

RH High Pressure Measuring System

Type RH...

for Pressures from 100 ... 3 000 bar

Accurate high pressure measuring system for the use in process monitoring. Optionally available with digital or analog amplifier.

Digital Signal Amplifier, Type 4620A2

- For static/dynamic measurements up to 200 Hz
- Accurate temperature output from the sensor
- External zero tare function
- Digital inputs and outputs, limit switches
- Outputs parametrizable
- Serial interfaces RS-232C/RS485
- Output 4...20 mA/0...10 V

Analog Signal Amplifier, Type 4618A...

- High sampling rate
- With analog compensation
- 2 adjustable limit contacts
- Temperature output (option)

Description

RH transducers are usually used in conjunction with an appropriate signal amplifier. These amplifiers provide the constant current supply to the transducer. Their main function is the amplification from the mV signal of the transducer to an industrial signal standard like 4 ... 20 mA , 0 ... 10 V or digital interfaces such as RS-232C or RS485 and to compensate for linearity and thermal drift.

A typical measuring system consists of a transducer, a connecting cable and a signal amplifier. The choice of the different amplifiers determines the possible accuracy of measurement.

Application

The RH-series transducers are used for a wide range of different applications in hydraulics and process control. The selection between both measuring chains depends on the application.



Examples for Type 4620A2:

- Static and low dynamic pressure measurement
- accurate pressure measurement over a large temperature range
- High precision pressure and temperature measurement
- Precision instruments and laboratory devices

Examples for Type 4618A...:

- High dynamic pressure applications
- Pressure measurement within a narrow temperature range

Technical Data

Digital Compensation with Amplifier, Type 4620A2

Specifications for all pressure ranges

Type RH...		...B01...	...B02...	...B05...	...B10...	...B20...	...B30...
Range	bar abs	0 ... 100 ²⁾	0 ... 200 ²⁾	0 ... 500	0 ... 1 000	0 ... 2 000	0 ... 3 000 ³⁾
Data points pressure	%FS	0	25	50	75	100	
Thermal zero shift ⁴⁾	%FS	≤±0,1					
Thermal sensitivity shift ⁴⁾	%FS	≤±0,1					
Linearity ⁴⁾ (end point)	%FS	≤±0,1					
Repeatability ¹⁾	%FS	≤±0,2					
Pressure hysteresis ¹⁾	%FS	≤±0,3					
Thermal hysteresis, typical ¹⁾	%FS	≤±1					

Standard Compensated Temperature Range 25 ... 225 °C

Data points temperature	°C	25	100	175	225		
Compensated temperature Option L:		25 ... 120 °C					
Data points temperature	°C	25	50	85	120		
Compensated temperature Option H:		25 ... 300 °C					
Data points temperature	°C	25	150	225	300		

For other technical data consult data sheet to Type 4620A2 (4620A_000-199)

Analog Compensation with Amplifier, Type 4618A...

Range	bar abs	0 ... 100 ²⁾	0 ... 200 ²⁾	0 ... 500	0 ... 1 000	0 ... 2 000	0 ... 3 000 ³⁾
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Standard Compensated Temperature Range 25 ... 225 °C

Thermal zero shift	%FS typ./max	±5/8	±5/5	±2/4	±2/4	±2/4	±2/4
Thermal sensitivity shift	%FS typ./max	±1/3	±2/2	±1/2	±1/2	±1/2	±1/1
Compensated temperature Option L:		25 ... 120 °C					
Thermal zero shift	%FS typ./max	±4/6	±4/4	±2/3	±2/3	±2/3	±2/3
Thermal sensitivity shift	%FS typ./max	±1/2	±2/2	±1/1	±1/1	±1/1	±1/1
Compensated temperature Option H:		25 ... 300 °C					
Thermal zero shift	%FS typ./max	±6/10	±8/8	±3/5	±3/5	±3/5	
Thermal sensitivity shift	%FS typ./max	±2/4	±3/3	±1/2	±1/2	±1/2	
Linearity (end point)	%FS typ./max.	≤±0,5/1,0					

For other technical data consult data sheet to Type 4618A... (4618A_000-293)

¹⁾ Values for standard compensated temperature range

²⁾ 100 bar and 200 bar types only supplied with amplifier 4620A

³⁾ For a safe operation of the sensor, precautions must be taken to select the type of sensor and corresponding gasket/seal according to the measured medium, pressure and temperature ranges

For transducers with pressure ranges >2 000 bar /30 000 psi the operating temperature is limited to 225 °C/440 °F

⁴⁾ Model behavior (calculation of digital compensation) at data points selected by Kistler.

For other technical data related to digital compensation of silicon pressure sensors consult data sheet FAQ3_000-280

For further technical information regarding the built-in measuring element please refer to the data sheet of the OEM sensor Type RHU50 (RHU50_000-085).

Dimensions

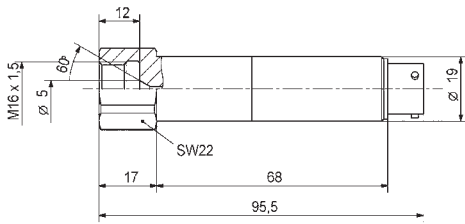


Fig. 1: Type RHM16...

