

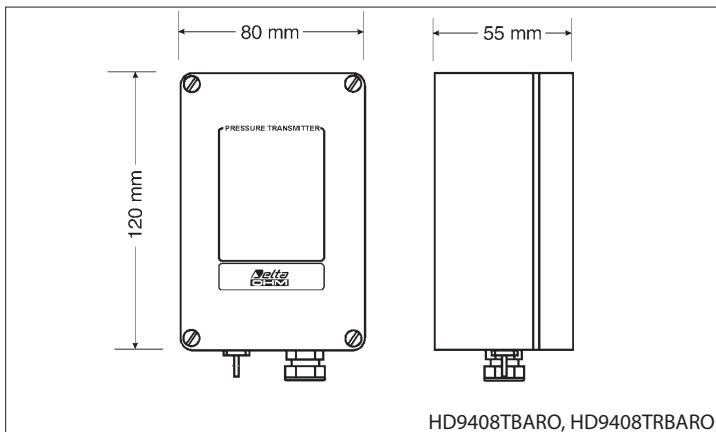
**HD9408T... - HD9908T...**



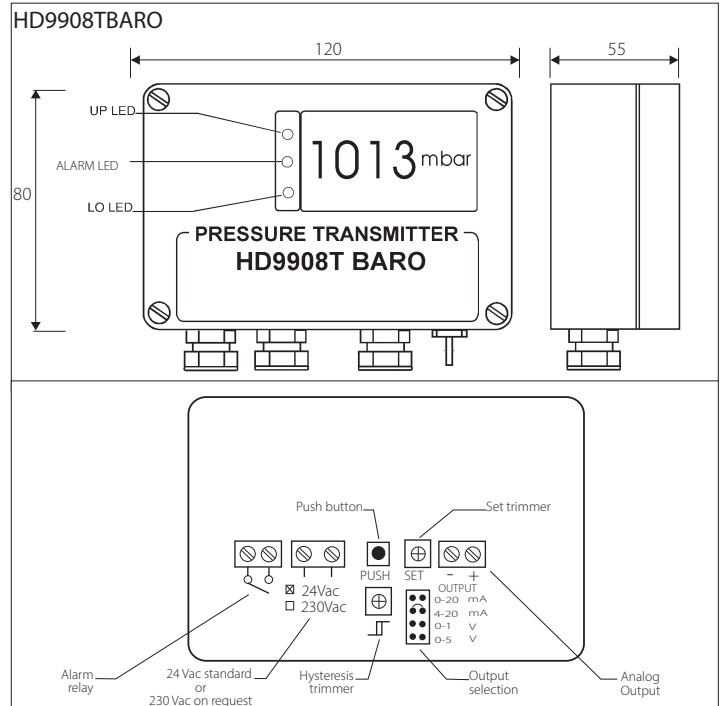
**HD9408T...BARO..., HD9908T...BARO SERIES  
BAROMETRIC TRANSMITTERS**

HD9408T...BARO, HD9408TR...BARO and HD9908T...BARO are analog output electronic barometers. They use a piezoresistive sensor element which gives extremely accurate and stable measurement of the atmospheric pressure and assures excellent repeatability, low hysteresis and very good temperature stability. The output signal of the sensor is conditioned to provide a voltage or a current output linearly proportional to the barometric pressure.

The transmitters are ready to use as they have been calibrated at the factory. A zero adjustments potentiometer is available for offset to station elevation.



