

U86B

Urea Dosing

SPECIFICATIONS

- **Mountable with O-ring seal**
- **Stainless Steel wetted surfaces**
- **Amplified**
- **ASIC calibrated**
- **Absolute, sealed gage**
- **Cable option**
- **Analog output**
- **SENT Output Optional (contact factory for details)**

FEATURES

- Mountable O-ring with seal
- ±0.5% Accuracy
- ±2.0 Total Error Band
- Cable option
- Freeze Protection Available

APPLICATIONS

- Urea level
- Urea pressure
- Air brakes
- Corrosive fluid measurement for E&V applications
- Automotive

The U86B is an automotive designed 16mm media isolated, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing and is designed for O-ring mounting. The sensing package utilizes silicone oil to transfer pressure from the 316L stainless steel diaphragm to the sensing element. The U86B is designed for high performance, low pressure applications. A custom ASIC is used for temperature compensation, offset correction, and provides an amplified output of 0.5 to 4.5V. CE approved and manufactured to TS16949 standard, this model may also come with a cable if desired. For a similar sensor without plastic housing, refer to the 86A or for a plastic threaded fitting, refer to the LM pressure transducer.

STANDARD RANGES

Range	psiA, psiG, psiS	Range	barA, barG, barS
0 to 050	•	0 to 005	•
0 to 100	•	0 to 010	•
0 to 150	•	0 to 012	•
0 to 200	•	0 to 013	•

Other pressure ranges available, please contact factory

PERFORMANCE SPECIFICATIONS

Unless otherwise specified: Supply Voltage: 5V, Ambient Temperature: 25°C after 10 sec warm-up

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Supply Voltage	4.75	5.00	5.25	V	
Supply Current			12.5	mA DC	
Ratiometric Output	0.5		4.5	V	1, 5
Accuracy (combined linearity, hysteresis & repeatability)	-0.5		0.5	%Span	2
Total Error Band	-2.0		2.0	%Span	3
Compensated Temperature	-7		+105	°C	
Operating Temperature	-40		+105	°C	
Storage Temperature	-40		+125	°C	
Insulation Resistance ($500V_{DC}$)	10			MΩ	4
Reverse Voltage			18	V	
Overvoltage Protection			18	V	
Short Circuit Protection		Continuous			
Output Noise @ 1kHZ		13		mV	
Response Time (10% to 90%)		1.0		ms	
Long Term Stability	-0.15		0.15	%Span/Year	
Output Load		47		kΩ	
Diagnostics Ability		Included			

Notes

1. Ratiometric to supply voltage, pressure transfer function at 5V Voltage Supply, see Chart A
2. Best Fit Straight Line
3. TEB includes all accuracy errors, thermal errors, span and zero tolerance over the compensated range
4. Between sensor body to any pins of connector
5. This product can be configured for custom OEM requirements, contact factory for different transfer functions and output clipping. See Chart B

ENVIRONMENTAL SPECIFICATIONS

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Pressure Overload			2X	Rated	6
Pressure Burst			3X	Rated	7
Pressure Cycle	1M			Cycles	
Material	Port: 316/316L ST STL Sealing: FKM Fluoroelastomer 70 (O-Ring) Housing: PA66 + 30%GF				
Freezing Protecting		Optional			9

Notes

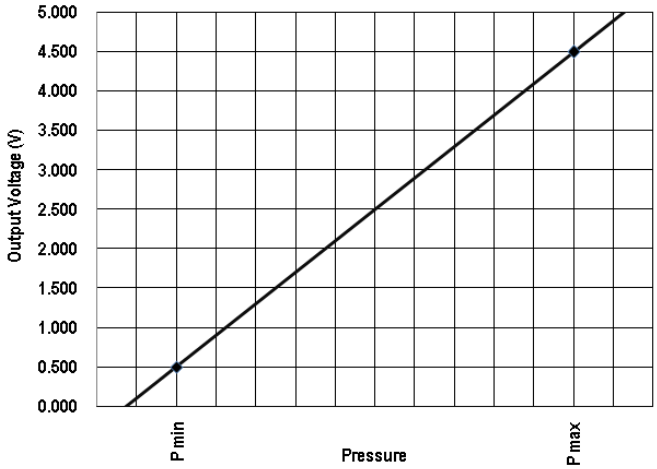
6. The maximum pressure that can be applied without changing the transducer's performance or accuracy.
7. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
8. Transducers can be installed by M4X0.7 Torx washer head screws (qty 2) with 2.2Nm torque (values provided are for reference). Actual torque depends upon on mating support material, surface flatness and different screws. Transducer housing may crack if over-torqued when installing
9. Medium dead volume that exceeds 350mm^3 max in manifold (excluding sensor) may damage the sensor during frozen condition

