



# Fully Compensated TR Series

The TR Series pressure transducer is a rugged, direct-media pressure monitoring solution designed for today's toughest pressure sensing environments.

The TR Series pressure transducer is a fully compensated, amplified output pressure sensor package combining Merit Sensor's Sentium process harsh media MEMS piezoresistive die with state-of-the-art pressure sensor ASIC signal management.

The TR Series "plug and play" design isolates onboard electronics from system media through an inert eutectic alloy solder bond of the MEMS pressure element to a ceramic PCB substrate. Direct media pressure sensing translates into excellent system design flexibility leading to lower cost and ease of manufacture.

The TR Series is designed for air, liquid and gas harsh media compatibility over a broad temperature range from -40°C (-40°F) to 150°C (300°F) with a total error band of less than 1.0%.\* The design includes a 4.7kohm circuit protection pull-up resistor, operates on a single 5.0VDC supply, and requires no external components for proper operation. Both gage and absolute pressure reference designs up to 500 psi (35.5 bar) operating range are available.



## TYPICAL APPLICATIONS

- Industrial
  - HVAC system monitoring
  - Industrial automation
  - Process monitoring
  - Air-conditioning (refrigerant systems)
  - Portable measurement and analysis instrumentation
  - Water level and pressure monitoring
- Automotive
  - Transmission fluid pressure
  - Fuel system pressure
  - Oil system pressure
  - EGR system pressure
  - Exhaust gas pressure
  - Fuel Rail system pressure
- Medical
  - Diagnostics and analysis equipment

**TR Series Part Number Configurator**

TR1-XXXXX-X0X

<p><b>Full-Scale Pressure</b></p> <p>0015 = 15 psi</p> <p>0030 = 30 psi</p> <p>0100 = 100 psi</p> <p>0300 = 300 psi</p> <p>0500 = 500 psi</p>	<p><b>Pressure Type</b></p> <p>A = Absolute</p> <p>G = Gage</p>	<p><b>Calibration</b></p> <p>1 = Standard 2.5% Cal.</p> <p>2 = 1% Accuracy* Cal.</p>
		<p><b>Port</b></p> <p>0 = Standard Face Seal</p> <p>1 = Ferrule</p>

\*1% accuracy is available for 100-500 psi models

Features	Min.	Typ.	Max.	Unit	Notes
<b>Electrical</b>					
Supply Voltage (Vdd)	4.5	5	5.5	Volts	
Supply Current			10	mA	
Output Current			2.5	mA	
Short Circuit Current	-25		25	mA	
Reverse Polarity Protection	-33			Volts	Device will cease operation during supply voltage fault.
Oversvoltage Protection			33	Volts	Device will cease operation during supply voltage fault.
ESD	>4			kV	Human body model 1.5kOhm/100pF.
<b>Performance</b>					
Output Range (Vout)	10		90	%Vdd	
Output Clamping Limit (Vout)	8		92	%Vdd	
Resolution		0.03		%FS	12 bit DAC
Accuracy					Accuracy includes all error for hysteresis and linearity over the entire operating temperature range. It does not include lifetime drift. -40°C to 150°C. 1% accuracy is only available for parts > 100psi.
Standard	-2.5	0	2.5	% FS	
High Performance	-1.0	0	1.0	% FS	
Static Proof Pressure		2X FS		PSIA	
Burst Pressure		3X FS		PSIA	
Lifetime Drift			0.5	%FS	
Repeatability			0.25	%FS	
<b>Environmental</b>					
Operating Temperature	-40		150	°C	
Storage Temperature	-55		150	°C	
Weight		1.08		Grams	

## CROSS SECTION



## ELECTRICAL



## DIMENSIONS FOR STANDARD PACKAGING OPTIONS (in millimeters)

Dimensions for reference only.  
Engineering drawings (with tolerance) available upon order.

### Standard Face Seal



### Ferrule



Note: Dimensions in a **rectangle** are basic dimensions



*Merit Sensor is based in Salt Lake City, Utah*



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