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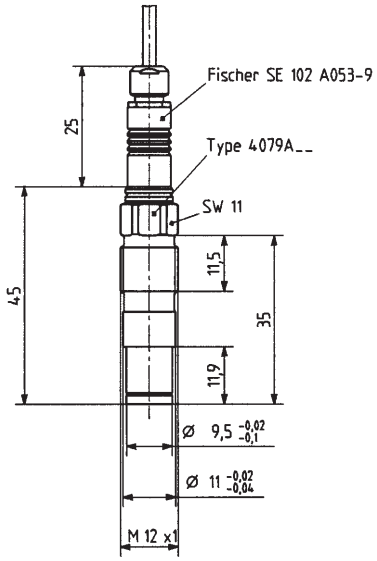
Low-Pressure Measuring Chain

Type 4079A...

for Processing Reactive Polymers

Industrial measuring chain consisting of a pressure sensor with removable screw-on cable, and an amplifier adjusted for the measurement of pressures during the manufacture and processing of reactive polymers such as polyurethanes, silicones or epoxy resins.

- Small mounting dimensions
- Operating temperatures up to 180 °C
- Pressure range 0 ... 10/20/50 bar
- High overload safety
- High sensitivity
- Contains no materials hazardous to equipment or health



Description

Thanks to the accuracy and characteristics of the measuring element, the measuring chain is ideal for measuring static pressures as well as temperatures. The measuring element is linearized by the digital compensation with amplifier Type 4620A... . Output signals of 0 ... 10 Volt or 4 ... 20 mA are available. The measurands can be directly read out from the amplifier via the RS-232-C interface.

The sensor does not require any transmission media which in the event of damage could represent a danger to human health and property.

Application

This measuring chain can be used for process monitoring in the processing of polymers both as a mold cavity pressure sensor, and as a liquid pressure measuring probe up to 50 bar.

Polymer pressure measurement on resin processing machinery:
In contrast to conventional sensors, the small size of this sensor makes it possible to drastically reduce dead water zones in which polymer masses are collected and degraded.

Mold cavity pressure measurement in foaming processes or the processing of reactive resins:
Thanks to the use of these pressure sensors, the production process can be optimized according to economic or process-orientated criteria. Individual pressure curves can be used to provide information on homogeneity and reactivity of the processed resins, as well as on the quality of components. A combination of the measuring chain with full or partly automated processes leads to economic advantages:

- Production process optimization (mold temperature, mold release timing, injection quantity)
- Selective resin development according to technical manufacturing aspects (viscosity, reactivity)
- Quality recording and documentation

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Technical Data
Measuring Chain with Amplifier Type 4620A…

Reference temperature T_{ref} = 25 °C		
Pressure range	bar	0 ... 10/20/50
Overload	bar	15/30/70
Max. measuring error (incl. TK0, TKE, Lin, Hyst)	%FSO	≤±2
Natural frequency (sensor)	kHz	>22
Temperature range	°C	20 ... 130/180
Output signal (pressure, temperature)	V	0 ... 10
	mA	4 ... 20
Frequency range (±3 dB)	Hz	0 ... 225
Group delay time	ms	<5
Supply voltage	V	18 ... 30
Current consumption	mA	<120
Acceleration sensitivity	mbar/g	≤±0,25
Operating temperature range		
Sensor (S-version)	°C	-20 ... 130
Sensor (H-version)	°C	-20 ... 180
Amplifier	°C	0 ... 60
Tightening torque	Nm	12
Material		
Sensor	W.-Nr.	1.4542 (17-4PH)
Amplifier case		Aluminum
Degree of protection		
Sensor with cable		IP65
Amplifier (cable connected)		IP65
Weight (sensor)	g	45

Scope of Delivery Including Accessories	**Type/Art. No.**
• Sensor	4079A...
• Seal	1137
• Amplifier	4620A...
	4801B...
• Connecting cable	4767A...
• Cable socket 14-pole Series 423, IP67 (with Type 4620A…)	5.511.230

Optional Accessories	**Type**
• Disk with calibration data	4620-DATA
• Cable connector 5-pole	1500A81
• Connecting cable with «Contflow» software	4795B
• Connecting cable to Type 4620A…	1477A5

Process Data for Version 4079AxxxxxxxD9:

Available selections

Parameter		**Standard setting**	Adjusted setting	Option Minimum	Option Maximum
Compensated temperature range (standardized output 20 … 130/180oC = 0 … 10 V or 4 … 20 mA		25 ... 130/180 °C		25 °C	180 °C
Output	active	4 ... 20 mA		4 ... 20 mA	0 ... 10 V
Set pressure values [bar]	lower	**0 % FS** [1]		0 % FS [2]	40 % FS [2]
	upper	**100 % FS** [1]		60 % FS [2]	100 % FS [2]
Pressure switching limits	lower	**10 %**		0 %	80 %
[in % range of set pressure value]	upper	**90 %**		20 %	100 %

