

Y913-057 Oil & Gas Series Severe Service Oilfield Pressure Transmitter

Introduction: The Baumer Y913-057 Series pressure transmitter was specifically designed for oilfield applications. Its 316 SS body, ceramic diaphragm with Kalrez seal, makes it ideal for use in rugged industrial applications such as that found in the Canadian oilfield. Baumer's TRANSBAR® piezoresistive technology provides outstanding accuracy, linearity, hysteresis and repeatability. Y913 pressure transmitters are very competitively priced, due to Baumer's strict material selection and highly automated manufacturing process. Baumer has been designing and manufacturing innovative products for the pressure industry since the invention of the Bourdon Tube in 1849.

Product Highlights:

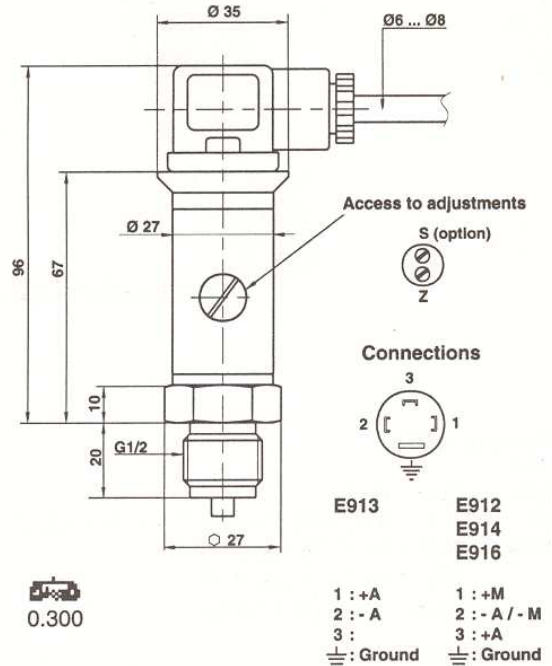
- Intrinsically Safe CSA Approved Class I, Div. I, Groups A, B, C & D
- Kalrez® Diaphragm Seal provides universal chemical resistance
- 316 Stainless Steel Body provides excellent chemical resistance
- Ceramic Al₂O₃ Diaphragm immune to the most aggressive chemicals
- Wide Operating Temperature Range (-25 to 70°C)
- Wide Compensated Temperature Range (-10 to 70°C)
- Typical Error +/- 0.2% of F.S.
- Excellent Thermal Stability (Zero +/- 0.25%/°C, Span +/-0.015%/°C)
- ¼" & ½" NPT Available
- TRANSBAR® Sensing Element Provides Excellent Long Term Stability
- 2 Wire 4-20 mA Output with 11 to 28 VDC Excitation
- Pressure Ranges Available from -30" Hg through 9000 PSIG
- Zero & Span Potentiometer Standard
- DIN 43650 Electrical Connection Standard



Y913-057 Series Pressure Transmitter Pressure Ranges

Part Number	Pressure Range PSI
Y-913-057-H59	-30" Hg + 0
Y-913-057-H73	-30" Hg + 15
Y-913-057-H75	-30" Hg + 30
Y-913-057-H2C	-30" Hg + 60
Y-913-057-H78	-30" Hg + 100
Y-913-057-H15	0 + 15
Y-913-057-H1C	0 + 20
Y-913-057-H17	0 + 30
Y-913-057-H84	0 + 40
Y-913-057-H19	0 + 60
Y-913-057-H21	0 + 100
Y-913-057-H22	0 + 150
Y-913-057-H23	0 + 200
Y-913-057-H25	0 + 300
Y-913-057-H26	0 + 400
Y-913-057-H27	0 + 600
Y-913-057-H30	0 + 1000
Y-913-057-H31	0 + 1500
Y-913-057-H32	0 + 2000
Y-913-057-H34	0 + 3000
Y-913-057-88	0 + 4000
Y-913-057-38	0 + 6000
Y-913-057-39	0 + 9000

Y913-057 Series Pressure Transmitter Dimensions



Y910 Intrinsically Safe Pressure Transmitter

Measurement of vacuum, absolute or gauge pressure

TRANSBAR® ceramic technology

Zero adjustment as standard ($\pm 10\%$ of range)

Welded construction – reinforced product

Modularity of electrical and hydraulic connections

Highly resistant to severe process conditions ($\geq 10^7$ pressure cycles)

Marine version (Bureau Veritas Marine)

LCIE 02 ATEX 6133X

CE 0081



I M1 G and D
EEx ia I



II 1 G and D
EEx ia IIC T6 or T5



Hazardous area: 0, 1, 2, 20, 21, 22

The Y910 pressure transmitters allows pressure measurements on most corrosive fluids, in hazardous areas.

