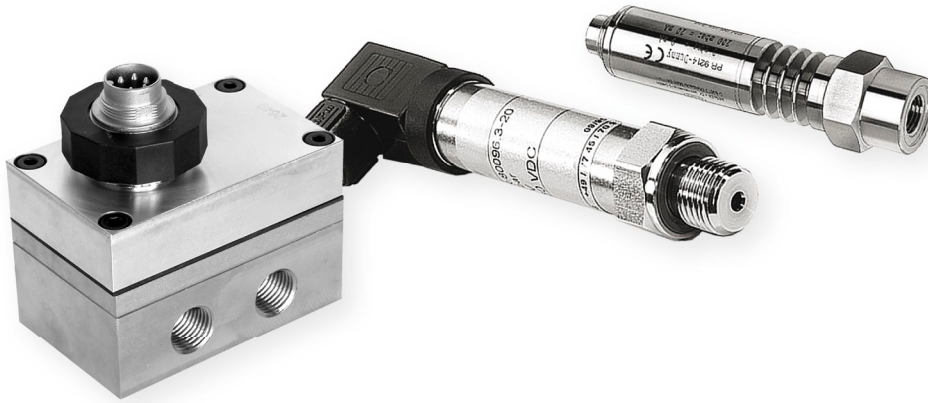


Pressure



The Right Pressure Sensor For Any Measuring Task

Different methods are usually used for manufacturing pressure sensors that have been adapted to the corresponding application.

- Thick-Film Sensors
- Thin-Film Sensors
- Piezo-Resistive Sensors

Pressure transducers are principally available with 4 pressure calibrations:

- Relative pressure: Pressure related to the environmental pressure
- Absolute pressure: Pressure related to vacuum (0bar)
- Overpressure: Pressure related to atm.

pressure at manufacturing (approx. 1bar)

- Differential press.: Pressure related to a second, variable pressure

Piezo-Resistive Sensors

A silicone membrane with ,diffused in' expansion-sensitive resistors is used as the pressure-sensitive element. Due to its compatibility with many substances silicone would limit the use of the sensor. Therefore, a pressure transmission system, consisting of a filling liquid and a special steel membrane has been integrated. The pressure measuring cell is temperature-compensated and is manufactured in demanding vacuum processes.

Advantage:

High accuracy within a wide temperature range, particularly suitable for use in high sophisticated measurement and control

tasks, especially for measurement of absolute pressure and low to medium relative pressure.

Disadvantage:

Generally, an expensive manufacturing process, however, cost-efficient when produced in large quantities.

Two mechanical designs are available in the ALMEMO® sensor range:

- Pressure sensors for hose connection: The measuring cell is housed in a compact plastic housing with two connecting fittings. The pressure sensors are available for wall mounting or as pressure modules that can be directly

plugged into measuring instruments, with measuring ranges for relative or differential pressure measurement in gases, and also for atmospheric pressure measurements.

- Built-In Pressure Transducers: The measuring cell is suspended in an oil-filled, all-welded special steel enclosure. All parts that come into contact with a substance are made from special steel. Therefore, these transducers are also suitable for use in chemically aggressive substances in various industrial applications.

ALMEMO® pressure measurement

Every ALMEMO® sensor can be adjusted, i.e. correction values of the sensor can be stored in the connector. Thus, the measuring accuracy can be significantly increased.

During DAKS/DKD or factory

calibrations performed by the Ahlborn Company, the correction values are recorded, stored in the sensor plug and locked. The adjustment can be realized in 2 points (zero, gradient) or in over 30 points as multi-point adjustment. Thanks

to this procedure minimal deviations are achieved on the calibrated temperature points.

The multi-point adjustment is described in detail in chapter "Input connectors" and in chapter "Calibration certificates".

Temperature Measurement with Pressure Sensors for Refrigerants

Option SB0000R

All ALMEMO® Version V5/V6 devices, including ALMEMO® data loggers and

data acquisition systems, can be used for continuous temperature measurement (resolution 0.1K) with absolute pressure sensors (resolution 0.001 bar compulsory!).

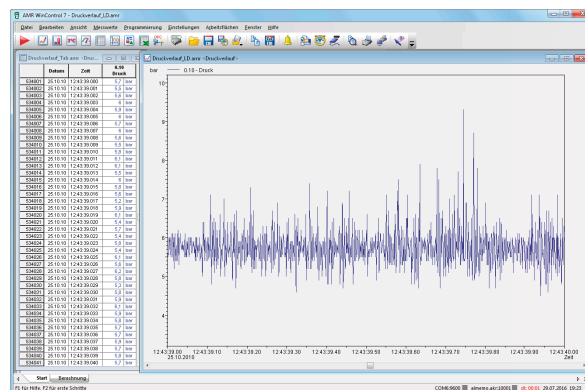
Both, pressure and temperature can be selected or continuously indicated and recorded.

Measurement of pressure peaks and fast pressure changes with digital ALMEMO® D7 sensors

The new ALMEMO® V7 measuring system makes it possible to measure pressure peaks and pressure changes with a temporal resolution of up to 1ms. The analog pressure sensor measures the pressure change with a short response time.

The ALMEMO® D7 Measurement plug ZED7 00-FS works with a A/D converter integrated in the plug and with a measuring rate of up to 1000 measuring operations per second (1ms per measuring operation). In combination with the ALMEMO® V7 measuring instrument, e.g. ALMEMO®

710 it is therefore possible to record pressure peaks and pressure changes. The measured values are evaluated in the WinControl software as table or line diagram (see chapter “Software”).



