Pressure Transmitter

Klinger Kompakt 401

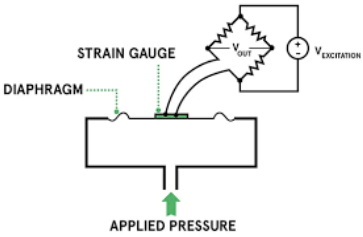
Manual

Content

1. Introduction

Klinger Kompakt 401 is a family of pressure transmitters intended for standard tasks in all types of industry.
The transmitter is delivered in measuring ranges from 10 mbar up to 1,000 bar with a standard accuracy better than 0.5%.
By default, the output signal is analog (4… 20 mADC) equal to the adjusted Range.

Sensor with Temperature compensation
The sensor is based on a semiconductor element that is part of a Wheatstone bridge, which is mounted on a ceramic support plate.
The sensor is temperature compensated on the ceramic element with a compensation circuit that equalizes temperature operation the range -10 to +70 ° C.



in

2. Content of the box

In the box you'll find:

- 1 Pressure Transmitter
- 1 pc Manual
- Calibration Certificate

Remember to check the type of sign on the meter to ensure the meter is delivered according to the order.

3. Safety

Warning !
Prior to installation, commissioning and operation, it must be ensured that a suitable transmitter is selected in terms of measuring range, design and suitable material (corrosion) for the specific measuring conditions.

To guarantee the specified measurement accuracy and stability, the specified load limits must be observed.

Only qualified persons who are authorized are allowed to install, maintain and service the pressure gauges.

For hazardous media such as oxygen, acetylene, flammable and toxic gases / liquids, as well as refrigeration systems, compressors, etc., in addition to all standard rules, the regulations must be followed as the relevant existing codes.

4.Technical Data

Design:	**C**ompact transmitter in Stainless housing
Materials/housing:	Stainless steel 1.4301 (304)
Ingress protection:	IP 65 acc. EN 60529 M12 conn.: IP 67 acc. EN 60529
Electrical Connection:	Plug: Hirschmann (DIN 43650) Cable (PVC) / 1 meter standard M12x1 (4 pin)
Weight:	240… 320g
Process Connection:	G 1/2 B per DIN EN 837-1 M20*1.5
Wetted Parts:	Stainless Steel 1.4301 (304) Stainless Steel 1.4404 (316L)
Sensor:	Solid State w. temperature compensation (-10 .. 70 °C)
Ranges:	Sensor 1 (low pressure) 10 mbar … 40 mbar Sensor 2 (standard) 40 mbar … 100 bar Sensor 3 (high pressure) 100 bar … 1.000 bar Actual Range will be adjusted within the above limitations.
Over Pressure:	150% FS
Accuracy:	(Lin./Hyst./Rep.) ≤ 0.5 % of adjusted Range optional: ≤ 0.1 % or 0,2%
Output:	4…20 mA / 2-wire
Power supply:	24VDC (10…30 V DC)
Temperature:	Ambient: -20…85 °C Media: -20…85° C * Storage: -40…125 °C
Ex-approval:	Option: Intrinsically safe type Ex iaIICT4 Flameproof safe Ex dIICT6
Accessories:	Display (LCD / LED)

5. Product Selection

Klinger Kompakt 401B-

Range

Xxx, yyy	Range, Unit: Pa, kPa, MPa,...

Accuracy

1	0.1%FS
2	0.2%FS
5	0.5%FS

Transmitter type

A	Absolut Pressure
G	Gauge Pressure
N	Vacuum

Process Connection

2	M20*1.5-20 Male
6	G1/2-20 Male
9	Other

Electrical Connection

1	Cable / incl. 1 meter standard
2	Plug: Hirschmann (DIN 43650)
6	Plug: M12x1

Output

E	4-20mA (1-5V)

Power Supply

2	24VDC
9	Other

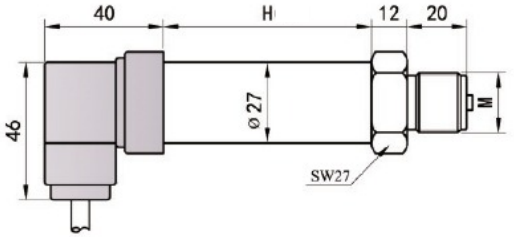
Display	Option
M3	3 1/2 LCD Display
M4	3 1/2 LED Display
M5	LCD intelligent display
Ex Approval	Option
i	Intrinsically safe type Ex iaIICT4
d	Flameproof safe Ex dIICT6

