

## 7MF15654 Series

### Pressure Transmitter, PSIG Range for Sensing Liquid/Gas



**Description** The 7MF15654 Series Pressure Transmitters measure the gauge pressure of aggressive and non-aggressive gases as well as the level of liquids and vapors.

- Features**
- High measuring accuracy
  - Sturdy stainless steel housing
  - For aggressive and non-aggressive media
  - Measures the pressure of liquids, gases and vapor
  - Temperature-compensated measuring cell
  - Compact design

**Application** The 7MF15654 Series Pressure Transmitters are mainly used in the U.S. market for the following industrial areas:

- Chemical industry
- Pharmaceutical industry
- Food industry
- Mechanical engineering
- Water supply

### Product Numbers

**Table 1.**

Product Number	Description
7MF15654 <b>XX</b> 005EA1	Sensor, Liquid/Gas, 4 to 20 mA
7MF15654 <b>XX</b> 105EA1	Sensor, Liquid/Gas, 0 to 10 Vdc
<b>XX</b> = BB	0 to 15 PSI
BE	0 to 30 PSI
BF	0 to 60 PSI
BG	0 to 100 PSI
CA	0 to 150 PSI
CB	0 to 200 PSI
CD	0 to 300 PSI

## Design

The design of the pressure transmitter is dependent on the measuring range.

Measuring range  
 $< 1$  bar ( $< 14.5$  psi)

The main components of the pressure transmitter are:

- Stainless steel housing with piezo-resistive silicon measuring cell (with stainless steel diaphragm, temperature-compensated) and electronics module.
- Stainless steel process connection 1/4 - 18 NPT Straight.
- Electrical connection is made to DIN 43650 with the cable inlet 1/2 – 14 Taper.

Pressure transmitters with a nominal range  $< 1$  bar g ( $< 14.5$  psi g) are available with or without explosion protection.

Measuring range  
 $\geq 1$  bar ( $> 14.5$  psi)

The main components of the pressure transmitter are:

- Stainless steel housing with ceramic measuring cell and electronics module. The temperature-compensated ceramic measuring cell has a thin-film strain gauge which is mounted on a ceramic diaphragm. The ceramic diaphragm can also be used for aggressive media.
- Stainless steel process connection 1/4 - 18 NPT Straight.

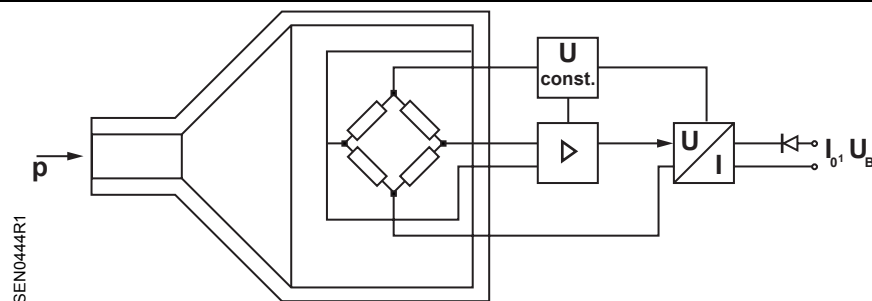
Electrical connection is made to DIN 43650 with the cable inlet 1/2 – 14 Taper.

Pressure transmitters with a nominal range  $\geq 1$  bar g ( $\geq 14.5$  psi g) are available with or without explosion protection.

## Function

The pressure transmitter measures the gauge pressure as well as the level of liquids and gases.

## Mode of Operation



**Figure 1. Functional Diagram.**

The mode of operation of the pressure transmitter is dependent on the measuring range.

Measuring range  $< 1$  bar  
 ( $< 14.5$  psi)

The silicon measuring cell of the pressure transmitter has a piezo-resistive bridge to which the operating pressure is transmitted through silicone oil and a stainless steel diaphragm.

The measuring cell output voltage is fed to an amplifier and converted into a 4 to 20 mA output current.

The output is linearly proportional to the input pressure.

