



Customer Service and Product  
Quality Are Our No.1 Priority

## Terwin Ultra-MAX™ Series Melt Pressure / Temperature

### Transducers and Transmitters



Featuring the unique "Ultra-MAX™" high temperature liquid metal alloy fill material which is completely safe, non-toxic, non-flammable & suitable for process temperatures up to 450°C / 842°F.

#### Description:

The Terwin Ultra-MAX™ Series melt pressure / temperature transducers / transmitters utilise hydraulic transmission between the sensing diaphragm that is in contact with the melt and the strain gauge assembly that produces an electrical output.

Models are available with either nominal 3.33mV/V output (transducer), 4-20mA DC or 0-10V DC (transmitter) conditioned outputs. All outputs utilise industry standard 80% calibration.

Available pressure ranges are 500psi through 0-30,000psi (0-50 bar through 2,000 bar). Other units of pressure measurement, such as kg/cm<sup>2</sup> or MPa etc., are available if required.

Standard thread size is ½"-20UNF, however optional European sizes such as M12 x 1.5mm, M14 x 1.5mm, M18 x 1.5mm, M22 x 1.5mm and Japanese sizes PF3/8 (G3/8) and PF3/4 (G3/4) are also available.

Available with a selection of stem lengths: 3", 6", 9", 12", 15" & 18".



Electrically and mechanically compatible with most other brands.

#### Features:

- ✓ **Safe non-toxic** Ultra-MAX™ fill material.
- ✓ Low cost.
- ✓ Proven sensor design.
- ✓ High performance.
- ✓ Accuracy better than  $\pm 0.5\%$ .
- ✓ DCN Coated Extrusion™ diaphragm as standard.
- ✓ Internal 80% negative shunt calibration.
- ✓ Compatible with most competitor models

#### Benefits:

- ✓ Suitable for process temperatures up to 450°C / 842°F
- ✓ Superior abrasion & corrosion resistance
- ✓ Reliable, repeatable pressure measurement
- ✓ Wide variety of pressure ranges
- ✓ Optional stems lengths
- ✓ Optional thread sizes
- ✓ Transmitters now available with AUTO ZERO option.

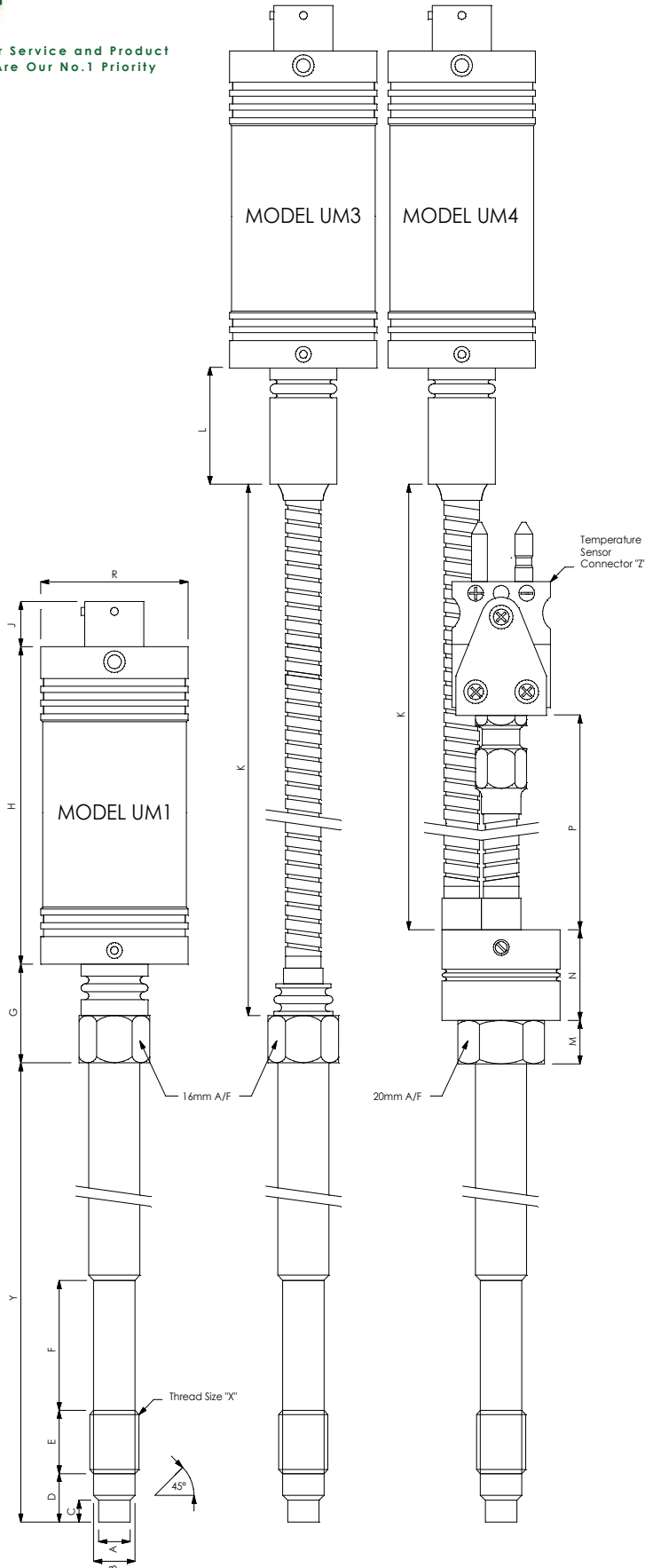
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### Terwin Ultra-MAX™ Series

