



Pressure Calibrators

Pressure Pumps & References



Manual Pressure Pumps

Mobile and simple

Pressure is one of the most commonly measured quantities in engineering, which is why exact and reliable pressure measurement is especially important.

However, the characteristics of the even best sensor or transducer can be altered by a wide variety of factors. This drift cannot be prevented, and it leads to incorrect readings.

Calibration allows these deviations to be measured and documented in a certificate. All pressure measuring devices that significantly affect processes or activities should be calibrated before being used.

Good reasons for proper and reliable calibration:

- Maintaining consistently high product quality
- Fulfilling industrial requirements
- Fulfilling quality assurance requirements
- Process optimisation
- Increasing productivity
- Avoiding unexpected production downtimes
- Employee and customer safety
- Environmental requirements/ecological aspects
- Profit optimisation/economic aspects

SIKA's mobile test and calibration devices are effective aids for performing the necessary test and calibration tasks quickly.



Requirements for pressure sources

The essential requirements for manual pressure generation are:

- Easy connection to test samples
- Simple and easy pressure generation
- Maintenance free operation

These aspects have been taken into account and implemented in the design of our test pumps and pressure generators.



Test pumps or pressure generators

SIKA portable pressure generators are the first choice for stationary use. Unlike complicated and sensitive plate scales, there is no need to take gravity into account or perform complicated alignment, since measurements are based on direct comparison. Another advantage of pressure generators is one-hand operation, which makes repetitive test runs more ergonomic.

A single pump for a variety of requirements

Hydraulic or pneumatic

Air, water and oil are used as pressure media. Especially in application areas in which wetting of the test sample is not allowed or the use of aggressive or ionising substances must be avoided, air is the ideal test medium.

SIKA's pneumatic test pump fulfils requirements that in many cases can only be covered by several pumps from other suppliers.

- ① Manual pressure generation in the medium pressure range up to 60 bar using a handle is unique – no other pump can do this.
- ② Integrated negative pressure capability enables operating with vacuum down to -950 mbar. A changeover valve enables switching from positive pressure to negative pressure with no need for special tools.
- ③ A large-volume pressure regulator with ultrafine thread pitch is used for precise pressure adjustment in the low mbar range, enabling accurate settings in the low pressure region.

The easily operated hydraulic test pumps and pressure generators are specifically designed for the medium to high pressure range.

They have a built-in reservoir for the hydraulic fluid. Pressures up to 350 bar, 700 bar or 1000 bar can be generated, depending on the model.



OEM version and full version

A matching pressure hose is part of the basic configuration of the OEM version of each test pump. The hydraulic hoses are fitted with a self-sealing quick coupling. Inch, conical or metric adapters for all commonly used connection threads are available in the full version. A matching seal kit is also included with the pump. All of the equipment is held in a carrying case with a foam-rubber insert.

Adapter kits

Standard adapter kit										
G 1/8	G 1/4	G 3/8	G 1/2	1/8 NPT	1/4 NPT	1/2 NPT	M12 x 1.5	M20 x 1.5	G 1/8 A	G 1/4 A

