Quick Setup Guide
Transmitter M300
Single Channel Version

Content

METTLER TOLEDO

1 Operation

Entry of data values, selection of data entry options

Use the ▲ key to increase or the ▼ key to decrease a digit. Use the same keys to navigate within a selection of values or options of a data entry field.

Note: Some screens require configuring multiple values via the same data field (ex: configuring multiple setpoints). Be sure to use the ▶ or ◀ key to return to the primary field and the ▲ or ▼ key to toggle between all configuration options before entering to the next display screen.

Navigation with ↑ in Display

If a ↑ is displayed on the bottom right hand corner of the display, you can use the ▶ or the ◀ key to navigate to it. If you click [Enter] you will navigate backwards through the menu (go back one screen). This can be a very useful option to move back up the menu tree without having to exit into the measuring mode and re-enter the menu..

Exit menu

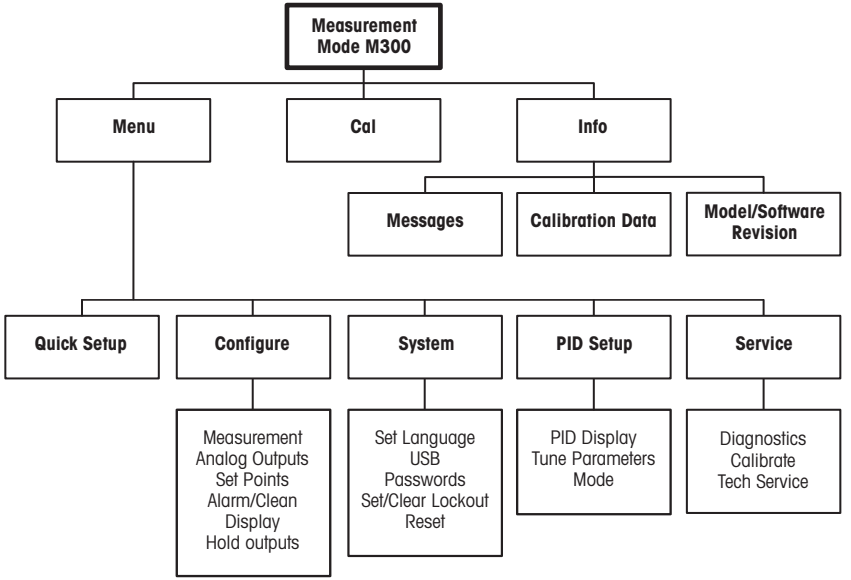
Note: Exit the menu at any time by pressing the ◀ and ▶ key simultaneously (escape). The transmitter returns to the Measurement mode.

"Save changes" dialog

Three options are possible for the "Save changes" dialog:
– "Yes & Exit": Save changes and exit to measuring mode
– "Yes & ↑": Save changes and go back one screen
– "No & Exit": Don't save changes and exit to measuring mode

The "Yes & ↑" option is very useful if you want to continue configuring without having to re-enter the menu.

2 Menu Structure

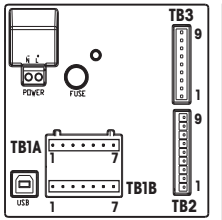


3 Terminal Block (TB) definitions

Power connections are labeled **–N** for Neutral and **+L** for Line, for 100 to 240 VAC or 20–30 VDC.

