



Pressure transmitter

AKS 32 / AKS 33

Description

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

- 1 – 5 V DC or 0 – 10 V DC for AKS 32
- 4 – 20 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 & Benefits

- Fully digitally compensated, developed specially for refrigeration plants.
 - LP: -30 – 40 °C (\leq 16 bar)
 - HP: 0 – 80 °C ($>$ 16 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
- Effective protection against moisture means that the sensor can be mounted in very harsh environments, e.g. in
- Robust construction gives protection against mechanical influences such as shock, vibration and pressure surge.
- No adjustment necessary. With the highly developed sensor technology and sealed gauge principle, the accuracy
- EMC protection according to EU EMC-directive (CE-marked)
- UL approved
- Polarity protected inputs
- For use in zone ATEX 2 explosive atmospheres


Product code numbers

Pressure range [bar] [min]	Pressure range [bar] [max]	Overload pressure max. [bar]	Compensated temp. range [°C] [min]	Compensated temp. range [°C] [max]	Pressure connection type	Pressure connection size	Electrical connection standard	Pressure connection notes	Code number
									027X0107
0.00	34.47								027X0108
0.00	13.80		-30	40	NPT	1/4-18	EN 175301-803-A		060G1711
0.00	34.50		0	80	NPT	1/4-18	EN 175301-803-A		060G1712
-1.00	34.00	55.0	0	80	NPT	1/4-18			060G1967
-1.00	12.00	33.0	-30	40	NPT	1/4-18	EN 175301-803-A		060G2001
-1.00	34.00	55.0	0	80	NPT	1/4-18	EN 175301-803-A		060G2003
-1.00	6.00	33.0	-30	40	G	3/8	EN 175301-803-A		060G2004
-1.00	12.00	33.0	-30	40	G	3/8	EN 175301-803-A		060G2005
-1.00	20.00	40.0	0	80	G	3/8	EN 175301-803-A		060G2006
-1.00	34.00	55.0	0	80	G	3/8	EN 175301-803-A		060G2007
-1.00	9.00	33.0	-30	40	NPT	1/4-18	EN 175301-803-A		060G2013
-1.00	24.00	40.0	0	80	NPT	1/4-18	EN 175301-803-A		060G2014
-1.00	24.00	40.0	0	80	NPT	1/4-18	EN 175301-803-A		060G2024
0.00	13.80		-30	40	NPT	1/8-27			060G2029
0.00	13.80		-30	40	NPT	1/8-27			060G2030
0.00	34.50		0	80	NPT	1/8-27			060G2031
0.00	34.50		0	80	NPT	1/8-27			060G2033
-1.00	9.00	33.0	-30	40	G	3/8	EN 175301-803-A		060G2036

-1.00	24.00	40.0	0	80	G	3/8	EN 175301-803-A		060G2037
-1.00	5.00	33.0	-30	40	G	3/8	EN 175301-803-A		060G2038
-1.00	9.00	33.0	-30	40	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2044
0.00	25.00	40.0	0	80	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2045
-1.00	5.00	33.0	-30	40	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2047
-1.00	6.00	33.0	-30	40	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2048
-1.00	12.00	33.0	-30	40	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2049
-1.00	20.00	40.0	0	80	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2050
0.00	15.00	40.0	-30	40	NPT	1/4-18			060G2058
-1.00	34.00	55.0	0	80	UNF	7/16-20		Flare 1/4 in	060G2065
-1.00	12.00	33.0	-30	40	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2069
-1.00	34.00	55.0	0	80	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2071
-1.00	39.00	60.0	0	80	G	3/8	EN 175301-803-A		060G2079
-1.00	39.00	60.0	0	80	NPT	1/4-18	EN 175301-803-A		060G2080
-1.00	39.00	60.0	0	80	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2084
-1.00	12.00	33.0	-30	40	NPT	1/4-18	EN 175301-803-A		060G2089
-1.00	6.00	33.0	-30	40	NPT	1/4-18	EN 175301-803-A		060G2100
-1.00	12.00	33.0	-30	40	NPT	1/4-18	EN 175301-803-A		060G2101
-1.00	20.00	40.0	0	80	NPT	1/4-18	EN 175301-803-A		060G2102
-1.00	34.00	55.0	0	80	NPT	1/4-18	EN 175301-803-A		060G2103
-1.00	6.00	33.0	-30	40	G	3/8	EN 175301-803-A		060G2104
-1.00	20.00	40.0	0	80	G	3/8	EN 175301-803-A		060G2106
-1.00	34.00	55.0	0	80	G	3/8	EN 175301-803-A		060G2107
-1.00	5.00	33.0	-30	40	G	3/8	EN 175301-803-A		060G2108
0.00	16.00	40.0	-30	40	G	3/8	EN 175301-803-A		060G2109
0.00	25.00	40.0	0	80	G	3/8	EN 175301-803-A		060G2110
-1.00	9.00	33.0	-30	40	G	3/8	EN 175301-803-A		060G2111
0.00	16.00	40.0	-30	40	NPT	1/4-18	EN 175301-803-A		060G2114
-1.00	12.00	33.0	-30	40	NPT	1/4-18			060G2117
-1.00	20.00	40.0	0	80	NPT	1/4-18			060G2118
-1.00	34.00	55.0	0	80	NPT	1/4-18			060G2119
-1.00	6.00	33.0	-30	40	G	3/8			060G2120
-1.00	50.00	100.0	0	80	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G2155
-1.00	12.00	33.0	-30	40	NPT	1/4-18			060G2156
0.00	6.90		-30	40	NPT	1/4-18	EN 175301-803-A		060G3802
0.00	6.90		-30	40	NPT	1/4-18	EN 175301-803-A		060G3803
0.00	13.80		-30	40	NPT	1/4-18	EN 175301-803-A		060G3804