Pneumatic Pressure Pumps

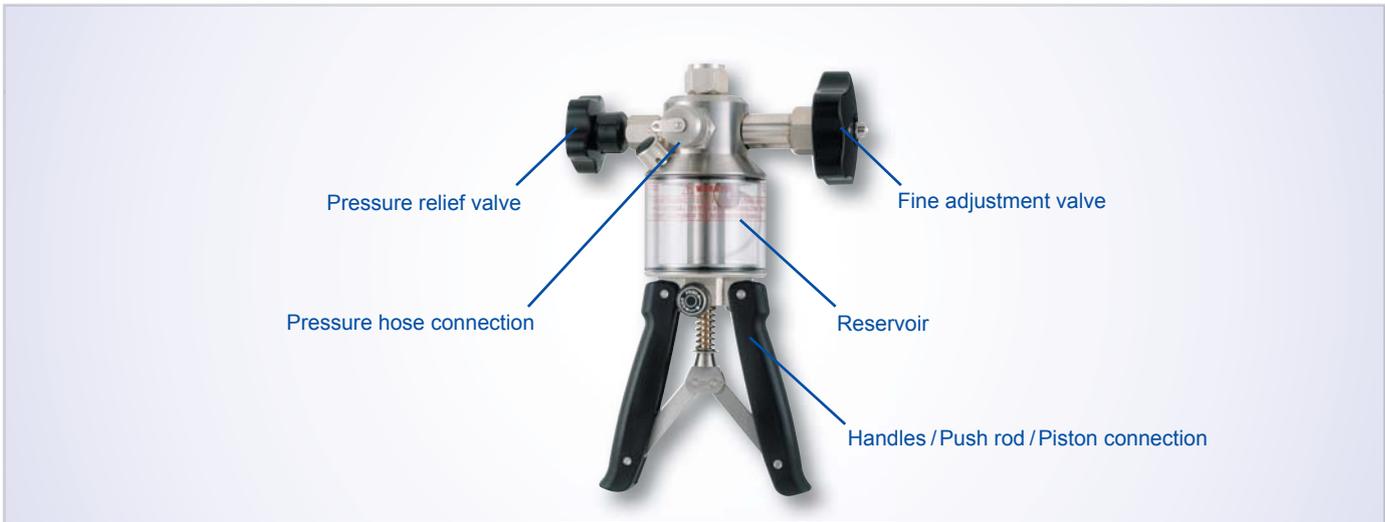
Types P 40.2 and P 60



Type	P 40.2	P 60
OEM version		
Pressure medium	Air	
Dimensions	approx. 240 x 170 x 50 mm	
Weight	approx. 1.1 kg	
Pressure ranges		
Negative pressure	-0.95 bar	-0.95 bar
Positive pressure	40 bar	60 bar
Connections		
Reference	G ¼	
Test sample	G ¼ with quick coupling and pressure hose (1 m)	
Full version		
Adapter kit	Chrome-plated brass	
Gasket kit	Teflon® Seals and O-rings	
Dimensions	approx. 450 x 370 x 110 mm	
Weight	approx. 4.2 kg	

Hydraulic Pressure Pumps

Types P 350.1, P 700.1L and P 1000.1



Type	P 350.1	P 700.1L	P 1000.1	P 700.G
OEM version				
Pressure medium	Distilled water or hydraulic fluid			Hydraulic fluid
Dimensions	approx. 240 x 170 x 50 mm	approx. 236 x 159 x 70 mm		approx. 230 x 180 x 40 mm
Weight	approx. 1.1 kg	1.8 kg	1.8 kg	approx. 6.6 kg
Pressure ranges				
Negative pressure	0...350 bar	0...400 bar	0...400 bar	×
Positive pressure	0...350 bar	0...700 bar	0...1000 bar	0...700 bar
Connections				
Reference	G ½	G ¾	G ¾	G ½
Test sample	G ¼ with quick coupling and pressure hose (1 m)			G ½
Full version				
				
Adapter kit	Chrome-plated brass	Stainless steel		
Gasket kit	Teflon® Seals and O-rings			
Dimensions	approx. 450 x 370 x 110 mm			
Weight	approx. 3.5 kg	approx. 3.5 kg	approx. 3.5 kg	approx. 9.3 kg

Practical and independent

Practical

The test pumps and pressure generators are designed to enable the direct connection of all pressure systems to be tested using adapters. The test sample is easily connected using the rugged industrial hose with integrated quick coupling and supplied adapters. The reference is fitted directly at the top of the pump using a positioning adapter.



The required test pressure is initially generated using the handles and then adjusted precisely with the fine adjustment valve. As a result, the pressure on both instruments is the same.

The pressure relief valve allows continuous pressure reduction and ensures accurate and easy testing, even with decreasing pressure.

In the simplest case, the pressure is indicated by an analogue pressure gauge. An easy to read digital pressure gauge or hand-held instrument can also be used. The accuracy or adjustment of the pressure measuring device being tested can be checked by comparing the indicated reference value with the measured value for the device under test.

Mobile and independent

SIKA test pumps and pressure generators are ideal for mobile use. Their low weight and compact design make them easy to transport directly to the measurement site. The instruments can be used immediately and do not require an additional power supply. There is no need to take along nitrogen bottles or connect the equipment to a compressed air network. Wear-free manual pressure generation is simple and easy, regardless of ambient temperature and orientation.



Possible areas of application

SIKA test pumps and pressure generators can be used everywhere, including on site in workshops, test and measurement rooms as well as laboratories. They cover a broad spectrum of industries with diverse applications.

- Assembly and commissioning
- Manufacturing and production
- Maintenance and service
- Quality assurance and test equipment monitoring
- Repair

SIKA test pumps and pressure generators are suitable for testing, adjusting and calibrating pressure sensors, pressure gauges, pressure switches, safety valves and all types of pressure devices. They are optimised in their function and use and assist in the performance of specific tests and inspections.

Digital Pressure Gauges

Exact and reliable

Digital pressure gauges are particularly suitable for both stationary and mobile measurement and display of pressure. They can be used as reference pressure gauges to simplify the checking, adjustment and calibration of other pressure measurement devices directly on site.

