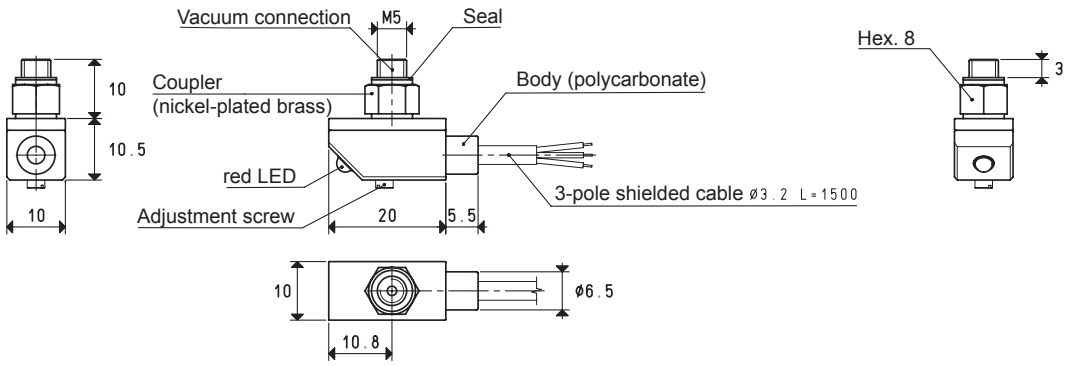
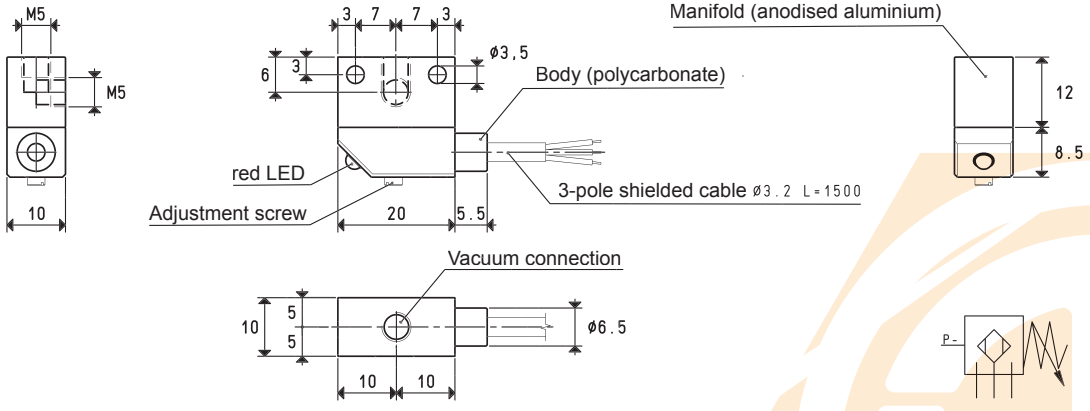
These small devices, if accurately calibrated and compensated for temperatures, are able to give very precise digital signals to the set maximum measuring value.
The commutation point, which is within the scale value, can be easily programmed by means of an adjustment screw located on the upper part of the device. A red LED near the screw indicates the digital output signal commutation status.
The pressure differential (hysteresis) between the set maximum value and the value of reset of the rest signal is 2% of the set value and cannot be adjusted.
They are composed of a polycarbonate enclosure, which includes the sensor and the electric circuit, and of a coupler or a small aluminium manifold with the vacuum connections.
Art. 12 05 10 can also be rotated freely to place the display in the desired position, without having to unscrew it from the vacuum connection. The vacuum connection can be carried out via male or female M5 connectors, while the electrical connection is made via a three-connector cable which they are equipped with. Mini digital vacuum switches are suited for controlling dry air and non-corrosive gasses and they are recommended in all those cases that require a signal when a certain vacuum level is reached, for safety, for starting a cycle, for checking the cup grip, etc.