The overall accuracy of the measurement is determined only by the pressure sensor with the connected ALMEMO® D7 measuring plug, and is unaffected by the

ALMEMO® display device / data logger and extension cables used.

The complete measuring chain, consisting of pressure sensor and the connected

ALMEMO® D7 measuring plug can be calibrated. An increased accuracy can be achieved by a multi-point adjustment of the sensor during the calibration process.

High resolution measurement with digital ALMEMO® D7 sensor

The ALMEMO® D7 measuring plug not only enables fast measurements but also high resolution measurements. Thereby, the measuring plug works with reduced

conversion rate. Thus, stable measured values with high resolution can be achieved by using high-precision sensors. The user can easily configure the

ALMEMO® plug on the ALMEMO® V7 measuring instrument.

Digital ALMEMO® D7sensor for pressure, consisting of

Order no.

Pressure transducer series FDA 602-L



Pressure sensor FD 0602-Lx without connecting cable

FD0602Lx

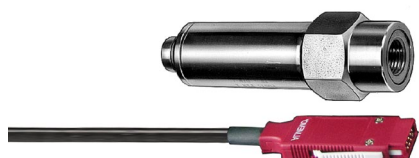
Variants, Technical data and Accessories, see catalog page 10.04

ALMEMO® D7 connecting cable for FD 0602-Lx: cable box for sensor, with 2 meters cable, with ALMEMO® D7 measuring plug ZED7 00-FS, up to 1000 mops, including scaling to the measuring range of the pressure sensor.

ZDD702AKL

For technical data of ZED7 00-FS, see chapter “Input connector”.

Pressure transducer series FD 8214



Pressure sensor FD 8214-x without connecting cable

FD8214x

Variants, Technical data and Accessories, see catalog page 10.07

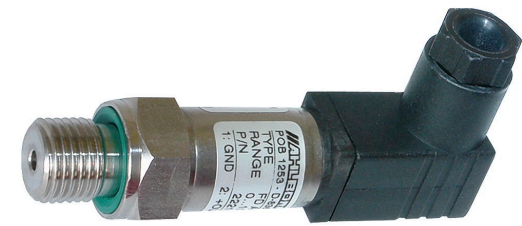
ALMEMO® D7 connecting cable for FD 8214-x: cable box for sensor, with 2 meters cable, with ALMEMO® D7 measuring plug ZED7 00-FS, up to 1000 mops including scaling to the measuring range of the pressure sensor.

ZDD714AK

For technical data of ZED7 00-FS, see chapter “Input connector”.

Pressure

Pressure Transducer FDA 602 L

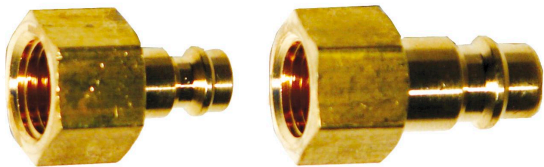


- Compact pressure sensors for industrial applications in liquid and gaseous substances.
- Piezo-resistive, flexibly suspended silicone measuring cell in an oil-filled, all-welded special steel enclosure.
- The stable mechanical construction provides a reliable protection for the measuring cell against the test substance and immunes it against pressure peaks and vibrations.
- Available with three calibrations. Relative pressure: Pressure related to the environmental press. Absolute pressure: Pressure related to vacuum (0 bar) Overpressure: Pressure related to atm. pressure at manufacturing (approx. 1bar).

Technical Data:

Overload	Two times final value
Output signal	0.2 to 2.2 V
Accuracy class (linearity + hysteresis + reproducibility)	±0.5 % of final value
Total error range	
0 to +50 °C	±1.0 % of final value
-10 to +80 °C	±1.5 % of final value
(linearity + hysteresis + reproducibility + temperature coefficients + zero-point + range tolerance)	
Response time (0 to 99 %)	<5 ms
Nominal conditions	22°C ±2 K, 10 to 90 % RH, non-condensing

Power supply	6.5 to 15 VDC, consumption <4 mA via ALMEMO® connector
Operating temperature	-40 to +100 °C
Pressure terminal	male thread G1/4" membrane not flush with front
Material in contact with medium	Stainless steel DIN 1.4404/1.1135 External seal Viton
Weight	approx. 50 g
Protective class	IP 65



Quick-release coupling

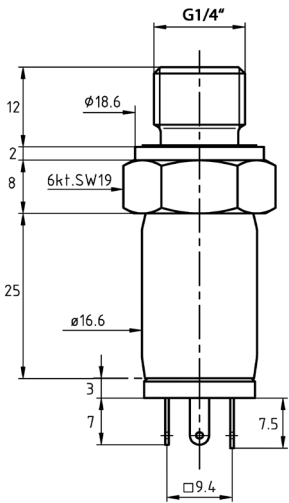
nominal width 5

internal thread G1/4"

nominal width 7,2

internal thread G1/4"

New: Measurement of pressure peaks and fast pressure changes with digital ALMEMO® D7 measuring plugs, see page 10.03.