0.00	34.50		0	80	NPT	1/4-18	EN 175301-803-A		060G3805
-1.00	10.00	33.0	-30	40	NPT	1/4-18			060G3858
-1.00	30.00	55.0	0	80	NPT	1/4-18			060G3859
0.00	13.80		-30	40	NPT	1/8-27			060G3990
0.00	34.50		0	80	NPT	1/8-27			060G3991
-1.00	12.00	33.0			UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G4362
-1.00	34.00	55.0			UNF	7/16-20	EN 175301-803-A	Flare 1/4 in	060G4363
0.00	7.00	33.0			G	1/4	EN 175301-803-A		060G4532
0.00	13.00	150.0			G	1/4	EN 175301-803-A		060G4533
0.00	13.80		-30	40	NPT	1/8-27	IEC 61076-2-101		060G5654
0.00	28.60		0	80	NPT	1/8-27	IEC 61076-2-101		060G5655
0.00	69.00		0	80	NPT	1/8-27	IEC 61076-2-101		060G5656
0.00	7.00	33.0	-30	40	G	1/4	EN 175301-803-A		060G5672
-1.00	10.00	33.0	-30	40	NPT	1/4-18	EN 175301-803-A		060G5771
-1.00	30.00	55.0	0	80	NPT	1/4-18	EN 175301-803-A		060G5772
-1.00	10.00	33.0	-30	40	NPT	1/4-18			060G5787
-1.00	30.00	55.0	0	80	NPT	1/4-18			060G5788
0.00	25.00	150.0	-30	40	R	3/8	EN 175301-803-A		060G6418
0.00	16.00	96.0	-30	40	R	3/8	EN 175301-803-A		060G6419
-1.00	20.00	40.0	0	80	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in w/ valvedepressor	060G6505
1.00	34.50	55.0	0	80	NPT	1/4-18			060G6576
-1.00	34.00	55.0	0	80	UNF	7/16-20	IEC 61076-2-101	Flare 1/4 in w/ valvedepressor	060G6796
-1.00	5.00	25.0	-30	40	R	3/8	EN 175301-803-A		060G7557
-1.00	40.00	55.0	0	80	UNF	7/16-20	EN 175301-803-A	Flare 1/4 in w/ valvedepressor	060G7722
0.00	16.00	40.0	-30	40	G	1/4	EN 175301-803-A		060G7730
0.00	138.00		0	80	NPT	1/4-18	IEC 61076-2-101		060G7739

Accessories code numbers




060G2850

Accessories, sensors, Display

Used for product: MBS (4-20mA); MBT5560; MBT 3560; AKS (4-20mA), Parts included: Display, Packing format: Single pack, Quantity per packing format: 1

Related products

060G1711
060G2080
060G2108
060G3805




060G0250

Accessories, sensors, Process con. adapter

Used for product: AKS/MBS, Parts included: Pulse snubber; Adapter 1/4 NPT, Packing format: Multi pack, Quantity per packing format: 6

Related products

060G2080
060G3805




060G8251

Accessories, sensors, Cable

Used for product: DST P1XX, Parts included: M12 angled w. 1,0 m cable, Packing format: Industrial pack, Quantity per packing format: 60

