PRESSURE TRANSMITTER

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

These 'smart' pressure transmitters provide high accuracy pressure measurement incorporating 2 wire microprocessor based technology and are suitable for measuring gauge pressure, vacuum and absolute 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.

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.

PRESSURE TRANSMITTER

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 hazardous or non-hazardous areas, the former 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) 114:1
- 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 316L st steel NACE MR-01-75 compliant as standard, with certification on request. Hastelloy C276 option is available on particular process sizes and forms (see part no. breakdown table).

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

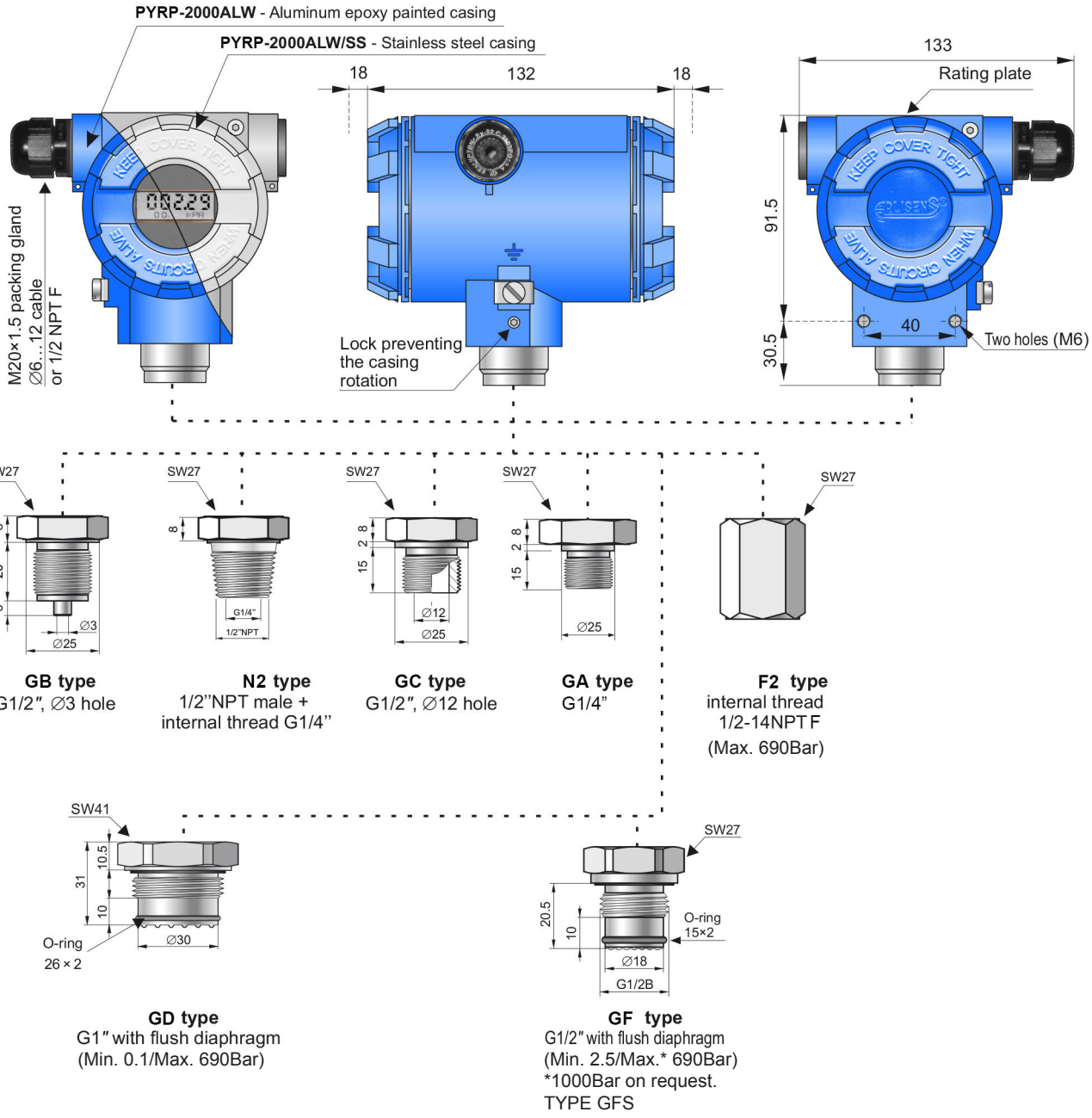
ATEX FLAMEPROOF
II 1/2G Exia/d IIC T5/T6 Ga/Gb
II 1/2D Exia/t IIIC T85°C/T100°C Da/Db
I M2 Exd ia I Mb

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



GB type
G1/2″, ∅3 hole

N2 type
1/2”NPT male +
internal thread G1/4”

GC type
G1/2″, ∅12 hole

GA type
G1/4”

F2 type
internal thread
1/2-14NPT F
(Max. 690Bar)

GD type
G1″ with flush diaphragm
(Min. 0.1/Max. 690Bar)

GF type
G1/2″ with flush diaphragm
(Min. 2.5/Max.* 690Bar)
*1000Bar on request.
TYPE GFS

