

**DESCRIPTION**

ALZ 3820 is a general purpose submersible hydrostatic level transmitter with detachable probe, allowing quick and easy removal for service or replacement. High quality silicon piezoresistive sensor, robust stainless steel housing and a hydrometric cable with the ventilation tube make ALZ 3820 a reliable solution for a wide variety of industrial level measurement applications.

**SPECIFICATIONS**

Ranges: 1 mH<sub>2</sub>O up to 250 mH<sub>2</sub>O

Basic accuracy: ±0.25%

Probe: Ø27 mm, AISI 316L, detachable from the cable for easy service

Outputs: 4...20 mA; 0...20 mA; 0...10 V; 0...5 V; RS-485 / Modbus RTU

Sensor: silicon piezoresistive

Media temperature: -20...+70 °C

Optional: Ex ia, HART®, Pt100 temperature sensor

**APPLICATIONS**

Water, wastewater

Fuels, oils

Tanks, wells

Pump protection

## TECHNICAL SPECIFICATIONS

### MEASURING RANGES

Pressure range, bar	Level, mH <sub>2</sub> O	Overpressure, bar	Pressure range, bar	Level, mH <sub>2</sub> O	Overpressure, bar
0...0.10	1.0	1.0	0...2.5	25	6.0
0...0.16	1.6	1.0	0...4.0	40	15
0...0.25	2.5	1.0	0...6.0	60	15
0...0.40	4.0	1.0	0...10	100	30
0...0.60	6.0	3.0	0...16	160	60
0...1.0	10	3.0	0...25	250	60
0...1.6	16	6.0			

PERFORMANCE	P > 0.4 bar	P ≤ 0.4 bar
Accuracy, % of span*	≤ ±0.25 (standard) / 0.20 (optional)	≤ ±0.5 (standard)
Temperature effect (% of span / 10 °C)	≤ ±0.1	≤ ±0.2
Compensated range	-20...+70 °C	0...+70 °C
Power supply effect	≤ ±0.05% of span / 10 V	
Load resistance effect	≤ ±0.05% of span / kOhm (transmitters with current output)	
Long-term stability	≤ ±0.1% of span / year	
Response time (10...90%)	≤ 1 ms with analog output, ≤ 200 ms with digital output	

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

### OPERATING CONDITIONS

Medium temperature (depends on seal)	-20...+70 °C		
Ambient temperature	-20...+70 °C		
Storage temperature	-20...+70 °C		
Approval	0Ex ia IIC T6...T4 Ga X		
Temperature class	T4	T5	T6
Ambient temperature	-20...+70 °C	-20...+50 °C	-20...+50 °C
Vibration resistance	10 g RMS, 25–2000 Hz		
Shock resistance	100 g / 11 ms		
Service life	> 100 x 10 <sup>6</sup> cycles		

### MECHANICAL SPECIFICATIONS

Housing	stainless steel 316L (1.4404)
Seal	FKM; EPDM; NBR
Diaphragm	stainless steel 316L (1.4435)
Cable external jacket	PVC, PUR, FEP
Ingress protection	IP69K

## ELECTRICAL SPECIFICATIONS

Output signal	Power supply, $U_s$	Load resistance, R	Power consumption
4...20 mA / 2-wire	12...36 V	$\leq [(U_s - 12 \text{ V}) / 0.02 \text{ A}] \text{ Ohm}^*$	$\leq 26 \text{ mA}$
4...20 mA / HART®			
4...20 mA / 3-wire	12...36 V	$\leq 500 \text{ Ohm}$	$< 7 \text{ mA}$
0...20 mA / 3-wire		$\geq 10 \text{ kOhm}$	
0...10 V / 3-wire			
0...5 V / 3-wire	5 V	$\geq 5 \text{ kOhm}$	$\leq 2 \text{ mA}$
0.5...4.5 V / 3-wire	6...15 V		$\leq 7 \text{ mA}$
RS-485 / Modbus RTU	12...36 V	-	$\leq 7 \text{ mA}$

\* For output signal 4...20 mA / HART® minimum load resistance for digital communication: 250 Ohm.

