# 8 or 16 Channel Universal Input Touch Screen Data Logger

**OMEGA™**

**OM-DAQXL**

1 YEAR WARRANTY · CE · RoHS



OM-DAQXL shown smaller than actual size.



Stylus (included).

- ✔ 7" Touch Screen TFT Display
- ✔ 8 or 16 Analog Channel Inputs
- ✔ 8 Digital I/O (4 Inputs, 4 Outputs)
- ✔ IIoT-Ready Through OPC UA/DA via Omega Enterprise Gateway
- ✔ Cloud-Ready Through MQTT via Omega Enterprise Gateway
- ✔ Measures Voltage, Current, Thermocouples, RTDs, Thermistors, Strain Gage, Frequency and Pulse
- ✔ 24-Bit Analog Input Resolution
- ✔ Fast Sampling Rate–125 Samples/Sec (1 Channel)
- ✔ 4 Alarm Outputs
- ✔ Large Data Storage: 1 GB Internal Memory, 32 GB SD Card or 32 GB USB Drive
- ✔ USB Device (PC Communication) and USB Host (USB Drive, Mouse, etc.)
- ✔ Powers from Rechargeable Lithium-Ion Battery and/or AC Adaptor
- ✔ Benchtop or Wall Mount Enclosure with Protective Rubber Boot Design

OM-DAQXL is an 8 or 16 channel analog input portable data logger with a 7 inch resistive touch color display. All inputs are programmable and can be configured for millivolts, volts, milliamps, thermocouple, RTD, thermistor, strain gauge, or frequency. All the menus, selections, and configurations can be done from the display touch screen. The unit also has 4 digital inputs, 4 digital outputs, 4 alarm outputs, one USB host port and one USB device port. The unit also has 3 LEDs for different indications (Power, Alarm and Logging).

The OM-DAQXL comes complete with protective rubber boot, rechargeable lithium ion battery, 32 GB SD card, one plastic stylus, 1 GB USB thumb drive, 1.8 m (6') USB cable, 1.8 m (6') digital I/O cable, alarm/excitation terminal block, universal AC adaptor, screwdriver, quick start guide, set of 5 PTFE insulated Type K thermocouples, set of 5 ferrites to install on the thermocouple inputs (for noise reduction) and crimp-on ground lug. The unit can be wall mounted using the provided keyhole mount or operated on a bench using the tilt stand. The USB Wi-Fi Dongle will come in a separate package for '-EW' Models.

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## Home Screen

The home screen is the main screen of the data logger's user interface. It is divided into 3 distinct sections as shown below.