Art. 12 05 10



Cable colour	Connection
brown	positive pole ⊕
black	output signal
blue	negative pole ⊖

Art. 12 05 11

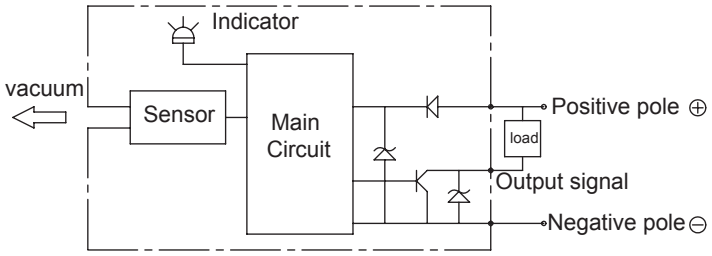


3D drawings available at **www.vuototecnica.net**

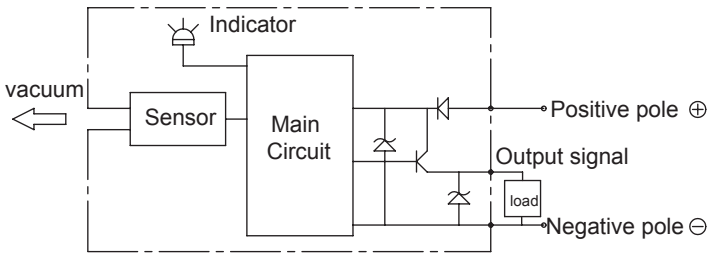
Conversion ratio: inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

INTERNAL ELECTRIC DIAGRAMS

• NPN on

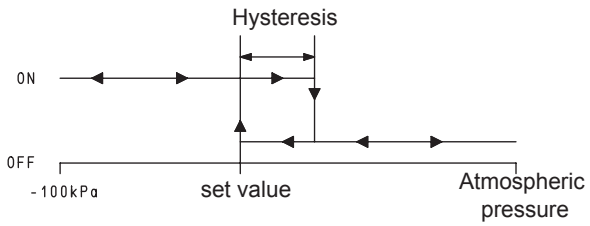


• PNP on



OUTPUT CONTACT DIAGRAM

The LED lights up at the preset pressure and turns off at the preset pressure minus the hysteresis



Electrical features and specifications	**Art. 12 05 10 P Art. 12 05 11 P**		**Art. 12 05 10 N Art. 12 05 11 N**
Adjustment range		da 0 a -100 kPa	
maximum overpressure		200 kPa	
Operating voltage		10.8 ÷ 30 VDC (Protection against polarity reversal)	
Electrical absorption		≤20 mA	
Commutation outputs	1 digital PNP, NO	80 mA maximum	1 digital NPN, NO
Reaction time		≤1 ms	
Commutation frequency		1000Hz	
Hysteresis		Not adjustable, 2% of the set maximum value	
Repeatability		±2% of the measuring range	
Commutation indicator		Red LED	
Insulation resistance		100 MΩ	
Proof voltage		500 VAC, 1 min	
Protection class		IP 40	
Working environment conditions			
Installation position		Any	
Controlable fluids		Dry air and non-corrosive gasses	
Operating temperature		-10 ÷ +60 °C	
Storage temperature		-20 ÷ +70 °C	
Emitted interference		In compliance with EN 55011, Group 1, Class B	
Interference immunity		In compliance with EN 61326 - 1	
Mechanical features and specifications			
Container material		Polycarbonate PC	
Connection material		Nickel-plated brass and aluminium	
Weight (without cable)		Approx. 5g	
Electrical connection		1.5 m long three-conductor cable	
Connection to fluid		M5 male or female thread	

