TEMPERATURE TRANSMITTER

Pyropress®

PYRT-2000ALW ATEX Exd OR Exia CERTIFIED OR INDUSTRIAL TEMPERATURE TRANSMITTER WITH SIL 2 OPTION

These 'smart' temperature transmitters provide high accuracy temperature measurement incorporating microprocessor based technology and are suitable for measuring temperatures from -200 to +550°C depending on the element incorporated.

Local configuration can be carried out in the field via the pushbuttons inside the housing or from a remote point via the 2 wire 4 – 20mA line and communication via the HART® protocol.

The measured temperature is indicated on the integral LCD display in selectable units and a 4 – 20mA output signal generated, directly or inversely proportional to the measured temperature.

The LCD display can be rotated within the housing to ensure the measured readout can be easily viewed regardless of the angle of installation.

The transmitters are suitable for hazardous or non-hazardous areas, the former being certified either ATEX Flameproof (Exd) or Intrinsically Safe (Exia).

The housing is available in epoxy painted aluminium alloy ideally suited for industrial environments or 316 stainless steel suitable for offshore or corrosive environments.

TEMPERATURE TRANSMITTER

The ingress protection level is IP66 on Exia and non Ex versions (IP67 optional), and IP67 on Exd, to BS EN 60529:1992. All ranges available with SIL 2 certification.

The sensing probe is manufactured from 6mm OD stainless steel tube with fixed or adjustable insertion fittings in ½" BSPP or ½" NPT (other options are available on request).

Thermowells can be manufactured from barstock, one piece forgings or fabricated from stainless steel tube.

Depending on the application, the process medium and/or the environmental conditions the thermowells can be produced in a wide range of materials including 316L stainless steel, Inconel®600, Hastelloy® C276 and Hastelloy®C22 (other materials are available on request).

FEATURES

- ✓ ATEX Flameproof or Intrinsically Safe
- ✓ Aluminium alloy or 316 st. steel housing
- ✓ Output: 4–20mA + HART® communication
- ✓ Integral LCD display
- ✓ PT100 or Type K element
- ✓ Spring loaded sensor

TECHNICAL DATA

CONSTRUCTION

Housing Aluminium alloy (blue epoxy painted) or 316 stainless steel.

Sensor probe 6mm OD 321 stainless steel (316SS option) with ½" BSPP or NPT fitting.

Thermowells Available in 316, 316L (NACE), Inconel® 600, Hastelloy® C276 and Hastelloy® C22 (other materials available on request).

Electrical entry M20 x 1.5 ISO (std) or ½" NPT option via adapter (brass for the aluminium housing and 316 st. steel for the st. steel housing)

FUNCTIONAL

Output 4 – 20mA, 2 wire with Hart® Rev 5.1 digital communication protocol. Minimum resistance required for communication (Hart®) – 240 Ω

Power supply Industrial (non Ex) and Flameproof 12 – 55 Vdc
Intrinsically safe Exia 13.5 – 28 Vdc

Display Main 5 digit LCD display of pressure in user selectable units with 2 x smaller displays, one for process in mA or % and one for transmitter information e.g. setting options and transmitter error codes.

Damping Adjustable from 0 – 60 seconds

Zero and Span Adjustable via local internal buttons or HART® digital communication.

Failure alarm In the event of sensor or circuit failure, self diagnostics drives the output to 3.8mA (downscale) or 23mA (upscale) according to choice.

PERFORMANCE

Turn on time Fully functional within 2 seconds of power being applied.

Nominal Ranges PT100 sensor: -200 to +550°C / Type K sensor: -40 to +550°C

For GB type sensor probe -50 to +150°C

Min. Set Range Span 10°C

Error (digital value)

+/- 0.05 + (0.05% x z) + (0.001 x ta)°C for PT100 sensor.
+/- 0.05 + (0.05% x z)°C for Type K sensor and t ≤ 375°C.
+/- 0.05 + (0.05% x z) + ((0.002 x (t – 375))°C for Type K sensor and t > 375°C.