Status/information display

Data display area

Navigation toolbar
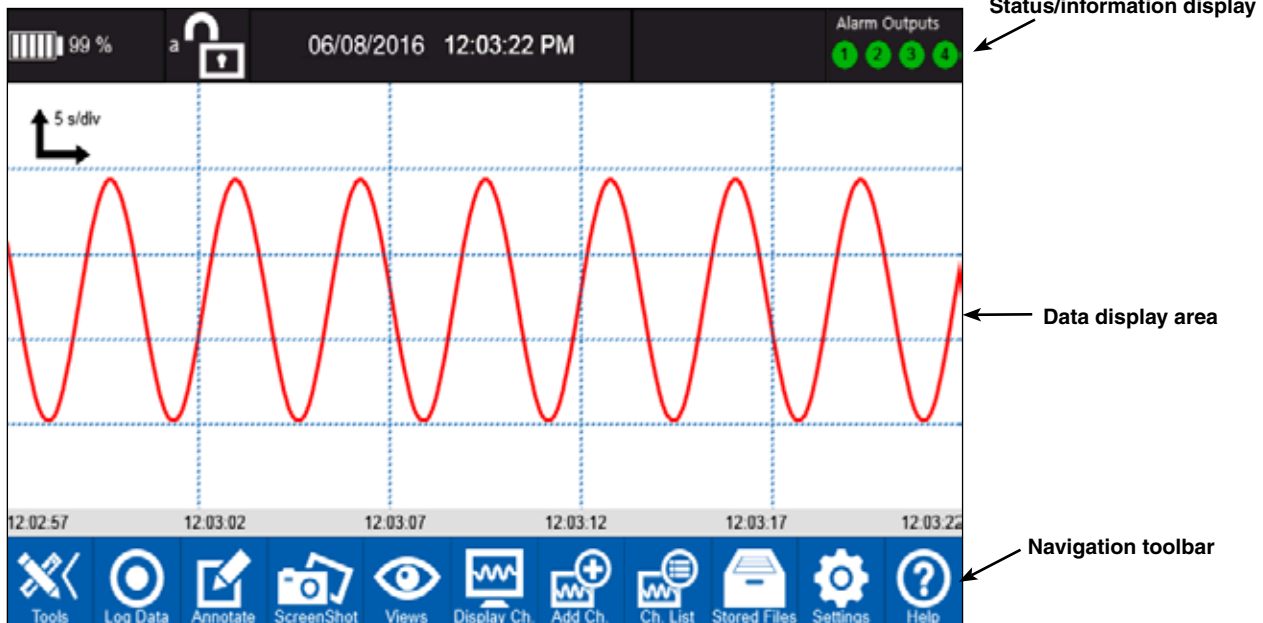
**Line graph display.**

## Digital Display View

**Status/Information Display:** This status bar provides information such as Battery Charge percentage, System Clock (displays current Time & Date), Lock/Unlock data logger, status of the 4 Alarm Outputs, and Logging Mode indication.
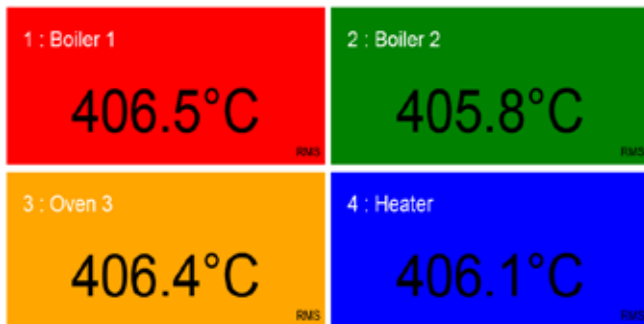


**Digital display.**

**Data Display Area:** This is the area where different inputs (up to 4 Channels) are displayed vs. time. The data is displayed in 4 different ways: Waveform, Waveform & Table, Table only, and Digital. In the Digital view, each channel name and number are displayed along with the value.

**Navigation Toolbar:** This toolbar provides access to all the functions and menus of the data logger. You can extend or retract the toolbar by pressing the Tool button. The following flow chart shows all the functionalities of the buttons of the toolbar.