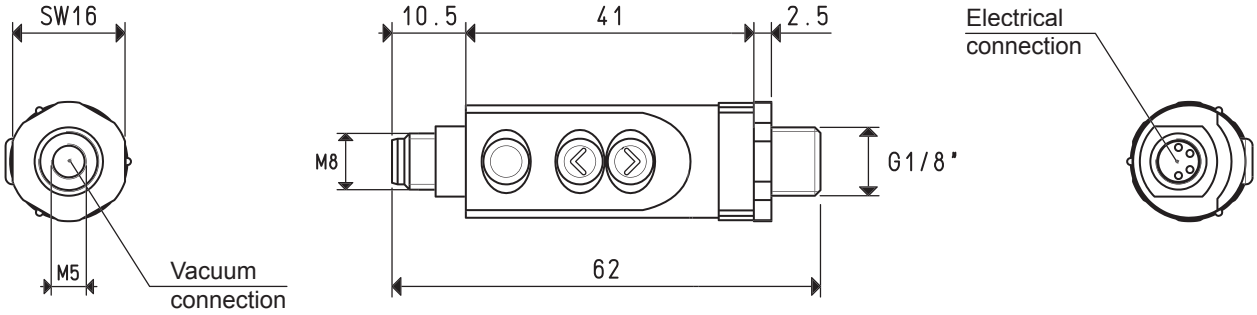
These compact and extremely light switches come enclosed in a sturdy ABS casing; these features allow their installation on the machine and close to the application. If accurately calibrated, these analog switches provide very precise measurements values. The adjustment range is from 0 to -1 bar (g) and can be interfaced with external logics via an analog output from 1 to 5 Volts and a digital PNP output, configurable via Teach-In.

The commutation point, as well as the hysterisis from 0 to 100% of the set value, can be easily programmed via push buttons located on the control panel; the two two-colour LEDs on the control panel signal the commutation status and the error code, if any.

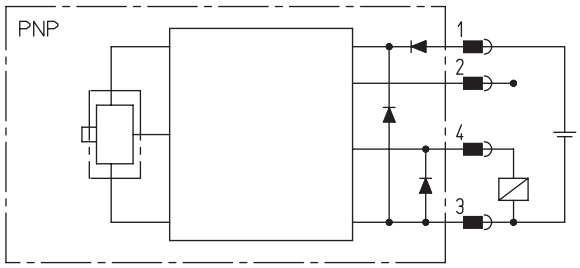
These devices can be rotated freely to place the display in the desired position, without having to unscrew them from the vacuum connection.

The vacuum connection is dual threaded: male G 1/8" or female M5. The electrical connection is an M8 4-pin threaded plug and upon request the connection cable is available in PUR, with an axial or radial connector.

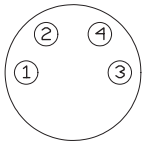
These vacuum switches are suited for measuring and controlling dry air and non-corrosive gasses. They are recommended in all those cases that require a measurement and commutation to be installed on safety or energy-saving devices, on systems for optimising the work cycle time and in circuit vacuum level adjustment circuits.



ELECTRIC DIAGRAM



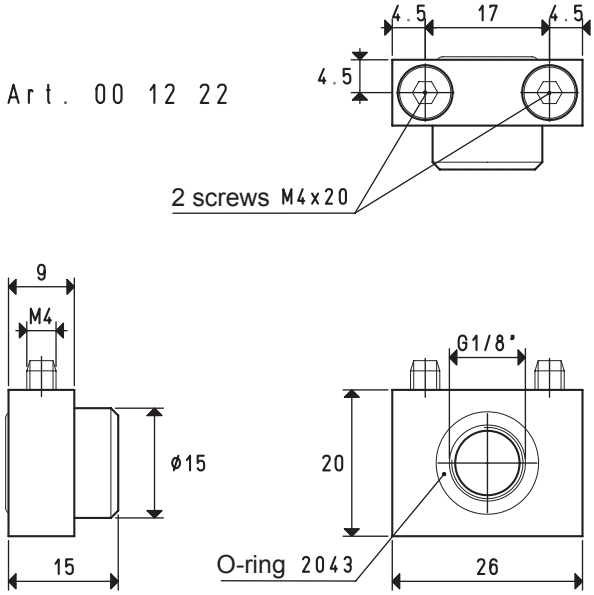
Connections
1 . V +
2 . analog output
3 . V -
4 . commutation output