Agency Approvals EMC Performance Criteria: Output Change < ±1.5% of FS @RT	
ESD ISO 10605	8kV Contact / 15kV Air
Immunity Radiated Field ISO 11452-2	Level V, 140V/m, 200MHz-3.2GHz
BCI ISO 11452-4	d = 150mm, d = 450mm, d = 750mm Frequency Range: 1MHz-400MHz Modulation CW, AM Severity Level V (200mA)

SENT Only	
Magnetic Field Test ISO 11452-8	15Hz to 150kHz, Level 4
Emission Conducted. Voltage Mode/Current Probe CISPR 25	Frequency Range: 150kHz – 108MHz, Class 5
Emission Radiated CISPR 25	Frequency Range: 150kHz - 2.5GHz, Class 5
Output Interface	SENT (SAE J2716, 2010)

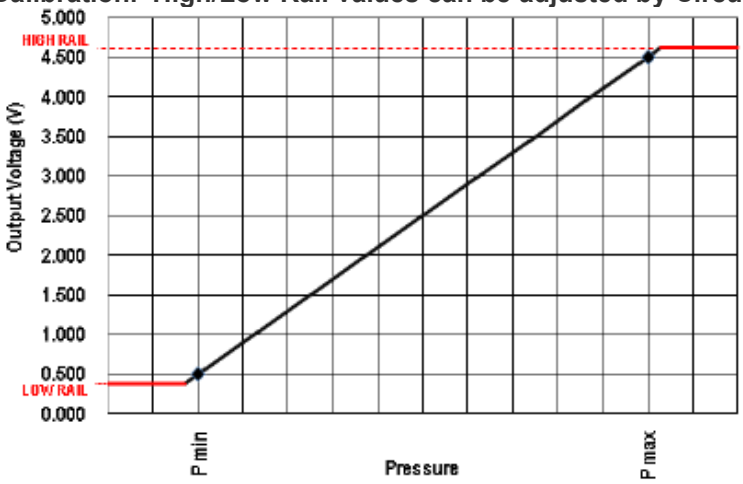
CHARTS

Chart A: Pressure Transfer Function, Supply = 5V

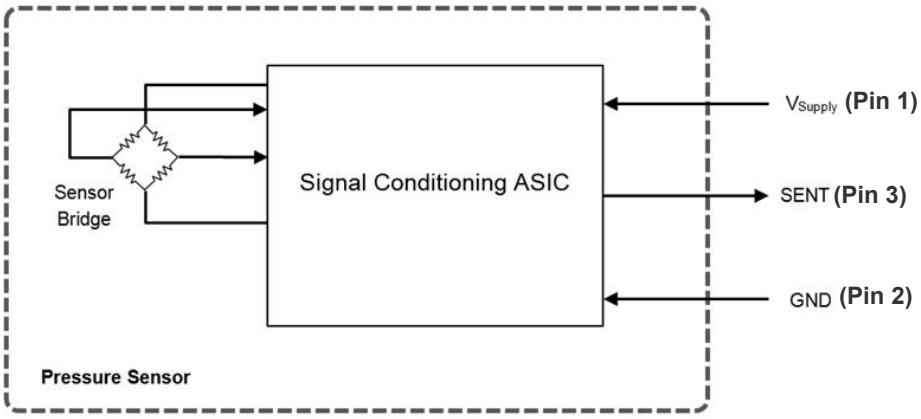


$$Output\ Voltage = \frac{80\% \times Supply\ V}{Pmax - Pmin} \times (Pressure\ Applied - Pmin) + 10\% \times Supply\ V$$