Analogue output – addit error +/-0.04% x z

Where:
"ta" = Absolute value of the measured temperature in °C
"t" = Value of the measured temperature in °C
"z" = Transmitter set range

ENVIRONMENTAL and EXTERNAL PARAMETERS

Ingress protection Exia and non Ex models – IP66 (with IP67 option). Exd – IP67 (standard)

Ambient temperature Industrial (non Ex) -40 to 85°C
Intrinsically safe Exia -40 to 80°C
Flameproof Exd -40 to 75°C (T5), -40 to 45°C (T6)

Minimum immersion length L = 100mm

Humidity (RH) Maximum 98% non condensing

EMC immunity EN 61326-1.2 for industrial applications.

Shock protection level EN 60068-2-27, 50g/11ms

Vibration protection level EN 60068-2-6, test Fc; up to 1.6mm for 2 - 25Hz, up to 4g for 25 - 100Hz
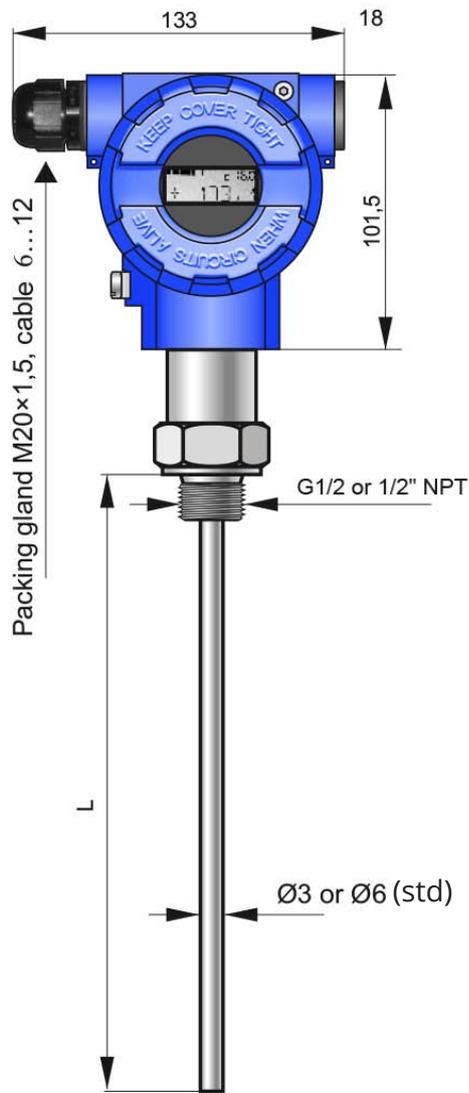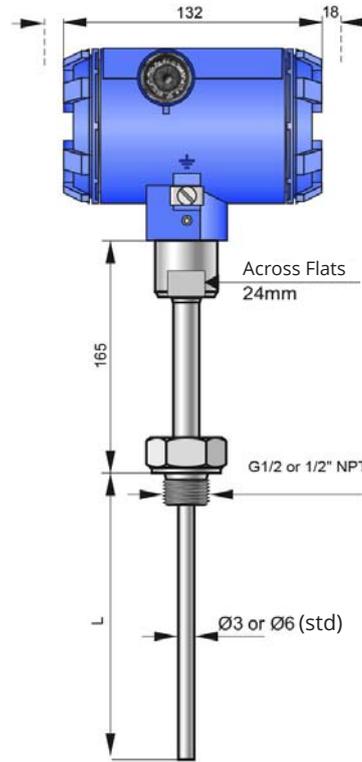
CERTIFICATION

ATEX Flameproof
II 1/2G Exia/d IIC T* Ga/Gb
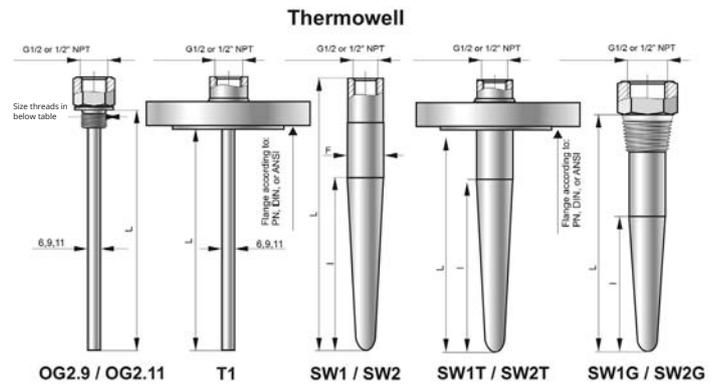II 1/2D Exia/t IIIC T* Da/Db
I M2 Exd ia I Mb

