

Pressure Transmitters

With Field Casing

Standard Series • Model F-10
Flush Diaphragm Series • Model F-11

Ex - Standard Series • Model IF-10
Ex - Flush Diaphragm Series • Model IF-11

TRONIC LINE

- Pressure ranges from 0 ... 100 mbar to 0 ... 4000 bar
- Various industrial standard signal outputs
- Field case degree of protection IP 67
- Wetted parts stainless steel
- Optional extra: Ex - series intrinsically safe
- High resistance to noise voltage
- Special series for oxygen service
- Various pressure connections
- Assembly with WIKA chemical seals feasible

Intended service

For field mounting in process industry, chemical and petrochemical industry applications, refineries, as well as for rugged industrial environments in general.

General features

This series of pressure transmitters with field casing has been designed in order to utilize the advantages of modern industrial measurement technology under rough environmental conditions. The sensor, electronic amplifier and electrical connections are contained in a robust, yet compact case providing IP 67.

The available pressure ranges extend from 0 ... 100 mbar to 0 ... 4000 bar. The specially selected pressure systems used with piezoresistive sensor elements (up to 16 bar) or thin-film sensor elements (25 bar and above), are WIKA-manufactured. They use proven technology resulting from years of experience in all areas of electronic pressure measurement technology.

All wetted parts are made of stainless steel and are completely welded. There are no additional internal seals that means no limitations thereby of application.

The electronic amplifier can be supplied by a non-stabilized voltage source of DC 11(14) ... 30 V. It can provide any common signal output. The electronics are fully padded in resin for protection against moisture and vibration.

Zero point and span can be adjusted by the user also. However for normal operation no changes in the factory setting is necessary.

The increasing demands set in respect of pressure transmitter noise immunity in many areas of application have been taken into consideration with this development. For example all instruments with signal output 4 ... 20 mA in 2-wire technology comply with the EMI regulations valid at present in the EC. In the case of Ex-design instruments compliance with EMI directives is tested by a recognized approval authority and documented by the CE - symbol.

The models IF-10/IF-11 are designed for measurements in zone 1 areas. These intrinsically safe instruments meet the class EEx ia IIC T4-T6 CENELEC certification standards.



All transmitters with a 4 ... 20 mA output signal have a test circuit connection to check signal output without interrupting the circuit. Electrical connection is through a cable gland, the terminal screws are large-dimensioned and inside the case.

Supplementary data sheet:

- Pressure transmitters for
- General Applications (see data sheet PE 81.01)
 - Hygienic industry (see data sheet PE 81.03)
 - Submersible pressure transmitter (see data sheet PE 81.09)
 - Universal transmitters UniTans (see data sheet PE 86.01 u. PE 86.02)

