



DESCRIPTION

The AMZ 5055 is a high-precision differential pressure transmitter based on a capacitive cell, providing excellent performance, significant overload capability, and long-term stability. Most device parameters (including lower and upper range limits) can be adjusted locally in hazardous areas.

The device housing can be rotated around its vertical axis for easy installation and reading.

The display can be rotated around an axis perpendicular to its plane in 90° increments.

SPECIFICATIONS

Differential pressure ranges: 0...15 mbar, 0...70 bar

Static pressure / overpressure: up to 138 bar

Accuracy: up to $\pm 0.075\%$

Output signal: 4...20 mA / HART®

Explosion protection: 0Ex ia IIC T6...T4 Ga X; 1Ex d IIC T6...T4 Gb X; 1Ex d ia IIC T6...T4 Gb X

Turndown ratio: up to 100:1

Display: LCD with backlight (option)

Pressure port: NPT; M20x1,5, M12x1,25

Connection to the process via a valve manifold
DN 25/PN 40 GOST 12821-80 for welding

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APPLICATIONS

Liquid, steam and gas differential pressure measurement

Level monitoring in pressurized tanks

Filters and pumps diagnostics

Flow measurement

TECHNICAL SPECIFICATIONS

MEASURING RANGES

Differential pressure range, P_N^*	Turndown ratio P_N/P_{set}^*	Permissible static pressure (line pressure), MPa	Overpressure, MPa
0...1.5 kPa	10:1	1	1
0...7.5 kPa	30:1	4	4
0...37 kPa	100:1	13.8 (optional 25)	13.8 (optional 25)
0...187 kPa	100:1	13.8 (optional 25)	13.8 (optional 25)
0...690 kPa	100:1	13.8 (optional 25)	13.8 (optional 25)
0...2 MPa	100:1	13.8 (optional 25)	13.8 (optional 25)
0...7 MPa	100:1	13.8 (optional 25)	13.8 (optional 25)

* By default, the nominal measurement range P_N is equal to the upper range limit (URL), with the lower measurement limit (LML) is 0. The set range (P_{set}) is defined as the difference between URL and LML.

The LRL can be set to negative URL; the setting is changed either via HART® modem/communicator or locally.

The pressure transmitter supports the following measurement units: inH₂O, inHg, ftH₂O, mmH₂O, mmHg, psi, bar, mbar, g/cm², kg/cm², Pa, kPa, MPa, atm, Torr.

Switching between measurement units can be performed both remotely using a HART® modem/communicator and locally.

When switching measurement units, it is necessary to consider the range of digital values displayed on the screen.

PERFORMANCE

Pressure range	Turndown ratio	Accuracy, % of span*
$P_N = 1.5$ kPa	$P_N/P_{set} \leq 2$	±0.1
	$2 < P_N/P_{set} \leq 10$	±[0.02 · (P_N/P_{set}) + 0.06]
7.5 kPa ≤ P_N ≤ 7 MPa	$P_N/P_{set} \leq 10$	±0.075
	$10 < P_N/P_{set} \leq 40$	±[0.00375 · (P_N/P_{set}) + 0.0375]
	$40 < P_N/P_{set} \leq 100$	±[0.00465 · (P_N/P_{set}) + 0.0015]

Pressure range	Turndown ratio	Temperature effect, % of span / 10 °C	Long-term stability	Line pressure effect	
				Zero Error**	Span Error
$P_N = 1.5$ kPa	$P_N/P_{set} \leq 2$	±[0.075 · (P_N/P_{set}) + 0.025]	±0.2% URL / year	±0.1% URL / 1 MPa	±0.2% of reading / 1 MPa
	$2 < P_N/P_{set} \leq 10$	±[0.050 · (P_N/P_{set}) + 0.075]			
$P_N = 7.5$ kPa	$P_N/P_{set} \leq 5$	±[0.040 · (P_N/P_{set}) + 0.025]		±0.03% URL / 1 MPa	±0.06% of reading / 1 MPa
	$5 < P_N/P_{set} \leq 40$	±[0.030 · (P_N/P_{set}) + 0.075]			
37 kPa ≤ P_N ≤ 7 MPa	$P_N/P_{set} \leq 5$	±[0.010 · (P_N/P_{set}) + 0.030]	±0.15% URL / 5 years	±0.005% URL / 1 MPa	±0.03% of reading / 1 MPa
	$5 < P_N/P_{set} \leq 100$	±[0.012 · (P_N/P_{set}) + 0.023]			

* Accuracy includes non-linearity, hysteresis and non-repeatability.

