

# 21CFR Compatible Temperature Data Logger with LCD Screen

- -35 to +80°C (-31 to +176°F) measurement range
- Stores over 16,000 readings
- Omega's 21CFR software available as a free download
- Logging rates between 10 seconds and 12 hours
- High contrast LCD, with two and a half digit temperature display function
- Immediate, delayed and push-to-start logging
- User-programmable alarm thresholds
- Use as part of a 21CFR Part 11 compliant system



This standalone data logger measures and stores more than 16,000 temperature readings over a -35 to +80°C (-31 to +176°F) range with a resolution of 0.5°C (1°F).

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the free 21CFR software. Data can then be graphed, printed and exported to other applications for detailed analysis. The encrypted data has full audit tracking to comply with the requirements of 21CFR Part 11.

The high contrast LCD can show a variety of temperature information. At the touch of a button, the user can cycle between the current, maximum and minimum stored values for temperature.

The data logger is supplied with a lithium metal battery which gives two years' logging life. The logger is protected against ingress from water and dust to IP67 standard when the cap is fitted.

Custom NIST Calibration options are available. Call **1-888-826-6342** To speak to a sales representative.

## SPECIFICATIONS

Measurement range	-35 to +80°C (-31 to +176°F)
Internal resolution	0.5°C (1°F)
Accuracy (overall error)	+/- 0.5°C typical (see graph on page 4)
Logging rate	User selectable between 10 seconds & 12 hours
Operating temperature range	-35 to +80°C (-31 to +176°F)
Battery Life	2 years (at 25°C and 1 minute logging rate, LCD on)
Readings	16,379
Dimensions	120 x 25 x 22mm (4.72 x 0.98 x 0.86")

## IN THE BOX

OM-BAT 3V6 1/2AA	Battery
OM-EL-LCD WALL BRACKET	Mounting Bracket



## ORDERING GUIDE

P/N	Description
OM-EL-21CFR-1-LCD	21CFR Compliant USB Temperature Data Logger
OM-EL-21CFR-1-LCD-NIST	21CFR Compliant USB Temperature Data Logger - NIST CAL at +5C

## ACCESSORIES

P/N	Description
OM-BAT3V6 1/2AA	Replacement battery for OM-EL-21CFR Series

# 21CFR Compatible Temperature Data Logger with LCD Screen

## STORE DATA IN COMPLIANCE WITH THE REGULATIONS OF 21CFR PART 11

Easy to install and use, Omega's **21CFR software** is compatible with all latest versions of Windows (7, 8 & 10 - both 32-bit & 64-bit) and is available as a free download from [www.omega.com](http://www.omega.com). All data collected from the logger and associated audit trails are stored in an encrypted format which cannot be edited.

## CONTROL YOUR LOGGER

Users can configure their loggers with the following parameters:

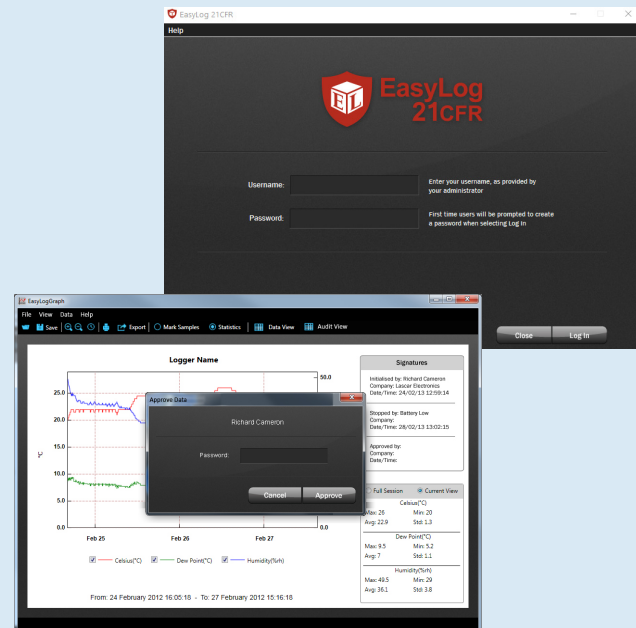
- Logger name
- Temperature measurement parameter (°C or °F)
- Logging rate (user selectable between 10 seconds and 12 hours)
- High and low alarms for temperature
- Immediate, delayed and push-to-start logging mode

Once users have recorded data, the built-in graphing software allows them to graph and annotate their data, or export it to Excel, PDF or jpeg formats.

## CONTROL YOUR DATA

21CFR software ensures digital security and compliance:

- Assign individual users with specific permissions
- Full software & session data audit trails
- Receive email alerts for failed log in attempts
- Digital signatures added to all reports
- Add comments to specific readings



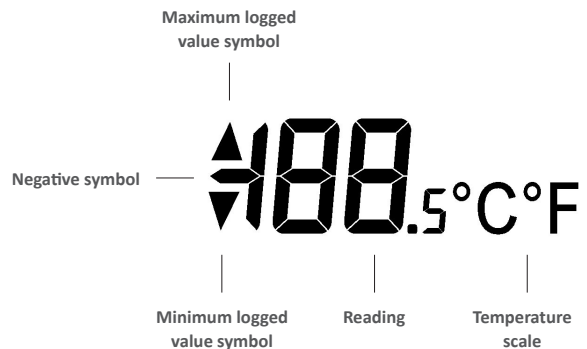
For more information, and to download the latest version of the software free of charge, visit:  
[www.omega.com](http://www.omega.com)

# 21CFR Compatible Temperature Data Logger with LCD Screen

## DISPLAY STATUS INDICATION

The OM-EL-21CFR-1-LCD features a high contrast LCD which shows logged temperature values using seven segment numbers, along with annunciators. The LCD can also show information regarding the logging status.

The LCD shows three different recorded readings, which can be cycled through using the built-in push button. The most recent logged temperature, maximum logged temperature and minimum logged temperature can be displayed.



Display	Logger Status	Explanation
	Delayed Start	This is shown when the logger is set to start at a specific date and time. If the logger is set to 'LCD off' or 'LCD on for 30 seconds' mode, then this will only be shown after the button is pressed. Otherwise the display will remain blank
	Push to Start	This is shown when the logger is set up for 'Push to Start' logging
	Logging	This is shown when the logger is running in 'LCD off' mode, and the button is pressed. The display clears again after three seconds
	Stopped	If the logger has not been set to log and the button is pressed, three dashes are displayed for a few seconds

## LED STATUS INDICATION

The OM-EL-21CFR-1-LCD features two LEDs:

- The first LED flashes **red** to indicate that the OM-EL-21CFR-1-LCD is in an alarm condition. It will flash when the logged temperature has exceeded a Low or High alarm level.
- The second LED flashes **green** to indicate that the OM-EL-21CFR-1-LCD is not in an alarm condition.

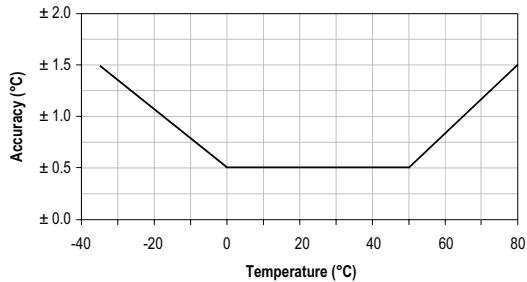
Using Omega's 21CFR it is possible to set the alarm to remain active even if the reading has returned to normal, in which case the alarm LED will continue to flash red. This 'Hold' feature in the software ensures the user is notified that at some point an alarm level has been exceeded, without needing to download the data.

Hold is enabled by default, and can be turned off via the control software. The red LED will then only flash whilst the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

	<b>Green single flash (every 10 seconds)</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start)
	<b>Green single flash (every 20 seconds)</b> The data logger is currently logging. No alarm
	<b>Green single flash (every 30 seconds)</b> The data logger is full and has stopped logging. No alarm
	<b>Green double flash (every 20 seconds)</b> The data logger is currently logging. Low alarm
	<b>Red single flash (every 10 seconds)</b> The data logger is full and has stopped logging. Low alarm
	<b>Red single flash (every 20 seconds)</b> The data logger is currently logging. High alarm
	<b>Red double flash (every 10 seconds)</b> The data logger is full and has stopped logging. High alarm
	<b>Red double flash (every 20 seconds)</b> The battery is running low. Data logging will continue until the battery voltage drops below 2.8V
	<b>Red/Green single flash (every 20 seconds)</b> The battery is running low. Data logging will continue until the battery voltage drops below 2.8V
	<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery

# 21CFR Compatible Temperature Data Logger with LCD Screen

## MEASUREMENT ACCURACY



## BATTERY INFORMATION

### Replacement

We recommend that you replace the battery annually, or prior to logging critical data. Only use 3.6V ½AA lithium metal batteries. The data logger does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and will not resume until the battery is replaced and the logger restarted by the Omega 21CFR Software.

Before replacing the battery, remove the data logger from the PC. Please note that leaving the data logger plugged into the USB port for extended periods will cause some of the battery capacity to be lost.

### Passivation

If left unused for extended periods of time lithium metal batteries, including those used in the Omega's range of data loggers, naturally form a non-conductive internal layer preventing them from self-discharge and effectively increasing their shelf life. When first installed in the data logger, this may cause a momentary drop in the battery voltage (the Transient Minimum Voltage) as the internal layer is broken down, resulting in the data logger resetting. Inserting the batteries in the data logger and leaving it connected to a PC for about 30 seconds will remove this layer. After this, remove and re-install the batteries to reset the data logger. Overall battery life will not be affected.

### WARNING

Handle lithium metal batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.



# 21CFR Compatible Temperature, Humidity & Dew Point Data Logger with LCD Screen

- -35 to +80°C (-31 to +176°F) and 0 to 100%RH measurement range
- Stores over 16,000 readings for both temperature and humidity
- Omega's 21CFR software available as a free download
- High contrast LCD, with two and a half digit temperature and humidity display function
- Logging rates between 10 seconds and 12 hours
- Immediate, delayed and push-to-start logging
- User-programmable alarm thresholds for both temperature and humidity
- Use as part of a 21CFR Part 11 compliant system



This standalone data logger measures and stores over 16,000 temperature and humidity readings from -35 to +80°C (-31 to +176°F) and 0 to 100%RH range at a resolution of 0.5°C (1°F) and 0.5%RH.

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the free 21CFR software. Data, including calculated dew point, can then be graphed, printed and exported to other applications for detailed analysis. The encrypted data has full audit tracking to comply with the requirements of 21CFR Part 11.

The high contrast LCD can show a variety of temperature and humidity information. At the touch of a button, the user can cycle between the current temperature and humidity, along with the maximum and minimum stored values for temperature and humidity.

The data logger is supplied with a lithium metal battery, giving up to 2 years' logging life. The logger is protected against ingress from water and dust to IP67 standard when the cap is fitted.

Custom NIST Calibration options are available. Call **1-888-826-6342** To speak to a sales representative.

## IN THE BOX

OM-BAT 3V6 1/2AA	Battery
OM-EL-LCD WALL BRACKET	Mounting Bracket

## ORDERING GUIDE

P/N	Description
OM-EL-21CFR-2-LCD	21CFR Compliant USB Temperature and Humidity Data Logger w/ LCD
OM-EL-21CFR-2-LCD-NIST	21CFR Compliant USB Temperature and Humidity Data Logger w/ LCD - NIST CAL at +25°C and 50% RH

## ACCESSORIES

P/N	Description
OM-BAT3V6 1/2AA	Replacement battery for OM-EL-21CFR Series

## SPECIFICATIONS

Temperature	Measurement range	-35°C to 80°C (-31°F to 176°F)
	Internal resolution	0.5°C (1°F)
	Accuracy (overall error)*	0.55°C (1.04°F) typical (5 to 60°C)
	Long term stability	<0.02°C (0.04°F) / year
Relative Humidity	Measurement range	0 to 100%RH
	Internal resolution	0.5%RH
	Accuracy (overall error)*	2.25%RH typical (20 to 80%RH)
	Long term stability	<0.25%RH / year
Dew Point	Accuracy (overall error)*	1.7°C typical (-35 to 80°C, 40 to 100%RH)
Logging rate	User selectable between 10 seconds & 12 hours	
Operating temperature range	-35 to +80°C (-31 to +176°F)	
Battery life	2 years (at 25°C and 1 minute logging rate, LCD on)	
Readings	16,382 temperature, 16,382 relative humidity	
Dimensions	126 x 25 x 22mm (4.96 x 0.98 x 0.86")	

\* The overall error takes in to account the sensor accuracy (as shown on page 5) and the resolution of the data logger



# 21CFR Compatible Temperature, Humidity & Dew Point Data Logger with LCD Screen

## STORE DATA IN COMPLIANCE WITH THE REGULATIONS OF 21CFR PART 11

Easy to install and use, Omega's **21CFR software** is compatible with all latest versions of Windows (7, 8 & 10 - both 32-bit & 64-bit) and is available as a free download from [www.omega.com](http://www.omega.com). All data collected from the logger and associated audit trails are stored in an encrypted format which cannot be edited.

## CONTROL YOUR LOGGER

Users can configure their loggers with the following parameters:

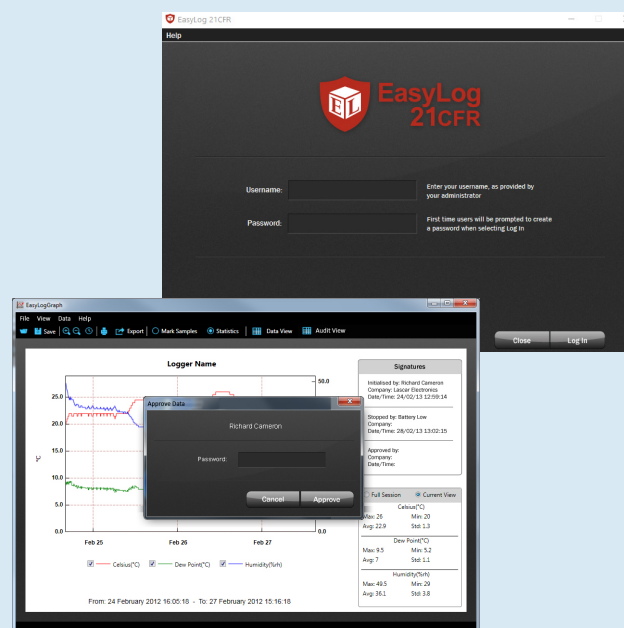
- Logger name
- Temperature measurement parameter (°C or °F)
- Logging rate (user selectable between 10 seconds and 12 hours)
- High and low alarms for temperature
- Immediate, delayed and push-to-start logging mode

Once users have recorded data, the built-in graphing software allows them to graph and annotate their data, or export it to Excel, PDF or jpeg formats.

## CONTROL YOUR DATA

21CFR software ensures digital security and compliance:

- Assign individual users with specific permissions
- Full software & session data audit trails
- Receive email alerts for failed log in attempts
- Digital signatures added to all reports
- Add comments to specific readings



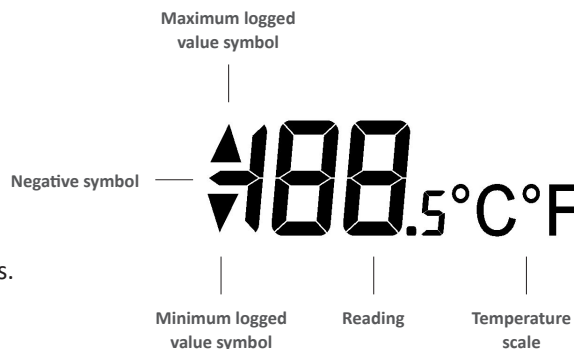
For more information, and to download the latest version of the software free of charge, visit:  
[www.omega.com](http://www.omega.com)

# 21CFR Compatible Temperature, Humidity & Dew Point Data Logger with LCD Screen

## DISPLAY STATUS INDICATION

The OM-EL-21CFR-2-LCD features a high contrast LCD which shows logged temperature and humidity values using seven segment numbers, along with annunciators. The LCD can also show information regarding the logging status.

The LCD shows six different recorded readings, which can be cycled through using the built-in push button. The most recent logged value, maximum logged value and minimum logged value can be displayed separately for humidity and temperature.

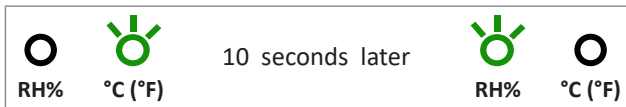


Display	Logger Status	Explanation
ds	Delayed Start	This is shown when the logger is set to start at a specific date and time. If the logger is set to 'LCD off' or 'LCD on for 30 seconds' mode, then this will only be shown after the button is pressed. Otherwise the display will remain blank
PS	Push to Start	This is shown when the logger is setup for 'Push to Start' logging
109	Logging	This is shown when the logger is running in 'LCD off' mode, and the button is pressed. The display clears again after three seconds
---	Stopped	If the logger has not been set to log and the button is pressed, three dashes are displayed for three seconds

## LED STATUS INDICATION

The OM-EL-21CFR-2-LCD features two green/red LEDs, one to represent temperature measurement and the other to represent humidity measurement. Each is clearly marked on the logger. To save power, the status indication alternates between the two channels every 10 seconds. First you will see the status of the temperature channel and 10 seconds later you will see the status of the RH channel and so on.

In normal operation the green LED will flash, but will change to red if an alarm condition has been triggered. Using the Omega software it is possible to set the alarm to remain active even if the reading has returned to normal, in which case the alarm LED will continue to flash red. This 'Hold' feature in the software ensures the user is notified that at some point an alarm level has been exceeded, without needing to download the data.

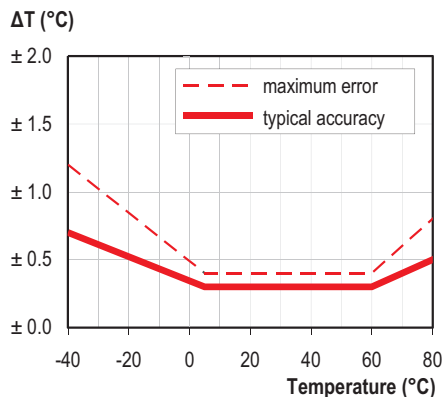


	<b>Green double flash</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start)
	<b>Green single flash</b> The data logger is currently logging. No alarm on the channel
	<b>Red single flash</b> The data logger is currently logging. Low alarm on the channel
	<b>Red double flash</b> The data logger is currently logging. High alarm on the channel
	<b>Green triple flash</b> The data logger is full and has stopped logging. No alarm on the channel
	<b>Red triple flash</b> The data logger is full and has stopped logging. Alarm (high, low or both) on the channel
	<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery
	<b>Dual Red flash (every 60 seconds)</b> The data logger battery is running low as it's voltage has dropped below 2.9V

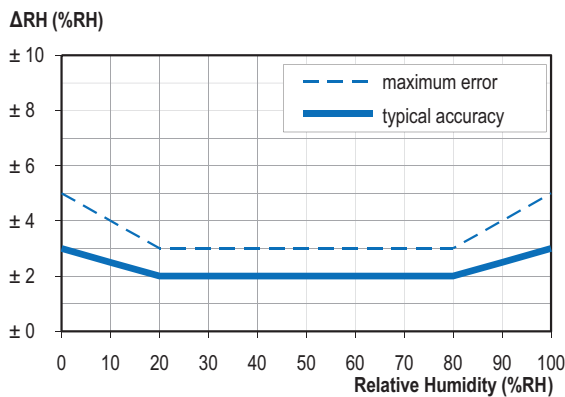
# 21CFR Compatible Temperature, Humidity & Dew Point Data Logger with LCD Screen

## SENSOR ACCURACY & INFORMATION

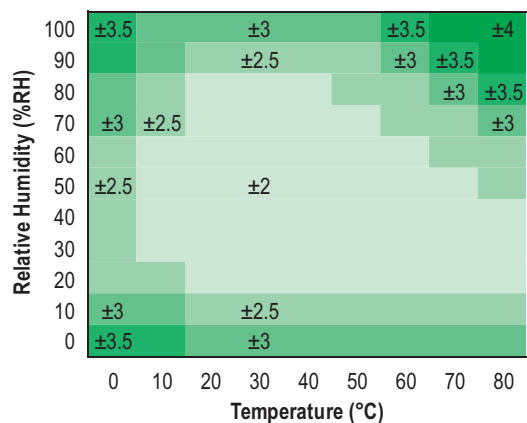
Typical and maximal tolerance for temperature sensor in °C.



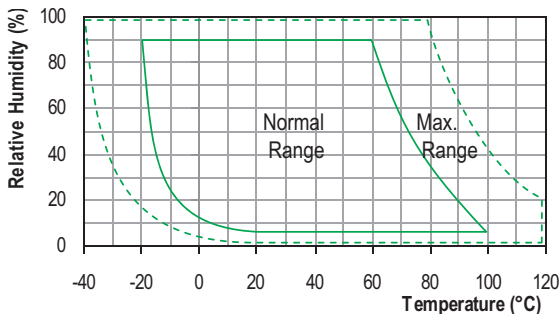
Typical and maximal tolerance at 25°C for relative humidity.



Typical accuracy of relative humidity measurements given in %RH for temperatures 0 to 80°C.



Operating conditions



Long term exposure to humidity levels outside of the 'normal' range may temporarily offset RH measurements (±3%RH after 60 hours). Once returned to less extreme conditions the device will slowly return towards calibration state.

When tracking changes in ambient conditions, the response time of the humidity sensor in your data logger is approximately 20 minutes to reach 90% of the reading. However, if you are measuring step changes in humidity (for example if calibrating the product) it is advised that you leave the unit for up to four hours to ensure that it has enough time to settle at the new level.

It is worth remembering that the value of relative humidity is of course sensitive to temperature variation. As an example, at a relative humidity of ~90%RH at ambient temperature, a variation in temperature of 1°C will result in a change of up to -5%RH. Therefore when comparing multiple devices or calibrating them, any temperature variations must be considered.

# 21CFR Compatible Temperature, Humidity & Dew Point Data Logger with LCD Screen

## SENSOR ACCURACY & INFORMATION

The humidity measuring element in the humidity data loggers can be contaminated through exposure to a variety of compounds. These products should not be kept in proximity to volatile chemicals such as solvents and other organic compounds. Generally speaking, if a material or compound emits a strong odour you should not keep your humidity data logger in close proximity to it. If you would like more information, please contact your local Lascar Electronics office.

Exposure to extreme conditions or chemical vapours will require the following reconditioning procedure to bring the internal sensor back to calibration state:

<b>Baking</b>	80°C (176°F) at < 5%RH for 36 hours.
<b>Re-hydration</b>	20 to 30°C (70 to 90°F) at > 74%RH for 48 hours.

High levels of pollutants may cause permanent damage to the internal sensor.

## BATTERY INFORMATION

### Replacement

We recommend that you replace the battery annually, or prior to logging critical data. Only use 3.6V ½AA lithium metal batteries. The data logger does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and will not resume until the battery is replaced and the logger restarted by the Omega 21CFR software.