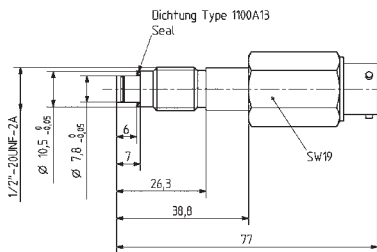


Fig. 2: Type RHU50...

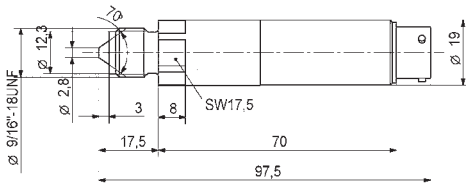


Fig. 3: Type RHU56...

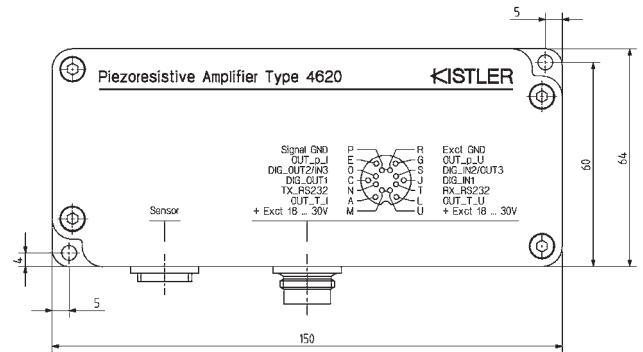


Fig. 5: Digital Amplifier Type 4620A...

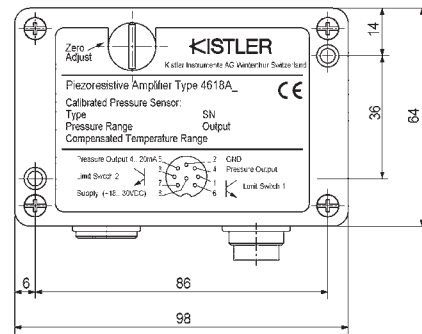


Fig. 6: Analog Amplifier, Type 4618A...

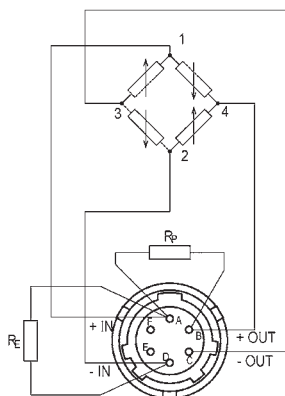


Fig. 4: Electrical connections, max. temperature at connector 180 °C

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Installation

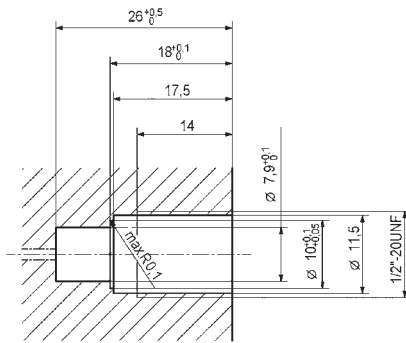


Fig. 7: Mounting hole, Type RHU50...

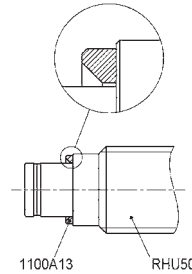


Fig. 9: Seal mounting, Type RHU50...

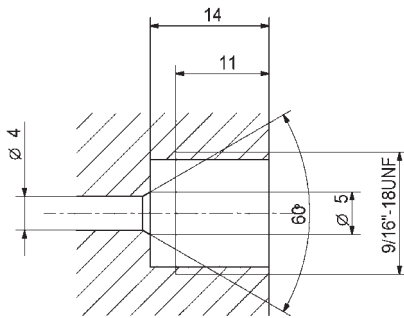


Fig. 8: Mounting hole, Type RHU56...

Mounting Torque

- RHU50: 30 N·m
- RHU56/RHM16: 35 N·m

Accessories included

- None

Optional Accessories

- | | |
|---|--|
| <ul style="list-style-type: none"> • Gasket $\varnothing 10/8 \times 1$ mm for RHU50 • Output cable for Type 4620A... (14 poles, 5 m) • Mating connector for RH-transducer (for temperatures up to max. 120 °C) • PC-Software to Type 4620A2, incl. connection cable to PC • High temp. cable (incl. connector) 180 °C, x = length m, see standard cables | <p>Type/Art. No.</p> <ul style="list-style-type: none"> 1100A13 1477A5 1500A87 4795B 4790AxQ01 |
|---|--|

Scope of Supply

RH measuring systems are assembled and calibrated on order. For mounting, electrical connection and safe operation please refer to the instruction manual. Spare sensors are delivered with the corresponding information either polynomial coefficients on disc for the Type 4620 digital amplifier or calibration plug Type 4958A0 for the analog amplifier Type 4618 (existing amplifier to be specified on order).

