Quick Guide

Bench 2700 Series

pH/mV/Ion/Conductivity/TDS/Salinity/
Resistivity/Dissolved Oxygen/ºC/ºF

EUTECH INSTRUMENTS
Technology Made Easy ...

OAKTON®

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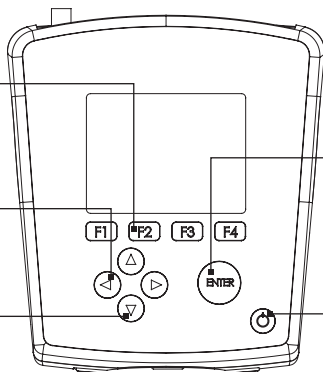## GETTING STARTED

■ Keypad And Display

Soft Function Keys (F1, F2, F3, F4): Function varies. Operation corresponds to highlighted tab directly above in the display.

Left/Right: Navigates available Tabs in Measurement mode. Moves cursor during certain setup modes.

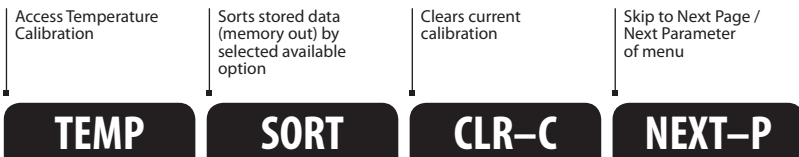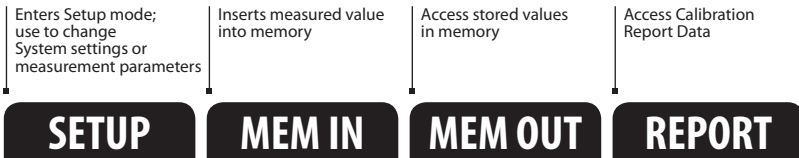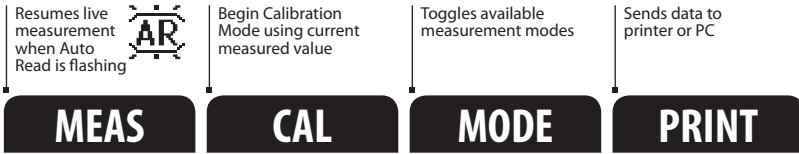**Up/Down:** Use to modify values in Setup & Calibration modes.

ENTER: Use to accept selection or confirm value. In Setup mode, confirms selection of modified values. In Calibration mode, confirms calibration values.

POWER: Turns the meter on and off. Upon power on, the meter automatically begins in the mode that was last used. Calibration and memory values are retained even if meter is unplugged. The time is displayed during power off.

Keys	Functions
AR	Auto Read is enabled. When flashing, the instrument has detected a '**Stable**' reading and locked the value. Press **MEAS** to resume live reading. To disable this feature go to SETUP…SYSTEM…AUTO READ.
Stable	Based on the stability criteria settings in System Setup, the instrument has detected a stable reading.
🔒	Password Protection: Enabled. Requires password for all calibration and setup menus.
🔓	Password Protection: Disabled. No password required for any menu.
🖶	Print Setting Timed interval is active; data is being output at regular intervals.
🔔	"High Alarm", "Low Alarm", or "Cal Due" alarm limit had been reached. High/Low alarms also have an audible notification.
ID:	Sample ID: User selectable five digit number to identify samples.
R1	Measuring Range # of displayed value (1 thru 5). Applicable to Conductivity, TDS, Salinity, or Resistivity measurements only.
(ATC)	Automatic Temperature Compensation is active; temperature is being actively acquired with attached electrode. ATC is recommended.
(MTC)	Manual Temperature Compensation is active. A temperature sensor may not be attached so the default temperature is used.

■ Navigation Of Tabs

Resumes live measurement when Auto Read is flashing

MEAS

Begin Calibration Mode using current measured value

CAL

Toggles available measurement modes

MODE

Sends data to printer or PC

PRINT

Enters Setup mode; use to change System settings or measurement parameters

SETUP

Inserts measured value into memory

MEM IN

Access stored values in memory

MEM OUT

Access Calibration Report Data

REPORT

Scroll to previous menu option

PREV

Scroll to next menu option

NEXT

ESCAPE – Use to cancel or exit out of current screen

ESC

Access Temperature Calibration

TEMP

Sorts stored data (memory out) by selected available option

SORT

Clears current calibration

CLR–C

Skip to Next Page / Next Parameter of menu

NEXT–P

SYSTEM SETUP & CONFIGURATION

Use the System Setup to customize operation of your 2700 series meter. Press **SETUP** from the measurement screen and then press **ENTER** when **SYSTEM** is highlighted to access these settings.