Before replacing the battery, remove the data logger from the PC. Please note that leaving the data logger plugged into the USB port for extended periods will cause some of the battery capacity to be lost.

### Passivation

If left unused for extended periods of time lithium metal batteries, including those used in the Omega's range of data loggers, naturally form a non-conductive internal layer preventing them from self-discharge and effectively increasing their shelf life. When first installed in the data logger, this may cause a momentary drop in the battery voltage (the Transient Minimum Voltage) as the internal layer is broken down, resulting in the data logger resetting. Inserting the batteries in the data logger and leaving it connected to a PC for about 30 seconds will remove this layer. After this, remove and re-install the batteries to reset the data logger. Overall battery life will not be affected.

### WARNING

Handle lithium metal batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.

# 21CFR Compatible T-Type Thermocouple Data Logger

- Compatible with T type thermocouples with miniature thermocouple plug connection
- Stores over 32,000 readings
- Omega's 21CFR software available as a free download
- Supplied with T-type thermocouple probe with -100 to 200°C (-148 to 392°F) measurement range
- High contrast LCD, with four digit temperature display function
- Logging rates between 1 second and 12 hours
- Immediate, delayed, and push-to-start logging
- User-programmable alarm thresholds
- Status indication via red and green LEDs
- Use as part of a 21CFR Part 11 compliant system



This standalone data logger measures and stores more than 32,000 temperature readings from a T-type thermocouple at a resolution of 0.5°C (1°F). It comes supplied with a T-type thermocouple capable of measuring from -100 to +200°C (-148 to +392°F).

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the free Omega 21CFR software. Data can then be graphed, printed and exported to other applications for detailed analysis. The encrypted data has full audit tracking to comply with the requirements of 21CFR Part 11.

The high contrast LCD can show a variety of temperature information. At the touch of a button, the user cycle between the current, maximum and minimum stores values for temperature.

The data logger is supplied with a lithium metal battery which typically gives 2 years' logging life.

Custom NIST Calibration options are available. Call **1-888-826-6342** To speak to a sales representative.

## ORDERING GUIDE

P/N	Description
OM-EL-21CFR-TC-LCD	21CFR Compliant USB Temperature Thermocouple Data Logger w/ LCD - Low temp
OM-EL-21CFR-TC-LCD-NIST	21CFR Compliant USB Temperature Thermocouple Data Logger w/ LCD - Low temp - NIST at -80°C

## ACCESSORIES

P/N	Description
OM-BAT 3V6 1/2AA	Replacement battery for OM-EL-21CFR Series

## SPECIFICATIONS

Probe measurement range	-100 to 200°C (-148 to 392°F) T type (supplied) <sup>1</sup>
Internal resolution	0.5°C (1°F)
Accuracy (overall error)	±2.5°C typical
Logging rate	User selectable between 1 second & 12 hours
Operating temperature range	-10 to +40°C (-14 to +104°F) (data logger only)
Battery Life	2 years (at 25°C and 1 minute logging rate)
Readings	32,510
Dimensions	135 x 24 x 21mm (5.31 x 0.94 x 0.82")

1. Also accepts any standard T-Type thermocouple with SMP connector.



## IN THE BOX

OM-BAT 3V6 1/2AA	Battery
OM-EL-P-TC-T	T-Type thermocouple probe
OM-EL-LCD WALL BRACKET	Mounting Bracket

# 21CFR Compatible T-Type Thermocouple Data Logger

## STORE DATA IN COMPLIANCE WITH THE REGULATIONS OF 21CFR PART 11

Easy to install and use, Omega's **21CFR software** is compatible with all latest versions of Windows (7, 8 & 10 - both 32-bit & 64-bit) and is available as a free download from [www.omega.com](http://www.omega.com). All data collected from the logger and associated audit trails are stored in an encrypted format which cannot be edited.

## CONTROL YOUR LOGGER

Users can configure their loggers with the following parameters:

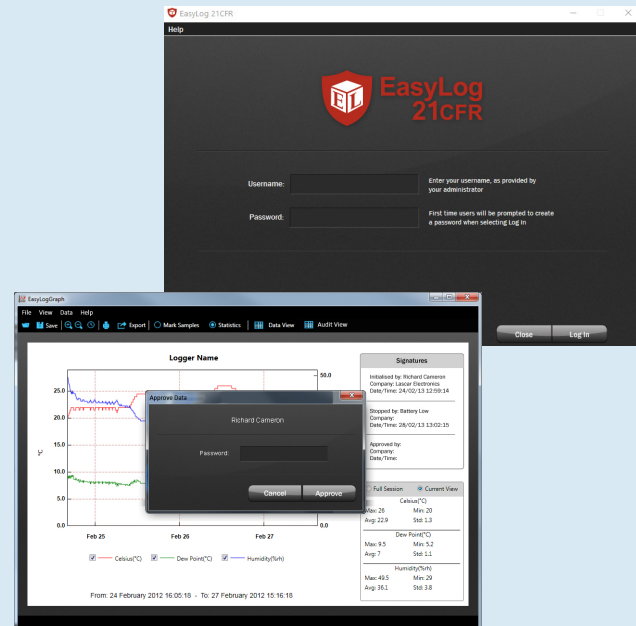
- Logger name
- Temperature measurement parameter (°C or °F)
- Logging rate (user selectable between 10 seconds and 12 hours)
- High and low alarms for temperature
- Immediate, delayed and push-to-start logging mode

Once users have recorded data, the built-in graphing software allows them to graph and annotate their data, or export it to Excel, PDF or jpeg formats.

## CONTROL YOUR DATA

21CFR software ensures digital security and compliance:

- Assign individual users with specific permissions
- Full software & session data audit trails
- Receive email alerts for failed log in attempts
- Digital signatures added to all reports
- Add comments to specific readings



For more information, and to download the latest version of the software free of charge, visit:  
[www.omega.com](http://www.omega.com)



# 21CFR Compatible T-Type Thermocouple Data Logger











## LED STATUS INDICATION

OM-EL-21CFR-TC features two LEDs:

- The first LED flashes **red** to indicate that the OM-EL-21CFR-TC is in an alarm condition. It will flash when the logged temperature has exceeded a Low or High alarm level.
- The second LED flashes **green** to indicate that the OM-EL-21CFR-TC is not in an alarm condition.

Using Omega 21CFR Software it is possible to set the alarm to remain active even if the reading has returned to normal, in which case the alarm LED will continue to flash red. This 'Hold' feature in the software ensures the user is notified that at some point an alarm level has been exceeded, without needing to download the data.

Hold is enabled by default, and can be turned off via the control software. The red LED will then only flash whilst the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

	<b>Green single flash (every 10 seconds)</b> The data logger is currently logging. No alarm
	<b>Green single flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. No alarm
	<b>Green single flash (every 30 seconds)</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start)
	<b>Green double flash (every 20 seconds)</b> The data logger is full and has stopped logging. No alarm
	<b>Red single flash (every 10 seconds)</b> The data logger is currently logging. Low alarm
	<b>Red single flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. Low alarm
	<b>Red double flash (every 10 seconds)</b> The data logger is currently logging High alarm
	<b>Red double flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. High alarm
	<b>Red &amp; Green single flash alternately (every 20 seconds)</b> The data logger is full and has stopped logging. High or low alarm
	<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery

# 21CFR Compatible T-Type Thermocouple Data Logger

## BATTERY INFORMATION

### Replacement

We recommend that you replace the battery annually, or prior to logging critical data. Only use 3.6V ½AA lithium metal batteries. The data logger does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and will not resume until the battery is replaced and the logger restarted by the Omega 21CFR Software.

Before replacing the battery, remove the data logger from the PC. Please note that leaving the data logger plugged into the USB port for extended periods will cause some of the battery capacity to be lost.

### Passivation

If left unused for extended periods of time lithium metal batteries, including those used in the Omega range of data loggers, naturally form a non-conductive internal layer preventing them from self-discharge and effectively increasing their shelf life. When first installed in the data logger, this may cause a momentary drop in the battery voltage (the Transient Minimum Voltage) as the internal layer is broken down, resulting in the data logger resetting. Inserting the batteries in the data logger and leaving it connected to a PC for about 30 seconds will remove this layer. After this, remove and re-install the batteries to reset the data logger. Overall battery life will not be affected.

### WARNING

Handle lithium metal batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.

# 21CFR Compatible T-Type Thermocouple Data Logger

- Compatible with K, J and T type thermocouples with miniature thermocouple plug connection
- Stores over 32,000 readings
- Omega's 21CFR software available as a free download
- Supplied with 1.5m K-type thermocouple probe with 0 to 200°C (32 to 392°F) measurement range
- Logging rates between 1 second and 12 hours
- Immediate and delayed logging start
- User-programmable alarm thresholds
- Status indication via red and green LEDs
- Use as part of a 21CFR Part 11 compliant system



This standalone data logger measures and stores more than 32,000 temperature readings from a J, K or T-type thermocouple at a resolution of 0.5°C (1°F). It comes supplied with a K-type thermocouple capable of measuring from 0 to +200°C (32 to +392°F).

Your application will determine which probe is most suitable based on temperature range, accuracy, form and price. A wide variety of alternative thermocouples are available. Please call Omega for vendor recommendations.

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the free Omega 21CFR software. Data can then be graphed, printed and exported to other applications for detailed analysis. The encrypted data has full audit tracking to comply with the requirements of 21CFR Part 11.

The data logger is supplied with a lithium metal battery which typically gives 2 years' logging life.

Custom NIST Calibration options are available. Call [1-888-826-6342](tel:1-888-826-6342) To speak to a sales representative.

## SPECIFICATIONS

<b>Probe measurement range</b>	0 to 200°C (32 to 392°F) K type (supplied) <sup>1</sup>
<b>Internal resolution</b>	0.5°C (1°F)
<b>Accuracy (overall error)</b>	±2.5°C typical
<b>Logging rate</b>	User selectable between 1 second & 12 hours
<b>Operating temperature range</b>	-10 to +40°C (-14 to +104°F) (data logger only)
<b>Battery Life</b>	2 years (at 25°C and 1 minute logging rate)
<b>Readings</b>	32,510
<b>Dimensions</b>	118 x 27 x 27mm (4.64 x 1.06 x 1.06")

1. Also accepts any K, J, or T-Type thermocouple with SMP connector.



## IN THE BOX

<b>OM-BAT 3V6 1/2AA</b>	Battery
<b>OM-EL-P-TC-K</b>	K-Type thermocouple probe
<b>OM-EL-USB WALL BRACKET</b>	Mounting Bracket

## ORDERING GUIDE

P/N	Description
<b>OM-EL-21CFR-TC</b>	21CFR Compliant USB Temperature Thermocouple Data Logger
<b>OM-EL-21CFR-TC-NIST</b>	21CFR Compliant USB Temperature Thermocouple Data Logger - NIST CAL at +5°C

## ACCESSORIES

P/N	Description
<b>OM-BAT3V6 1/2AA</b>	Battery
<b>OM-EL-P-TC-K</b>	K-Type thermocouple probe
<b>OM-EL-USB WALL BRACKET</b>	Mounting Bracket

# 21CFR Compatible T-Type Thermocouple Data Logger

## STORE DATA IN COMPLIANCE WITH THE REGULATIONS OF 21CFR PART 11

Easy to install and use, Omega's **21CFR software** is compatible with all latest versions of Windows (7, 8 & 10 - both 32-bit & 64-bit) and is available as a free download from [www.omega.com](http://www.omega.com). All data collected from the logger and associated audit trails are stored in an encrypted format which cannot be edited.

## CONTROL YOUR LOGGER

Users can configure their loggers with the following parameters:

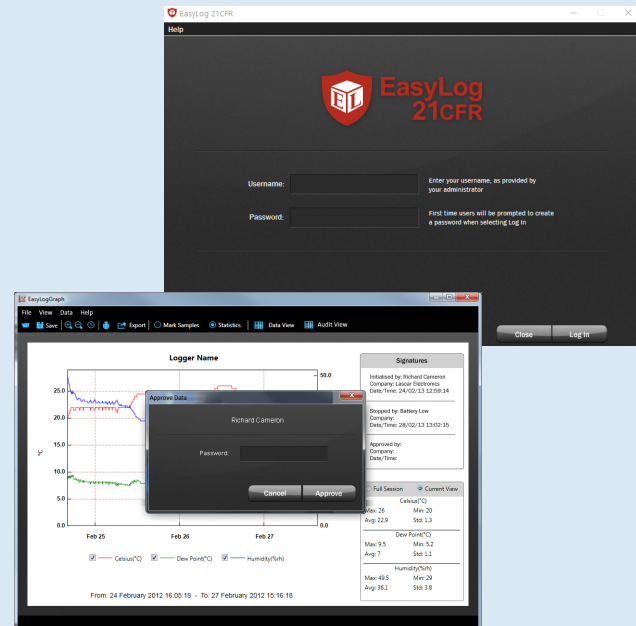
- Logger name
- Temperature measurement parameter (°C or °F)
- Logging rate (user selectable between 10 seconds and 12 hours)
- High and low alarms for temperature
- Immediate, delayed and push-to-start logging mode

Once users have recorded data, the built-in graphing software allows them to graph and annotate their data, or export it to Excel, PDF or jpeg formats.

## CONTROL YOUR DATA

21CFR software ensures digital security and compliance:

- Assign individual users with specific permissions
- Full software & session data audit trails
- Receive email alerts for failed log in attempts
- Digital signatures added to all reports
- Add comments to specific readings



For more information, and to download the latest version of the software free of charge, visit:  
[www.omega.com](http://www.omega.com)

# 21CFR Compatible T-Type Thermocouple Data Logger











## LED STATUS INDICATION

OM-EL-21CFR-TC features two LEDs:

- The first LED flashes **red** to indicate that the OM-EL-21CFR-TC is in an alarm condition. It will flash when the logged temperature has exceeded a Low or High alarm level.
- The second LED flashes **green** to indicate that the OM-EL-21CFR-TC is not in an alarm condition.

Using Omega 21CFR Software it is possible to set the alarm to remain active even if the reading has returned to normal, in which case the alarm LED will continue to flash red. This 'Hold' feature in the software ensures the user is notified that at some point an alarm level has been exceeded, without needing to download the data.

Hold is enabled by default, and can be turned off via the control software. The red LED will then only flash whilst the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

	<b>Green single flash (every 10 seconds)</b> The data logger is currently logging. No alarm
	<b>Green single flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. No alarm
	<b>Green single flash (every 30 seconds)</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start)
	<b>Green double flash (every 20 seconds)</b> The data logger is full and has stopped logging. No alarm
	<b>Red single flash (every 10 seconds)</b> The data logger is currently logging. Low alarm
	<b>Red single flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. Low alarm
	<b>Red double flash (every 10 seconds)</b> The data logger is currently logging High alarm
	<b>Red double flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. High alarm
	<b>Red &amp; Green single flash alternately (every 20 seconds)</b> The data logger is full and has stopped logging. High or low alarm
	<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery

# 21CFR Compatible T-Type Thermocouple Data Logger

## BATTERY INFORMATION

### Replacement

We recommend that you replace the battery annually, or prior to logging critical data. Only use 3.6V ½AA lithium metal batteries. The data logger does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and will not resume until the battery is replaced and the logger restarted by the Omega 21CFR Software.

Before replacing the battery, remove the data logger from the PC. Please note that leaving the data logger plugged into the USB port for extended periods will cause some of the battery capacity to be lost.

### Passivation

If left unused for extended periods of time lithium metal batteries, including those used in the Omega range of data loggers, naturally form a non-conductive internal layer preventing them from self-discharge and effectively increasing their shelf life. When first installed in the data logger, this may cause a momentary drop in the battery voltage (the Transient Minimum Voltage) as the internal layer is broken down, resulting in the data logger resetting. Inserting the batteries in the data logger and leaving it connected to a PC for about 30 seconds will remove this layer. After this, remove and re-install the batteries to reset the data logger. Overall battery life will not be affected.

### WARNING

Handle lithium metal batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.

# 21CFR Compatible High Accuracy Temperature Probe Data Logger with LCD Screen

- -40 to +125°C (-40 to +257°F) measurement range
- Stores over 32,000 readings
- Omega's 21CFR software available as a free download
- Logging rates between 1 second and 12 hours
- High contrast LCD, with four digit temperature display function
- Immediate, delayed and push-to-start logging
- User-programmable alarm thresholds
- Use as part of a 21CFR Part 11 compliant system



This standalone data logger measures and stores more than 32,000 temperature readings over a -40 to +125°C (-40 to +257°F) range with a resolution of 0.1°C (0.2°F).

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the free Omega 21CFR software. Data can then be graphed, printed and exported to other applications for detailed analysis. The encrypted data has full audit tracking to comply with the requirements of 21CFR Part 11.

The high contrast LCD can show a variety of temperature information. At the touch of a button, the user can cycle between the current, maximum and minimum stored values for temperature.

The data logger is supplied with a lithium metal battery which typically gives two years' logging life.

Custom NIST Calibration options are available. Call **1-888-826-6342** To speak to a sales representative.

## ORDERING GUIDE

P/N	Description
OM-EL-21CFR-TP-LCD-PLUS	21CFR Compliant High Accuracy USB Temperature Thermistor Data Logger
OM-EL-21CFR-TP-LCD-PLUS-NIST	21CFR Compliant High Accuracy USB Temperature Thermistor Data Logger - NIST CAL at +5°C

## ACCESSORIES

P/N	Description
OM-BAT 3V6 1/2AA	Replacement battery for OM-EL-21CFR Series
OM-EL-P-TP	Replacement Probe for the OM-EL-21CFR-TP-LCD
OM-EL-P-TP-PLUS	High Accuracy Probe for the OM-EL-21CFR-TP-LCD
OM-EL-PROBE-EXTENDER-5.0M-TP	5m Extension Cable with Thermistor Probe for OM-EL-21CFR-TP-LCD
OM-EL-PROBE-EXTENDER-10M-TP	10m Extension Cable with Thermistor Probe for OM-EL-21CFR-TP-LCD

## SPECIFICATIONS

Measurement range	-40 to +125°C (-40 to +257°F)
Accuracy (logger error)	±0.1°C (±0.2°F)
Accuracy (probe)	See 'Temperature Probe Accuracy' on page 5
Resolution (display)	0.5°C (1°F)
Resolution (data)	0.1°C (0.2°F)
Logging rate	User selectable between 1 second & 12 hours
Operating temperature range	-35 to +80°C (-31 to +176°F) (data logger only)
Battery Life	2 years (at 25°C and 1 minute logging rate, LCD on)
Readings	32,510
Dimensions	135 x 24 x 21mm (5.31 x 0.94 x 0.82")



## IN THE BOX

OM-BAT 3V6 1/2AA	Battery
OM-EL-P-TP-PLUS	High accuracy thermistor probe
OM-EL-LCD WALL BRACKET	Mounting Bracket



# 21CFR Compatible High Accuracy Temperature Probe Data Logger with LCD Screen

## STORE DATA IN COMPLIANCE WITH THE REGULATIONS OF 21CFR PART 11

Easy to install and use, Omega's **21CFR software** is compatible with all latest versions of Windows (7, 8 & 10 - both 32-bit & 64-bit) and is available as a free download from [www.omega.com](http://www.omega.com). All data collected from the logger and associated audit trails are stored in an encrypted format which cannot be edited.

## CONTROL YOUR LOGGER

Users can configure their loggers with the following parameters:

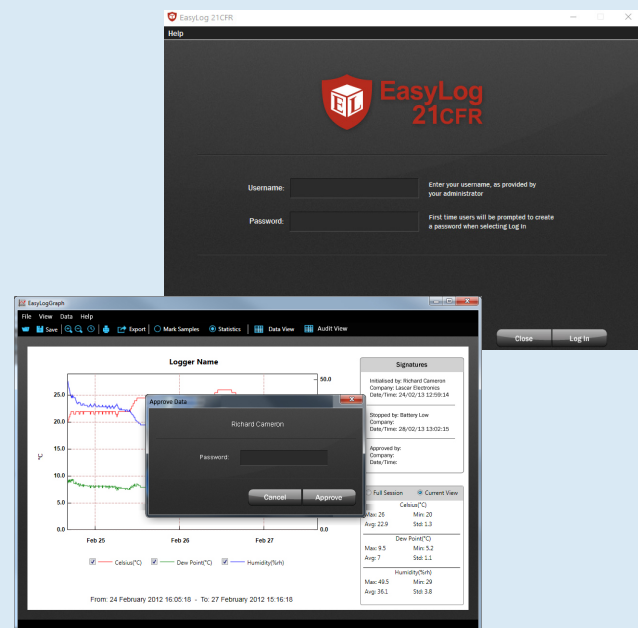
- Logger name
- Temperature measurement parameter (°C or °F)
- Logging rate (user selectable between 1 second and 12 hours)
- High and low alarms for temperature
- Immediate and delayed logging start
- Probe type

Once users have recorded data, the built-in graphing software allows them to graph and annotate their data, or export it to Excel, PDF or jpeg formats.

## CONTROL YOUR DATA

21CFR software ensures digital security and compliance:

- Assign individual users with specific permissions
- Full software & session data audit trails
- Receive email alerts for failed log in attempts
- Digital signatures added to all reports
- Add comments to specific readings



For more information, and to download the latest version of the software free of charge, visit:  
[www.omega.com](http://www.omega.com)

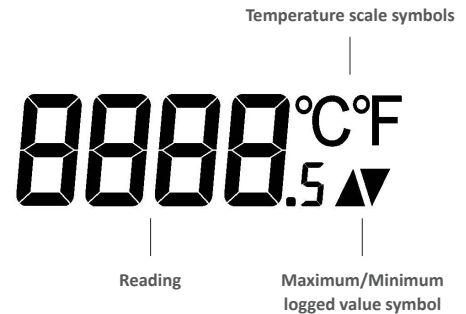
# 21CFR Compatible High Accuracy Temperature Probe Data Logger with LCD Screen

## DISPLAY STATUS INDICATION

The OM-EL-21CFR-TP-LCD-PLUS features a high contrast LCD which shows logged temperature values using seven segment numbers, along with annunciators. The LCD can also show information regarding the logging status.

The LCD shows three different recorded readings, which can be cycled through using the built-in push button. The most recent logged temperature, maximum logged temperature and minimum logged temperature can be displayed.

To increase battery life it is possible, via the software, to turn off the display or have it active only after pressing the button.



