KING-GAGE®

Quick Start Guide
"Intelligent" Pressure and Level Transmitters

SERIES 5800

581.39
mbar

KSE CORPORATION

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HART
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TABLE OF CONTENTS

Page

1.   DISPLAY AND PUSH BUTTONS

The Series 5800 has a high contrast display for optimal readout. The menu is controlled by three buttons. Navigate with the up and down arrows through the menus and adjust measuring values. Enter a menu and confirm selections with the menu button.

⬆   Push the *up* button to browse through various menus and adjust values.

⬇   Push the *down* button to browse through various menus and adjust values.

Ⓜ   Push the *menu* button to enter menus or confirm a selection.

Display Series 5800
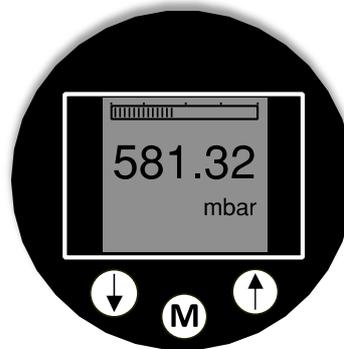
1.1   DISPLAY READOUT

When the transmitter is powered, a startup screen with the software version and the pressure range appears for a few seconds. After the startup screen the transmitter will automatically continue to the main screen with the actual measurement reading.

1.2   SUMMARY PROGRAMMING POINTS

PROGRAM POINT	NAME	FUNCTION
P100	Menu-Exit menu	Start and exit
P101	ZERO value	Zero adjustment (ZERO 4 mA) with or without test pressure
P102	SPAN value	Span adjustment (SPAN 20 mA) with or without test pressure
P103	MOUNT correction	Cancel mounting position effect
P104	UNITS	Selection of engineering units
P105	REVERSE mA	Output selection: 4-20 mA or 20-4 mA
P106	DAMPING	Adjustable damping: 0.00 till 25.00 seconds
P107	TEMP UNITS	Temperature unit selection: Celsius or Fahrenheit
P108	DEVICE SETUP	Configuration: Protection, HART, Display mode, Display update
P109	READOUT	Readout options on display: Current, Unit, percentage and temperature
P110	BURST MODE	Continuously broadcast a standard HART reply message

2.   EXPLANATION OF PROGRAMMING POINTS

P101
Zero value

2.1   ZERO ADJUSTMENT (ZERO)
The transmitter is set to 0 PSI at atmospheric pressure.
The **ZERO** can be adjusted to a lower or higher point.

Example: Increase ZERO to 2 PSI

1. The measuring unit of the transmitter is set to PSI. If not, this can be selected by choosing the right measuring unit in program point **P104**.
2. Navigate to program point **P101**, and push the Ⓜ button to enter the menu.
3. The actual measured value appears on the display.
4. Increase this value with the arrow ⬆ button to 2 PSI, and push and hold the Ⓜ button until "Saved" appear on the display.
5. The transmitter will return to the home screen. The measurement value at atmospheric pressure is now -2 PSI. At an applied pressure of 2 PSI the transmitter will display 0 PSI.

The transmitter can be adjusted to zero in a real process situation. The transmitter will measure the pressure in an actual process. This measurement will be used as the zero value (4 mA).
1. Go to the home screen, the transmitter will display the actual measured value.
2. Push and hold the ⬇ button until the actual measured zero and the message "ZERO PUSHED" appear.
3. The transmitter will return to home screen.

P102
Span value

2.2   SPAN ADJUSTMENT (SPAN)
This setting can be used to adjust the range (SPAN) according to an entered value or adjusted with or without an applied pressure. The maximum pressure which can be measured: The measurement at **ZERO (P101)** + the entered value **SPAN (P102)**. If the **ZERO (P101)** is increased, the maximum measured value will automatically be set higher at same rate as the zero. This will be explained step by step through an example.

Example: Measurement range 0 – 29 PSI.
1. The **span** must be set at 29 PSI
2. Navigate to program point **P102**, and push the Ⓜ button to enter the menu.
3. Adjust the **SPAN** with the push buttons to 29 PSI and push and hold the Ⓜ button until "Saved" appears on the display.
4. The transmitter will return to the home screen.

