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Measuring amplifier

Type 4701A...

for strain gauge sensors and resistive travel sensors

Industrial measuring amplifier for signal amplification of sensors with strain gauge bridge (torque or load) and resistive travel sensors.

- 24 VDC power supply
- Analog output 0 ... ±5 V or 0 ... ±10 V
- Compact design
- Robust metal housing

Description

The measuring amplifier Type 4701A... can be connected to the sensor and to power supply/analog output either through cable bushings directly at the soldering terminals inside the housing (version A) or via plug connectors (version B for strain gauge sensors or version C for resistive travel sensors).

Gain adjustment is performed by fixed resistors (coarse tuning) and additionally by a potentiometer (fine adjustment).
For simple installation, the robust metal housing of the amplifier is equipped with two holes for M4 screws.

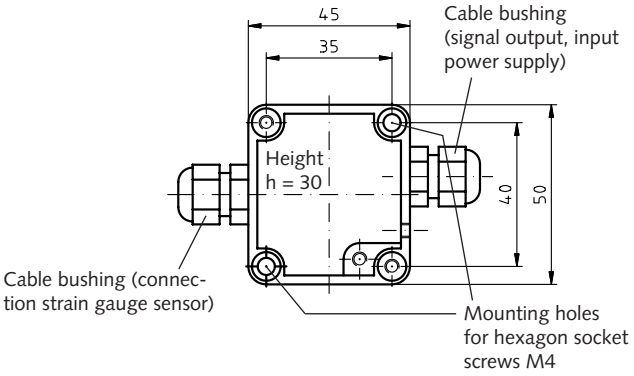
Application

The measuring amplifier Type 4701A... is designed for industrial applications and is provided for switch board installation.
This universal amplifier is suitable for the use with the following sensors:

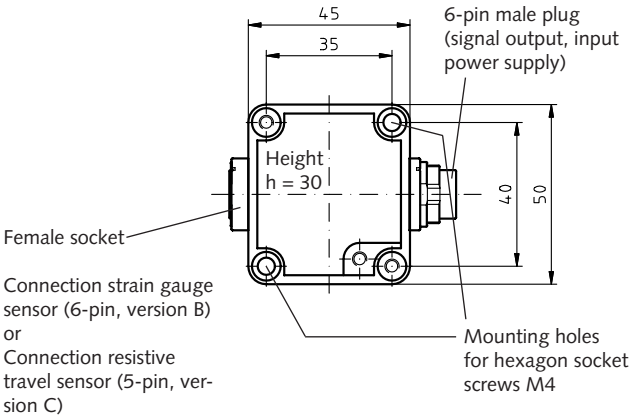
Torque:	Type 4501A...	Type 4507A...	Type 4509A...
Load:	Type 4570A...	Type 4573A...	Type 4574A...
	Type 4575A...	Type 4576A...	Type 4577A...
	Type 4578A...	Type 4579A...	
Travel (resistive):			Type 2112A...

If desired, the amplifier can be delivered together with connected sensor as a calibrated measuring chain.
Customized adjustments of sensitivity or output signal differing from standard are also available on request.

Dimensions version A



Dimensions version B and version C



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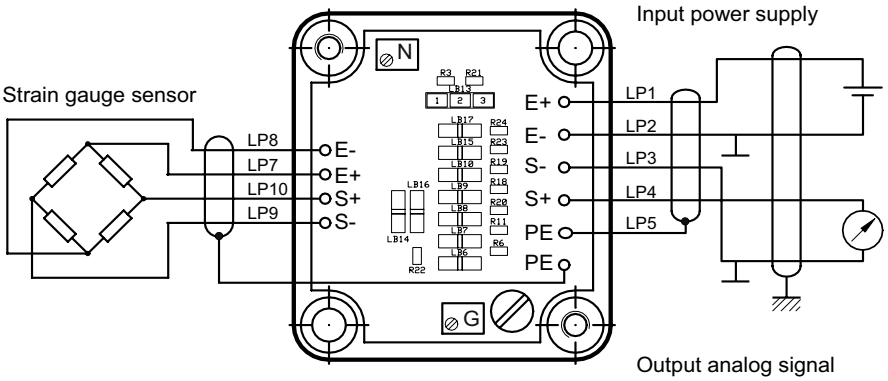
Technical data

Input	**Strain gauge** (1 ... 2,0 mV/V, full or half bridge, bridge input resistance max. 500 Ω):	Version A:	approx. 1,5 mV/V
		Version B:	approx. 1,0 mV/V
	Resistive (input resistance 1 ... 5 kΩ):	Version C:	input 0 ... 5 V
Output	Analog signal		0 ... ±5 V
	or		0 ... ±10 V
Options	Calibration together with sensor or adjustment of customized sensitivity		
Power supply	24 VDC non-stabilized (±10 %)		
Accuracy	% of full range		≤±0,1
Operation temperature range	°C		0 ... 50
Nominal temperature range	°C		10 ... 40
Gain adjustment range	%		ca. ±10
Zero signal adjustment range	%		ca. ±10
Protection class	acc. to EN 60529	Version A with cable bushings:	IP54
		Version B and C with plug connectors:	IP40