Chart B: OEM Custom Calibration. High/Low Rail values can be adjusted by Circuit

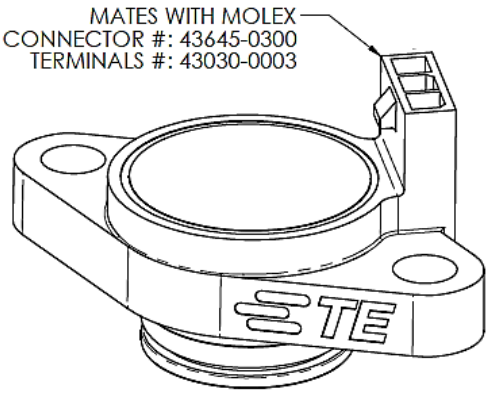


SENT Functional Block Diagram

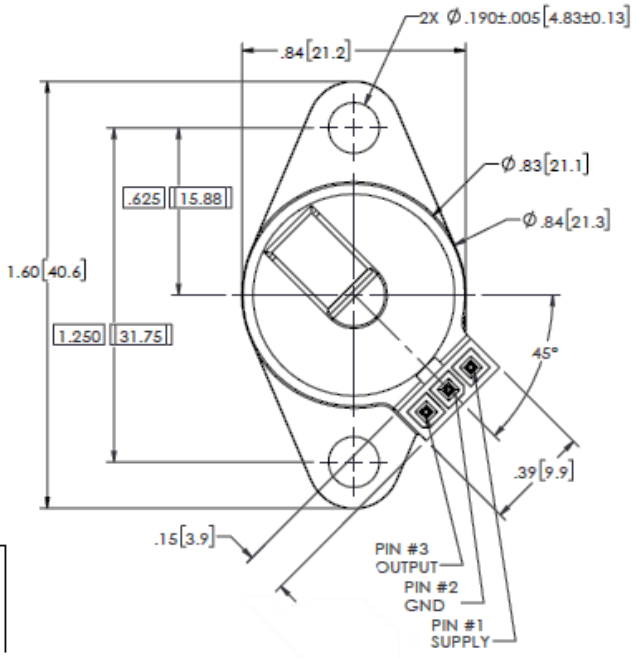


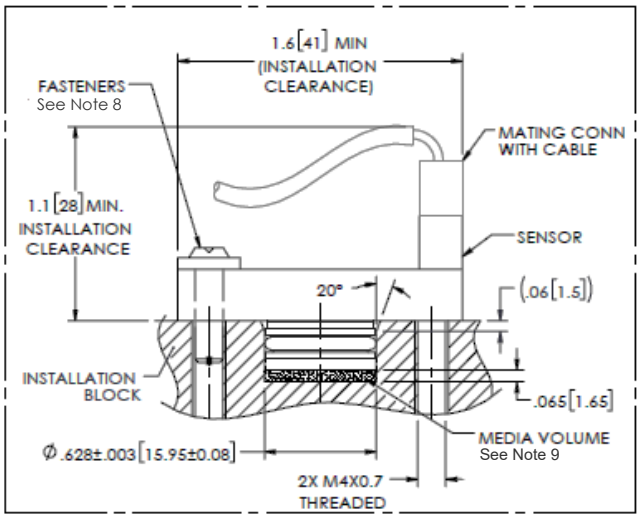
DIMENSIONS

Dimensions are in inches [mm]

