

Pressure transmitter with analog actual value display

Type 404312

Brief description

The type 404312 pressure transmitter is available with measuring ranges from -1 to 400 bar. The instrument is an ideal combination of an analog on-site display and an analog standard output signal for remote transmission of the measurement.

Constructed from high-grade stainless steel, this instrument can be used in virtually all media, even under harsh conditions. The design gives optimum safety from escaping process medium.

Areas of application:

- Chemical and process engineering

Key features

- Welded measuring system without seals
- Parts in contact with medium made of stainless steel
- Pressure gage functionality even during supply voltage failure



Type 404312/...

Technical data

General

Reference conditions	Per DIN 16 086 and DIN EN 60770
Sensor	
Material	Silicon sensor with stainless steel separating diaphragm
Pressure transfer medium	Synthetic oil
Location	
Mounting location	Any
Calibration location	Device standing vertically, process connection on bottom

Input

Relative and absolute pressure								
Measuring range (bar)	0 to 0.6	0 to 1	0 to 1.6	0 to 2.5	0 to 4	0 to 6	0 to 10	0 to 16
Range of use during steady load (bar) ¹	0.6	1	1.6	2.5	4	6	10	16
Range of use during alternating load (bar) ²	0.54	0.9	1.44	2.25	3.6	5.4	0.9	14.4
Measuring range (bar)	0 to 25	0 to 40	0 to 60	0 to 100	0 to 160	0 to 250	0 to 400	
Range of use during steady load (bar) ¹	25	40	60	100	160	250	400	
Range of use during alternating load (bar) ²	22.5	36	54	90	144	225	360	
Measuring range (bar)	-1 to 0	-1 to 0.6	-1 to 1.5	-1 to 3	-1 to 5	-1 to 9	-1 to 15	-1 to 24
Range of use during steady load (bar) ¹	0	0.6	1.5	3	5	9	15	24
Range of use during alternating load (bar) ²	0	0.54	1.35	2.7	4.5	8.1	13.5	21.6

¹ 100% of end of scale

² 90% of end of scale

Analog output

Output signal	
Electrical current	
Output 402	0 to 20 mA, three wires
Output 405	4 to 20 mA, two wires
Output 406	4 to 20 mA, three wires
Voltage	
Output 415	0 to 10 V three wires
Jump response	
t ₉₀	≤ 5 ms
Burden	
0 to 20 mA, three wires	$R_i \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$
4 to 20 mA, two wires	$R_i \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$
4 to 20 mA, three wires	$R_i \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$
0 to 10 V three wires	≥ 10 kΩ

Measurement deviation

Accuracy ³	Class 1.0
Characteristic curve deviation	≤ 0.5% of end value
Hysteresis	≤ 0.1% of end value
Repeatability	≤ 0.5% of end value
Response time	≤ 3 ms

³ Per EN837-1


Mechanical properties

Materials	
Process connection	Stainless steel 316 (1.4571)
Seal	The measuring system is welded with no seals
Sensor	Stainless steel 316L (1.4535)
Measuring system	Stainless steel 316 (1.4571)
Enclosure	Stainless steel 304L (1.4301)
Connector	PA (polyamide)
Weight	
Instrument with process connection 504 (G1/2)	550 g

Ambient conditions

Permissible temperatures	
Measuring material	-20 to +60
Environment	-20 to +60
Storage	-20 to +60
Permissible relative humidity	
Operation	100% rel. humidity, incl. condensation on the outer sleeve of the instrument
Storage	90% relative humidity, no condensation
Electromagnetic compatibility¹	
Interference emission	Class B
Interference immunity	to industrial requirements
Enclosure protection²	
as standard	IP54
for extra code 473	IP65