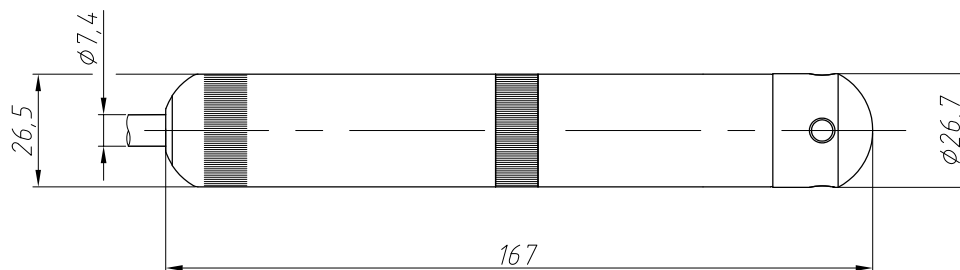
Safe values for intrinsically safe design 0Ex ia IIC T6...T4 Ga X:

Parameter	2-wire	3-wire
Maximum voltage, $U_i$	28 V	6 V
Maximum current, $I_i$	93 mA	60 mA
Maximum power, $P_i$	660 mW	100 mW
Maximum internal inductance, $L_i$	10 $\mu\text{H}$	10 $\mu\text{H}$
Maximum internal capacitance, $C_i$	15 nF	500 nF

## ELECTRICAL CONNECTIONS / PIN ASSIGNMENT

Circuits		Cable gland wires
2-wire	power +	white (red)
	power -	brown (blue)
	ground	yellow-green
3-wire	power +	white (red)
	power -	brown (blue)
	signal +	green (black)
	ground	yellow-green
Pt100 (optional)	T+	yellow
	T-	pink (white)
	T-	gray (green)
RS-485	power +	white (red)
	power -	brown (blue)
	A	yellow
	B	green (black)
	ground	yellow-green
HART®	power +	white
	power -	brown
	ground	yellow-green

## DIMENSIONS (mm)



Housing of Ex ia version is 25 mm longer  
Housing of Modbus RS-485 version is 25 mm longer  
Housing of HART® version is 25 mm longer

## ORDERING CODE

ALZ 3820		-X	-XXXX	-X	-X	-XXXX	-X	-X	-XX
<b>UNIT OF MEASUREMENT</b>									
	bar	B							
	kg/cm <sup>2</sup>	S							
	mH <sub>2</sub> O	W							
	kPa	H							
	Other (specify when ordering)	X							
<b>UPPER RANGE LIMIT (URL)</b>									
bar, kg/cm <sup>2</sup>		mH <sub>2</sub> O		kPa					
0.10	0100	1.0	1000	10	1001				
0.16	0160	1.6	1600	16	1601				
0.25	0250	2.5	2500	25	2501				
0.40	0400	4.0	4000	40	4001				
0.60	0600	6.0	6000	60	6001				
1.0	1000	10	1001	100	1002				
1.6	1600	16	1601	160	1602				
2.5	2500	25	2501	250	2502				
4.0	4000	40	4001	400	4002				
6.0	6000	60	6001	600	6002				
10	1001	100	1002	1000	1003				
16	1601	160	1602	Other	XXXX				
25	2501	250	2502						
Other	XXXX	Other	XXXX						
<b>ACCURACY</b>									
		0.25% (P > 0.4 bar) (standard)		C					
		0.50% (P ≤ 0.4 bar) (standard)		D					
		0.20% (P > 0.4 bar)		B					
		Other (specify when ordering)		X					
<b>CABLE EXTERNAL JACKET</b>									
		PVC		P					
		PUR		U					
		FEP		T					
		Other (specify when ordering)		X					
<b>CABLE LENGTH</b>									
		Any length in meters (e.g., 010M means 10 meters)			XXXM				
<b>OUTPUT SIGNAL</b>									
		4...20 mA / 2-wire (standard)		A					
		4...20 mA / 2-wire, 0Ex ia IIC T6...T4 Ga X		Q					
		4...20 mA / 3-wire		B					
		0...20 mA / 3-wire		C					
		0...10 V / 3-wire		D					
		0...5 V / 3-wire		E					
		0.5...4.5 V / 3-wire, U <sub>s</sub> = 5 V, 0Ex ia IIC T6...T4 Ga X		R					
		0.5...4.5 V / 3-wire, U <sub>s</sub> = 6...15 V		K					
		RS-485 / Modbus RTU		M					
		4...20 mA / HART®		H					
		Other (specify when ordering)		X					

## ORDERING CODE (CONTINUED)

	ALZ 3820	-X	-XXXX	-X	-X	-XXXX	-X	-X	-XX
<b>SEALS</b>									
							FKM	F	
							NBR	N	
							EPDM	E	
							Other (specify when ordering)	X	
<b>VERSION</b>									
								Standard	00
								Pt100 temperature sensor	0T
								Other (specify when ordering)	XX

Example: ALZ 3820-W-6000-D-P-010M-A-F-00

## ACCESSORIES

				
Anchoring clamp for submersible transmitter	PZ 1024 Power supply unit	BZ 05 / BZ 10 Dry air junction box for submersible transmitters		