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**Subject:** High-Resolution Pressure Transmitters for Millibar Measuring Ranges (Series 41 X)

## KELLER

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Ceramic measuring elements for more varied measuring media, intelligently combined with highly efficient microprocessor electronics for increased accuracy. These form the basis of the new 41 X pressure transmitter series. With a digital RS485 interface, the millibar transmitters produced by Keller AG für Druckmesstechnik in Winterthur, Switzerland can achieve resolutions of up to 1  $\mu$ bar.

These transmitters have an electronically-adjustable scale for low pressure measuring ranges from 0-30 mbar to 0-300 mbar (in 3 stages) and are subject to an extensive calibrating process at Keller AG. The coefficients recorded in this manner are saved in an EEPROM and utilized for electronic linearization and sensor characteristic curve compensation relative to temperature influences (400 times a second with the new calculation of a fourth degree polynomial). Each of the 3 measuring ranges is spread by up to 1/10 of the margin using this sophisticated form of compensation. An overall error band of  $\pm 0.1$  % is typically specified for the temperature compensation range of 10-50 °C.

The microprocessor evaluates the current pressure signal every 0.25  $\mu$ s during operation and, additionally, the temperature signal every 4 seconds. This ensures an increased measuring dynamic. However, strict digital internal signal processing enables the user to limit the received



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signal dynamic to between 0.01 Hz and 400 Hz per software command with low pass filters. Prog30 software is provided for this and other device parameters (e.g. the pressure range to be applied to the analog signal).

Conventional analog output signals, selectively 4...20 mA (2-wire) or 0...10 V (3-wire), are provided by Keller transmitters via D/A transformers. The precision of the 41 X series finds expression in the sophisticated 16 Bit resolution utilized.

The digital structure not only enables direct linking of two transmitters for measuring filling levels in pressure containers and direct provision of the filling level (differential pressure) as a signal. Up to 128 transmitters can also be connected to a bus system via coupling modules and their measuring values recorded and/or evaluated by a PC. In addition to the Read30 software provided by Keller, drivers are also available for linking to conventional measuring data recording programs.

Standard connection of the lightweight transmitter (approx. 190 g) to the measuring medium is realized via a G 1/4" external thread, with the electrical connection established with a 5-pole plug (Binder series 723). Other versions are available to meet individual customer specifications.



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