**The OM-DAQXL comes complete with hard carrying case, protective rubber boot, rechargeable lithium ion battery, 32 GB SD card, one plastic stylus, 1 GB USB thumb drive, 1.8 m (6') USB cable, 1.8 m (6') digital I/O cable, alarm/excitation terminal block, universal AC adaptor, screwdriver, quick start guide, set of 5 PTFE insulated Type K thermocouples, set of 5 ferrites to install on the thermocouple inputs (for noise reduction) and crimp-on ground lug. Not all items shown. See User Guide for instructions on installing ferrites on the thermocouple inputs.**
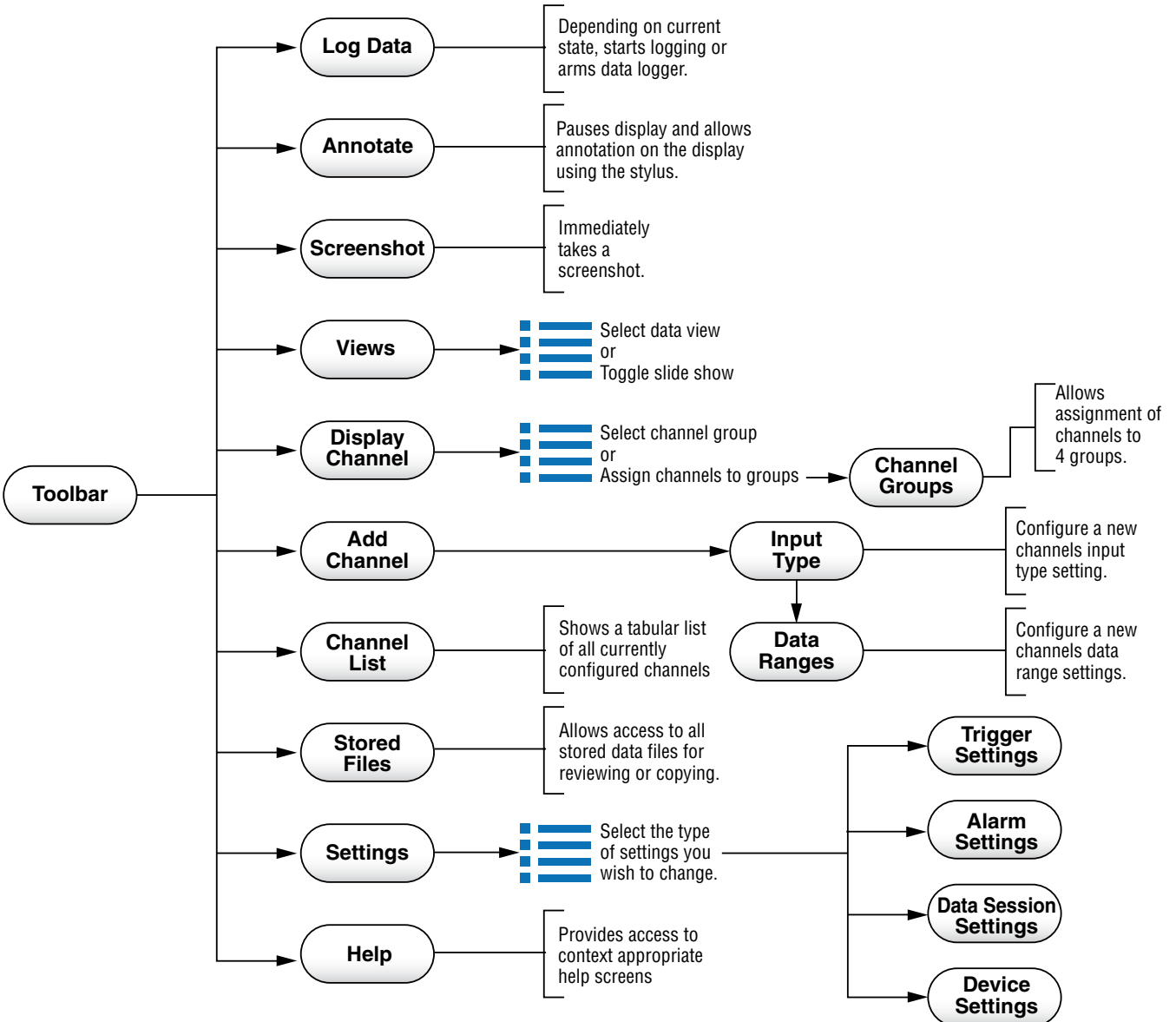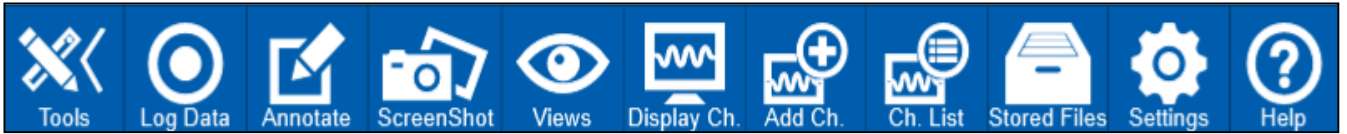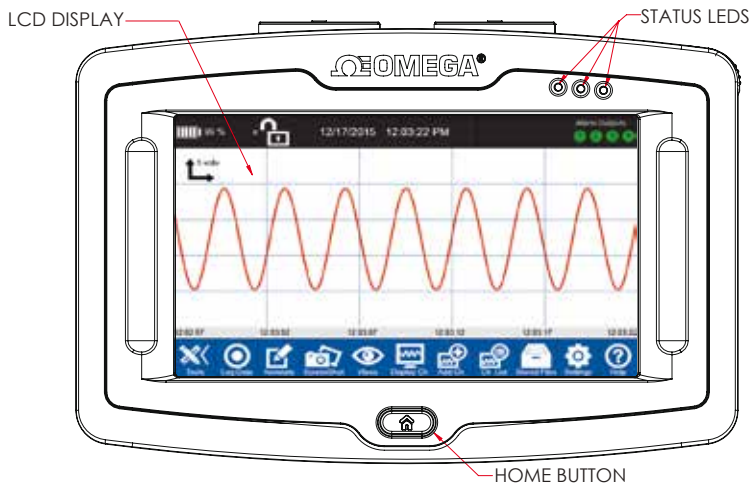
OM-DAQXL shown
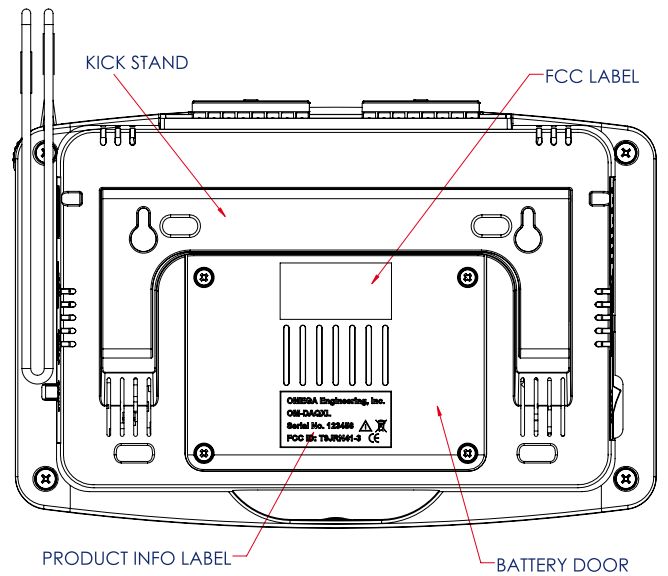smaller than actual size.