#### Standard Dimensions:

Dimensions: Mm's (Inches)	
<b>A</b>	7.77±0.03 (0.306±0.001)
<b>B</b>	10.49±0.03 (0.413±0.001)
<b>C</b>	5.43±0.127 (0.214±0.005)
<b>D</b>	11.43 (0.450)
<b>E</b>	15.50 (0.609)
<b>F</b>	33.0 (1.30)
<b>G</b>	23.0 (0.905)
<b>H</b>	80.0 (3.15)
<b>J</b>	12.0 (0.47)
<b>K</b>	470 (18.5)
<b>L</b>	28.5 (1.12)
<b>M</b>	13.0 (0.51)
<b>N</b>	23.0 (0.90)
<b>P</b>	200.0 (7.87)
<b>R</b>	37.5 (1.47)
<b>X</b>	1/2"-20UNF-2A
<b>Y</b>	152.4 (6.0)
<b>Z</b>	J I/C Grounded

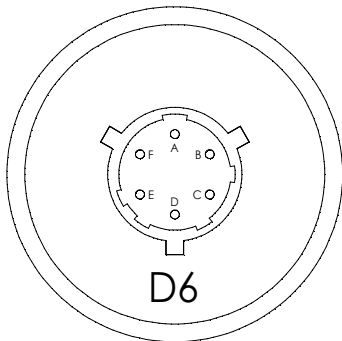
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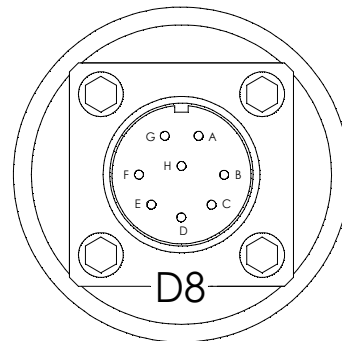
Terwin Ultra-MAX™ Series Connectors:

**Connectors for mV/V output transducers.**

6-pin bayonet connector (standard)  
Type PT02A-10-6P or equivalent.  
Terwin Type: D6



8-pin threaded connector (optional)  
Type PC02E-12-8P or equivalent.  
Terwin Type: D8



**Connectors for 4-20mA or 0-10V transmitters.**

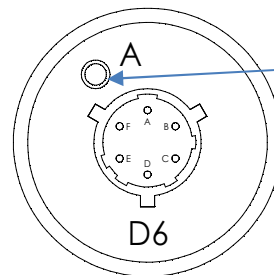
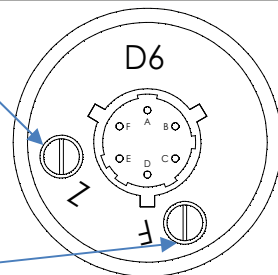
6-pin bayonet connector (standard), Type PT02A-10-6P or equivalent, Terwin Type: D6.