[1] FS represents the value of the range in the ordering key

[2] The range between the lower and upper pressure value must be min. 50 %

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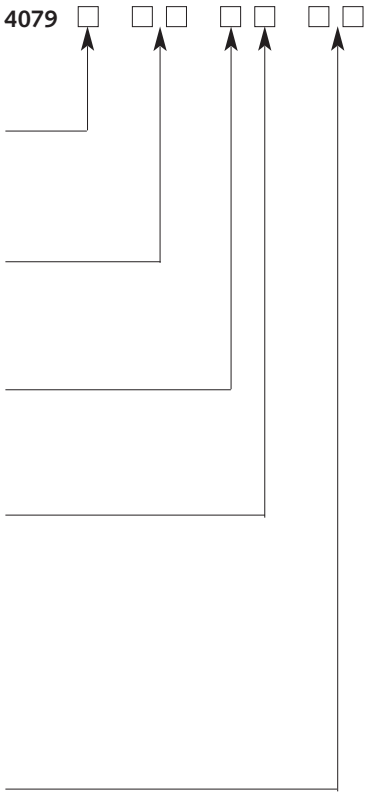
Ordering Key



Piezoresistive Low-Pressure Measuring Chain

Standard type	**A**
Special manufacture	**Q**

10 bar	**10**
20 bar	**20**
50 bar	**50**
consecutive numbering for Q-types	**xx**

Temperature range +20 ... 130 °C (standard)	**S**
Temperature range +20 ... 180 °C	**H**

Cable L = 2 m	**2**
Cable L = 5 m	**5**
Cable L = 10 m	**7**
Cable L = ... m (state length when ordering)	**9**

Digital amplifier Type ... 4620A1	**D1**
Digital amplifier Type ... 4620A2 (customer-specific)	**D9**
Dual Monitor Type ... 4801B100	**B0**
Dual Monitor Type ... 4801B200	**B1**
Dual Monitor Type ... 4801B110	**B2**
Dual Monitor Type ... 4801B111	**B3**
Dual Monitor Type ... 4801B210	**B4**
Dual Monitor Type ... 4801B211	**B5**
Dual Monitor Type ... 4801B101	**B6**
Dual Monitor Type ... 4801B201	**B7**

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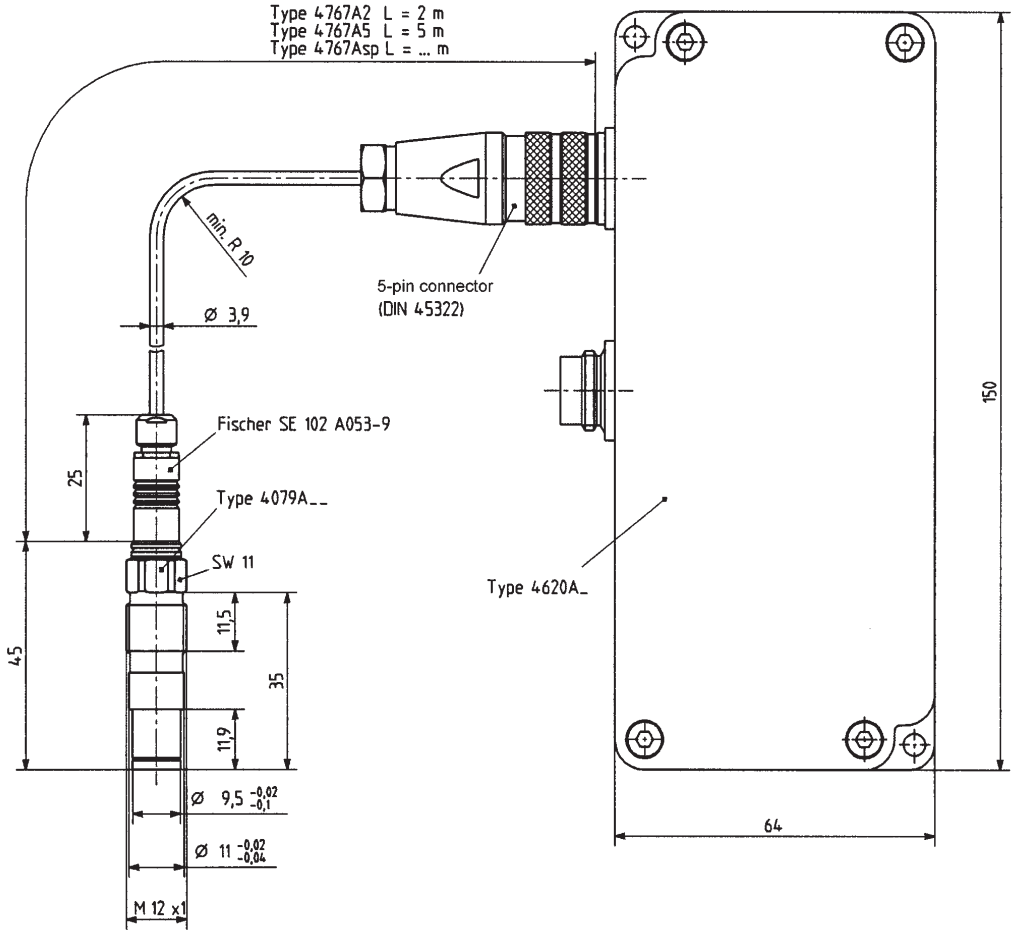