High accuracy in signal acquisition is achieved by using high-performance measuring cells with electronic linearisation of the characteristic curve. Suitable instruments are available for a wide variety of measurement tasks.

Ease of use is assured by innovative design and advanced technology. All essential functions for everyday use can be selected conveniently at the press of a button. Excellent protection against dust and moisture is provided by a membrane keypad or rubber buttons.

Integrated supplementary functions make our digital pressure gauges true all-rounders.



Advantages at a glance

- Exact and reliable measurement
- High operational readiness
- Easy and clear readout
- Well suited to difficult on-site tasks
- Easy to assemble and use
- Supplementary functions for extra value

Negative / Positive and Differential pressure

Measuring ranges from -1 bar negative pressure to 2500 bar positive pressure with high overpressure protection are available. Very small differential pressures in the millibar range can also be measured. Differential pressure measuring cells or two independent measuring inputs are used for this purpose.

Resolution / Accuracy

It is often necessary to use several mechanical pressure gauges when measurements must be made over a wide pressure range with sufficient accuracy. Digital pressure gauges with high resolution and precision can handle this task with just one instrument.

An indicating accuracy of 0.5% to 0.01% covers the entire spectrum of requirements. This precision is often found only in sensitive laboratory instruments, whereas SIKA digital pressure gauges are designed for use in harsh industrial environments.

Tara / Zero

User-defined zero point setting at the push of a button makes offset adjustment easy and eliminates the need for tedious mechanical adjustment. Single-point adjustment allows the linear characteristic curve to be shifted in positive or negative direction over the entire measuring range.

Linearisation

Multi-point adjustment can be performed if it is necessary to adjust the indicated values at different test points. Two-point adjustment is available for setting the zero point and slope of the measuring cell curve. Some digital pressure gauges allow up to six offset values to be programmed in order to shift the characteristic curve to meet the most stringent customer expectations.

Battery operation / Auto-Off

Power is supplied by long-life batteries (ordinary or rechargeable). An external AC adapter can also be used. To increase battery operating time, a programmable Auto-Off function switches off the power to the instrument after prolonged inactivity. The electronics are designed for extremely low power consumption, which enables a battery life of significantly more than 1000 hours.

Digital pressure gauge selection table

Direct-mounting display instruments

	BASIC		SOLID		PREMIUM
	 E2	 D2	 R	 P	 L
Performance	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Accuracy (FS)	0.5 %	0.1 %	0.1 %	0.5 % 0.1 % 0.05 %	0.05 % 0.025 % 0.01 %
Pressure range					
			-1...1 bar	-1...1 bar	
	-1...3 bar		-1...2.5 bar -1...5 bar	-1...2.5 bar -1...5 bar	-1...2 bar
	-1...40 bar -1...60 bar		-1...10 bar -1...20 bar 0...50 bar	-1...10 bar -1...20 bar 0...50 bar	-1...20 bar
	0...400 bar 0...700 bar 0...1000 bar		0...100 bar 0...250 bar 0...350 bar 0...500 bar 0...700 bar 0...1000 bar 0...1500 bar 0...2000 bar	0...100 bar 0...250 bar 0...350 bar 0...500 bar 0...700 bar 0...1000 bar 0...1500 bar 0...2000 bar 0...2500 bar	0...200 bar 0...400 bar 0...1000 bar
Function	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Multi-point adjustment			✓	✓	
Interchangeable measuring cell					
PC connection			○	○	✓
Data memory			✓		
Analogue output				○	
Second measuring input					
Relais output				○	
Built-in version				○	

Hand-held instruments

BASIC	SOLID	BASIC	SOLID	PREMIUM
				
MH3161	MH3181	MH3111	MH3151	MH3156
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
0.2 %	0.2 %	0.2 %	0.2 %	0.2 %
-1...25 mbar			-2...2.5 mbar -20...25 mbar 0...100 mbar 0...250 mbar -200...350 mbar 0...400 mbar	
-10...350 mbar			0...1 bar 0...1.3 bar -1...1.5 bar -1...2 bar 0...2.5 bar -1...3 bar 0...4 bar	
0...1.3 bar			0...6 bar	
-100...2000 mbar			0...7 bar -1...10 bar 0...16 bar	
			0...25 bar 0...40 bar	
			0...60 bar	
			0...100 bar 0...160 bar	
			0...250 bar	
			0...400 bar	
			0...600 bar	
			0...1000 bar	
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
✓	✓	✓	✓	✓
		✓	✓	✓
✓	✓	✓	✓	✓
	✓		✓	✓
	✓		✓	✓
				✓

Easy on-site use

Display

The large illuminated digital local display shows the measured pressure and indicates the current status of the digital pressure gauge, even under poor lighting conditions. This eliminates the difficult task of reading a dial gauge and avoiding parallax errors. Needle jitter due to vibration or pressure fluctuations is eliminated. Display damping or averaging can be configured directly using display filters. This ensures easy, tireless readout.