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Ordering Key

Bold text = standard types

Front

M16 x 1,5, DIN 16288	M16
1/2-20 UNF-2A	U50
9/16-18 UNF-3A	U56

Measuring Range

Measuring range 100 bar	B01
Measuring range 200 bar	B02
Measuring range 350 bar	B03
Measuring range 500 bar	B05
Measuring range 700 bar	B07
Measuring range 1 000 bar	B10
Measuring range 1 400 bar	B14
Measuring range 2 000 bar	B20
Measuring range 3 000 bar	B30

Temperature

Compensated standard temperature range 25 ... 225 °C / 0 ... 250 °C ¹⁾	S
Low compensated temperature range 25 ... 120 °C / 0 ... 120 °C ¹⁾	L
High compensated temperature range 25 ... 300 °C / 0 ... 300 °C ¹⁾	H

Amplifier

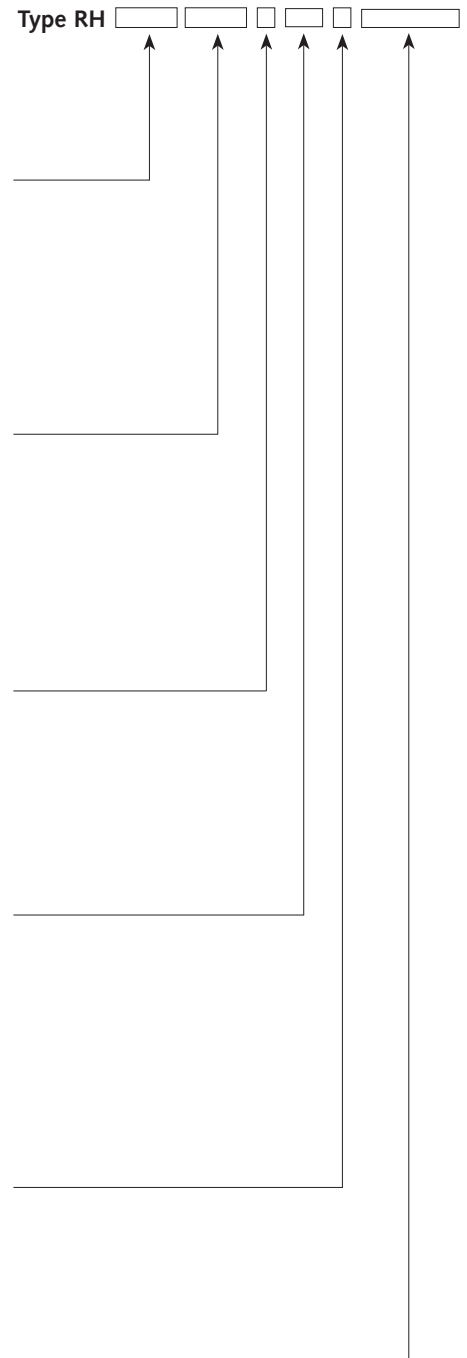
Signal amplifier Type 4620A2 (with digital compensation) standard settings ²⁾	D2
Type 4620A2 with customer specific process data	D9
Type 4618A0	A0
Type 4618A2	A2
Type 4618A4	A4
Replacement sensor for digital amplifiers (without amplifier, without cable)	DI
Replacement sensor for analog amplifiers (without amplifier, without cable)	AN

Cables

Connecting cable Type 4790A2, 2 m	2
Connecting cable Type 4790A5, 5 m	5
Connecting cable Type 4790A10, 10 m	7
other length on request, please specify with order	9
without cable	0
Mating connector to sensor, Type 1500A87	M

Special

Customized version including special options	V0xxx
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Notes for Appendix D9 ³⁾:

Selection

Parameter		Standard settings	Customized Values	Option minimum	Option maximum
Output	active	4 ... 20 mA		4 ... 20 mA	0 ... 10 V
Adjusted pressure range [bar/psi]	low	0		0	40 % FS ⁵⁾
	high	FS ⁴⁾		60 % FS ⁵⁾	FS
Pressure switching point %FS [% of span of adj. pressure range]	low	10		0	80
	high	90		20	100

- ¹⁾ Temperature output signal of amplifier Type 4620A2 for analog output signal
- ²⁾ For other standard default settings of Type 4620A2 consult data sheet 4620A2_000-199
- ³⁾ The technical data are based on the pressure range listed in the ordering code
- ⁴⁾ FS corresponds to the value specified in the ordering code
- ⁵⁾ The range lower and upper adjusted pressure should be at least 50 %FS

Ordering example

measuring chain: RHU50 B05S D22
 Measuring system with sensor Type RHU50, 500 bar abs., standard comp. temperature range, with amplifier Type 4620A2 (standard setting) and cable Type 4790A2

Ordering example

spare sensor: RHU50 B05S D
 Sensor Type RHU50, 500 bar abs., standard compensation, standard temperature range, no amplifier and no cable but including polynomial coefficients on disc for amplifier Type 4620

RHU50 B05S A
 Sensor Type RHU50, 500 bar abs., standard compensation, standard temperature range, no amplifier and no cable but including calibration plug Type 4958A0 for amplifier Type 4618A0 (Amplifier Type 4618A2 and Type 4618A4 must be calibrated in the factory)

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