ATEX Intrinsically Safe
ExII 1/2G Ex ia IIC T5/T6
I M1 Exia I Ma (with 316SS housing)
II 1D Exia IIIC T105°C Da

133 | **18**

101,5

Packing gland M20×1,5, cable 6...12

G1/2 or 1/2" NPT

L

Ø3 or Ø6 (std)

PYRT-2000ALW/GB

132 | **18**

Across Flats 24mm

165

G1/2 or 1/2" NPT

L

Ø3 or Ø6 (std)

PYRT-2000ALW/GN

Thermowell

G1/2 or 1/2" NPT | G1/2 or 1/2" NPT | G1/2 or 1/2" NPT | G1/2 or 1/2" NPT | G1/2 or 1/2" NPT

Size threads in below table

Flange according to: PN, DIN, or ANSI

Flange according to: PN, DIN, or ANSI

6,9,11 | 6,9,11

OG2.9 / OG2.11 | **T1** | **SW1 / SW2** | **SW1T / SW2T** | **SW1G / SW2G**

STANDARD THERMOWELL DATA								
THERMOWELL TYPE		STANDARD DIMENSIONS OF THERMOWELL					THERMOWELL MATERIALS	STANDARD PROCESS CONNECTIONS (OTHERS AVAILABLE)
		0[mm]		L[mm]		l[mm]		
OG2.9		9		100, 160, 250, 400		-	316L SS	$G^1/_2$", $G^3/_4$", $^1/_2$"NPT
OG2.11		11		100, 160, 250, 400		-	316L SS	$G^1/_2$", $G^3/_4$", $^1/_2$"NPT
T1		11		100, 160, 250, 400		-	316L SS	Flange according to DIN and ANSI
SW1	SW2	18	24	100 140 200	140 200	35 65 65	65 65	316L SS	-
SW1T	SW2T	18	24	100 140 200	140 200	35 65 65	65 65	316L SS	Flange according to DIN and ANSI
SW1G	SW2G	18	24	100 140 200	140 200	35 65 65	65 65	316L SS	$G^1/_2$"	$G^3/_4$",

Full Model Coding No.   **PYRT-2000ALW/A/D/GN/OG2.9/G½/L=100mm/PT100/0-350°C/23mA/M/MT**

Common Base No.

Housing Material
Cast aluminium alloy (expoxy painted)	A
316 stainless steel	SS

Certification
None - safe area	A
Intrinsically Safe - ATEX Exia	IS
Flameproof - ATEX Exd	D

Probe type
GB or GN
(GN extension for temps <50°C and >150°C)

Thermowell type – from table
(i.e. OG2.9, OG2.11, T1, SW1 etc)

Thermowell thread or flange detail
(i.e. G½, ½" NPT, flange spec. etc)

Immersion or thermowell "U" dims (in mm)

Element type (PT100 or K)

Calibrated range

Failure Alarm signal - 3.8mA / 23mA

Electrical Connection
M20 x 1.5 ISO	M
½" NPT	UL

Accessories and Options
IP67 (for Exia and safe area – Exd model is IP67)	IP67
316 st. steel tag	MT
2" pipe mounting GRP sunshade	SP
Aluminium protection cover against vertical strikes	PC

ABOUT PYROPRESS

Our products are designed to work in demanding and hazardous environments which require fast and cost effective solutions in instrumentation and control.
Pyropress control sensors provide safe and reliable electrical switching of alarm or control circuits in response to changes in temperature, pressure, differential pressure, vacuum, fluid, flow and level conditions.

QUALITY

To support the design of state of the art products the company has invested heavily in the latest CNC technology.

We are able to produce our own components to a high degree of a accuracy assuring a reliable and consistent quality product.