

Technical brochure

Pressure Transmitter Type AKS 32 and AKS 33



AKS 32 and AKS 33 are pressure transmitters that measure a pressure and convert the measured value to a standard signal:

- $1 \rightarrow 5 \text{ V d.c. or } 0 \rightarrow 10 \text{ V d.c. for AKS } 32$
- $4 \rightarrow 20 \text{ mA for AKS } 33$

A robust design makes the AKS very suitable for application within a number of fields e.g.

- Air conditioning systems
- Refrigeration plant
- Process control
- Laboratories

Features

Highly developed sensor technology means high pressure regulation accuracy, a very important factor in the precise and energy-economic capacity regulation of refrigeration plant.

- Temperature compensation for LP and HP pressure transmitters, developed specially for refrigeration plant:
 - LP: $-30 \rightarrow +40^{\circ}\text{C} \ (\le 16 \text{ bar})$ HP: $0 \rightarrow +80^{\circ}\text{C} \ (> 16 \text{ bar})$
- Compatibility with all refrigerants incl. ammonia means less stock and greater application flexibility.
- Built-in voltage stabiliser, i.e. the AKS pressure transmitters can be powered from an unregulated voltage supply of any output within given limits.
- Effective protection against moisture means that the sensor can be mounted in very harsh environments, e.g. in the suction line encapsulated in an ice block.

- Robust construction gives protection against mechanical influences such as shock, vibration and pressure surge. AKS sensors can be mounted direct on to the plant.
- No adjustment necessary. With the highly developed sensor technology and sealed gauge principle, the accuracy of the factory setting is maintained independent of variations in ambient temperature and atmospheric pressure. This is very important when ensuring evaporating pressure control in air conditioning and refrigeration applications.
- EMC protection according to EU EMC-directive (CE-marked)
- UL approved
- Polarity protected inputs.

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Technical data

Performance

Accuracy	±0.3% FS (typ.)/±0.8% FS (max.)
Non-linearity (Best fit straight line)	< ±0.2% FS
Hysteresis and repeatability	≤ ±0.1% FS
Thermal zero point shift	≤ ±0.1% FS/10K (typ.) ≤ ±0.2 %FS/10K (max.)
Thermal sensitivity (span) shift	≤ ±0.1% FS/10K (typ.) ≤ ±0.2 %FS/10K (max)
Response time	< 4 ms
Max. working pressure	See ordering table
Burst pressure	min. 300 bar

Electrical specifications for AKS 33, 4 - 20 mA output signal

Rated output signal	4 to 20 mA
Supply voltage, V _{supply} (polarity protected)	10 to 30 V d.c.
Voltage dependency	< 0.05% FS/10 V
Current limitation (linear output signal up to 1.5 × rated range)	28 mA
Max. load, R _L	$R_{L} \leq \frac{V_{supply} - 10 V}{0.02 A} [\Omega]$

Electrical specifications for AKS 32, 0 - 10 V d.c. output signal

Rated output signal (short-circuit protected)	0 to 10 V d.c.
Supply voltage, V _{supply} (polarity protected)	15 to 30 V d.c.
Supply current consumption	< 8 mA
Supply voltage dependency	< 0.05% FS/10 V
Output impedance	< 25 Ω
Load resistance, R _L	$R_L \ge 15 \text{ k}\Omega$

Electrical specifications for AKS 32, 1-5 V d.c. output signal

Rated output signal (short-circuit protected)	1 to 5 V d.c.
Supply voltage, V _{supply} (polarity protected)	9 to 30 V d.c.
Supply current consumption	< 5 mA
Supply voltage dependency	< 0.05% FS/10 V
Output impedance	< 25 Ω
Load resistance, R _i	$R_i \ge 10 \text{ k}\Omega$

Environmental conditions

Operating temperature range (a	−40 to 85°C					
Max. media temperature [°C]	115 - 0.35 × amb. temp.					
Compensated temperature rang	LP: -30 to +40°C/ HP: 0 to +80°C					
Transport temperature range	−50 to 85°C					
EMC - Emission					EN 61000-6-3	
	Electrost	atic discharge	Air	8 kV	EN 61000-6-2	
			Contact	4 kV	EN 61000-6-2	
EMC Immunity	RF	field	10 V/m, 26 MHz - 1 GHz		EN 61000-6-2	
EMC - Immunity	NΓ	conducted	3 V _{rms} , 150 kHz - 30 MHz		EN 61000-6-2	
	Transient		burst	4 kV (CM)	EN 61000-6-2	
	Hansieni	iransient		1 kV (CM,DM)	EN 61000-6-2	
Insulation resistance					> 100 MΩ at 100 V d.c.	
Vibration stability	Sinusoida	Sinusoidal		kHz	IEC 60068-2-6	
Vibration stability	Random	Random		- 1 kHz	IEC 60068-2-34, IEC 60068-2-36	
Shock resistance	Shock		500 g / 1 ms		IEC 60068-2-27	
SHOCK resistance	Free fall				IEC 60068-2-32	
Enclosure	Plug vers	ion	IP 65 - IEC 60529			
Eliciosule	Cable vei	rsion			IP 67 - IEC 60529	