Cable colour
Pin1 = brown
Pin2 = white
Pin3 = blue
Pin4 = black

WALL-FIXING KIT

Art. 00 12 22

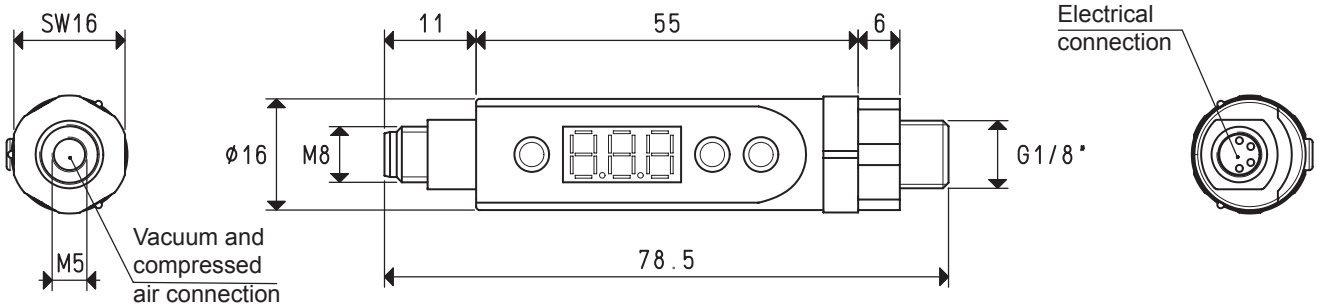


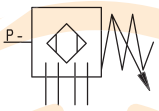
Electrical features and specifications	**Art. 12 07 10**
Adjustment range	from 0 to -1 bar (g)
maximum overpressure	5 bar (g)
Operating voltage	10.8 ÷ 30 VDC (Protection against polarity reversal)
Electrical absorption	≤30 mA
Commutation output	1 digital PNP, NO or NC, max. commutation power 125 mA
Analog output	1 ÷ 5 V; load impedance ≥500 Ω
Output tolerance	±1%
Offset	1 V ÷ 0.1 Volt
Reaction time	≤2.5 ms
Commutation frequency	400Hz
Hysteresis	Adjustable from 0 to 100% of the set maximum value
Repeatability	±0.2% of the measuring range
Error code signal	via two-colour LEDS
Insulation resistance	100 MΩ a 500 VDC
Proof voltage	1000 VDC, 1 min
Protection class	IP 65
Working environment conditions	
Installation position	Any
Measurable fluids	Non-corrosive gasses and dry air
Operating temperature	0 ÷ +50 °C
Storage temperature	-20 ÷ +80 °C
Emitted interference	In compliance with DIN EN 50081 - 1
Interference immunity	In compliance with DIN EN 50082 - 2
Mechanical features and specifications	
Container material	ABS/PC plastic
Connection material	Nickel-plated brass
Weight	19 g
Electrical connection	M8-4 pin plug
Connection to fluid	Male G1/8", female M5 threads
Accessories	
Electrical connection cable	With axial connector, mt. 5 - PUR M8 x 1x 0.25 mm - Art. 00 12 20
Electrical connection cable	With radial connector, mt. 5 - PUR M8 x 1x 0.25 mm - Art. 00 12 21
Wall-mounting kit	Support with O-ring and screws - Art. 00 12 22

Conversion ratio: inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

GAS-NPT thread adapters available at page 1.117

These compact and extremely light digital vacuum and pressure switches are enclosed in a sturdy ABS casing. These features allow installation on the machine and close to the application.
These digital switches, accurately calibrated and compensated for temperatures, is able to give very precise measurements values. The measured values are shown on the display, making the vacuum gauge redundant. The two LEDs, one red and one green, built-in the control panel, indicate the commutation status of the two digital output signals.
The two commutation outputs are completely independent.
The switch point between the scale values as well as the hysteresis from 0 to 100% of the set up value can be easily programmed via the push buttons on the control panel.
Other additional functions can be configured, such as the comparison between two values, NO and NC contacts, choice of the measurement unit, locking the programmed values and functions, display reversal, etc. These devices can be rotated freely to place the display in the desired position, without having to unscrew them from the vacuum connection.
The vacuum or the pressure connections can be carried out via a dual male G 1/8" or female M5 thread. The electrical connection is carried out via M8-4 pin threaded plug and upon request the connection cable is available in PUR, with an axial or radial connector. These switches are suited for measuring and controlling dry air and non-corrosive gasses.
They are recommended in all those cases that require a signal when a certain vacuum level is reached set for safety, for starting a cycle, for checking the cup grip, etc. Moreover, the hysteresis function allows managing the vacuum generator compressed air supply, allowing considerable energy saving.





