Data sheet



Pressure transmitter

AKS 32R / AKS 2050

Description

AKS 32R and AKS 2050 are pressure transmitters designed for refrigeration, air conditioning, and industrial process systems. The transmitters convert measured pressure into a linear electrical output signal for system control and monitoring. AKS 32R uses a ratiometric output signal referenced to the supply voltage, supporting integration with ratiometric A/D converters. The transmitters are designed for operation in systems using standard refrigerants, including ammonia and CO_2. The mechanical design supports reliable operation in environments exposed to vibration, shock, and pressure surges.

Features & benefits

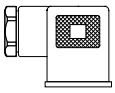
- Linear pressure output signal
- Ratiometric output referenced to supply voltage
- Selective temperature compensation
- Compatible with refrigerants including ammonia and CO_2
- Robust construction for shock and vibration resistance
- Protection against pressure surges
- Sealed gauge measuring principle
- For use in ATEX Zone 2 explosive atmospheres

Applications

- Air conditioning systems
- Refrigeration plants
- CO_2 systems
- Process control systems
- Laboratory systems

Ordering

Product code numbers

	Type	Operating range [bar]	Permissible working pressure PB [bar]	Compensated temp. range [°C]	Code no.				
					1/4 NPT [1]	G 3/8 A [2]	7/16 in. flare [3]	3/8 solder	7/16-20 female flare with depressor [3]
	AKS 32R	-1 – 12	33	-30 – 40	**060G1037**	**060G1038**	**060G1036**	**060G3551**	**060G6323**
		-1 – 12	33	-30 – 40	–	–	**060G6339** [4]	–	**060G5961** [4]
		-1 – 34	55	0 – 80	–	–	**060G0090**	**060G3552**	**060G6341**
		-1 – 34	55	0 – 80	–	–	**060G6340** [4]	–	–
	AKS 2050	-1 – 59	100	-30 – 40	**060G6342**	**060G5750**	–	**060G6408**	–
		-1 – 99	150	-30 – 40	**060G6343**	**060G5751**	–	–	–
		-1 – 159	250	0 – 80	**060G6344**	**060G5752**	–	–	–
	Connecting plug with 5 m cable (mounted on pressure transmitter obtains IP67)				**060G1034**				–
	Plug Pg 9				**060G0008**				–

[1] 1/4-18 NPT, ANSI/ASME B1.20.1

[2] G 3/8 A, EN 837

[3] 7/16- 20 UNF Flare, ISO 11926-2/3

[4] Incl. Plug connections

[5] 7/16-20 UNF, Female with depressor, ISO 8434-1

Note: For a detailed overview of our existing code numbers, please visit the Danfoss Product Store at store.danfoss.com. You can use the filtering options to find the right sensor for your specific needs.

Product details

General data

Performance (EN 60770)

Features	Description
Accuracy (incl. linearity, hysteresis and repeatability)	± 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 operation	≤ ± 0.1% FS/10K (typ.)
	≤ ± 0.2% FS/10K (max.)
Thermal sensitivity operation	≤ ± 0.1% FS/10K (typ.)
	≤ ± 0.2% FS/10K (max.)
Response time	< 4 ms
Max. working pressure	See Ordering
Burst pressure	> 6 × FS
Power-up time	< 50 ms

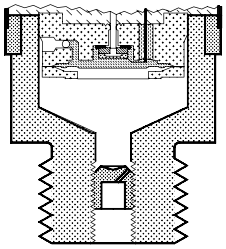
Environmental conditions

Sensor operating temperature range	Normal			-40 – 125 °C
	ATEX Zone 2			-10 – 85 °C
Media temperature range				-40 – 125 °C
Compensated temperature range				See Ordering
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 $_{Vrms,}$ 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 MΩ at 100 V DC
Vibration stability	Sinusoidal	20 g, 25 Hz – 2 kHz		IEC 60068-2-6
	Random	7.5 g_{rms} , 5 Hz – 1 kHz		IEC 60068-2-64
Shock resistance	Shock	500 g / 1 ms		IEC 60068-2-27
	Free fall	1 m		IEC 60068-2-32
Enclosure (IP protection fulfilled together with mating connector)				IP65-IEC 60529

Electrical specifications

Features	Description
Nominal output signal (short-circuit protection)	10 – 90% of [U_B]
Supply voltage [U_B] (polarity protected)	4.5 – 5.5 V DC at 5 V DC (nom.)
Power consumption	< 5 mA at 5 V DC
Ratiometricity	< 0.05% FS / 4.5 – 5.5 V
Sink / source	< 1 mA
Load [R_L] (load connected to ground)	RL ≥ 10 kΩ at 5 V DC

Pulse-snubber, AKS 2050



Cavitation, liquid hammer, and pressure peaks may occur in liquid-filled systems during changes in flow velocity, for example during rapid valve closing or pump start and stop conditions. The phenomenon may occur on both the inlet and outlet side, even at relatively low operating pressures.