¹ Per EN61326

² Per EN60529 / ICE529

Power supply

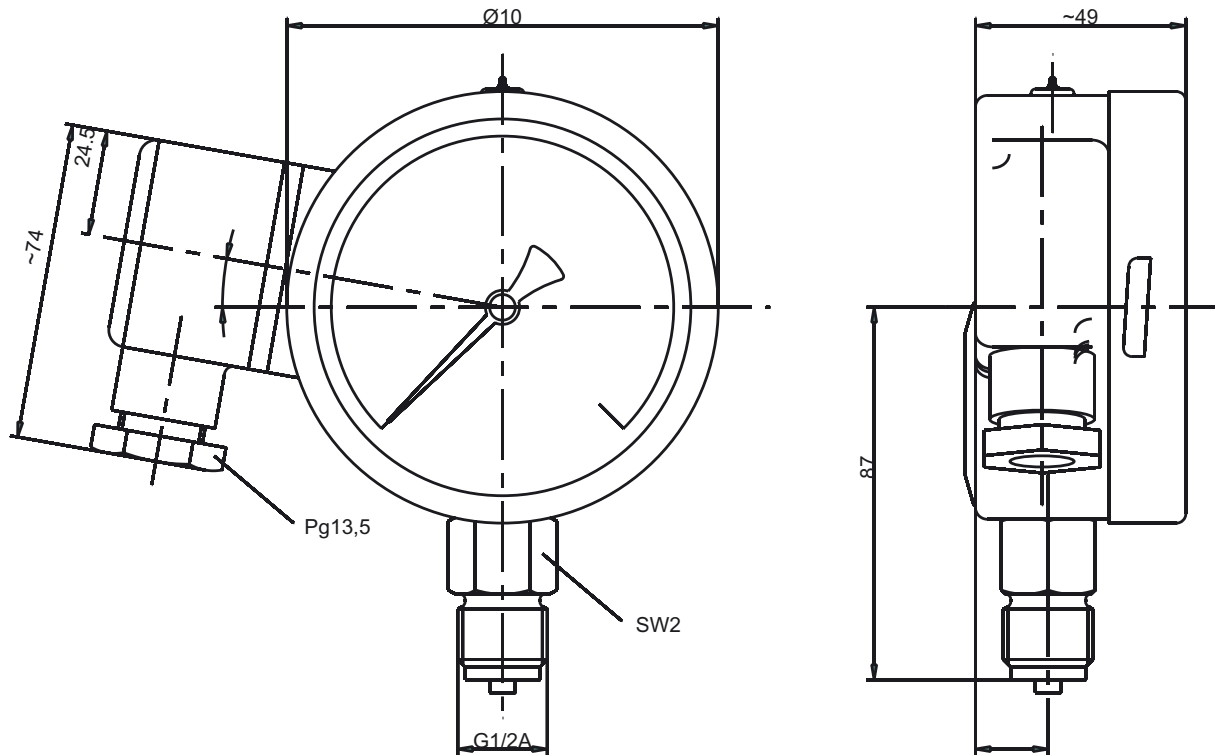
Auxiliary power	
Terminal assignment	See page 6/8
Power supply U_B	
for output 402 = 0 to 20 mA	11.5 to 30 V DC, nominal voltage 24 V DC
for output 405 = 4 to 20 mA	10 to 30 V DC, nominal voltage 24 V DC
for output 406 = 4 to 20 mA	11.5 to 30 V DC, nominal voltage 24 V DC
for output 415 = 0 to 10 V	11.5 to 30 V DC, nominal voltage 24 V DC
Residual ripple	Peak voltages must not exceed or fall below the values specified for the supply voltage
Reverse polarity protection	yes
Power consumption	≤ 25 mA
Electrical connection	
61 = Terminal box	DIN 175301 Form A ⁵

