

 $TFP-40C... {\it Technical Specification Document} \ | {\it Approvals \& Certifications:}$ 

Ceramic Pressure Transmitter

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# For General Industrial Applications



### **Features**

- Measuring ranges from 1.6bar to 250bar
- Gauge type
- Accuracy: ±0.5%FSO
- Calibrated and temperature compensated
- Ceramic pressure sensor design
- Variety of Pressure & Electrical connections
- Output 4...20mA, 0...10V, 0.5...4.5V and others

## Product Overview

The TFP-40C pressure transmitters offers the user the high stability of ceramic piezoresistive sensor in a low cost OEM package. The TFP-40C is developed for applications of processing and control operations involving aggressive media. The compact and rugged design makes these pressure transmitter suitable for applications including process control systems, hydraulic systems and valves, refrigeration and HVAC controls, level measurement and test equipment.

A wide range of process connection and electrical connection options are available to meet almost requirement.

## **Applications**

- Process control systems
- Refrigeration and HVAC controls
- Hydraulic systems and valve
- Mechanical and plant engineering
- Pumps and compressors

### Standard Pressure Ranges

Nominal pressure	gauge	sealed gauge	absolute
01.6bar	•		
02.5bar	•		
04bar	•		
06bar	•		
010bar	•		
016bar	•		
025bar	•		
040bar	•		
060bar	•		
0100bar	•		
0160bar	•		
0250bar	•		

Other pressure ranges available. Please consult the factory.