** Eliminated through zero trim when static pressure is at operational level.

Compensated temperature range	-20...+80 °C; -40...+60 °C (optional)
Power supply effect (Nominal power supply: 24 B ±10%)	≤ ±0.05% of span / 10 V
Load resistance effect	≤ ±0.05% of span / kOhm
Response time (10...90%)	≤ 200 ms

OPERATING CONDITIONS

Medium temperature	-40...+105 °C (depends on seal)					
Ambient temperature	-40...+85 °C, (refer to the temperature class limits for Ex versions)					
Storage temperature	-40...+85 °C					
Approvals	1Ex d IIC T6...T4 Gb X, 1Ex d ia IIC T6...T4 Gb X			0Ex ia IIC T6...T4 Ga X		
Temperature class	T4	T5	T6	T4	T5	T6
Ambient temperature	-40...85 °C	-40...70 °C	-40...60 °C	-40...80 °C	-40...60 °C	-40...50 °C
Vibration resistance	10 - 60 Hz, 0.21 mm peak to peak displacement / 60 - 2000 Hz, 3g (by GOST 52931)					
Shock resistance	100 g / 11 ms					
Sensor service life	> 100 × 10 ⁶ load cycles					

MECHANICAL SPECIFICATIONS

Housing material	standard - aluminum alloy, optional - stainless steel 316L (1.4404)
Flange material	stainless steel 316L (1.4404)
Seal	EPDM (-40...105 °C); FKM (-25...105 °C); NBR (-25...105 °C); PTFE (-40...105 °C)
Diaphragm	stainless steel 316L (1.4435)
Mounting kit, Mounting bracket	carbon steel, stainless steel
Display protective cover	polycarbonate
Wetted parts	diaphragm, flanges, seal
Process connections	1/4" NPT; 1/2" NPT (with adapter)
Electrical connections*	cable gland 1/2" NPT; cable gland M20x1.5
Ingress protection (GOST 14254)	IP67
Dimensions, mm, max	177x116x110
Weight, kg, max	3.5
Explosion protection	General industry; Intrinsically safe 0Ex ia IIC T6...T4 Ga X; Flameproof enclosure 1Ex d IIC T6...T4 Gb X, 1Ex d ia IIC T6...T4 Gb X. The design allows local configuration in hazardous area.

DIGITAL DISPLAY (optional)

Display	Value
Display digits	-1999...+9999
Display accuracy	0.1 % of span ± 1 digit

ELECTRICAL SPECIFICATIONS

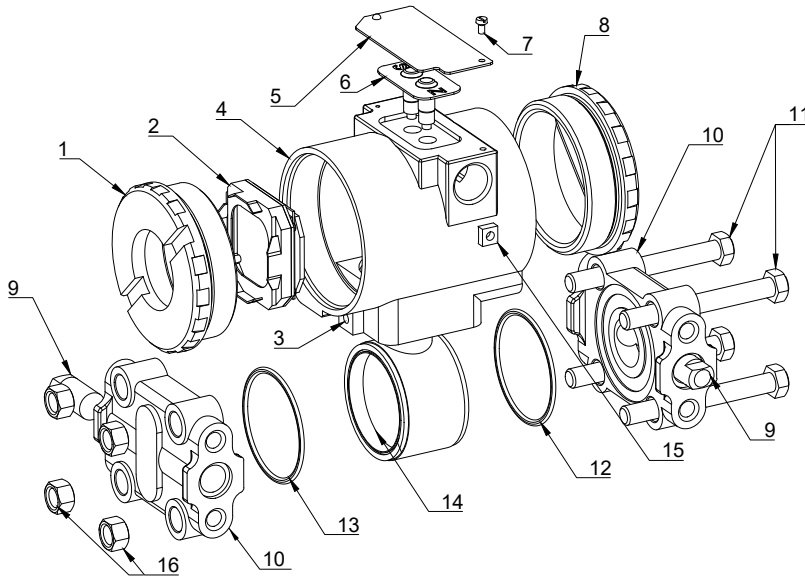
Output signal	Power supply	Load resistance	Power consumption
4...20 mA / HART®	9...44 V (DC)	$\leq [(U_s - U_{s_Min}) / 0.02 \text{ A}] \Omega^{***}$	$\leq 21 \text{ mA}$
Minimum value of the supply voltage		Without HART®, U_{s_Min}	With HART®, $U_{s_Min_HART}$
With backlight off		9 V	14 V
With backlight on		12 V	17 V

* Maximum load resistance value depends on the supply voltage and the minimum supply voltage.
For the sensor to operate using the HART® protocol, the load resistance must be at least 250 Ohm.
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Safe values for intrinsically safe design 0Ex ia IIC T6...T4 Ga X:

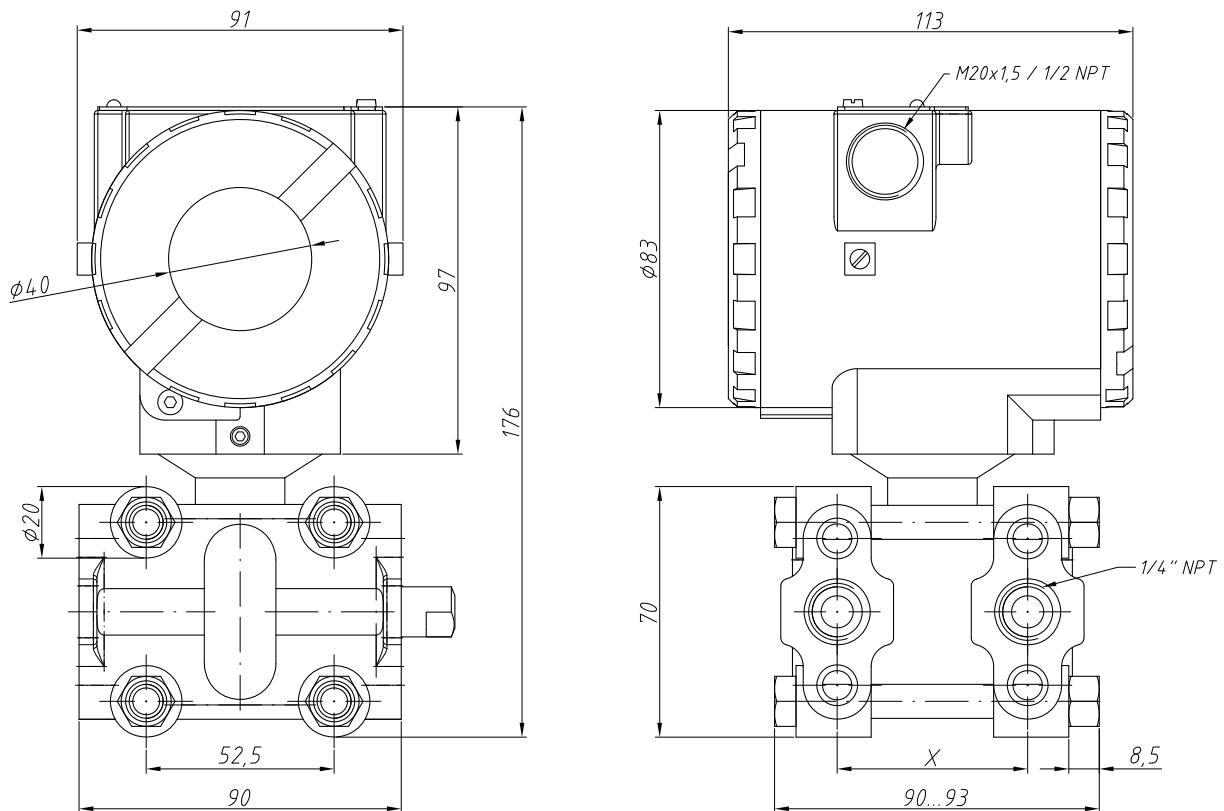
Parameter	2-wire
Maximum input voltage, U_i	28 V
Maximum input current, I_i	93 mA
Maximum input power, P_i	660 mW
Maximum internal inductance, L_i	5 μH
Maximum internal capacitance, C_i	10 nF

COMPONENTS



- 1 – Protective display cover
- 2 – Display (orientation adjustable in 90° increments)
- 3 – Locking screw
- 4 – Housing
- 5 – Cover for local adjustment holes
- 6 – External control buttons (optional)
- 7 – Screw for cover fixation
- 8 – Terminal block cover
- 9 – Plugs with drain valve (optional)
- 10 – Flanges with internal threads for connection to the measured medium
- 11 – Flange bolts
- 12, 13 – Sealing rings
- 14 – Sensor (pressure-sensitive element)
- 15 – Housing grounding screw
- 16 – Nuts for flange fixation