Accessories

	Order no.
PTFE sealing tape, -200 to +260 °C, width 10 mm, thickness 0.1 mm, roll of 12 meters	ZB9000TB
Quick-release coupling, nominal width 5, up to 35 bar Connection internal thread G1/4", brass	ZB9602N5
Quick-release coupling, nominal width 7.2, up to 35 bar connection internal thread G1/4", brass	ZB9602N7

Types: including ALMEMO® cable 1.5m long

Measuring ranges relative pressure:

up to 2.5 bar	FDA602L3R
up to 5 bar	FDA602L4R
up to 10 bar	FDA602L5R

Measuring ranges absolute pressure:

up to 2.5 bar	FDA602L3A
up to 5 bar	FDA602L4A
up to 10 bar	FDA602L5A

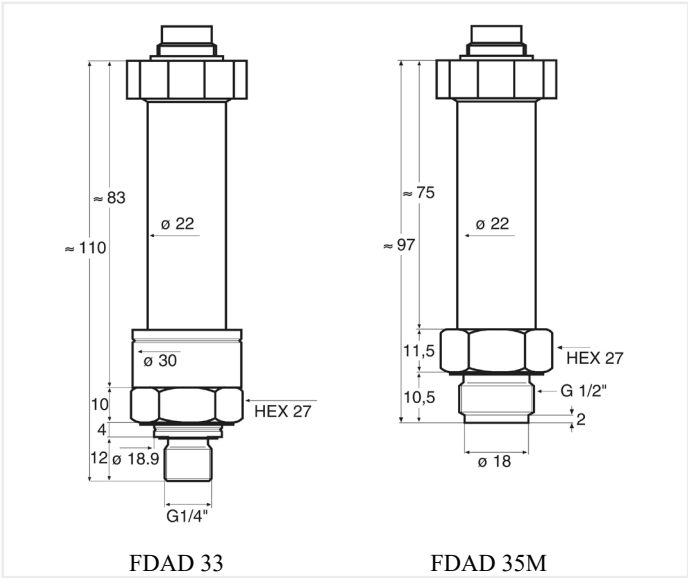
Measuring ranges overpressure:

up to 25 bar	FDA602L2U
up to 50 bar	FDA602L3U
up to 100 bar	FDA602L4U
up to 500 bar	FDA602L6U

Pressure transducer for measuring the temperature of refrigerants see page 10.08.

DAkkS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).
DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

High-precision pressure sensor FDAD33/35M
Very accurate over a wide temperature range, digital sensor with ALMEMO® D6 plug



- Stable piezo-resistive transducer with integrated A/D converter and signal processor
- Temperature-dependence and non-linearity are eliminated by means of mathematical compensation; this ensures a high level of accuracy.
- Digital output of measured value
- The current value is measured at the sensor's high sampling rate.
- To acquire transitory pressure fluctuations and pressure peaks the maximum value, minimum value, and average value are calculated from the current values in the ALMEMO® D6 plug and output in three function channels.
- One measuring channel is programmed (at our factory) : Pressure (bar,p) Upto three function channels can also be activated (via LMEMO® device V6) : Maximum value, minimum value, average value. A complete configuration can be carried out either on the ALMEMO® V7 measuring instrument or directly on the PC with the USB adapter cable ZA 1919 AKUV (see chapter ALMEMO® "Network technology").

General features and accessories, ALMEMO® D6 sensors:
see page 01.08

Technical data

Digital pressure sensor (including A/D converter)		Sampling rate, internal	200 Hz
Pressure range	1 to 1000 bar see under variants	Material in contact with medium	Stainless steel, AISI 316L, Viton
Relative pressure	Zero-point at ambient atmospheric pressure, current	Protection	IP65
Overpressure	Zero-point at ambient atmosph. pressure, production	Dimensions	see dimensional drawings
Absolute pressure	Zero-point, vacuum	Sensor connector	Built-in plug
Pressure connection		ALMEMO® connecting cable	Coupling, 2-meter PVC cable, ALMEMO® D6 plug
FDAD33	Outside thread G 1/4" Diaphragm, internal	ALMEMO® D6 plug	
FDAD35M	Diaphragm, flush with front Outside thread G 1/2" In pressure range 700/1000 bar Outside thread G 3/4"	Refresh time	0.005 seconds for all channels
Storage / operating temperature	-40 to +120 °C	Setting time	0.6 seconds
Accuracy		Delay after sleep mode	1 second
Error margin* at -10 to +40 °C	0.05 % of final value	Supply voltage	6 to 13 VDC
Error margin* at -10 to +80 °C	0.1 % of final value	Current consumption	approx. 11 mA
*Linearity, hysteresis, reproducibility, temperature coefficients, zero-point			

Options	Order no.
Connecting cable Total length = 5 m	OD0D33L05
Connecting cable Total length = 10 m	OD0D33L10
Greater lengths up to 100 meters on request..	

Variants

Digital pressure sensor, plug connection, 2-meter connecting cable with ALMEMO® D6 plug, factory test certificate

Pressure range	Resolution	Overload	Order no. Diaphragm, internal	Order no. Diaphragm, flush with front
Relative pressure				
0 to 1 bar	0.0001 bar	2 bar	FDAD3301R	FDAD35M01R
0 to 3 bar	0.0001 bar	5 bar	FDAD3302R	FDAD35M02R
0 to 10 bar	0.001 bar	20 bar	FDAD3303R	FDAD35M03R
0 to 30 bar	0.001 bar	60 bar	FDAD3304R	FDAD35M04R
Special ranges -1 ... 1 / 3 / 10 bar on request				
Overpressure				
0 to 100 bar	0.01 bar	200 bar	FDAD3305U	FDAD35M05U
0 to 300 bar	0.01 bar	400 bar	FDAD3306U	FDAD35M06U
0 to 700 bar	0.1 bar	1000 bar	FDAD3307U	FDAD35M07U
0 to 1000 bar	0.1 bar	1000 bar	FDAD3308U	FDAD35M08U
Absolute pressure				
0,8 to 1,2 bar	0.0001 bar	2 bar	FDAD3300A	FDAD35M00A
0 to 1 bar	0.0001 bar	2 bar	FDAD3301A	FDAD35M01A
0 to 3 bar	0.0001 bar	5 bar	FDAD3302A	FDAD35M02A
0 to 10 bar	0.001 bar	20 bar	FDAD3303A	FDAD35M03A
0 to 30 bar	0.001 bar	60 bar	FDAD3304A	FDAD35M04A

DAkkS or factory calibration KD9xxx pressure for digital sensor (see chapter Calibration certificates).

DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Pressure Sensors FD 8214



- Compact pressure sensors for liquid and gaseous substances.
- Piezo-resistive measuring cell with temperature compensation.
- Pressure membrane and enclosure made from special steel.
- As the pressure is transmitted to the pressure membrane through a small hole in the thread part, the liquids should not be prone to crystallise and gases should not be heavily contaminated with dust. There are sensors with front-flush membranes for critical applications
- Available with three calibrations. Relative pressure: Pressure related to the environmental pressure, Absolute pressure: Pressure related to vacuum (0bar). Overpressure: Pressure related to atm. pressure at manufacturing (approx. 1bar).

New: Measurement of pressure peaks and fast pressure changes or high resolution measurement with digital ALMEMO® D7 measuring plug, see page 10.03.

Options	Order no.	Order no.
Linearity 0.1% (for ranges 1 bar to 600 bar)	OR8214G1	KF25
Substance temperature -25 to +100°C	OR8214T1	Food compliant version
Substance temperature -25 to +150°C		with vegetable oil ASEOL Food
(version with cooling fins)	OR8214T2	Throttle against excess pressure
Process connection, small flange		Output 0 to 10V
(for FD8214xxA absolute pressure)		Output 0 to 20mA
KF16	OR8214KF16	Output 4 to 20mA

Accessories	Order no.	Order no.
Coupler socket with 2m cable and ALMEMO® connector	ZA8214AK	Coupler socket 6-pin Straight version
		Coupler socket 6-pin Angled version

Types

Order no.

FD 8214:

Standard version with G1/4" internal thread
Other threads available on request

FD 8214 M:

Membrane (welded with end of thread) flush with front, external thread G1/2", can be sterilised (important for food and pharmaceutical industry)

Other threads available on request

G1/4" internal thread G1/2" external thread

Measuring ranges relative pressure:

0 to 100 mbar	FD821401R	FD8214M01R
0 to 160 mbar	FD821402R	FD8214M02R
0 to 250 mbar	FD821403R	FD8214M03R
0 to 400 mbar	FD821404R	FD8214M04R
0 to 600 mbar	FD821405R	FD8214M05R
0 to 800 mbar	FD821406R	FD8214M06R
0 to 1 bar	FD821407R	FD8214M07R
0 to 1.6 bar	FD821408R	FD8214M08R
0 to 2.5 bar	FD821409R	FD8214M09R
0 to 4 bar	FD821410R	FD8214M10R
0 to 6 bar	FD821411R	FD8214M11R
0 to 10 bar	FD821412R	FD8214M12R

Types

Order no.

G1/4" internal thread G1/2" external thread

Measuring ranges absolute pressure:

Option: Process connection, small flange (see under Options)

0 to 1 bar	FD821407A	FD8214M07A
0 to 1.6 bar	FD821408A	FD8214M08A
0 to 2.5 bar	FD821409A	FD8214M09A
0 to 4 bar	FD821410A	FD8214M10A
0 to 6 bar	FD821411A	FD8214M11A
0 to 10 bar	FD821412A	FD8214M12A

Measuring ranges overpressure:

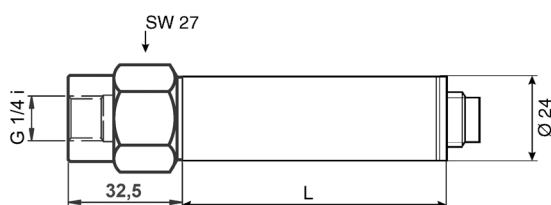
0 to 10 bar	FD821412U	FD8214M12U
0 to 16 bar	FD821413U	FD8214M13U
0 to 25 bar	FD821414U	FD8214M14U
0 to 40 bar	FD821415U	FD8214M15U
0 to 60 bar	FD821416U	FD8214M16U
0 to 100 bar	FD821417U	FD8214M17U
0 to 160 bar	FD821418U	FD8214M18U
0 to 250 bar	FD821419U	FD8214M19U
0 to 400 bar	FD821420U	FD8214M20U
0 to 600 bar	FD821421U	FD8214M21U
0 to 1000 bar	FD821422U	FD8214M22U
other measuring ranges on request		

DAkKS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).
DAkKS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