Model S-10

Model S-11

Model LS-10

Model UT-10

Model IUT-10

| Specifications | | Model F-10 and Model F-11 Model IF-10 and Model IF-11 | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------------|---|------|-------------------------|-----|-----|---|-----|-----|----|----|----|----|-------------------|-----|-----|-----|------|------|------|------|------|------|------|------|
| Sensing principle | | piezoresistive | | thin-film strain gauges | | | | | | | | | | | | | | | | | | | | | |
| Pressure ranges | bar | 0,1 | 0,16 | 0,25 | 0,4 | 0,6 | 1 | 1,6 | 2,5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 600 | 1000 | 1600 | 2500 | 4000 |
| Overpressure safety | bar | 1 | 1,5 | 2 | 2 | 4 | 5 | 10 | 10 | 17 | 35 | 35 | 80 | 50 | 80 | 120 | 200 | 320 | 500 | 800 | 1200 | 1500 | 2000 | 3000 | 4400 |
| Burstpressure of sensor | bar | 2 | 2 | 2 | 2 | 4 | 5 | 10 | 10 | 17 | 35 | 35 | 80 | 250 | 400 | 550 | 800 | 1000 | 1200 | 1700 | 2400 | 3000 | 4000 | 5000 | 7000 |
| Pressure reference | | relative pressure {absolut pressure: 0 ... 0,25 bar abs to 0 ... 16 bar abs} {special pressure range 800 ... 1200 mbar abs} | | | | | | | | | | | | relative pressure | | | | | | | | | | | |
| Pressure connection | | G ½ B per DIN 16288 (G ¼ B, ½ NPT, ¼ NPT) {other connections on request} (M 16 x 1,5 female for pressure range 0 ... 2500 bar) G 1 B flush diaphragm with o-ring (pressure ranges: 0 ... 0,1 to 0 ... 1,6 bar) G ½ B flush diaphragm with o-ring (pressure ranges: 0 ... 2,5 to 0 ... 600bar) {weld-on socket for flush diaphragm units with connection G ½, G 1} | | | | | | | | | | | | | | | | | | | | | | | |
| Material | | stainless steel 1.4571 (ohter materials see WIKA chemical seal) stainless steel 1.4571 and 1.4542 stainless steel 1.4571 and o-ring: NBR stainless steel 1.4301 Synthetical oil (only for pressure ranges up to 0 ... 16 bar or flush diaphragm units) {halocarbonoil for oxygen applications} ²⁾ , {vegetable oil for food industry} | | | | | | | | | | | | | | | | | | | | | | | |
| • wetted parts Model F-10 and IF-10 Model F-11 and IF-11 | | | | | | | | | | | | | | | | | | | | | | | | | |
| • case | | | | | | | | | | | | | | | | | | | | | | | | | |
| internal transmitting fluid | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power supply U _B for none Ⓢ-transmitters | DC V | for Ⓢ-transmitters, models IF-10 / IF-11: see below in cection Ⓢ-protection ! 11 < U _B ≤ 30 (2-wire system), 10 ... 30 (14 ... 30 V with signal output 0 ... 10 V) | | | | | | | | | | | | | | | | | | | | | | | |
| Signal output and maximum load R _A | | 4 ... 20mA, 2-wire system R _A [Ohm] ≤ (U _B [V]- 11 [V] / 0,02 [A]) 0 ... 20mA, 3-wire system R _A [Ohm] ≤ (U _B [V]- 11 [V] / 0,02 [A]) {0 ... 5 V, 3-wire system} R _A ≥ 5 kOhm {0 ... 10 V, 3-wire system} R _A ≥ 10 kOhm | | | | | | | | | | | | | | | | | | | | | | | |
| Test circuit signal/max. load R | | 4 ... 20 mA. Only for instruments with 4 ... 20 mA signal output; R _A < 15 Ohm at 20 mA | | | | | | | | | | | | | | | | | | | | | | | |
| Response time (10 ... 90 %) | ms | ≤ 1 (≤ 10 ms at medium temperatures below –30 °C for pressure ranges up to 16 bar or with flush diaphragm) | | | | | | | | | | | | | | | | | | | | | | | |
| Accuracy | % of span | ≤ 0,5 {0,25 ¹⁾ } (limit point calibration) (calibrated in vertical mounting position- with pressure connection facing down) | | | | | | | | | | | | | | | | | | | | | | | |
| Hysteresis | % of span | ≤ 0,25 {0,15 ¹⁾ } (BFSL) | | | | | | | | | | | | | | | | | | | | | | | |
| Repeatability | % of span | ≤ 0,1 | | | | | | | | | | | | | | | | | | | | | | | |
| 1-year stability | % of span | ≤ 0,05 | | | | | | | | | | | | | | | | | | | | | | | |
| permissible temperature of | % of span | ≤ 0,2 (at reference conditions) | | | | | | | | | | | | | | | | | | | | | | | |
| • medium | °C (°F) | -30 ... +100 {-40 ... +125} (-22 ... +212) {(-40 ... +282)} | | | | | | | | | | | | | | | | | | | | | | | |
| • ambient | °C (°F) | -20 ... +80 (- 4 ... +176) | | | | | | | | | | | | | | | | | | | | | | | |
| • storage | °C (°F) | -40 ... +100 (-40 ... +212) | | | | | | | | | | | | | | | | | | | | | | | |
| Compensated temp. range | °C (°F) | 0 ... +80 (+32 ... +176) | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature coefficients in compensated temp range: | | | | | | | | | | | | | | | | | | | | | | | | | |
| • mean TC of zero | % of span/10K | ≤ 0,2 (< 0,4 with pressure ranges 0 ... 0,1 and 0 ... 0,16 bar) | | | | | | | | | | | | | | | | | | | | | | | |
| • mean TC of span | % of span/10K | ≤ 0,2 | | | | | | | | | | | | | | | | | | | | | | | |
| Ⓢ-protection | | according to BVS 92.C.2028 Model 892.X3.900 and 892.X3.920 | | | | | | | | | | | | | | | | | | | | | | | |
| Signal output | | 4 ... 20 mA, 2-wire system | | | | | | | | | | | | | | | | | | | | | | | |
| Ⓢ-certification | | EEx ia IIC T4 (BVS 92.C.2028) | | | | | | | | | | | | | | | | | | | | | | | |
| Conformity specifications: | | EEx ia IIC T5 (BVS 92.C.2028) | | | | | | | | | | | | | | | | | | | | | | | |
| • power supply | DC V | EEx ia IIC T6 (BVS 92.C.2028) | | | | | | | | | | | | | | | | | | | | | | | |
| • short circuit rating | mA | 11 ... 28 | | | | | | | | | | | | | | | | | | | | | | | |
| • power limitation | W | 220 | | | | | | | | | | | | | | | | | | | | | | | |
| • medium temperature | °C | 1,75 | | | | | | | | | | | | | | | | | | | | | | | |
| • ambient temperature | °C | -20 ... +100 | | | | | | | | | | | | | | | | | | | | | | | |
| • storage temperature | °C | -20 ... +75 | | | | | | | | | | | | | | | | | | | | | | | |
| | °C | -20 ... +75 | | | | | | | | | | | | | | | | | | | | | | | |
| | °C | -20 ... +80 | | | | | | | | | | | | | | | | | | | | | | | |
| | °C | -20 ... +80 | | | | | | | | | | | | | | | | | | | | | | | |
| | | see certification of conformity BVS 92.C.2028 for additional data | | | | | | | | | | | | | | | | | | | | | | | |
| CE - conformity | | Interference emission per EN 50 081-1 and EN 50 081-2, Interference emission per EN 50 082-2; declaration of conformity on request | | | | | | | | | | | | | | | | | | | | | | | |
| electrical connection | | Cable gland and internal terminal screws; cross section max. 2,5 mm ² ; ground terminals internal and external | | | | | | | | | | | | | | | | | | | | | | | |
| other electrical connection on request | | IP 67 per EN 60 529 / IEC 529 | | | | | | | | | | | | | | | | | | | | | | | |
| Degree of protection | | protected against polarity crossing, overvoltage and short circuiting; | | | | | | | | | | | | | | | | | | | | | | | |
| Wiring protection | | Ⓢ-transmitters only protected agianst reverse polarity | | | | | | | | | | | | | | | | | | | | | | | |
| Weight | kg | ca. 0,5; Ⓢ-transmitters aprox. 0,6 | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensions | | see drawings | | | | | | | | | | | | | | | | | | | | | | | |
| Items in curved brackets { } are optional extras for additional price. | | | | | | | | | | | | | | | | | | | | | | | | | |

