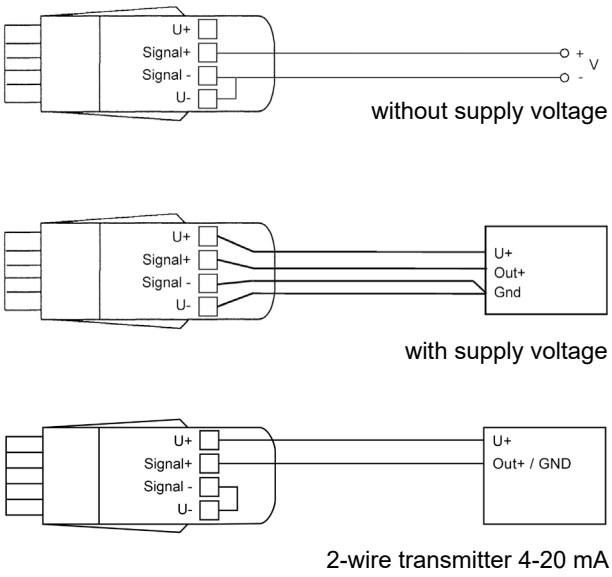
Digital ALMEMO® D7 measuring connector for DC voltage differential (volt) / DC current differential (mA)

**High resolution up to 0.001 mV / 0.1 µA (200 000 digits)
or fast conversion rate, resolution up to 1 mV / 10 µA (2000 digits).
Only for latest ALMEMO® V7 measuring instruments, including ALMEMO® 500, 710, 809, 202-S, 204.**



The new ALMEMO® D7 measurement plug enables high precision or fast conversion rate applicable for a vast variety of measuring tasks.
The user can select the preferred configuration quickly and easily on the ALMEMO® V7 measuring instrument itself.

Technical data and functions

- The digital ALMEMO® D7 measuring connector uses its own integrated A/D converter. The overall accuracy of the measuring operation is unaffected by the presence of an ALMEMO® V7 display device / data logger. The measuring rate is determined entirely and exclusively by the integrated A/D converter. On the ALMEMO® V7 measuring instrument all D7 measuring connectors operate in parallel at their own measuring rate. The measuring instrument's very short scan cycle is determined by the measuring rates of the D7 measuring connectors - irrespective of their number.
- For high resolutions and stable values, e.g. in precision transmitters for pressure, the ALMEMO® D7 measuring plug works with a reduced conversion rate. For fast processes, measurements can be taken at a higher conversion rate. The ALMEMO® V7 measuring device saves the measured values and the WinControl measuring software displays them graphically.
- Measuring transducers without their own mains unit and needing a power supply are powered from the ALMEMO® D7 plug. Each signal is scaled to its actual physical quantity (e.g. pressure 25 bar at voltage 10 volts); the assigned units can be up to 6 characters in length. Sensor identification can be programmed with designations up to 20 characters in length.

Technical data

Measuring input	electrically interconnected with the power supply (ALMEMO® device ground)
Measuring range	see variants
Conversion rate, resolution	see variants
Overload	see variants
Internal resistance	see variants
Input current	100 pA
System accuracy	0.02 % +2 digits at 5 measurements / second
Nominal temperature	+22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm)
Supply voltage	6 / 9 / 12 V, from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 12 mA (without transducer)
Sensor supply	6 / 9 / 12 V, from ALMEMO® device ZED70xFSV15: 15±0,6 V, max. 50 mA at device voltage 12 V ZED70xFSV24: 24 ±1 V, max. 30 mA at device voltage 12 V
Environmental conditions	see page 16 onwards

Input connectors for DC

Types:

Measuring range	Resolution Conversion rate (mops)	Internal resistance	Overload	Order no.
-2.2...+2.2 Volt	0.01 mV, 5 mops* / 0.1 mV, 500 mops / 1 mV, 1000 mops	110 kOhm	±3 V	**ZED700FS**
-64...+64 mV -250...+250 mV*	0.001 mV, 5 mops*	5 GOhm	±2.8 V	**ZED700FS2**
-20...+20 Volt	0.1 mV, 5 mops* / 1 mV, 500 mops / 10 mV, 1000 mops	110 kOhm	±30 V	**ZED702FS** **ZED702FSV15**** **ZED702FSV24****
-60...+60 Volt	1 mV, 5 mops* / 10 mV, 500 mops / 10 mV, 1000 mops	103 kOhm	±60 V	**ZED702FS2**
-20...+20 mA	00.1 µA, 5 mops* / 1 µA, 500 mops / 10 µA, 1000 mops	100 Ohm	±28 mA	**ZED701FS** **ZED701FSV15**** **ZED701FSV24****