6.Dimensions

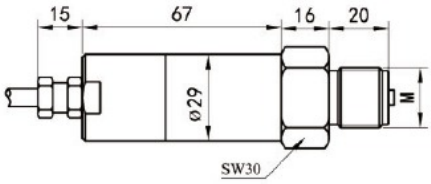
Standard type

Wetted parts: SUS 304 or SUS 316L

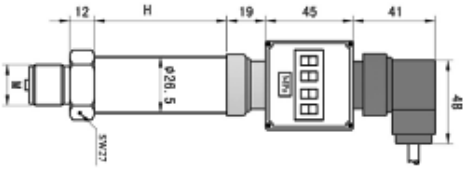
Weight: 240g … 320g (Depends on Product type



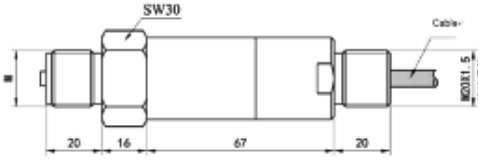
DIN 43650 (EN 175 301-803-C)



Cable Connection



DIN 43650 and Display



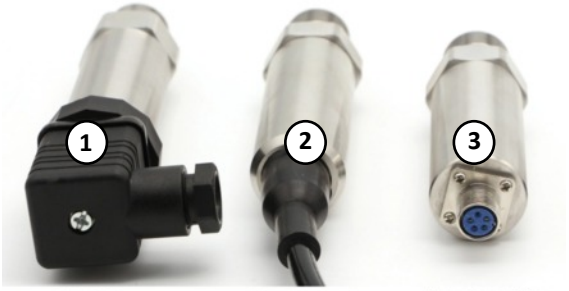
M12 Connector and Ex-version

Note

H depends on the selected type, can vare between 48mm and 75mm

Standard: H = 68mm.

1. DIN 43650 (EN 175 301-803-C)
2. Cable Connection
3. M12 Connection



7. Mechanical Mounting

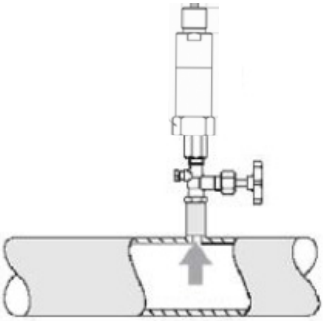
Mechanical installation of a pressure transmitter has to be done in accordance with the general technical rules (eg EN 837.2)
The installation is carried out in accordance with the specified connection options using a suitable tool.

The actual assembly takes place by tightening the nut and not by twisting the housing.

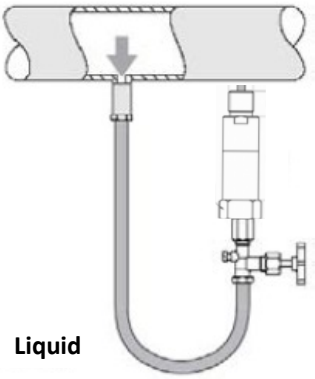
Appropriate sealing rings, washers or other types of sealing must be used.

When used for gas measurement, the transmitter should be mounted above the measuring point so that any moisture can run away

When used in liquid systems, the transmitter should be mounted below the measuring point or on a vertical pipe so that any air does not collect in the connection.



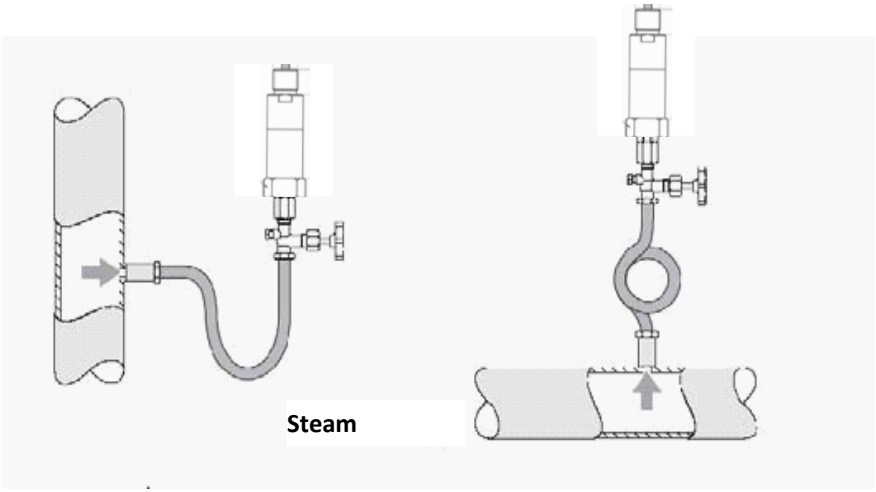
Gas



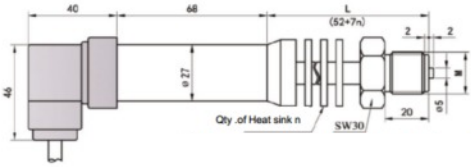
Liquid

If steam is to be measured, direct contact between the hot medium and the measuring cell has to be avoid - and it is important to bring the media Temperature down before it comes into contact with the cell.