Technical specifications			
	HD9408T BARO	HD9408TR BARO	HD9908T BARO
Sensor type	Piezoresistive diaphragm		
Measuring range	800...1100 mbar / 600...1100 mbar on request		
Analog output	0...1 Vdc standard; 0...5 or 1...6 Vdc or 4...20 mA (two wires) on request	0...1 Vdc standard; 0...5, 1...5 V or 1...6 Vdc on request	0...20 mA, 4...20 mA, 0...1 V and 0...5 V (0...10 V on request), configurable by means of a jumper
Accuracy	± 0.5 mbar, @ 20°C	± 0.5 mbar, @ 20°C	<i>Display</i> ± 1 mbar, @20°C <i>Analog output</i> ± 0,8 mbar, @ 20°C
Resolution	Infinite	Infinite	<i>Display</i> 1 mbar <i>Analog output</i> Infinite
Thermal effects	< 1% F.S., zero; <1% F.S., span over -20 to +60 °C (-4 to 140 °F)	± 0.8 mbar over -40 °C to +60 °C (-40 to 140 °F)	< 1% F.S. zero, <1% F.S. span over -20 °C to +60 °C (-4 to 140°F)
Long term stability	< 0.25 % F.S. over 6 months at 20 °C	< 0.2 % F.S. over 6 months at 20 °C	< 0.25 % F.S. over 6 months at 20 °C
Turn on time	1 sec. to 99% of full scale reading	5 min @ 24 Vdc supply to 99% of full scale reading	5 sec. to 99% of full scale reading
Response time	< 200 msec. after pressure stabilization		
Relay contact output	---	---	3A/230 Vac resistive load
Set point	---	---	Configurable from 800 to 1100 mbar
Supply Voltage	8...35 Vdc	12...35 Vdc	24 Vac ±10% (230 Vac on request)
Supply current	< 4 mA	25 mA @ 20°C, 24 Vdc (warm-up 120 mA)	1VA
Operating Temperature	-30...+60 °C	-40...+60 °C	-20...+60 °C
Media compatibility	Air and dry gases only		
Overload pressure	2 bar - 30 psi		



**HD9408TBARO** requires a continuous dc power supply, its low power consumption (< 4 mA) makes it ideal for portable and remote battery or solar powered applications. It is available with different kinds of analog output: 0...1 Vdc, 0...5 Vdc (1...5 Vdc, 1...6 Vdc on request) or 4...20 mA (two wires).

**HD9408TRBARO** offers superior temperature performance: the internal circuitry allows the sensor to work at constant temperature so that it achieves accurate temperature compensation over the whole range from -40 °C to +60°C. HD9408TRBARO requires a continuous dc power supply and a differential cabling connection to achieve best results. It is available with different output versions: 0...1 Vdc, 0...5 Vdc (1...5 Vdc, 1...6 Vdc on request).

**HD9908TBARO**, unlike the other models, is equipped with a display showing the pressure measurements, an analog output 0...20 mA, 4...20 mA, 0...1 V and 0...5 V (0...10 V on request) configurable by the customer and with an ON/OFF relay output with programmable alarm threshold. HD9908TBARO requires a 24 Vac (or 220 Vac on request) power supply.

HD9408TBARO, HD9408TRBARO and HD9908TBARO are low cost and excellent performance solutions for meteorological applications, environmental monitoring systems, metrological and environmental data logging, altitude applications, barometric pressure compensation in the performance of internal combustion engine, cleanroom barometric pressure compensation, testing of vehicle emissions.

### HOUSING AND INSTALLATION

In all models, the sensor electronics are housed in a sturdy bend polycarbonate case with IP67 protection. Opening the lid, the holes for fixing the transmitter directly to a panel or a wall are available. The measurement accuracy is independent of the position of the transmitter. However, it is advisable to mount the transmitter so that the sensor is facing down to reduce dust and dirt on the filter. If the installation is in an open environment, it is recommended to use a special **static port** to minimize errors caused by the wind flow on the input pressure.