# TFP-40C: Ceramic Pressure Transmitter

## Performance Specifications

Parameter   Value   Units   Notes	_				1	1		
Pressure Range         0-1.6,,250         bar         1bar=14.5psi           Overpressure         1.5xFS         bar         1bar=14.5psi           Environmental           Operating Temperature Range         -20 to +85         °C         -4 °F to 185 °F           Compensated Temperature Range         -0 to +70         °C         -40 °F to 158 °F           Storage Temperature Range         -40 to +125         °C         -40 °F to 257 °F           Vibration         10         g         20 to 2000Hz           Shock         100         g         10ms           Cycles         10x10 <sup>5</sup> cycles         10ms           Electrical @ 25°C(77°F)           Output Signal         420mA         05vdc         115vdc         010Vdc         0.54.5Vdc(ratiometric)           Power Supply(Vs)         1236Vdc         1236Vdc         1536Vdc         5Vdc           Load Resistance         100MΩ @50Vdc         1236Vdc         1536Vdc         5Vdc           Insulation Resistance         100MΩ @50Vdc         1236Vdc         1536Vdc         1536Vdc         5Vdc           Physi	Parameter	Value			Units	Notes		
Down Pressure   1.5xFS								
Environmental           Operating Temperature Range         -20 to +85         °C         -4 °F to 185 °F           Compensated Temperature Range         0 to +70         °C         32 °F to 158 °F           Storage Temperature Range         -40 to +125         °C         -40 °F to 257 °F           Vibration         10         g         20 to 2000Hz           Shock         100         g         20 to 2000Hz           Shock         10x10⁵         g         20 to 2000Hz           Cycles           Electrical @ 25°C(77°F)           Output Signal         420mA         05Vdc         15Vdc         010Vdc         0.54.5Vdc(ratiometric)           Power Supply(Vs)         1236Vdc         1236Vdc         1536Vdc         5Vdc           Load Resistance         100MΩ @50Vdc         1536Vdc         5Vdc         Vdc           Load Resistance         100MΩ @50Vdc         1536Vdc         1536Vdc         5Vdc         Vdc					bar	1bar=14	.5psi	
Operating Temperature Range   County   Count	•	1.5xFS						
Compensated Temperature Range         0 to +70         °C         32 °F to 158 °F           Storage Temperature Range         -40 to +125         °C         -40 °F to 257 °F           Vibration         10         g         20 to 2000Hz           Shock         100         g         10ms           Cycles         10x10⁵         cycles         10ms           Electrical @ 25°C(77°F)           Output Signal         420mA         05Vdc         15Vdc         010Vdc         0.54.5Vdc(ratiometric)           Power Supply(Vs)         1236Vdc         1236Vdc         1536Vdc         5Vdc           Load Resistance         (Vs-12)/0.02A (For current output), >10kΩ (For voltage output)         Insulation Resistance Insulation Resistance         100MΩ @50Vdc         For current output), >10kΩ (For voltage output)         Insulation Resistance Insulation Resistance         All media compatible with ceratic resistance insulation Resistance         Insulation Resistance Resistance Insulation Resistance         Insulation Resistance Resistanc	Environmental							
Storage Temperature Range	Operating Temperature Range	-20 to +85			°C	-4 °F to 1	l85 °F	
Vibration   10	Compensated Temperature Range	0 to +70			°C	32 °F to	158 °F	
Shock   100   g   10ms	Storage Temperature Range	-40 to +125			°C	-40 °F to	257 °F	
Cycles   10x10 <sup>5</sup>   Cycles	Vibration	10			g	20 to 200	00Hz	
Contact   Con	Shock	100			g	10ms		
Output Signal         420mA         05Vdc         15Vdc         010Vdc         0.54.5Vdc(ratiometric)           Power Supply(Vs)         1236Vdc         1236Vdc         1236Vdc         5Vdc           Load Resistance         <(Vs-12)/0.02A (For current output), >10kΩ (For voltage output)           Insulation Resistance         100MΩ @50Vdc           Physical Specifications           Media Compatibility         All media compatible with ceramic           Housing         304 stainless steel           Diaphragm         ceramic           Seal Ring         Viton or NBR           Oil Filling         /           Protection         IP65(Standard), IP66(only for cable outlet)           Net Weight         Approx.175g           Parameter         Minimum         Typical         Maximum         Units         Notes           Performance         0.25         0.5         1.0         %FSO         1,2           Temp Coeff - Zero         ±1.5         ±2.0         %FSO         3           Temp Coeff - Span         ±1.5         ±2.0         %FSO         3	Cycles	$10x10^{5}$			cycles			
Power Supply(Vs)   1236Vdc   1236Vdc   1536Vdc   5Vdc	Electrical @ 25°C(77°F)							
Load Resistance $<(Vs-12)/0.02A$ (For current output), $>10k\Omega$ (For voltage output)Insulation Resistance $100M\Omega$ @50VdcPhysical SpecificationsMedia CompatibilityAll media compatible with ceramicHousing $304$ stainless steelDiaphragmceramicSeal RingViton or NBROil Filling/ProtectionIP65(Standard), IP66(only for cable outlet)Net WeightApprox.175gParameterMinimumTypicalMaximumUnitsNotesPerformanceAccuracy $0.25$ $0.5$ $1.0$ %FSO $1.2$ Temp Coeff - Zero $\pm 1.5$ $\pm 2.0$ %FSO $3$ Temp Coeff - Span $\pm 1.5$ $\pm 2.0$ %FSO $3$	Output Signal	420mA	05Vdc	15Vdc	010Vdc	0.54.5Vd	lc(ratiometric)	
Insulation Resistance   100MΩ @50Vdc	Power Supply(Vs)	1236Vdc	1236Vdc	1236Vdc	1536Vdc	Vdc 5Vdc		
Physical Specifications           Media Compatibility         All media compatible with ceramic           Housing         304 stainless steel           Diaphragm         ceramic           Seal Ring         Viton or NBR           Oil Filling         /           Protection         IP65(Standard), IP66(only for cable outlet)           Net Weight         Approx.175g           Parameter         Minimum         Typical         Maximum         Units         Notes           Performance         Accuracy         0.25         0.5         1.0         %FSO         1,2           Temp Coeff - Zero         ±1.5         ±2.0         %FSO         3           Temp Coeff - Span         ±1.5         ±2.0         %FSO         3	Load Resistance	<(Vs-12)/0.0	2A (For curre	nt output), >1	0kΩ (For vo	tage output)		
Media Compatibility All media compatible with ceramic  Housing 304 stainless steel  Diaphragm ceramic  Seal Ring Oil Filling Protection IP65(Standard), IP66(only for cable outlet)  Net Weight Approx.175g  Parameter Minimum Typical Maximum Units Notes  Performance Accuracy 0.25 0.5 1.0 5 #1.5 42.0 6 #FSO 3 Temp Coeff - Span	Insulation Resistance	100MΩ @50	)Vdc					
Housing 304 stainless steel  Diaphragm ceramic  Seal Ring Viton or NBR  Oil Filling / Protection IP65(Standard), IP66(only for cable outlet)  Net Weight Approx.175g  Parameter Minimum Typical Maximum Units Notes  Performance  Accuracy 0.25 0.5 1.0 %FSO 1,2  Temp Coeff - Zero ±1.5 ±2.0 %FSO 3  Temp Coeff - Span ±1.5 ±2.0 %FSO 3	Physical Specifications							
Diaphragm   Ceramic	Media Compatibility	All media co	mpatible with	ceramic				
Seal Ring         Viton or NBR           Oil Filling         /           Protection         IP65(Standard), IP66(only for cable outlet)           Net Weight         Approx.175g           Parameter         Minimum         Typical         Maximum         Units         Notes           Performance         Value         Valu	Housing	304 stainless	•					
Oil Filling       /         Protection       IP65(Standard), IP66(only for cable outlet)         Net Weight       Approx.175g         Parameter       Minimum       Typical       Maximum       Units       Notes         Performance       Value       Value <t< td=""><td>Diaphragm</td><td>ceramic</td><td></td><td></td><td></td><td></td><td></td></t<>	Diaphragm	ceramic						
Protection         IP65(Standard), IP66(only for cable outlet)           Net Weight         Approx.175g           Parameter         Minimum         Typical         Maximum         Units         Notes           Performance         Value         Verson         1.0         %FSO         1,2           Accuracy         0.25         0.5         1.0         %FSO         1,2           Temp Coeff - Zero         ±1.5         ±2.0         %FSO         3           Temp Coeff - Span         ±1.5         ±2.0         %FSO         3	Seal Ring	Viton or NBR						
Net Weight         Approx.175g           Parameter         Minimum         Typical         Maximum         Units         Notes           Performance         Securacy         0.25         0.5         1.0         %FSO         1,2           Temp Coeff - Zero         ±1.5         ±2.0         %FSO         3           Temp Coeff - Span         ±1.5         ±2.0         %FSO         3	Oil Filling	/						
Parameter         Minimum         Typical         Maximum         Units         Notes           Performance         0.25         0.5         1.0         %FSO         1,2           Temp Coeff - Zero         ±1.5         ±2.0         %FSO         3           Temp Coeff - Span         ±1.5         ±2.0         %FSO         3	Protection	IP65(Standar	d), IP66(only	for cable outl	et)			
Performance         O.25         O.5         1.0         %FSO         1,2           Temp Coeff - Zero         ±1.5         ±2.0         %FSO         3           Temp Coeff - Span         ±1.5         ±2.0         %FSO         3	Net Weight	Approx.175g						
Accuracy       0.25       0.5       1.0       %FSO       1,2         Temp Coeff - Zero       ±1.5       ±2.0       %FSO       3         Temp Coeff - Span       ±1.5       ±2.0       %FSO       3	Parameter	Minimum	Typical	Maxim	um Ur	iits	Notes	
Temp Coeff - Zero       ±1.5       ±2.0       %FSO       3         Temp Coeff - Span       ±1.5       ±2.0       %FSO       3	Performance							
Temp Coeff - Span $\pm 1.5$ $\pm 2.0$ %FSO 3	Accuracy	0.25	0.5	1.0	%]	FSO	1,2	
Temp does Span	Temp Coeff - Zero		±1.5	±2.0	%I	FSO	3	
Long-Term Stability $\pm 0.2$ $\pm 0.3$ %FSO/year 1	Temp Coeff - Span		±1.5	±2.0	%I	FSO	3	
	Long-Term Stability		±0.2	±0.3	%I	FSO/year	1	