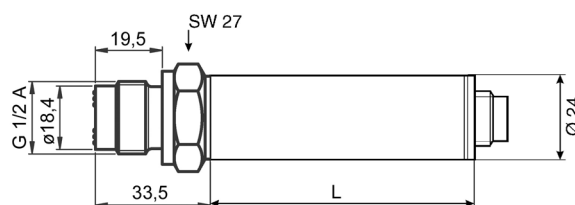
Pressure

Technical Data

Measuring cell:	piezo-resistive
Overload	Ranges 600 bar, i.e. 1.5 times the final value (minimum 3 bar, maximum 850 bar) Ranges >600 bar, 1500 bar
Output signal, power supply :	Standard 0 to 2 volts, feed 6.5 to 13 volts (from ALMEMO® device), current <4 mA Option : 0 to 10 volts, feed 15 to 30 volts, load >10 kilohms, current <4 mA Option : 0 to 20 mA, feed 9 to 33 volts, (>18 volts at load 500 ohms), current <25 mA Option : 4 to 20 mA, 2 conductors, feed 9 to 33 volts, (>18 volts at load 500 ohms), current <25 mA
Response time:	<1.5 ms / 10 to 90 % nominal pressure
Linearity:	Standard ± 0.25 % of final value Option : ± 0.1 % of final value for ranges 1 bar and up to 600 bar
Media temperature:	0 to +80°C, temperature comp.: 0 to +70°C option: -25 to +100°C, temperature comp.: -25 to +85°C -25 to +150°C, temperature comp.: -25 to +85°C
Temperature drift:	Zero-point $<\pm 0.04$ % of final value / °C for ranges >0.5 bar span $<\pm 0.02$ % of final value / °C for all ranges
Nominal temperature:	22°C ± 2 K, 10 to 90% rH non-condensing
Material:	housing, pressure connector, membrane: special steel 1.4435
Operat. environment/Sealing:	IP 67
Dimensions:	see drawing
Connecting threads:	Type 8214: internal thread G1/4", wrench SW 27 Option for absolute pressure: small flange KF16 or KF21 Type 8214 M: external thread G1/2", wrench SW 27 Other threads are available on request
Electrical connection	Flush-mounting connector, binder coupling 723, 5-pin
Weight:	approx.. 180 g



Type **FD 8214** standard version with internal thread G1/4"
L = 45 mm (L = 72 mm with option of medium temperature up to 150 °C with cooling ribs)



Type **FD8214M** membrane flush with front (welded with end of thread), internal thread G1/2" can be easily sterilized
L = 45mm
(L = 72 mm with option of medium temperature up to 150 °C with cooling ribs)

Accessories

Order no.

Order no.

PTFE sealing tape, -200 to +260 °C, width 10 mm, thickness 0.1 mm, roll of 12 meters

ZB9000TB

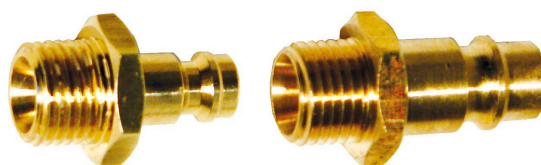
Quick-release coupling, nominal width 5, up to 35 bar
Connection G1/4" external thread, brass

ZB8214N5

Quick-release coupling, nominal width 7.2, up to 35 bar
Connection 1/4" external thread, brass

ZB8214N7

Quick-release coupling nominal width 5 external thread G1/4"

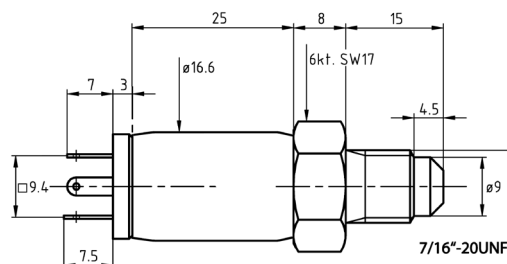


Quick-release coupling nominal width 7.2 external thread G1/4"

Pressure transducer for measuring the temperature of refrigerants FDA 602 LxAK



- Compact pressure sensors for industrial applications in liquid and gaseous substances.
- Piezo-resistive, flexibly suspended silicone measuring cell in an oil-filled, all-welded special steel enclosure.
- The stable mechanical construction provides a reliable protection for the measuring cell against the test substance and immunizes it against pressure peaks and vibrations.
- Absolute pressure: pressure related to vacuum (0 bar).



Technical Data:

Overload	Two times final value	Power supply	6.5 to 15 VDC, consumption <4 mA via ALMEMO® connector
Output signal	0.2 to 2.2 V	Operating temperature	-40 to +100 °C
Accuracy class (linearity + hysteresis + reproducibility)	±0.5 % of final value	Pressure terminal	male thread G1/4" membrane not flush with front
Total error range		Material in contact with medium	Stainless steel DIN 1.4404/1.1135 External seal, Viton
0 to +50 °C	±1.0 % of final value	Weight	approx. 50 g
-10 to +80 °C	±1.5 % of final value	Protective class	IP 65
(linearity + hysteresis + reproducibility + temperature coefficients + zero-point + range tolerance)			
Response time (0 to 99 %)	<5 ms		
Nominal conditions	22°C ±2 K, 10 to 90 % RH, non-condensing		

Calculation of the refrigerant temperature with device special version SB0000R2

The ALMEMO® Version V6 devices, (2590-2/-3S/-4S, 2690, 2890, 8590, 8690, 5690) can be used for continuous temperature measurement (resolution 0.1K) with absolute pressure sensors (resolution 0.001 bar compulsory !). Both, pressure and temperature can be selected or continuously indicated and recorded.

Technical data for ALMEMO® option SB0000R2:

Refrigerant:	R22	R23	R134a	R404a	R404a
Pressure Range:	0 to 36 bar	0 to 49 bar	0 to 40,5 bar	0 to 32 bar	0 to 32 bar
Temperature Range:	-90°C to +79°C *	-100°C to +26°C *	-75°C to +101°C *	-60°C to +65°C *	-60°C to +65°C *
Operation point	dew-point	dew-point	dew-point	dew-point	boiling point
Refrigerant:	R407C	R407C	R410A	R417A	R507
Pressure Range:	0 to 46 bar	0 to 46 bar	0 to 49 bar	0 to 27 bar	0 bis 37 bar
Temperature Range:	-50°C to +86°C *	-50°C to +86°C *	-70°C to +70°C *	-50°C to +70°C *	-70°C to +70°C *
Operating point	dew-point	boiling point	dew-point	dew-point	dew-point

*) The final temperature is obtained from the data of the refrigerant.

