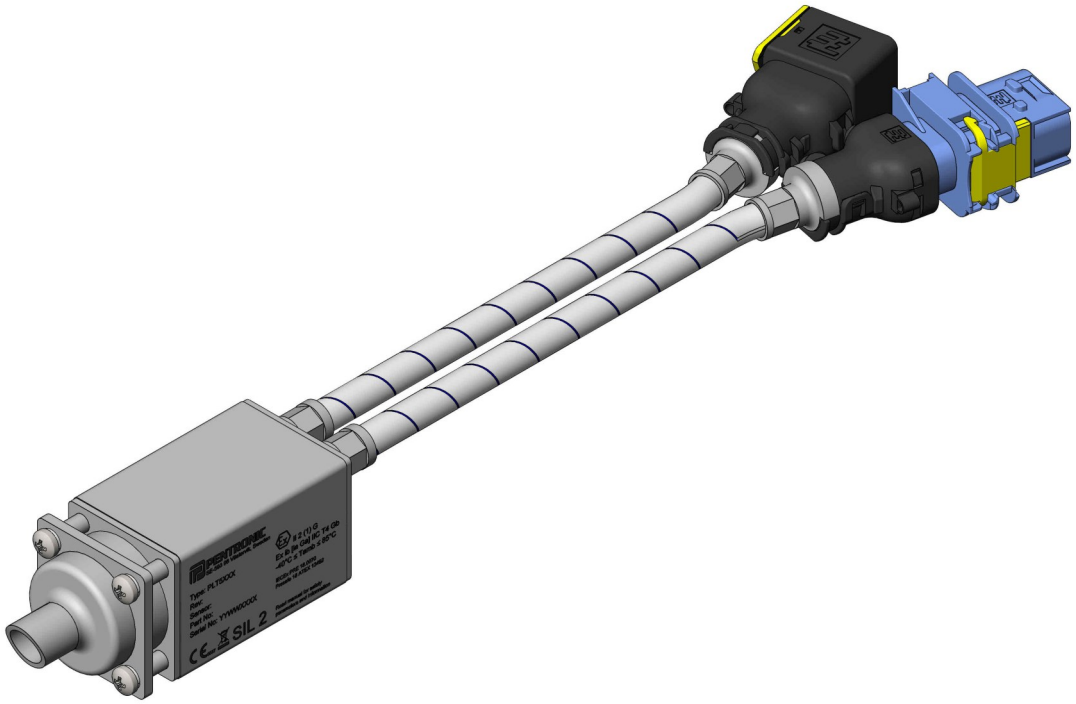

PLB5000 Direct mounted temperature transmitter

PLT5167
PLT5396
PLT5397

Main features

- Isolated digital temperature transmitter for RTD and thermocouple sensors
- High measurement accuracy
- Rugged design for use in harsh environment
- Multiple transmitters connected via data bus in Ex Zone 1, gas group IIC
- Intrinsically safe input/output
- Galvanic isolated sensor inputs for Ex Zone 0
- Customized sensor design
- SIL 2 certified
- Up to three independent measurement channels
- Redundant supply and communication interfaces
- Part of the PLB5000 measurement system

PLB5000 System

The PLB5000 system is designed for high accuracy temperature measurement in harsh environment.

The system provides digital measurement values, has uniquely low power consumption and is easy to install with a minimum of cabling.

Designed for applications where a high degree of flexibility, accuracy and safety is required.

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250624 Pentronic PLT5167 PLT5396 PLT5397 En

PLB5000 Direct mounted temperature transmitter

Input

Measurement channels	1, 2 or 3 channels
TC	Type K, N, R and S
RTD	Pt100 3-wire Pt100 4-wire Pt1000 3-wire Pt1000 4-wire
Measuring range	
TC K/N	-100…1300 °C (-148…2372 °F)
TC R/S	0…1760 °C (32...3200 °F)
RTD	-200…850 °C (-328…1562 °F)

Output

Bus interface	Two independent PLB interfaces with safety protocol

Performance

Switch-on delay	15 s
Input resolution	24 bit
Normal mode rejection	> 90 dB at 50/60 Hz
Common mode rejection	> 110 dB at 50/60 Hz
Sample rate TC	4 Hz
Sample rate RTD	2 Hz

Accuracy

Reference conditions	Ambient/surface temperature 23 ± 5 °C (73.4 ± 9 °F)
Warm-up time	2 min
RTD 3-wire	±0.16 °C (±0.29 °F)
RTD 4-wire	±0.08 °C (±0.14 °F)
TC K/N	±0.3 °C (±0.54 °F)
TC R/S	±2.0 °C (±3.6 °F)
Cold junction	±0.3 °C (±0.54 °F)
Maximum wire resistance	
RTD 3-wire	50 Ω
RTD 4-wire	100 Ω
Long-term stability	
TC K/N	0.2 °C / year (0.36 °F / year)
TC R/S	0.8 °C / year (1.44 °F / year)
Pt100	0.03 °C / year (0.054 °F / year)
Pt1000	0.01 °C / year (0.018 °F / year)
Temperature coefficient	
TC K/N	≤ ±0.02 °C (0.036 °F)
TC R/S	≤ ±0.15 °C (0.27 °F)
RTD	≤ ±0.008 °C (0.014 °F)