Selectable pressure units

Another feature is the large selection of pressure units. Up to 13 different units are possible – far more than any complicated dual-scale or multi-scale gauge can offer.

The required display unit is selected directly on the digital pressure gauge and is clearly indicated on the display. No conversion necessary; the desired value can be read directly.



Area of application

The right measuring system is available for every measuring task. For simple applications with air or non-corrosive and non-ionising substances, low-cost unenclosed pressure sensors are used. In difficult applications with water or other aggressive media, high-quality stainless steel versions are used.

Once the intended use has been determined and the pressure range has been specified, a digital pressure gauge with an internal measuring cell is preferably used. For frequently changing application conditions, plug-in pressure sensors for various pressure ranges and applications can be fitted using adapters. Automatic sensor recognition using standard DIN connectors offers a simple Plug-&-Play solution.

Electronics / Pressure measuring cell

The measuring cells and electronics used in the gauges are temperature compensated, so that the effect of temperature on the readings is negligible. Liquid entry into the measuring system is not necessary, which eliminates the risk of damage from media residues. Another unbeatable feature of the electronic measuring cells is their immunity to pressure surges.

Min / Max displays and Peak function

Experience shows that excess pressure and pressure peaks significantly higher than normal operating pressure occur at some measuring points. Min/max displays and fast peak value measurement cycles in digital pressure gauges assist in system analysis and allow peak values to be determined. This allows incorrect readings and violations of range limits to be detected and helps avoid damage to pressure systems. Preventive service is often less expensive than repairing or replacing defective instruments.

Protection class

High IP protection classes are available to minimise dust and water sensitivity. Rugged, impact-resistant digital pressure gauges are fitted with rubber caps for protection during transport and field use.



Direct mounting, built-in version and hand-held instrument

The compact, handy design proves its worth in everyday use. It puts an end to large-diameter gauges with sizes up to 250 mm, as is common with precision pressure gauges. The small size simplifies direct mounting. If necessary, built-in versions are available for switchgear cabinet or control panel mounting. Hand-held digital pressure gauges are especially suitable for applications where short-term pressure measurements are desired instead of continuous measurement.

Supplementary functions

PC connection and software

Many digital pressure gauges have a serial interface port to allow measurement values and stored data to be transferred directly to a PC and documented. An inexpensive measurement data acquisition system can easily be assembled with suitable software and an interface converter. Processes can be readily monitored and analysed using the recorded and visualised measurements and all data can be exported using standard programs such as Microsoft Excel. Remote control is also possible. Various software packages with extensive recording and display functions, logger and alarm evaluation as well as for calibration are available.



Data memory

The logger function for local data storage can be used to record pressure curves automatically and perform leak tests. The integrated data memory in digital pressure gauges allows a variety of data sets to be recorded directly. The time interval between samples is programmable and the maximum recording interval is configurable. The stored values can be displayed on a PC. Data import at the press of a button is also possible. In this case the data is shown directly on the display. In this process the values are automatically annotated with the date and time of day using an integrated real-time clock.

Analogue output

An electrical output signal enables remote display on a control console or in a control room as well as the connection of external recorders and indicating instruments.

Relay output / Alarm signalling

Digital pressure gauges allow limit contacts to be closed even at low pressures. There is no need for high actuation forces for magnetic spring or inductive contacts, which makes it easier to signal critical equipment conditions and perform supplementary control tasks. A built-in buzzer generates an alarm when the pressure exceeds the range of the programmed minimum and maximum pressure levels.

Temperature display

Temperature measurement is often required in addition to pressure measurement. For this purpose, a temperature sensor is integrated in the measuring cell to detect the temperature of the medium. The process temperature can be displayed at the press of a button. This allows two quantities to be measured at a single measuring point, which saves costs.

Explosion protection

Explosion-proof versions are also available for use in potentially explosive locations, e.g. oil refineries, chemical plants and drilling platforms.

