GEFRAN

INDUSTRIAL PRESSURE TRANSMITTER

TKDA/TPSADA series

OPERATING MANUAL

DIGITAL AUTOZERO & SPAN OPTION

code 85189 ed. 01 - 01/07

This section contains information and warnings of a general nature which should be read before proceeding with any function activation

The transmitter remains on the std operating mode, till an external event happens.
The possible channels to activate the additional functions are the following:

- CAL pin
- Magnetic pen

The operating manual explains the following features:

1) Autozero
2) Fine-Autozero
3) Calibration
4) Autospan
5) Partial Reset
6) Total Reset

CAL pin: activation of CAL function (Calibration, Autospan) is made by closing the contact between the following pin:

- 6 pole connector version (V) pin E-F
- 7 pole connector version (P) pin 5-6

The following pages explain the application modality, for all the additional functions.
The contents are related to application limits and aims.

1) AUTOZERO

Application mode	***Limits***	***Result***
The Autozero function is activated by : 1) positioning the magnet near the Autozero label on the shell of the sensor. The magnet has to be maintained on the Autozero position for a time within 1 to 10 sec.	The whole Zero unbalancement in addition to the zero done by the manufacturer, has to be within ± 10% FS.	The Autozero effect will be visible after waiting 2 sec from the release of the magnetic pen. The precision of the zero value will be within the accuracy class of the sensor. The Autozero function doesn't work outside the defined limits.

NOTE:

During the Autozero phase, the output for current transmitter series, will increase around 7mA.

That's a short variation only visible during the Autozero phase; it won't have any effects on the final result.

Figure 1

Figure 2

Figure 3

Figure 1 : represents the "magnetic pen"

Figure 2 : represent the Autozero function label on the sensor housing

Figure 3 : shows the position of the pen on the shell while activating the autozero function

2) FINE-AUTOZERO FUNCTION

Application mode	*Limits*	*Result*
The Fine-Autozero function is activated by : 1) positioning the magnet near the Autozero label on the shell of the sensor. 2) The magnet has to be maintained on the Autozero position for a time within 10 to 30 sec. After removing the magnet the signal will start changing the value step by step. Stop adjustment: Touch the Autozero area with the magnet to stop the signal scrolling.	The whole Zero unbalancement in addition to the zero done by the manufacturer, has to be within ± 10%FS	The output signal will change within a ± 100mV value (± 0.16mA for 4 to 20mA output) in steps of 6mV (12µA for 4 to 20mA output). Eg: 0..-6..-12..//-100..+100..+94..+88..0 When the desired zero value is reached stop the adjustment cycle by touching the Autozero area with the magnet. The Fine-Autozero function doesn't work outside the defined limits.

NOTE:

- The step duration time is 5 sec
- During the Autozero phase, the output for current transmitter series, will increase to around 7mA.
  Furthermore between the step variations it will be possible to have short overcurrent up to 7mA.
- That's an immediate variation only visible during the Autozero phase; it won't have any effects on the final result.
- The new zero value setted with the "Fine-Autozero" function, will be the zero reference for future "Autozero" procedures.

3) CALIBRATION

Application mode	*Limits*	*Result*
Start calibration The Calibration function is activated by short-circuiting the CAL pin for a minimum time of 1 sec Stop calibration Release the CAL pin short-circuit	The whole Zero unbalancement in addition to the zero done by the manufacturer, has to be within ± 20%FS.	During the Calibration phase the signal will be unbalanced at 80% FS. The calibration effect is visible 2 sec after short-circuiting CAL pin. The Calibration function doesn't work outside the defined limits.

NOTE:

- Switching off the supply while the calibration function is activated, could be cause of calibration problems; the transmitter can be restored to the initial value by activating the "partial reset function".
- To locate the CAL pin contacts, please refer to item "CAL pin" at the beginning of this manual.

4) AUTOSPAN

Application mode	*Limits*	*Result*
The Autospan function is activated in three steps as explained in the following. Phase 1) pressure = 0 bar: 1° Autozero Activate the Autozero function Phase 2) pressure = FS ***: Short-circuit CAL pin. Maintain the short-circuit, after a minimum time of 1 sec., start the "Autozero function"; the magnet has to be maintained in contact for a period of 1 - 10sec. Than release the short-circuit, after a minimum time of 1 sec. Phase 3) pressure = 0 bar: 2° Autozero Activate the Autozero function	The whole Zero unbalancement in addition to the zero done by the manufacturer, has to be within ± 10%FS The whole span unbalancement which can be obtained must be within ± 5% of the FS of the transmitter	The transmitter will be calibrated at the new Zero and Span values, within the accuracy class of the sensor.** The Autozero function doesn't work outside the defined limits.

NOTE:
**: It is possible improve the calibration precision by doing several calibration runs (Autospan function).
***: The FS has to be a pressure value within ± 5 %FS
- To locate the CAL pin contacts, please refer to item "CAL pin" at the beginning of this manual.

5) PARTIAL RESET OF THE CALIBRATION VALUES

Application mode	*Limits*	*Result*
The partial reset function is activated by positioning the magnet near the Autozero label on the shell of the sensor. The magnet has to be maintained on the Autozero position for a time within 30 to 60 sec.		The Zero of the transmitter will be restored to the factory settings; furthermore an Autozero will be done automatically. The Span calibration will not be affected.

NOTE:
- During the partial reset phase, the output for current transmitter series, will increase around 7mA

6) TOTAL RESET OF THE CALIBRATION VALUES

Application mode	*Limits*	*Result*
The total reset function is activated by positioning the magnet near the Autozero label on the shell of the sensor. The magnet has to be maintained on the Autozero position for a time over 60 sec		The Zero and Span of the transmitter will be restored to the factory settings.

NOTE:
- During the total reset phase, the output for current transmitter series, will increase around 7mA