## Standalone Operation

The OM-DAQXL's touch screen user interface (UI) makes configuring the data logger for operation straight forward and simple. Recorded data files can easily be reviewed and analyzed on the OM-DAQXL. For data analysis on a computer, simply transfer the data file from the SD card or USB thumb drive to the PC and open the selected data file into Excel® or other data analysis software.

**Toolbar Flowchart**



| Tools | Log Data | Annotate | ScreenShot | Views | Display Ch. | Add Ch. | Ch. List | Stored Files | Settings | Help |

**Toolbar**

**Log Data** — Depending on current state, starts logging or arms data logger.

**Annotate** — Pauses display and allows annotation on the display using the stylus.

**Screenshot** — Immediately takes a screenshot.

**Views** — Select data view or Toggle slide show

**Display Channel** — Select channel group or Assign channels to groups → **Channel Groups** — Allows assignment of channels to 4 groups.

**Add Channel** → **Input Type** — Configure a new channels input type setting.

**Input Type** → **Data Ranges** — Configure a new channels data range settings.

**Channel List** — Shows a tabular list of all currently configured channels

**Stored Files** — Allows access to all stored data files for reviewing or copying.

**Settings** — Select the type of settings you wish to change. → **Trigger Settings**, **Alarm Settings**, **Data Session Settings**, **Device Settings**

**Help** — Provides access to context appropriate help screens

LCD DISPLAY

STATUS LEDS

HOME BUTTON

**Front view, OM-DAQXL**

KICK STAND

FCC LABEL

PRODUCT INFO LABEL

BATTERY DOOR

**Back view, OM-DAQXL**

ANALOG INPUT TERMINALS

CH1 CH2 CH3 CH4   CH5 CH6 CH7 CH8
CH9 CH10 CH11 CH12   CH13 CH14 CH15 CH16

**Top view, OM-DAQXL**

SD CARD SLOT

**Bottom view, OM-DAQXL**

ALARM, EXTERNAL TRIGGER & 24V
EXCITATION TERMINAL

24V EXC
EXT TRIG
GRID
GRID
ALARM4
ALARM3
ALARM2
ALARM1

DIGITAL

12V

POWER

POWER
SWITCH

DIGITAL I/O

12V DC INPUT
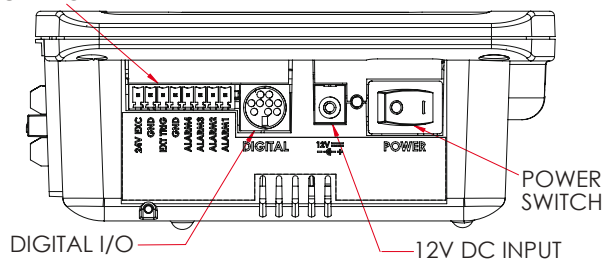
**Left side view, OM-DAQXL**

Ethernet Port only available for -EW models

SHELL GROUND
TERMINAL

SHIELD
DEVICE
HOST
ETHERNET

USB DEVICE PORT

USB HOST PORT

ETHERNET PORT
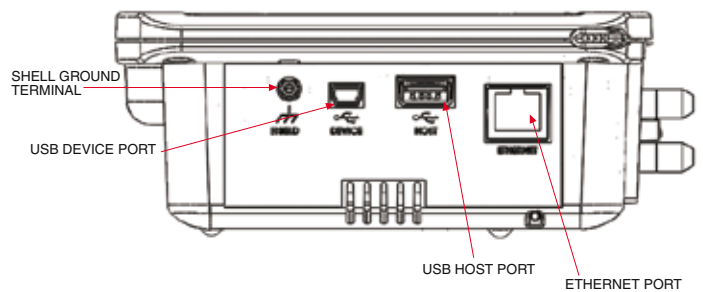
**Right side view, OM-DAQXL**

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# Specifications

**Screen:** 7 inch, TFT, resistive touch comes with plastic stylus
**Rubber Boot:** Black
**Analog Input Type:** Thermocouple, thermistor, RTD, strain gauge, DC voltage, DC current
**Digital Input Type:** Pulse/Frequency
**Thermocouple Types:** J, K, T, E, R, S, B, C, N

| T/C Type | Range (°C) | Range (°F) |
|---|---|---|
| J | -200 to 1100°C | -328 to 2012°F |
| K | -200 to 1370°C | -328 to 2300°F |
| T | -200 to 400°C | -328 to 752°F |
| E | -200 to 1000°C | -328 to 1832°F |
| R | 0 to 1760°C | 32 to 3200°F |
| S | 0 to 1760°C | 32 to 3200°F |
| B | 500 to 1820°C | 932 to 3308°F |
| C | 0 to 2315°C | 32 to 4200°F |
| N | -100 to 1300°C | -148 to 2372°F |

| T/C Type | Accuracy at Positive Range (and above -49°C) | Accuracy at Negative Range (-50°C to -200°C) |
|---|---|---|
| J | ±(0.15% of range + 1.1°C) | ±(0.25% of range + 1.1°C) |
| K | | |
| T | ±(0.15% of range + 1.7°C) | ±(0.25% of range + 2.6°C) |
| E | | |
| N | | |
| R | ±(0.15% of range + 2.0°C) | ±(0.25% of range + 2.6°C) |
| S | | |
| B | | |
| C | | |

