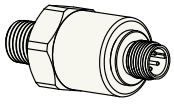
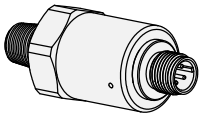
PGP Pressure Sensor with S15C Modbus Converter

Datasheet

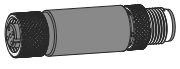
Ceramic PGP



Stainless PGP



S15C Converter



- Includes a pressure sensor and an S15C Analog to Modbus Converter
- Pre-configured for use with the specific pressure sensor

Models

Model Number	Pressure Range	Measuring Cell
S15C-PS15SS-MQ	0 PSIG to 15 PSIG	Stainless Steel
S15C-PS50SS-MQ	0 PSIG to 50 PSIG	Stainless Steel
S15C-PS100SS-MQ	0 PSIG to 100 PSIG	Stainless Steel
S15C-PS150C-MQ(1)	0 PSIG to 150 PSIG	Ceramic
S15C-PS150SS-MQ	0 PSIG to 150 PSIG	Stainless Steel
S15C-PS3000SS-MQ	0 PSIG to 3000 PSIG	Stainless Steel
S15C-PS5000SS-MQ	0 PSIG to 5000 PSIG	Stainless Steel

Configuration Instructions

Sensor Configuration Software

The Sensor Configuration Software offers an easy way to manage converter Modbus settings, retrieve data, and visually show converter data. The Sensor Configuration Software runs on any Windows machine and uses an adapter cable (BWA-UCT-900, p/n 19970) to connect the converter to the computer.

Download the most recent version of the Sensor Configuration Software from the Banner Engineering website: https://info.bannerengineering.com/cs/groups/public/documents/software/b_3128586.exe.

Modbus Configuration

Modbus Register Address	Description	I/O Range	Comments	Default(2)	Access
IO Data Out					
40001	Pressure Data output	0-32768	Pressure (PSI) = Register Value / 100 Pressure (PSI) = Register Value / 100 Pressure (PSI) = Register Value / 100 Pressure (PSI) = Register Value / 100 Pressure (PSI) = Register Value / 1 Pressure (PSI) = Register Value / 1	1500 5000 10000 15000 3000 5000	RO
40002	Alarm State for IO 1 based on Min and Max thresholds defined in Analog In Min Value () and Analog In Max Value()	0...1	0 = Within threshold range 1 = Out of threshold range	-	RO

Continued on page 2

(1) Ceramic measuring cell for compressed air applications.
(2) Depending on model selected.

Original Instructions
August 11, 2023

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p/n: 236015 Rev. B

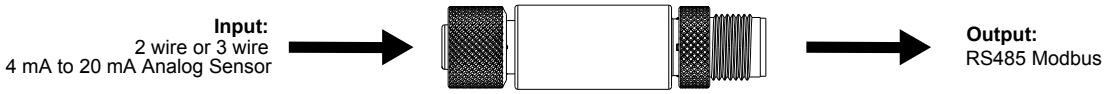
ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

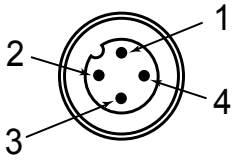
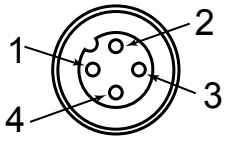
Continued from page 1

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40003	Status of program	0...2	STATUS_ERROR_TYPE_NO_ERROR = 0 STATUS_ERROR_TYPE_BELOW_MIN = 1 STATUS_ERROR_TYPE_ABOVE_MAX = 2	-	RO
Input_ADC_Config					
41201	Sample interval time	0...65535	0 = Disabled 1 = 10 ms 2...65535 = 5 ms increments	1	RW
FilterConfig					
41202	Takes current ADC value and the last ADC reading and takes the median of the values.	0...1	0 = Median Filter Disabled 1 = Median Filter Enabled	0	RW
Minimum Value					
41204	Minimum pressure value for data read	0...14 PSI 0...49 PSI 0...99 PSI 0...149 PSI 0...149 PSI 0...2999 PSI 0...4999 PSI	Must be less than maximum	0 PSI	RW
Maximum Value					
41205	Maximum pressure value for data read	1...15 PSI 1...50 PSI 1...100 PSI 1...150 PSI 1...150 PSI 1...3000 PSI 1...5000 PSI	Must be greater than the minimum	15 PSI 50 PSI 100 PSI 150 PSI 150 PSI 3000 PSI 5000 PSI	RW
COMs Settings					
46101	Baud Rate	0 = 9.6k 1 = 19.2k 2 = 38.4k	0 = 9.6k 1 = 19.2k 2 = 38.4k	1	RW
46102	Parity	0 = None 1 = Odd 2 = Even	0 = None 1 = Odd 2 = Even	0	RW
46103	Slave Address	1...247	1 to 247	1	RW

