

G3500

Pressure Transmitter Datasheet



Overview

Application

For OEMs that need consistent high levels of performance, reliability and stability the 3500 Series units offer a compact size with all 316L stainless steel wetted parts at an unbeatable price performance ratio. A wide choice of output signal types in addition to various electrical connection and pressure port types means the unit is suitable for most applications without modification. The compact construction of the 3500 Series makes it ideal for installation where space is at a premium.

Typical applications: Medical equipment, refrigeration, HVAC, gas analysis.

Function

A MEMS pressure sensor has a significantly more complex design than a traditional thin-film pressure sensor. The pressure sensor element is made of a silicon chip, which deflects under pressure and consists of a diaphragm structure with piezo-resistive resistors.

A bare MEMS chip is hermetically sealed to protect against environmental influences. For this reason, it is installed in a stainless-steel case that is sealed using a thin, flat, stainless-steel diaphragm. The cavity between the MEMS chip and the external diaphragm is filled with synthetic oil.

A header is used for sensor mounting and for electrical connection to the pressure sensor chip. It has integrated glass-to-metal seals for the electrical connection between the inner and outer chambers. The pressure sensor element, glued to the rear side of the header, is connected to the pins using gold bonding wires and transmits electrical signals from the pressure sensor element to the connected electronics in the external chamber of the pressure sensor.

At a Glance

- Pressure Transmitter for gauge, absolute and vacuum pressure measurement
- Small and compact package size
- Lifetime > 100 M cycles
- Measuring range from +/-350 mbar to -1 ... 40 bar
- Process temperatures from -40 ... +125°C
- Wide range of pressure ports and electrical connectors
- Housing and Diaphragm made of premium stainless steel
- Customized OEM versions available

Technical Data

Measuring Ranges	-1/0 ... 0.35/40 bar
Overload limit	2 x FS (Full scale)
Burst Pressure	3 x FS
Long Term Drift	0.2% FS/year (non-cumulative)
Accuracy*	0.2% FS/year (non-cumulative)
Thermal Error	1.0% FS/80°C
Process Temperature	-40 ... +125°C
Ambient Temperature	-40...+70 °C (-40...+158 °F)
Storage Temperature	-40...+85 °C (-40...+185 °F)
Ambient Humidity	4 ... 95% HR (non-condensing)
Response Time	1 ms
Lifetime	Designed >100M cycles

* including linearity, repeatability, zero point and span, hysteresis

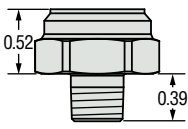
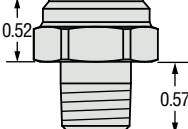
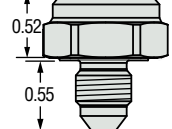
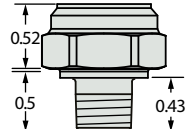
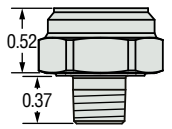
Mechanical Configuration

Pressure Port	See under "Process Connections"
Wetted Parts	Stainless Steel 316L
Mounting Position	Any position
Electrical Connection	Plug connection or fixed cable
Mis-wire protection	Yes, for all versions
Protection	IP67 (IP65 connection plug type A and C)
Vibration	BSEN 60068-2-6 (FC) BSEN 60068-2-64 (FH)
Shock	BSEN 60068-2-27 (Ea)
Approvals	CE, conforms to European Pressure Directive, Fully RoHS compliant, UL recognized file # EX16137
Weight	35 ... 53 grams (depending on version)

Output Signals

Voltage Output	0 ... 5/10; 1 ... 5/6V; 0.5 ... 4.5V
Output Signal	3-wire, linear characteristic curve
Supply Voltage	2 Volts above full scale to 30 Vdc max
Current Consumption	4.5mA max
Max Burden	≥ 5kΩ
Current Output	4 ... 20 mA
Output Signal	2-wire, linear characteristic curve
Signal on Error	3.5mA
Supply Voltage	8 ... 30VDC
Max Burden	$R = (U_S - 8V)/20mA$ when $U_S \leq 24V$
Min Burden	$R = (U_S - 24V)/20mA$ when $U_S > 24V$