Example applications

- Continuous or temporary checking of a wide variety of system pressures
- Air density measurement in building shells for the detection and elimination of problem areas and avoiding structural damage
- Monitoring the degree of soiling of filter units in ventilation or air conditioning systems
- Recording pressure drops for the determination of leakage rates in leak tests
- Measurement of barometric air pressure for the determination of weather conditions
- Reference pressure gauge for calibration tasks

Types E2, D2 and R



type E2 / D2



type R

Technical data

Accuracy (FS)	E2 0.5 %	D2 0.1 %
Pressure ranges	Resolution	
-1...3 bar	1 mbar	
-1...40 bar	10 mbar	
-1...60 bar	10 mbar	
0...400 bar	100 mbar	
0...700 bar	100 mbar	
0...1000 bar	100 mbar	

Technical data

Accuracy (FS)	0.1 %
Pressure ranges	Resolution
-1...1 bar	1 mbar
-1...2.5 bar	1 mbar
-1...5 bar	1 mbar
-1...10 bar	10 mbar
-1...20 bar	10 mbar
0...50 bar	10 mbar
0...100 bar	100 mbar
0...250 bar	100 mbar
0...350 bar	100 mbar
0...500 bar	100 mbar
0...700 bar	100 mbar
0...1000 bar	1 bar
0...1500 bar	1 bar
0...2000 bar	1 bar

Functions		
Type	E2 / D2	R
Adjustment options		
Linearisation	-	6 points
Tare/Zero	✓	✓
Selectable units		
Pressure	bar, mbar, kPa, MPa, PSI	bar
Temperature	-	°C
Features		
Measuring inputs	1 x direct	1 x direct
PC connection		RS232 (optional)
Analogue output		
Relay output		
Alarm buzzer		
Built-in version		
Explosion protection		
Data memory		
Number of memories		60.000 values (auto)
Recording interval		1 sec...10 h
Recording duration		1 min...1000 h
Real-time clock/date		
Store function		
Data sets		Pressure / Temperature
Display / Representation		
Multi-functional LCD	4 ½ digit	4 digit
Bar graph	✓	
Illumination	✓	
Display filter	✓	✓
Min/max value	✓	✓
Average		
Differential pressure		
Measuring rate		
Standard	10 ms	100 ms
Peak / Fast	10 ms	8 ms
Process connection		
Connection options	G ¼	G ½
Material	1.4404	1.4542
Medium temperature	-20...80 °C	-10...70 °C
for aggressive media	✓	✓
Housing		
Protection class	IP67 (front) / IP67	IP65 (front) / IP40
Dimension	Ø 80 mm T=30 mm H=100 mm	Ø 85 mm T=30 mm H=30 mm
Material	Zinc casting	Aluminium
Operating temperature	0...50 °C	-10...70 °C
Weight	540 g	450 g
Power		
Auto-off function	✓	✓
Battery type	2x 1.5 V AAA	2x 1.5 V AAA
Ext. power		
Battery operation	1500 h	8000 h

Typ P und L



type P

type P built-in version



type L

Technical data			
Accuracy (FS)	0.5 %	0.1 %	0.05 %
Pressure ranges	Resolution		
-1...1 bar	1 mbar	1 mbar	0.1 mbar
-1...2.5 bar	1 mbar	1 mbar	0.5 mbar
-1...5 bar	1 mbar	1 mbar	0.5 mbar
-1...10 bar	10 mbar	10 mbar	1 mbar
-1...20 bar	10 mbar	10 mbar	2 mbar
0...50 bar	10 mbar	10 mbar	5 mbar
0...100 bar	100 mbar	100 mbar	10 mbar
0...250 bar	100 mbar	100 mbar	20 mbar
0...350 bar	100 mbar	100 mbar	50 mbar
0...500 bar	100 mbar	100 mbar	50 mbar
0...700 bar	100 mbar	100 mbar	50 mbar
0...1000 bar	1 bar	1 bar	100 mbar
0...1500 bar	1 bar	1 bar	200 mbar
0...2000 bar	1 bar	1 bar	500 mbar
0...2500 bar	1 bar	1 bar	

Technical data			
Accuracy (FS)	0.05 %	0.025 %	0.01 %
Pressure ranges	Resolution		
-1...2 bar	1 mbar		
-1...20 bar	1 mbar		
0...200 bar	10 mbar		
0...400 bar	50 mbar		
0...1000 bar	100 mbar		