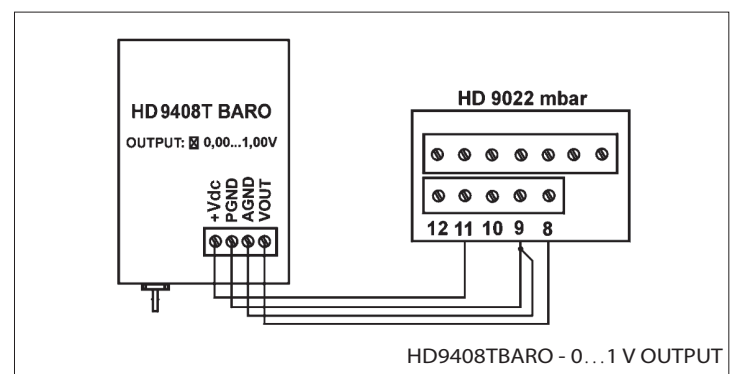
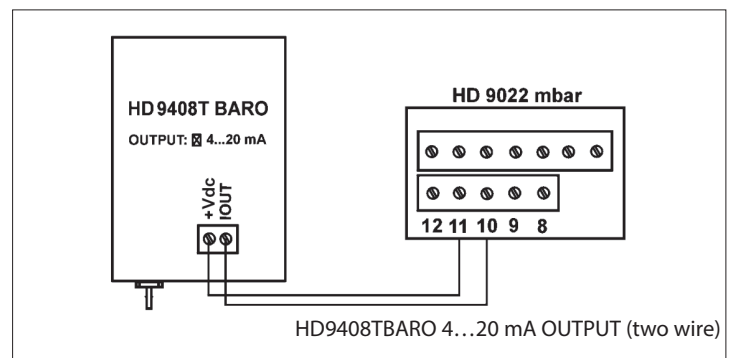
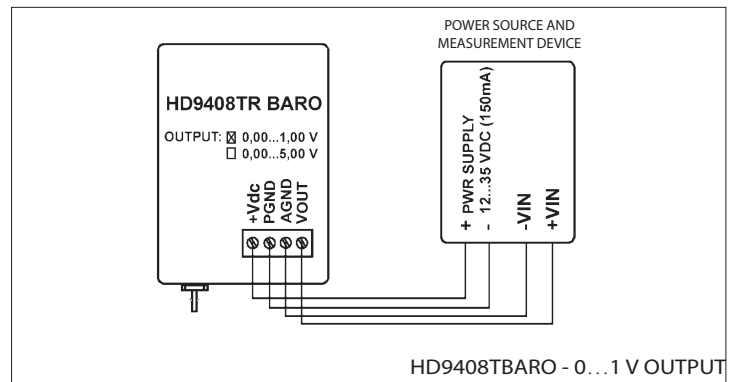
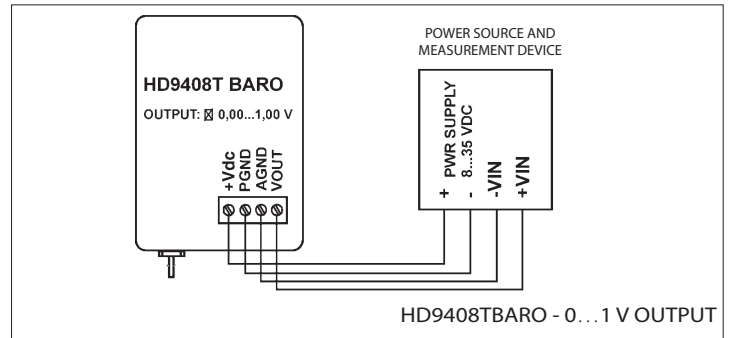
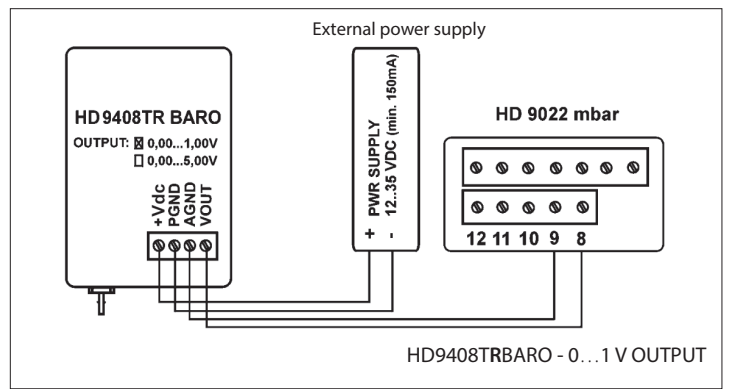
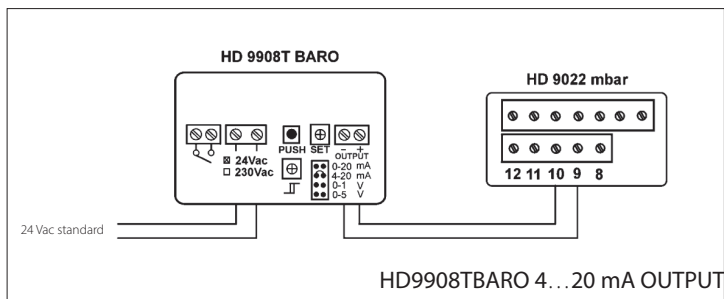
### HD9908TBARO: CONNECTION DIAGRAM AND OPERATION