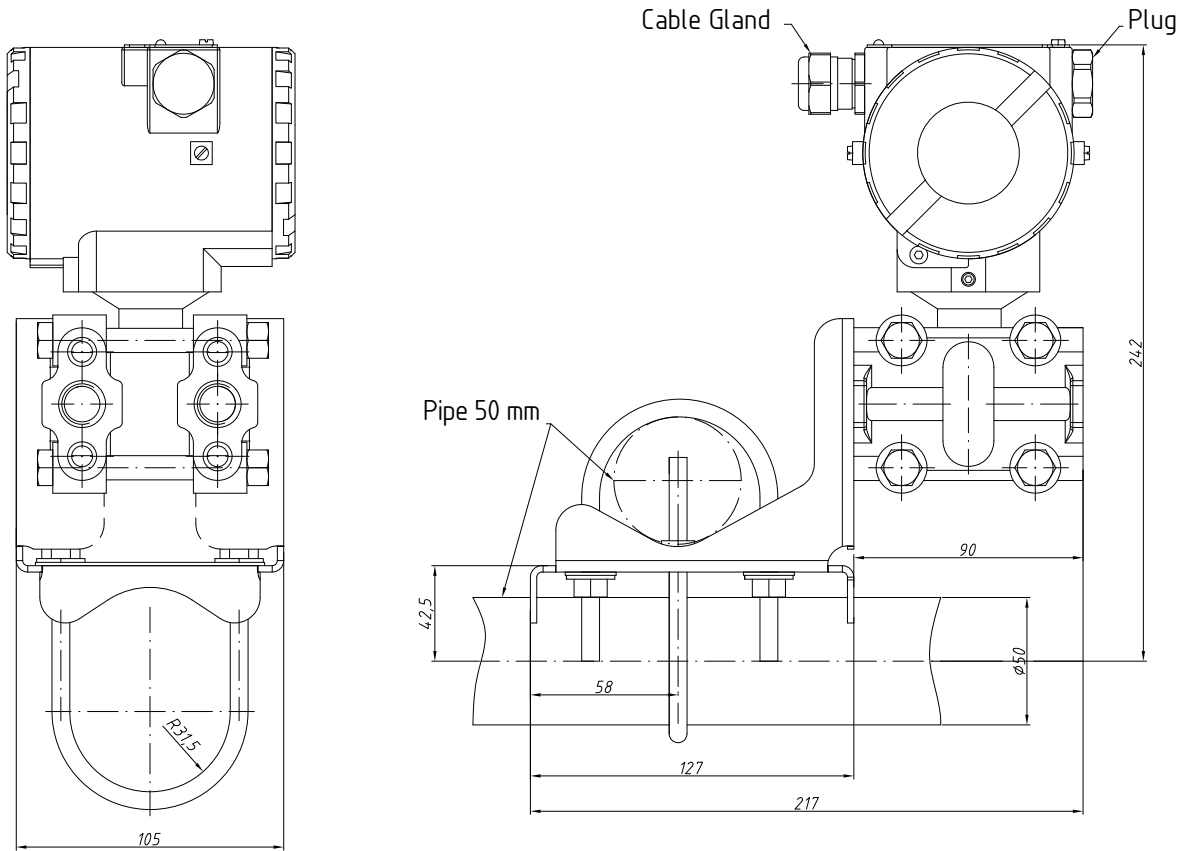
DIMENSIONS (mm) ALUMINUM ALLOY HOUSING



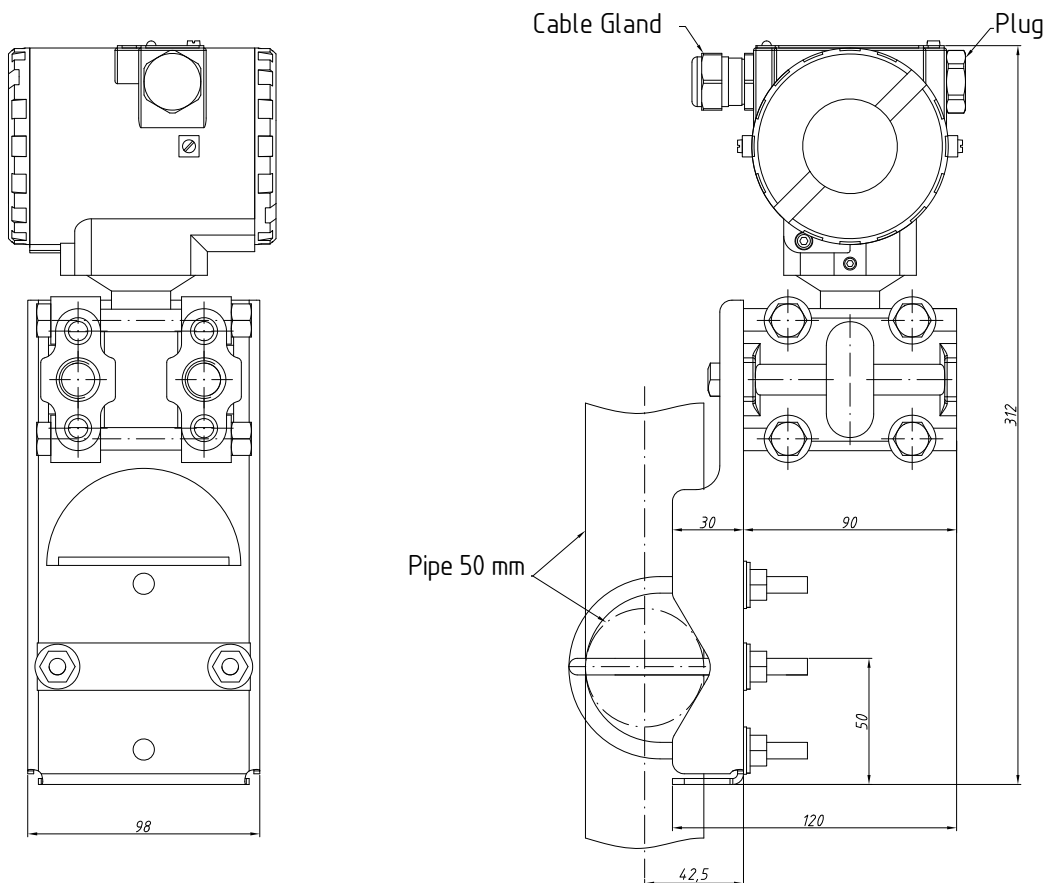
URL, kPa	1,5 - 187	690	2000	7000
X, mm	54	55	56	57

