

Technical brochure

# Pressure transmitter with ratiometric output signal Type AKS 32R, AKS 2050



AKS 32R is a ratiometric pressure transmitter that converts the measured pressure to a linear output signal. The min. value of the output signal is less than 10% of the actual supply voltage. The max. value is more than 90% of the actual supply voltage.

At a supply voltage of 5 V, the output signal is:

- 0.5 V at min pressure range
- 4.5 V at max. pressure range

The robust design and the ratiometric output signal makes the transmitter suitable for systems together with ratiometric A/D converters within a number of fields:

- A/C systems
- Refrigeration plant
- CO<sub>2</sub> plant
- Process control
- Laboratories

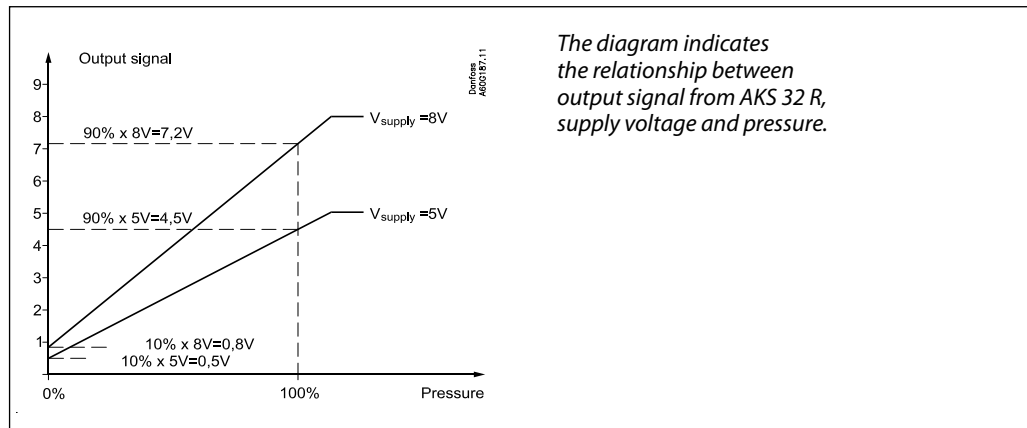
AKS 2050 is identical to AKS 32R but for high pressure and with pulse-snubber in the pressure connection.

## Features

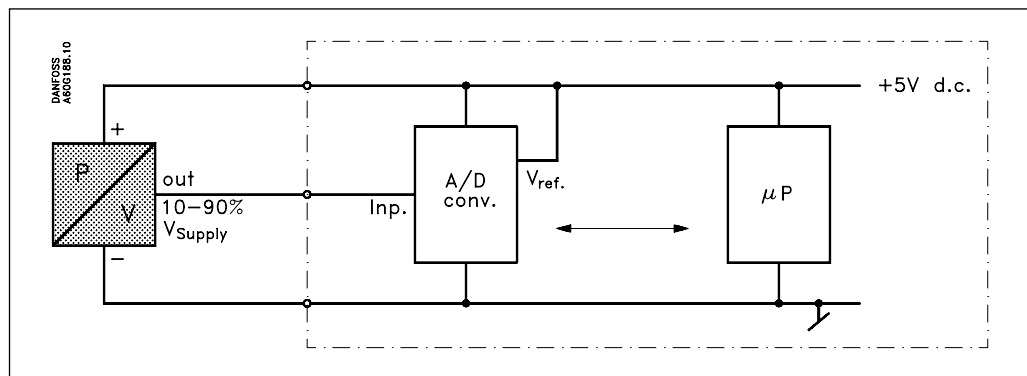
- Highly developed sensor technology means great regulation accuracy.
- Selective temperature compensation
- Compatible with all refrigerants incl. ammonia and CO<sub>2</sub>
- Built-in voltage stabilizer
- Effective protection against moisture
- Robust construction gives protection against mechanical influences such as shock, vibration, and pressure surge
- EMC protected in accordance with the EU EMC-directive (CE-marked).
- Polarity protected inlets
- Output signal specially adjusted to ratiometric A/D-converters.
- Sealed gauge measuring principle (pressure reference = 1013 mbar).
- UL approved