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Technical data

(continued)

Approvals

III was a recipied for sale in the IICA and Canada	Electrical safety	File no. E310 24	
UL recognized for sale in the USA and Canada	Explosive safety	File no. E227388	
CE marked according to the EMC directive	89/ 336/ EC		
Ex approval for sale in Europe		ATEX Ex II3GEx-nA II AT3	
Gost Pocc		DK A 9 45. B05936	

Mechanical characteristics

Housing material and material in contact with medium	EN 10088-1. 1.4404 (AISI 316L)		
Weight	0.3 kg		

Ordering

AKS 32, version $1 \rightarrow 5 V$

		Compensated			Code no.		
Operating range press		Max. working	temperature	EN 175301-803, plug Pg 9			
		pressure PB bar	range °C	¹/ ₄ NPT ¹)	G ³ / ₈ A ²)	¹ / ₄ flare ³)	
LP	-1 → 6	33	- 30 → +40	060G2000	060G2004	060G2068	
LP	-1 → 12	33	- 30 → +40	060G2001	060G2005	060G2069	
	-1 → 20	40	0 → +80	060G2002	060G2006	060G2070	
HP	-1 → 34	55	0 → +80	060G2003	060G2007	060G2071	
	-1 → 50	100	0 → +80			060G2155	

AKS 32, version $0 \rightarrow 10 \text{ V}$

			Compensated		Code no.		
	Max. working temperature Operating range pressure PB range		EN 175301-803, plug Pg 9				
	ing range bar	pressure PB bar	range °C	¹/ ₄ NPT ¹)	G ³ / ₈ A ²)	¹ / ₄ flare ³)	
LP	-1 → 5	33	- 30 → +40		060G2038		
LP	-1 → 9	33	- 30 → +40	060G2013	060G2036	060G2082	
HP	-1 → 24	40	0 → +80	060G2014	060G2037	060G2083	
ПР	−1 → 39	60	0 → +80	060G2080	060G2079	060G2084	

AKS 33, version $4 \rightarrow 20 \text{ mA}$

Max. working Operating range pressure PB bar bar		Compensated	d Code no.						
		_			EN 175501 005, plug 1 g 5		Cable		
		•	range °C	¹/ ₄ NPT ¹)	G ³ / ₈ A ²)	1/4 flare 3)	¹/ ₄ NPT ¹)	G ³ / ₈ A ²)	1/ ₄ flare 3)
	-1 → 5	33	- 30 → +40	060G2112	060G2108	060G2047			
	-1 → 6	33	- 30 → +40	060G2100	060G2104	060G2048		060G2120	
LP	-1 → 9	33	- 30 → +40	060G2113	060G2111	060G2044			060G2062
	-1 → 12	33	- 30 → +40	060G2101	060G2105	060G2049	060G2117		
	-1 → 20	40	0 → +80	060G2102	060G2106	060G2050	060G2118		
	-1 → 34	55	0 → +80	060G2103	060G2107	060G2051	060G2119		060G2065
HP	0 → 16	40	0 → +80	060G2114	060G2109				
	0 → 25	40	0 → +80	060G2115	060G2110	060G2045		060G2127	060G2067

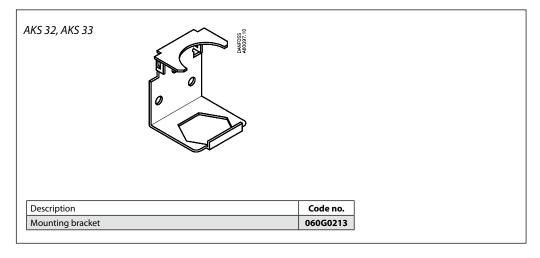
Is also available in US-version (1 \rightarrow 6 V) and with $\frac{1}{8}\text{-27 NPT}$ connection. Please contact Danfoss

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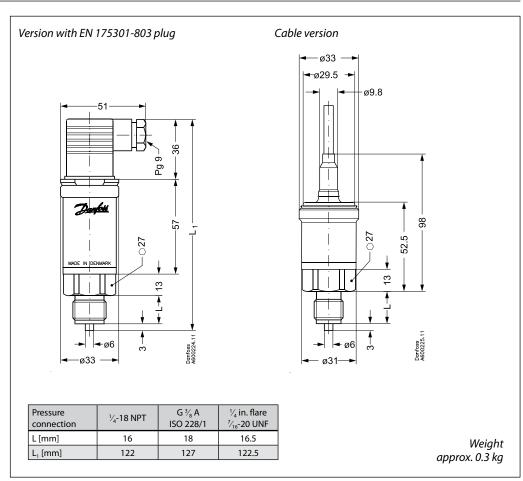
^{1) 1/4-18} NPT 2) Thread ISO 228/1 - G 3/8 A (BSP) 3) 1/16-20 UNF

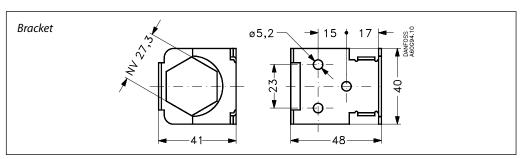


Accessories



Dimensions and weights





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