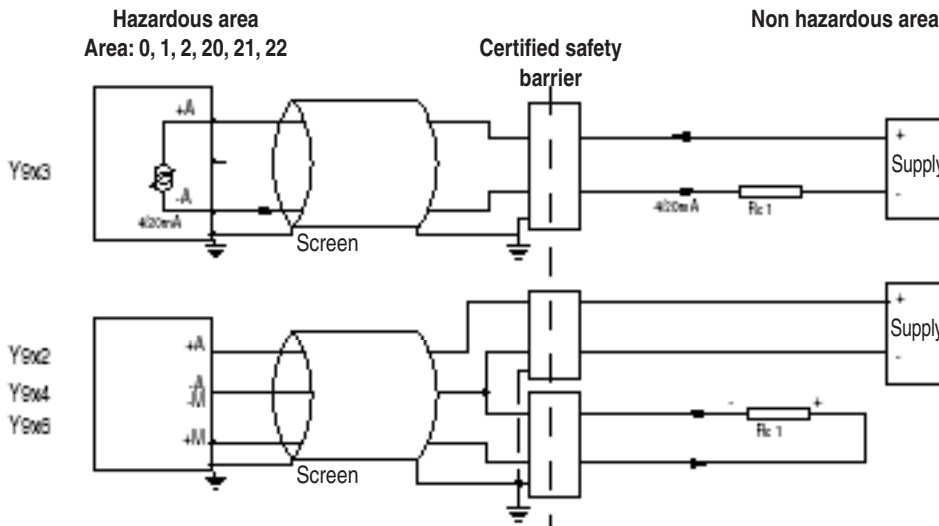
Technical data (20°C)

Measurement range	From 0...25 mbar to 0...600 bar Compound, gauge or absolute pressure	Operating temperature	
Output signal	Y912 : 0...10 Vdc. Y913 : 4...20 mA (except -1...0 bar where -1 = 20 mA, 0 = 4 mA) Y914 : 1...5 Vdc. Y916 : 0...20 mA	Ambient (Ta)	-25...+70°C Ta = +40°C G : T6 D IP65 : T°surface = +80°C Ta = +70°C G : T5 D IP65 : T°surface = +95°C (G = Gas ; D = Dust)
Supply voltage	Y912 : 14...28 Vdc Y913-Y914 : 11...28 Vdc Y916 : 8...28 Vdc	Fluid	-25...+100°C (Ta \leq 50°C) depending on class
<i>Option</i>	<i>Low voltage : 8...28 Vdc (Y913, Y914)</i> Power supply electrical parameters device must be: $U_{supply} \leq 28$ Vdc ; $I \leq 120$ mA ; $P \leq 0.8$ W See drawings overleaf for more details.	Storage temperature	-40...+85°C
Insulation	> 100 M Ω at 500 Vdc	Compensated temperature range (zero and sensitivity)	-10...+55°C. <i>Option</i> : -10...+70°C
Maximum input current	Y912-Y914 : 6 mA Y916 : < 25 mA	Zero thermal drift	$\pm 0.025\%$ F.S./°C max. (except $P \leq 1$ bar : $\pm 0.06\%$ F.S./°C) <i>Option</i> : $\pm 0.015\%$ F.S./°C max. (except $P \leq 1$ bar : $\pm 0.025\%$ F.S./°C)
Load impedance (+M / -M)	Y912 : ≥ 2.5 k Ω Y913 : $R_{\Omega} \leq (U_{supply} - 11)/0.02$; $R_{c\ min} = 200$ Ω Y913 : $R_{\Omega} \leq (U_{supply} - 8)/0.02$ (low voltage option) Y916 : $R_{\Omega} \leq (U_{supply} - 6)/0.02$; $R_{c\ min} = 100$ Ω	Span thermal drift	Typically: $\pm 0.01\%/^{\circ}\text{C}$ / Max.: $\pm 0.015\%/^{\circ}\text{C}$
CE Conformity	CEM Directive 89/336/CE with screened cable, screen connected at both ends. Pressure Directive 97/23/CE. ATEX Directive 94/9/CE .	Wetted parts	Ceramic + stainless steel 1.4404 (316L) + NBR seal (standard) for ranges ≥ 250 mbar and Viton® for ranges < 250 mbar
Global error (linearity, hysteresis and repeatability) by reference to BFSL	Typically: $\pm 0.2\%$ of F.S. / Max.: $\pm 0.3\%$ of F.S. For $P \leq 60$ mbar and $P = 600$ bar: Typically: $\pm 0.6\%$ of F.S. / Max.: $\pm 1\%$ of F.S.	Standard connections	Electrical : DIN 43650 connector Pressure : G1/2 <i>Many options available</i>
		Protection rating (EN 60529)	Standard : IP65 (DIN connector) <i>Option : IP67 or IP68 (depending on connection)</i>
		Typical response time	≤ 3 ms
		Vibration resistance (IEC 68-2-6)	1.5 mm (10-55 Hz), 20 g (55 Hz to 2 kHz)
		Shock resistance (IEC 68-2-32)	25 falls from 1 m on concrete ground