**Standard Manual Adjust Transmitter**

**Optional AUTO ZERO Transmitter**

Zero (Z) adjust potentiometer

Span (F) 80% CAL adjust potentiometer





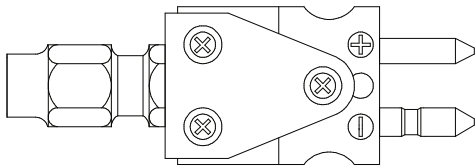
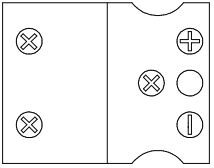
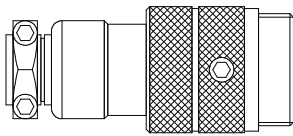
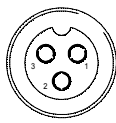
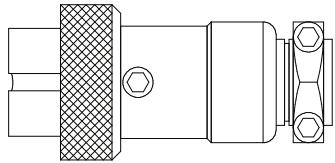
AUTO Zero (A) button

**Note:**

"D8" 8-pin threaded connectors are NOT available on 4-20mA or 0-10V pressure transmitters.

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Connectors:

<b>Mating Connectors:</b>		
6-pin strain relief connector (standard) Type PT06A-10-6S (SR) or equivalent. Terwin Type: D6-SR	8-pin strain relief connector (optional) Type PC06A-12-8S (SR) or equivalent. Terwin Type: D8-SR	
		
<b>Integral Temperature Sensor Connectors:</b>		
Standard Male & Female Thermocouple Connectors Type J I/C (standard) Optional type K C/A		
 		
<b>Optional 3-wire PT100 Integral Temperature Sensor</b>		
 3-Pin male connector (fitted to sensor)	 <u>3-wire PT100 connections:</u> Red = 3 & 1 White = 2	 Mating 3-Pin female connector (supplied with sensor)



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Specifications:

Available pressure ranges:	Pressure transducers:		Standard output 3.33mV/V				psi	0-750 to 0-30,000
	Pressure transmitters:		Standard output 4-20mA or 0-10V				bar	0-50 to 0-2,000
Standard pressure ranges:	psi g	0-1,500	0-3,000	0-5,000	0-7,500	0-10,000	0-15,000	
	bar g	0-100	0-200	0-350	0-500	0-700	0-1,000	
Combined error:	Standard pressure ranges:				Non-standard pressure ranges:			
	≤0.50% F.S.O. (optional ≤0.25%)				≤1.00% F.S.O. (optional ≤0.50%)			
Repeatability:	≤0.1% F.S.O.			Resolution:		Infinite		
Maximum pressure:	2 x full scale or 25,000psi (1,700 bar), whichever is less.							
	On 30,000psi (2,000 bar) sensors, the maximum is 35,000psi (2,400bar)							
Body material:	304 stainless steel							
Diaphragm material:	Terwin <b>Extru-Max™</b> Inconel 718 diaphragm with DCN coating for ultimate abrasion and corrosion resistance.							
Mounting torque:	20ft lbs (27Nm) (240inch/lbs)							
Fill materials:	Terwin <b>Ultra-MAX™</b> high temperature liquid metal alloy.							
Approvals:	CE, RoHS, FDA							
Maximum diaphragm temperature:	450°C (842°F) <b>(For even higher temperature applications, please see our Ultra-MAX-HT™ Series.)</b>							
Thread sizes:	½"-20UNF-2A (standard)	M12 x 1.5mm	M14 x 1.5mm	M18 x 1.5mm	M22 x 1.5mm	PF3/8 (G3/8)	PF3/4 (G3/4)	
Standard Outputs:	Transducers:			Transmitters:				
	3.33mV/V ±10%			2-wire 4-20mA DC		4-wire 0-10V DC		
Excitation:	Transducers:			Transmitters:				
	5-12V DC			15-30V DC				
Configuration:	Four-arm bonded foil Wheatstone bridge strain gauge							
Maximum gauge / electronics temperature:	Transducers:			Transmitters:				
	121°C (250°F)			85°C (185°F)				
Bridge resistance:	350Ω ±10%							
Insulation resistance:	Transducers:			Transmitters:				
	1KMΩ@50V DC			100MΩ@50V DC				
Zero balance:	Transducers:			Transmitters:				
	±10% F.S.O.			±10% F.S.O. a) Adjustable by accessible potentiometer. b) Using the <b>Auto Zero</b> button or remotely wired switch on the Auto Zero versions.				
Internal Shunt Calibration:	80% F.S.O. ±0.10%							
Zero shift due to temperature change:	<0.02% F.S.O./°C (<0.01% F.S.O./°F)							
Span shift due to temperature change:	<0.02% F.S.O./°C (<0.01% F.S.O./°F)							
Electrical connections:	D6 6-pin bayonet PT02A-10-6P or equivalent. (standard)		D8 8-pin threaded PT02E-12-8P or equivalent (optional)		½"-14NPT threaded adaptor with direct cable outlet. (optional)			
Integral temperature sensors: (model UM4 only)	Thermocouple "J" I/C (standard)		Thermocouple "K" C/A (optional)		3-wire PT100 (optional)			