Process Connections/Pressure Ports

SAE Dimensions in Inches					
Fitting Code	08 = 1/8"-27 NPT	02 = 1/4"-18 NPT	04 = 7/16"-20 UNF mit 37° Phase	1J = 7/16"-20 UNF	4D = 1/8"-27 NPTF
Torque	2-3 TFFT*	2-3 TFFT*	15-16 Nm	18-20 Nm	2-3 TFFT*

Process Connections/Pressure Ports

Metric Dimensions in mm				
Fitting Code	OS = G1/8" External	O1 = G1/4"-19 External	O5 = G1/4"-19 Integral Face Seal	OL = M12 x 1.5 External
Torque	22-25 Nm	30-35 Nm	30-35 Nm	28-30 Nm

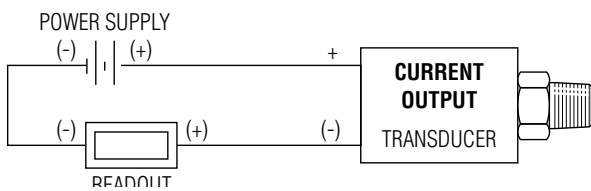
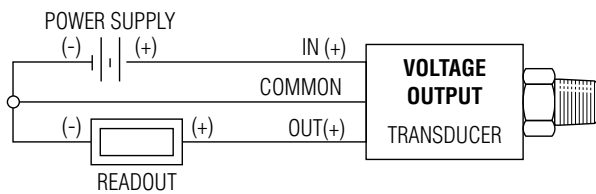
* NPT Threads 2-3 turns from finger tight. Wrench tighten 2-3 turns.

General Notes:

1. The diameter of all cans is 19 mm (0.748")
2. Hex is 22 mm (0.886") Across Flats (A/F) for deep socket mounting

Other pressure ports available on request.

Wiring Diagram



Electrical Connection

	Type C (DIN EN 175 301-803)		M12 x 1P		Deutsch DT04-4P		Type A (DIN EN 175 301-803)			
Inch (mm)										
	Code B		Code K		Code E		Code 8		Code G	
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode
1	Signal	No Connect	V _{supply}	+	V _{supply}	+	Ground	—	V _{supply}	+
2	V _{supply}	+	Ground	—	Signal	No Connect	V _{supply}	+	Ground	—
3	No Connect	No Connect	Signal	No Connect	Ground	—	No Connect	No Connect	Signal	No Connect
4	Ground	—	No Connect	No Connect	No Connect	No Connect	Signal	No Connect	No Connect	No Connect

Other pin assignments on request.

Versions/Ordering Structure

G3500 - X - XXXX - X - XX - X - 0 - 00

Model

Output Signal

B - 4 ... 20 mA C - 1 ... 6 V H - 1 ... 5 V
 N - 0.5 ... 4.5 V R - 0 ... 5 V R - 0 ... 5 V
 S - 0 ... 10 V

Measuring Range

0000 - 0 bar¹ 0006 - 6 bar
 350M - 350 mbar 0010 - 10 bar
 700M - 700 mbar 0016 - 16 bar
 0001 - 1 bar 0025 - 25 bar
 01B6 - 1.6 bar 0040 - 40 bar
 02B5 - 2.5 bar
 0004 - 4 bar

Version Pressure Measurement

G - Gauge pressure
 A - Absolute pressure
 V - Vacuum²

Electrical Connection

B - Type C (mating connector not supplied)
 E - M12 x 1P (4-Pin)
 G - Type A
 K - Type C (alternate pin out)
 8 - Deutsch DT04-4P

Process Connection/Pressure Port

08 - 1/8-27 NPT External
 4D - 1/8-27 NPTF External
 02 - 1/4-18 NPT External
 04 - 7/16-20 External (SAE #4, J514)
 1J - 7/16-20 External (SAE #4, J1926-2)
 01 - G1/4 External
 05 - G1/4 External Soft Seal
 OL - M12 x 1.5
 OS - G1/8"-27 External

Notes:

1. Only for vacuum versions
2. For vacuum versions the measuring range starts at -1 bar (gauge pressure measurement)

Customized versions on request:

- Sensor label and packaging (w/o bar code)
- Pressure port, output signal, electrical connection
- OEM blister packaging (25 pieces)

Accessories

Suitable accessories on request, also available as a kit plug with connected cable.

Contact



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