Baumer

Installation instructions

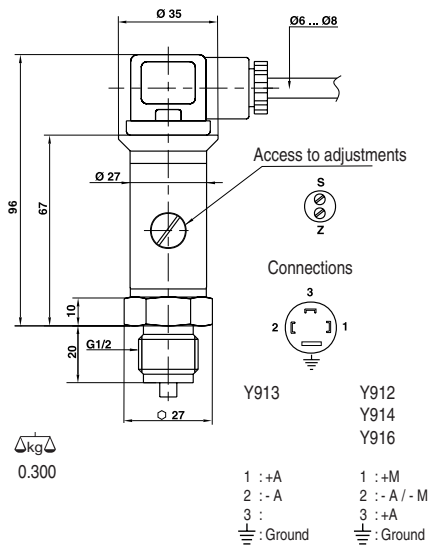


$U_{max} = 28 \text{ Vdc}$
 $I_{max} = 120 \text{ mA}$
 $P = 0,8 \text{ W}$
 $C_a > C_i + C_{cable}$
 $L_a > L_i + L_{cable}$
 $C_i = 30 \text{ nF (Y913 - Y916)}$
 $C_i = 60 \text{ nF (Y912 - Y914)}$

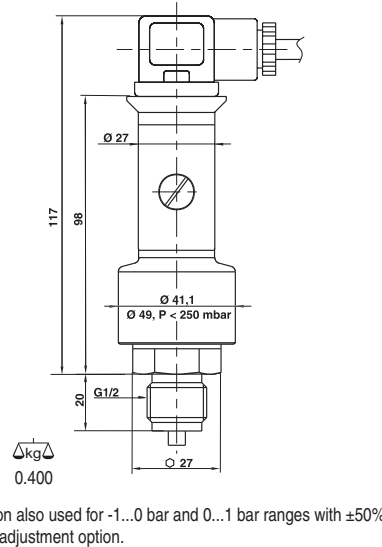
Don't forget the barrier's resistors in the determination of R_{c1} .
 In area 0 or 20, the loop calculation of the association transmitter with safety barrier must be approved by notified organism.

Dimensional Drawings (mm) - Mounting Details

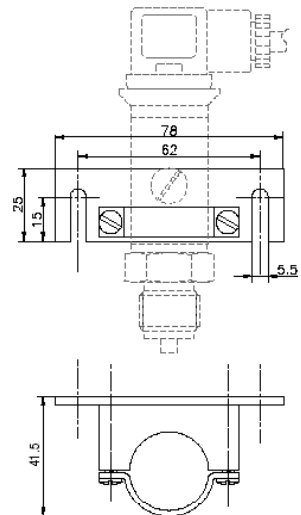
[xx] : dimensions and weight for "P < 1 bar" versions.



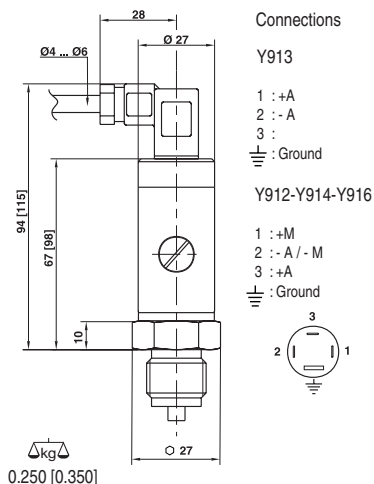
Standard version. P ≥ 1 bar
DIN 43650 plug