**Temperature Coefficient:** 50 PPM/°C (for all inputs)

**Frequency/Pulse Input:** 0 to 250 KHz
**Frequency Accuracy:** ±2 Hz
**Strain Gauge Type:** 100Ω full bridge, 350 Ω full bridge
**Strain Gauge Excitation:** 5V, 10V
**Sampling Rate:** 125 s/sec (Max) to 1 s/hour (Min)
**Maximum Sampling Rate per Number of Channels (Analog and Digital):**
  **1 Channel:** 125 s/sec
  **2 Channels:** 50 s/sec
  **4 Channels:** 25 s/sec
  **8 Channels:** 10 s/sec
  **16 Channels:** 5 s/sec
**Logging Rate:** 125 s/sec (Max) to 1 s/hour (Min)
**Maximum Logging Rate per Number of Channels (Analog and Digital):**
  **1 Channel:** 125 s/sec
  **2 Channels:** 50 s/sec
  **4 Channels:** 25 s/sec
  **8 Channels:** 10 s/sec
  **16 Channels:** 5 s/sec
**Excitation to Power External Transmitter:** 24 Vdc @ 50 mA output–set in data session setting
**Filter Options:** Per channel selectable moving average filter: None, 2, 5, 10, 20 or 50 samples
**Number of Samples for Moving Average Filter per Channel:** Up to 50 samples
**Math (Virtual) Channels:** 8 or 16
**Digital Inputs:** 4 Schmitt trigger based inputs
  **Range:** 0 to 24 Vdc single-ended
  **Logic High Threshold:** 2.5V
  **Logic Low Threshold:** 1.5V
**Digital Outputs:** 4 channels, open collector, 5V @ 50 mA

| Thermistor Type | |
|---|---|
| Thermistor Type | 2252Ω/10 KΩ |
| Range (2252Ω) | -30 to 150°C (-22 to 302°F) |
| Range (10 KΩ) | -5 to 150°C (23 to 302°F) |
| Resolution | 0.1°C |
| Accuracy | ±1°C |

| RTD Types | |
|---|---|
| 2-, 3- or 4-Wire RTD Sensor Standard | Lead wire compensation |
| 2-, 3- or 4-Wire RTD Sensor Standard | Pt 100, Pt 500, Pt 1000 (0.00385 curve) |
| 2-, 3- or 4-Wire RTD Sensor Standard | Pt 100, Pt 500, Pt 1000 (0.00392 curve) |
| Range (0.00385 curve) | -200 to 850°C (-328 to 1562°F) |
| Range (0.00392 curve) | -200 to 660°C (-328 to 1220°F) |
| Accuracy | ±(0.25% of reading +1°C) |
| Resolution | 0.1°C |

| DC Voltage Input | | |
|---|---|---|
| Voltage Range | Measurement Range | Accuracy |
| 50 mV | -50 to 50 mV | ±0.1% of FS |
| 100 mV | -100 to 100 mV | |
| 1V | -1.00 to 1.00V | |
| 5V | -5.00 to 5.00V | |
| 10V | -10.00 to 10.00V | |
| 20V | -20.00 to 20.00V | |
| 50V | -30.00 to 30.00V | ±0.1V |

| DC Current Input | | |
|---|---|---|
| Current Range | Measurement Range | Accuracy |
| 20 mA | -20 to 20 mA | ±0.1% of FS |