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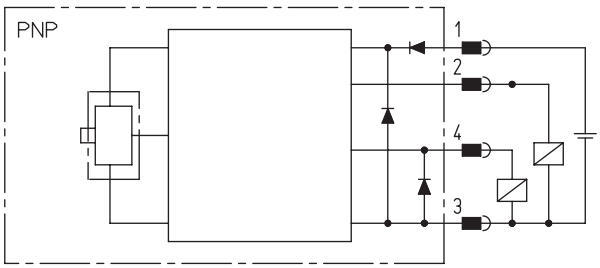
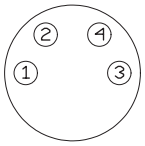
GAS-NPT thread adapters available at page 1.117

ELECTRIC DIAGRAM



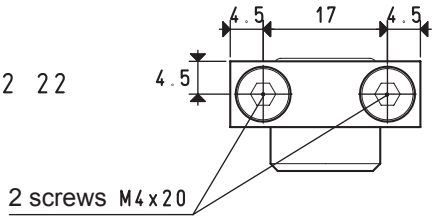
Connections
1 . V +
2 . commutation output 2
3 . V -
4 . commutation output 1

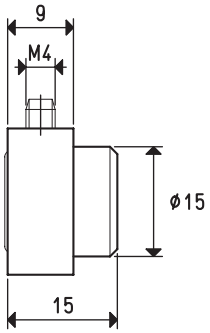


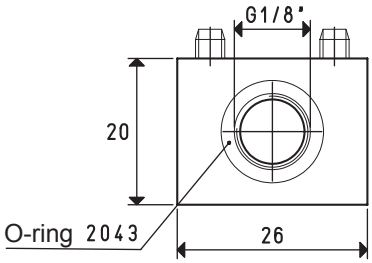
Cable colour
Pin1 = brown
Pin2 = white
Pin3 = blue
Pin4 = black