DIMENSIONS (mm) ALUMINUM ALLOY HOUSING

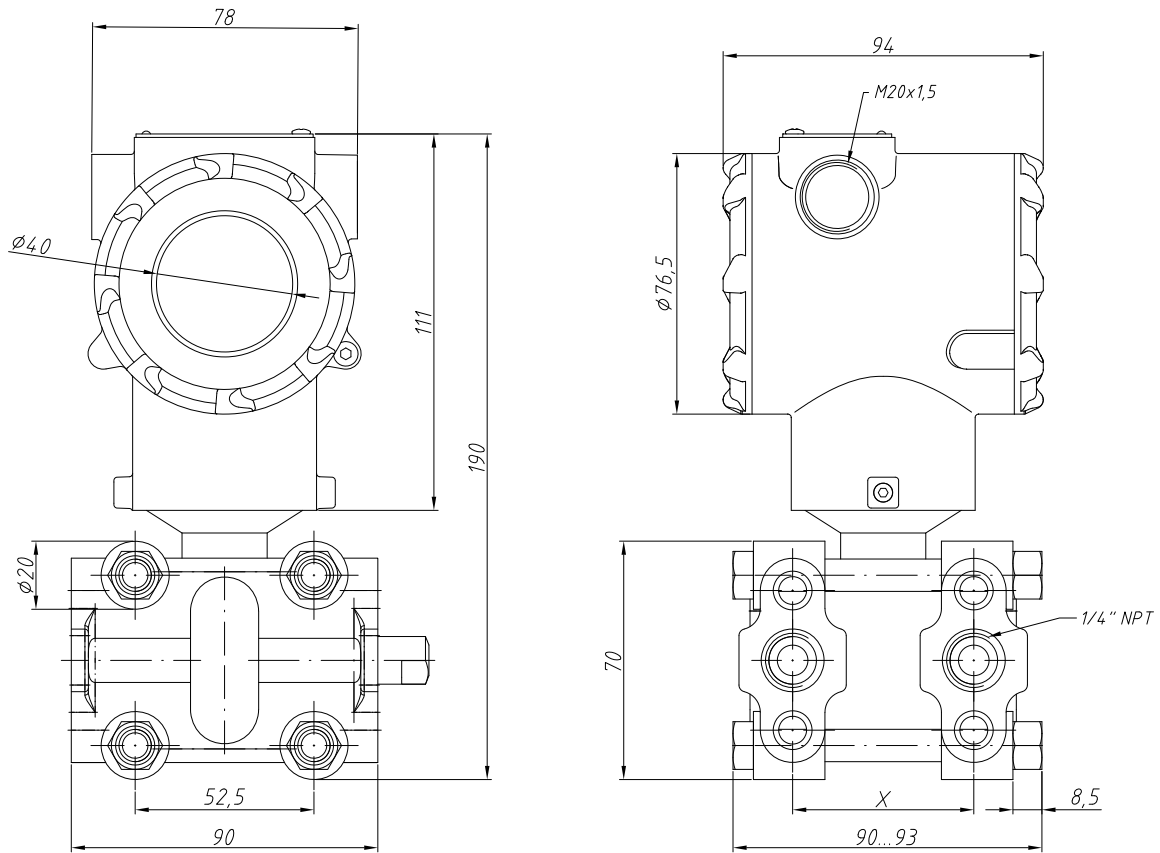
With angled pipe bracket



With straight pipe bracket