Electrical connection (schematic)

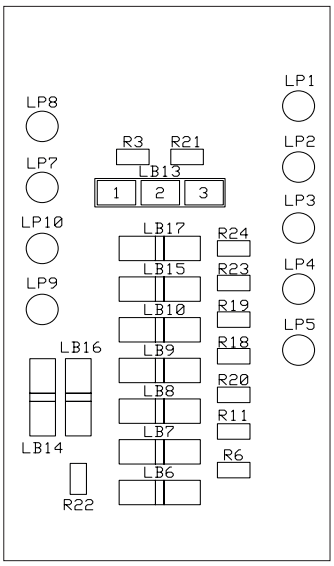


E = Power supply, S = Signal

Connection measuring amplifier Type 4701A...

Connection strain gauge - measuring bridge		**Signal**	**Soldered joint Electronics**	**Connection M16 - X1**
Measuring bridge	+5 V	E+	LP 7	PIN 2
Measuring bridge GND	GND	E–	LP 8	PIN 1
Measuring input	negative	S–	LP 9	PIN 4
Measuring input	positive	S+	LP 10	PIN 5
Shield connection	shield	PE	LP 5	PIN 3

Supply/measuring signal connection		**Signal**	**Soldered joint Electronics**	**Connection M16 - X2**
Amplifier supply	+24 VDC	U_B+ or E+	LP 1	PIN 2
Amplifier supply GND	GND	U_B– or E–	LP 2	PIN 1
Measuring signal	positive	S+	LP 4	PIN 4
Measuring signal	negative	S–	LP 3	PIN 5
Shield connection	shield	PE	LP 5	PIN 3



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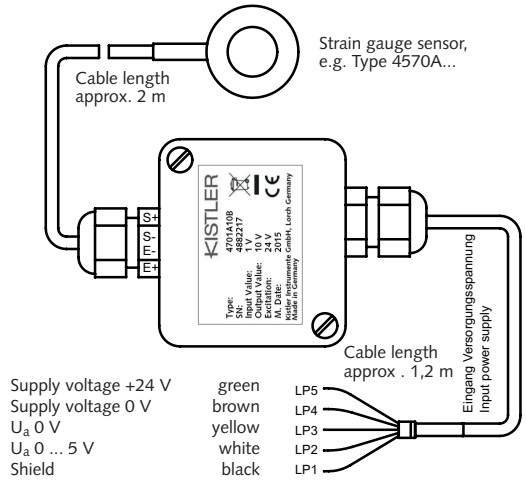
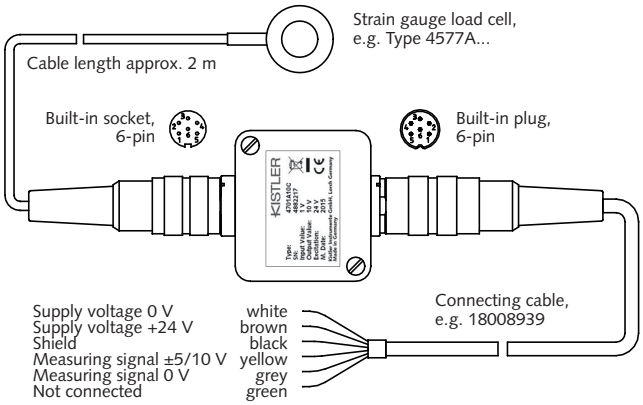
Electrical connection possibility A - Protection class: IP54

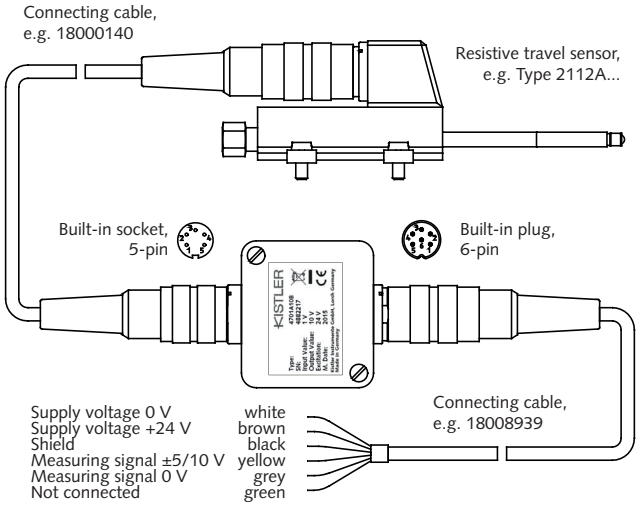


Standard adjustment of amplifier: sensitivity 1,5 mV/V, output 5 V or 10 V. Customized adjustments on request.