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## Ordering Codes:

<b>Code:</b>	A	B	C	D	E	F	G	H	J	K	L
<b>Example:</b>	UM4	A	6	A	J	18	D6	10M	A	M18	

<b>Model</b>	<b>Code A</b>
Rigid Stem	1
Rigid Stem + Flexible Capillary	3
Rigid Stem + Flexible Capillary + Integral Temperature Sensor	4
<b>Auto Zero Function</b> (transmitters only)	<b>Code B</b>
Not fitted	Left blank
Fitted	A
<b>Rigid Stem Length:</b>	<b>Code C</b>
3 inches (76.2mm)	3
6 inches (152.4mm) (standard)	6
9 inches (228.6mm)	9
12 inches (305mm) ++	12
18 inches (457mm) ++	18
Other – contact sales	TBA
<b>Pressure Output Signal:</b>	<b>Code D</b>
2.0mV/V	M2
2.5mV/V	M2.5
3.0mV/V	M3
3.33mV/V (standard)	M
4-20mA DC (2-wire loop + calibration pair)	A
0-10V DC (4-wire + calibration pair)	V
Other – contact sales	TBA
<b>Temperature Sensor Model UM4 ONLY:</b>	<b>Code E</b>
None	X
J I/C (standard)	J
K C/A	K
PT100 (3-wire)	P
Other – contact sales	TBA
<b>Armoured Capillary Length Models UM3 + 4 ONLY:</b>	<b>Code F</b>
None (model UM1 only)	Y
18 inches (457mm) (standard)	18
30 inches etc. (Maximum 60 inches) ++	30
<b>Connector Type:</b>	<b>Code G</b>
6-pin bayonet (PT02A-10-6P) (Standard)	D6
8-pin threaded (PC02E-12-8P)	D8
½"-14NPT threaded process with 2 metre flying leads. For <b>Intrinsically safe</b> applications. ONLY available with 2-wire 4-20mA DC output.	NPT2
Other – contact sales	TBA

<b>Pressure Range: 0 – (zero to)</b>			
psi g	<b>Code H</b>	bar g	<b>Code H</b>
500 psi	5C	35 bar	35B
750 psi	7C5	50 bar	50B
1,000 psi	1M	70 bar	70B
1,500 psi	1M5	100 bar	100B
3,000 psi	3M	200 bar	200B
5,000 psi	5M	350 bar	350B
7,500 psi	7M5	500 bar	500B
10,000 psi	10M	700 bar	700B
15,000 psi	15M	1,000 bar	1000B
20,000 psi	20M	1,500 bar	1500B
30,000 psi	30M	2,000 bar	2000B
Other - contact sales	TBA		
<b>Accuracy:</b>	<b>Code J</b>		
≤0.5% (standard) ++ (standard on ranges 1,500psi to 15,000psi or 100 bar to 1,000 bar)	A		
≤0.25% ++ (available to special order on ranges 1,500psi to 15,000 psi or 100 bar to 1,000 bar)	B		
<b>Thread Size:</b>	<b>Code K</b>		
½"-20UNF-2A (standard)	Left blank		
M12 x 1.5mm	M12		
M14 x 1.5mm	M14		
M18 x 1.5mm	M18		
M22 x 1.5mm	M22		
PF3/8 (G3/8)	G3/8		
PF3/4 (G3/4)	G3/4		
Other - contact sales	TBA		
<b>Special Code:</b>	<b>Code L</b>		
None	Left blank		
Code to be issued by factory	SPOXXX		

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Extended non-standard armoured capillary lengths of 30 inches or more reduce the overall accuracy by up to ±0.25%.

Extended non-standard rigid stem lengths of 12 inches or more reduce the overall accuracy by up to ±0.25%.

Example: A sensor specified with accuracy class "A" (±0.5%) but with a non-standard 12 inch rigid stem and a non-standard 30 inch armoured capillary will have a finished accuracy of ±1.0% or better.

If an accuracy class "B" (±0.25%) is specified, the same model will have a finished accuracy of ±0.75% or better.

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