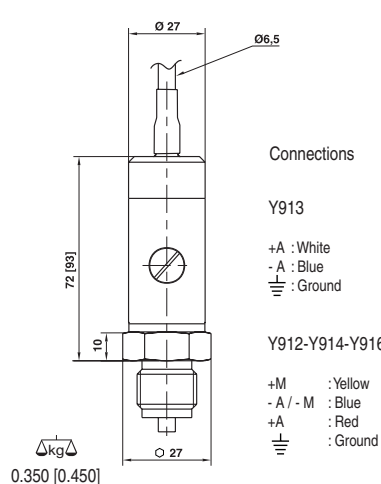
Standard version for P < 1 bar
DIN 43650 plug



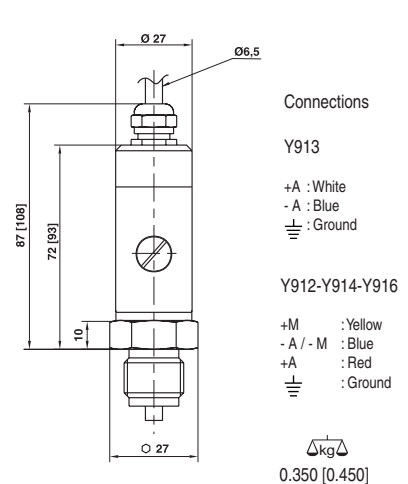
Option : Stainless steel surface mounting brackets



DIN 43650C micro plug (8 mm)



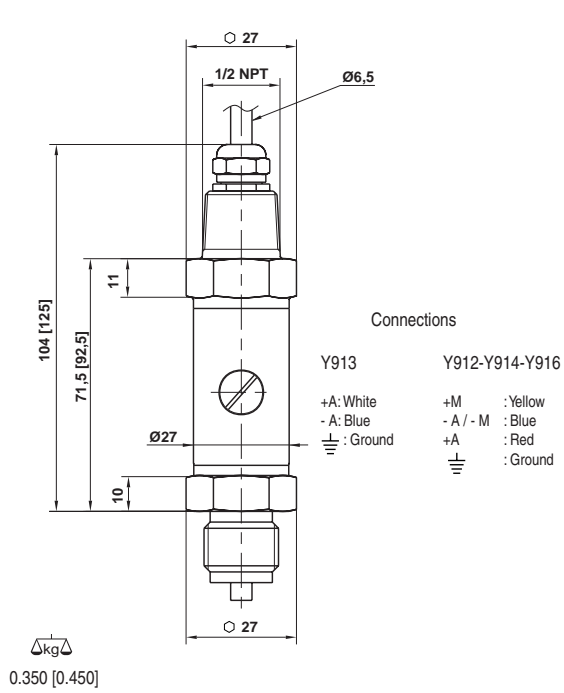
Pig tail (length 1.5 m)



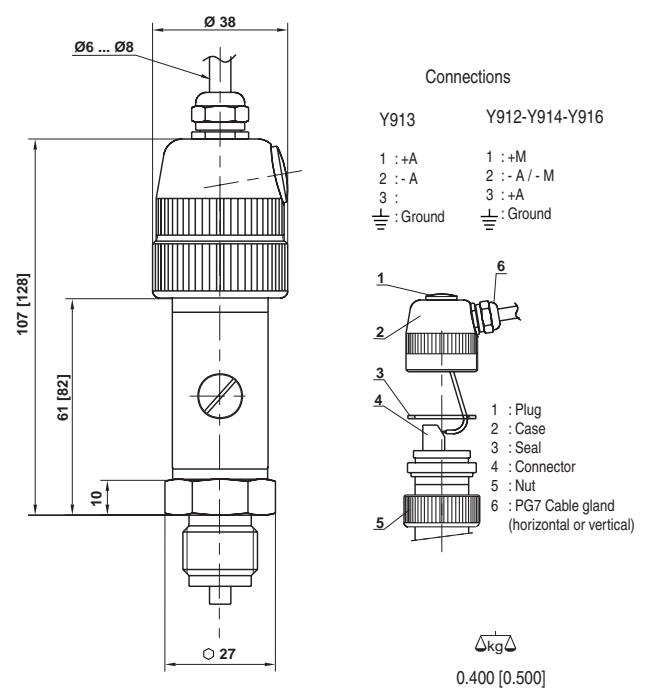
Pig tail (length 1.5 m) + PG7 Cable gland

Dimensional Drawings (mm) - Mounting Details

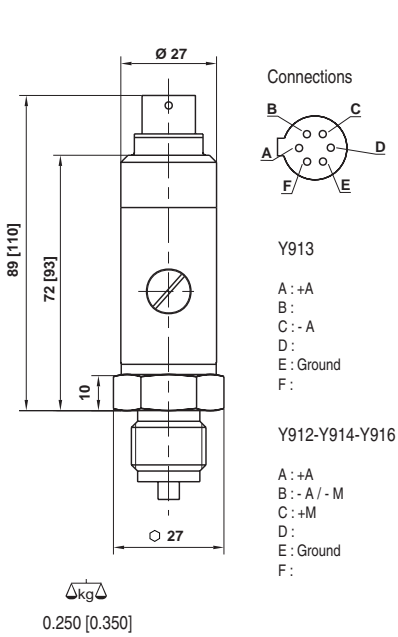
[xx] : dimensions and weight for "P < 1 bar" versions.