The following settings can be customized for each model:

STABILITY

STABILITY CRITERIA

AUTO READ

BACKLIGHT

DATALOG

PRINT SETUP

PRINT FORMAT

PRINT SET

DATE & TIME

PASSWORD

CLEAR DATALOG

FACTORY RESET

CONTRAST


```
Setup - System    Page ( 1/2 )

STABLITY          DISABLE  ⬘
S'LITY CRITERIA            ⬙
AUTO READ
BACKLIGHT
DATA LOG
PRINT MODE     − ▲ or ▼ to select value
PRINT FORMAT   − F3 ( Next ) to select others
PRINT SET      − Enter to confirm

   PREV          NEXT   ESC
```
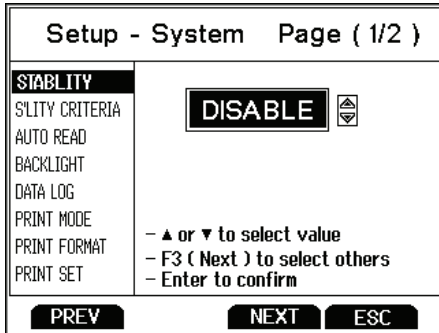
■ Stability

To aid with measurement and calibration, your meter has a unique feature that provides an obvious visual indication when the reading becomes stable. If the Stability feature is **enabled**, the digits on the primary reading will be faded when unstable, becoming solid when stable. If this feature is **disabled**, the primary reading will always be solid.

■ Stability Criteria

The 2700 allows adjustment of the Stable indicator which relates to how fast and frequent it appears. There are three levels of adjustment; **SLOW**, **MEDIUM**, & **FAST**.

To display a 'Stable' reading more quickly and more often, use "**FAST**" setting. **MEDIUM** or **SLOW** is recommended for most applications. When Auto Read is enabled, a stability criteria setting of "**SLOW**" is recommended to for best results.

SLOW: The Stable indicator will take longer to appear and will appear less frequently. Use this setting if you want the best results and don't mind waiting longer to get them.

MEDIUM: This is the factory default setting. It provides a balanced response which works best for most applications.

FAST: The Stable indicator will appear quickest of any setting. If you find that the Stable indicator frequently appears and disappears, you may want to select a slower setting. This setting is not recommended when **AUTO READ** is enabled. It is also not suitable for most non-refillable electrodes which are generally slower to respond.

■ Auto Read

If **AUTO READ** is enabled, the measured value will automatically lock when the Stable indicator appears. A flashing "**AR**" icon confirms this condition. To resume a live reading again, it is necessary to press **MEAS** each time Stable appears. Disable this feature to continuously view the active reading.

■ Backlight

Select "**PERMANENTLY ON**" on to keep the backlight on at all times that the meter is powered on. This will offer the best visibility but consumes the most power.

Select "**ON WITH KEY PRESS**" to turn on the backlight for a specified time after any key press. Select "0" to keep the backlight off at all times that the meter is powered on.

■ Data Log (Storing Data To Internal Memory)

Select "**SINGLE**" to manually save one point at a time. Press the "**MEM IN**" function key any time during measurement to save data.

Select "**TIMED**" to automatically save data at selectable intervals – ranging from 3 to 3600 seconds. Data will be collected until the data limit is reached or until "**SINGLE**" data log is selected. This feature is useful for gathering data from a single sample over time. Note that "**MEM IN"** is not available during **TIMED** setting. As data is collected, the display will indicate how much memory has been used.

To view stored data, use "**MEM OUT**". Note: the more data that has been acquired memory, the longer the data will take to display.

■ Print Setup

Adjust the RS-232 output settings for baud rate, parity, data bit, and stop bit to match your printer or computer settings as necessary.

■ Print Format

When utilizing the RS-232 output; choose "**TEXT/PRINTER**" option to send the data in an easily viewable format – best for printing.

Choose "**CYBERCOMM**" option to send the data as a comma separated value (CSV) – best for exporting data into spreadsheet software.

■ Print Set

This is identical to the Data log function, but data is sent via RS-232 output instead of internal memory.

Select "**SINGLE**" to manually output one value at a time – best for printing or collecting data to your PC from many samples.

Select "**TIMED**" to automatically output live data at selectable intervals – ranging from 3 to 3600 seconds. Data will be output until "**SINGLE**" Print set is selected. This feature is most useful for gathering data for use with software. Unlike the Data Log setting, data can be saved to memory using "**MEM IN**" during TIMED setting.

■ Date & Time

Setting the correct date and time is required for GLP and will apply to power off, measurement, data log, and print functions. Instrument has battery backup to retain date/time settings upon power loss. Factory reset will not apply to date and time setting once it has been set. Changes related to daylight savings time must be manually entered.

Date Format : Select (MM DD YY) or (DD MM YY)
Time Format : Select 12 Hrs (AM/PM) or 24 Hrs

■ Password

Select "**ENABLE**" to restrict access to Calibration and Setup modes. When password protection is enabled, password entry is required before performing any calibration, or making changes to the setup mode. Setup parameters can be viewed, but can not be changed without correct password entry. The password is a user selectable number from 1 to 99999.

Select "**DISABLE**" if password protection is not desired.

The meter does not allow you to edit setup parameters or perform a new calibration unless you enter the correct password. If an incorrect password is entered 3 consecutive times, the meter returns to measurement mode.