**Alarm Output:** 4, Open collector, 30V @ 500 mA
**Alarms per Channel:** Two
**Alarm Types:** High, low, windows in, windows out, open sensor
**Alarm Latching:** Settable in alarm menu
**On Alarm Event:** Map to 4 alarm outputs, take screen shot, sound buzzer
**Logging Conditions:** On command or based on trigger conditions
**Start and Stop Trigger Conditions:** Timer, date and time, weekday and time, alarm output, external trigger
**Memory:**
  **Internal:** 1 GB
  **SD Card:** 32 GB
  **USB Drive:** 32 GB
**USB Ports:** One host and one device
**Ethernet\*:** 10/100 Base-T, TCP/IP
**USB Wi-Fi Dongle\*:** 802.11 b/g/n, USB 2.0 interface, up to 150 Mbps, WEP and WPA/WPA2 encryption schemes
*\*Only available on -EW models.*
**Battery:** Rechargeable lithium-ion; 7.2V @ 4.8 Ah
**Battery Life:** 4 to 8 hours based on display setting
**DC Adaptor:** 12 Vdc @ 5A
**Operating Environment:** 0 to 50°C (32 to 122°F), 0 to 95% RH non-condensing
**General Dimensions:** 28.6 L x 15.24 H x 6.35 cm D (9 x 6 x 2.5")
***Note:*** *Measurement accuracy is at room temperature after 40 minutes of warm-up and with all input sensors connected.*

| Country Code | AC Power Cord Included |
|---|---|
| NA | North America |
| UK | UK |
| EU | Europe |
| CN | China |
| JP | Japan |
| KR | Korea |
| SEA | Southeast Asia |
| SAA | Australia |
| SN | Singapore |
| BR | Brazil |
| MX | Mexico |

**OM-DAQXL with protective rubber boot removed (included). Shown smaller than actual size.**

## To Order

| Model | Description |
|---|---|
| **OM-DAQXL-1-\*** | 8-channel touch screen data logger with USB host/device |
| **OM-DAQXL-2-\*** | 16-channel touch screen data logger with USB host/device |
| **OM-DAQXL-1-EW-\*** | 8-channel data logger with USB host/device, Ethernet and Wi-Fi |
| **OM-DAQXL-2-EW-\*** | 16-channel data logger with USB host/device, Ethernet and Wi-Fi |

*\* Insert country code.*

*Comes complete with hard carrying case, protective rubber boot, 32 GB SD card, 1 GB USB thumb drive, 1.8 m (6') USB cable, 1.8 m (6') digital I/O cable, alarm/excitation terminal block, universal AC adaptor, screwdriver, quick start guide, set of 5 PTFE insulated Type K thermocouples and crimp-on ground lug. USB Wi-Fi dongle will come in a separate package for -EW models.*

***Ordering Example: OM-DAQXL-1-NA,** 8-channel touch screen data logger with USB host/device.*

### Accessories

| Model No. | Description |
|---|---|
| **OM-DAQXL-RB** | Spare rubber boot |
| **SD32GB** | Spare 32 GB SD card |
| **OM-DAQXL-USB** | Spare USB cable, 1.8 m (6') |
| **OM-DAQXL-CABLE6** | Spare digital I/O cable, 1.8 m (6') |
| **OM-DAQXL-TB8** | Spare alarm/excitation terminal block |
| **5TC-TT-K-20-36** | Spare set of 5 Type K thermocouples with stripped leads |
| **PT-USB-1** | Spare 1 GB thumb drive |
| **OM-DAQXL-RF** | Spare ferrite for thermocouple input |
| **OM-DAQXL-ADAPTOR-\*** | Spare 12 Vdc, 5A power adaptor |
| **OM-DAQXL-BATTERY** | Spare rechargeable battery pack |
| **OM-DAQXL-STYLUS** | Spare stylus |
| **USB-WIFI** | USB Wi-Fi Dongle certified for US, EU and Canada |
| **USB-WIFI-AP** | USB Wi-Fi Dongle certified for US, Japan and China |

*\* Insert country code*
*-EW models are compatible with USB Wi-Fi dongles that support Windows Embedded Compact 7.0.*