DIFFERENTIAL PRESSURE TRANSMITTER

PYRD-2000ALW ATEX/ IECEx Exd or Exia CERTIFIED OR INDUSTRIAL DIFFERENTIAL PRESSURE TRANSMITTER

These 'smart' differential pressure transmitters provide high accuracy pressure measurement incorporating 2 wire microprocessor based technology and are suitable for measuring differential pressure of gases, vapours and liquids.

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

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 active sensing element is a piezoresistant silicon sensor separated from the process medium by a metal diaphragm and a manometric fluid to provide highly accurate measurements.

Thermal drift is automatically compensated via a thermister integrated into the pressure sensor and this coupled with the high accuracy sensor ensures a precison measuring system which will satisfy the most demanding applications.

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

FEATURES

- ATEX/IECEx Flameproof or Intrinsically Safe
- Aluminium alloy or 316 st. steel housing
- Output: 4–20mA + HART® communication
- Accuracy ≤ +/- 0.075% (0.05% option)
- Rangeability (up to) 25:1
- Local adjustment panel keys
- Integral LCD display

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

The ingress protection level is IP66 on Exia and non Ex versions (IP67 optional), and IP67 on Exd, to BS EN 60529:1992.

Wetted parts are in 316L stainless steel as standard (to NACE MR-01-75) with the option of a Hastelloy C276 diaphragm.

When neither of these materials meet the process requirements either for reasons of chemical incompatibility or temperature being outside permitted limits we can offer a range of diaphragm seals or chemical seals either for direct mounting on the transmitter or remote via stainless steel capillary (for details of these seals please contact our sales office).

CERTIFICATION

ATEX INTRINSICALLY SAFE
Ex II 1/2G Ex ia IIC T5/T6
IM1 Ex ia I Ma
II 1D Ex ia IIIC T105°C Da

ATEX FLAMEPROOF
II 1/2G Exia/d IIC T5/T6 Ga/Gb
II 1/2D Exia/t IIIC T85°C/T100°C Da/Db
I M2 Exd ia I Mb

IECEX INTRINSICALLY SAFE
Ex ia IIC T5/T6 Ga/Gb
Ex ia IIB T5/T6 Ga/Gb (PTFE cable option)
Ex ia I Ma (316 st. steel housing)
Ex ia IIIC T105°C Da

IECEX FLAMEPROOF
Ex ia/d IIC T5/T6 Ga/Gb
Ex ia/IIIC T85°C/T100°C Da/Db
Exd ia I Mb

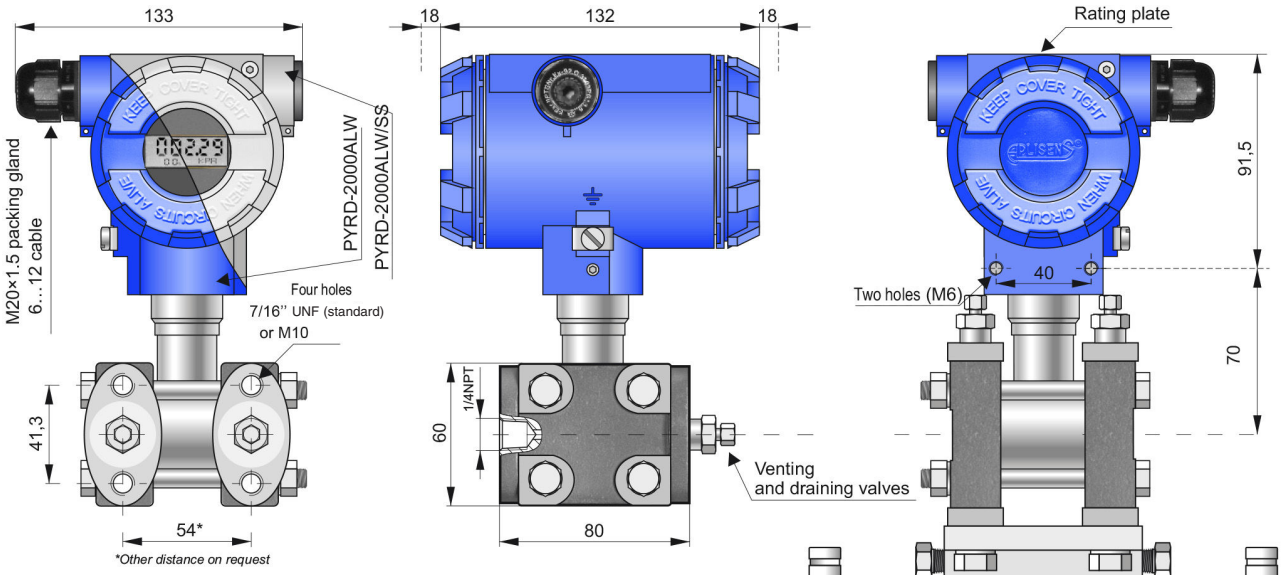
Special conditions for safe use:

- Only the components (spares) referenced in the O & M manual can be replaced.
- The maximum (declared by the manufacturer) gap of the spigot joint designated in document as L4 is smaller than specified in EN 60079-1. Details are given in the O & M Manual

MEASURING RANGE TABLE

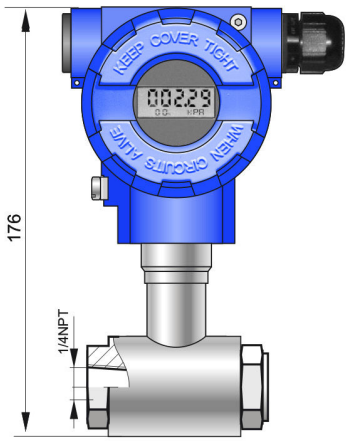
RANGE CODE	NOMINAL MEASURING RANGE (FSO)	MINIMUM CALIBRATED RANGE	RANGEABILITY	OVERPRESSURE LIMIT
23	0 – 70 Bar	7 Bar	10:1	C – Kidney flange manifold type pressure housing - 250 Bar (std), option for 320 and 420 Bar. N4 – In line type pressure housing 40 Bar (except range 23 which is 70 Bar)
19	0 – 16 Bar	1.6 Bar	10:1	
14	0 – 2.5 Bar	0.2 Bar	12.5:1	
11	0 – 1 Bar	50mBar	20:1	
20	0 – 0.25 Bar	10 mBar	25:1	
47	-0.5 to +0.5 Bar	100 mBar	10:1	
45	-100 to +100 mBar	10 mBar	20:1	
42	-5 to 70 mBar	4 mBar	18:1	
44	-25 to +25 mBar	2 mBar	25:1	C – type 200 Bar; N4 – type 40 Bar

Note: Other Nominal Measuring Ranges are available, please contact Pyropress Sales Office with your particular requirements.

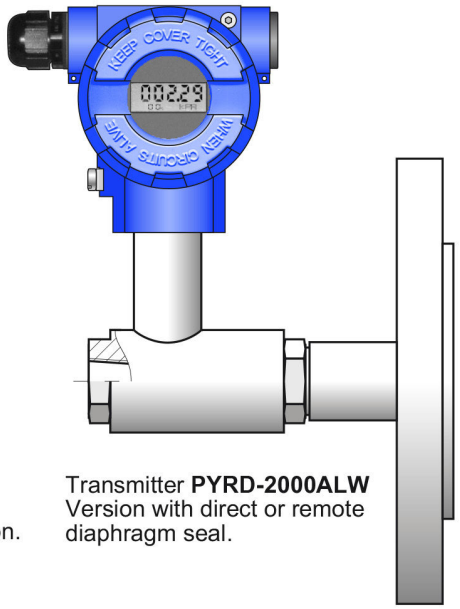


Transmitter **PYRD-2000ALW** – version with **type C** process connection to be mounted together with a valve manifold

Version with process connection rotated 90°



Transmitter **PYRD-2000ALW**
Version with **N4 type** process connection.



Transmitter **PYRD-2000ALW**
Version with direct or remote diaphragm seal.

TECHNICAL SPECIFICATION

FUNCTIONAL

Output	4 – 20mA, 2 wire with Hart® Rev 5.1 digital communication protocol.
Power supply	Industrial (non Ex) 10 – 55 Vdc Intrinsically safe Exia 10.5 – 28 Vdc Flameproof Exd 13.5 – 45 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.
Rangeablity/Turndown	Up to 25:1
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 3.6mA (downscale) or 22mA (upscale) according to choice.