If Klinger Field 401 is used in the standard version, a cooling element must therefore be used between the measuring point and the transmitter - in daily reference a "pig tail".
There are different designs - common is, however, that they contain a "water trap" that must be filled with liquid (condensation) to achieve a separation to the hot medium.



Klinger Kompakt can be delivered in a special high-temperature version, which is delivered with a cooling element mounted - the number of cooling fins determines how high the medium temperature can be during direct installation.

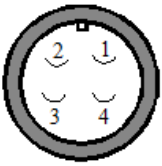


Medium temp.℃	Qty .of Heat sink n	L (mm)
150	4	71
250	8	99
350	12	127

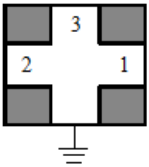
Note:
The specified maximum media temperatures apply to ambient temperature <60 ° C
At higher temperatures the cooling effect is reduced and the maximum permissible medium temperature is reduced.

8. Elektrical Connection

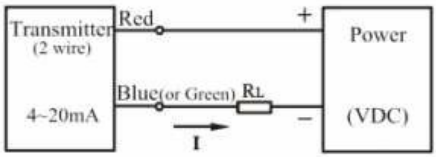
M12 connector

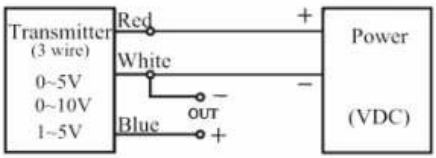


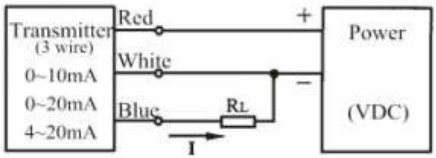
DIN 43650 (EN 175 301-803-C)

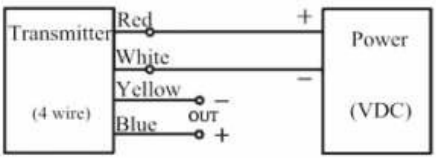


Mode	Output	Pin	Function	Color
2 wire	4-20mA	1	E+ 24V DC	Red
		2	S 4-20mA	Blue
3wire	0-10Ma, 0-5V	1	E+	Red
	4-20mA , 1-5V	2	Ground	White
	0-10V, 0.5-4.5V	3	S+	Blue
4wire	0-5V, 0-10mA 1-5V , 4-20mA 0-10V, mV	1	E+	Red
		2	E-	White
		3	S+	Blue
		⏚	S-	Yellow









9. Range Adjustment

Klinger Kompakt have adjustable measuring range as zero point and span adjustment via potentiometers.

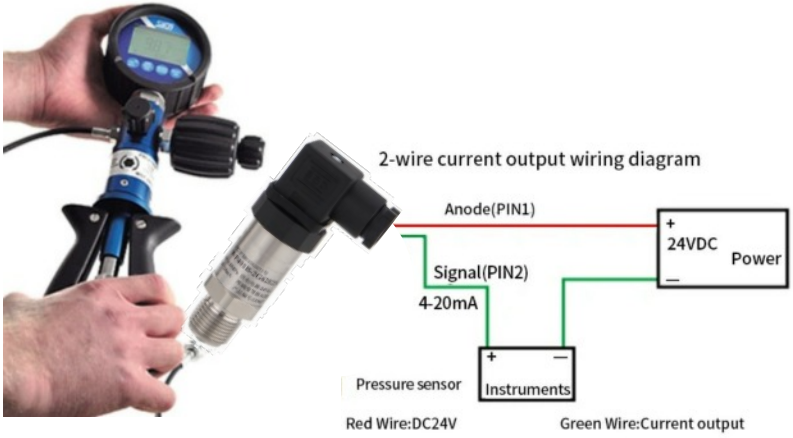
Setting the measuring range requires that the transmitter be applied a known reference pressure according to which the output signal can be set.

Z - Adjust Zero

S - Adjust Span

Follow these steps:

1) Connect a pressure pump / reference to the transmitter
2) Connect the output signal to a measuring instrument (mA or V) that matches the output signal of the transmitter. See section 7 for electrical connection.
3) Set the lower value of the measuring range with the pressure reference, e.g. 0.00 bar for measuring range 0… 10 bar.
4) Turn the zero potentiometer Z until the output signal shows the desired value (4mA)
5) Set the final value of the measuring range with the pump e.g. 10 bar to measuring range 0 ... 10 bar
6) Turn the span potentiometer S until the output signal shows the desired value (20mA)
7) Repeat step 3 and check the output signal at the zero point
8) Repeat step 5 and check that the span signal matches.



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