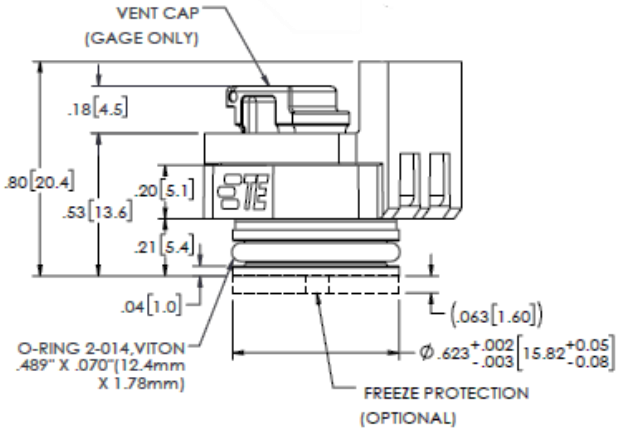


Non-Vent Cap/Non-Freeze option shown



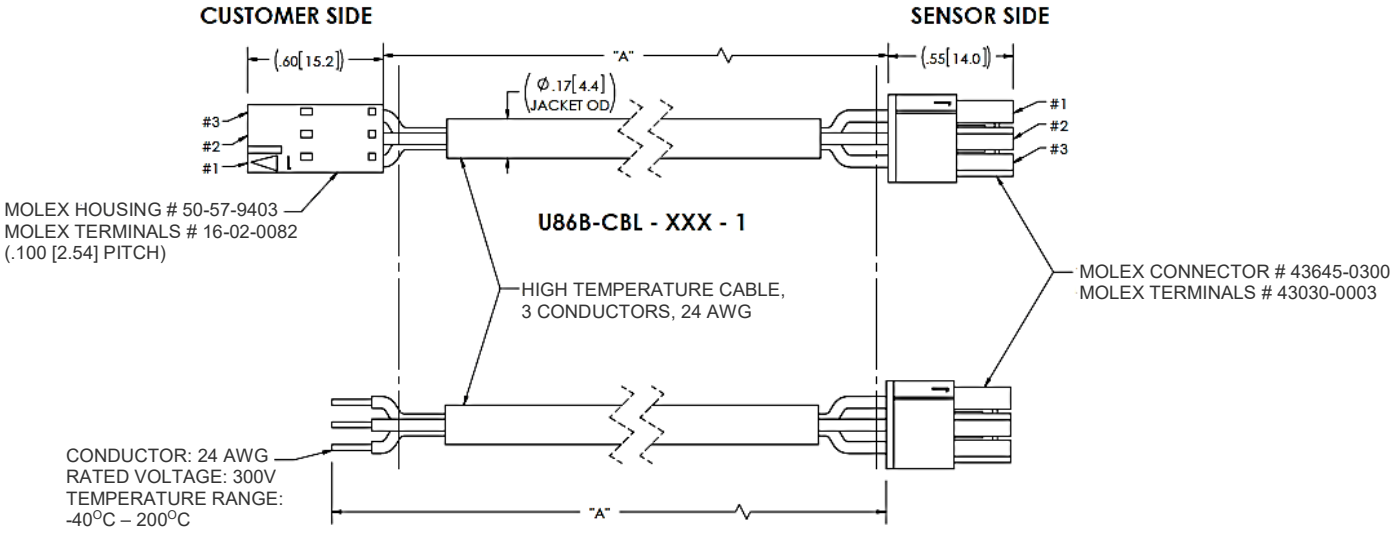


RECOMMENDED INSTALL INFORMATION



CABLE DIMENSIONS

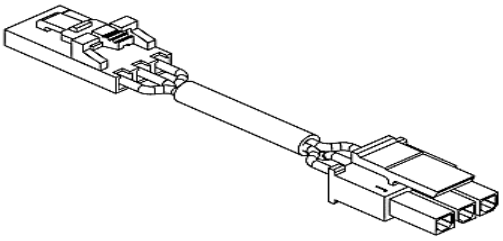
See “Cable Ordering Information” matrix for cable length options



U86B-CBL - XXX - 0

Customer & Sensor Side

Pos No	Color	Function
1	Red	Supply
2	Black	GND
3	Blue	Output



ORDERING INFORMATION

U86B – 100P A 2 – F 1 A

Pressure Range	
050P	005B
100P	010B
150P	012B
200P	013B

Pressure Type	
G	Gage
A	Absolute
S	Sealed Gage

Output Ratiometric	
1	0.5V @ 0.0barG/A/S
2	0.5V @-0.5barG/S
3	0.5V @ -1.0 barG/S

SENT Output available, contact factory for details

Output Type	
A	Analog

Connector	
1	Molex

Freeze Protection	
N	None
F	Freeze

CABLE ORDERING INFORMATION

U86B – CBL – 010 – 1

Cable Length	
005	5 [127]
010	10 [254]
020	20 [508]

Cable Lengths are in inches[mm]

Connector	
0	No Connector
1	Molex Connector #50579403

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