Explosive atmosphere

ATEX Zone 2 applications	CE Ex II 3G Ex ce IIA T4 Gc -20 °C<Ta<+85 °C	EN60079-0; EN60079-15

The products for ATEX Zone 2 are applicable in refrigeration applications employing any flammable refrigerants classified as IIA – please, refer to AKS installation guide. The pressure transmitter must be installed where it cannot be exposed to impact in normal use.

Flammable refrigerants

Features	Description
AKS 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)

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).

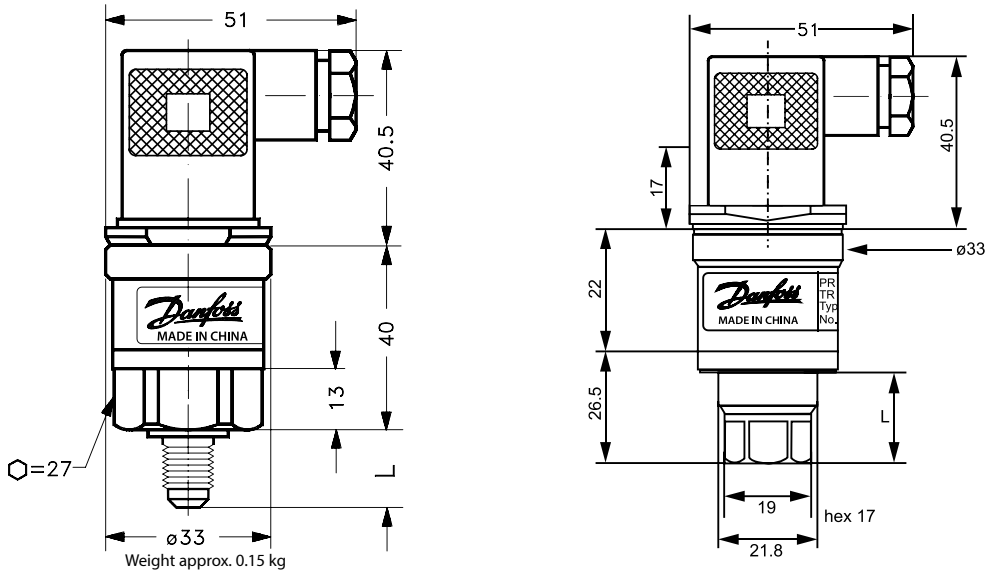
For countries where safety standards are not an indispensable part of the safety system, Danfoss recommends the installer to seek a third-party approval of the system containing flammable refrigerant.

Note: Please, follow specific selection criteria stated in the data sheet for these particular refrigerants.

Mechanical characteristics

Features	Descriptions
Electrical connection	EN 175301-803 plug / 2m 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, R717 (NH3), R744 (CO2), R1270

Dimensions

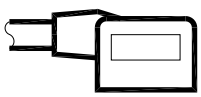
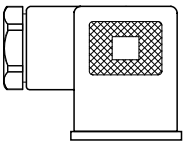


Note: Dimensions are in mm, unless stated otherwise.

Pressure connection	L [mm]
¼-18 NPT	16
G ½ A ISO 228/1	21
¼ in. flare 7/16 - 20 UNF	16.5
⅜ solder	30
7/16 UNF flare female with valve depressor	21.5

Connections

Plug connections

Cable	Description	PG9	Description
	Black: + Blue: - / common Brown: Signal		1: + 2: - / common 3: Signal

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

Contact details

Online support

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



The Danfoss Design center

Discover the Design Center, our advanced digital platform that streamlines product selection. With integrated tools and enhanced type pages, it's simpler than ever to access product information and documentation, and to select the right products. Check the availability of Danfoss products at partner locations and enjoy seamless transitions from selection to purchase with our basket-to-basket functionality. Whether you're buying from our distributors or directly from the Product Store, the Design Center simplifies your experience. Learn more at: designcenter.danfoss.com.



The Danfoss product store

The Danfoss Product Store is a one-stop shop available 24/7 for our customers, no matter where you are in the world or what area of industry you work in. Browse our catalog, check product details and documentation, view your prices and product availability, and quickly finalize your purchase. Start browsing at: store.danfoss.com.



Danfoss Partner Portal/Product Data tool

Designed to support you with easy access to product data extracts, essential resources, tools, and information. The Partner Portal provides a centralized hub for product documentation, training materials, marketing assets, and technical support, ensuring you have everything you need to succeed and grow your business with Danfoss. The Partner Portal is available 24/7 at: partner.danfoss.com and is ready to support your business.



Find technical documentation

Find technical documentation you need to get your project up running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more. Start searching now at: documentation.danfoss.com.



Danfoss Learning

Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications industry topics, and trends that will help you do your job better. Find your local Danfoss website here: learning.danfoss.com.



Get local information and support

Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest reginal news, or connect with a nearby expert - all in your own language. Find your local Danfoss website here: danfoss.com.

Danfoss A/S

Climate Solutions . danfoss.com . +45 7488 2222

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues description, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the products. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.