- Make the power connections for the HD9908TBARO.
- Make the connections for the relay output, the relay contact is free.
- Select the analog output 0...20 mA, 4...20 mA, 0...1 V, 0...5 V by means of the jumper.
- Switch on the instrument, press the PUSH button and turn the SET trimmer to set the desired threshold value between 800 and 1100 mbar; the set value is shown on the LCD display.
- Using the trimmer  $\square$ , set the desired HYS (=hysteresis) value between 5 and 50 mbar.
- The instrument will now indicate the barometric pressure; HI led, LO led or ALARM led and ALARM relay will switch on if one the following cases occurs (see table 1).

NOTE: the ALARM led comes on to indicate that the relay is energized and the contact is closed.

- Once installation is completed, check that the cover is tightly closed; the same applies to the grommets.

TABLE 1	HI	LO	ALARM LED
MEASURE > SET, MEASURE < SET + HYS	ON	OFF	OFF
MEASURE > SET, MEASURE > SET + HYS	ON	OFF	ON
MEASURE < SET, MEASURE > SET - HYS	OFF	ON	OFF
MEASURE < SET, MEASURE < SET - HYS	OFF	ON	ON



## STATIC PORT FOR BAROMETRIC MEASUREMENTS

The measurement of the barometric pressure in free field can give incorrect values of hundred pascal fluctuation and wind direction. The **static port for barometric measurements can minimize these errors** because, in addition to act as a filter (brake) against the dynamic pressure of the wind, the barometer can operate correctly even in the presence of snow or ice and comply with the recommendations of the WMO (World Meteorological Organization). The materials used for the construction of the static are UV resistant and can operate in temperatures between -40°C and +80°C.

### INSTALLATION AND CONNECTION

When purchasing an HD9408T... transmitter with optional static port (K at the end of the purchasing code), this is assembled directly in the factory. (weight of the static port = 200 g; 570 g equipped with the bracket).

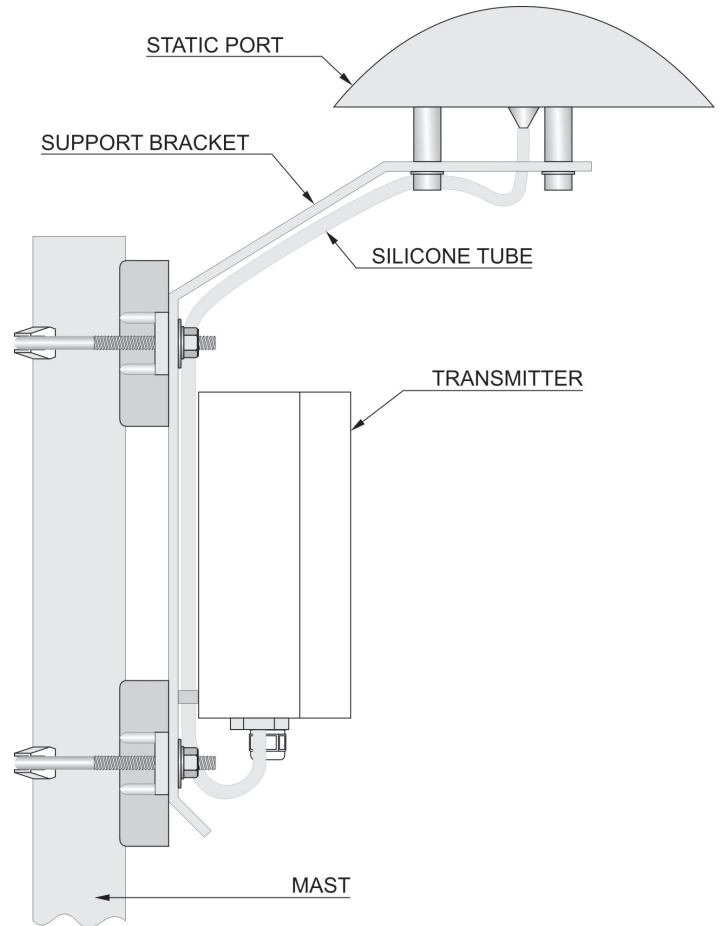
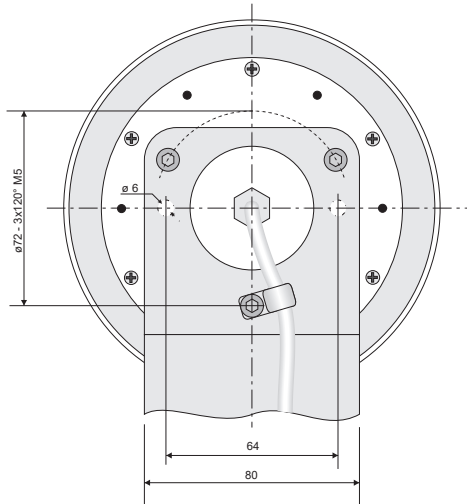
Also the connection of the static port to the barometer is made during the production.