Display	Logger Status	Explanation
d5	Delayed Start	This is shown when the button is pressed and the logger is set to start at a specific date and time
P5	Push to Start	This will flash when the logger is setup for 'Push to Start' logging
log	Logging	This is shown when the logger is running in 'LCD off' mode, and the button is pressed. The display clears again after a short period
---	Stopped	If the logger has not been set to log and the button is pressed, three dashes are displayed for a short period
Clr	Clear Max/Min	This indicates that the maximum and minimum stored values have been cleared after pressing the button for a few seconds. This will not work if the probe is disconnected or the logger is connected to a USB port
Prob	Probe has been disconnected	The flashing message 'Prob', followed by a number or letter, will be displayed if the logger is logging and the probe becomes disconnected. The number/letter confirms the type of probe that should be connected

# 21CFR Compatible High Accuracy Temperature Probe Data Logger with LCD Screen

## LED STATUS INDICATION












The OM-EL-21CFR-TP-LCD+ features two LEDs:

- The first LED flashes **red** to indicate that the OM-EL-21CFR-TP-LCD-PLUS is in an alarm condition. It will flash when the logged temperature has exceeded a Low or High alarm level.
- The second LED flashes **green** to indicate that the OM-EL-21CFR-TP-LCD-PLUS is not in an alarm condition.

Using Omega's 21CFR Software it is possible to set the alarm to remain active even if the reading has returned to normal, in which case the alarm LED will continue to flash red. This 'Hold' feature in the software ensures the user is notified that at some point an alarm level has been exceeded, without needing to download the data.

Hold is enabled by default, and can be turned off via the control software. The red LED will then only flash whilst the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

Using the control software it is possible to set a delayed alarm. In this mode the logger has to see multiple consecutive alarms before being activated.

	<b>Green single flash (every 30 seconds)</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start)
	<b>Green single flash (every 10 seconds)</b> The data logger is currently logging. No alarm
	<b>Red single flash (every 10 seconds)</b> The data logger is currently logging. Low alarm
	<b>Red double flash (every 10 seconds)</b> The data logger is currently logging. High alarm
	<b>Green single flash (every 20 seconds)</b> The data logger is currently logging. Low battery
	<b>Red single flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. Low alarm
	<b>Red double flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. High alarm
	<b>Green double flash (every 20 seconds)</b> The data logger is full and has stopped logging
	<b>Red &amp; Green single flash alternately (every 20 seconds)</b> The data logger is full and has stopped logging. High or low alarm
	<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery
	<b>Red Triple flash (every 10 seconds)</b> The data logger is currently logging, but the probe has been disconnected

# 21CFR Compatible High Accuracy Temperature Probe Data Logger with LCD Screen

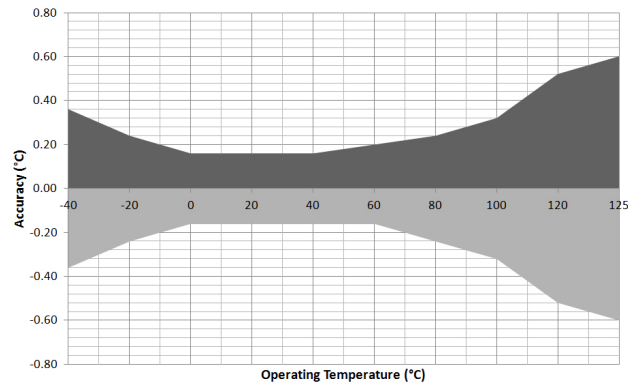
## THERMISTOR PROBE

The probes supplied with the OM-EL-21CFR-TP-LCD-PLUS uses a precision thermistor to sense the temperature. Alternative lengths and probe options are available. The probe type is selected in the control software and should match the label on the probe in use.

Alternatively, the probe length may be extended by the use of a suitable extension cable. We recommend twisted pair with high quality 3.5mm jack socket/plugs for best results.

The thermistor is externally isolated from the probe tip.

## THERMISTOR PROBE ACCURACY



Supplied 'Type A' Thermistor Probe  
Part number: OM-EL-P-TP+

## BATTERY INFORMATION

### Replacement

We recommend that you replace the battery annually, or prior to logging critical data. Only use 3.6V ½AA lithium metal batteries. The data logger does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and will not resume until the battery is replaced and the logger restarted by the Omega's 21CFR Software.

Before replacing the battery, remove the data logger from the PC. Please note that leaving the data logger plugged into the USB port for extended periods will cause some of the battery capacity to be lost.

### Passivation

If left unused for extended periods of time lithium metal batteries, including those used in the Omega range of data loggers, naturally form a non-conductive internal layer preventing them from self-discharge and effectively increasing their shelf life. When first installed in the data logger, this may cause a momentary drop in the battery voltage (the Transient Minimum Voltage) as the internal layer is broken down, resulting in the data logger resetting. Inserting the batteries in the data logger and leaving it connected to a PC for about 30 seconds will remove this layer. After this, remove and re-install the batteries to reset the data logger. Overall battery life will not be affected.

## WARNING

Handle lithium metal batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.

# 21CFR Compatible Temperature Probe Data Logger with LCD Screen

- -40 to +125°C (-40 to +257°F) measurement range
- Stores over 32,000 readings
- Omega's 21CFR software available as a free download
- Logging rates between 1 second and 12 hours
- High contrast LCD, with four digit temperature display function
- Immediate, delayed and push-to-start logging
- User-programmable alarm thresholds
- Use as part of a 21CFR Part 11 compliant system



## SPECIFICATIONS

<b>Measurement range</b>	-40 to +125°C (-40 to +257°F)
<b>Accuracy (logger error)</b>	±0.1°C (±0.2°F)
<b>Accuracy (probe)</b>	See 'Temperature Probe Accuracy' on page 4
<b>Resolution (display)</b>	0.5°C (1°F)
<b>Resolution (data)</b>	0.1°C (0.2°F)
<b>Logging rate</b>	User selectable between 1 second & 12 hours
<b>Operating temperature range</b>	-35 to +80°C (-31 to +176°F) (data logger only)
<b>Battery Life</b>	2 years (at 25°C and 1 minute logging rate, LCD on)
<b>Readings</b>	32,510
<b>Dimensions</b>	135 x 24 x 21mm (5.31 x 0.94 x 0.82")

This standalone data logger measures and stores more than 32,000 temperature readings over a -40 to +125°C (-40 to +257°F) range with a resolution of 0.1°C (0.2°F).

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the free Omega 21CFR software. Data can then be graphed, printed and exported to other applications for detailed analysis. The encrypted data has full audit tracking to comply with the requirements of 21CFR Part 11.

The high contrast LCD can show a variety of temperature information. At the touch of a button, the user can cycle between the current, maximum and minimum stored values for temperature.

The data logger is supplied with a lithium metal battery which typically gives two years' logging life.

Custom NIST Calibration options are available.  
Call **1-888-826-6342** To speak to a sales representative.



## IN THE BOX

<b>OM-BAT 3V6 1/2AA</b>	Battery
<b>OM-EL-P-TP</b>	Standard thermistor probe
<b>OM-EL-LCD WALL BRACKET</b>	Mounting Bracket

## ORDERING GUIDE

P/N	Description
<b>OM-EL-21CFR-TP-LCD</b>	21CFR Compliant USB Temperature Thermistor Data Logger
<b>OM-EL-21CFR-TP-LCD-NIST</b>	21CFR Compliant USB Temperature Thermistor Data Logger - NIST CAL at +5°C

## ACCESSORIES

P/N	Description
<b>OM-BAT 3V6 1/2AA</b>	Replacement battery for OM-EL-21CFR Series
<b>OM-EL-P-TP</b>	Replacement Probe for the OM-EL-21CFR-TP-LCD
<b>OM-EL-P-TP-PLUS</b>	High Accuracy Probe for the OM-EL-21CFR-TP-LCD
<b>OM-EL-PROBE-EXTENDER-5.0M-TP</b>	5m Extension Cable with Thermistor Probe for OM-EL-21CFR-TP-LCD
<b>OM-EL-PROBE-EXTENDER-10M-TP</b>	10m Extension Cable with Thermistor Probe for OM-EL-21CFR-TP-LCD

## 21CFR Compatible Temperature Probe Data Logger with LCD Screen

### STORE DATA IN COMPLIANCE WITH THE REGULATIONS OF 21CFR PART 11

Easy to install and use, Omega's **21CFR software** is compatible with all latest versions of Windows (7, 8 & 10<sup>s</sup> - both 32-bit & 64-bit) and is available as a free download from [www.omega.com](http://www.omega.com). All data collected from the logger and associated audit trails are stored in an encrypted format which cannot be edited.

### CONTROL YOUR LOGGER

Users can configure their loggers with the following parameters:

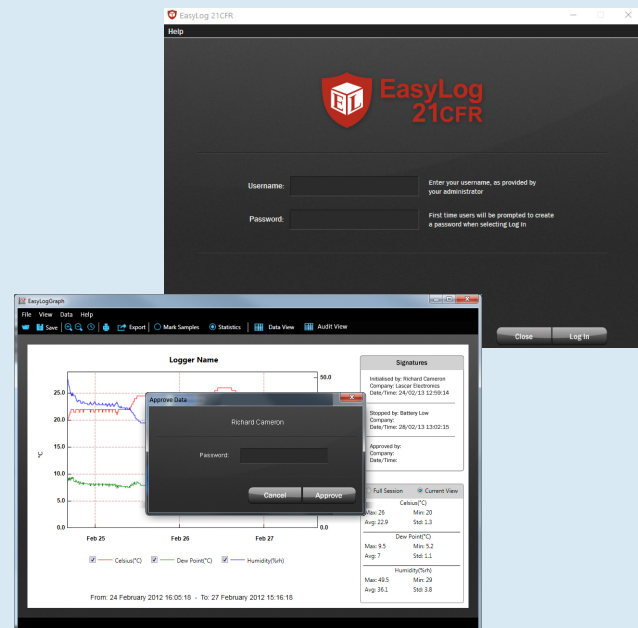
- Logger name
- Temperature measurement parameter (°C or °F)
- Logging rate (user selectable between 10 seconds and 12 hours)
- High and low alarms for temperature
- Immediate, delayed and push-to-start logging mode

Once users have recorded data, the built-in graphing software allows them to graph and annotate their data, or export it to Excel, PDF or jpeg formats.

### CONTROL YOUR DATA

21CFR software ensures digital security and compliance:

- Assign individual users with specific permissions
- Full software & session data audit trails
- Receive email alerts for failed log in attempts
- Digital signatures added to all reports
- Add comments to specific readings



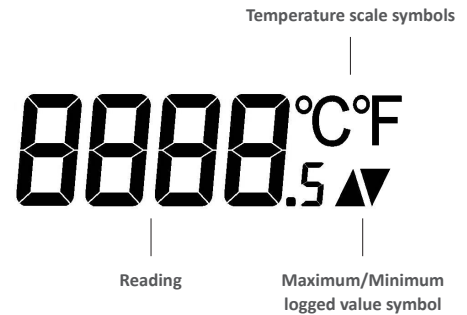
For more information, and to download the latest version of the software free of charge, visit:  
[www.omega.com](http://www.omega.com)

# 21CFR Compatible Temperature Probe Data Logger with LCD Screen

## DISPLAY STATUS INDICATION

The OM-EL-21CFR-TP-LCD features a high contrast LCD which shows logged temperature values using seven segment numbers, along with annunciators. The LCD can also show information regarding the logging status.

The LCD shows three different recorded readings, which can be cycled through using the built-in push button. The most recent logged temperature, maximum logged temperature and minimum logged temperature can be displayed. To increase battery life it is possible, via the software, to turn off the display or have it active only after pressing the button.



Display	Logger Status	Explanation
d5	Delayed Start	This is shown when the button is pressed and the logger is set to start at a specific date and time
P5	Push to Start	This will flash when the logger is setup for 'Push to Start' logging
log	Logging	This is shown when the logger is running in 'LCD off' mode, and the button is pressed. The display clears again after a short period
---	Stopped	If the logger has not been set to log and the button is pressed, three dashes are displayed for a short period
Clr▲	Clear Max/Min	This indicates that the maximum and minimum stored values have been cleared after pressing the button for a few seconds. This will not work if the probe is disconnected or the logger is connected to a USB port
Prob	Probe has been disconnected	The flashing message 'Prob', followed by a number or letter, will be displayed if the logger is logging and the probe becomes disconnected. The number/letter confirms the type of probe that should be connected



# 21CFR Compatible Temperature Probe Data Logger with LCD Screen

## LED STATUS INDICATION












The OM-EL-21CFR-TP-LCD features two LEDs:

- The first LED flashes **red** to indicate that the OM-EL-21CFR-TP-LCD is in an alarm condition. It will flash when the logged temperature has exceeded a Low or High alarm level.
- The second LED flashes **green** to indicate that the OM-EL-21CFR-TP-LCD is not in an alarm condition.

Using Omega's 21CFR Software it is possible to set the alarm to remain active even if the reading has returned to normal, in which case the alarm LED will continue to flash red. This 'Hold' feature in the software ensures the user is notified that at some point an alarm level has been exceeded, without needing to download the data.

Hold is enabled by default, and can be turned off via the control software. The red LED will then only flash whilst the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

Using the control software it is possible to set a delayed alarm. In this mode the logger has to see multiple consecutive alarms before being activated.

	<b>Green single flash (every 30 seconds)</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start)
	<b>Green single flash (every 10 seconds)</b> The data logger is currently logging. No alarm
	<b>Red single flash (every 10 seconds)</b> The data logger is currently logging. Low alarm
	<b>Red double flash (every 10 seconds)</b> The data logger is currently logging. High alarm
	<b>Green single flash (every 20 seconds)</b> The data logger is currently logging. Low battery
	<b>Red single flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. Low alarm
	<b>Red double flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. High alarm
	<b>Green double flash (every 20 seconds)</b> The data logger is full and has stopped logging
	<b>Red &amp; Green single flash alternately (every 20 seconds)</b> The data logger is full and has stopped logging. High or low alarm
	<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery
	<b>Red Triple flash (every 10 seconds)</b> The data logger is currently logging, but the probe has been disconnected

# 21CFR Compatible Temperature Probe Data Logger with LCD Screen

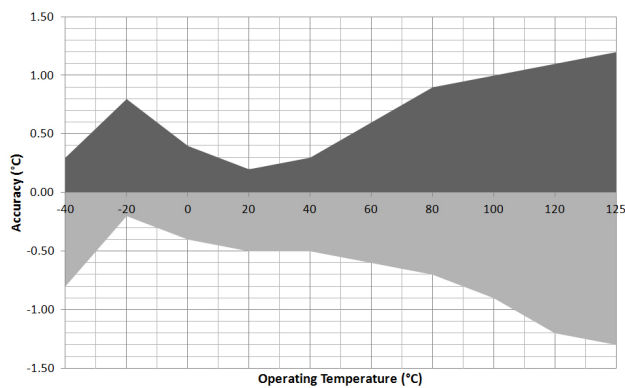
## THERMISTOR PROBE

The probes supplied with the OM-EL-21CFR-TP-LCD uses a precision thermistor to sense the temperature. Alternative lengths and probe options are available. The probe type is selected in the control software and should match the label on the probe in use.

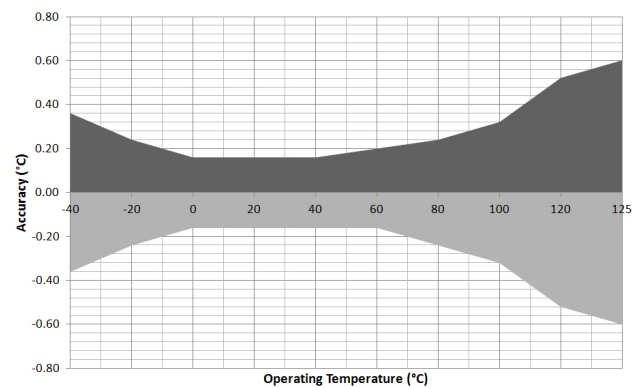
Alternatively, the probe length may be extended by the use of a suitable extension cable. We recommend twisted pair with high quality 3.5mm jack socket/plugs for best results.

The thermistor is externally isolated from the probe tip.

## THERMISTOR PROBE ACCURACY



Supplied 'Type 2' Thermistor Probe  
Part number: OM-EL-P-TP



'Type A' Thermistor Probe - sold separately  
Part number: OM-EL-P-TP+

## BATTERY INFORMATION

### Replacement

We recommend that you replace the battery annually, or prior to logging critical data. Only use 3.6V ½AA lithium metal batteries. The data logger does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and will not resume until the battery is replaced and the logger restarted by the Omega's 21CFR Software.

Before replacing the battery, remove the data logger from the PC. Please note that leaving the data logger plugged into the USB port for extended periods will cause some of the battery capacity to be lost.

### Passivation

If left unused for extended periods of time lithium metal batteries, including those used in the Omega range of data loggers, naturally form a non-conductive internal layer preventing them from self-discharge and effectively increasing their shelf life. When first installed in the data logger, this may cause a momentary drop in the battery voltage (the Transient Minimum Voltage) as the internal layer is broken down, resulting in the data logger resetting. Inserting the batteries in the data logger and leaving it connected to a PC for about 30 seconds will remove this layer. After this, remove and re-install the batteries to reset the data logger. Overall battery life will not be affected.

### WARNING

Handle lithium metal batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.

## 21CFR Compatible High Accuracy Temperature Glycol Probe Data Logger with LCD Screen

- -40 to +125°C (-40 to +257°F) measurement range
- 2 and 8°C certified
- Stores over 32,000 readings
- Omega's 21CFR software available as a free download
- Logging rates between 1 second and 12 hours
- High contrast LCD, with four digit temperature display function
- Immediate, delayed and push-to-start logging
- User-programmable alarm thresholds
- Use as part of a 21CFR Part 11 compliant system

This standalone data logger measures and stores more than 32,000 temperature readings over a -40 to +125°C (-40 to +257°F) range with a resolution of 0.1°C (0.2°F).

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the free Omega 21CFR software. Data can then be graphed, printed and exported to other applications for detailed analysis. The encrypted data has full audit tracking to comply with the requirements of 21CFR Part 11.

The high contrast LCD can show a variety of temperature information. At the touch of a button, the user can cycle between the current, maximum and minimum stored values for temperature.

The data logger is supplied with a lithium metal battery which typically gives two years' logging life.

Kit supplied with NIST calibration certificate at 2 and 8°C as recommended by the CDC. Custom NIST Calibration options are available. Call **1-888-826-6342** to speak to a sales representative.



### SPECIFICATIONS

Measurement range	-40 to +125°C (-40 to +257°F)
Accuracy (logger error)	±0.1°C (±0.2°F)
Accuracy (probe)	See 'Temperature Probe Accuracy' on page 4
Resolution (display)	0.5°C (1°F)
Resolution (data)	0.1°C (0.2°F)
Logging rate	User selectable between 1 second & 12 hours
Operating temperature range	-35 to +80°C (-31 to +176°F) (data logger only)
Battery Life	2 years (at 25°C and 1 minute logging rate, LCD on)
Readings	32,510
Dimensions	135 x 24 x 21mm (5.31 x 0.94 x 0.82")



### IN THE BOX

OM-BAT 3V6 1/2AA	Battery
OM-EL-P-VAC	Thermistor glycol probe
OM-EL-LCD WALL BRACKET	Mounting Bracket
OM-CAL-TEMP-UK	Temperature Calibration certification

### ORDERING GUIDE

P/N	Description
OM-EL-21CFR-VAC	21CFR Compliant Vaccine Monitoring Temperature Data Logger Kit - NIST CAL at +2°C and +8°C

### ACCESSORIES

P/N	Description
OM-BAT 3V6 1/2AA	Replacement battery for OM-EL-21CFR Series

# 21CFR Compatible High Accuracy Temperature Glycol Probe Data Logger with LCD Screen

## STORE DATA IN COMPLIANCE WITH THE REGULATIONS OF 21CFR PART 11

Easy to install and use, Omega's **21CFR software** is compatible with all latest versions of Windows (7, 8 & 10 - both 32-bit & 64-bit) and is available as a free download from [www.omega.com](http://www.omega.com). All data collected from the logger and associated audit trails are stored in an encrypted format which cannot be edited.

## CONTROL YOUR LOGGER

Users can configure their loggers with the following parameters:

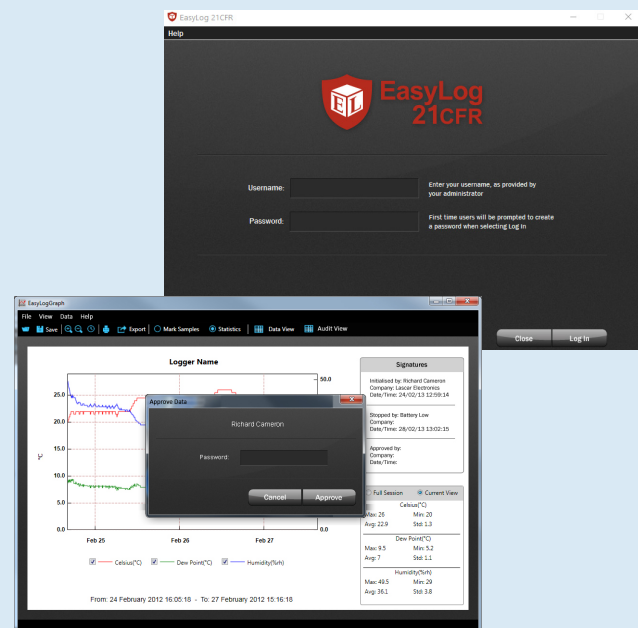
- Logger name
- Temperature measurement parameter (°C or °F)
- Logging rate (user selectable between 1 second and 12 hours)
- High and low alarms for temperature
- Immediate and delayed logging start
- Probe type

Once users have recorded data, the built-in graphing software allows them to graph and annotate their data, or export it to Excel, PDF or jpeg formats.

## CONTROL YOUR DATA

21CFR software ensures digital security and compliance:

- Assign individual users with specific permissions
- Full software & session data audit trails
- Receive email alerts for failed log in attempts
- Digital signatures added to all reports
- Add comments to specific readings



For more information, and to download the latest version of the software free of charge, visit:  
[www.omega.com](http://www.omega.com)

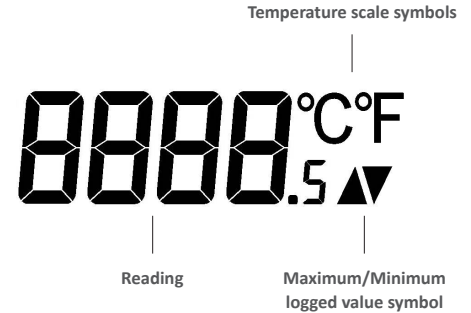
# 21CFR Compatible High Accuracy Temperature Glycol Probe Data Logger with LCD Screen

## DISPLAY STATUS INDICATION

The OM-EL-21CFR-VAC features a high contrast LCD which shows logged temperature values using seven segment numbers, along with annunciators. The LCD can also show information regarding the logging status.

The LCD shows three different recorded readings, which can be cycled through using the built-in push button. The most recent logged temperature, maximum logged temperature and minimum logged temperature can be displayed.

To increase battery life it is possible, via the software, to turn off the display or have it active only after pressing the button.