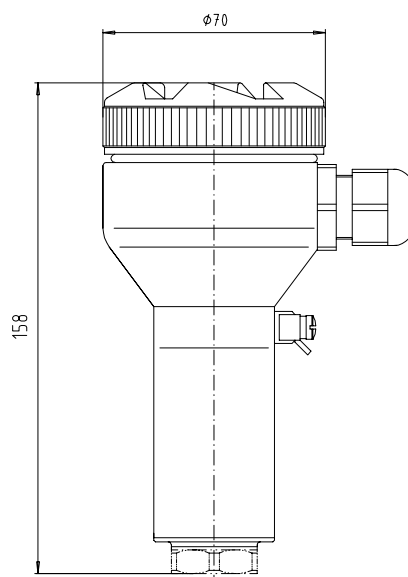
1) only available for measuring ranges beyond 0 ... 0.25 bar

2) The oxygen version must not be operated under medium temperatures higher than 60 °C (140 °F)

The oxygen version cannot be manufactured for negative pressure ranges and for absolute pressure ranges < 1 bar abs.

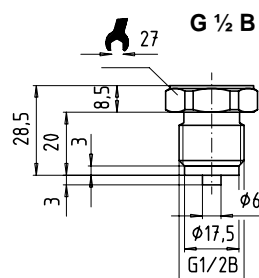
Dimensions in mm

Model F-10 / Model IF-10

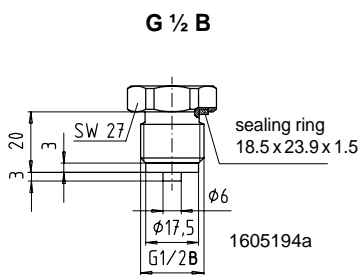


1605275

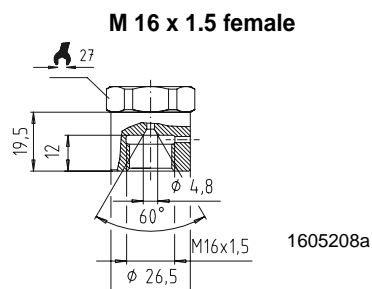
Pressure connections Models F-10 and IF-10