The span can also be adjusted to a real process situation. The transmitter will measure the pressure in an actual process. This measurement will be used as the span value (20 mA).
1. Go to the home screen, the transmitter will display the actual measured value.
2. Push and hold the ⬆ button until the actual measured span and the message "SPAN PUSHED" appear on the display.
3. The transmitter will return to home screen.

P102 is the adjustment of the total span.
When a compound range is desired (for example, -2 till +29 PSI), a span of 31 PSI must be programmed.
The Zero (P101) must be set at -2 PSI. The transmitter is set to **– 2 PSI = Zero** and **29 PSI = Span**.

If the process temperature at -14.5 PSI is above 20 °C another filling oil must be applied inside the transmitter.
If the process temperature at -7.3 PSI is above 60 °C another filling oil must be applied inside the transmitter.

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P103
Mount corr.

2.3   CANCEL MOUNTING POSITION EFFECT

The transmitter might exhibit a small "mounting position" effect at the zero. In other words, the pressure value displayed could vary depending on how the transmitter is oriented when installed.

1. Navigate to program point **P103**, and push the Ⓜ button to enter the menu.
2. Two choices appear on the screen: **Set** and **Reset**.
    Choosing **Set** will adjust the zero to 0.000 PSI in the mounting position when applicable.
    - Select **Set**, and push the Ⓜ button to confirm.
    - The corrected value is shown on the display.
    - Push the Ⓜ button to save.
    Choosing **Reset** will put the transmitter back to factory default.
    - Select **Reset**, and push the Ⓜ button to confirm the reset back to factory default.
    - The transmitter will return to the home screen.

⚠️ **Do not apply pressure when executing "Cancel mounting position effect"**

P104
Units

2.4   DISPLAY SETTING OF UNITS

Various engineering units can be displayed on the display.
Factory setting = PSI

1. Navigate to program point **P104**, and push the Ⓜ button to enter the menu.
2. Several engineering units can be selected. Each selected engineering unit is automatically converted to the correct value of the corresponding unit.
3. Navigate through this menu and choose the required unit, push the Ⓜ button confirm.
4. The transmitter will return to the home screen. The measured reading will be displayed in the selected unit on the home screen.

⚠️ **The selected pressure unit is only visible on the display when UNITS is chosen in program point P109.**

P105
Reverse mA

2.5   OUTPUT SELECTION 4-20 mA or 20-4 mA

Factory setting = 4 - 20 mA

1. Navigate to program point **P105**, and push the Ⓜ button to enter the menu.
2. Two choices appear on the screen: **4-20** and **20-4**
3. Make an output choice and push the Ⓜ button to confirm.
4. The transmitter will return to the home screen.

P106
Damping

2.6   DAMPING ADJUSTMENT

The transmitter has an adjustable damping between 0.00 to 25.00 seconds.
Factory setting = 0.00 seconds

1. Navigate to program point **P106**, and push the Ⓜ button to enter the menu.
2. Two choices appear on the screen: **Set** and **Reset**
    Choosing **Set** allows a value to be set between 0.00 and 25.00 seconds.
    - Select Set, and push the Ⓜ button to confirm.
    - Adjust the damping with the ⊕⊖ buttons and push the Ⓜ button to confirm.
    - The transmitter will return to the home screen.
    Choosing **Reset** will put the transmitter back to factory default (0.00 seconds)

- Select **Reset**, and push the Ⓜ button to confirm the reset back to factory default.
- The transmitter will return to the home screen.

P107
Temp Units

2.7   TEMPERATURE UNITS

In this menu the preferred temperature unit can be selected.

1. Navigate to program point **P107**, and push the Ⓜ button to enter the menu.
2. Two choices appear on the screen: **Celsius** and **Fahrenheit**.
3. Make a choice and push the Ⓜ button to confirm.
4. The transmitter will return to the home screen.

P108
Device Setup

2.8   DEVICE SETUP

In this menu, several operational settings can be made for the transmitter and the display.