Display	Logger Status	Explanation
d5	Delayed Start	This is shown when the button is pressed and the logger is set to start at a specific date and time
P5	Push to Start	This will flash when the logger is setup for 'Push to Start' logging
log	Logging	This is shown when the logger is running in 'LCD off' mode, and the button is pressed. The display clears again after a short period
---	Stopped	If the logger has not been set to log and the button is pressed, three dashes are displayed for a short period
Clr ▲	Clear Max/Min	This indicates that the maximum and minimum stored values have been cleared after pressing the button for a few seconds. This will not work if the probe is disconnected or the logger is connected to a USB port
Prob	Probe has been disconnected	The flashing message 'Prob', followed by a number or letter, will be displayed if the logger is logging and the probe becomes disconnected. The number/letter confirms the type of probe that should be connected

# 21CFR Compatible High Accuracy Temperature Glycol Probe Data Logger with LCD Screen

## LED STATUS INDICATION












The OM-EL-21CFR-VAC features two LEDs:

- The first LED flashes **red** to indicate that the OM-EL-21CFR-VAC is in an alarm condition. It will flash when the logged temperature has exceeded a Low or High alarm level.
- The second LED flashes **green** to indicate that the OM-EL-21CFR-VAC is not in an alarm condition.

Using Omega's 21CFR Software it is possible to set the alarm to remain active even if the reading has returned to normal, in which case the alarm LED will continue to flash red. This 'Hold' feature in the software ensures the user is notified that at some point an alarm level has been exceeded, without needing to download the data.

Hold is enabled by default, and can be turned off via the control software. The red LED will then only flash whilst the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

Using the control software it is possible to set a delayed alarm. In this mode the logger has to see multiple consecutive alarms before being activated.

	<b>Green single flash (every 30 seconds)</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start)
	<b>Green single flash (every 10 seconds)</b> The data logger is currently logging. No alarm
	<b>Red single flash (every 10 seconds)</b> The data logger is currently logging. Low alarm
	<b>Red double flash (every 10 seconds)</b> The data logger is currently logging. High alarm
	<b>Green single flash (every 20 seconds)</b> The data logger is currently logging. Low battery
	<b>Red single flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. Low alarm
	<b>Red double flash (every 20 seconds)</b> The data logger is currently logging, however the battery is running low. High alarm
	<b>Green double flash (every 20 seconds)</b> The data logger is full and has stopped logging
	<b>Red &amp; Green single flash alternately (every 20 seconds)</b> The data logger is full and has stopped logging. High or low alarm
	<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery
	<b>Red Triple flash (every 10 seconds)</b> The data logger is currently logging, but the probe has been disconnected

# 21CFR Compatible High Accuracy Temperature Glycol Probe Data Logger with LCD Screen

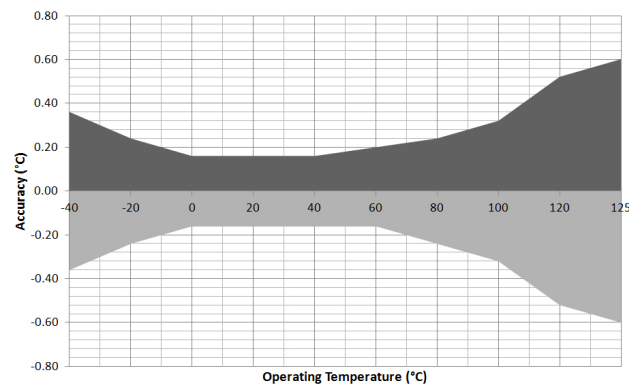
## THERMISTOR PROBE

The probes supplied with the OM-EL-21CFR-TP-VAC uses a precision thermistor to sense the temperature. Alternative lengths and probe options are available. The probe type is selected in the control software and should match the label on the probe in use.

Alternatively, the probe length may be extended by the use of a suitable extension cable. We recommend twisted pair with high quality 3.5mm jack socket/plugs for best results.

The thermistor is externally isolated from the probe tip.

## THERMISTOR PROBE ACCURACY



Supplied Thermistor Glycol Probe  
Part number: OM-EL-P-VAC

## BATTERY INFORMATION

### Replacement

We recommend that you replace the battery annually, or prior to logging critical data. Only use 3.6V ½AA lithium metal batteries. The data logger does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and will not resume until the battery is replaced and the logger restarted by the Omega 21CFR Software.

Before replacing the battery, remove the data logger from the PC. Please note that leaving the data logger plugged into the USB port for extended periods will cause some of the battery capacity to be lost.

### Passivation

If left unused for extended periods of time lithium metal batteries, including those used in the Omega range of data loggers, naturally form a non-conductive internal layer preventing them from self-discharge and effectively increasing their shelf life. When first installed in the data logger, this may cause a momentary drop in the battery voltage (the Transient Minimum Voltage) as the internal layer is broken down, resulting in the data logger resetting. Inserting the batteries in the data logger and leaving it connected to a PC for about 30 seconds will remove this layer. After this, remove and re-install the batteries to reset the data logger. Overall battery life will not be affected.

### WARNING

Handle lithium metal batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.



## Handheld Programmer and Data Collector for the OM-EL-USB Series Data Loggers

### OM-EL-DATAPAD

- ✓ Collects and Stores Data From at Least 500 Data Loggers
- ✓ View Downloaded Data with General Trend and Summary Screens
- ✓ Full or Quick Set-Up of Compatible OM-EL-USB Series Data Loggers
- ✓ Touch Screen Interface for Navigation of Menus
- ✓ 2.8" TFT Display
- ✓ Stored Data can be Transferred to a PC via Micro USB Cable
- ✓ Use the OM-EL-WIN-USB Windows Software (Included with Each Data Logger) to Graph Data and Export to Excel
- ✓ Integral Rechargeable Lithium Battery Provides up to 8 Hours Use (Nominal)

The OM-EL-DATAPAD allows users of compatible OM-EL-USB Series data loggers to configure their units and download data and view logging results on-the spot rather than removing the logger from the environment being measured and taking it to their PC.

This allows continual logging with shorter breaks in data collection, less travel for the user, on-site data collection in graph, legend and summary format and the ability for users to reconfigure loggers in "the field". The logger is connected to the OM-EL-DATAPAD via a standard USB port at the top of the viewer. Once connected, the user is guided through a simple touchscreen menu with options to set-up logger, stop logger and download and view data.

On-screen instructions follow the same structure as the OM-EL-WIN-USB software for PC currently provided with each data logger.



Data from up to 100 loggers can be viewed on the OM-EL-DATAPAD, with data from a further 400 units stored on the unit at any one time.

Data can be transferred to a PC using a micro USB cable supplied with the unit. Once uploaded, data is saved in comma separated variable (csv) format, making it suitable for import into spreadsheet packages such as Microsoft Excel or graphed on a PC using the OM-EL-WIN-USB software.

### Specifications

**Battery:** Lithium polymer, rechargeable via micro-USB connection (included)

**LCD:** 240 x 320, 2.8" TFT with touch-screen

**Memory:** Internal flash

**Data Recording Capacity:** >8.5 million readings typical

**Operating Time (On Single Charge):** 8 hours typical (5 hours continuous use)

**Operating Temperature:** 0 to 50°C (32 to 122°F)

The OM-EL-DATAPAD is compatible with the following OM-EL-USB Series data loggers:

- OM-EL-USB-1
- OM-EL-USB-1-LCD
- OM-EL-USB-1-PRO-A
- OM-EL-USB-2
- OM-EL-USB-2-PLUS
- OM-EL-USB-2-LCD
- OM-EL-USB-2-LCD-PLUS
- OM-EL-USB-TC
- OM-EL-USB-TC-LCD
- OM-EL-USB-LITE



OM-EL-DATAPAD

**Operation:** Single front-panel push-button used for power-switch. Single press = ON, press and hold for 3 sec = OFF

**Data Logger Connection:** 1x USB Type A socket (top of unit) for connection of data loggers.

**PC Connection:** 1x micro-USB (bottom of unit) for connection of unit to PC via 1 m (3.3') USB cable (included).

**Dimensions:** 107 H x 68 W x 19 mm D (4.2 x 2.7 x 0.7")

**Weight:** 110 g (3.9 oz)



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.



OM-EL-USB Series data loggers plug directly into the OM-EL-DATAPAD eliminating the need for an on-site PC.

### To Order

Model No.	Description
OM-EL-DATAPAD	Handheld programmer and data collector for the OM-EL-USB Series data loggers
OM-EL-BOOT	Protective rubber boot for the OM-EL-DATAPAD

Comes complete with 1 m (3.3') USB cable, rechargeable lithium battery, and operator's manual.

**Ordering Example:** OM-EL-DATAPAD handheld programmer and data collector for the OM-EL-USB Series data loggers and OCW-1 OMEGACARE<sup>SM</sup> 1-year extended warranty adds 1-year to standard 1-year warranty, and OM-EL-BOOT protective rubber boot for OM-EL-DATAPAD.

## Temperature, Humidity and Dew Point Data Logger with LCD Display

### OM-EL-USB-2-LCD

- ✓ 0 to 100% RH Measurement Range
- ✓ -35 to 80°C (-31 to 176°F) Temperature Measurement Range
- ✓ Dew Point Indication via Windows® Control Software
- ✓ USB Interface for Set-Up and Data Download
- ✓ User-Programmable Alarm Thresholds for Temperature and %RH
- ✓ Status Indication via Red and Green LEDs
- ✓ High Contrast LCD, with 2½ Digit Temperature and Humidity Display Function
- ✓ Immediate, Delayed and Push-to-Start Logging
- ✓ Supplied Complete with Replaceable Internal Lithium Battery and Windows Control Software

The OM-EL-USB-2-LCD is a standalone data logger that measures and stores up to 16,379 relative humidity and 16,379 temperature readings over 0 to 100% RH and -35 to 80°C (-31 to 176°F) measurement ranges. The high contrast LCD can show a variety of temperature and humidity information. At the touch of a button, the user can cycle between the current temperature and humidity, along with the maximum and minimum stored values for temperature and humidity. In addition, logging and alarm status is shown using two high intensity LEDs. The data logger is supplied with a long-life lithium battery, which can typically allow logging for up to 1 year. The user can easily set up the data logger and download logged data by plugging the unit into a PC's USB port and using the supplied Windows software. Data logger parameters that can be set up include data logger name, °C or °F temperature units, logging rate (10 sec, 1 min, 5 min, 30 min, 1 hr, 6 hrs, 12 hrs), high and low alarms, immediate, delayed or push-to-start logging, display off, on for 30 seconds after button press, or permanently on, and data rollover (allows unlimited logging periods by overwriting the oldest data when the memory is full). Downloaded relative humidity, temperature and dew point data saved in text format can be graphed, printed and exported to other applications for further analysis.

### Specifications

#### TEMPERATURE

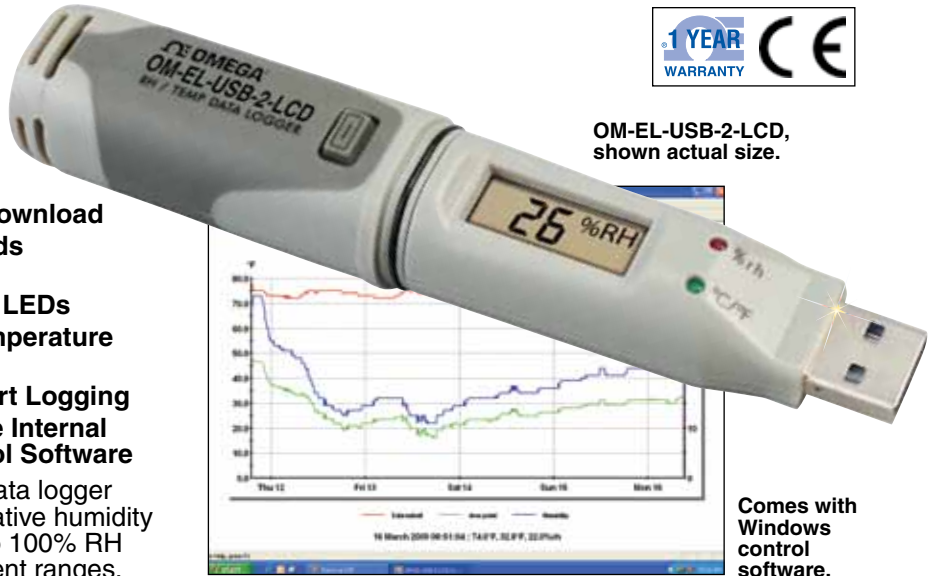
- Range:** -35 to 80°C (-31 to 176°F)
- Repeatability:** ±0.1°C (±0.2°F)
- Resolution:** 0.5°C (1.0°F)
- Accuracy (OM-EL-USB-2-LCD);** ±0.5°C (±1.0°F) typical; ±2.0°C (±4.0°F) max
- Accuracy (OM-EL-USB-2-LCD-PLUS);** ±0.3°C (±0.6°F) typical; ±1.5°C (±3.0°F) max

#### HUMIDITY

- Range:** 0 to 100% RH
- Repeatability:** ±0.1% RH (short term)
- Resolution:** 0.5% RH
- Accuracy [20 to 80% RH] (OM-EL-USB-2-LCD);** ±3.0% RH typical; ±5.0% RH max
- Accuracy [20 to 80% RH] (OM-EL-USB-2-LCD-PLUS);** ±2.0% RH typical; ±4.0% RH max

#### DEW POINT

- Accuracy (Overall Error in the Calculated Dew Point, for RH Measurements Between 40 to 100% RH @ 25°C ±1°C (±2°F))**

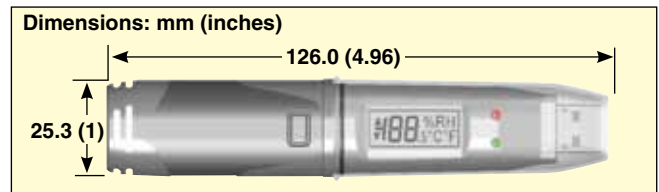


OM-EL-USB-2-LCD, shown actual size.

Comes with Windows control software.

### GENERAL

- Memory:** 16,379 temperature and 16,379 relative humidity readings
- Logging Interval:** 10 sec to 12 hrs
- Software:** Windows XP/Vista/7 and 8 (32-bit and 64-bit)
- Operating Temperature Range:** -35 to 80°C (-31 to 176°F); at temperatures below -20°C (-4°F) the LCD display will exhibit slower response times of approx 10 seconds
- Alarm Thresholds:** High/low alarm thresholds for %RH and temperature selectable in software
- Start Date/Time:** Selectable in software
- Status Indicators (LEDs):** Red and green
- Power:** ½ AA, 3.6V lithium battery (included)
- Battery Life:** 1 year typical (depends on sample rate, ambient temperature and use of LCD display)
- Weight:** 40 g (1.4 oz)
- Dimensions:** See dimensional drawing below



### To Order

Model No.	Description
OM-EL-USB-2-LCD	Temperature, humidity and dew point data logger with LCD display
OM-EL-USB-2-LCD-PLUS	High accuracy temperature, humidity and dew point data logger with LCD display
OM-EL-BATT	Replacement 3.6V lithium battery

Comes complete with Windows software on CD-ROM, protective cap and 3.6V lithium battery.

Ordering Example: OM-EL-USB-2-LCD, temperature/humidity data logger with LCD display.



## Carbon Monoxide Data Loggers with USB Interface



### OM-EL-USB-CO Series



OM-EL-USB-CO with protective cap removed shown actual size.

- ✓ 0 to 1000 ppm CO (OM-EL-USB-CO) or 0 to 300 ppm CO (OM-EL-USB-CO300) Measurement Ranges
- ✓ Stores up to 32,510 Measurements
- ✓ User-Programmable Warning Threshold with Bright Visual and Audible Warnings
- ✓ USB Interface for Set-Up and Data Download
- ✓ Expected Sensor Life: 4 years
- ✓ Supplied with Replaceable Internal Lithium Battery and Windows® Control Software

The OM-EL-USB-CO and OM-EL-USB-CO300 are standalone data loggers that measure and store up to 32,510 carbon monoxide (CO) readings over a 0 to 1000 ppm (OM-EL-USB-CO) or 0 to 300 ppm (OM-EL-USB-CO300) measurement range and -10 to 40°C (14 to 104°F) operating temperature range. The user can easily set up the logging rate and start time, and download the stored data by plugging the data logger into a PC's USB port and running the Windows control software. The data can then be graphed, printed and exported to other applications. The data logger is supplied complete with a long-life lithium battery. Data is stored in non-volatile memory and is retained when the battery is empty. A bright red LED will flash and a buzzer can sound when a preset warning level has been exceeded.

#### IMPORTANT SAFETY WARNING

Do not attempt to use the OM-EL-USB-CO or OM-EL-USB-CO300 data loggers without reading and understanding the documentation. Carbon monoxide monitoring is a complex procedure. The user should consult a qualified expert if there is any doubt as to the safety of the application.

The OM-EL-USB-CO and OM-EL-USB-CO300 are professional measuring instruments designed to record carbon monoxide (CO) gas levels for later analysis. They are not alarm/safety/warning devices and should not be used in this capacity for the following reasons:

1. The lights and sound emitted by the OM-EL-USB-CO or OM-EL-USB-CO300 to indicate a high level of CO do not provide adequate warning to those in the surrounding area that a high level of CO has been recorded.
2. The battery life of the OM-EL-USB-CO or OM-EL-USB-CO300 during audible and visual indication of a high level of CO will rapidly diminish and will therefore only be active for a short period of time.
3. The OM-EL-USB-CO or OM-EL-USB-CO300 takes a sample reading at intervals as set by the user for recording/monitoring/analysis purposes. Dangerous levels of CO will not register with the device until a sample reading is taken.
4. Due to the limitations of the device as a professional instrument, it is left to the user to set the light and sound alarms indicating the presence of CO. Therefore the instrument can be set up to provide NO form of warning. Carbon monoxide is poisonous. It is a clear, colorless gas that has no smell or taste and can be lethal even in very low concentrations. It can injure or kill people and animals who are not adequately warned of its presence. In areas where the safety of humans and animals is a concern, a domestic or industrial CO detector/alarm designed to a nationally approved quality standard with features such as a high decibel alarm or siren and a clear visual warning specifically designed to provide adequate warning of dangerous CO levels should be installed, used and maintained.



### OM-EL-WIN-USB (CONTROL SOFTWARE)

The OM-EL-WIN-USB control software is supplied free of charge with each data logger. The software is used to set-up the data logger as well as download, graph and export data to Excel.



The software allows the following parameters to be configured:

- Logger name
- Logging rate (10 s, 30 s, 1 m, 5 m)
- Warning threshold
- Start date and start time

### SPECIFICATIONS

#### Measurement Range

**OM-EL-USB-CO:** 3 to 1000 ppm CO (do not expose to levels above 1000 ppm, i.e. directly measuring the exhaust of a car or wood burner)

**OM-EL-USB-CO300:** 0 to 300 ppm CO

**Internal Resolution:** 0.5 ppm CO

#### Accuracy:

**OM-EL-USB-CO (Overall Error):**  $\pm 2$  ppm min,  $\pm 6\%$  typ

**OM-EL-USB-CO300:**  $\pm 5$  ppm or  $\pm 4\%$  typ (whichever is greater)

**Repeatability:**  $\pm 3\%$

**Long Term Drift:** 5%/year

**Zero Offset:**  $\pm 2$  ppm CO

**Response Time (to Reach 90%):** 1 minute

**Logging Interval:** 10 sec, 30 sec, 1 min, 5 min

**Status Indicators (LEDs):** Red and green LEDs. The first LED flashes red to indicate that the data logger is in an alarm condition (logged data has exceeded a high or low alarm level). The second LED flashes green to indicate that the data logger is logging normally and is not in an alarm condition.



OM-EL-USB-CO shown smaller than actual size.

**Audible Alarm:** The audible alarm will sound once per second when the warning threshold has been exceeded. To disable the warning, remove the cap from the data logger. The audible warning will sound once every 60 seconds when there is a low battery condition. This indicates that the battery must be replaced.

**Software:** Windows XP/Vista/7 and 8 (32- and 64-bit)

**Operating Temperature (15 to 90% RH, Non-Condensing):** -10 to 40°C (14 to 104°F)

**Operating Pressure:** 900 to 1100 mbar

**Power:** 1/2 "AA" 3.6V lithium battery life (included); user replaceable

**Battery Life:** 3 months (with battery supplied, 5 minute logging rate, 25°C ambient temperature, audible warning disabled, reading <10 ppm CO). On inserting a battery the red then green LED will flash in turn for approximately 2 min, while the logger stabilizes. Do not connect to the USB port of a computer until this has finished.

**Dimensions:** See dimensional drawing

**Weight:** 43 g (1.5 oz)

#### Dimensions: mm (inch)



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

### To Order

Model No.	Description
OM-EL-USB-CO	Carbon monoxide (CO) data logger with USB interface, 3 to 1000 ppm range
OM-EL-USB-CO300	Carbon monoxide (CO) data logger with USB interface, 0 to 300 ppm range
OM-EL-BATT	Replacement 3.6V lithium battery

Comes complete with Windows OM-EL-WIN-USB control software and operator's manual on CD-ROM, protective cap and 3.6V lithium battery.  
**Ordering Example:** OM-EL-USB-CO carbon monoxide (CO) data logger with USB interface, 3 to 1000 ppm range and OCV-2 OMEGACARE extends standard 1-year warranty to a total of 3 years.

# 5 Pack Temperature Data Logger with USB Interface

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)



OM-EL-USB-LITE-5, shown smaller than actual size.

## OM-EL-USB-LITE-5



- ✓ USB Interface for Setup and Data Download
- ✓ -10 to 50°C (14 to 122°F) Measurement Range
- ✓ 2 User-Programmable Alarm Thresholds
- ✓ Red/Green Alarm Status Indication via Pushbutton

The OM-EL-USB-LITE is a low-cost temperature data logger that measures and stores up to 4080 temperature readings over a -10 to 50°C (14 to 122°F) measurement range. It has a fixed 30-minute sample rate and a battery life of 1 month with continuous use. Press the button and a red/green LED indicates whether a preset alarm level has been breached.

The data logger is configured and the stored data is downloaded by plugging the module into a PC's USB port and running the control software under Windows XP/Vista/7 and 8. The downloaded data can be graphed, printed, and exported to other applications. A battery comes installed. To start logging, pull out the tab.

### Battery Replacement

The user should replace the battery every month, or before logging critical data. The OM-EL-USB-LITE



Windows software data logger setup.

Windows software data display.

does not lose its stored readings when the battery is discharged or replaced; however, the data logging process will stop and cannot restart until the battery has been replaced and the logged data has been downloaded to a PC.

For maximum logging life, use only OM-EL-BATT-LITE replacement batteries. Before replacing the battery, remove the OM-EL-USB-LITE from the PC.