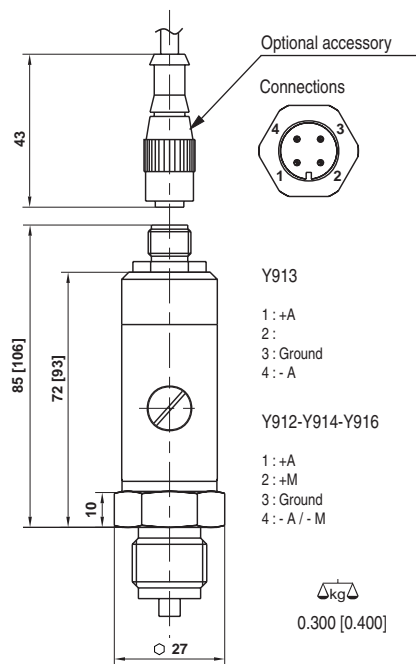
Pig tail cable outlet with 1/2 NPT male (length 1.5 m)



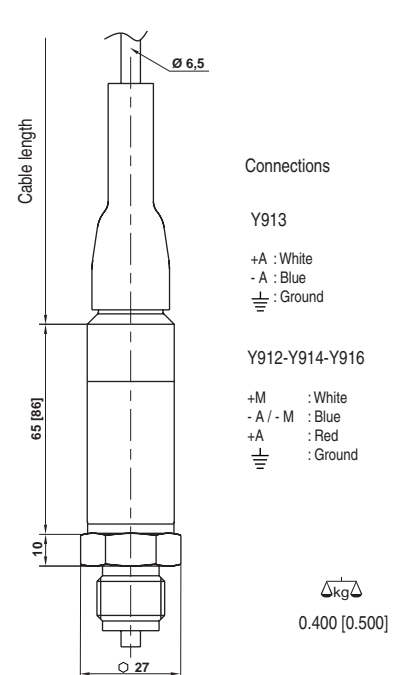
terminal strip outlet + screwed cap



6 contacts HE302 plug



M12, 4 contacts plug



Submersible cable (length 1.5 m)

Options

Specific cleaning (gas application). **Code 0829**
 Drinking water application. **Code 0619**
 Oxygen application. **Code 0765**
 Lightning protection. **Code 0809**
 Marine version. **Code 0808**
 Low supply voltage⁽¹⁾ - **Code 2181**
 Compensated temperature range (-10 ... +70 °C). **Code 2158**
 Zero thermal drift : ± 0.015 % of range/°C max. **Code 2159**
 Span adjustment ± 10 % of range. **Code 2151**
 Span adjustment ±50% of range (except for ranges ≤ 0...+0.25 bar and 0...+600 bar). **Code 2152**
 Calibration of sensor with certificate: Q1060
 Thread locking
 Other hydraulic connections
 Additional length of cable
 Stainless steel surface mounting brackets. **Code 0409**
 Other units: kPa (code D), MPa (code E), kg/cm² (code F), psi (code H), mbar (code N)
 Atmospheric pressure measurement (Range: 800...1200 mbar absolute)

Other electrical connections:
 DIN 43650C micro plug (IP65 ⁽²⁾). **Code 2165**
 Pig tail (1.5 m) (IP65). **Code 2160**
 Pig tail (1.5 m) + PG7 cable gland (IP65, IP67 ⁽³⁾). **Code 2161**
 Pig tail cable outlet with 1/2 NPT male (1.5 m) (IP65). **Code 2162**
 Terminal strip outlet + screwed cap (IP65, IP67). **Code 2166**
 Terminal strip outlet + cap with M20x150 thread and gland (IP65, IP67). **Code 2167**
 6 contacts HE302 plug (IP65). **Code 2163**
 M12, 4 contacts plug (IP65). **Code 2164**
 Submersible cable (IP68 version ⁽⁴⁾). **Code 2168**

⁽¹⁾ see specifications for details / ⁽²⁾ IP65 : water spray / ⁽³⁾ IP67 : temporary immersion / ⁽⁴⁾ IP68 : prolonged immersion