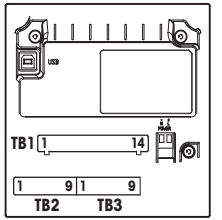
¼DIN

TB2 for ¼DIN	
1	AO1+
2	AO1–/AO2–
3	AO2+
4	–
5	–
6	–
7	DI1+
8	DI1–
9	–



½DIN

TB2 for ½DIN	
1	AO1+
2	AO1–/AO2–
3	AO2+
4	–
5	–
6	–
7	DI1+
8	DI1–
9	–



TB1A for ¼DIN	
1	NO2
2	COM2
3	NC2
4	–
5	–
6	NO4
7	COM4

TB1B for ¼DIN	
1	NO1
2	COM1
3	NC1
4	–
5	–
6	NO3
7	COM3

TB1 for ½DIN			
1	NO1	8	–
2	COM1	9	–
3	NC1	10	–
4	NO2	11	NO3
5	COM2	12	COM3
6	NC2	13	NO4
7	–	14	COM4

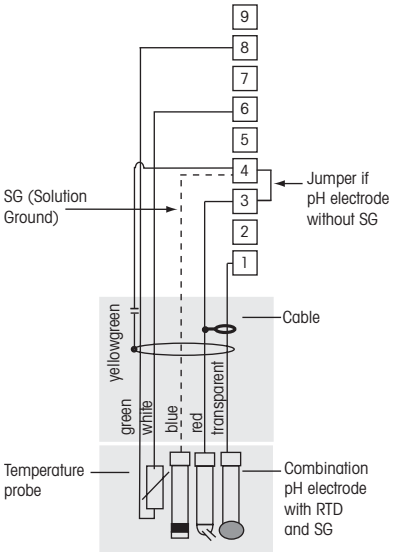
NO = normally open (contact is open if unactuated). NC = normally closed (contact is closed if unactuated).

TB3 for ½DIN and ¼DIN versions * Grey wire not used. ** For pH without solution ground, install jumper 3 to 4

	pH		O_2		Cond	
Term.	**Function**	**Color***	**Function**	**Color***	**Function**	**Color**
1	Glass	tansparent	–	–	Cnd inner1	white
2	–	–	Anode	red	Cnd outer1	white/blue
3	Reference**	red	–	–	Cnd inner2	blue
4	Solution GND/Shield**	green/yellow/ blue	Shield/GND	green/yellow	Cnd outer2/Shield	black & bare shield
5	–	–	Cathode	transparent	–	–
6	RTD ret/GND	white	GND	white	RTD ret/GND	clear
7	RTD sense	–	NTC	–	RTD sense	red
8	RTD	green	NTC	green	RTD	green
9	+5V	–	+5V	–	+5V	–

4 Wiring example for pH Transmitter (using TB3)

pH measurement with monitoring of glass electrode



9 +5V
8 RTD
7 RTD sense
6 RTD ret/GND
5 not used
4 Solution GND/Shield
3 Reference
2 not used
1 Glass

Note: Wire colors only valid for connection with VP cable, grey not connected.

5 General Setup (applies for all parameters) (PATH: Menu/Quick Setup)

While in Measurement mode press the [MENU] key to bring up the Menu selection. Select Quick Setup and press the [ENTER] key.

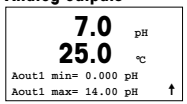
Convention:

1st line on display = > a	3rd line on display = > c
2nd line on display = > b	4th line on display = > d

Select the units of measurement for a and b. Only lines a and b can be configured in Quick setup. Go to the Configuration Menu to configure lines c and d.

For Conductivity, see "Conductivity Quick Setup" below for intermediate steps.

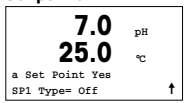
Analog outputs



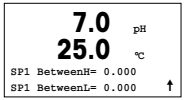
By selecting Yes the linear 4–20 mA analog output Aout1 will be set up when [ENTER] is pressed. Selecting No means that no analog output is set up.

Aout1 min, Aout1 max are the minimum and maximum measurement values for the 4 and 20 mA values respectively.

Set points



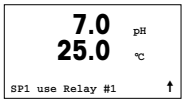
After configuring the Analog Output a Set Point can be configured for that output. If No is selected and [ENTER] is pressed then the quick setup is done and the menus are exited without setting up any set point.



Selecting Yes and pressing [ENTER] means a Set Point can be configured for channel a.

Following Set Point Types can be selected:
– High (High value has to be set)
– Low (Low value has to be set)
– Between (High and Low value has to be set)
– Outside (High and Low value has to be set)

For Mettler-Toledo Thornton Conductivity only:
– USP (% safety margin below U.S. Pharmacopoeia limits)
– EP PW (% safety margin below European Pharmacopeia limits for Purified Water)
– EPWFI (% safety margin below European Pharmacopeia limits for Water for Injection)

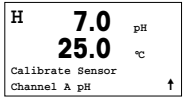


After setting the Set point value(s) a Relay (none, 1, 2, 3, 4) can be configured for that Set Point. The Relay delay is set to 10 seconds and the Hysteresis is set to 5%. If a relay is configured as HOLD relay, it will not be selectable in this menu.

6 pH Quick Setup (PATH: Menu/Quick Setup)

For Display setup, analog outputs and setpoints see the section "General Setup".

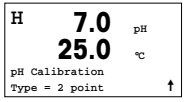
pH Two point Calibration (PATH: Cal)



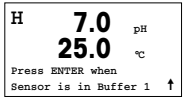
While in Measurement mode press the ▶ key. If the display prompts you to enter the calibration security code, press the ▲ or ▼ key to set the calibration security code, then press the [ENTER] key to confirm the calibration security code.