**Note:** Leaving the OM-EL-USB-LITE plugged into the USB port for longer than required will shorten battery life.

### LED Flashing Modes

The OM-EL-USB-LITE has a bicolour LED status light. To save power, it operates for only a short time after the pushbutton is released.

### Specifications

- Measurement Range:** -10 to 50°C (14 to 122°F)
- Internal Resolution:** 1°C (2°F)
- Accuracy:** ±2.5°C (±4.5°F)
- Memory:** 4080 readings
- Logging Interval:** 30 minute (fixed)
- Operating Temperature Range:** -10 to 50°C (14 to 122°F)
- Alarm Thresholds:** 2 (user programmable)
- Start Date/Time:** Selectable in software
- Status Indicators (LEDs):** Red/green alarm status indication via pushbutton
- Software:** WIN XP/Vista/7 and 8 (32-bit and 64-bit)
- Power:** 3V coin cell battery (included)
- Battery Life:** 1 month
- Weight:** 30 g (1 oz)
- Dimensions:** 68 x 18 x 9.4 mm (2.7 x 0.7 x 0.4")

To Order	
Model No.	Description
OM-EL-USB-LITE-5	Temperature data logger with USB interface, package of 5
OM-EL-BATT-LITE	Replacement 3V coin cell battery

Data logger comes with Windows software on CD-ROM, operator's manual and lithium battery. Data logger plugs directly into computer's USB port (no USB cable required). **Ordering Example:** OM-EL-USB-LITE-5, temperature data logger with USB interface.

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)

## Thermocouple Data Logger with LCD Display and USB Interface



### OM-EL-USB-TC-LCD



- ✓ Plug Directly Into USB Port for Easy Setup and Data Download—No USB Cable Required
- ✓ High Contrast LCD with 4-Digit Temperature Indication
- ✓ Accepts Type J, K or T Thermocouples
- ✓ 2 User-Programmable Alarm Thresholds
- ✓ Status Indication Via Red and Green LEDs
- ✓ Immediate, Delayed and Push-to-Start Logging
- ✓ Window® Software Included Free

OM-EL-USB-TC-LCD, temperature data logger with LCD display and USB interface shown actual size.

The OM-EL-USB-TC-LCD data logger measures and stores up to 32,510 temperature readings from either a Type J, K or T thermocouple which plugs into a miniature female thermocouple receptacle at the base of the unit.

The data logger plugs directly into a PC's USB port, no USB cable is required. Three different functions are available on the display, most recent logged temperature, maximum logged temperature and minimum logged temperature.

The push button on the data logger is used to cycle through these functions. Data logger logging and alarm status is indicated by flashing red and green LEDs.

Using the included Windows software, the user can easily set up the initial data logging parameters including thermocouple type, logging rate, start-time, high/low alarm settings, logging mode and desired temperature units (°C or °F), select the display mode which includes display off, on for 30 seconds after button press, or permanently on, data rollover (allows unlimited logging periods by overwriting the oldest data when the memory is full) and also download the stored data. The downloaded data can then be graphed, printed and exported to other applications such as Excel.

### Specifications

#### Temperature Measurement Range:

Type J: -200 to 1190°C (-328 to 2174°F)

Type K: -200 to 1350°C (-328 to 2462°F)

Type T: -200 to 390°C (-328 to 734°F)

**Resolution (Internal and Displayed):** 0.5°C (1°F)

**Accuracy:** ±1.0°C (±2.0°F)

**Thermocouple Connection:** Female subminiature thermocouple connector

**Temperature Units:** °C or °F selectable in software

**Memory:** 32,510 readings

**Logging Interval:** 1 sec, 10 sec, 1 min, 5 min, 30 min, 1 hr, 6 hr, 12 hr (selectable in software)

**High/Low Alarms:** Selectable in software

**Start Date/Time:** Selectable in software

**Operating Temperature Range:**

-10 to 40°C (14 to 104°F)

**Visual Indicators (2 LEDs):** The first LED flashes red to indicate that the data logger is in an alarm condition (when temperature has exceeded a high or low level alarm limit); the second LED flashes green to indicate the data logger is not in an alarm condition

**Software:** Windows® 2000/XP/VISTA/7(32- and 64-bit)

**Power:** ½ AA 3.6V lithium battery (included)

**Battery Life:** 6 months (at 25°C, dependent on sample rate and use of LCD)

**Weight:** 114 g (4 oz)

**Dimensions:** See drawing on next page



Windows® Software shows data in graphical format

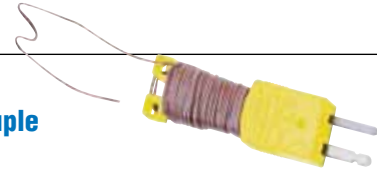


Windows® Software setup screen

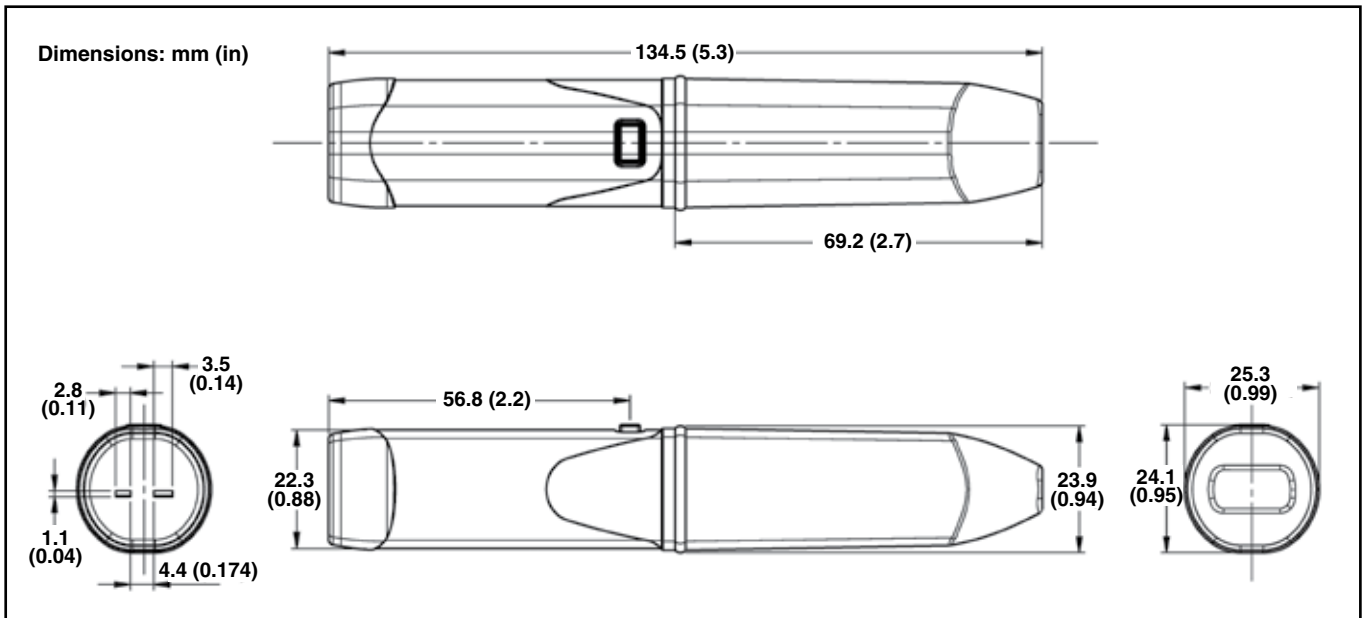


OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

**FREE Thermocouple Included!**



Includes a free 1 m (40") Type K insulated beaded wire thermocouple with subminiature connector and wire spool caddy. **Order a Spare! Model No. SC-GG-K-30-36.**



To Order	
Model No.	Description
OM-EL-USB-TC-LCD	Thermocouple data logger with LCD display and USB interface
OM-EL-BATT	Replacement 3.6V lithium battery

Comes complete with Windows software, operator's manual on CD-ROM, protective cap, 3.6V lithium battery and Type K thermocouple. **Ordering Example:** OM-EL-USB-TC-LCD, thermocouple data logger with LCD display and USB interface, OCW-3, OMEGACARE<sup>SM</sup> 3-year extended warranty (adds 3 years to standard 1 year warranty), and OM-EL-BATT replacement battery.



## Thermocouple Data Logger with USB Interface

### OM-EL-USB-TC



- ✓ Plugs Directly Into USB Port for Easy Setup and Data Download—No USB Cable Required
- ✓ Accepts Type J, K or T Thermocouples
- ✓ 2 User-Programmable Alarm Thresholds
- ✓ Bright Red, Green and Orange LED Indication
- ✓ Low Battery Warning

The OM-EL-USB-TC data logger measures and stores over 32,000 temperature readings from either a Type J, Type K or Type T thermocouple which plugs into a miniature female thermocouple receptacle at the base of the unit. The user can easily set up the initial data logging parameters including thermocouple type, logging rate, start-time, high/low alarm settings, logging mode and desired temperature units (°C or °F) and also download the stored data by plugging the module straight into a PC's USB port and running the easy-to-use Windows software.

Downloaded data can then be graphed, printed and exported to other applications such as Excel. The data logger is supplied complete with a long-life lithium battery. Data logger status is indicated by flashing red, green and orange LEDs.

### Specifications

#### Temperature Measurement Range:

Type J: -130 to 900°C (-202 to 1652°F)

Type K: -200 to 1300°C (-328 to 2372°F)

Type T: -200 to 350°C (-328 to 662°F)

**Resolution:** 0.5°C (1°F)

**Accuracy:** ±1.0°C (±2.0°F)

**Thermocouple Connection:** Female subminiature thermocouple connector

**Temperature Units:** °C or °F selectable in software

**Memory:** 32,000 readings

**Logging Interval:** 1 sec, 10 sec, 1 min, 5 min, 30 min, 1 hr, 6 hr, 12 hr (selectable in software)

**High/Low Alarms:** Selectable in software

**Start Date/Time:** Selectable in software

**Operating Temperature Range:** -10 to 40°C (-14 to 104°F)

**Visual Indicators (LEDs):** 2 LEDs; the first LED flashes orange to indicate a problem condition with the data logger such as low battery; the second LED indicates alarm status and flashes green (temperature within limits) or red (temperature out of limits)

**Software:** Windows® 2000/XP/VISTA/7 (32- and 64-bit)

**Power:** ½ AA 3.6 V lithium battery (included)

**Battery Life:** 6 months (at 25°C and 1 minute logging interval)

**Weight:** 43 g (1.5 oz)

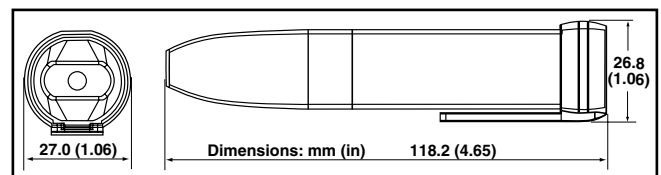
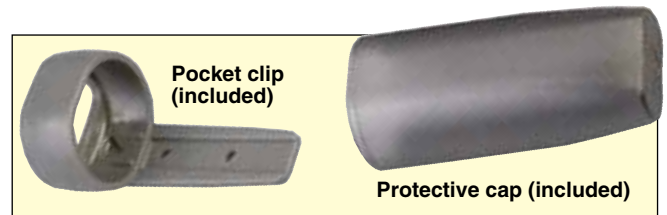
**Dimensions:** See drawing above, right



Windows Software shows data in graphical format

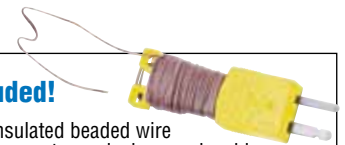
OM-EL-USB-TC, shown smaller than actual size.

Windows Software setup screen



### FREE Thermocouple Included!

Includes a free 1 m (40") Type K insulated beaded wire thermocouple with subminiature connector and wire spool caddy. Order a Spare! Model No. SC-GG-K-30-36.



### To Order

Model No.	Description
OM-EL-USB-TC	Thermocouple data logger with USB interface
OM-EL-BATT	Replacement 3.6 V lithium battery

Comes complete with Windows software, operator's manual on CD-ROM, protective cap, pocket clip, Type K thermocouple and 3.6 V lithium battery.

**Ordering Example:** OM-EL-USB-TC, thermocouple data logger with USB interface and OM-EL-BATT, replacement battery.



## Portable Data Logger

### OM-SQ2040



- ✓ 16 True Differential or 32 Single-Ended Universal Analog Inputs for Voltage, Current or Resistance Measurements—Plus 2 High Voltages, 4 Pulse and 8 Digital Event/State Inputs
- ✓ Analog Inputs Can Be Used with Thermistors, Thermocouples, 2, 3 or 4-Wire RTD Temperature Sensors and 4 to 20 mA Signals
- ✓ User Selectable Logging Rates of Up to 100 Hz on Up to 4 Channels
- ✓ Download of Internal Data to Removable MMC/SD (Multi Media Card/Secure Digital) Memory
- ✓ Large Non-Volatile Internal Memory—Data Retention is Virtually Indefinite
- ✓ Ethernet, Wi-Fi (On the OM-SQ2040-2F16-WIFI and OM-SQ2040-4F16-WIFI) USB and RS-232 Communication Ports
- ✓ Sensor Power and FET Alarm Outputs For Use With External Devices
- ✓ Easy Access to Information Using the 2 Line, 20 Character LCD and Push Button Panel
- ✓ Calculated Channels Derived from Real Channels Using Advanced Mathematical Functions

The OM-SQ2040 Series combines a higher channel count with the same high performance, comprehensive features and universal inputs as the OM-SQ2020 in a neat compact and portable instrument. Using multiple 24-bit analog to digital converters, twin processors and removable memory options provide great flexibility to handle a wide range of complex and demanding multi-channel applications. The OM-SQ2040 series are the ideal data loggers for industrial, scientific research and quality assurance applications. The OM-SQ2040 provides stand-alone data acquisition, advanced networked solutions and data analysis straight out-of-the-box



OM-SQ2040-2F16-WIFI data logger shown smaller than actual size.

### Input Connections

The OM-SQ2040-2F16 data logger has two analog to digital converters (A/D's) which increases logging flexibility over the OM-2020-1F8 model. The first corresponds to inputs on blocks A, B, C and D and the second corresponds to inputs on blocks G, H, J and K. Each connection block will accept up to 2 differential inputs or up to 4 single-ended inputs (it is not possible to mix single ended and differential inputs on a block).

The OM-SQ2040-4F16 data logger has four analog to digital converters (A/D's) which increases logging flexibility over the other OM-SQ2020 and OM-SQ2040 models. The first corresponds to inputs on blocks A and B, the second corresponds to inputs on blocks C and D, the third corresponds to inputs on blocks G and H and the fourth corresponds to inputs on blocks J and K. Each connection block will accept up to 2 differential inputs or up to 4 single-ended inputs (it is not possible to mix single-ended and differential inputs on a block)

### Concurrent Sampling

The OM-SQ2040 series uses multiple analog to digital converters that enables true concurrent sampling and logging. This allows the user to configure up to 4 channels to log at a rate of 100 Hz while retaining different sample speeds on other channels.

This makes the OM-SQ2040 ideal for measuring dynamic parameters that change at different rates such as temperature and pressure.

**Communications** Ethernet, Wi-Fi (on the OM-SQ2040-2F16-WIFI and OM-SQ2040-4F16-WIFI) USB and RS-232 serial ports are built-in. This allows quick connection to either a PC based TCP/IP network, a wireless to PC connection or to a modem for remote data downloading.

This flexibility enables global data access and retrieval as well as complete system integration of the OM-SQ2040 series into complex and critical applications.

### Multiple Configurations Stored in the Logger

Up to six logger configurations (channel type, names, logging speeds, triggers, etc.), together with the current configuration, can be held in the logger's internal memory. Additional configuration settings can also be loaded from the external MMC/SD memory card. This allows the operator to quickly and easily switch between logger configurations without the need for a PC.

### Comprehensive Software Configuration

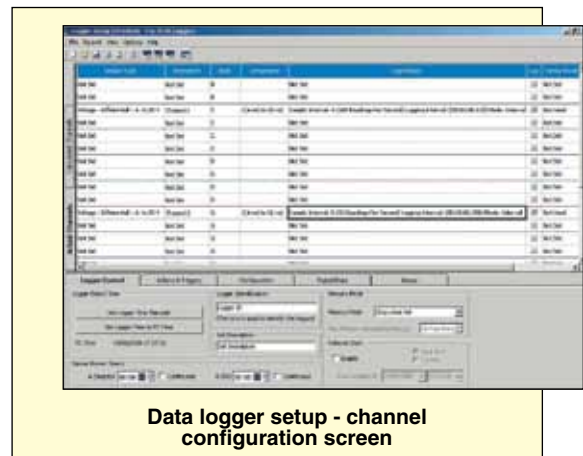
The OM-SQ-SOFT software (supplied with the OM-SQ2040 series data loggers) allows logger configuration, data download and data export while giving the user full control over the OM-SQ2040.

The optional OM-SQ-SOFT-PLUS software gives the user access to many advanced data analysis and data archiving/transfer features.

The optional OM-SQ-SOFT-PLUS software lets you quickly and easily analyze the data from your OM-SQ2040 data logger in a familiar Explorer style interface. Data can be displayed with 2 different auto scaling Y-axis. This is particularly useful when displaying widely varying data from different sensors on one graph.

You can also zoom in on areas of interest, use a cursor to pick out exact values, times and dates, get a statistical summary of your data, set high and low alarm thresholds and, using the calculation function, you can create new virtual channels from existing channels.

The OM-SQ-SOFT-PLUS software also incorporates a report generation facility, which allows you to create custom report templates consisting of a title page with descriptive text, headers and footers, graphs, tabular list of data, statistics and data logger setup information. Templates can be setup with any of these combinations and saves time when preparing similar presentations of data.



### Input Channels

Analog Input Channel Options	OM-SQ2040-2F16	OM-SQ2040-4F16
Analog to Digital Converters	2	4
Differential	16	16
Single ended	32	32
3 or 4 wire	0	8
<b>Additional Channels</b>		
Pulse	(2x fast—64 kHz) and (2 x slow—100 Hz)	(2x fast—64 kHz) and (2 x slow—100 Hz)
Event/Digital	8 state inputs of 1 x 8 bit binary	8 state inputs of 1 x 8 bit binary
High Voltage	2	2
Internal Channels	2 temperature	2 temperature
Logging Speeds	1 sec to 1 day in sec increments 2, 5, 10, 20 or 100 Hz (20 or 100 HZ only on 2 channels)	1 sec to 1 day in sec increments 2, 5, 10, 20 or 100 Hz (20 or 100 HZ only on 4 channels)

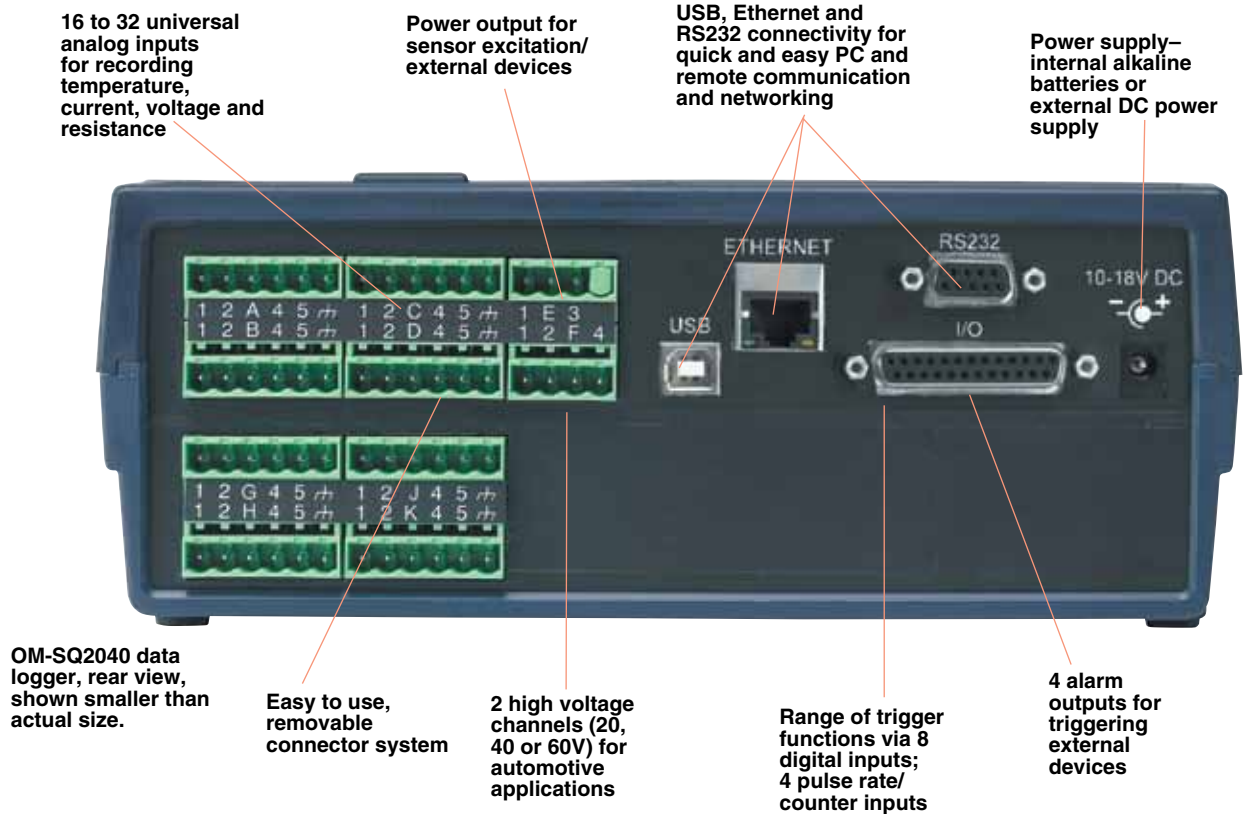
### Standard Ranges for Temperature Channels

Each channel can be individually set to any of the ranges listed; Pt100 to IEC751 and JIS1604 and Pt1000 to IEC751

Input Type	Range °C	Range °F
Y & U: Thermistor **	-50 to 150	-58 to 302
Pt100/P1000*	-200 to 850	-328 to 15620

\* 2-wire only on OM-SQ2040-2F16, 3- or 4-wire on OM-SQ2040-4F16  
\*\* or user-defined thermistor (enter Steinhart-Hart coefficients or RT pairs)

Thermocouple Type	Range °C	Range °F
K	-200 to 1372	-328 to 2501
T	-200 to 400	-328 to 752
J	-200 to 1200	-328 to 2192
N	-200 to 1300	-328 to 2372
R/S	-50 to 1768	-58 to 3214



### Standard Ranges for dc Voltage

Each voltage channel can be any of the voltage ranges below. Mixed differential and single ended configurations are permitted.