WALL-FIXING KIT

Art. 00 12 22





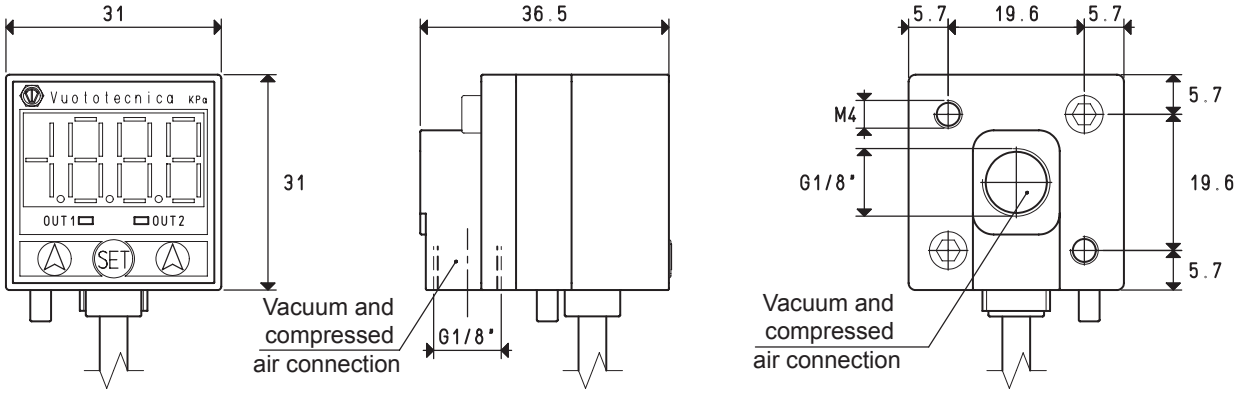


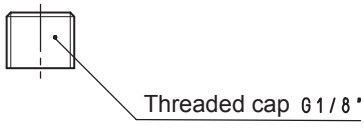
Electrical features and specifications	Art. 12 10 10 Vacuum switch	Art. 12 25 11 Pressure switch
Adjustment range	from 0 to -1 bar (g)	from 0 to 10 bar (g)
maximum overpressure	5 bar (g)	16 bar (g)
Minimum detected values	0.01 bar (g)	0.01 bar (g)
	1 KPa	--
	1 mmHg	--
	0.1 InHg	--
Operating voltage	10.8 ÷ 30 VDC (Protection against polarity reversal)	
Electrical absorption	≤35 mA	
Commutation output	2 digital PNP,NO or NC,max commutation power 125 mA	
Display tolerance	≤ ±1% F.S.	
Reaction time	≤2.5 ms	
Commutation frequency	400Hz	
Hysteresis	Adjustable from 0 to 100% of the set maximum value	
Repeatability	±0.2% of the measuring range	
Display	3-digit, 7-segment LED	
Insulation resistance	100 MΩ a 500 VDC	
Proof voltage	1000 VDC, 1 min	
Protection class	IP 65	
Working environment conditions		
Installation position	Any	
Measurable fluids	Non-corrosive gasses and dry air	
Operating temperature	0 ÷ +50 °C	
Storage temperature	-20 ÷ +80 °C	
Emitted interference	In compliance with DIN EN 50081 - 1	
Interference immunity	In compliance with DIN EN 50082 - 2	
Mechanical features and specifications		
Container material	ABS/PC plastic	
Connection material	Nickel-plated brass	
Weight	20 g	
Electrical connection	M8-4 pin plug	
Connection to fluid	Male G1/8", female M5 threads	
Accessories		
Electrical connection cable	With axial connector, mt. 5 - PUR M8 x 1x 0.25 mm	- Art. 00 12 20
Electrical connection cable	With radial connector, mt. 5 - PUR M8 x 1x 0.25 mm	- Art. 00 12 21
Wall-mounting kit	Support with O-ring and screws	- Art. 00 12 22

Conversion ratio: inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

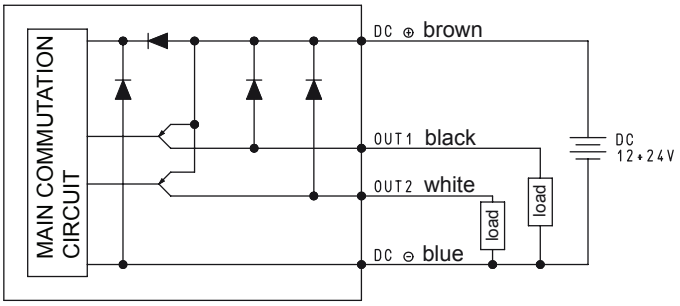
GAS-NPT thread adapters available at page 1.117

These compact and extremely light digital vacuum and pressure switches are enclosed in a sturdy ABS casing. These features allow installation on the machine and close to the application.
These digital switches, accurately calibrated and compensated for temperatures, is able to give very precise measurements values. The measured values are shown on the display, making the vacuum gauge redundant. The two LEDs, one red and one green, built-in the control panel, indicate the commutation status of the two digital output signals.
The two commutation outputs are completely independent.
The switch point between the scale values as well as the hysteresis can be easily programmed via the push buttons on the control panel.
Other additional functions can be configured, such as the comparison between two values, NO and NC contacts, choice of the measurement unit, locking the programmed values and functions, display reversal, etc.
The vacuum or the pressure connections can be carried out via a dual connection with female G 1/8" thread, while the electrical connection is carried out through the 4-conductor cable which they are equipped with. Digital vacuum and pressure switches are suited for measuring and controlling dry air and non-corrosive gasses.
They are recommended in all those cases that require a signal when a certain vacuum level is reached, for safety, for starting a cycle, for checking the cup grip, etc. Moreover, the hysteresis function allows managing the vacuum generator compressed air supply, allowing considerable energy saving.