Functions		
Type	P	L
Adjustment options		
Linearisation Tare/Zero	6 points ✓	✓
Selectable units		
Pressure Temperature	bar, mbar, kPa, MPa, PSI -	bar, mbar, hPa, kPa, MPa, PSI, mmHg, inHg, cmH ₂ O, mH ₂ O, inH ₂ O, ftH ₂ O, Kp/cm ²
Features		
Measuring inputs PC connection Analogue output Relay output Alarm buzzer Built-in version Explosion protection	1 x direct RS232 (optional) 0(4)...20mA / 0...10 V (optional) 2 x 24 VDC/1A (optional) ✓	1 x direct RS485 Ex II 2G Ex ia II C T6
Data memory		
Number of memories Recording interval Recording duration Real-time clock/date Store function Data sets		
Display / Representation		
Multi-functional LCD Bar graph Illumination Display filter Min/max value Average Differential pressure	4 digit (0.5 % / 0.1 %), 5 digit (0.05 %) ✓ ✓ ✓	5 digit ✓
Measuring rate		
Standard Peak / Fast	100 ms	500 ms
Process connection		
Connection options Material Medium temperature for aggressive media	G ½ 1.4542 0...50 °C ✓	G ¼ 1.4435 0...50 °C ✓
Housing		
Protection class Dimension Material Operating temperature Weight	IP65 (front) / IP40 80 x 80 mm T=50 mm H=130 mm Aluminium 0...50 °C 900 g	IP65 (front) / IP54 Ø 80 mm T=40 mm H=120 mm ABS plastic 0...50 °C 210 g
Power		
Auto-off function Battery type Ext. power Battery operation	✓ 2x 1.5 V AAA 24 VDC 8000 h	✓ 1x 3 VCR 2000 h

Type MH 3161 and MH 3181



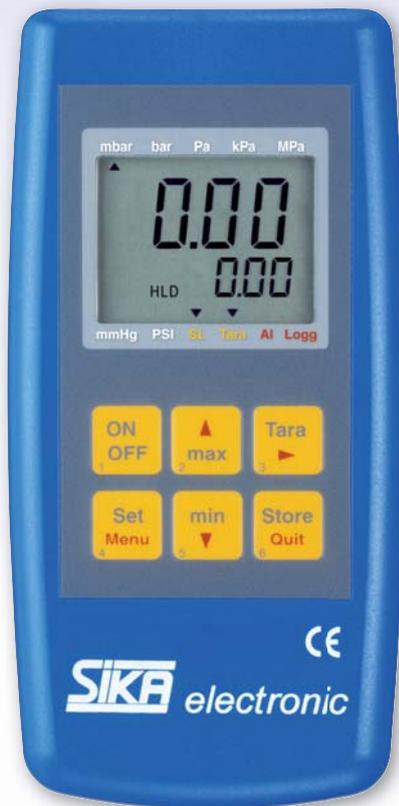
type MH 3161 / MH 3181

Technical data

Accuracy (FS)	0.2 %
Pressure ranges	Resolution
-1...25 mbar	0.01 mbar
-10...350 mbar	0.1 mbar
0...1,3 bar (abs.)	1 mbar
-100...2000 mbar	1 mbar

Functions		
Type	MH 3161	MH 3181
Adjustment options		
Linearisation Tare/Zero	2 points ✓	
Selectable units		
Pressure Temperature	bar, mbar, kPa, MPa, Pa, PSI, mmHg, mH2O -	
Features		
Measuring inputs PC connection Analogue output Relay output Alarm buzzer Built-in version Explosion protection	2 x direct TTL (USB optional) Ex II 2G Ex ib II C T4	2 x direct TTL (USB optional) 0...1 V ✓ Ex II 2G Ex ib II C T4
Data memory		
Number of memories Recording interval Recording duration Real-time clock/date Store function Data sets		10.000 values (auto) 1...3600 sec. ✓ 99 Werte (manuell) Pressure / min / max
Display / Representation		
Multi-functional LCD Bar graph Illumination Display filter Min/max value Average Differential pressure	4½ digit ✓ ✓	4½ digit ✓ ✓ ✓ ✓
Measuring rate		
Standard Peak/Fast	250 ms	250 ms 1 ms
Process connection		
Connection options Material Medium temperature for aggressive media	Metal connection plugs Ø 6 mm 2.0380 Nickel-plated -10...50 °C	
Housing		
Protection class Dimension Material Operating temperature Weight	IP65 (front) / IP40 140 x 70 x 30 mm ABS plastic 0...50 °C 200 g	
Power		
Auto-off function Battery type Ext. power Battery operation	✓ 1x 9 V Block 12 VDC 350 h	

Type MH 3111, MH 3151 and MH 3156 with external pressure sensor



type MH 3111 / MH 3151 / MH 3156



See page 20 for pressure ranges of external pressure sensors.