Voltage Range	Voltage Range	High Voltage Input Ranges*
-0.075 to 0.075V	-3.0 to 3.0V	4.0 to 20.0V
-0.15 to 0.15V	-6.0 to 6.0V	4.0 to 40.0V
-0.3 to 0.3V	-6.0 to 12.0V	4.0 to 60.0V
-0.6 to 0.6V	-6.0 to 25.0V	
-0.6 to 1.6V		
-0.6 to 2.4V		

\* Max of 2 may be selected

### Standard Ranges for Current and Resistance Channels

Each current channel can be any of the current ranges below. Current ranges use differential input channels.

Current Range (External 10 Ω Shunt)	Resistance Range 2 Wire	Resistance Range Input Ranges
-30.0 to 30.0 mA	0.0 to 1250.0 Ω	0.0 to 500.0 Ω
4 to 20 mA	0.0 to 5000.0 Ω	0.0 to 4000.0 Ω
	0.0 to 20000.0 Ω	
	0.0 to 300000.0 Ω	

### Specifications

#### ANALOG INPUTS

**Accuracy:** See table  
**Common Mode Rejection:** 100 dB  
**Input Impedance:** >1MΩ  
**Linearity:** 0.015%  
**Series Mode Line Rejection:** 50/60 Hz 100 dB

#### Analog Input Connections:

Detachable screw terminal blocks

#### ANALOG—DIGITAL CONVERSION

**Type:** Sigma-Delta  
**Resolution:** 24-bit  
**Sampling Rate:** Up to 10, 20\* or 100\* readings per second per ADC  
 \* With mains rejection off

#### Alarm Outputs

4 x open drain FET (18 V 0.1 A)

#### Digital I/O Connections:

DB25F connector

#### CALCULATED CHANNELS

Up to 16 virtual channels derived from physical input channels

#### RESOLUTION

Up to 6 significant digits

#### PROGRAMMING/LOGGER SETUP

OM-SQ-SOFT or OM-SQ-SOFT-PLUS software

Software compatible with XP/VISTA (32-bit & 64-bit)/7 (32-bit & 64-bit)

#### COMMUNICATION

**Standard:** RS232 (automatic baud rate selection to 115200 baud) Ethernet 10/100 base TCP/IP USB 1.1 and 2.0 compatible

#### Wireless Ethernet:

(Wi-Fi); 802.11b, 2.4GHz, 1 to 14 channels

**Security:** Open, WEP (64 or 128bit encryption), WPA or PA2/802.11i  
**Network:** Infrastructure only with specified SSID (external power pack required for Wi-Fi connection)

Input Channels	Accuracy @ 23°C
Differential voltage	±(0.025% of reading + 0.005% of full scale)
Single-ended voltage	±(0.025% of reading + 0.005% of full scale)
High voltage on block F	±(0.075% of reading + 5 mV)
Differential current	±(0.02% of reading + 0.015% of full scale)
2-wire and 3-wire resistance (above 500 Ω)	±0.1% of reading
4-wire resistance	±(0.05% of reading + 0.15 Ω)
2-wire and 3-wire temperature	±(0.1% of reading + 0.1% of full scale)
4-wire temperature	±(0.05% of reading + 0.05% of full scale)
Differential J, K and N thermocouples (above -50°C) *	±0.075% of full scale
Differential R, S and T thermocouples (above -50°C) *	±0.175% of full scale
Single-ended J, K and N thermocouples (above -50°C) *	±0.1% of full scale
Single-ended R, S and T thermocouples (above -50°C) *	±0.225% of full scale
Pulse count and rate	±(0.0011% of reading +1)

\* Includes cold junction compensation (CJC) error.  
Data logger held at constant temperature.

**External Options:** GSM, WIFI and PSTN Modems

**POWER SUPPLY**

**Internal:** 6 "AA" alkaline batteries (included)

**External:** 10 to 18 Vdc reverse polarity and over-voltage protected

**POWER CONSUMPTION @ 9V**

**Sleep Mode:** 600 µA

**Logging:** 40 to 130 mA

**DISPLAY AND KEYPAD**

2 line x 20 character LCD display; battery state and external power indicator; keypad lock

**Navigate To:** Arm/disarm/pause/continue; meter any channel or alarm; select from up to 6 x pre-stored setups; status/diagnostics/memory/time and date; download to MMC/SD

**OPERATING ENVIRONMENT**

**Temperature:** -30 to 65°C (-22 to 149°F)

**Humidity:** 90% at 40°C non-condensing

**GENERAL**

**Power Output**

**for External Device:** Regulated 5 Vdc at 50 mA or logger supply voltage at 100 mA

**Time and Date:**

Built-in clock in 3 formats

**Scaling Data:** Displays readings in preferred engineering units

**Internal Memory:** 16 MB (Up to 1,800,000 readings)

**External Memory:**

Up to 1 GB— removable MMC/SD (for transferring internal memory and storing setups only)

**Dimensions:**

175 H x 235 W x 95 mm D (6.9 x 9.3 x 3.7")

**Weight:** Approx. 1.2 kg (2.6 lb)

**Enclosure Material:** ABS

**Memory Modes**

**(Internal Only):**

Stop when full or overwrite

OM-SQ2040-2F16-WIFI data logger shown smaller than actual size.



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

To Order	
Model No.	Description
OM-SQ2040-2F16	Portable data logger with 2 fast channels
OM-SQ2040-4F16	Portable data logger with 4 fast channels
OM-SQ2040-2F16-WIFI	Portable data logger with 2 fast channels and integrated Wi-Fi networking
OM-SQ2040-4F16-WIFI	Portable data logger with 4 fast channels and integrated Wi-Fi networking

Comes complete with software, USB cable, wall bracket, 6 "AA" batteries, 10 input terminal blocks, 4 current shunt resistors and operator's manual.

To order data logger with calibration certificate, add suffix "-CAL" to model number.

**Ordering Example:** OM-SQ2040-2F16 portable data logger with 2 fast channels, OM-SQ-SOFT-PLUS software and OCW-1 OMEGACARE 1 year extended warranty for OM-SQ2040-2F16 adds 1 year to standard 1-year warranty.

**Accessories**

Model No.	Description
OM-SQ-NET-ADAP	Serial/ethernet converter kit
OM-SQ-GSM-KIT	GSM modem kit
OM-SQ-RF-ADAP	Wireless network adaptor
OM-SQ-UNIV-ADAP	Universal power pack
OM-SQ-UNIV-ADAP-1	Universal power pack with 1 m (3.2') flying lead
OM-SQ-CS	Spare current shunts (package of 4)
OM-SQ-SER-CABLE	OM-SQ data logger to PC serial port cable
OM-SQ-USB-CABLE	Spare OM-SQ data logger to PC USB port cable
OM-SQ-TB3	Spare 3-way terminal block with cable restraint
OM-SQ-TB4	Spare 4-way terminal block with cable restraint
OM-SQ-TB6	Spare 6-way terminal block with cable restraint
OM-SQ-SOFT-PLUS	OM-SQ2040 plus software
OM-SQ-SOFT-PLUS-LIC	OM-SQ2040 plus software multi-user license

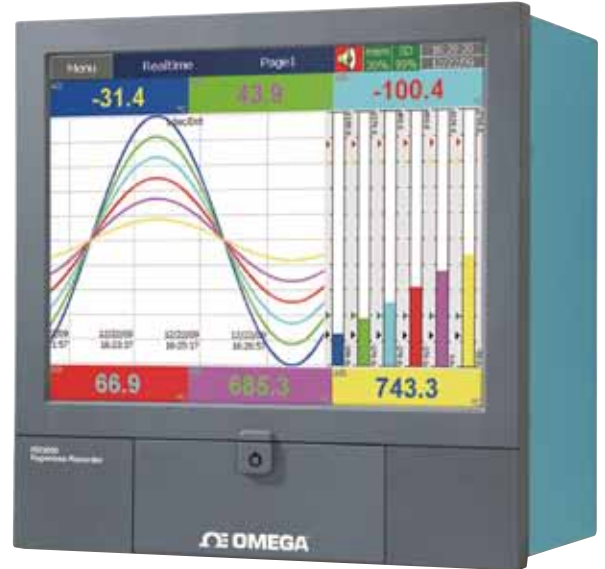


**RD1000/RD2000/RD3000  
Series**



RD1000, 4.3" display

RD2000, 5.6" display



RD3000, 12.1" display

All models shown smaller than actual size.

- ✓ **Color TFT Touch Screen Display:** 4.3", 5.6" and 12.1"
- ✓ **Expandable Inputs and Outputs via Plug and Play I/O Cards:** RD1000/2000 Series— 4 Slots; RD3000 Series— 16 Slots
- ✓ **Analog Inputs:** RD1000 Series—Up to 6 RD2000 Series—Up to 24 RD3000 Series—Up to 48
- ✓ **User Friendly with Bar Graph, Numerical, Vertical or Horizontal Trend Display**
- ✓ **Ethernet Interface Standard with Optional RS232/422/485 Communications**
- ✓ **Built-In Web Server for Remote Data Monitoring**

- ✓ **Stores Data on 256 MB Internal Flash Memory**
- ✓ **Windows® Graphical Software Standard and Optional Software for Real Time Monitoring**

The RD1000/2000/3000 Series paperless recorders offer real time display of data in a variety of formats on a high resolution TFT touch screen display. The user friendly unit with plug and play cards can easily be set to monitor, record, and evaluate any application. The user can access data on the screen, as well as from a remote site via the standard Ethernet, Web Server or optional RS232/422/485 serial interface. The historical data may be stored in a flash ROM, compact flash card, or collected in a remote host PC for evaluation and print out. The unit's compact size saves space and minimizes depth required behind the panel.

**Hardware Features**

- RD1000 Series: 3 or 6 Universal Analog Inputs and 24 Optional External Channels
- RD2000 Series: 6, 12, 18 or 24 Universal Analog Inputs and 48 Optional External Channels
- RD3000 Series: 6, 12, 18, 24, 30, 36, 42 or 48 Universal Analog Inputs and 96 Optional External Channels
- TFT Color LCD, High Resolution Touch Screen
- 100 Millisecond Sample Rate and Data Logging
- High Accuracy 24-Bit A/D Analog Input
- 16-Bit D/A Analog Output
- Digital Input, 100 Hz Maximum
- Plug and Play I/O cards (AI, AO, DI, DO) for Easy Expansion
- On-Board SD Card Slot for Internal Memory
- USB Slot for External Storage
- 171 mm Short Depth Behind Panel
- Standard Ethernet with Optional RS232 or RS422/RS485 Communications
- Two USB Host Ports for Downloading Data or Connect to Printer
- IP65 (NEMA 4X) Water-Resistant

## Firmware and PC Software Features

- Free Basic Software for Configuration, Historical Viewer
- Optional Extensive Data Acquisition Studio Software—for Configuration, Historical Viewer and Real Time Viewer
- Circular Trends in RD3000 Series
- Additional Panel Studio Software for Editing and Customizing Displays
- Display Values in Digital, Real Time Trends, Historical Trends, Bar Graphs
- Real Time and Historical Alarms
- Event Management, Jobs Linked with Events
- Reports (Daily, Weekly and Monthly)
- Timers – Optional: Counters, Totalizers, Math Channels and CFR-21
- Customized Messages for Alarms
- Alarms by Email Directly from Paperless Recorder
- Batch Control, Log Data in Batches
- 100 msec Data Logging and Historical Data Archival Tools
- Display Screen Rotation
- Dynamic Data Exchange via PC Software
- Search Data with Reference to Time and Period, then Export to Spreadsheets
- Data Logging by Value Change or Time Base
- Start/Stop Data Logging Functions Which Can Be Linked with Real Time Clock or Events

### Recorder Input Name and Description Screen—Standard Firmware



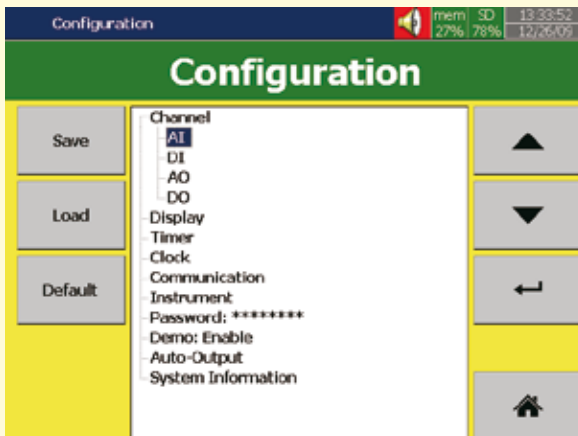
**Input name and description:**  
Large entry fields allow users to key in many characters.

### Recorder Touch Screen



**Touch-screen allows easy handwriting of notes and messages.**

## Recorder Configuration Screen



Configuration in tree layout is easy to operate.

**AI:** Analog input logging speed can be set from 100 ms, 1, 2, 5, 10, 20, 30 sec/dot; 1, 2 min/dot

**DI:** Digital input is offered either normal logic or high frequency pulse

**AO:** In analog output, mA or V and its expression can be defined

**DO:** Digital output/relay output can be enabled. Each DO card has 6 relays

**Display:** Various display speeds are available from 100 ms, 1, 2, 5, 10, 20, 30 sec/dot, or 1, 2, 10, 30 min/page, 1, 2, 4, 8, 12 hour/page, or 1 day/page

**Timer:** Timer in countdown, repeat countdown, daily, weekly or monthly base, and various jobs can be defined

**Clock:** Date style of mm/dd/yy or dd/mm/yy, time synchronize via internet, and daylight saving time can be defined

**Communication:** Web server and email functions are available in communication in standard firmware

**Instrument:** Brightness adjustment and screen saver are available in instrument

**Password:** If normal security is chosen, then only one password is offered. If high security of CFR-21 is chosen, then 9 levels of password can be defined

**Demo:** Enable or disable the demonstration

**Auto-output:** Automatic output can be set to specify the printer, to print historical data & report data in specified period of time

**System information:** Gives firmware version number, internal and external memory status, IP address, and IO card status of each slot

**Web Server:** Available with all the recorders as a standard feature. When this feature is enabled the user can access real-time trends, data, events and alarms wherever an internet connection is available

## Expandable Input

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)

Each recorder is equipped with rear expansion slots (RD1000/RD2000 Series has 4 slots, RD3000 Series has 16 slots) which work flexibly with the following plug and play I/O cards:

**Analog Input Cards (RD1000-3AI & RD1000-6AI):** These two cards are used for 3 or 6-channel analog inputs. Each input is isolated from each other to avoid noise and to ensure stable measurement.

**Relay Output Card (RD1000-6R):** Each card includes 6 alarm relays. Contacts are rated 5 A/240 Vac

**Digital Input Card (RD1000-6DI):** Each card includes 6 channels. Logic Low: -5V minimum, 0.8V maximum, Logic High: 3.5V minimum, 24V maximum

**Combination Relay Output and Digital Input Card (RD1000-3R-3DI):** Each card includes 3 digital inputs and 3 relay outputs. For digital inputs, Logic Low: -5V minimum, 0.8V maximum, Logic High: -3.5V minimum, 24V maximum. For relay outputs, the contacts are rated 5 A/240 Vac.

**Analog Output Card (RD1000-6AO):** Each card includes 6 channels. They are used for 4 to 20 mA, 0 to 20 mA current output, 0 to 5 V, 1 to 5 V, 0 to 10 Vdc voltage output.

## Communication

protocol IEEE 802.3 – 10/100 Base T. RS232/422/485 serial communications is optional.

## SPECIFICATIONS

### GENERAL

**Display:** LCD, 65K color  
**Resolution:** RD1000: 480 x 272; RD2000: 640 x 480; RD3000: 1024 x 768  
**Backlight:** LED  
**MTBF Backlight @ 25°C:** RD1000, RD2000: 30,000 hrs; RD3000: 60,000 hrs  
**CPU:** ARM Cortex-A8, 1 GHz  
**Internal Flash Memory:** 256 MB  
**SD Card Slot:** Standard  
**USB Host:** 2 ports (one front, one back)  
**Start/Stop Key:** Start/stop recording and turn off display only (for quick re-start), does not turn off power to the unit  
**Web Server:** The recorder trend and digital data can be viewed in any place in the world with the recorder connected to Internet with a fixed IP address  
**Multilingual Programming:** 19 languages including English, Japanese, Chinese (simplified, traditional), French, German, Spanish, Swedish, Danish, Italian, Polish, Russian, Dutch, Korean, Thai, Turkish, Portuguese, Brazil Portuguese and Czech  
**PC Software:** Standard software supplied for historical data viewing and configuration; optional Data Acquisition Studio software for real-time monitoring; supports Windows XP/Vista/7/8 (32-bit and 64-bit)

### Real Time Clock

#### Accuracy vs.

#### Temperature Inside

**of Housing:** 18 sec typical error per month (10 to 40°C); 52 sec typical error per month at 0°C or 50°C; 107 sec typical error per month at -10°C or 60°C  
**Power:** 90 to 250 Vac, 47 to 63 Hz, 52 VA, 26 W max; 11 to 36 Vdc, 26 VA, 26 W max (optional)

## ANALOG INPUT CARDS (RD1000-3AI AND RD1000-6AI)

### Channels:

**RD1000-3AI:** 3 channels

**RD1000-6AI:** 6 channels

**Resolution:** 24 bits

**Sampling Rate:** 10 times/second

**Maximum Rating:**

**RTD Input:** ±20V

**Thermocouple and Voltage Input:** ±65V

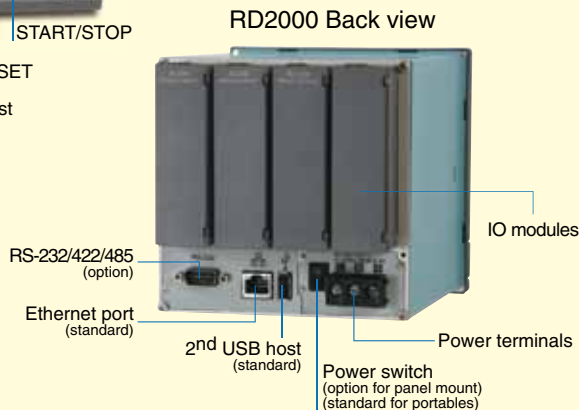
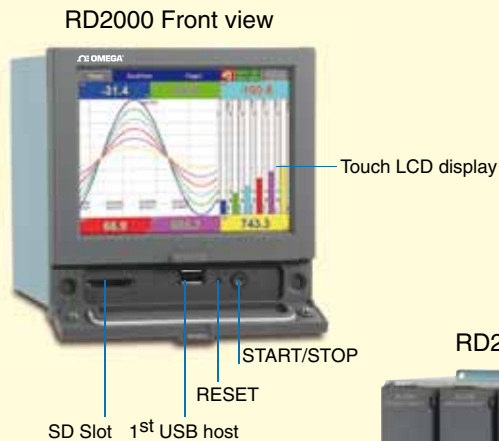
**Current (mA) Input:** ±10V

**Temperature Effect:** ±0.1 μV ±15 ppm of reading for all inputs except mA, ±30 ppm of reading for mA input

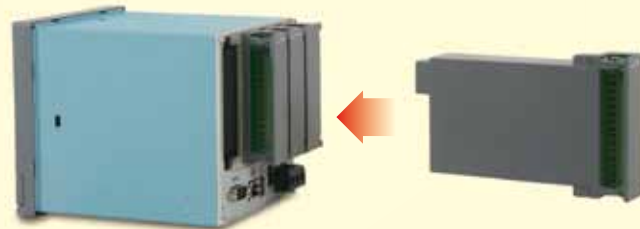
**Sensor Lead Resistance Effect:**

- **Thermocouple:** 0.32 ppm of reading/Ω
- **3-Wire RTD:** 2.6°C/Ω of resistance difference of two leads (based on °C measurement temperature for Pt100)
- **2-Wire RTD:** 2.6°C/Ω of resistance sum of two leads (based on °C measurement temperature for Pt100)
- **Burn-Out Current:** 10μA

### Expandable modules of inputs and outputs



### IO modules easy for expansion



**Rejection Ratio (CMRR):** 120 dB  
**Normal Mode Rejection Ratio (NMRR):** 55 dB

**Channels:** 1500 Vac min  
**Sensor Break Detection:** Sensor opened for thermocouple, RTD and mV inputs; below 1 mA for 4 to 20 mA input, below 0.25V for 1 to 5V inputs, unavailable for other inputs

**Sensor Break Response Time:** Within 1 second for thermocouple, RTD and mV inputs; 0.1 second for 4 to 20 mA and 1 to 5V inputs