1. Navigate to program point **P108**, and push the Ⓜ button to enter the menu.
2. Five choices appear on the screen:
   LocProtect : The transmitter can be protected against local adjustments
   ComProtect : The transmitter can be protected against adjustments with HART.
   HART : Option for HART® 5 and HART® 7 communication.
   DispMode : Option for turning the display **on** or **off**.
   Disp.Upd.: Option to adjust the refresh rate of the measured value on the display between 0.0 to 5.0 seconds. For example when this value is set to 2.0 seconds, the measured value on the display will be refreshed every 2 seconds.
   - Select Set, and push the Ⓜ button to confirm.
   - Adjust the setting with the ⬆⬇ buttons and confirm with the Ⓜ button.
   - The transmitter will return to the home screen.
   - Choosing Reset will put the transmitter back to factory default (0.0 seconds).

P109
Readout

2.9   READOUT

In this menu, the type of readout on the display can be adjusted.
Factory Setting = Unit

1. Navigate to program point **P109**, and push the Ⓜ button to enter the menu.
2. Four choices appear on the screen:

Current : Current value (4 - 20 mA)
Unit : Pressure unit (Selected in **P104**)
Percentage : 0 - 100%
Temperature : Actual process temperature (°C or °F)

3. Navigate to the desired choice, confirm by pushing the Ⓜ button.
4. The transmitter will return to the home screen.

P110
Burst mode

2.10   BURST MODE (HART®)

The transmitter (only when HART® is present) can be configured for Burst mode. This will enable continuous broadcasting of standard HART® reply messages.

1. Navigate to program point **P110**, and push the Ⓜ button to enter the menu.
2. Five choices appear on the screen: **Mode Cntrl**, **Cmd number**, **Message**, **Period** and **Trigger**

3. Select **Mode Cntrl**, and push Ⓜ to confirm.
4. Two choices appear on the screen: "**On**" and "**Off**"
   - Choose **On** to turn on burst mode.
   - Choose **Off** to turn off burst mode.
5. Select **Message** to select the burst message 0,1,2 or 3 and push the Ⓜ button to confirm.
6. Select **Cmd number**, and push the Ⓜ button to confirm.
   Five choices appear on the screen:
   - **Cmd 01** = PRIMARY VARIABLE
   - **Cmd 02** = CURRENT AND PERCENT OF RANGE
   - **Cmd 03** = DYNAMIC VARIABLES AND CURRENT
   - **Cmd 09** = DEVICE VARIABLES WITH STATUS
   - **Cmd 48** = ADDITIONAL TRANSMITTER STATUS
   Choose the preferable burst mode, and push Ⓜ button to confirm.
7. Select **Period,** and push the Ⓜ button to confirm.
   Two choices appear on the screen: "**Max Time**" and "**Min Time**"
   - Select **Max Time** to set the maximum amount of time the message will be sent. This value can be set from 0.5 to 3600 seconds.
   - Select **Min Time** to set the minimum amount of time the message will be sent. This value can be set from 0.5 to 3600 seconds.
   Enter the preferred value, and push the Ⓜ button to confirm.
8. Select **Trigger,** and push the Ⓜ button to confirm.
9. Five choices appear on the screen:

Continuous	=	The Burst message is sent continuously.
Windowed	=	The Burst message is triggered when the measured value deviates more than the specified trigger value.
Rising	=	The Burst message is triggered when the measured value rises above the triggered value.
Falling	=	The Burst message is triggered when the measured value falls below the triggered value.
On-Change	=	The Burst message is triggered when the measured value changes at all.

Choose the desired burst mode, and set the preferred parameters.

P111
Information

2.11   INFORMATION
This menu summarizes information about the configuration of the transmitter.

V No:	Software Version Number	Tunit:	Temperature unit (C or F)
No:	Serial number of the transmitter	Tph:	Highest measured process temperature
Z:	Zero adjustment	Tpl:	Lowest measured process temperature
S:	Span adjustment	Tah:	Highest measured ambient temperature
Da:	Out delay on display	Tal:	Lowest measured ambient temperature
O:	Output (4-20mA or 20-4 mA)	Tc no:	Tag number
Lpro:	Local protection (on/off)		

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