Related products

060G5654




060G8198

Accessories, sensors, Cable

Used for product: DST P1XX, Parts included: M12 w. 2,0 m cable, Packing format: Industrial pack, Quantity per packing format: 60

Related products

060G5654



060G8252

Accessories, sensors, Cable

Used for product: DST P1XX, Parts included: M12 Straight w. 1,0 m cable, Packing format: Industrial pack, Quantity per packing format: 60

Related products

060G5654

Product details

General data

Table: Electrical specifications AKS 33, 4 – 20 mA output signal

Rated output signal	4 – 20 mA
Supply voltage [UB], polarity protected	9 – 32 V DC
Supply voltage dependency	< 0.1% FS / 10 V
Output limitation	22.4 mA
Max.Load, [RL]	$R_L \leq \frac{U_B - 9V}{0.02A} [\Omega]$

Table: Electrical specifications for AKS 32, 0 – 10 V DC output signal

Rated output signal (short-circuit protected)	0 – 10 V DC
Supply voltage [U_B], polarity protected	15 – 32 V DC
Supply current consumption	< 8 mA
Supply voltage dependency	< 0.05% FS / 10 V
Sink / source	< 1 mA
Load resistance, R_L	$R_L \geq 15 \text{ k}\Omega$

Table: Electrical specifications for AKS 32, 1 – 5 V DC output signal

Rated output signal (short-circuit protected)	1 – 5 V DC
Supply voltage [U_B], polarity protected	9 – 32 V DC
Supply current consumption	< 5 mA
Supply voltage dependency	< 0.05% FS / 10 V
Sink / source	< 1 mA
Load resistance, R_L	$R_L \geq 10 \text{ k}\Omega$

Table: Mechanical characteristics

Electrical connection	EN 175301-803 plug / 2 m cable
Wetted parts, material	EN10088-1-1.4404 (AISI 316L)
Housing material	EN10088-1-1.4404 (AISI 316L)
Refrigerants	DR3, DR55, DR7, HDR110, L40, R1234yf, R1234ze, R1270, R1290, R134a, R22, R227, R23, R290, R32, R404A, R407A, R407B, R407C, R407F, R410A, R413A, R417A, R422A, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A/B, R454A/B/C, R455A, R502, R507, R513A, R600, R600a, 717 (NH3), R744 (CO2), R1270

Performance and environmental conditions



Table: Performance

Accuracy (incl. non-linearity, hysteresis and repeatability)	$\pm 0.3\%$ FS (typ.) / $\pm 0.8\%$ FS (max.)
Non-linearity BFSL (conformity)	$< \pm 0.2\%$ FS
Hysteresis and repeatability	$\leq \pm 0.1\%$ FS
Thermal zero point shift	$\leq \pm 0.1\%$ FS / 10K (typ.)
	$\leq \pm 0.2\%$ FS / 10K (max.)
Thermal sensitivity (span) shift	$\leq \pm 0.1\%$ FS / 10K (typ.)
	$\leq \pm 0.2\%$ FS / 10K (max.)
Response time	< 4 ms
Max. working pressure	See ordering table
Burst pressure	min. 300 bar
Power-up time	< 50 ms

Table: Environmental conditions

Operating temperature range	Normal	-40 – 85 °C		
	ATEX Zone 2	-10 – 85 °C		
Media temperature range [°C]		-40 – 85 °C		
Compensated temperature range		LP: -30 – 40 °C / HP: 0 – 80 °C		
Transport/storage temperature range		-50 – 85 °C		
EMC – Emission		EN 61000-6-3		
EMC – Immunity	Electrostatic discharge	Air	8 kV	EN 61000-6-2
		Contact	4 kV	EN 61000-6-2
	RF	field	10 V/m, 26 MHz – 1 GHz	EN 61000-6-2
		conducted	3 V _{rms} , 150 kHz – 30 MHz	EN 61000-6-2
	Transient	burst	4 kV (CM)	EN 61000-6-2
		surge	1 kV (CM,DM)	EN 61000-6-2
Insulation resistance		> 100 M Ω at 500 V DC		
Vibration stability	Sinusoidal	20 g, 25 Hz – 2 kHz	IEC 60068-2-6	
	Random	7.5 grms, 5 Hz – 1 kHz	IEC 60068-2-34, IEC 60068-2-36	
Shock resistance	Shock	500 g / 1 ms	IEC 60068-2-27	
	Free fall	1 m	IEC 60068-2-32	
Enclosure (depending on electrical connection)	Plug version		IP65 - IEC 60529	
	Cable version		IP67 - IEC 60529	

Table: Explosive atmospheres

Zone 2 applications	  II 3G Ex ec IIA T3 Gc -10°C<Ta<+85°C	EN60079-0; EN60079-7
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The products for ATEX Zone 2 are applicable in refrigeration applications employing any flammable refrigerants classified as IIA – please, refer to AKS installation guide.