PERFORMANCE

Turn on time	Fully functional within 2 seconds of power being applied.
Accuracy	≤ +/- 0.075% of the calibrated range when between 30 – 100% of the transmitter nominal range (with increased accuracy option of ≤ +/- 0.05% if required).
Long term stability	Stated accuracy is guaranteed for a minimum of 3 years.
Thermal effect	≤ +/- 0.05% (FSO)/10°C Max. +/- 0.25% (FSO) across the whole thermal compensation range
Thermal compensation	-25 to +80°C
Power supply effect	0.002% (FSO)/V
Response time	16 – 480ms (programmable)
SIL 2 option	In accordance to IEC 61508/61511

ENVIRONMENTAL and EXTERNAL PARAMETERS

Ingress protection	Intrinsically safe Exia and non Ex models – IP66 (with IP67 option). Flameproof Exd – IP67 (standard)
Ambient temperature	Industrial (non Ex) -25 to 85°C (-40 to 85°C – special option) Intrinsically safe Exia -25 to 80°C Flameproof Exd -25 to 75°C
Process temperature limits	-40 to 120°C (non freezing).
Humidity (RH)	Maximum 98% non condensing
EMC immunity	EN 61326-1 and EN 61000-6-2:2005
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

CONSTRUCTION

Housing	Aluminium alloy (blue epoxy painted) or 316 stainless steel.
Wetted parts	316L (Hastelloy C276 diaphragm option) (Gold plated diaphragm option available for hydrogen applications).
Fill liquid	Silicon (standard) and inert fill (oxygen service).
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)
Available accessories	316 st. steel 3 or 5 valve manifolds (loose or integral) Mounting brackets for wall or 2" pipe (plated or 316 st. steel) Chemical/diaphragm seals in various materials to suit the application.

PART NUMBER BREAKDOWN

COMMON BASE NO.	CERTIFICATION	REQUIRED CALIBRATED RANGE	ELECTRICAL CONNECTION
	A = NONE - SAFE AREA **IS** = INTRINSICALLY SAFE - ATEX/IECEX EXIA **D** = FLAMEPROOF - ATEX/ IECEX EXD	PLEASE SPECIFY RANGE AND UNITS REQUIRED	**M** = M20 X 1.5 ISO **UL** = ½" NPT

PYRD-2000ALW/SS/IS/14/0-1Bar/C7/16/M/NA/ALS

HOUSING MATERIAL
- **A** = CAST ALUMINIUM ALLOY (EPOXY PAINTED BLUE TO RAL 5015)
- **SS** = 316 STAINLESS STEEL

RANGE CODE
SELECT FROM MEASURING RANGE TABLE

PROCESS CONNECTION
- **C7/16"** = 316L KIDNEY FLANGE MANIFOLD WITH 7/16" UNF BOLT HOLES (STD)
- **C** = 316L KIDNEY FLANGE MANIFOLD WITH M10 BOLT HOLES
- **N4** = IN LINE PRESSURE HOUSING WITH 2 X ¼" NPT FEMALE CONNS
- **GA** = IN LINE PRESSURE HOUSING WITH 2 X G¼" MALE CONNS
- **GB** = IN LINE PRESSURE HOUSING WITH 2 X G½" MALE CONNS
- **X** = CHEMICAL SEAL (SPECIFY REQUIREMENTS)

ACCESSORIES AND OPTIONS
- **C32** = 320 BAR OVERPRESSURE OPTION
- **C42** = 420 BAR OVERPRESSURE OPTION
- **NA** = NACE MR-01-75 CERTIFIED WETTED PARTS
- **HA** = HASTELLOY DIAPHRAGM
- **GP** = GOLD PLATED DIAPHRAGM
- **T1** = EXTENDED COMPENSATION RANGE -40 TO +80°C
- **OXY** = OXYGEN SERVICE
- **AL** = UNIVERSAL WALL/2" PIPE MTG., BRACKET, ZINC PLATED STEEL
- **ALS** = UNIVERSAL WALL/2" PIPE MTG., BRACKET, 316 ST. STEEL
- **BCZ** = WALL/2" PIPE MTG. BRACKET, ZINC PLATED STEEL FOR C TYPE PROCESS CONNECTION
- **BCS** = WALL/2" PIPE MTG. BRACKET, 316 ST. ST FOR C TYPE PROCESS CONNECTION
- **BF** = 25MM PIPE BRACKET, 316 ST. ST. FOR N4/GA/GB IN LINE VERSION
- **IP67** = IP67 (FOR EXIA AND SAFE AREA – EXD MODEL IS IP67 AS STD)
- **SIL** = SAFETY INTEGRITY LEVEL (SIL) 2
- **MT** = 316 ST. STEEL TAG
- **VM-3** = INTEGRAL 316 ST. ST 3 VALVE MANIFOLD, ½" NPT CONNS
- **VM-5** = INTEGRAL 316 ST. ST 5 VALVE MANIFOLD, ½" NPT CONNS
- **SP** = 2" PIPE MOUNTING GRP SUNSHADE
- **PC** = ALUMINIUM PROTECTION COVER AGAINST VERTICAL IMPACT STRIKES

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.