Electrical characteristic*

Supply voltage range (non Ex enviroment)	8...32 VDC
Sensor current, RTD	0.26...0.44 mA
Power consumption	Max 0.3 W
Reverse polarity protection	Yes
PLB short circuit protection	Yes
Galvanic isolation	Yes

* For Ex specific data, see Ex documentation

Diagnostics

Diagnostic time	< 30 s
Sensor error detection	Yes

Redundancy

Communication	2 independent PLB buses
Supply	2 independent supply voltage inputs

Mechanical specification

Transmitter housing	Stainless steel
Dimensions	40x90x40 mm (WxDxH)
Weight (without sensor)	530 g

Environmental conditions

Operating temperature	-40…85 °C (-40…185 °F) (IEC 60068-2-1:2007, IEC 60068-2-2:2007)
Storage temperature	-60…85 °C (-76…185 °F) (IEC 60068-2-1:2007, IEC 60068-2-2:2007)
Humidity range	5…98 % RH, with condensation (IEC 60068-2-30:2005, IEC 60068-2-78:2012)
Ingress protection	IP65 (IEC 60529:1989)
Vibration	
sinusoidal	1...150 Hz, 3.5 mm or 4 m/s^2 (IEC 60068-2-6:2007)
random	9...150 Hz, 1 $(m/s^2)^2/Hz$ (IEC 60068-2-64:2008)
shock	6 ms, 250 m/s^2 (IEC 60068-2-27:2008)

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PLB5000 Direct mounted temperature transmitter

Directives	
EMC	2014/30/EU (EN 61326-1:2013, IEC 61326-3-1:2008)
ATEX	2014/34/EU (EN 60079-0:2018 + A11:2013, EN 60079-11:2012)
RoHS 3	2015/863/EU
WEEE	2012/19/EU

Variants	
PLT5167	Direct mounted transmitter 1 channel
PLT5396	Direct mounted transmitter 2 channels
PLT5397	Direct mounted transmitter 3 channels

Order information

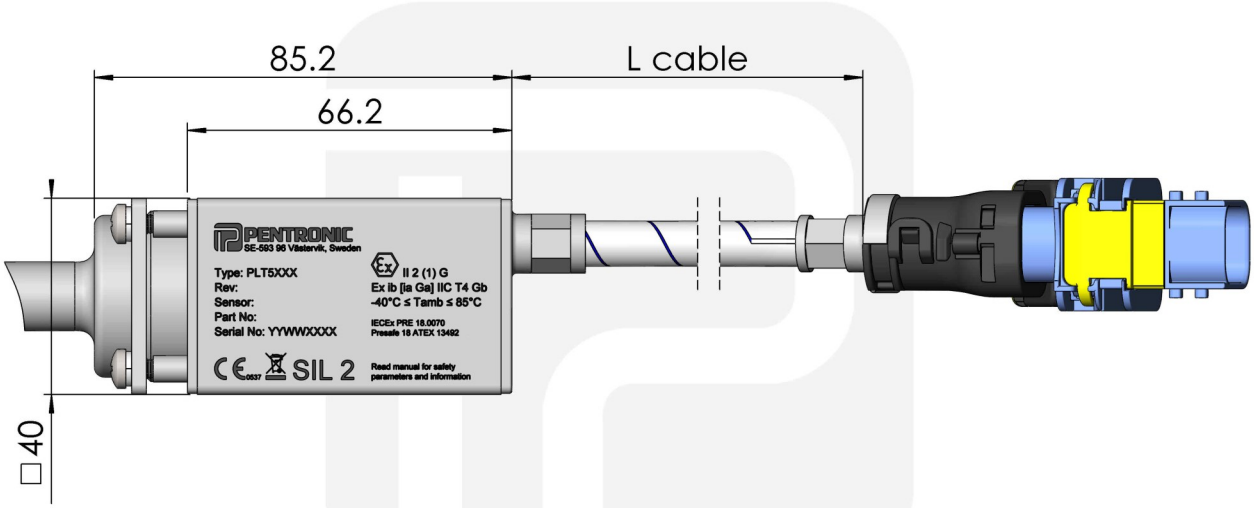
Ordered as a complete sensor and transmitter assembly

Approvals	
SIL	SIL 2* (IEC61508:2012)
Ex	Presafe 18 ATEX 13492
IECEx	IECEx PRE 18.0070

* For SIL specific data, see SIL documentation

Related documents	
Ex documentation	PLT5167, PLT5396, PLT5397 Ex Safety instruction
SIL documentation	PLT5167, PLT5396, PLT5397 SIL Safety manual
Brochure	PLB5000 System leaflet

Ex classification	
Ex	II 2 (1) G
IECEx	Ex ib [ia Ga] IIC T4 Gb
Ambient temperature range	-40 °C ≤ Tamb ≤ 85 °C (-40 °F ≤ Tamb ≤ 185 °F)



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