Wiring

S15C Wiring



Male (Gateway)	Female (Sensor)	Pin	Wire Color
		1	Brown
		2	White
		3	Blue
		4	Black

IMPORTANT: If using a cable to connect the converter to an analog sensor, use of a shielded M12 cable is recommended, with the shield tied to pin 3.

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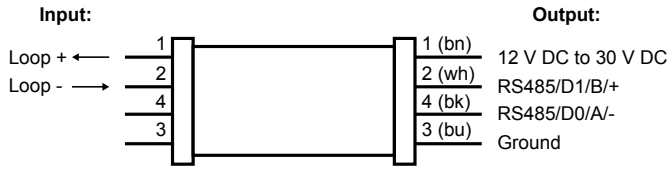
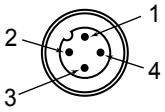
Connecting 2-wire 4 mA to 20 mA Sensors



PGP Wiring

4-pin M12 Male QD	Pin	Description
	1	Supply +
	2	Output
	3	Not used/no connection
	4	Not used/no connection

Status Indicators

Power LED Indicator (Green)

- Solid Green = Power On
- Off = Power Off

Modbus Communication LED Indicator (Amber)

- Flashing Amber (4 Hz) = Modbus communications are active
- Solid Amber for 2 seconds to Off = Modbus communications are lost after connection
- Solid Amber for 2 seconds to Flashing Amber (4 Hz) = Modbus communications momentarily lost, but communication reestablished
- Solid Amber = Modbus communications are intermittent, or communications error occurs more frequently than once every 2 seconds
- Off = Modbus communications are not present

Specifications

S15C Specifications

Supply Voltage
12 V DC to 30 V DC at 50 mA maximum

Power Pass-Through Current
4 A maximum

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Leakage Current Immunity
400 µA

Resolution
12-bits

Accuracy
1.5% of full scale

Internal Resistance
100 ohms

Indicators
Green power
Amber Modbus communications

Connections
Integral male/female 4-pin M12 quick-disconnect connector

Construction
Coupling Material: Nickel-plated brass
Connector Body: PVC translucent black

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 0.5 mm amplitude, 5 minutes sweep, 30 minutes dwell)
Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Environmental Rating
IP65, IP67, IP68
NEMA/UL Type 1

Operating Conditions
Temperature: –40 °C to +70 °C (–40 °F to +158 °F)
90% at +70 °C maximum relative humidity (non-condensing)
Storage Temperature: –40 °C to +80 °C (–40 °F to +176 °F)

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

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Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	1.0	30	0.5

Product Identification

SNAP SIGNAL®

Ceramic Pressure Sensor Specifications

Supply Voltage
9 to 30 V DC

Output
4 to 20mA, 2-wire Loop Power

Connections
Electrical: M12x1 4-pin Male
Process: 1/4"-18 Male NPT

Ambient Temperature
–20 °C to +70 °C (–4 °F to +158 °F)

Compensated Temperature
–20 °C to +70 °C (–4 °F to +158 °F)

Storage Temperature
–20 °C to +70 °C (–4 °F to +158 °F)

Enclosure Rating
IP65

Accuracy
±1% of Full Scale

Zero/Span Tolerance
±1% of Full Scale

Long Term Stability
±1%/year

Permissible Over-pressure
1.5x Full Scale

Burst Pressure
2x Full Scale

Construction
Housing: #304SS, Copper, Aluminium
Wetted Parts: #316L Stainless Steel, Ceramic

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Stainless Pressure Sensor Specifications