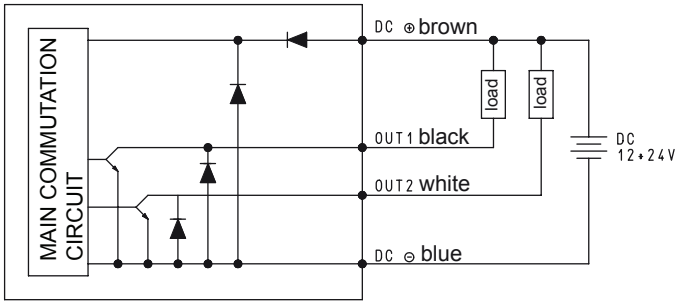




PNP



NPN



Electrical features and specifications	**Art. 12 20 10 P Vacuum switch**	**Art. 12 35 10 P Pressure switch**
Adjustment range	da 0 a -101.3 KPa	da 0 a 1 MPa
maximum overpressure	500 KPa	1.5 MPa
Minimum detected values	0.1 KPa	--
	--	0.001 MPa
	0.001 Kgf/cm^2	0.01 Kgf/cm^2
	0.001 bar (g)	0.01 bar (g)
	0.01 psi	0.1 psi
	0.1 InHg	--
	1 mmHg	--
	10 mmH_2O	--
Operating voltage	12 ÷ 24 VDC, ±10% (Protection against polarity reversal)	
Electrical absorption	≤55 mA	
Commutation output	2 digital PNP, NO or NC, max. commutation power 80 mA	
Display tolerance	≤ ±2% F.S. ±1 digit	
Reaction time	≤2.5 ms	
Hysteresis	Adjustable	
Repeatability	±0.2% of the measuring range	
Display	3 1/2 digit, 7-segment LED	
Insulation resistance	50 MΩ a 500 VDC	
Proof voltage	1000 VDC, 1 min	
Protection class	IP 40	
Working environment conditions		
Installation position	Any	
Measurable fluids	Non-corrosive gasses and dry air	
Operating temperature	0 ÷ +50 °C	
Storage temperature	-20 ÷ +60 °C	
Emitted interference	In compliance with EN 55011 Group 1, class B	
Interference immunity	In compliance with EN 61326 - 1	
Mechanical features and specifications		
Container material	ABS/PC plastic	
Connection material	Nickel-plated brass	
Weight	105 g, electric cable included	
Electrical connection	With 4-conductor cable length mt. 2	
Connection to fluid	Female G1/8" thread	
Accessories		
Fixing kit	wall	- Art. 00 12 30
	plane	- Art. 00 12 31
	panel	- Art. 00 12 32

Note: By adding the letter N after the art. (e.g. 12 20 10 N), the commutation output will be NPN and not PNP.

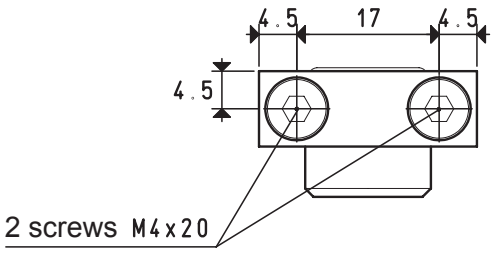
Cable with axial connector

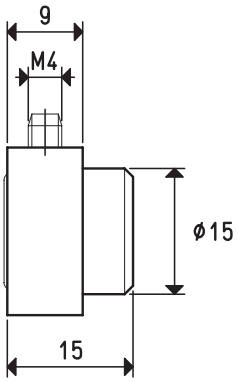
Art.	Description
00 12 20	Electrical connection cable with axial connector for digital vacuum and pressure switches