For pressure transducer with smaller pressure ranges, the specified final temperature changes. (Linearizations for other refrigerants on request)

Special design refrigerant temperature for ALMEMO® devices V6
(Please order when buying new devices or send it to upgrade existing device)

Order no. SB0000R2

Types

including ALMEMO® connecting cable, 1.5 m, and programming of a refrigerant measuring channel

Measuring ranges Absolute pressure (resolution 0.001 bar)

up to 10bar

up to 30bar

up to 50bar

Order no.

FDA602L5AK

FDA602L6AK

FDA602L7AK

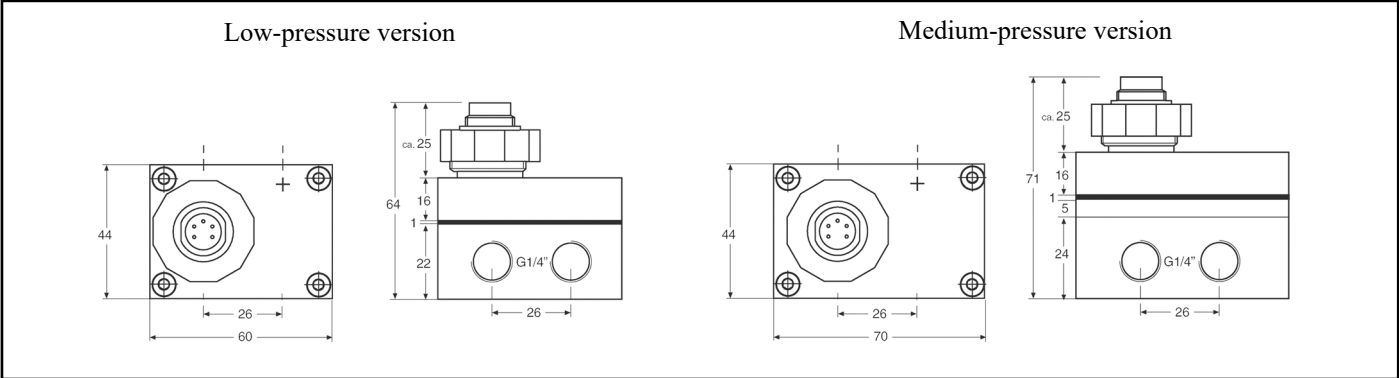
DAkKS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).
DAkKS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Pressure

Differential pressure transmitter FDA 602 D



- This measures the differential pressure in liquid and gaseous media indirectly using two absolute pressure sensors.
- This makes it less expensive but more robust with respect to asymmetrical overload.
- The differential pressure range should be at least 5% of the standard pressure range.
- Each side of the sensor incorporates two pressure connections. The transmitters can thus be used easily and conveniently in pressure pipes.
- It incorporates a high-speed, high-precision microprocessor.
- All reproducible errors affecting the pressure sensors, i.e. involving non-linearity and temperature dependency, can be completely eliminated by means of mathematical error compensation.



Technical Data:

Standard pressure range (maximum measurable pressure per pressure connection), overload, differential pressure range. See versions listed below.		Power supply	6 to 15 VDC via ALMEMO® connector
Storage / operating temperature -40 to +100 °C		Output	0 to 2 V
Compensated standard range -10 to +80 °C		Electrical connection	Binder plug, including ALMEMO® connecting cable, 2 meters
Error margin	≤0.05% of final value, typical ≤0.1% of final value, max.	CE conformance	EN61000-6-1 to 4 with shielded cable
with respect to standard pressure range (linearity + hysteresis + reproducibility + temperature error)		Protective class	IP 65
Pressure connections	G1/4" thread, female (2 per side)	Weight	
Material in contact with medium Stainless steel, 316L, DIN 1.4435		Low-pressure version	475 grams
		Medium-pressure version	750 grams

Types			
Differential pressure transmitter, including ALMEMO® cable, 2 meters			
Standard pressure range	Overload	Differential pressure range	Order no.
Absolute pressure		Please indicate final value	
Low-pressure version			
0 to 3 bar	10 bar	0 to 0.2 to 3 bar	FDA602D01
0 to 10 bar	20 bar	0 to 0.5 to 10 bar	FDA602D02
0 to 25 bar	40 bar	0 to 1.25 to 25 bar	FDA602D03
Medium-pressure version			
0 to 100 bar	200 bar	0 to 5 to 100 bar	FDA602D10
0 to 300 bar	450 bar	0 to 15 to 300 bar	FDA602D11

DAkKS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).
DAkKS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Digital atmospheric pressure sensor FDAD 12 SA, for barometric pressure Integrated in ALMEMO® D6 plug



General features and accessories, ALMEMO® D6 sensors
see page 01.08

Special features

- Digital atmospheric pressure sensor with temperature compensation
- Very accurate over a wide temperature range
- The value measured for atmospheric pressure can also be used to compensate other sensors on the ALMEMO® device (programming comment *P).
- Compact design, without pressure connection sleeve
- Can be connected directly to the measuring instrument.
- One measuring channel is programmed (at our factory).
- Atmospheric pressure (mbar, AP, p)

Technical Data

Digital atm. pressure sensor (integrated in ALMEMO® D6 plug)		ALMEMO® D6 plug	
Measuring range	300 to 1100 mbar	Refresh rate	1 second for all channels
Accuracy	±2.5 mbar in the range 700 to 1100 mbar at 23 °C ±5 K	Supply voltage	6 to 13 VDC
Operating range	-10 to +60 °C 10 to 90 % RH non-condensing	Current consumption	4 mA
Dimensions	62 x 20 x 7.6 mm		