* Factory setting : The desired measuring range can be programmed on the ALMEMO® V7 device itself..
** Sensor supply see above: Technical data

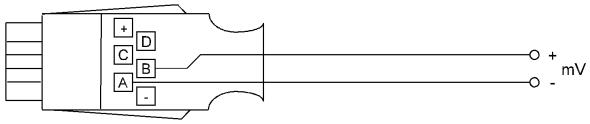
Option:

Configuration of ALMEMO® D7 measuring connector	
Conversion rate 500 mops	**OA9007PRM500**
Conversion rate 1000 mops	**OA9007PRM1000**

Accessories

	Order no.
Galvanic isolation up to 50 V for ALMEMO® D7 sensors. pluggable cabel, length = 0,2 m	**ZAD700GT**

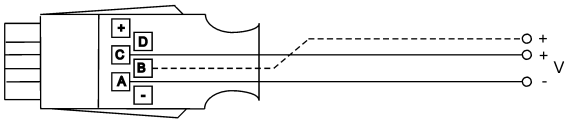
ALMEMO® Connector for Voltage Millivolt



Types:

Model	Meas. Range	Resolution	Order no.
55 mV DC	–10.0 to +55.0	1 µV	**ZA9000FS0**
26 mV DC	–26.0 to +26.0	1 µV	**ZA9000FS1**
260 mV DC	–260.0 to +260.0	10 µV	**ZA9000FS2**

ALMEMO® Connector for Volt DC



Technical Data

Accuracy divider:	only 5.5 / 26 V connector, ±0.1% of measured value Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

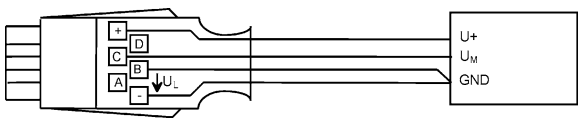
Types:

Model	Meas. Range	Resolution	Order no.
2.6 V DC	–2.6 to +2.6*	0.1 mV	**ZA9000FS3**
5.5 V DC (divider 100:1)	-1.0 to 5.5	0.1 mV	**ZA9602FS4**
26 V DC (divider 100:1)	–26.0 to +26.0	1 mV	**ZA9602FS**
2 mal 26 V DC (2 x divider)	–26.0 to +26.0	1 mV no electrical isolation	**ZA9602FS2**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® Connector for DC voltage difference millivolts / volt

for sensors / transmitters, Supply from ALMEMO® device



Technical Data

Sensor supply	(for voltage see technical data of ALMEMO® device)
Accuracy divider:	only 26V connector ±0,1% of meas. value Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

(Connection diagram for connectors with 4 clamps, see next page)

Types:

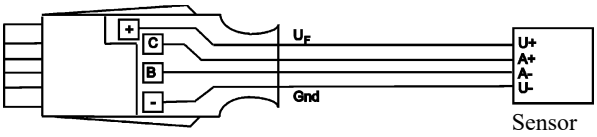
Model	Meas. Range	Resolution	Order no.
55 mV DC	–10.0 to +55.0	1 µV	**ZA9000FS0D**
26 mV DC	–26.0 to +26.0	1 µV	**ZA9000FS1D**
260 mV DC	–260.0 to +260.0	10 µV	**ZA9000FS2D**
2.6 V DC	–2.6 to +2.6*	0.1 mV	**ZA9000FS3D**
26 V DC (divider 100:1)	–26.0 to +26.0	1 mV	**ZA9602FS3**

* Data may vary depending on device; (see data sheet per device)

Input connectors for DC

ALMEMO® Connector for DC Millivolt / Volt Differential

for sensors / transmitters, Supply: 12 V from the ALMEMO® device



Sensor

Technical Data

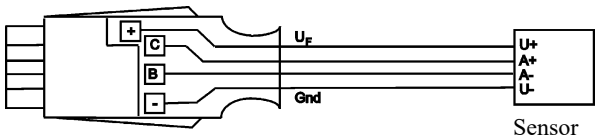
Sensor supply U_F:	12.2 ... 12.5V (15V/24V on request)
Device voltage U_G:	8 ... 12 V
Output current:	100mA at U_G = 9 ... 12V
Accuracy divider:	only 26V connector ±0,1% of meas. value Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

