence or disruption of air flow.

DISPLAY

Models with L suffix are provided with a LCD display with 4 digits.

Visualization resolution:

50, 100, 250, 500 Pa	→ 0.5 Pa
1000 Pa	→ 1 Pa
5, 10, 25, 50 mmH ₂ O	→ 0.05 mmH ₂ O
100 mmH ₂ O	→ 0.1 mmH ₂ O
0.2, 0.4, 1, 2, 4 inchH ₂ O	→ 0.002 inchH ₂ O

Default reporting:

Undr → it appears if the measured value is smaller than the minimum value that you can measure
OvEr → it appears if the measured value surpasses the maximum value that you can measure
CAL Error → it appears when the zero calibration is finished if the maximum offset value is surpassed that you can correct

CODES FOR PURCHASE ORDER

HD404T 1P - G - AZ - L - SR

SR = with square root output
(not available for type D versions)

L = with LCD display

AZ = with auto-zero circuit

D = differential pressure -f.s...+f.s.

G = relative pressure with reference to the atmosphere 0...+f.s.

Nominal scale bottom (f.s.):

1P = 100Pa	1M = 10mmH ₂ O	1I = 0.4inchH ₂ O
2P = 250Pa	2M = 25mmH ₂ O	2I = 0.8inchH ₂ O
3P = 500Pa	3M = 50mmH ₂ O	3I = 2inchH ₂ O
4P = 1000Pa	4M = 100mmH ₂ O	4I = 4inchH ₂ O

ACCESSORIES

Supplied:

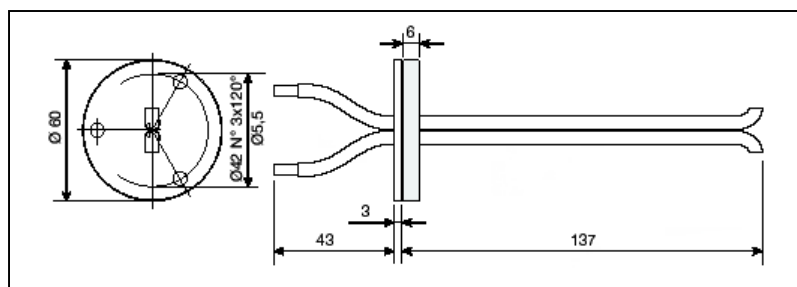
- N°1 piece of 3.2/6.4 silicone tube 2m long
- N°2 HD434T.5 plastic fittings.

Under request:

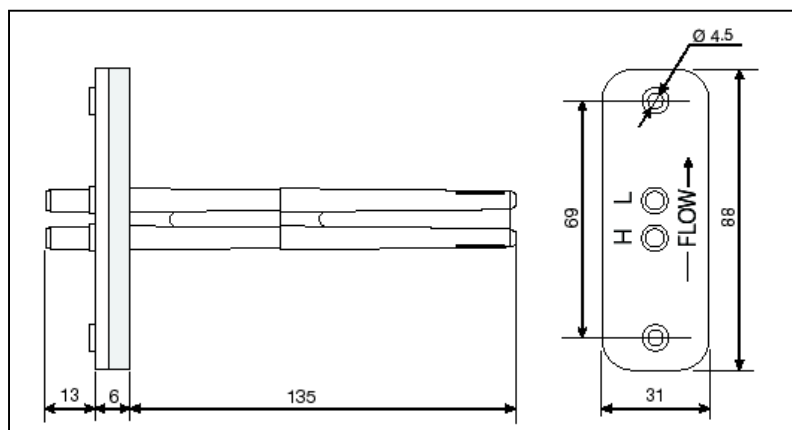
AP3719: Flow bow for square or cylindrical channel. Two pieces of □3.2/□6.4 tube 1m long.

or

AP3721: Flow bow for plastic material cylindrical channel. Two pieces of □3.2/□6.4 tube 1m long.



AP 3719



AP 3721