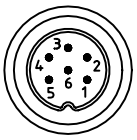
Electrical connection possibility B - Protection class: IP40



Electrical connection possibility C - Protection class: IP40



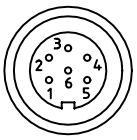
Pin assignment for amplifier output (6-pin built-in plug, firm Binder, Series 581) - for force and displacement



Pin 1: Sensor power supply (0 V)
Pin 2: Sensor power supply (24 V)
Pin 3: Shield
Pin 4: Measuring signal (±5 V)
Pin 5: Measuring signal (0 V)
Pin 6: Not connected

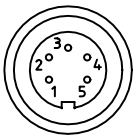
Standard adjustment of amplifier: sensitivity 1,0 mV/V, output 5 V or 10 V. Customized adjustments on request.

Pin assignment for amplifier input (connection strain gauge sensor, 6-pin built-in socket, firm Binder, Series 581) - for force



Pin 1: Sensor power supply (0 V)
Pin 2: Sensor power supply (+5 V)
Pin 3: Shield
Pin 4: Measuring input (+)
Pin 5: Measuring input (–)
Pin 6: Not connected

Pin assignment for amplifier input (connection resistive travel sensor, 5-pin built-in socket, firm Binder, Series 581) - for displacement



Pin 1: Input measuring signal
Pin 2: Sensor power supply (0 V)
Pin 3: Sensor power supply (+5 VDC)
Pin 4: Shield
Pin 5: Not connected

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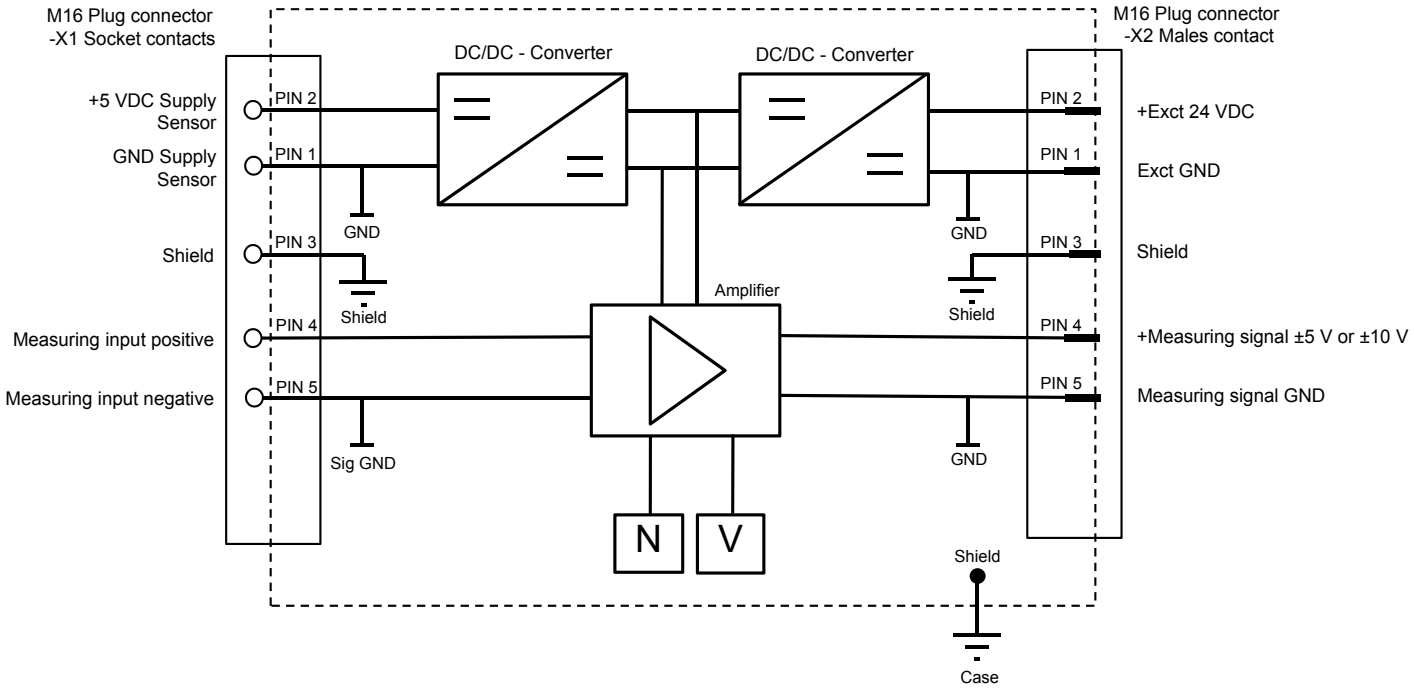
Block diagram measuring amplifier



Included accessories

- None

Optionale accessories

	Type/Art. No.
• Connection cable, 5 m, 6-pin/6-pin	18008930
• Connection cable, 5 m, 6-pin/free end	18008939
• Connection cable, 5 m, 5-pin/5-pin	18000140

Ordering key

Type 4701A □□

Output signal

0 ... ±5 VDC	**5**
0 ... ±10 VDC	**10**

Version

Cable bushings (IP54)	**A**
Plug connectors str. gauge sensor (IP40)	**B**
Plug connectors resistive sensor (IP40)	**C**

Ordering example:

Type 4701A10B

Measuring amplifier Type 4701A..., output signal 0 ... ±10 VDC, with plug connectors for strain gauge sensor (protection class IP40).

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