Functions			
Type	MH 3111	MH 3151	MH 3156
Adjustment options			
Linearisation Tare / Zero	2 points ✓		
Selectable units			
Pressure Temperature	bar, mbar, kPa, MPa, Pa, PSI, mmHg, mH2O -		
Features			
Measuring inputs PC connection Analogue output Relay output Alarm buzzer Built-in version Explosion protection	1 x interchangeable TTL (USB optional) Ex II 2G Ex ib II C T4	1 x interchangeable TTL (USB optional) 0...1 V ✓ Ex II 2G Ex ib II C T4	2 x interchangeable TTL (USB optional) 0...1 V ✓ Ex II 2G Ex ib II C T4
Data memory			
Number of memories Recording interval Recording duration Real-time clock/date Store function Data sets		10.000 values (auto) 1...3600 sec. ✓ 99 values (manual) Pressure / min / max	4000 values (auto) 1...3600 sec. ✓ 99 values (manual) Pressure 1&2/Min 1&2/Max 1&2
Display / Representation			
Multi-functional LCD Bar graph Illumination Display filter Min/max value Average Differential pressure	4½ digit ✓ optional	4½ digit ✓ ✓ ✓ optional	4½ digit ✓ ✓ ✓ optional
Measuring rate			
Standard Peak / Fast	250 ms	250 ms 1 ms	250 ms 1 ms
Process connection (depending on chosen external pressure sensors)			
Connection options Material Medium temperature for aggressive media	Metal connection plugs Ø 6 Nylon 0...50 °C	G ½ 1.4542 0...70 °C ✓	
Housing			
Protection class Dimension Material Operating temperature Weight	IP65 (front) / IP40 140 x 70 x 30 mm ABS plastic 0...50 °C 200 g		
Power			
Auto-off function Battery type Ext. power Battery operation	✓ 1x 9 V Block 12 VDC 350 h		

External Pressure Sensors

Nylon- and stainless steel type



Nylon version

Piezoresistive pressure sensor for air and non-corrosive/non-ionising gases and liquids

Two nylon nipples for 6 x 1 mm pressure tubing

Electronics	Integrated amplifier and sensor data memory
Electrical connection	PVC cable (1 m) with miniature DIN connector
Housing	Impact-resistant ABS plastic Water penetration rating IP65
Dimensions	70 x 30 x 15 mm (H x W x D)
Weight	approx. 75 g

Stainless steel version

Piezoresistive pressure sensor with separate connecting cable, for aggressive media as well as water, gases and liquids

Stainless steel connection G ½ male thread

Electronics	Integrated amplifier and sensor data memory
Electrical connection	PVC cable (1 m) with miniature DIN connector (optional)
Housing	Stainless steel Water penetration rating IP65
Dimensions	approx. 30 x 90 mm (D x L)
Weight	approx. 220 g

Nylon and stainless steel options

- Higher sensor accuracy (from 350 mbar)
- Ex II 2G Ex ib IIC T4

Type (Nylon)		
	Accuracy (FS)	0.2 %
	Pressure ranges	Resolution
MSD 2,5 MR	-2...2.5 mbar (rel.)	0.001 mbar
MSD 25 MR	-20...25 mbar (rel.)	0.01 mbar
MSD 350 MR	-200...350 mbar (rel.)	0.1 mbar
MSD 1,3 BA	0...1.3 bar (abs.)	1 mbar
MSD 2 BA	0...2 bar (abs.)	1 mbar
MSD 2 BR	-1...2 bar (rel.)	1 mbar
MSD 7 BA	0...7 bar (abs.)	10 mbar
MSD 10 BR	-1...10 bar (rel.)	10 mbar
Type (stainless steel)		
MSD 100 MRE	0...100 mbar (rel.)	0.1 mbar
MSD 250 MRE	0...250 mbar (rel.)	0.1 mbar
MSD 400 MRE	0...400 mbar (rel.)	0.1 mbar
MSD 1 BAE	0...1 bar (abs.)	1 mbar
MSD 1 BRE	0...1 bar (rel.)	1 mbar
MSD -1/1,5 BRE	-1...1.5 bar (rel.)	1 mbar
MSD -1/3 BRE	-1...3 bar (rel.)	1 mbar
MSD 2,5 BAE	0...2.5 bar (abs.)	1 mbar
MSD 2,5 BRE	0...2.5 bar (rel.)	1 mbar
MSD 4 BAE	0...4 bar (abs.)	1 mbar
MSD 4 BRE	0...4 bar (rel.)	1 mbar
MSD 6 BAE	0...6 bar (abs.)	1 mbar
MSD 6 BRE	0...6 bar (rel.)	1 mbar
MSD 10 BAE	0...10 bar (abs.)	10 mbar
MSD 10 BRE	0...10 bar (rel.)	10 mbar
MSD 16 BAE	0...16 bar (abs.)	10 mbar
MSD 25 BAE	0...25 bar (abs.)	10 mbar
MSD 25 BRE	0...25 bar (rel.)	10 mbar
MSD 40 BRE	0...40 bar (rel.)	10 mbar
MSD 60 BRE	0...60 bar (rel.)	10 mbar
MSD 100 BRE	0...100 bar (rel.)	100 mbar
MSD 160 BRE	0...160 bar (rel.)	100 mbar
MSD 250 BRE	0...250 bar (rel.)	100 mbar
MSD 400 BRE	0...400 bar (rel.)	100 mbar
MSD 600 BRE	0...600 bar (rel.)	100 mbar
MSD 1000 BRE	0...1000 bar (rel.)	1 bar

Pressure Calibrators

Comparison of digital and analogue pressure gauges

Pressure calibration is the comparison between the indicated values of a pressure measuring device with the indicated values of a pressure standard with a known accuracy.