In the event the password can not be recovered, a password can be provided via a written request to Eutech Instruments/Oakton Instruments. The instrument serial number and your contact information are required.

■ Clear Datalog

Select "**YES**" to delete all saved data that was manually or automatically stored into memory. This step is most commonly required when the "**TIMED**" data log interval is not turned off and as a result, fills the memory to capacity. When the memory is full, deleting the saved data is required in order to save additional data. The 2700 will never erase old data in favor of new data when the memory is full.

If you wish to view, print or send the saved data to a PC before deleting, use the "**MEM OUT**" function from measurement mode.

■ Factory Reset

Select "**YES**" to reset the 2700 to the factory default settings except; Date & Time, Temperature calibration, and data stored in memory.

■ Contrast Adjustment

Optimize the contrast setting of your 2700 display for best visibility in your surrounding lighting conditions. Test various contrast settings for best results. This setting will be applied to both backlight and non-backlight conditions.

pH CALIBRATION GUIDE

■ pH Calibration (Using Custom Buffers)

Follow same procedure as below – differences are: 2 point minimum calibration is required, the primary display in cal mode is manually adjusted to the desired custom buffer value, and any pH value can be used in any order – but must be at least 1.0 pH unit apart from one another.

■ pH Calibration (Using Preset Buffer Group)

1. Turn meter on, press **MODE** if needed for pH measurement mode.

2. Press **CAL** (enter password if required) to enter calibration mode.

3. Rinse the pH electrode with clean water then dip in your pH buffer – the 1st calibration value must always be 7.00, 6.86, or 6.79 depending on the buffer group used; subsequent values can be calibrated in any order. Use an ATC electrode for most accurate results.

4. The primary display is the un-calibrated measured value. The 2700 automatically selects the appropriate value from your buffer group in the secondary display. This value will blink when the 'Stable' indicator appears. Selecting **CLR–C** will clear the existing calibration.

5. Press **ENTER** to accept calibration. The accepted value will be visible inside of a beaker icon. % slope is visible after two calibration points have been completed.

6. Repeat steps 3 - 5 with additional pH buffers or press **ESC** to save calibration. When the specified number of calibration points is met, the pH calibration report page is automatically displayed.

ION CALIBRATION GUIDE

■ Ion Selective Calibration (Minimum 2-Point Required)

1. Press **MODE** for ion measurement mode. "- - - -" indicates no ion calibration is stored. Press **CAL** .

2. Prepare two or more ion calibration standards. Rinse and dip your ISE into your lowest calibration standard. Use up/down arrows to match the upper value to your standard (from 0.001 to 10000).

3. Press `ENTER` after 'Stable' appears. The calibration value is acceptable if it is within 15 to 90 mV/decade and will be visible inside of a beaker icon.

4. Repeat steps 2 & 3 with the next lowest calibration standard (up to 8 standards) or press `ESC` to save the calibration.

** Refer to your ISE manual for electrode specific instructions and care.

CONDUCTIVITY CALIBRATION GUIDE

■ Conductivity Calibration (Manual Adjustment)

1. Press `CAL` if needed for calibration mode. Rinse electrode then dip into your conductivity standard – use lowest to highest when using multiple standards.

2. Use up/down arrows to adjust cell constant or press `NEXT` to keep the nominal value (recommended). Next, adjust the value to match your standard. Press `ENTER` when 'Stable'. The value, Range (R) and the new cell constant are now shown.

3. For multi-point calibration repeat with additional standards.
Press `ESC` to save calibration or press `NEXT` to view the calibration report. Calibrate one point per range, up to 5 points.

■ Conductivity Calibration (Automatic Recognition)

1. Press `CAL` if needed for calibration mode. Rinse electrode then dip into your conductivity standard – either 84 µS, 1413 µS, 12.88 mS or 111.8 mS.

2. Use up/down arrows to adjust cell constant or press `NEXT` to keep the nominal value (recommended). Press `ENTER` when 'Stable'. The value, Range (R) and the new cell constant are now shown.

3. For multi-point calibration repeat with additional standards. Press `ESC` to save calibration or press `NEXT` to view the calibration report. Calibrate one point per range, up to 4 points.

■ Concentration (ppm, mg/L) Dissolved Oxygen Calibration

1. Press **MODE** for concentration mode & rinse the probe – do not dry.

2. Dip the probe into sample of known DO concentration (i.e. determined by titration or another instrument). Press **CAL** .

3. Use up/down arrows to adjust the upper DO reading value to match your standard. The lower reading is the factory default value.

4. Press **ENTER** after 'Stable' appears to accept the calibration.

■ 100 % or 0 % Dissolved Oxygen Calibration

1. Press **MODE** for % mode & rine the probe – do not dry.

2. To calibrate 100 %, hold the probe facing downwards in air or dip into air saturated water. To calibrate 0 %, dip the probe in zero oxygen solution. Press **CAL** .

3. Press **ENTER** after 'Stable' appears to accept the calibration. Allow enough time – 0 % calibration can often take several minutes.

   Tip: When calibrating both 100 % and 0 %, always perform 100 % first.

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