Supply Voltage
9 to 30 V DC

Output
4 to 20mA, 2-wire Loop Power

Connections
Electrical: M12x1 4-pin Male
Process: 1/4"-18 Male NPT

Ambient Temperature
–40 °C to +85 °C (–40 °F to +185 °F)

Compensated Temperature
–10 °C to +70 °C (+14 °F to +158 °F)

Storage Temperature
–45 °C to +85 °C (–49 °F to +185 °F)

Enclosure Rating
IP67

Accuracy
±0.5% of Full Scale

Zero/Span Tolerance
±0.5% of Full Scale

Long Term Stability
±0.5%/year

Permissible Over-pressure
2.5x Full Scale

Burst Pressure
4x Full Scale

Construction
Housing: #304SS, Copper, Aluminium
Wetted Parts: #316L Stainless Steel

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
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FCC Part 15 Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses

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and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada ICES-003(B)

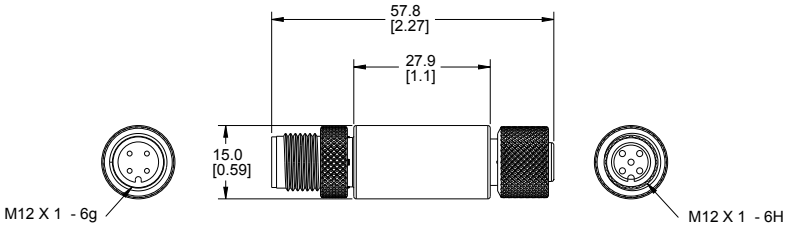
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

Dimensions

S15C Dimensions

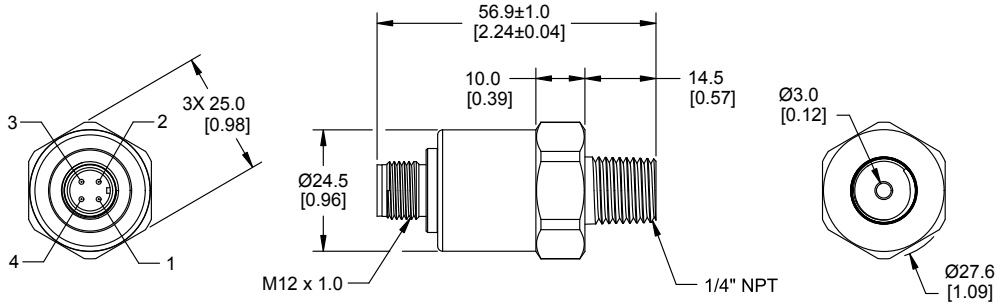
All measurements are listed in millimeters [inches], unless noted otherwise.



Ceramic Pressure Sensor Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.

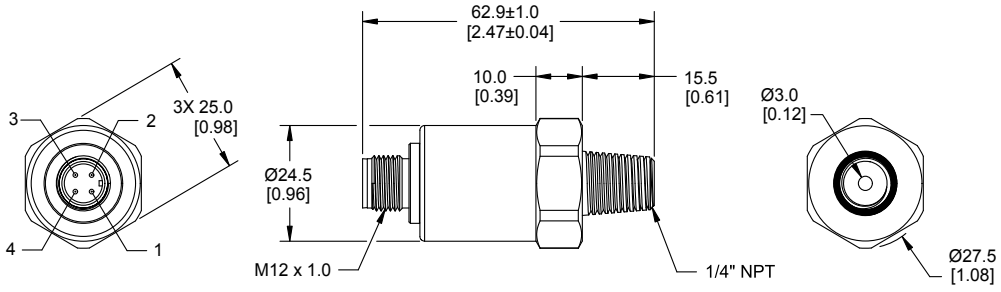
Ceramic model



Stainless Pressure Sensor Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.

Stainless steel model



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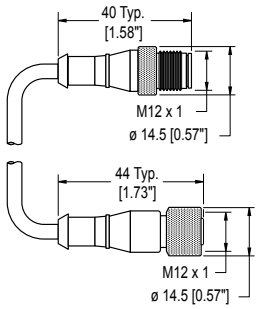
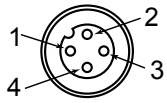
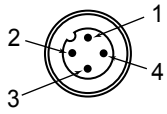
Accessories

Cordsets

4-Pin Threaded M12 Cordsets—Double Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

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