Digital Pressure Transmitters

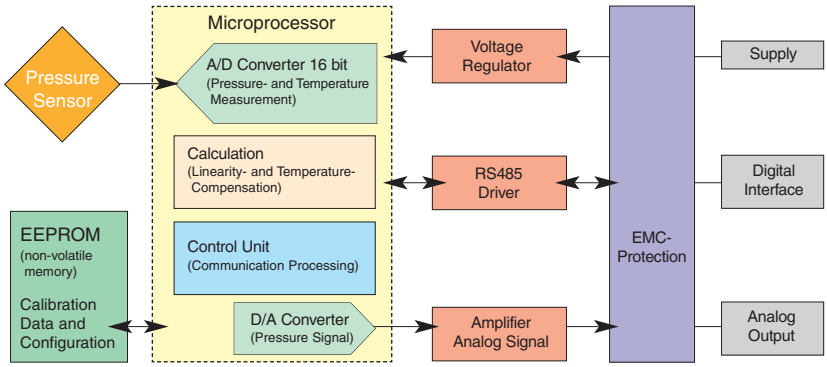
33 X

35 X

35 X, G3/4”

35 X HT

35 X HTC



Series 30 X: Fast, digitally compensated pressure transmitters with analog output

The sensor signal is measured up to 500 times per second with a highly precise A/D converter (16bit). After each measurement, the exact pressure value is calculated (elimination of the linearity- and temperature errors). The analog output signal is updated via the D/A converter.
This technology allows highly precise and fast pressure measurements, even over high temperature ranges.

Analog Output

The scalable analog output offers the standard analog interfaces:
- Voltage output (0…10 V)
- Current output 2-wire technology (4…20 mA)

The outputs are protected against reverse polarity and short-circuit.

Digital Interface

In addition to the analog signal output, these pressure transmitters offer a digital, bus-capable interface, offering the following possibilities:
- Read-out of the pressure- and temperature values
- Customer-side calibration of zero and gain
- Scaling of the analog output to other pressure ranges or -units
- Configuration settings
- Read-out of information, such as serial number, compensated pressure- and temperature ranges…
- Two wire RS485 half-duplex with 9’600 baud or 115’200 baud.

Digital Compensation Technology

Non-linearities and temperature dependencies of the pressure sensor can be eliminated to a large extent with a mathematical model of the sensor.
In production, each pressure transmitter is measured over the entire temperature- and pressure range. These measuring values are the basis for the mathematical model.

In operation, the following formula calculates the exact, “error-cleaned” pressure value:

$$p = \sum_{i=0}^{n} \left(\sum_{k=0}^{m} coeff_{i,k} * temperature^{k} \right) * pressure^{i}$$

p:	*Calculated pressure value*
temperature:	*Measured temperature at the sensor*
pressure:	*Measured pressure sensor signal*
coeff:	*Coefficients*
n, m:	*Order of the polynoms. Value range: 1…3*

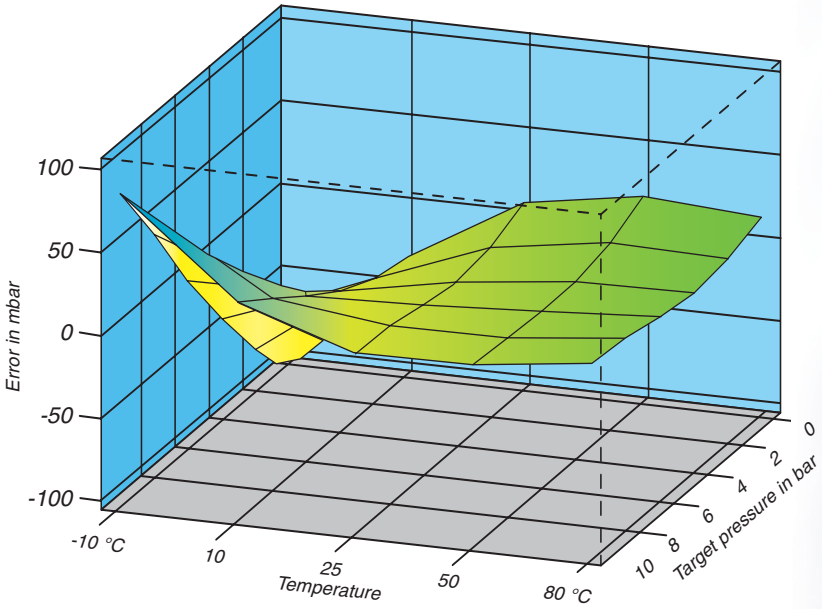
Series 30 X

This compensation technology reduces the error band to typically 0,05 %FS over the entire pressure- and temperature range, which is an improvement of factor 20 to 50 (see graphics below)

Each transmitter is supplied with a calibration certificate, indicating the data measured at at least 3 temperature- and 4 pressure points.

36 X W

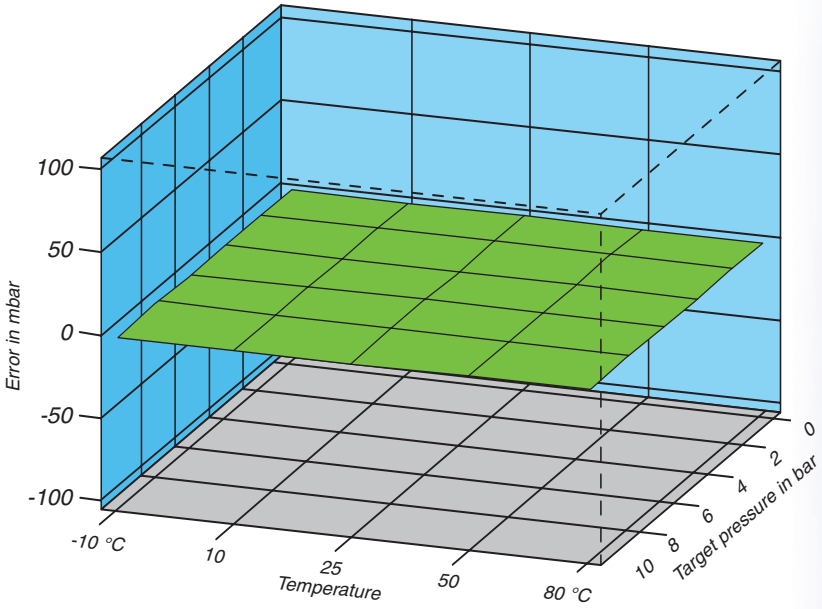
Standard Transmitter 10 bar to -10…80 °C



PD-33 X

35 X HT, Tri-Clamp

Digitally compensated Series 30 Transmitter, 10 bar



PD-39 X