#### Notes

- 1. All values measured at 25°C(77°F)
- 2. Including non-linearity, hysteresis and repeatability.
- 3. 0°C to 70°C(32°F to 158°F) with reference to 25°C(77°F).

The listed specifications and dimensions are subject to change without prior notice.

#### **Connection Diagrams**

Connector M12x1(4-pin)

Connector DIN43650						
		2-wire(current)	3-wire(voltage)			
	Supply+	1	1			
	Signal+	2	3			
	Gnd	-	2			

1

Supply+

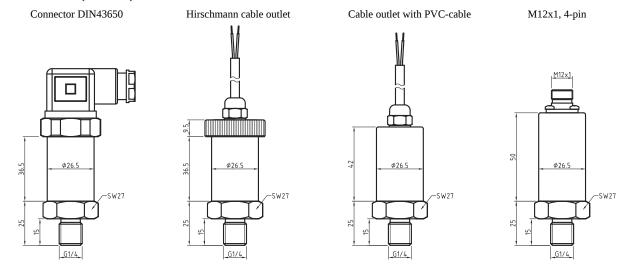
Signal+ Gnd

	2
re(current)	3-wire(voltage)
re(current)	3-wire(voltage)

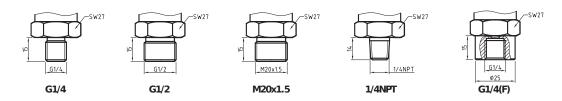
Cable outlet			
		2-wire(current)	3-wire(voltage)
,	Supply+	red	red
	Signal+	black	green
	Gnd	-	black

## TFP-40C: Ceramic Pressure Transmitter

### Dimensions (in mm)



### Mechanical Connection (in mm)



## Ordering Information

Option1: M	lodel								
TFP-40C	Ceramic Pressure Transmitter								
	Option2	Option2: Pressure Ranges							
	0016	01.6bar		0400 040bar					
	0025	02.5bar		0600					
	0040	04bar		1000					
	0060	06bar		1600					
	0100	010bar		2500					
	0160	016bar		Cxx	c Custo	mized rang	ge		
	0250	025bar							
			Pressure	Туре					
		G	gauge						
				: Output S					
			42	420mA					
			05	05Vdc					
			15		L5Vdc				
			10		010Vdc				
			45		0.54.5(ratiometric)				
				_	Accuracy				
				05	0.5%FS0				
				10			1.6		
					D		l Connection		
					H Hirschmann cable outlet,length=1.5m C Cable outlet with PVC-cable,length=1.5m				
					M M12x1, 4-pin				
					M M12X1, 4-pin Option7: Mechanical Connection				
						M2	M20x1.5(male)	N1	1/4NPT(male)
						G4	G1/4(male)	F4	G1/4(female)
						G2	G1/2(male)	Nx	Customized
TFP-40C	0060	G	42	05	D	G4	Examples of Order	ing Code: TF	FP-40C-0060-G-42-05-D-G4

Specifications are subject to change without prior notice

## Trumen Technologies Pvt. Ltd.

(an ISO 9001:2008 company)

email: sales@trumen.in web:www.trumen.in