The silicone tube is UV and climate changes resistant. It has an internal diameter of 3 mm and an outer diameter of 6 mm.

Maintenance or cleaning is minimal. The plastic parts are in ASA tecnopolymer. Clean using non aggressive detergents compatible with the material.

### TECHNICAL SPECIFICATIONS

According to recommendations of the WMO, the deviation allowed measurement of wind speed 20 m/s is equal to 0.3 mbar, corresponding to 300 Pascal. The static port for barometric measurements falls within that value.



## ORDERING CODES

HD9408T	BARO	Static port Blank = without (default) K = with static port and support bracket
		Measuring range Blank = 800...1100 mbar (default) E = 600...1100 mbar
		Range analog output Blank = 0...1 V (default) 1 = 1...5 V 5 = 0...5 V 6 = 1...6 V 10 = 0...10 V MA = 4...20 mA (not available for HD9408TRBARO)
		Heating Blank = without heating (default) R = with heating

HD9908T	BARO	Measuring range Blank = 800...1100 mbar (default) E = 600...1100 mbar
		Analog outputs Blank = 0...20 mA, 4...20 mA, 0...1 V and 0...5 V (default) .1 = 0...20 mA, 4...20 mA, 0...1 V and 0...10 V
		Power supply Blank = 24 Vac (default) DC = 24 Vdc R = 230 Vac



**DICHIARAZIONE DI CONFORMITÀ UE  
EU DECLARATION OF CONFORMITY**

Delta Ohm S.r.L. a socio unico – Via Marconi 5 – 35030 Caselle di Selvazzano – Padova – ITALY

Documento Nr. / Mese.Anno: **5076 / 09.2019**  
Document-No. / Month.Year :

Si dichiara con la presente, in qualità di produttore e sotto la propria responsabilità esclusiva, che i seguenti prodotti sono conformi ai requisiti di protezione definiti nelle direttive del Consiglio Europeo:  
*We declare as manufacturer herewith under our sole responsibility that the following products are in compliance with the protection requirements defined in the European Council directives:*

Codice prodotto: **HD9408TBARO – HD9408TRBARO**  
Product identifier :

Descrizione prodotto: **Trasmettitore barometrico**  
Product description : **Barometric transmitter**

I prodotti sono conformi alle seguenti Direttive Europee:  
*The products conform to following European Directives:*

Direttive / Directives	
2014/30/EU	Direttiva EMC / EMC Directive
2014/35/EU	Direttiva bassa tensione / Low Voltage Directive
2011/65/EU - 2015/863/EU	RoHS / RoHS