In many cases, the device to be tested cannot be removed from the active process.

Calibration is performed on site to avoid lengthy downtimes. Portable SIKA pressure calibrators are especially suitable for this purpose.

In order to perform a specified functional test or accuracy check, the test sample is often connected to the calibration device with a pressure hose. Digital pressure gauges with sufficient precision can be used as compact reference instruments.

Manual test pumps or pressure generators are used for simple pressure generation.

SIKA offers a complete range of pressure calibrators for a wide variety of applications to allow specified test and calibration tasks to be performed.

Routine on-site calibrations can be performed very quickly and economically with the right combination of pressure generator and reference. This ensures that the indicated pressure values are correct and reliable and that all specified requirements are fulfilled.



Possible combinations

	 Reference A	 Reference E2	 Reference D2	 Reference R	 Reference P	 Reference L
 P 40.2	PM 40.2 A	PM 40.2 E2	PM 40.2 D2	PM 40.2 R	PM 40.2 P	PM 40.2 L
 P 60	PM 60 A	PM 60 E2	PM 60 D2	PM 60 R	PM 60 P	✗
 P 350.1	PM 350.1 A	PM 350.1 E2	PM 350.1 D2	PM 350.1 R	PM 350.1 P	PM 350.1 L
 P 700.1L	PM 700.1L A	PM 700.1L E2	PM 700.1L D2	PM 700.1L R	PM 700.1L P	PM 700.1L L
 P 1000.1	✗	PM 1000.1 E2	PM 1000.1 D2	PM 1000.1 R	PM 1000.1 P	PM 1000.1 L

All manual pressure pumps and references can be combined as indicated above for various measuring ranges, resolutions and accuracy classes.

Calibrator PC 700+



Technical data	
Accuracy (FS)	0.025 %
Pressure ranges (Resolution)	0...60 bar (5 mbar) 0...200 bar (20 mbar) 0...350 bar (30 mbar) 0...700 bar (70 mbar)
Function	
Adjustment options Tara / Zero	✓
Selectable units (Pressure)	bar, PSI, kPa, MPa, atm, at (kgf/cm ²), mmHg, mHg, inHg, cmH ₂ O, mH ₂ O, inH ₂ O, torr
Features Measuring inputs PC connection Explosion protection electronic measuring inputs	1 x direct RS232 EEx ia IIC T4 0...30 mA / 0...15 V
Data memory Store function	30 x 10 values (manual)
Display/representation Multi-functional LCD Illumination Display filter Min / max value	5 digit ✓ ✓ ✓
Measuring rate Standard	100 ms
Process connection Connection options Material Medium temperature for aggressive media	G ¼ 2.4602 -20...80 °C ✓
Housing Protection class Dimension, weight Material Operating temperature	IP65 (front) / IP40 350 x 160 x 180 mm, 8.1 kg Aluminium 0...50 °C
Power Auto-off function Battery type, battery operation Ext. power	✓ 1x 9 V Block, 35 h 12 VDC

Our Production and Sales Range



Flow Sensors without moving Parts



Turbine Flow Sensors



Flow Switches



Pressure Gauges and Pressure Sensors



Industrial Thermometers



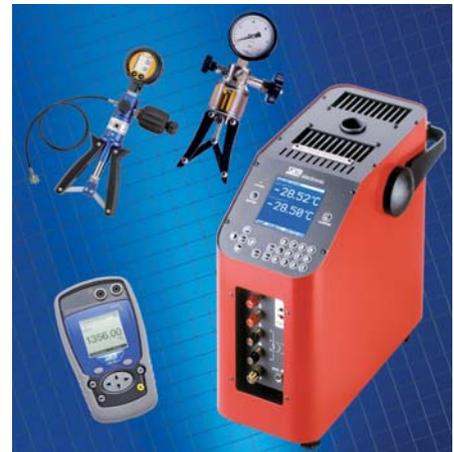
Electronic Digital Thermometers, Dial Thermometers



Measuring Instruments



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Subject to technical modification