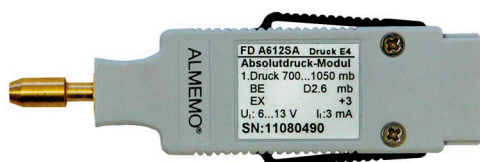
Variants (including manufacturer's test certificate)

Digital atmospheric pressure sensor for barometric pressure, integrated in ALMEMO® D6 plug

Order no.
FDAD12SA

DAkKS or factory calibration KD92xx atmospheric pressure for digital sensor (see chapter Calibration certificates).
DAkKS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Pressure measuring connector for barometric pressure FDA 612 SA



- Compact design - can be plugged directly onto measuring instrument.
- Piezo-resistive pressure sensor - ensures high measuring accuracy.

Technical Data:

Measuring range	700 to 1050 mbar (total range 0 to 1050 mbar)	Sensor material	aluminum, nylon, silicone, silica gel, brass
Overload capacity	Maximum 1.5 times final value	Operating range	-10 to +60 °C, 10 to 90% RH, non-condensing
Accuracy	±0.5 % of final value	Dimensions	90 x 20 x 7,6 mm
Nominal temperature	25 °C		
Temperature drift	<±1 % final value at 0 to +70 °C		
Hose terminals	Ø 5 mm, 12 mm long		

Accessories

Order no.

Order no.

Connecting cable, 0.2 meters

ZA9060AK1

Extension cable, 4 meters

ZA9060VK4

Extension cable, 2 meters

ZA9060VK2

Variants (including manufacturer's test certificate)

Pressure measuring connector for barometric pressure with pressure terminal sleeve

Order no.
FDA612SA

DAkKS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).
DAkKS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Pressure

Pressure measuring connector for differential pressure FDA 612 SR, FDA 602 S2K



- New compact design - can be plugged directly onto measuring instrument.
- Piezo-resistive pressure sensor - ensures high meas. accuracy.

! Advisory note when used in conjunction with ALMEMO® 2890, 5690, 5790, 8590, 8690: The new ALMEMO® pressure measuring connector is very slightly higher (8.8 mm). As a result adjacent input sockets on the ALMEMO® device may be partly covered. However, the 1st input socket can always be used without restriction. Or, alternatively, the ALMEMO® pressure measuring connector can be plugged in at any input socket using connecting cable ZA9060AK1.

Technical Data

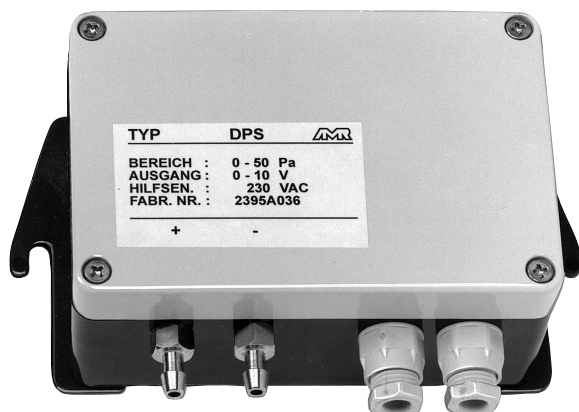
Overload capacity		
FDA612SR	max. 1.5 times final value	
FDA602S2K	maximum 250 mbar	
Accuracy (zero-pt adjusted)	±0.5% of final value in range	
	0 to positive final value	
Common mode pressure	FDA602S2K max. 700 mbar	
Nominal temperature	25 °C	
Temperature drift		
FDA612SR	< ±1.5 % of final value	
compensated temperature range	0 to +70 °C	
FDA602S2K	< ±2 % of final value	
compensated temperature range	-25 to +85 °C	
Operating range	-10 to +60 °C, 10 to 90% RH, non-condensing	
Dimensions	74 x 20 x 8.8 mm	
Hose terminals	Ø 5 mm, 12 mm long	
Sensor material	aluminum, nylon, silicone, silica gel, brass	

Accessories	Order no.	Order no.
Connecting cable, 0.2 meters	ZA9060AK1	Extension cable, 4 meters
Extension cable, 2 meters	ZA9060VK2	ZA9060VK4

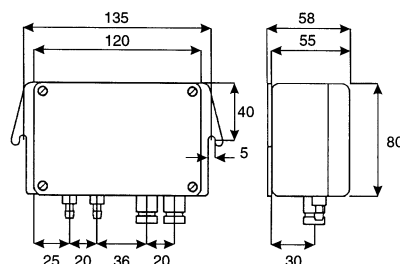
Variants (including manufacturer's test certificate)	Order no.
(including one set of silicone hoses, 2 meters) Pressure measuring connector for differential pressure	
Range ±1000 mbar	FDA612SR
Range ±250 Pa (independent of position)	FDA602S2K
Range ±1250 Pa or ±6800 Pa see page 09.06	

DakkS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).
DakkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Pressure Sensors for Wall Mounting FD 8612 DPS / APS



- Suitable for use in the laboratory, as well as for use in harsh industrial environments, e.g. HEVAC applications, clean room technology, medical technology, filter technology and finishing pass technology.
- The robust mechanics guarantees long term stability, linearity and good reproducibility.
- Temperature drift reduced to a minimum by specific compensation of the sensors.
- Operation is almost maintenance-free, as a result of the free-from-wear inductive measuring system.
- As standard, the integrated electronics provide a pressure proportional voltage signal from 0 to 2V as output.