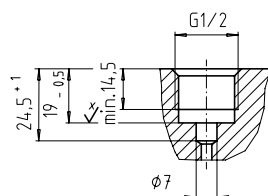
1605186



1605194a

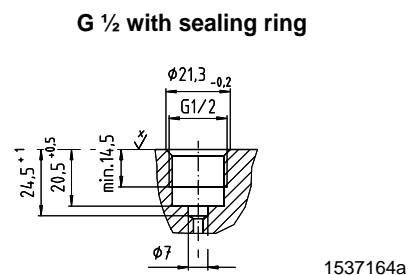


1605208a

Sockets for pressure connection
G 1/2

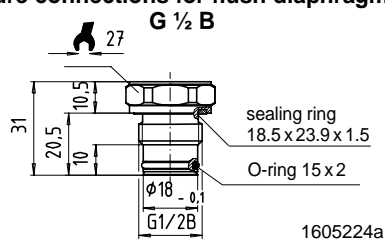
1605216

Model 89X.23.510 is screwable to choose in a socket per DIN 16 288 or, if sealing should be done via the sealing ring, in a special G 1/2 socket (specification: see drawing).

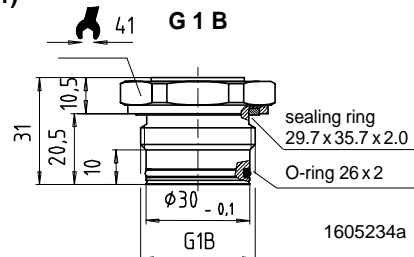


1537164a

Pressure connections for flush diaphragm with O-ring (Model s F-11 and IF-11)

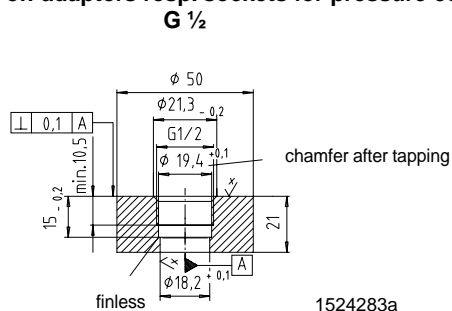


1605224a

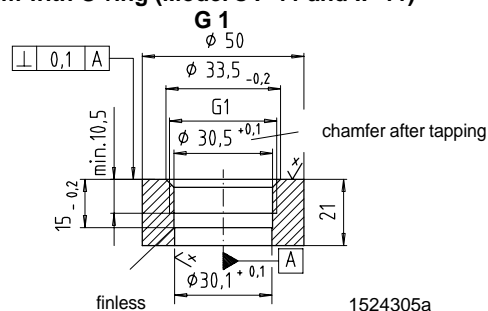


1605234a

Weld-on-adaptors resp. sockets for pressure connection for flush diaphragm with O-ring (Model s F-11 and IF-11)



1524283a

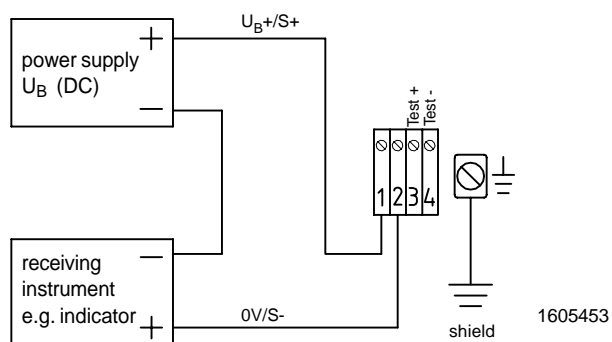


1524305a

Wiring details

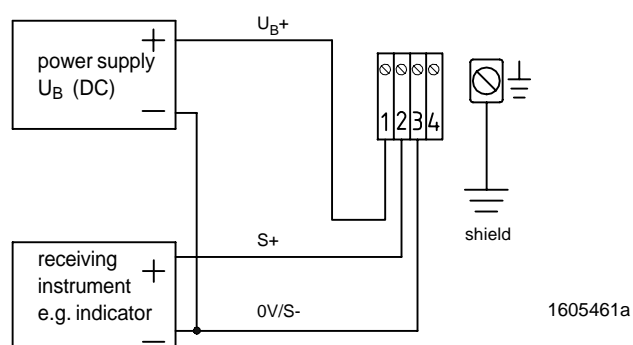
2-wire system

field case



3-wire system

field case



Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



INGENIEROS ASOCIADOS DE CONTROL S.L.

Telf.: 913831390
comercial@iac-sl.es