<b>Measuring range <math>\geq 1</math> bar (<math>\geq 14.5</math> psi)</b>	The thin-film measuring cell has a thin-film resistance bridge to which the operating pressure $p$ is transmitted through a ceramic diaphragm.	
	The measuring cell output voltage is converted by an amplifier into an output current.	
	The output is linearly proportional to the input pressure.	
<b>Specifications</b>	Measuring range <1 bar (<14.5 psi)	Piezo-resistive
<b>Mode or Operation</b>	Measuring range $\geq 1$ bar ( $\leq 14.5$ psi)	Thin-film strain gauge
<b>Input Media Range</b>	Measured variable Measured range Pressure	Gauge pressure 0 to 300 psi g (0 to 21 bar g)
<b>Output Signal</b>	Current output signal Voltage output signal	4 to 20 mA 0 to 10 Vdc
<b>Accuracy</b>	Error in measurement (at 77°F [25°C]), including conformity error, hysteresis and repeatability	To EN 60770-1 0.25% of full-scale value – typical
	Response time $T_{99}$	< 0.1 second
	Long-term drift	
	Start of scale	0.25% of full scale value/year
	Full-scale value	0.25% of full scale value/year
	Influence of ambient temperature	
	Start of scale	0.25%/10 K of full-scale value
	Full-scale value	0.25%/10 K of full-scale value
<b>Rated Operating Conditions</b>	Process temperature	-22°F to 248°F (-30°C to 120°C)
	Ambient temperature	-13°F to 185°F (-25°C to 84°F)
	Storage temperature	-58°F to 212°F (-50°C to 100°C)
	Degree of protection to EN60529	IP65
<b>Design</b>	Weight	$\approx 0.55$ lb ( $\approx 0.25$ kg)
	Wetted parts materials:	
	Measuring cell	
	Measuring range < 1 bar (< 14.5 psi)	Stainless steel, 1.456 1/316Ti
	Measuring range $\geq 1$ bar ( $\geq 14.5$ psi)	Al <sub>2</sub> O <sub>3</sub> – 96%
	Process connection	Stainless steel, mat. No. 1.4571/316Ti
	Gasket	Viton
<b>Input Power Supply <math>U_H</math></b>	Terminal voltage on pressure transmitter For current output	10 to 36 Vdc

**Specifications, Continued**

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)

**Certificates and Approvals**

Explosion protection

Intrinsic safety "i" (only with current output Identification)

TÜV 02 ATEX 1953X  
 Ex II 1/2G EEx ia IIC T4

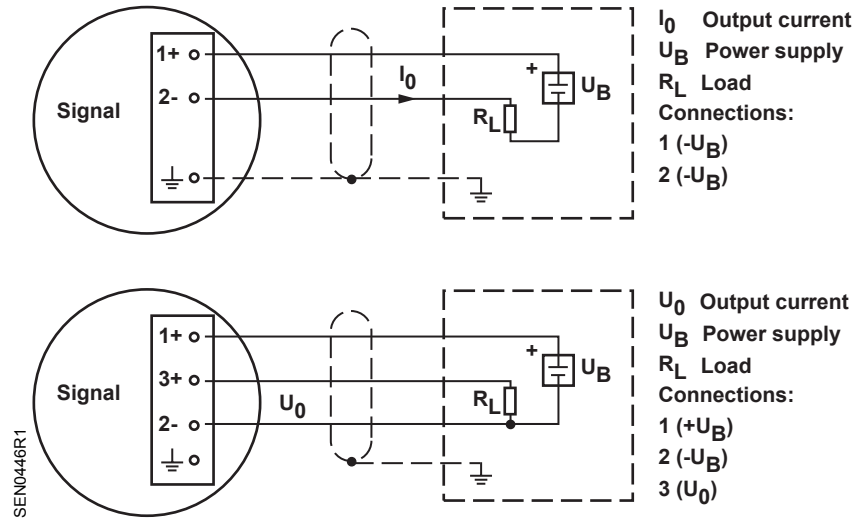
Intrinsic safety "T.I.S." (only with current output)

Applied

Lloyd's Register of Shipping

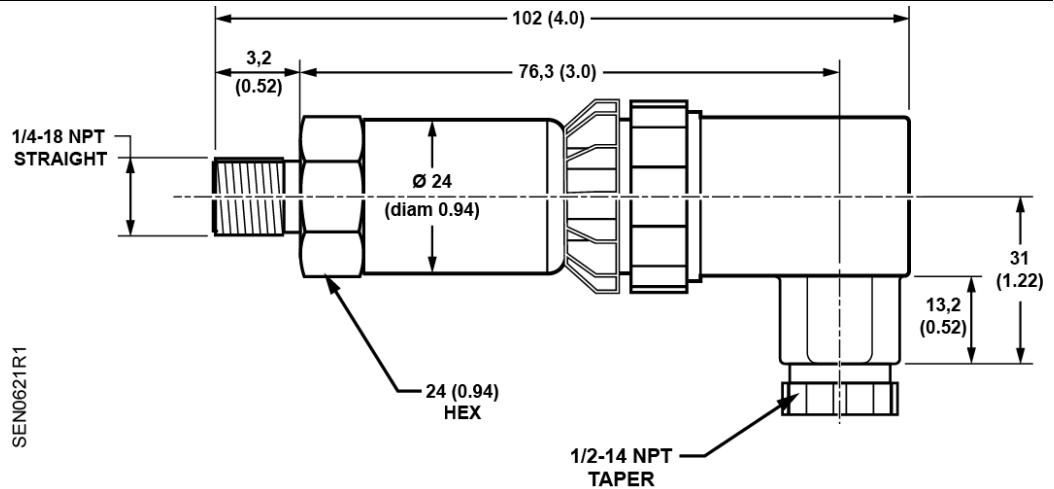
Certificate No. 03/30003

**Wiring Diagram**



**Figure 2. Wiring Diagram with Current Output (Top) and Voltage Output (Bottom).**

**Dimensions**



**Figure 3. Dimensions in Millimeters (Inches).**

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