Technical Data:

Linearity:	±1% of final value, option: ±0.2% or ±0.5%	Rise time:	T ₉₀ approx. 0.02s
Hysteresis:	±0.1% of final value	Temperature drift:	
Nominal temperature:	23°C	Zero point	0.03% of final value / K,
Overload capacity:	up to 400 mb: 5-fold, from 500 mb: 2-fold	range	0.03% of final value / K
Max. common mode pressure:	1 bar (at differential measurement)	Operative range:	+10 to +50°C, air humidity 10 to 90% non-condensing
Power supply:	6 ... 12 VDC, option: 230V 50/60Hz	Storage temperature:	-10 to +70°C
Power consumption:	approx. 3.5mA	Housing:	material ABS 120 x 80 x 55mm (L x H x D) Safety class: 0
Output:	0 to 2V, option: 0 to 10V/0(4) to 20mA	Protection system:	IP 54
Connection:	electrical: screw terminals, screwed cable gland PG 7, pressure: 6.5mm hose connection	Weight:	approx. 300g
		Sensor capacity:	approx. 3ml
		Volume increase:	approx. 0.2ml at nom. press.k

Optionen	Order no.	Order no.
Linearity 0.2% (DPS from final value / APS from range) with DPS only in ranges ≥ 2.5 mbar with APS only in range ≤ 100 mbar	OD8612L2	Power supply : 230 V OD8612N
Linearity 0.5% (DPS from final value / APS from range) with DPS only in ranges ≥ 1 mbar with APS only in range ≤ 200 mbar	OD8612L5	Output 0 to 10 V (voltage supply 19 to 31 V DC) OD8612R2
		Output 0 to 20 mA (voltage supply 19 to 31 V DC) OD8612R3
		Output 4 to 20 mA (voltage supply 19 to 31 V DC) OD8612R4

Accessories	Order no.	Order no.
Connecting cable 2m long mounted with connector for connection to ALMEMO® devices	ZA8612AK2	Silicone hose black per m ZB2295SSL
1 set silicone hoses 2m long black/colourless	ZB2295S	Silicone hose colourless per m ZB2295SFL

Types	Order no.	Order no.
Measuring ranges relative and differential pressure:		Measuring ranges absolute pressure:
Pressure transducer type DPS 0 to 2.5 mbar ... 1000 mbar		Pressure transducer type APS 0 to 1000 mbar, 900 to 1100
Please specify measuring range	FD8612DPS	mbar, 800 to 1200 mbar
Range 1 mbar (100 Pa), additional charge	OD8612P10	Please specify measuring range
Range 0.5 mbar (50 Pa), additional charge	OD8612P05	FD8612APS

DAkKS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).
DAkKS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Pressure

Differential pressure transmitter for smallest pressure with automatic zero-point correction, FD 8612-DPA25AZ, for air and non-aggressive gases

10/2016 • We reserve the right to make technical changes.



- Adjustable differential pressure measuring transducer for the purposes of monitoring the differential pressure in air and in other non-combustible and non-aggressive gases
- Possible uses include : Monitoring of air filters, of forced-air fans and blowers, of industrial air-cooling circuits, of air flows in ventilation conduits, prevention of overheating in air heaters, regulation of airflow valves and fire protection valves, protection against frost in heat exchangers.
- The automatic zero-point correction function cyclically corrects the zero point of the differential pressure transmitter during operation. This almost eliminates possible long-term fluctuations of the sensor (aging, external influences)..

Technical Data:

Measuring element	Piezoelectronic measuring cell	Operating temperature	-10 to +50 °C
Measuring range	(can be selected via Dip switch) -100 to +100 Pa 0 to +100 Pa 0 to +250 Pa 0 to +500 Pa 0 to +1000 Pa 0 to +1500 Pa 0 to +2000 Pa 0 to +2500 Pa	Ambient humidity	max. 85 % RH, non-condensing
		Housing	plastic PA6
		Protection	IP54
		Dimensions	(LxWxH) 90 x 88 x 52 mm
		Weight	150 g
		Pressure connection	2 hose muffs Diameter = 5 / 6.3 mm
Measuring accuracy	± 5 Pa for measuring ranges ≤ 500 Pa ± 10 Pa for measuring ranges > 500 Pa	Electrical connections	Screw terminals, maximum 1.5 mm ²
Zero point correction	automatically every 10 minutes	Cable entry	M20
Reaction time	0.8 or 4.0 seconds (can be selected via Dip switch)	Supply voltage	15..24 V DC ±10 %, typ. 1,1 W 24 V AC ±10 %, typ. 1,7 W
Max. operating pressure	400 kPa	Output signal (can be selected)	0 to 10 V Load 10 kohm minimum 4 to 20 mA, 3 conductors Load 500 ohms maximum.
Medium	Air and non-aggressive gases		

Accessories

Order no.

ALMEMO® connecting cable for FD 8612-DPA, differential pressure, 2 cables connected in the transmitter housing

1. ALMEMO® connecting cable, PVC, length = 2 meters, with ALMEMO® connector

2. Power supply via mains unit ZB1024NA1, 230 VAC / 24 VDC

ZA8612DPTAK

Variants

Order no.

Differential pressure transmitter type DPA, for air and non-aggressive gases, with automatic zero-point correction

8 measuring ranges (can be selected via jumper) including standard accessories:

2 fastening screws, 2 plastic conduit muffs, 2-meter plastic hose

FD8612DPA25AZ

DAkkS / DKD or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates)

DAkkS or factory calibration KD9xxx pressure for sensor or measuring chain (sensor + device) (see chapter Calibration certificates).

DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.