In ATEX Zone 2 applications at low temperatures cable and plug must be protected against impact.

Table: Explosive atmospheres

AKS other products can be used in end user applications employing the following flammable refrigerants: A3: R290, R600, R600a, R1270, A2L: R32, R444B, R452A/B, R454A/B/C, R455A, R1234zyef	IEC/EN 60335-2-89 (commercial refrigerating appliances) IEC/EN 60335-2-40 (electrical heat pumps, air-conditioners)
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For other products not ATEX Zone 2 assessed, an ignition risk assessment has been conducted with reference to IEC/EN 60335-2-89 (commercial refrigerating appliances) and IEC/EN 60335-2-40 (electrical heat pumps, air-conditioners).

For countries where safety standards are not an indispensable part of the safety system, Danfoss recommends the installer to seek a third-party approval of the system containing flammable refrigerant. Note: Please, follow specific selection criteria stated in the data sheet for these particular refrigerants.

Dimensions & weights

Table: Dimension and weight

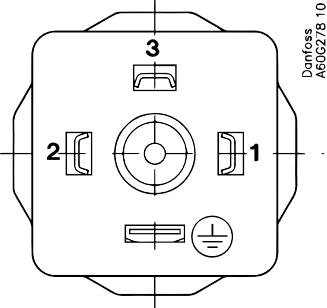
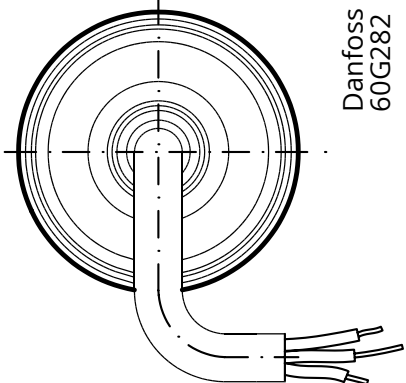


Version with EN 175301-803 Pg 9plug	Cable version
	<p style="text-align: right;">Danfoss A60G225.11</p> <p style="text-align: right;">Weight approx. 0.3 kg</p>

Table: Dimension and weight

Pressure Connection	¼ - 18 NPT	G 3/8 A ISO 228/1	¼ in. flare
L [mm]	16	18	16.5

Connections

Table: Electrical connections

Type code	A1	A3
		
Ambient temperature	-40 – 85 °C	-30 – 80 °C
Electrical connection 4 – 20 m output	<p>Pin 1: + supply Pin 2: ÷ supply Pin 3: not used</p>  <p>Earth : Connected to AKS enclosure</p>	<p>Brown wire: + supply Black wire: ÷ supply Red wire: not used Orange wire: not used Screen: not connected to AKS enclosure</p>
Electrical connection 0 – 5 V, 0 – 10 V output	<p>Pin 1: + supply Pin 2: ÷ supply/common Pin 3: + output</p>  <p>Earth : Connected to AKS enclosure</p>	<p>Brown wire: + output Black wire: ÷ supply/common Red wire: + supply Orange wire: not used Screen: not connected to AKS enclosure</p>

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
EU-UK Declaration	Danfoss EU-UK 064G9615.11	Danfoss	UK RoHS
Manufacturer's Declaration	Danfoss MD 060R3160.00	Danfoss	China RoHS
EAC Declaration	EAC KZ 7500533.13.12.00845	EAC - Eurasian Customs Union	EMC
UA Declaration	Danfoss UA 2024-07-25 cooling sensors	Danfoss	LVD
UA Declaration	Danfoss UA 2023-01-10 Regulators PL01 PL04	Danfoss	PED
Electrical Safety Certificate	UL E311982	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL E510763	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL E494625	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL E31024	UL - Underwriters Laboratories inc.	
Explosive Safety Certificate	UL E227388	UL - Underwriters Laboratories inc.	Explosive
Pressure Safety Certificate	TSSA CRN.0F18477.5123467890YTN	TSSA - Technical Standards & Safety Authority	CRN
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure
Export Control Declaration	Pressure & Temperature Sensors	Danfoss	
EAC Declaration	EAC KZ 7100841.13.12.00005	EAC - Eurasian Customs Union	EMC

Contact details

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Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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