Measuring Ranges

compound pressure	Pressure in mbar								Pressure in bar														
	—	—	—	—	—	—	—	—	-1+0	-1+0.6	-1+1.5	-1+3	-1+5	-1+9	-1+15	-1+24	-1+39	—	—	—	—	—	—
pressure	25	40	60	100	160	250	400	600	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Measurement range	27.5	44	66	110	175	275	440	660	1.1	1.75	2.75	4.4	6.6	11	17.6	27.5	44	66	110	176	275	440	660
Max. over pressure	110	110	275	500	500	1000	1000	1000	3	3	4	8	12	20	32	50	80	120	200	320	500	600	800
Burst pressure	200	200	500	1000	1000	2000	2000	2000	6	6	7	12	18	30	48	75	120	180	300	480	600	800	1000

Ordering Details - Y910

Y91xxxxxx	
Model	1'...3' digit
Intrinsically safe	Y91
Output signal	4' digit
0...10 Vdc	2
4...20 mA	3
1...5 Vdc	4
0...20 mA	6
Hydraulic connection	5' digit
G 1/4	2
G 1/2 standard	3
1/4 NPT	5
1/2 NPT	6
M20x150	9
Sensor seal	6' digit
NBR (Nitril) standard except (P < 250 mbar)	3
CR (Neoprene) except (P < 250 mbar)	4
EPDM	5
FFKM Chemraz® 505 1 bar ≤ P ≤ 250 bar	7
FKM (Viton®)	9
Viton® is a registered trademark of DuPont Dow Elastomers	
Pressure range	7'...9' digit
See codes in tables	xxx
Pressure type	10' digit
Absolute	A
Gauge	R

Some products in the E913 range are on one day delivery (ex-works) : please contact

code	Range in mbar				
N05	0	+	25	-	R
N06	0	+	40	-	R
N07	0	+	60	-	R
N08	0	+	100	-	R
N09	0	+	160	-	R
N10	0	+	250	A	R
N11	0	+	400	A	R
N12	0	+	600	A	R

code	Range in bar.			Vacuum pressure	
B59	-1	+	0	-	R
B72	-1	+	0.6	-	R
B74	-1	+	1.5	-	R
B76	-1	+	3	-	R
B77	-1	+	5	-	R
B79	-1	+	9	-	R
B81	-1	+	15	-	R
B82	-1	+	24	-	R
B1L	-1	+	39	-	R
B15	0	+	1	A	R
B16	0	+	1.6	A	R
B18	0	+	2.5	A	R
B19	0	+	4	A	R
B20	0	+	6	A	R
B22	0	+	10	A	R
B24	0	+	16	A	R
B26	0	+	25	A	R
B27	0	+	40	A	R
B29	0	+	60	A	R
B31	0	+	100	A	R
B33	0	+	160	A	R
B35	0	+	250	A	R
B38	0	+	400	A	R
B39	0	+	600	A	R

UK/04-2007 This data sheet may only be reproduced in full.

FR NOTICE D'INSTRUCTIONS - Transmetteurs de pression sécurité intrinsèque Y9xx

UK USER INSTRUCTIONS - Transmitter Intrinsically Safe Y9xx

Transmetteur de pression sécurité intrinsèque Y9xx

Ces transmetteurs ont été développés, fabriqués et contrôlés en accord avec les directives 89/336/CE normes EN61000-6-2, EN61000-6-3, EN61000-6-4 et EN61326-1 relatives à la compatibilité électromagnétique.

Logo du Fabricant
Type de transmetteur
Signal de sortie
Branchement électrique
Code de traçabilité et année
Nature du joint si différent ou standard NBR

Le logo CE0081 et les références propres à l'homologation Sécurité Intrinsèque

EM1 G et D EEx ia I

EM1 G et D EEx ia IIC T6 ou T5 T.amb.max. :+40°C T6 +70°C T5 / IP6X T80°C ou T95°C pour D

Sur certains modèles l'indication OX pour utilisation sur oxygène selon ISO2503 EM max.320 B.

Montage

Le montage doit être effectué conformément aux règles de l'art en usage pour des installations classées en zone dangereuse. Avant toute mise en service il est indispensable de s'assurer que le process et le fluide à mesurer par le transmetteur sont compatibles avec les exigences de la Sécurité Intrinsèque.