Fig. 1: Measuring Chain Dimensions

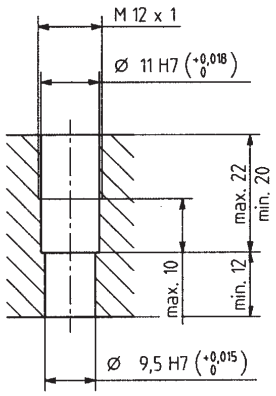

Fig. 2: Mounting bore Dimensions

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Amplifier Case

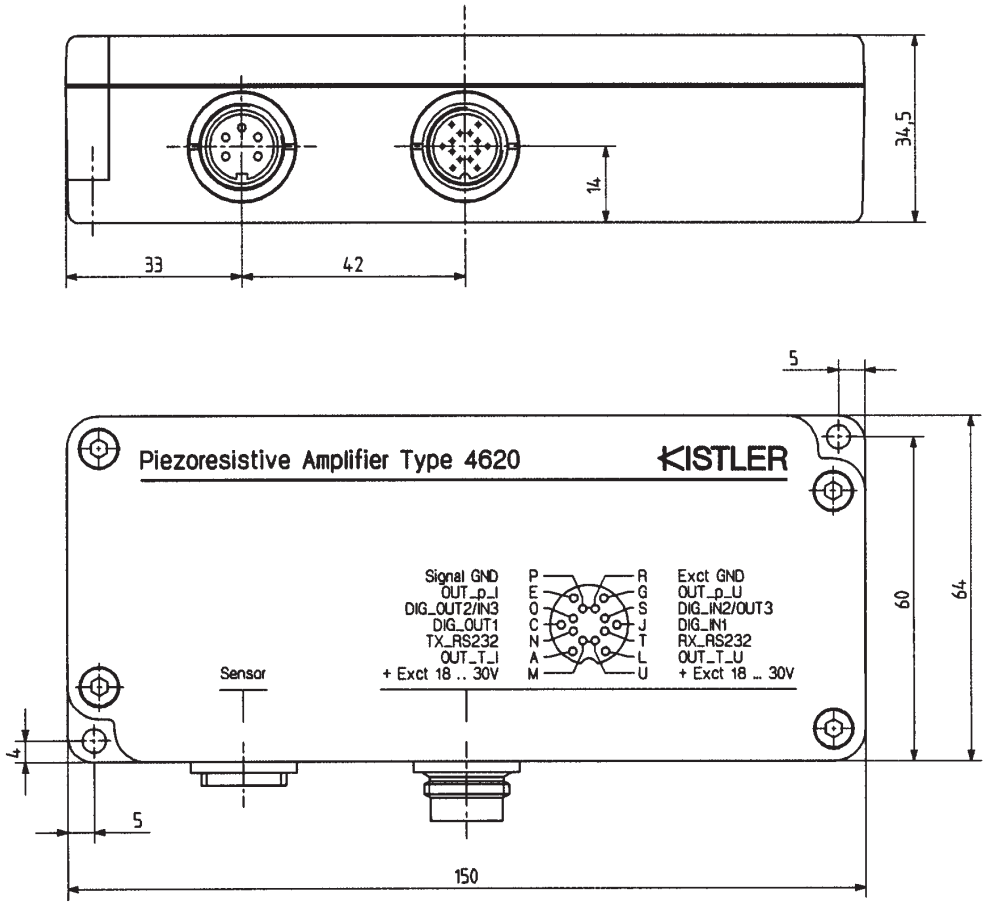
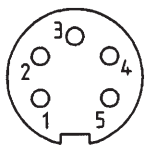
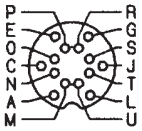


Fig. 3: Amplifier Type 4620A…



1	+IN
2	–IN
3	NC
4	–OUT
5	+OUT

Fig. 4: Pin Allocation Sensor Cable (Input)



M,U	+Exct 18 ... 30 V	Amplifier supply
R	Exct GND	Amplifier ground
E	OUT_p_I	Pressure signal output, current
G	OUT_p_U	Pressure signal output, voltage
A	OUT_T_I	Temperature signal output, current
L	OUT_T_U	Temperature signal output, voltage
P	Signal GND	Signal ground
J	DIG_IN1	Digital input
S	DIG_IN2/OUT3	Digital input/output
C	DIG_OUT1	Digital output
O	DIG_OUT2/IN3	Digital output/input
T	RX_RS232	RS-232C interface (PC->4620)
N	TX_RS232	RS-232C interface (4620->PC)

Fig. 5: Pin Allocation of Amplifier (Output)

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