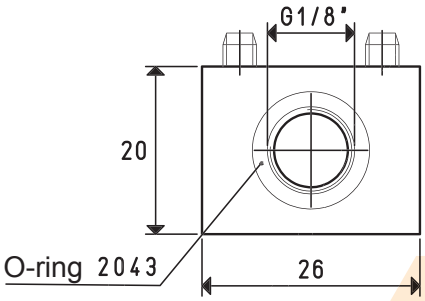
Cable with radial connector

Art.	Description
00 12 21	Electrical connection cable with radial connector for digital vacuum and pressure switches

Wall-mounting kit



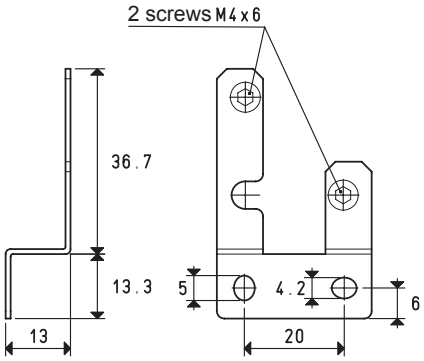




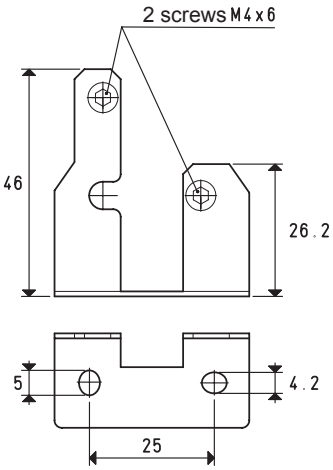
Art.	Description
00 12 22	Wall-mounting kit for digital vacuum and pressure switches

FIXING KIT

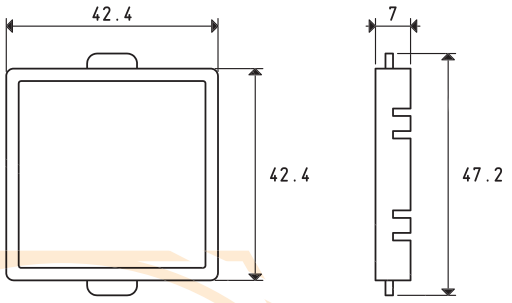
Wall-mounted Art. 00 12 30

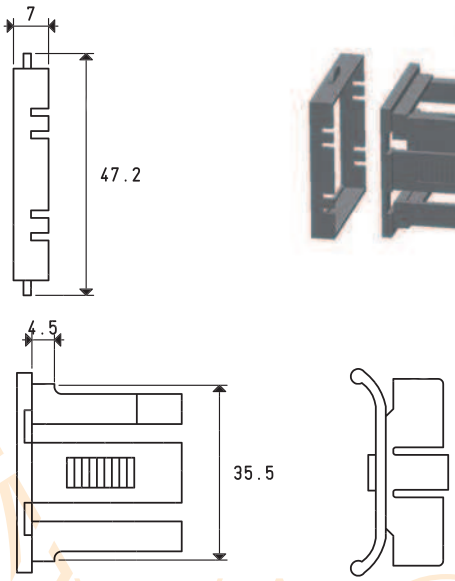


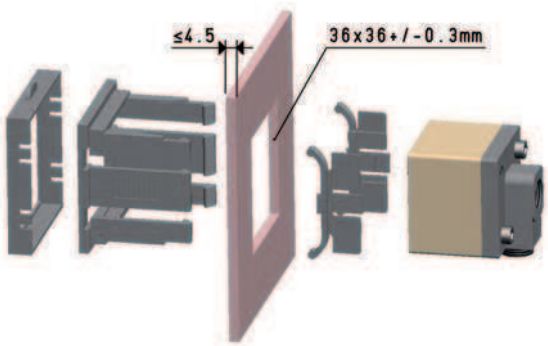
Plane Art. 00 12 31



Panel-mounted Art. 00 12 32







Conversion ratio: inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$