- 1- La pression et la nature du fluide à mesurer doivent être compatibles avec le transmetteur (risque de destruction et d'explosion).
2- La température d'utilisation de l'ambiance et du fluide doit être comprise entre -25°C et la classe T6 ou T5 définie par la Sécurité Intrinsèque.
3- Le fluide ne doit pas geler dans le transmetteur.
4- Laisser visible les étiquetages et marquages
5- La position de montage n'influe pas sur la mesure, il est cependant recommandé de protéger le transmetteur de toutes influences d'environnements sévères.

Raccordement électrique
Impérativement se conformer aux prescriptions du schéma

Respecter le branchement des connecteurs ou câble ainsi que les valeurs de tension et résistance de charge.

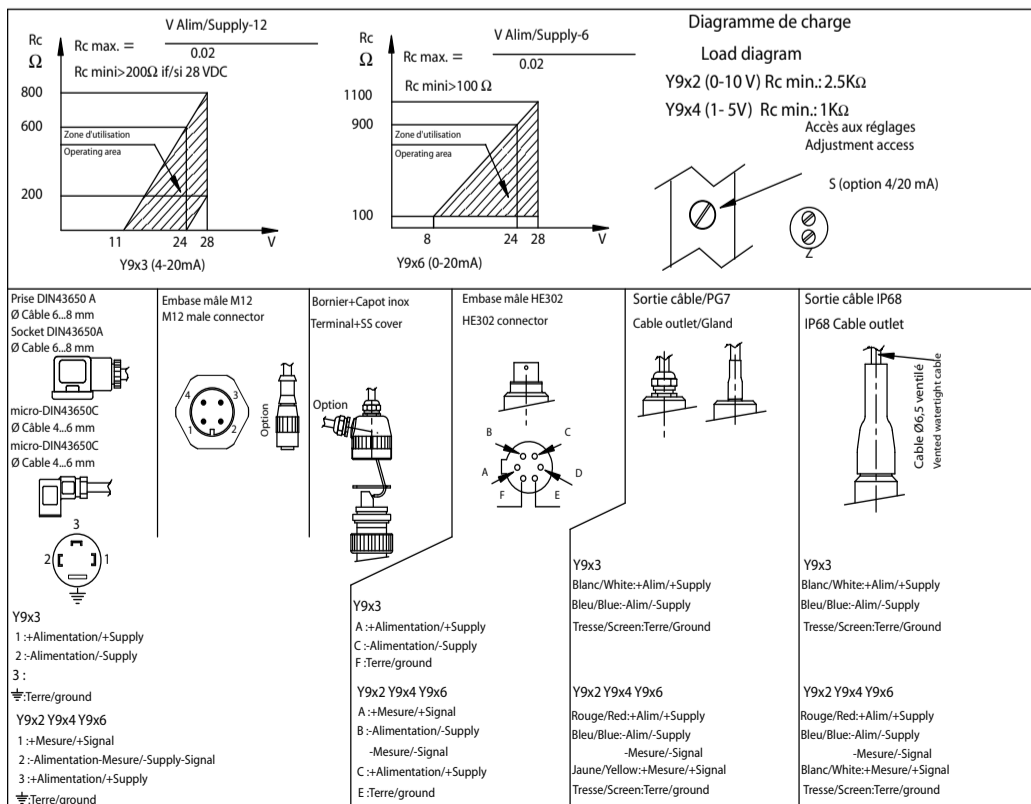
- Lors de la mise en place du câble il faut respecter les points suivants :
- utiliser un câble blindé et relier le blindage aux 2 extrémités à la masse (terre)
- pour le connecteur DIN43650 (fig. 5), le diamètre du câble doit être de 6 à 8mm (0,24" à 0,32")
- Ne pas laisser de réserve de câble sous forme enroulée, car ceci augmente l'inductance de la liaison.

Démontage et maintenance

Ces opérations doivent être effectuées par un personnel qualifié. Avant tout démontage s'assurer que le transmetteur n'est plus alimenté électriquement, que le circuit hydraulique n'est plus sous pression et que la température ambiante permet un démontage sans brûlures.

Mise en service et procédure de calibration

Tous les réglages ont été effectués en usine, toutefois il est possible d'ajuster le zéro de ±10% de l'EM. (gain en option pour les modèles 4/20 mA). Cette opération ne doit pas être faite si le transmetteur est soumis à des températures extrêmes.



Transmitter Intrinsically Safe Y9xx

These transmitters have been developed, manufactured and checked in accordance with the directives: 89/336/CE and Standards EN61000-6-2, EN61000-6-3, EN61000-6-4 and EN61326-1 relating to electromagnetic compatibility.