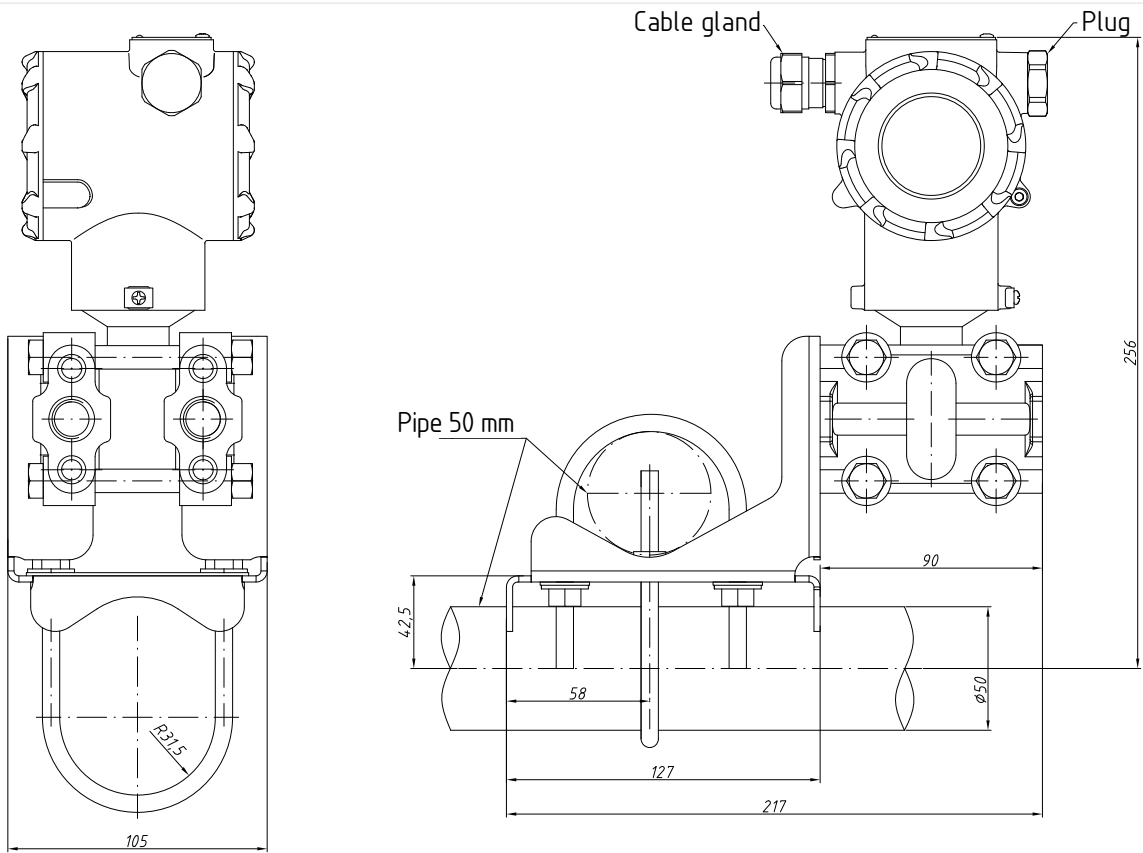
DIMENSIONS (mm) STAINLESS STEEL HOUSING



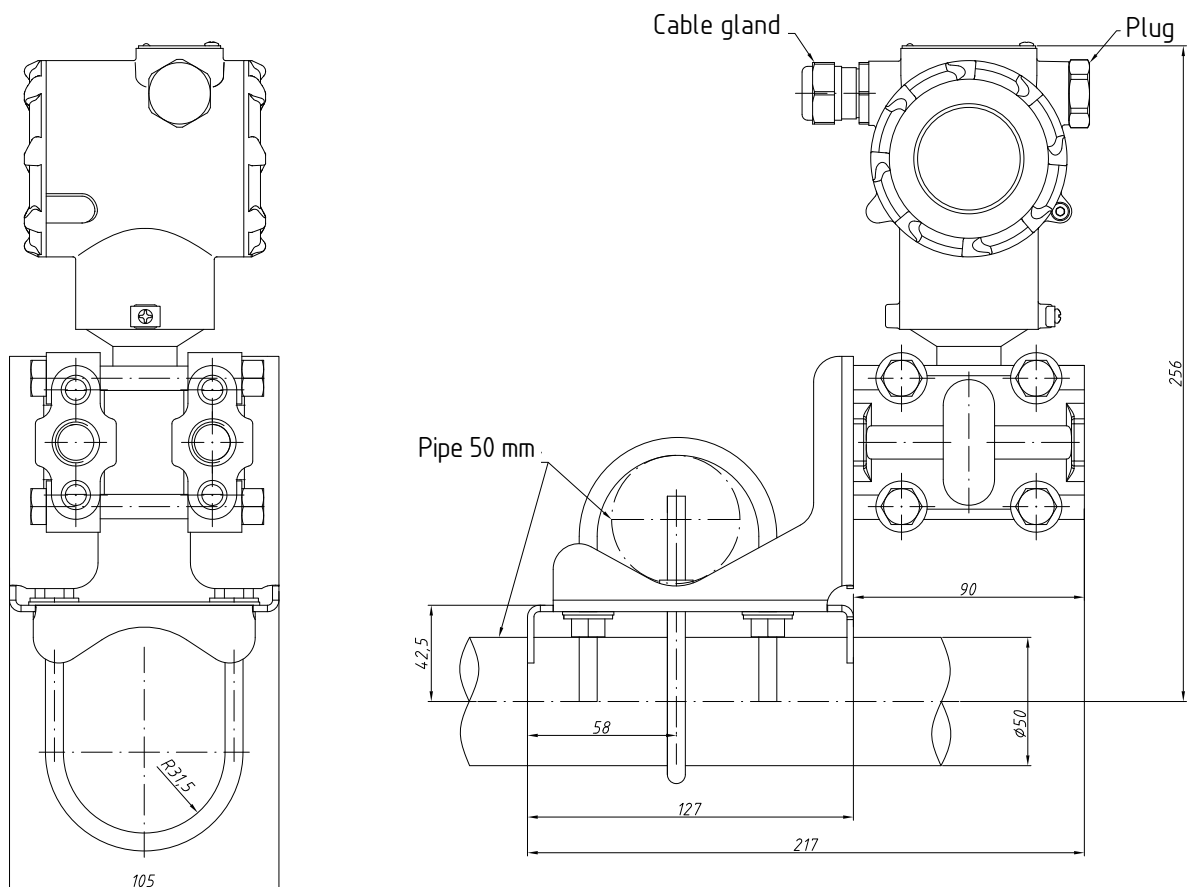
URL, kPa	1,5 - 187	690	2000	7000
X, mm	54	55	56	57