### Analog Input Types and Ranges

Type	Range	Accuracy @ 25°C	Input Impedance
J	-120 to 1000°C (-184 to 1832°F)	±1°C	3.12 MΩ
K	-200 to 1370°C (-328 to 2498°F)	±1°C	3.12 MΩ
T	-250 to 400°C (-418 to 752°F)	±1°C	3.12 MΩ
E	-100 to 900°C (-148 to 1652°F)	±1°C	3.12 MΩ
B	0 to 1820°C (32 to 3308°F)	±2°C (200 to 1820°C)	3.12 MΩ
R	0 to 1768°C (32 to 3214°F)	±2°C	3.12 MΩ
S	0 to 1768°C (32 to 3214°F)	±2°C	3.12 MΩ
N	-250 to 1300°C (-418 to 2372°F)	±1°C	3.12 MΩ
L	-200 to 900°C (-328 to 1652°F)	±1°C	3.12 MΩ
U	-200 to 600°C (-328 to 1112°F)	±1°C	3.12 MΩ
P	0 to 1395°C (32 to 2543°F)	±1°C	3.12 MΩ
W5	0 to 2315°C (32 to 4199°F)	±1°C	3.12 MΩ
W3	0 to 2315°C (32 to 4199°F)	±1°C	3.12 MΩ
LR	-200 to 800°C (-328 to 1472°F)	±1°C	3.12 MΩ
A1	0 to 2500°C (-32 to 4532°F)	±1°C	3.12 MΩ
A2	0 to 1800°C (-32 to 3272°F)	±1°C	3.12 MΩ
A3	0 to 1800°C (-32 to 3272°F)	±1°C	3.12 MΩ
M	-200 to 100°C (-328 to 212°F)	±1°C	3.12 MΩ
Pt50 (α = 0.00385)	-200 to 850°C (-328 to 1562°F)	±0.4°C	2.0 KΩ
Pt100 (α = 0.00385)	-200 to 850°C (-328 to 1562°F)	±0.4°C	2.0 KΩ
Pt200 (α = 0.00385)	-200 to 850°C (-328 to 1562°F)	±0.4°C	2.0 KΩ
Pt500 (α = 0.00385)	-200 to 850°C (-328 to 1562°F)	±0.4°C	2.0 KΩ
Pt1000 (α = 0.00385)	-200 to 350°C (-328 to 662°F)	±0.4°C	2.0 KΩ
Pt50 (α = 0.00391)	-200 to 850°C (-328 to 1562°F)	±0.4°C	2.0 KΩ
Pt100 (α = 0.00391)	-200 to 850°C (-328 to 1562°F)	±0.4°C	2.0 KΩ
JPT50 (α = 0.003916)	-200 to 600°C (-328 to 1112°F)	±0.4°C	2.0 KΩ
JPT100 (α = 0.003916)	-200 to 600°C (-328 to 1112°F)	±0.4°C	2.0 KΩ
JPT200 (α = 0.003916)	-200 to 600°C (-328 to 1112°F)	±0.4°C	2.0 KΩ
JPT500 (α = 0.003916)	-200 to 600°C (-328 to 1112°F)	±0.4°C	2.0 KΩ
JPT1000 (α = 0.003916)	-200 to 350°C (-328 to 662°F)	±0.4°C	2.0 KΩ
Cu50 (α = 0.00426)	-50 to 200°C (-58 to 392°F)	±0.4°C	2.0 KΩ
Cu100 (α = 0.00426)	-50 to 200°C (-58 to 392°F)	±0.4°C	2.0 KΩ
Cu50 (α = 0.00428)	-180 to 200°C (-292 to 392°F)	±0.4°C	2.0 KΩ
Cu100 (α = 0.00428)	-180 to 200°C (-292 to 392°F)	±0.4°C	2.0 KΩ
Ni100 (α = 0.00617)	-60 to 180°C (-76 to 356°F)	±0.4°C	2.0 KΩ
Ni200 (α = 0.00617)	-60 to 180°C (-76 to 356°F)	±0.4°C	2.0 KΩ
Ni500 (α = 0.00617)	-60 to 180°C (-76 to 356°F)	±0.4°C	2.0 KΩ
Ni1000 (α = 0.00617)	-60 to 180°C (-76 to 356°F)	±0.4°C	2.0 KΩ
Cu10 (α = 0.00427)	-200 to 260°C (-328 to 500°F)	±1.0°C	2.0 KΩ
±20 mA	-26 to 26 mA	±0.05%	75 Ω
±60 mV	-122 to 122 mV	±0.05%	3.12 MΩ
±200 mV	-243 to 243 mV	±0.05%	3.12 MΩ
±1V	-1.58 to 1.58V	±0.05%	3.12 MΩ
±2V	-3.16 to 3.16V	±0.05%	3.12 MΩ
±6V	-6.32 to 6.32V	±0.05%	3.12 MΩ
±20V	-25.3 to 25.3V	±0.05%	3.12 MΩ
±50V	-50.6 to 50.6V	±0.05%	3.12 MΩ
0.4 to 2V	-3.16 to 3.16V	±0.05%	3.1 2MΩ
1 to 5V	-6.32 to 6.32V	±0.05%	3.12 MΩ



**DIGITAL INPUT CARD  
(RD1000-6DI)**

**Channels:** 6 per card  
**Logic Low:** -5V min, 0.8V max  
**Logic High:** 3.5V min, 24V max  
**External Resistance:**  
**Pull-Down:** 1 K $\Omega$  max  
**Pull-Up:** 1.5 M $\Omega$  min  
**Frequency:** 100 Hz max

**RELAY OUTPUT CARD  
(RD1000-6R)**

**Channels:** 6 per card  
**Contact Form:** NO/NC (form C)  
**Relay Rating:** 5A/240 Vac; life cycles 200,000 for resistive load

**ANALOG OUTPUT CARD  
(RD1000-6AO)**

**Channels:** 6 per card  
**Range:** 4 to 20 mA, 0 to 20 mA, 0 to 5V, 1 to 5V, 0 to 10V  
**Resolution:** 16-bits  
**Accuracy:**  $\pm 0.05\%$  of span  
 $\pm 0.0025\%$  / $^{\circ}$ C  
**Load Resistance:** 0 to 500  $\Omega$  (current), 10 K $\Omega$  min (voltage)  
**Output Regulation:** 0.01% for full load change  
**Output Setting Time:** 0.1 second (stable to 99.9%)  
**Isolation Breakdown Voltage:** 1500 Vac at 50/60 Hz for 1 minute  
**Integral Linearity Error:**  $\pm 0.005\%$  of span  
**Temperature Effect:**  $\pm 0.0025\%$  of span / $^{\circ}$ C

**STANDARD ETHERNET COMMUNICATIONS**

**Protocol:** Modbus<sup>®</sup> TCP/IP, 10/100 Base T  
**Ports:** AUI (Attachment Unit Interface) and RJ-45, auto-detect capability

**WEBSERVER**

**Description:** Used to view the RD1000/RD2000/RD3000 Series paperless recorder from a remote location via the Internet  
**Browser Requirements:** Internet Explorer 10 or higher, Google Chrome<sup>™</sup>  
**IP Address:** A Static IP address is required for the recorder. Obtain a Static IP address from your Internet service Provider (ISP). This IP address should be unique.

**COMM MODULE  
(OPTIONAL RS232/422/485 COMMUNICATIONS)**

**Interface:** RS232 (1 unit), RS485 or RS422 (up to 247 units)  
**Protocol:** Modbus protocol RTU mode  
**Address:** 1 to 247  
**Baud Rate:** 9.6 to 115.2 K bits/sec  
**Measured Data Bits:** 7 or 8-bits  
**Parity Bit:** None, even or odd  
**Stop Bit:** 1 or 2 bits

**ENVIRONMENTAL AND PHYSICAL**

**Operating Temperature:** 0 to 50 $^{\circ}$ C (32 to 122 $^{\circ}$ F)  
**Storage Temperature:** -30 to 70 $^{\circ}$ C (-22 to 158 $^{\circ}$ F)  
**Humidity:** 20 to 90% RH (non-condensing), maximum relative humidity of 90% RH is for ambient temperature up to 38 $^{\circ}$ C (100 $^{\circ}$ F) decreasing linearly to 50% RH at 50 $^{\circ}$ C (122 $^{\circ}$ F)  
**Altitude:** 2000 M maximum  
**Insulation Resistance:** 20 M $\Omega$  min @ 500 Vdc  
**Dielectric Strength:** 2300 Vac, 50/60 Hz for 1 minute between power terminal and earth  
**Vibration Resistance:** 10 to 55 Hz, 10m/s<sup>2</sup> for 2 hours

**Shock Resistance:** 30m/s<sup>2</sup> (3g) for operation, 20 g for transportation  
**Operation Position:** no inclined restriction

**Dimensions (Panel Mount Style):**

**RD1000/RD2000 Series:**  
 144 H x 144 W x 189 mm D  
 (5.67 x 5.67 x 7.44")

**RD3000 Series:**  
 288 H x 288 W x 189 mm D  
 (11.34 x 11.34 x 7.44")

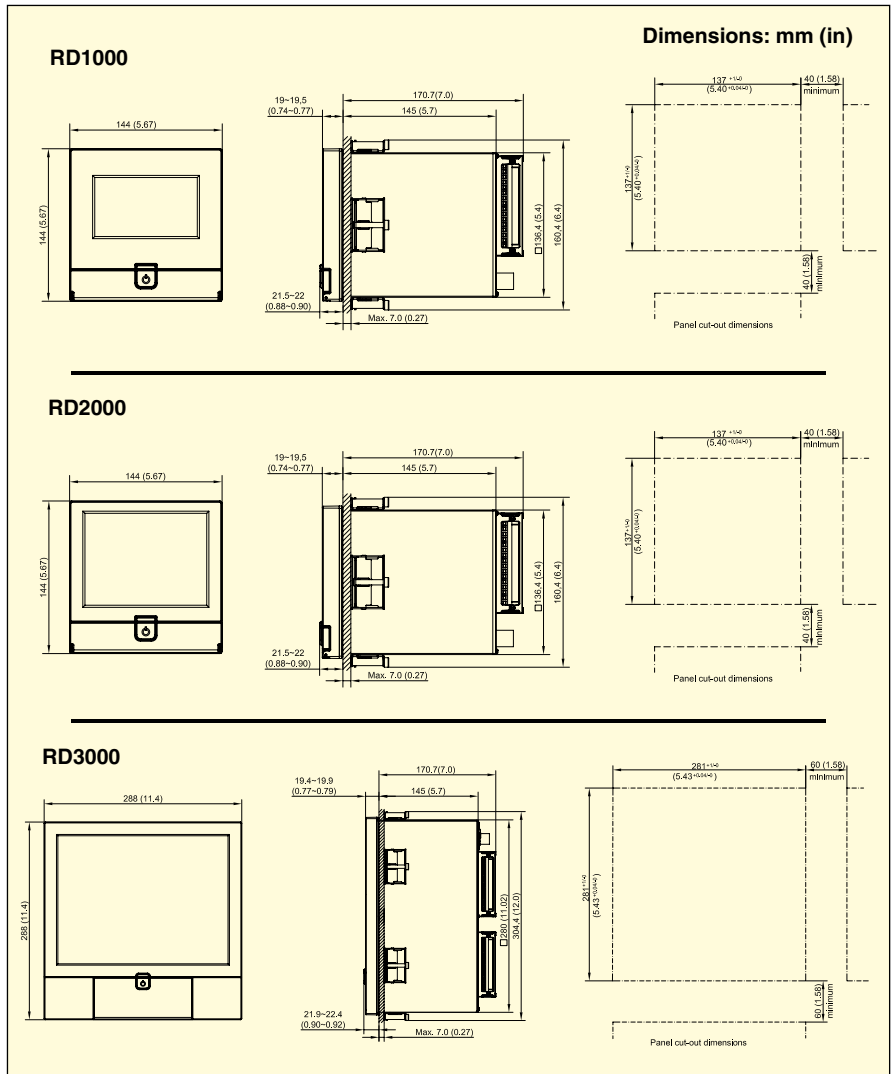
**Standard Panel Cutout:**

**RD1000/RD2000 Series:**  
 137 x 137 mm (5.39 x 5.39")

**RD3000 Series:** 281 x 281 mm  
 (11.06 x 11.06")

**Mounting Depth Behind Panel:**  
 171 mm (6.73")

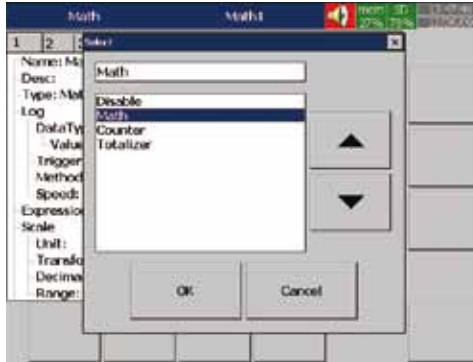
**Enclosure:** IP65 front panel for indoor use; IP20 housing and terminals



**Plus Version of Firmware—Supports Additional Features Including Math**

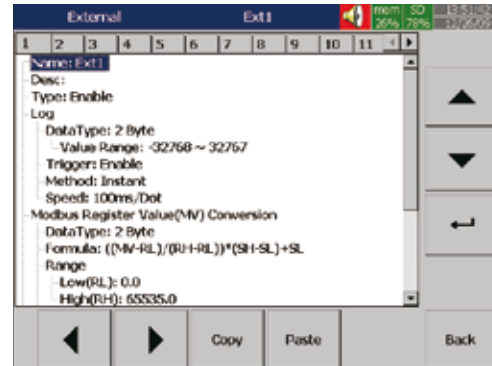
**CFR Part 11 Compliance**

**Math**



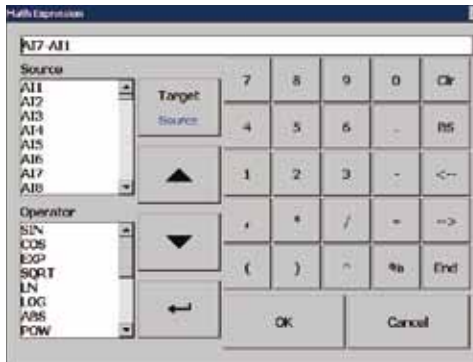
Includes Math, Counter and Totalizer.

**External Channels.**

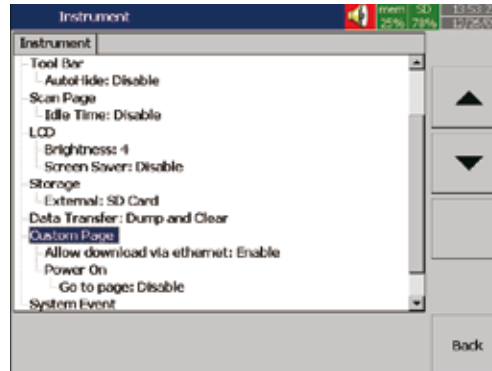


Besides AI and DI inputs, these recorders accept inputs through communication called External Channels. RD1000, RD2000, and RD3000 Series recorders can accept up to 24, 48 and 96 channels respectively.

**Math expression is easily keyed in.**



**Custom Edited Display.**



In Plus versions, Panel Studio software allows the user to edit the specific display instead of the standard display. It can then be downloaded to the recorder.

**Batch Control:** Batch production record is constantly required for more strict production, for example food and drugs.

**FDA 21 CFR part 11:** This feature complies with U.S. Food and Drug Administration. All data can not be manipulated after recording.

**Firmware Options (for Additional Cost)**

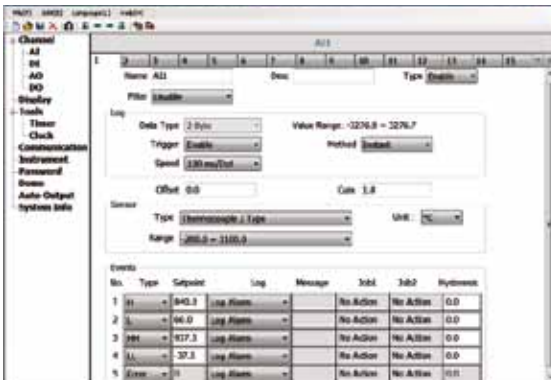
Add Suffix to Model No.	Description
-FW1	Plus version 1 with extra math, external channels, batch and FDA 21 CFR Part 11
-FW2	Plus version 2 with custom edited display and Panel Studio editing software
-FW3	Plus version 3 includes all items in Plus versions 1 and 2

**Mounting Options (for Additional Cost)**

Standard Configuration is Panel Mount, No Power Cord, No Power Switch

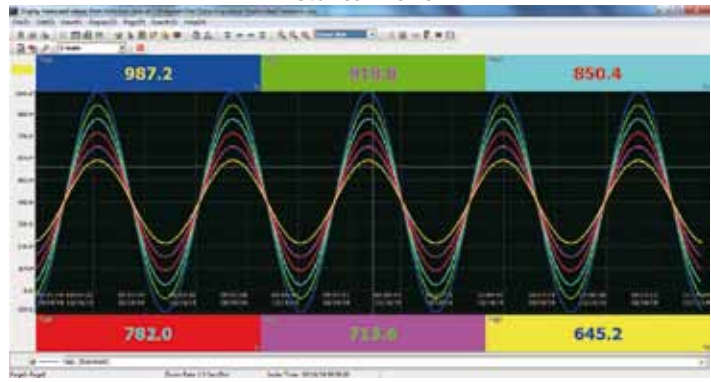
Add Suffix to Model No.	Description
-1	Panel mount, no power cord, power switch (no additional cost)
-2	Portable, power cord, power switch
-3	Portable, VDE power cord, power switch
-4	Portable, SAA power cord, power switch
-5	Portable, BS power cord, power switch
-6	Portable, GB power cord, power switch

Configuration screen



User can easily configure the recorder on a PC and then send the configuration files to the recorder.

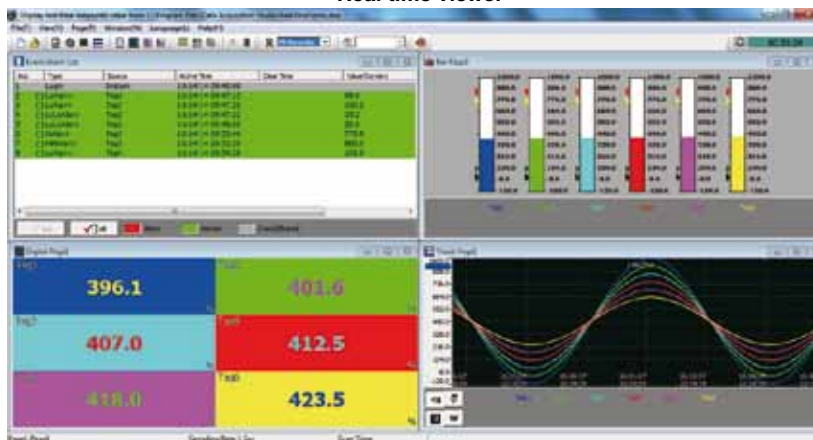
Historical viewer



Displays historical trends, alarms, events and then print it. Use it to search data by time, time period, tag, alarm, events and remarks. Data can also be exported in CSV format.

### Enhanced Data Acquisition Studio Software (Optional)

Real time viewer



RD1000-SW Data Acquisition Studio Software (ordered separately)—adds Real Time Viewer

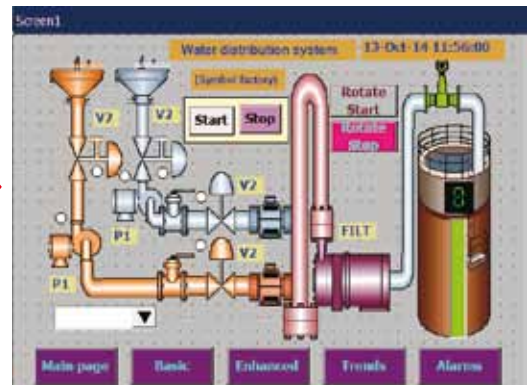
### Panel Studio Software (Included with Plus Version of 2 or 3 of Firmware)

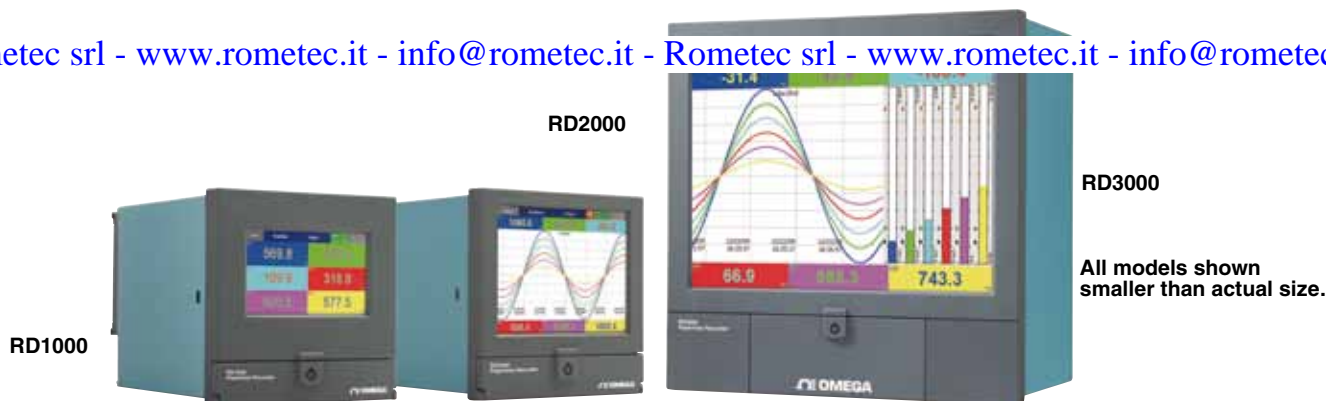
Panel Studio software



Use Panel Studio for easy custom display editing on a PC, then download to the recorder. The custom edited displays can be viewed in addition to the standard displays.

Custom display downloaded to the recorder





<b>To Order</b>	
<b>Model No.</b>	<b>Description</b>
<b>RD1000 Series Paperless Recorders with 4.3" TFT Display, 4 Slots, up to 6 Analog Inputs</b>	
<b>RD1003</b>	Recorder, 3-input, 3 spare I/O slots (includes one RD1000-3AI card)
<b>RD1006</b>	Recorder, 6-input, 3 spare I/O slots (includes one RD1000-6AI card)
<b>RD2000 Series Paperless Recorders with 5.6" TFT Display, 4 Slots, up to 24 Analog Inputs</b>	
<b>RD2003</b>	Recorder, 3-input, 3 spare I/O slots (includes one RD1000-3AI card)
<b>RD2006</b>	Recorder, 6-input, 3 spare I/O slots (includes one RD1000-6AI card)
<b>RD2012</b>	Recorder, 12-input, 2 spare I/O slots (includes two RD1000-6AI cards)
<b>RD2018</b>	Recorder, 18-input, 1 spare I/O slots (includes three RD1000-6AI cards)
<b>RD2024</b>	Recorder, 24-input, no spare I/O slots (includes four RD1000-6AI card)
<b>RD3000 Series Paperless Recorders with 12.1" TFT Display, 16 Slots, up to 48 Analog Inputs</b>	
<b>RD3006</b>	Recorder, 6-input, 15 spare I/O slots (includes one RD1000-6AI card)
<b>RD3012</b>	Recorder, 12-input, 14 spare I/O slots (includes two RD1000-6AI cards)
<b>RD3018</b>	Recorder, 18-input, 13 spare I/O slots (includes three RD1000-6AI cards)
<b>RD3024</b>	Recorder, 24-input, 12 spare I/O slots (includes four RD1000-6AI cards)
<b>RD3030</b>	Recorder, 30-input, 11 spare I/O slots (includes five RD1000-6AI cards)
<b>RD3036</b>	Recorder, 36-input, 10 spare I/O slots (includes six RD1000-6AI cards)
<b>RD3042</b>	Recorder, 42-input, 9 spare I/O slots (includes seven RD1000-6AI cards)
<b>RD3048</b>	Recorder, 48-input, 8 spare I/O slots (includes eight RD1000-6AI cards)
<b>Options (Field Installable in Spare I/O Slots, One Slot Required for Each Module)</b>	
<b>RD1000-3AI</b>	Analog input card, 3 channel
<b>RD1000-6AI</b>	Analog input card, 6 channel
<b>RD1000-6DI</b>	Digital input card, 6 channel
<b>RD1000-6R</b>	Relay output card, 6 relays
<b>RD1000-3R-3DI</b>	Relay output/digital input card, 3 relays, 3 inputs
<b>RD1000-6AO</b>	Analog output card, 6 outputs

#### Accessories

<b>Model No.</b>	<b>Description</b>
<b>RD1000-SW</b>	Data acquisition studio software
<b>2GB-SD</b>	Spare 2GB SD card

Comes complete with operator's manual, panel mounting brackets and standard software.

**Notes:** Recorder offers Ethernet interface as standard. To include RS232 communications add "-RS232" suffix to model number for an additional cost. To include RS422/485 communications add "-RS422/485" suffix to model number for an additional cost. Standard power for recorders is 90 to 250 Vac, 47 to 63 Hz. To order recorder with optional 11 to 36 Vdc power, add suffix "-DC" to model number, no additional cost.