Press the ▲ or ▼ key to select the pH calibration sub function.

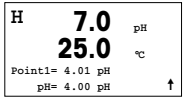
A flashing "H" in the top left hand corner shows the ongoing calibration process.



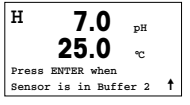
Select 2 point Calibration by pressing the [ENTER] key.



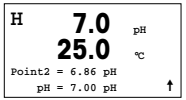
Place the electrode in the first buffer solution and then press the [ENTER] key.



Auto mode: The display shows the buffer that the transmitter has recognized (Point 1) and the measured value.
Manual mode: Enter the buffer value and press [ENTER] to proceed.

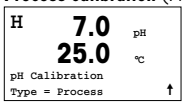


As soon as the drift conditions have been fulfilled (or [ENTER] was pressed in manual mode) the display changes and prompts you to place the electrode in the second buffer solution.

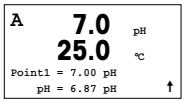


As soon as the drift conditions have been fulfilled (or [ENTER] was pressed in manual mode) the display changes to show the slope calibration factor s and the offset calibration factor Z. Select Yes to save the calibration values and the successful Calibration is confirmed on the display.

Process calibration (PATH: Cal)



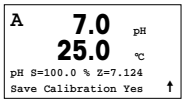
Select Process Calibration by pressing the ▲ key once followed by the [ENTER] key. To show the ongoing Calibration Process an "H"is displayed in the top left hand corner.



The "H" changes to "A" if Process Calibration is selected to show the user the ongoing calibration on Channel "A".

Take a sample and press the [ENTER] key again to store the current measuring Value.

After determining the pH Value of the Sample press the ▶ key again to proceed with the calibration. If the display prompts you to enter the calibration security code, press the ▲ or ▼ key to set the calibration security code, then press the ENTER key to confirm the calibration security code.



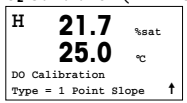
Enter the pH value of the sample then press the [ENTER] key to start calibration.

After the calibration the slope calibration factor S and the offset calibration factor Z are displayed. Select Yes to save the new calibration values and the successful Calibration is confirmed on the display. The "A" in the top left hand corner disappears.

7 O_2 Quick Setup (PATH: Menu/Quick Setup)

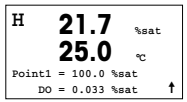
For Display setup, analog outputs and setpoints see the section "General Setup".

O_2 Calibration (PATH: Cal)



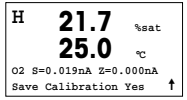
Enter Calibration mode by pressing the ▶ key.

A flashing "H" in the top left hand corner shows the ongoing calibration process.



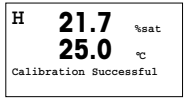
A DO sensor calibration is always a one point calibration either an Air (Slope) or a zero (Offset) calibration.

It is possible to select a Slope or Zero calibration. A one point slope calibration is done in air and a one point offset calibration is done at 0 ppb DO. Press the [ENTER] key after selecting Slope or Offset.



Enter the value for Point 1 including a decimal point. DO is the value being measured by the transmitter and sensor in the units set by the user. Press [ENTER] when this value is stable to perform the calibration.

After the calibration the slope calibration factor S and the offset calibration factor Z are displayed.

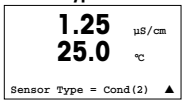


Select Yes to save the calibration values and the successful Calibration is confirmed on the display.

8 Conductivity Quick Setup (PATH: Menu/Quick Setup)

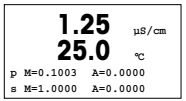
For Display setup, analog outputs and setpoints see the section "General Setup".

Sensor Type Selection



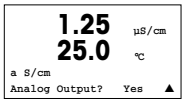
Select the type of sensor to be used with the M300 transmitter. Choices are 'Cond(2)', used for all 2-Electrode type sensors and 'Cond (4)' for all 4-electrode sensors. Press the [ENTER] key.

Cell Constant



Enter the appropriate cell constant(s): (M) for 2-electrode sensors, leaving (A) at 0.000; or (M) and (A) values for 4-electrode sensors. Press the [ENTER] key.

Measurement units



Select the measurement (conductivity or temperature) and units for measurement. If using analog output, select Yes. Refer back to section "General Setup" to continue setup.

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