Norme armonizzate applicate o riferimento a specifiche tecniche:  
*Applied harmonized standards or mentioned technical specifications:*


Norme armonizzate / Harmonized standards	
EN 61010-1:2010	Requisiti di sicurezza elettrica / Electrical safety requirements
EN 61326-1:2013	Requisiti EMC / EMC requirements
EN 50581:2012	RoHS / RoHS

Il produttore è responsabile per la dichiarazione rilasciata da:  
*The manufacturer is responsible for the declaration released by:*

Johannes Overhues

Amministratore delegato  
Chief Executive Officer

Caselle di Selvazzano, 20/09/2019



Questa dichiarazione certifica l'accordo con la legislazione armonizzata menzionata, non costituisce tuttavia garanzia delle caratteristiche.  
*This declaration certifies the agreement with the harmonization legislation mentioned, contained however no warranty of characteristics.*



**DICHIARAZIONE DI CONFORMITÀ UE  
EU DECLARATION OF CONFORMITY**

Delta Ohm S.r.L. a socio unico – Via Marconi 5 – 35030 Caselle di Selvazzano – Padova – ITALY

Documento Nr. / Mese.Anno: **5133 / 07.2019**  
Document-No. / Month.Year :

Si dichiara con la presente, in qualità di produttore e sotto la propria responsabilità esclusiva, che i seguenti prodotti sono conformi ai requisiti di protezione definiti nelle direttive del Consiglio Europeo:  
*We declare as manufacturer herewith under our sole responsibility that the following products are in compliance with the protection requirements defined in the European Council directives:*

Codice prodotto: **HD9908TBARO**  
Product identifier :

Descrizione prodotto: **Trasmettitore barometrico**  
Product description : **Barometric transmitter**

I prodotti sono conformi alle seguenti Direttive Europee:  
*The products conform to following European Directives:*

Direttive / Directives	
2014/30/EU	Direttiva EMC / EMC Directive
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Il produttore è responsabile per la dichiarazione rilasciata da:  
*The manufacturer is responsible for the declaration released by:*

Johannes Overhues

Amministratore delegato  
Chief Executive Officer

Caselle di Selvazzano, 19/07/2019



Questa dichiarazione certifica l'accordo con la legislazione armonizzata menzionata, non costituisce tuttavia garanzia delle caratteristiche.  
*This declaration certifies the agreement with the harmonization legislation mentioned, contained however no warranty of characteristics.*

**WARRANTY**

Delta OHM is required to respond to the "factory warranty" only in those cases provided by Legislative Decree 6 September 2005 - n. 206. Each instrument is sold after rigorous inspections; if any manufacturing defect is found, it is necessary to contact the distributor where the instrument was purchased from. During the warranty period (24 months from the date of invoice) any manufacturing defects found will be repaired free of charge. Misuse, wear, neglect, lack or inefficient maintenance as well as theft and damage during transport are excluded. Warranty does not apply if changes, tampering or unauthorized repairs are made on the product. Solutions, probes, electrodes and microphones are not guaranteed as the improper use, even for a few minutes, may cause irreparable damages.

Delta OHM repairs the products that show defects of construction in accordance with the terms and conditions of warranty included in the manual of the product. For any dispute, the competent court is the Court of Padua. The Italian law and the "Convention on Contracts for the International Sales of Goods" apply.

**TECHNICAL INFORMATION**

The quality level of our instruments is the result of the continuous product development. This may lead to differences between the information reported in the manual and the instrument you have purchased. In case of discrepancies and/or inconsistencies, please write to sales@deltaohm.com. Delta OHM reserves the right to change technical specifications and dimensions to fit the product requirements without prior notice.

**DISPOSAL INFORMATION**



Electrical and electronic equipment marked with specific symbol in compliance with 2012/19/EU Directive must be disposed of separately from household waste. European users can hand them over to the dealer or to the manufacturer when purchasing a new electrical and electronic equipment, or to a WEEE collection point designated by local authorities. Illegal disposal is punished by law.

Disposing of electrical and electronic equipment separately from normal waste helps to preserve natural resources and allows materials to be recycled in an environmentally friendly way without risks to human health.