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### Output signal



### Connection for A/D converter



## Pressure transmitter with ratiometric output signal Type AKS 32R, AKS 2050

### Technical data

#### Performance

Accuracy (incl. Linearity, Hysteresis and repeatability)	±0.3% FS (typ.) ±0.8% FS (max.)
Linearity deviation (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 table page 4
Burst pressure	> 6 x FS

#### Electrical specifications

Nominal output signal (short-circuit protection)	10 to 90% of $V_{supply}$
Supply voltage, $V_{supply}$ (polarity protection)	4.75 to 8 V d.c.
Power consumption, supply	< 5 mA at 5 V d.c.
Voltage dependence, supply	< 0.05% FS/10 V
Output impedance	< 25 $\Omega$
Load resistance, $R_L$	$R_L \geq 10 \text{ k}\Omega$

#### Operating conditions

Operating temperature range (ambient temperature)	-40 to 85°C		
Max. media temperature [°C]	115 - 0.35 × ambient temperature		
Compensated temperature range	See ordering		
Transport temperature	-50 to 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 <sub>rms</sub> , 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 $\Omega$ at 100 V d.c.		
Vibration stability	Sinusoidal 20 g, 25 Hz - 2 kHz	IEC 60068-2-6	
	Random 7,5 g <sub>rms</sub> , 5 Hz - 1 kHz	IEC 60068-2-64	
Shock resistance	Shock 500 g / 1 ms	IEC 60068-2-27	
	Free fall	IEC 60068-2-32	
Enclosure	(IP protection fulfilled together with mating connector)	IP 65 - IEC 60529	

#### Approvals

UL recognized for sale in the USA and Canada	Electrical safety	File no. E310 24
	Explosive safety	File no. E227388
CE marked according to the EMC directive		89/ 336/ EC
Ex approval for sale in Europe		ATEX Ex II 3G Ex-nA IIAT3
GOST POCC for sale in Russia		DK A Я 45. B05936

#### Mechanical characteristics

Housing material and material in contact with medium	EN 10088-1. 1.4404 (AISI 316L)
Weight	0.15 kg

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### Ordering

	Type	Operating range bar	Permissible working pressure PB bar	Compensated temp. range °C	Code no.			
					¼ NPT <sup>1)</sup>	G ¾ A <sup>2)</sup>	¼ flare <sup>3)</sup>	¾ solder
	AKS 32R	-1 to 12	33	-30 to +40	<b>060G1037</b>	<b>060G1038</b>	<b>060G1036</b>	<b>060G3551</b>
		-1 to 34	55	0 to +80			<b>060G0090</b>	<b>060G3552</b>
	AKS 2050	-1 to 59	100	-30 to +40		<b>060G5750</b>		
		-1 to 99	150	-30 to +40		<b>060G5751</b>		
		-1 to 159	250	0 to +80		<b>060G5752</b>		
	Connecting plug with 5 m cable (mounted on pressure transmitter obtains IP67)				<b>060G1034</b>			
	Plug Pg 9				<b>060G0008</b>			

1) 1/4-18 NPT.

2) Thread ISO 228/1 - G 3/8 A (BSP).

3) 7/16-20 UNF.

### Dimensions and weight

Weight approx. 0.15 kg

Pressure connection	¼-18 NPT	G ¾ A ISO 228/1	¼ in. flare 7/16-20 UNF	¾ solder
L [mm]	16	21	16.5	30

### Pulse-snobber, AKS 2050

Pulse-snobber in AKS 2050

Cavitation, liquid hammer and pressure peaks may occur in liquid filled systems with changes in flow velocity, e.g. fast closing of a valve or pump starts and stops. The problem may occur on the inlet and outlet side, even at rather low operating pressures.

### Plug connections

Cable

Black → +  
Blue → -  
Brown → S

Pg 9

1 → +  
2 → -  
3 → S