DIMENSIONS (mm) STAINLESS STEEL HOUSING

With angled pipe bracket



With straight pipe bracket



ORDERING CODE

AMZ 5055		-X	-XXXX	-XX	-XX	-X	-X	-X	-X	-X	-X	-X	-XXXXX	-X	-X	-XX
MEASUREMENT TYPE																
Absolute pressure	A															
Differential pressure	D															
Gauge pressure	G															
UPPER RANGE LIMIT (URL)																
1.5 kPa	1500															
7.5 kPa	7500															
37 kPa	3701															
187 kPa	1872															
690 kPa	6902															
2 MPa	2003															
7 MPa	7003															
Other	XXXX															
STATIC PRESSURE																
1 MPa (URL 1.5 kPa)	01															
4 MPa (URL 7.5 kPa)	04															
13.8 MPa (URL 37 kPa and upper)	13															
25 MPa (for diff. ranges from 37 kPa to 7 MPa)	25															
DIAPHRAGM MATERIAL / FILL FLUID																
Stainless steel / Silicone oil	11															
Hastelloy-C276 / Silicone oil	81															
Other	XX															
FLANGE MATERIAL																
Stainless steel, 316L	S															
Stainless steel, 304	F															
SEALS																
FKM (-25...+105 °C, Standard)	F															
NBR (-25...+105 °C)	N															
EPDM (-40...+105 °C)	E															
PTFE (-40...+105 °C)	P															
ACCURACY																
0.075% (URL ≥ 7.5 kPa)	Z															
0.1% (URL = 1.5 kPa)	A															
DISPLAY																
No	0															
Yes	1															
Yes / With buttons	2															
DRAIN VALVES LOCATION																
No drain valves	V															
Opposite pressure ports	A															
ELECTRICAL CONNECTION*																
See Appendix A	-X															
OUTPUT SIGNAL																
4...20 mA / HART®	H															
4...20 mA / HART® / 0Ex ia IIC T6...T4 Ga X	I															
4...20 mA / HART® / 1Ex d IIC T6...T4 Gb X	P															

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ORDERING CODE (continued)

AMZ 5055	-X	-XXXX	-XX	-XX	-X	-X	-X	-X	-X	-X	-X	-X	-XXXXX	-X	-X	-XX
PRESSURE PORT																
													Connection via valve manifold	1		
													1/2" – 14 NPT	2		
													1/4" – 18 NPT	4		
													Threaded: High pressure side (H): M20×1.5 adapter, 14 mm nipple, gasket, union nut	5		
													Threaded: High pressure side (H) / Low pressure side (L): M20×1.5 adapter, 14 mm nipple, gasket, union nut	6		
													DN 25 / PN 40 according to GOST 12821-80, weld-on	8		
													Threaded: High pressure side (H) / Low pressure side (L): M12×1.25 adapter according to OST 92-3901-76	RSC8		
													Threaded: High pressure side (H): M20×1.5 adapter	RST9		
													Threaded: High pressure side (H) and Low pressure side (L): M20×1.5 adapter	RST10		
VALVE MANIFOLD*																
													None	0		
													Included with valve manifold	1		
													Supplied assembled with valve manifold**	2		
MOUNTING KIT																
													Not included	0		
													Pipe bracket, straight	1		
													Pipe bracket, angled	2		
VERSION																
													Standard	00		
													Stainless steel housing 316L	SS		

Example: AMZ 5055-D-7003-13-11-S-F-A-1-V-N01-H-2-2-SS

* Configuration of the valve block is specified as a separate order line according to the technical specification for the valve block.

** The sensor is supplied assembled with the valve block. After installation, a leak tightness check is performed.

Note: The execution with diaphragm separators is presented in the corresponding (separate) technical specification.

APPENDIX A

Order Code	Thread of Electrical Connection	Material	Thread of Cable Gland	For Cable, mm	Ø Outer Diameter of Armor, mm	Nominal Metal Hose Diameter, mm	Protection Class (GOST 14254)	Explosion Protection	Note
Without Cable Gland									
M00	Internal M20x1.5	-	-	-	-	-	-	-	With plastic plugs, without Cable Gland
M02S	Internal M20x1.5	-	-	-	-	-	-	-	With explosion-proof plugs made of stainless steel, IP66-68, without Cable Gland
N00	Internal 1/2" NPT	-	-	-	-	-	-	-	With plastic plugs, without Cable Gland
N02S	Internal 1/2" NPT	-	-	-	-	-	-	-	With explosion-proof plugs, made of stainless steel, IP66-68, without Cable Gland
Cable Glands with M20x1.5 threads									
M01	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-12	-	-	IP66-68	General purpose Exi, Exd	-
M03	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-12	9-17	-	IP66-68	General purpose Exi, Exd	For armored cable
M04	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-12	-	15	IP66-68	General purpose Exi, Exd	For unarmored cable with the option of metal hose connection
M05	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-14	-	20	IP66-68	General purpose Exi, Exd	For unarmored cable with the option of metal hose connection
M06	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-12	-	-	IP66-68	General purpose Exi, Exd	For unarmored cable with an adapter for metal hose with internal thread G 1/2"
M08	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-14	-	18	IP66-68	General purpose Exi, Exd	With an adapter for metal hose (RZ-TsKh-18/MRPI-18)
M10	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-14	-	15	IP66-68	General purpose Exi, Exd	-
M14	Internal M20x1.5	Nickel-plated brass	External M20x1.5	6-14	-	20	IP66-68	General purpose Exi, Exd	-
M01S	Internal M20x1.5	Stainless steel	External M20x1.5	6-12	-	-	IP66-68	General purpose Exi, Exd	-
M03S	Internal M20x1.5	Stainless steel	External M20x1.5	6-12	9-17	-	IP66-68	General purpose Exi, Exd	For armored cable

