

Low Pressure Transmitters

HD404... SERIES - RELATIVE & DIFFERENTIAL LOW PRESSURE TRANSMITTERS



INTRODUCTION

The HD404... series consists of low pressure transmitters for relative pressure (to atmosphere) or differential pressure measurement. Depending on the version, it covers 50...1000 Pa for analog models and 250 Pa / 1000 Pa / 100 mbar for RS485 Modbus-RTU models. The sensor signal is converted into 0...10 V, 4...20 mA active, or RS485 Modbus-RTU output, ensuring reliable transmission also over long distances with high noise immunity.

Main applications include clean room monitoring, filter control, flow measurement, air conditioning control and ventilation control.

FEATURES

Micromachined, temperature-compensated silicon sensor

Designed for excellent linearity, repeatability and long-term stability, delivering accurate readings also with temperature variations.

Auto-zero versions for long-term stability (AZ)

Periodic offset correction compensates zero drift and sensor aging, reducing maintenance; AZ versions are also insensitive to mounting position.

Direct local indication with display option (L)

Optional 4-digit LCD for immediate reading in the selected measurement unit, useful for commissioning and on-site checks.

Square-root version for airflow applications (SR)

Optimised for Pitot/Darcy tubes: output proportional to airflow speed; with display option it can show both measured pressure and calculated airflow speed.

Robust signal conditioning for industrial environments

Amplified and converted signal with high noise immunity for reliable integration in HVAC and building automation installations.

CONFIGURATION & MEASUREMENT

Analog models: range selection via dip switch

Select between two measurement ranges to optimize the scale for each application.

SR models: airflow calculation setup

Set the Pitot/Darcy tube coefficient and calculation parameters (air temperature, barometric pressure, duct static differential pressure). On analog versions, the full-scale speed for the output can be set.

Ready to use

Factory calibrated and supplied ready for installation and commissioning.



ACCURATE EVEN AT VERY LOW PRESSURE

Stable measurements down to 50 Pa.



OUTPUTS FOR EASY INTEGRATION

0...10 V, 4...20 mA active or RS485 Modbus-RTU.



DISPLAY OPTION FOR DIRECT READING

4-digit LCD with selectable engineering units.



AUTO-ZERO FOR LOW MAINTENANCE

Offset correction and drift compensation over time (AZ versions).



AIRFLOW SPEED OPTION (SR)

Square-root output for Pitot/Darcy applications, with airflow display on L versions.

Measurement specifications

Sensor	Piezoresistive
Measuring range	<ul style="list-style-type: none"> from 50 to 1000 Pa (from 0.2" H₂O to 4" H₂O) for the versions with analog output 250 Pa / 1000 Pa / 100 mbar for the versions with RS485 Modbus RTU output
Accuracy*	±(0.8% measure + 0.5) Pa with AZ option
Long-term stability*	<±0,2 Pa with AZ option
Resolution	HD404TxP... 0.5 Pa (f.s. ≤ 500 Pa) / 1 Pa HD404TxM... 0.05 mmH ₂ O (f.s. ≤50 mmH ₂ O) / 0.1 mmH ₂ O HD404TxL... 0.002" H ₂ O HD404ST2... 0.1 Pa HD404ST4... 1 Pa HD404ST5... 0.1 mbar HD404...SR 0.01 m/s
Overpressure limit	50 kPa

* Refer to the manual for non-AZ versions and other units of measurement.

Technical specifications

Output	<ul style="list-style-type: none"> 0...10 Vdc or active 4...20 mA (HD404T...) RS485 Modbus-RTU (HD404ST...)
Power supply	<ul style="list-style-type: none"> 24 Vac ± 10% or 18...40 Vdc (HD404T...) 12...30 Vdc (HD404ST...)
Absorption	<ul style="list-style-type: none"> < 1 W @ 24 Vdc (HD404T...) < 100 W @ 12 Vdc (HD404ST...)
Electrical connections	Screw terminal block, max 1.5 mm ² , PG9 cable gland
Connection to PC	Modbus model: RS485 serial port. Connection to a USB port by using RS48 adapter. All other models: RS232 serial port. Connection to a USB port by using CP27 cable.
Response time	HD404T... with dip-switch set to FAST: 0.125 s in pressure mode 1 s in speed mode (only SR versions) HD404T... with dip-switch set to LOW: Configurable 1, 2 or 4 s (default 2 s) HD404ST...: Configurable 0.125, 1, 2 or 4 s (default 2 s)
Zero calibration	Automatic for the versions with AZ option

Ordering codes

Models with analog output

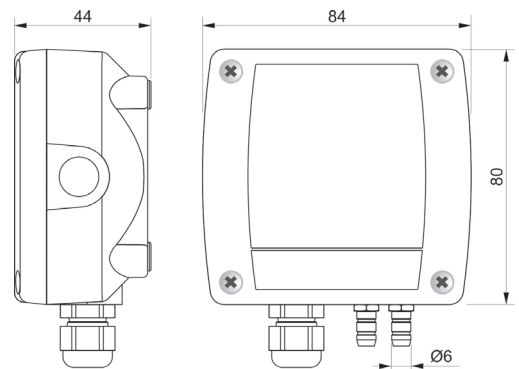
HD404T	Blank = pressure output SR = speed output (only G versions)	
	Blank = without LCD L = with LCD	
	Blank = without auto-zero circuit (only HD404T3... and HD404T4...) L = with auto-zero circuit	
	D = differential pressure -f.s....+f.s. G = relative pressure with respect to the atmosphere 0...+f.s.	
1P = range ±100 Pa	1M = range ±10 mmH ₂ O	1I = range ±0.4" H ₂ O
2P = range ±250 Pa	2M = range ±25 mmH ₂ O	2I = range ±0.8" H ₂ O
3P = range ±500 Pa	3M = range ±50 mmH ₂ O	3I = range ±2" H ₂ O
4P = range ±1000 Pa	4M = range ±100 mmH ₂ O	4I = range ±4" H ₂ O

All transmitters are supplied with 2 m of silicone tubing Ø5 mm internal/ Ø8 mm external and two plastic fittings for ducts. PC connecting cable must be ordered separately.

Physical specifications

Pressure connections	Ø 6 mm
Compatible media	Only air and non-aggressive dry gases
Operating conditions	-10...+60 °C (-5...+50 °C for the models with AZ option), 0...95 %RH
Storage temperature	-20...+70 °C
Materials	Housing: ABS Pressure connections: nickel-plated brass
Protection degree	IP65

Dimensions



Models with RS485 Modbus-RTU output

HD404ST	Blank = pressure measurement SR = pressure and speed measurement
	Blank = without LCD L = with LCD
	Blank = without auto-zero circuit (only HD404ST4... and HD404ST5...) AZ = with auto-zero circuit
2 = range ±250 Pa	
4 = range ±1000 Pa	
5 = range ±100 mbar	

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