⁵ Conductor cross-section ≤ 1.5 mm²

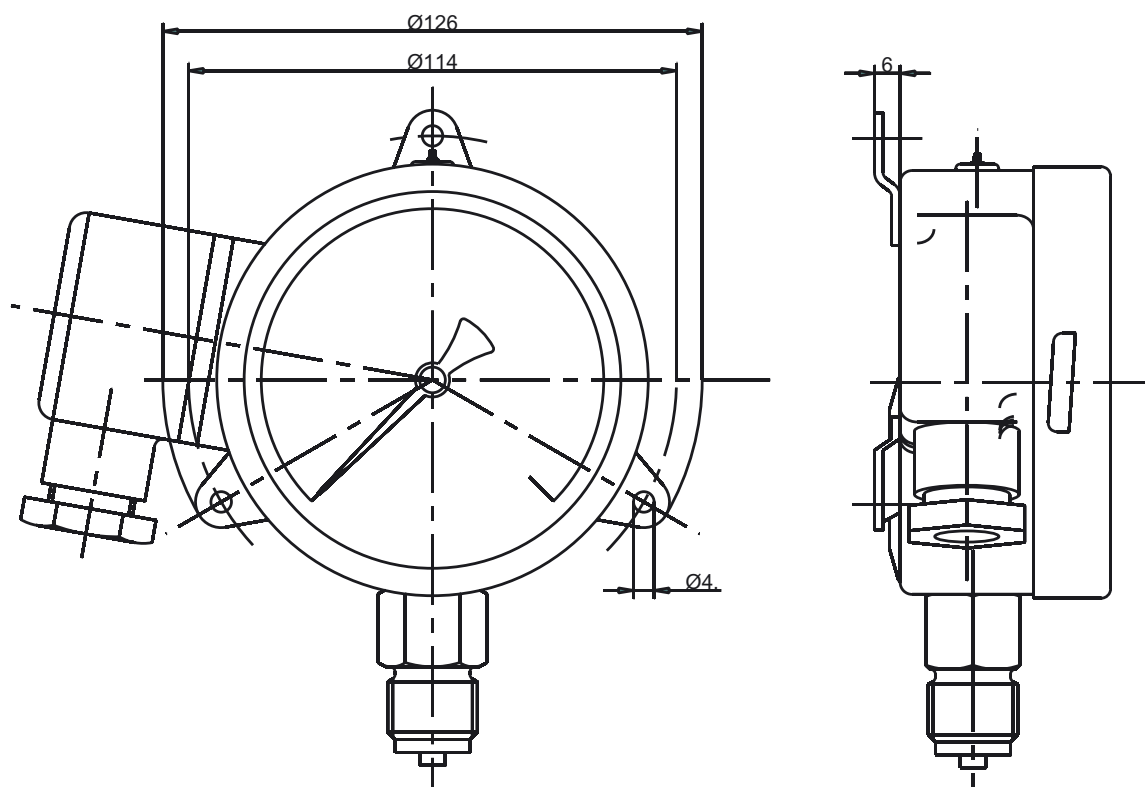
Electrical connection

Connection			Terminal assignment
			
			61 Terminal box
Devices with 3-wire output			
Power supply for output 402 11.5 to 30 V DC for output 406 11.5 to 30 V DC for output 415 11.5 to 30 V DC		U_B 0 V	1 L+ 2 L-
Output 402 = 0 - 20 mA 406 = 4 - 20 mA 415 = 0 - 10 V		S- S+	2 - 3 +
Devices with 2-wire output			
Power supply for output 405 10 to 30 V DC		U_B 0 V	1 L+ 2 L-
Output 405 = 4 - 20 mA, 2-wire Impressed current 4 to 20 mA in power supply voltage		S- S+	1 + 2 -
Grounding			6

Dimensions



Type 40.4312/000-...



Type 40.4312/000-... with extra code 421



Order details

(1) Basic type

404312 Pressure transmitter with analog actual value display

(2) Basic type extension

000 none
999 Special design

(3) Input

454 0 - 1.0 bar relative pressure
455 0 - 1.6 bar relative pressure
456 0 - 2.5 bar relative pressure
457 0 - 4 bar relative pressure
458 0 - 6 bar relative pressure
459 0 - 10 bar relative pressure
460 0 - 16 bar relative pressure
461 0 - 25 bar relative pressure
462 0 - 40 bar relative pressure
463 0 - 60 bar relative pressure
464 0 - 100 bar relative pressure
465 0 - 160 bar relative pressure
466 0 - 250 bar relative pressure
467 0 - 400 bar relative pressure
478 -1 to 0 bar relative pressure
479 -1 to 0.6 bar relative pressure
480 -1 to 1.5 bar relative pressure
481 -1 to 3 bar relative pressure
482 -1 to 5 bar relative pressure
483 -1 to 9 bar relative pressure
484 -1 to 15 bar relative pressure
485 -1 to 24 bar relative pressure

(4) Output

402 0 to 20 mA three wires
405 4 to 20 mA two wires
406 4 to 20 mA three wires
415 0 to 10 V three wires

(5) Process connection (not front-flush)

504 G 1/2 to DIN EN 837

(6) Process connection material

20 Stainless steel

(7) Electrical connection

65 Terminal box

(8) Extra codes

000 none
421 Rear fastening brackets
473 Enclosure with damping fluid
591 Throttle in pressure channel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Order code		/		-		-		/
Sample order	404312	/	000	-	459	-	405	-
					504	-	20	-
							61	/
								000