

PIEZORESISTIVE TRANSMITTERS

INDUSTRIAL APPLICATIONS / ABSOLUTE AND GAUGE REFERENCES

This new range of KELLER OEM pressure transmitters offers the user the high accuracy and stability of the KELLER piezoresistive pressure capsule in a low cost OEM package.

Applications include refrigeration, hydraulic controls, air compressors, ink jet printers, vacuum pumps etc.

The Series 21 R is offered with soldered brass transducers (Series 21 MR), soldered steel transducers (Series 21 SR) or fully welded (Series 21 R), all providing a highly stable measuring cell with negligible hysteresis, unrivalled linearity, high output and a life of millions of pressure cycles.

The transmitters are supplied with 2 metres of screened cable, or a square connector and mating plug, type mPm-193.

Accuracy is achieved by very large scale predictable production quantities of the pressure capsule (over 2 million produced today).

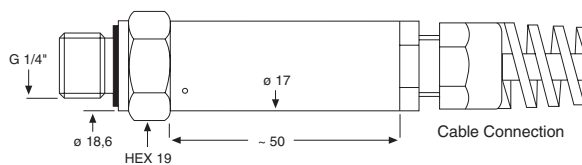
Reliability is assured by the inherent properties of the perfectly elastic silicon chip, and ensuring that neither the pressure media nor the reference media (in the gauge version) come into contact with any sensitive parts.

Temperature Compensation: Each unit is fully tested and compensated. Span errors are reduced by selecting the semiconductor doping levels so that the gauge factor of the strain gauges (ΔR) is constant with temperature. Thermal zero compensation is achieved by an automatic test procedure which fits a single resistor across one arm of the bridge.

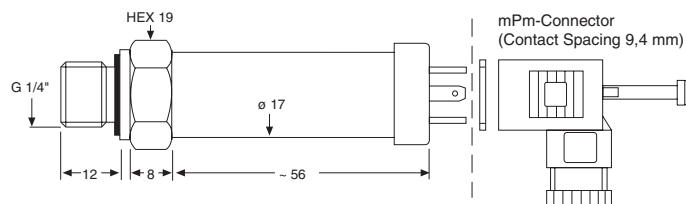
Shock and vibration performance is excellent due to the silicon chip being suspended in the oil-filled capsule. It is isolated mechanically from the body. Similarly, the effects of mounting torque are eliminated.



Series 21 R / 21 SR / 21 MR: with cable



Series 21 R / 21 SR / 21 MR: with plug



Electrical Connections

	2-Wire	3-Wire	4-Wire
Green		GND	GND (white)
White	OUT/GND	+OUT	+OUT (red)
Brown	+Vcc	+Vcc	+Vcc (black)
			-OUT (blue)

	2-Wire	3-Wire	4-Wire
1	OUT/GND	GND	GND
2		+OUT	+OUT
3	+Vcc	+Vcc	+Vcc
4			-OUT

Subject to alterations

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KELLER AG für Druckmesstechnik
KELLER Ges. für Druckmesstechnik mbH

St. Gallerstrasse 119
Schwarzwaldstrasse 17

CH-8404 Winterthur
D-79798 Jestetten

Tel. +41 (0)52 - 235 25 25
Tel. +49 (0)7745 - 9214 - 0

Fax +41 (0)52 - 235 25 00
Fax +49 (0)7745 - 9214 - 60



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SPECIFICATIONS

Series 21 R / 21 SR / 21 MR

PR 21 R/SR/MR ¹⁾	0,5	1	2	5	10	16								bar	vented gauge
PAA 21 R/SR/MR		1	2	5	10	16								bar	absolute
PA 21 R/SR/MR ²⁾		1	2	5	10	16	30	50	100	160	200	400	600	bar	sealed gauge
Over Range	2	3	4	10	20	25	50	75	150	250	300	500	700	bar	

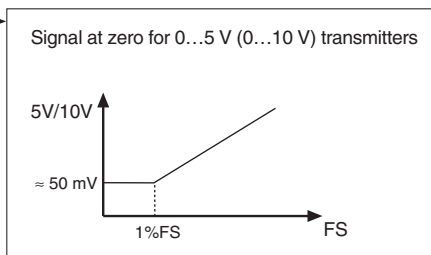
¹⁾ mPm connector only, not cable

²⁾ Zero at 1000 mbar abs.

Signal Output	4...20 mA	0...5 Vdc	1...6 Vdc	0...10 Vdc	0...100 mV	
Supply Voltage	8...28 Vdc	9...28 Vdc		13...28 Vdc	8...28 Vdc	10 Vdc
Current required	max. 25 mA	4 mA max.				2 mA max.
Zero/Span Tolerance	0,5 %FS	0,5 %FS ⁴⁾	0,5 %FS	0,5 %FS ⁴⁾	± 0,1 %FS	
Configuration	2-Wire	3-Wire			4-Wire	
Electrical Connection: mPm 193 or cable 2 m, 4 core	OUT/GND:	GND: Pin 1 / Green			GND: Pin 1 / White	
	Pin 1 / White	+OUT: Pin 2 / White			+OUT: Pin 2 / Red	
	+Vcc: Pin 3/Brown	+Vcc: Pin 3 / Brown			+Vcc: Pin 3 / Black	
					-OUT: Blue	
Linearity	± 0,2 % typ. / ± 0,5 % max.					
Total Error Band ³⁾ +18...+22 °C	± 0,5 % typ. / ± 1 % max.					
Total Error Band ³⁾ 0...+50 °C	± 1 % typ. / ± 2 % max.					
Total Error Band ³⁾ -20...+80 °C	± 2,5 % typ. / ± 4 % max.					

³⁾ Total error band includes linearity, hysteresis, repeatability, zero/span offsets and temperature effects.

⁴⁾ Signal at zero ≈ 50 mV



Operating Temperature	-20...+80 °C (on demand -40...100 °C)
Pressure Port	G 1/4" male
Pressure Media	Compatible with 316L stainless steel
Weight	≈ 75 g
Electromagnetic Compatibility	CE marked: Fully tested to EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
Enclosure Protection	IP 65
Insulation	> 100 MΩ / 500 Vdc
Vibration	20 g (5...2000 Hz, max. amplitude ± 3 mm), according to IEC 68-2-6
Shock	20 g (11 ms)

User Notes: Basic 100 mV transmitters are calibrated at 10 Vdc to produce 0...100 mV signal (nominal), and require a stable voltage supply. They can be operated at 5 Vdc to give 0...50 mV signal or 20 Vdc to give 0...200 mV signal. The circuit is a compensated resistance bridge and is completely passive with no diodes or reactive components. Bridge resistance is 3,5 kΩ nominal.

The 6...28 V supply transmitter is fitted with an internal regulator. The mPm connector has a PG7 cable gland entry suitable for cables between 4 and 6 mm diameter. Screw terminals and solder lugs are provided. The G 1/4 pressure connection has an integral Viton® seal at the shoulder. Alternatively it may be sealed using a face seal on the flat nose of the pressure port.