MEASURING RANGE TABLE

RANGE CODE	NOMINAL MEASURING RANGE (FSO)	MINIMUM CALIBRATED RANGE	RANGEABILITY	OVERPRESSURE LIMIT
30	0 – 1000 Bar g	10 Bar g	100:1	1200 Bar g
27	0 – 300 Bar g	3 Bar g	100:1	450 Bar g
25	0 – 160 Bar g	1.6 Bar g	100:1	450 Bar g
23	0 – 70 Bar g	0.7 Bar g	100:1	140 Bar g
20	0 – 25 Bar g	0.25 Bar g	100:1	50 Bar g
17	0 – 7 Bar g	70 mBar g	100:1	14 Bar g
13	0 – 2 Bar g	100 mBar g	20:1	4 Bar g
11	0 – 1 Bar g	50 mBar g	20:1	2 Bar g
8	0 – 0.25 Bar g	25 mBar g	10:1	1 Bar g
48	-1 to +7 Bar g	70 mBar g	114:1	14 Bar g
57	-1 to +1.5 Bar g	120 mBar g	20:1	4 Bar g
47	-0.5 to +0.5 Bar g	50 mBar g	20:1	2 Bar g
45	-100 to + 100 mBar g	20 mBar g	10:1	1 Bar g
43*	-15 to +70 mBar g	5 mBar g	17:1	0.5 Bar g
52	0 – 1.3 Bar abs	100 mBar abs	13:1	2 Bar g
53	0 – 7 Bar abs	100 mBar abs	70:1	14 Bar g
54	0 – 25 Bar abs	0.25 Bar abs	100:1	50 Bar g
55	0 – 70 Bar abs	0.7 Bar abs	100:1	140 Bar g

NOTES:

1) Burst Pressure - 4 x Nominal Measuring Range
2) All ranges can withstand a permanent full vacuum, though on ranges up to 70 Bar this requirement should be advised at the ordering stage by incorporating “V” in part no. options section.
3) *Range 43 - Flameproof certification for this range is for 2G and 2G installations only not 1/2G and 1/2D, and cannot be fitted with chemical/diaphragm seals.
4) Other Nominal Measuring Ranges are available, please contact Pyropress Sales Office with your particular requirements.

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 114:1
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 (except ranges 43 and 45 which is ≤ +/- 0.1%) Max. +/- 0.25% (FSO) across the whole thermal compensation range (except ranges 43 and 45 which is ≤ +/- 0.4%).
Thermal compensation	-25 to +80°C (with special option of -40 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) -40 to 85°C Intrinsically safe Exia -40 to 80°C Flameproof Exd -40 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 or Hastelloy C276 (Gold plated diaphragm option available for hydrogen applications >70Bar).
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 manifold valves Universal mounting bracket 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
A = NONE - SAFE AREA
IS = INTRINSICALLY SAFE - DUAL ATEX/IECEX EXIA
D = FLAMEPROOF - DUAL ATEX/IECEX EXD

REQUIRED CALIBRATED RANGE
PLEASE SPECIFY RANGE AND UNITS REQUIRED

ELECTRICAL CONNECTION
M = M20 X 1.5 ISO
UL = ½" NPT

PYRP-2000ALW/SS/IS/20/0-16Barg/GB/M/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
GB = G½" MALE (WITH 3MM BORE)
GC = G½" MALE (WITH 12MM BORE)
GA = G¼" MALE (MIN 10MBAR/ MAX 350BAR)
N2 = ½" NPT MALE (WITH ¼" BSPP INTERNAL THREAD)
F2 = ½" NPT FEMALE (VIA ADAPTER)(MAX. 690BAR)
GD = G1" MALE WITH FLUSH DIAPHRAGM (MIN. 0.1/MAX. 70BAR)
GF = G½" MALE WITH FLUSH DIAPHRAGM (MIN 2.5/ MAX 300 BAR)
GFS =AS GF EXCEPT SPECIAL OPTION MAX. 1000BAR
X = CHEMICAL SEAL (SPECIFY REQUIREMENTS

ACCESSORIES AND OPTIONS
NA = NACE MR-01-75 CERTIFIED WETTED PARTS
HA = HASTELLOY WETTED PARTS (GC,GD & *N2 CONNS ONLY) *MAX. PRESSURE 40 BAR
GP = GOLD PLATED DIAPHRAGM (NOT AVAILABLE RANGES 30 & 27)
V = FULL VACUUM SUITABLE RANGES 8, 11,13, 17, 20 AND 23 (ALL OTHERS ARE VACUUM SUITABLE AS STANDARD)
SP = 2" PIPE MOUNTING GRP SUNSHADE
PC = ALUMINIUM PROTECTION COVER AGAINST VERTICAL IMPACT STRIKES
T1 = EXTENDED COMPENSATION RANGE -40 TO +80°C
T2 = EXTENDED COMPENSATION RANGE -60 TO 50°C
OXY = OXYGEN SERVICE (GB CONN ONLY)
AL = UNIVERSAL WALL/2" PIPE MTG., BRACKET, ZINC PLATED STEEL
ALS = UNIVERSAL WALL/2" PIPE MTG., BRACKET, 316 ST. STEEL
IP67 = IP67 (FOR EXIA AND SAFE AREA – EXD MODEL IS IP67 AS STD)
SIL = SAFETY INTEGRITY LEVEL (SIL) 2
MT = 316 ST. STEEL TAG

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.