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APPENDIX A (CONTINUED)

Order Code	Thread of Electrical Connection	Material	Thread of Cable Gland	For Cable, mm	Ø Outer Diameter of Armor, mm	Nominal Metal Hose Diameter, mm	Protection Class (GOST 14254)	Explosion Protection	Note
M04S	Internal M20x1.5	Stainless steel	External M20x1.5	6-12	-	15	IP66-68	General purpose Exi, Exd	For unarmored cable with the option of metal hose connection
M05S	Internal M20x1.5	Stainless steel	External M20x1.5	6-14	-	20	IP66-68	General purpose Exi, Exd	For unarmored cable with the option of metal hose connection
M06S	Internal M20x1.5	Stainless steel	External M20x1.5	6-12	-	-	IP66-68	General purpose Exi, Exd	For unarmored cable with an adapter for metal hose with internal thread G 1/2"
M08S	Internal M20x1.5	Stainless steel	External M20x1.5	6-14	-	18	IP66-68	General purpose Exi, Exd	With an adapter for metal hose
M10S	Internal M20x1.5	Stainless steel	external M20x1.5	6-14	-	15	IP66-68	General purpose Exi, Exd	-
M14S	Internal M20x1.5	Stainless steel	External M20x1.5	6-14	-	20	IP66-68	General purpose Exi, Exd	-
M01P	Internal M20x1.5	Polyamide	External M20x1.5	6-12	-	-	-	General purpose	-
Cable Glands with 1/2" NPT threads									
N01	Internal 1/2" NPT	Nickel-plated brass	external 1/2" NPT	6-12	-	-	IP66-68	General purpose Exi, Exd	-
N01P	Internal 1/2" NPT	Polyamide	External 1/2" NPT	6-12	-	-	IP66-68	General purpose	-
N03	Internal 1/2" NPT	Nickel-plated brass	External 1/2" NPT	6-12	9-17	-	IP66-68	General purpose Exi, Exd	For armored cable or for unarmored cable with the option of metal hose connection
N04	Internal 1/2" NPT	Nickel-plated brass	External 1/2" NPT	6-12	-	15	IP66-68	General purpose Exi, Exd	For unarmored cable with the option of metal hose connection
N05	Internal 1/2" NPT	Nickel-plated brass	External 1/2" NPT	6-14	-	20	IP66-68	General purpose Exi, Exd	For unarmored cable with an adapter for metal hose with internal thread G 1/2"
N06	Internal 1/2" NPT	Nickel-plated brass	External 1/2" NPT	6-12	-	-	IP66-68	General purpose Exi, Exd	-
N01S	Internal 1/2" NPT	Stainless steel	External 1/2" NPT	6-12	-	-	IP66-68	General purpose Exi, Exd	For armored cable
N03S	Internal 1/2" NPT	Stainless steel	External 1/2" NPT	6-12	9-17	-	IP66-68	General purpose Exi, Exd	For unarmored cable with the option of metal hose connection
N04S	Internal 1/2" NPT	Stainless steel	External 1/2" NPT	6-12	-	15	IP66-68	General purpose Exi, Exd	For unarmored cable with the option of metal hose connection

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APPENDIX A (CONTINUED)

Order Code	Thread of Electrical Connection	Material	Thread of Cable Gland	For Cable, mm	Ø Outer Diameter of Armor, mm	Nominal Metal Hose Diameter, mm	Protection Class (GOST 14254)	Explosion Protection	Note
N05S	Internal 1/2" NPT	Stainless steel	External 1/2" NPT	6-14	-	20	IP66-68	General purpose Exi, Exd	for unarmored cable with the option of metal hose connection
N06S	Internal 1/2" NPT	Stainless steel	External 1/2" NPT	6-12	-	-	IP66-68	General purpose Exi, Exd	for unarmored cable with an adapter for metal hose with internal thread G 1/2"
Other electrical connections									
R	Electrical connector 2PMG14B4SH1E2B (socket 2PM14KPN4G181)								
D	DIN 43650A, includes plug and socket								

Note: Possible electrical connection configurations are not limited to the list provided in Appendix A; the required configuration can be agreed upon when placing the order.