Types:

Model	Meas. Range	Resolution	Order no.
55mV DC	–10.0 to +55.0	1 µV	**ZA9600FS0V12**
26mV DC	–26.0 to +26.0	1 µV	**ZA9600FS1V12**
260mV DC	–260.0 to +260.0	10 µV	**ZA9600FS2V12**
2.6V DC	–2.6 to +2.6*	0.1 mV	**ZA9600FS3V12**
26V DC (divider 100:1)	-26.0 to +26.0	1 mV	**ZA9602FS3V12**

* Data may vary depending on device; (see data sheet per device).

for sensors / transmitters, Supply: 5 V from the ALMEMO® device



Sensor

Technical Data

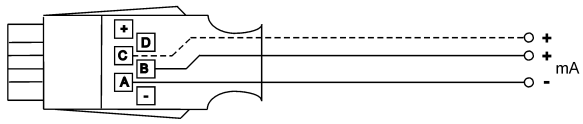
Sensor supply U_F:	5 V ±2 % (max.)
Device voltage U_G:	8 ... 12 V
Output current:	50 mA at U_G = 9 ... 12V
Accuracy divider:	±0,1% v. Mw. Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

Types:

Model	Meas. Range	Resolution	Order no.
5.5 V DC (divider 100:1)	-1.0 to 5.5	0.1 mV	**ZA9602FS5V05**

DAkkS- or Factory calibration KE90xx, electrically, for digital measuring module, see Chapter Calibration.
DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

ALMEMO® Connector for DC Current mA



Technical Data

Accuracy shunt:	±0,1% of measured value Temperature coefficient: <25 ppm/K Nominal temperature: 23°C ±2 K

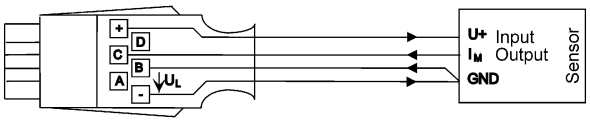
Types:

Model	Meas. Range	Resolution		Order no.
32 mA DC	–32.0 to +32.0*	1 µA		**ZA9601FS1**
4/20 mA DC	0 to 100%	0.01 %		**ZA9601FS2**
2 mal 32 mA DC	–32.0 to +32.0*	1 µA	no electrical isolation	**ZA9601FS3**
2 mal 4/20 mA DC	0 to 100%	0.01 %	no electrical isolation	**ZA9601FS4**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® Connector for DC mA Differential

for sensors / transmitters, Supply from the ALMEMO® device



Technical Data

Sensor supply	(for voltage see technical data of ALMEMO® device)
Accuracy shunt:	±0,1% of measured value Temperature coefficient: <25 ppm/K Nominal temperature: 23°C ±2 K

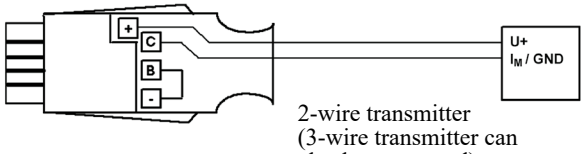
Types:

Model	Meas. Range	Resolution	Order no.
32 mA DC	–32.0 to +32.0*	1 µA	**ZA9601FS5**
4/20 mA DC	0 to 100%	0.01 %	**ZA9601FS6**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® for DC mA Differential

for sensors / transmitters, Supply 12V from the ALMEMO® device



2-wire transmitter
(3-wire transmitter can
also be connected)

Technical Data

Sensor supply U_F: Device voltage U_G:	12,2 ... 12,5V (15V/24V on request) 8 ... 12V
Output current:	100mA at U_G = 9 ... 12V
Accuracy shunt:	±0,1% of measured value Temperature coefficient: <25 ppm/K Nominal temperature: 23°C ±2 K

Types:

Model	Meas. Range	Resolution	Order no.
32mA DC	–32.0 to +32.0*	1 µA	**ZA9601FS5V12**
4-20mA DC	0 to 100%	0.01 %	**ZA9601FS6V12**

* Data may vary depending on device; (see data sheet per device)