Manufacturer logo
Transmitter type
Measuring range
Output signal
Electrical connection
Traceability code and year
Kind of gasket if different from the NBR standard

The CE0081 logo and references related to Intrinsic Safety approval

EM1 G and D EEx ia I

EM1 G and D EEx ia IIC T6 or T5 T.amb.max. :+40°C T6 +70°C T5 - IP6X - T80°C for T95°C for D

On some models, the indication OX for use on oxygen according to ISO2503 EM max.320 B.

Mounting

Mounting must be carried out in compliance with rules for installations in classified Hazardous areas. Before putting any equipment into service, it is essential to make sure that the process and the fluid to be measured by the transmitter are compatible with the requirements of Intrinsic Safety.

- 1- The pressure and characteristics of the fluid to be measured must be compatible with the transmitter (to eliminate all risk of damage or explosion).
2- The operating temperature both of the environment and the fluid must lie between -25°C and the T6 or T5 class as defined by Intrinsic Safety.
3- The fluid must not freeze inside the transmitter.
4- Leave all labels and markings visible.
5- The mounting position does not affect the measurement; it is nonetheless recommended to place the transmitter away from all severe environmental conditions.

Electrical Connection

It is absolutely essential to comply with the instructions given in the drawing

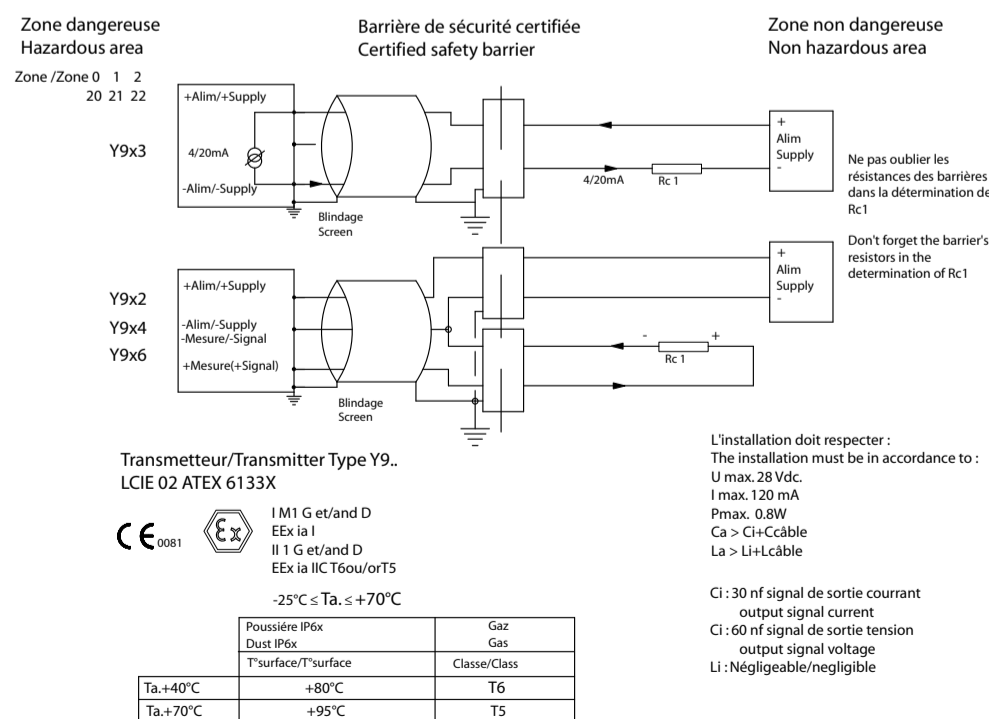
Connect the leads and cables as shown in figure 1 and comply with the voltage and resistance values. When installing the cable, check that the following are complied with:
- use a shielded cable and connect both ends of the shielding to ground
- for the DIN43650 connector, the diameter of the cable must be 6 to 8mm (0,24" to 0,32")

Disassembly and maintenance

A qualified technician must perform the following procedure. Before dismantling anything, make sure that the transmitter is switched off, the hydraulic circuit is no longer under pressure, and the ambient temperature allows you to dismantle the equipment without getting burnt.

Commissioning and calibration

All the settings are made in the factory, but the zero can be adjusted (10%). (span optional for models 4/20 mA). To avoid getting burnt, do not perform this operation if the transmitter is subjected to extreme temperatures.



En zone 0 ou 20 l'association du transmetteur et barrière de sécurité doit faire l'objet d'un calcul de boucle vérifié par un Organisme Notifié
In area 0 or 20, the loop calculation of the association transmitter with safety barrier must be approved by Notified Organism