**Ordering Example:** RD1006, recorder with 6 inputs, plus RD1000-DI6, digital input card, plus RD1000-SW data acquisition studio software



# Wireless Recorder

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)

## RD8250 Series



- ✓ 2 Configurable Isolated Inputs for DC Voltage and Current, Thermocouples, RTDs, Frequency, and rpm Pulse
- ✓ 4 Internal Alarm Setpoints
- ✓ 2 Alarm Relay Outputs
- ✓ 1 Digital Control Input
- ✓ Maximum Storage Rate of 100 Samples/s
- ✓ Compact Flash Cards Can Store Up to 2 GB of Data in Memory
- ✓ Bright, Clear Display
- ✓ Optional Software for Graphic Analysis, Printing, Transfer, and Exporting
- ✓ Standard ¼ DIN Panel Mount

With its dual-function keys and sharp display, OMEGA's RD8250 is a sophisticated process recorder. The graphic user interface makes configuration easy.

This recorder can display real-time data in digital or trend format. Via the front-panel USB port (order "-USB" option), the user can upload data from a flash memory card to a PC.

The RD8252 comes with an external AC adaptor with universal plug set for 120 to 240 Vac, 50/60 Hz. Other power options include 12 to 24 Vdc isolated input (RD8253), and rechargeable battery pack option (RD8252-UPS). With the battery pack installed, the RD8252-UPS can function for up to 8 hours, preserving data and settings in the event of a power loss.



RD8252

## Specifications

### Input Power:

**RD8252:** 9 ±0.5 Vdc @ 5 VA (depends on external loads) non-isolated; external AC wall transformer (included), 100 to 240 Vac, 50/60 Hz

**RD8253:** Isolated 12 to 24 Vdc (not compatible with internal battery pack option below)

**RD8252-UPS:** With internal battery pack option; provides uninterrupted operation and controlled output

**Output:** 2 outputs, 5 Vdc @ 50 mA, to power external sensors

### Number of Channels:

2 universal, user selectable

**Isolation:** 300 Vac/Vdc channel input to chassis ground

### DC Input

#### Voltage:

**Ranges:** 0 to 250 mV, 0 to 1.25V, 0 to 2.5V, 0 to 5V, 0 to 12.5V, 0 to 25V

**Accuracy:** 0.1% of reading

**Resolution:** 0.025% FS

#### Current:

**Ranges:** 0 to 20 mA, 4 to 20 mA, 0 to 50 mA

**Accuracy:** 0.1% of reading, excluding 250 Ω external shunt (required)

**Resolution:** 0.025% FS

#### Thermocouple:

**Accuracy:** 0.3% FS (typical)

### Ambient Temperature Sensor

**Accuracy:** ±1.5°C (2.7°F)

#### Type Range:

**J:** -100 to 760°C ±2°C

(-148 to 1400°F ±3°F)

**K:** -100 to 1000°C ±2°C

(-148 to 1830°F ±3°F)

**T:** -100 to 400°C ±2°C

(-148 to 750°F ±3°F)

**E:** -80 to 400°C ±2°C

(-112 to 750°F ±3°F)

### Shutdown During Blackout:

6 Vdc, 2400 mAh NiMH

**Backup Time:** 8 hours typical (depends on external load)

### RTD

**Accuracy:** 0.3% FS (typical)

**Resolution:** 0.1°C

**Internal Current Source:** 1 mA

**Type Range (2- or 3-Wire):**

**100 Ω Pt 385:** -100 to 750°C (-148 to 1380°F)

**100 Ω Pt 392:** -100 to 750°C (-148 to 1380°F)

**Frequency Input (Hz)/Range:**

0 to 10,000/0 to 600,000 rpm

**Speed Input (rpm) Accuracy:**

**Frequency:** ±1 Hz

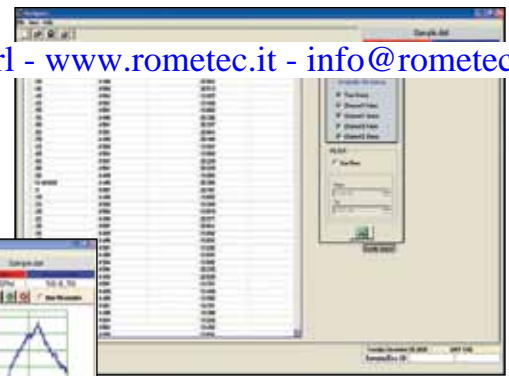
**rpm:** ±1 rpm below 9999 rpm,

±10 rpm above 9999 rpm

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)



reading mode, shown smaller than actual size.



RD8250-SW, Windows software for graphics analysis, printing and exporting. See Accessories table for ordering information.

**Input:**

- Low: <1 Vdc
- High: >3 and <12 Vdc

**Pulse Width:** 10 ms minimum

**Input Impedance:** >100 kΩ

**Measurement Rate:**

Up to 100 samples/s per channel

**Math Functions:**  $y = mx + b$ ; average, high peak, low peak

**Media:** Compact flash to 2 GB

**Display:** LCD graphics, 160 x 80 pixels, black FSTN with white LED backlight, user-controlled backlight level and contrast adjustment (electronic)

**Display Modes:** Trending (horizontal), large dual digital readout, mixed mode

**User Interface:** 5-button keypad (dual-function buttons)

**Clock:** Auto leap year and daylight-saving adjustments, internal battery backup

**Relay Output:** 2 alarm outputs, 30 V and 0.5 A form "A" relays

**Opto-Isolated Input:** 1 input, 5 to 12 Vdc activation @ 10 mA typical

**Audible:** Internal beeper (multiple tones)

**Dimensions (Front Panel):** 96 H x 96 W x 152 D mm (3.78 x 3.78 x 6") (¼ DIN)

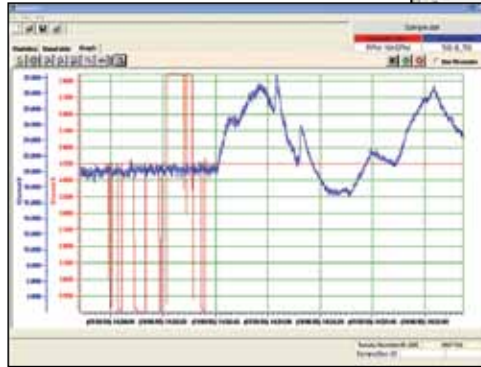
**Environmental:** Indoor use only, Installation Category II per IEC 664; Pollution Degree Level II per IEC61010-1

**Operating Temperature:** -10 to 50°C (14 to 122°F)

**Max Relative Humidity:** 80% for temperatures up to 31°C (88°F), decreasing linearly to 50% @ 40°C (104°F)

**Optional USB:** Front-panel USB 2.0 slave port for data and remote real-time display when using Navigator software (non-volatile)

**Ethernet:** Real time data display, historic data transfer, remote control and recorder configuration when using navigator software; built-in web server displays current measured values



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.



**To Order Visit [omega.com/rd8250](http://omega.com/rd8250) for Pricing and Details**

Model No.	Description
RD8252	Paperless recorder, 2 inputs, universal AC adaptor
RD8253	Paperless recorder, 2 inputs, DC power 12 to 24 Vdc

**Options**

Order Suffix	Description
-UPS	Rechargeable battery for RD8252 unit
-USB	USB communications with basic software
-EI	Ethernet communications port

**Accessories**

Model No.	Description
RD8250-SW	Windows software for graphics analysis, printing and exporting
RD8250-CFCR	Compact flash card reader, USB 2.0 compatible
RD8250-NEMA4X-KIT	NEMA 4X (IP66) enclosure kit
RD8250-MC512MBCF	512 MB memory card
RD8250-MC1024MBCF	1024 MB memory card
RD8250-MC2048MBCF	2048 MB memory card
RD8250-RESISTOR	250 Ω shunt resistor

**Replacement Part (Field Installable)**

Model No.	Description
RD8250-PSC-2W	Universal 100 to 240 Vac adaptor with universal plug set

Comes complete with Windows software CD with operator's manual on CD and AC adaptor. **Ordering Example:** RD8252, paperless recorder, 2 inputs. OCW-3, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.



# Networkable Paperless Data Acquisition System

## RD8300 Series



Optional

- ✓ 6 or 12 Universal Inputs
- ✓ Up to 4 Pulse/Frequency Inputs
- ✓ 6 or 12 Relay Outputs
- ✓ Networkable Using Standard Ethernet Port
- ✓ 21 CFR Part 11
- ✓ 24V Transmitter Power Supply
- ✓ NEMA 4 (IP65) Compliant
- ✓ Locking Media Access Door
- ✓ Onboard Media Drives:
  - CompactFlash™
  - USB (Memory Stick, External Drive, etc.)
  - Smart Digital (SD)
- ✓ Touch Screen Control
- ✓ Direct on Screen Chart Annotation with Integral Stylus
- ✓ Infrared Port
- ✓ Built in OPC Server
- ✓ Built in E-mail Client
- ✓ Shallow Installation Depth 165 mm (6.5")

### Benefits

- ✓ Maximum Flexibility Achieved with Universal Inputs
- ✓ Input Pulse Signals Directly from Flow Meters
- ✓ Relay Outputs for Control or Activating Alarms
- ✓ Accessible via LAN or WEB
- ✓ Reduce Cost and Complexity by Providing Transmitter Power Supply



RD8312 shown smaller than actual size.

Locking media access door closed.



- ✓ No Additional Equipment Needed for Harsh Environments
- ✓ Media and Data Can Be Locked and Secured
- ✓ Flexibility of Multiple Media Drives
- ✓ Intuitive Icon Driven Touch Screen
- ✓ Write Notes and Comments Directly on Chart for Permanent Storage with Data
- ✓ Remote Control Wirelessly
- ✓ Seamlessly Interfaces with Third Packages Using OPC Standard
- ✓ Send Alarm, Instantaneous Data or Information Anywhere with E-Mail
- ✓ Shallow Depth Allows the Use of Economical and Enclosures for Installation

The RD8300 is the most advanced paperless recording system available. It incorporates the latest in measurement, communication, interface and processing technologies to deliver unmatched performance for your data acquisition application.

The RD8300 series utilizes a high contrast 142 mm (5.6") color Active Matrix TFT LCD display with a rugged touch screen. Use a finger or the onboard stylus, if you prefer, to perform data entry and system navigation. The front panel is also fully compliant to IP65 for use in dusty or wet areas. An intuitive icon driven menu system guides the user through easy to follow setup and control screens. The display builder feature makes setting up custom screens extremely simple. Design up to 50 custom displays containing various combinations of indicator types such as horizontal and vertical bar graphs, large and small digital indicators and horizontal or vertical trends. On-screen help is available throughout the menu system to assist you during setup and use.



Intuitive System Menu

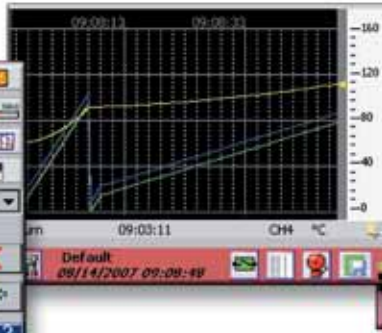


Custom Designable Display Screens

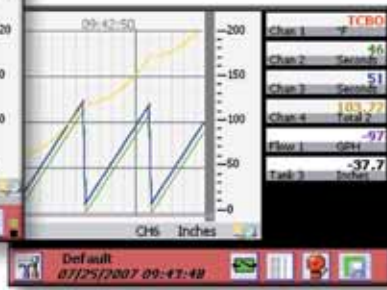
Display Builder



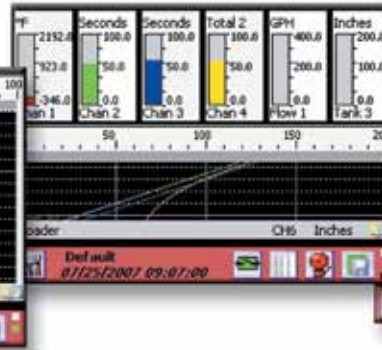
Horizontal Trend



Horizontal Trend with Indicators



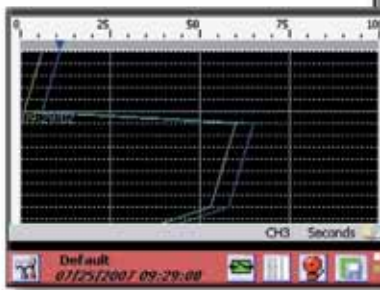
Vertical Trend with Bar Graphs



Digital Indicators with Bar Graphs



Vertical Trend



Channel Setup



On-Screen Help



Display Screen Rotation Setup



When it comes to storing data, the RD8300 is extremely flexible. Data can be stored to the non-volatile internal flash RAM or any of the available storage drives including CompactFlash™ and USB provided there is media present.

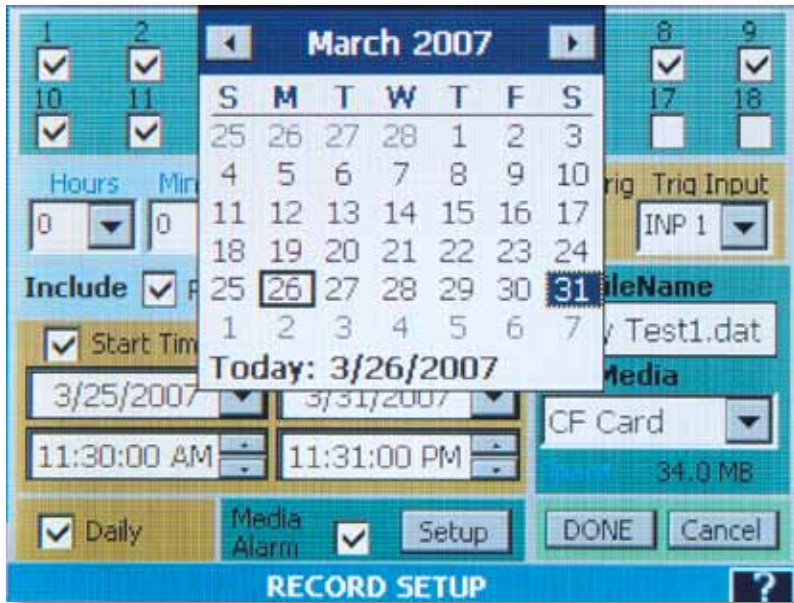
Programmable record start and stop times allow the user to start and stop recording at predetermined intervals. Data may also be stored to a remote PC via Ethernet using the optional Exhibitor Software. In addition, the built in OPC Server allows any OPC compliant software

client to connect to, communicate with and retrieve data. The RD8300 utilizes many layers of security to protect the integrity of your stored data. All data is stored in an encrypted binary format which prevents data tampering and maximizes compression. The front access media door is lockable to prevent unauthorized access to the internal removable storage media. There are 3 levels of password protection to prevent unauthorized entry into critical recorder function menus. To ensure that data files are

completely error free the RD8300 has a built-in rechargeable Nickel Metal Hydride battery backup system that constantly monitors the incoming power source. In the event of a power loss or power dip, the RD8300 seamlessly switches over to the internal power and begins a safe and controlled system shutdown. When power is restored the recorder immediately returns to the last state of operation. This guarantees that data files will never be corrupted by unexpected power conditions.



**Recording Data**



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

**Removable Media Types**



Memory Card



USB Memory Stick



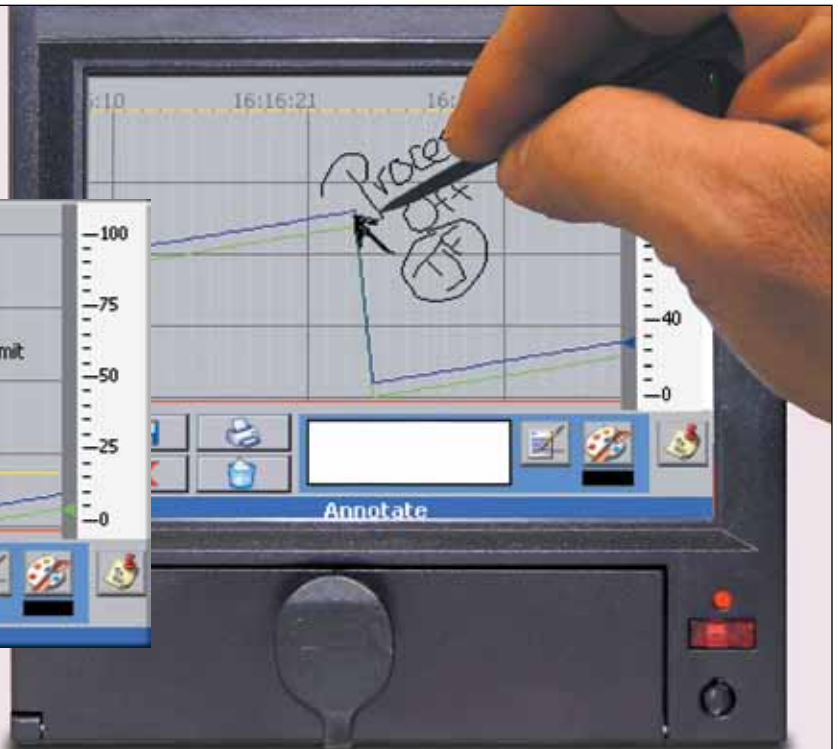
SD (Internal)

**Calendar**

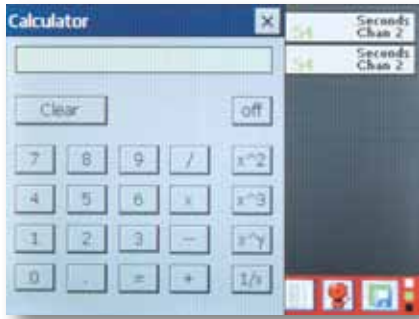
**Write Directly On the Screen**



Make notes, sign files or make other graphic indications directly on the virtual chart in your own handwriting, or use the built-in keyboard to type messages on the screen. Your notes are stored within the data file directory for future review.



The innate feature of handwriting notes and comments on the chart of paper recorders had been lost with the onset of video graphic recorders until the arrival of the RD8300. Using the high-resolution touch screen interface and the integral stylus you can once again make notes or comments directly on the chart. This on-screen annotation is stored within the data file directory and can be recalled and displayed on the recorder or in Exhibitor Software.



Calculator

### Powerful Math Package

The onboard math package is extremely powerful. It allows the user to input complex polynomial equations using constants, custom functions and variable inputs obtained from live channels. The resultant information can be displayed and recorded as a real time channel. Using the intuitive calculated channel setup menu the user enters in the formula and can perform a test to make sure the formula is accurate.



Play unique sound files for each alarm by simply selecting the file you want to play when you set up the alarm.

### Unique Sounds

Unique .wav files may be uploaded and played through the internal speaker to alert of specific types of alarms. Use any .wav file, even customize your own spoken word announcements. In areas where there is a high level of ambient noise the alarm .wav files can be output to a P.A. system or amplified speakers via the rear mounted audio connector. Each alarm setpoint can have a unique sound file associated with it. In the alarm setup menu simply select the .wav file you want to play when the alarm is active.

### Remote Control

The remote control feature extends the graphic user interface of the RD8300 Series directly onto your local PC. Use remote control and your desktop PC's mouse and keyboard to view real time data, change settings, start and stop recording or virtually anything else you can do with the recorders touch screen. Across the plant or across the planet, remote control empowers you with virtual presence. Using the record setup menu, the user can select which channels to record, the sample storage rate, whether to record alarms and/or events, and the start/stop time and date for the record session. The location of the data file is selected in this menu along with the data file name. The user can also configure the unit to start or stop recording on an alarm level or an externally triggered input.

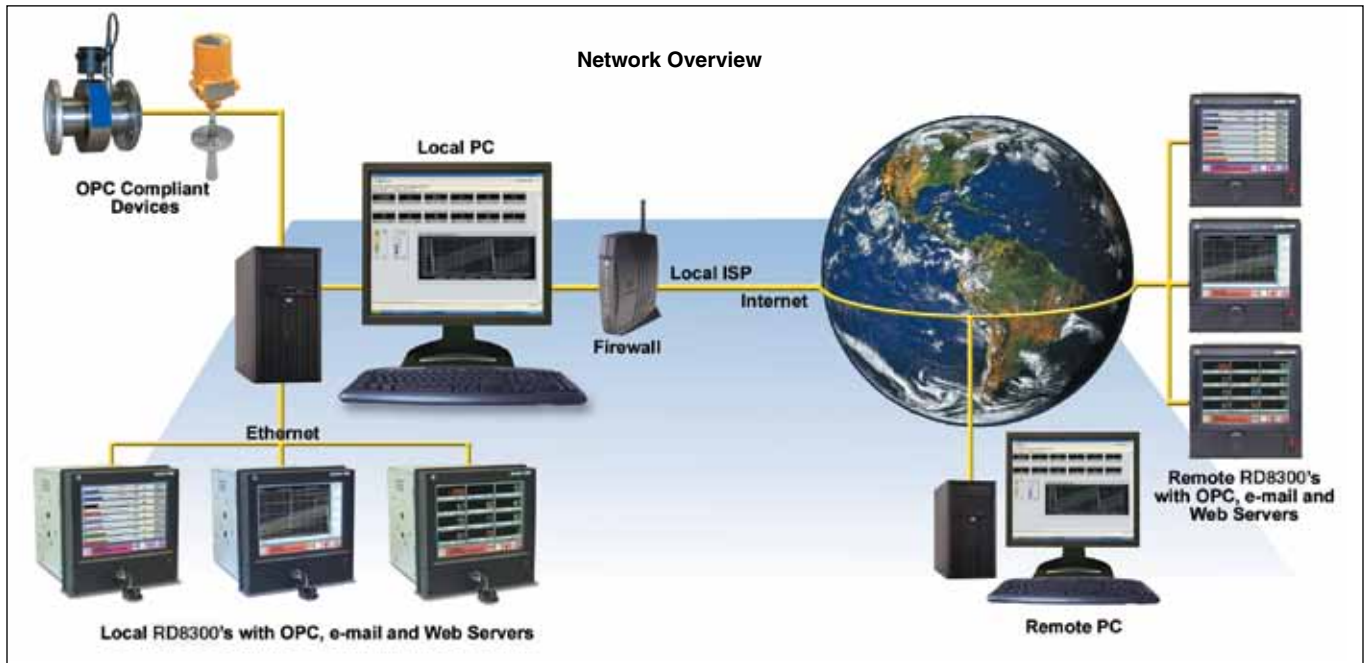
### Media Storage Locations

#### Front Accessible (Lockable):

CompactFlash™, USB host (for memory stick)

**Rear Accessible:** USB host, Ethernet

**Internal:** 512 MB standard (larger sizes available)



### Exhibitor Software Network Overview

Exhibitor Software is an extremely powerful set of tools that compliments the RD8300 and other OPC compliant devices. Incorporating functions to simplify

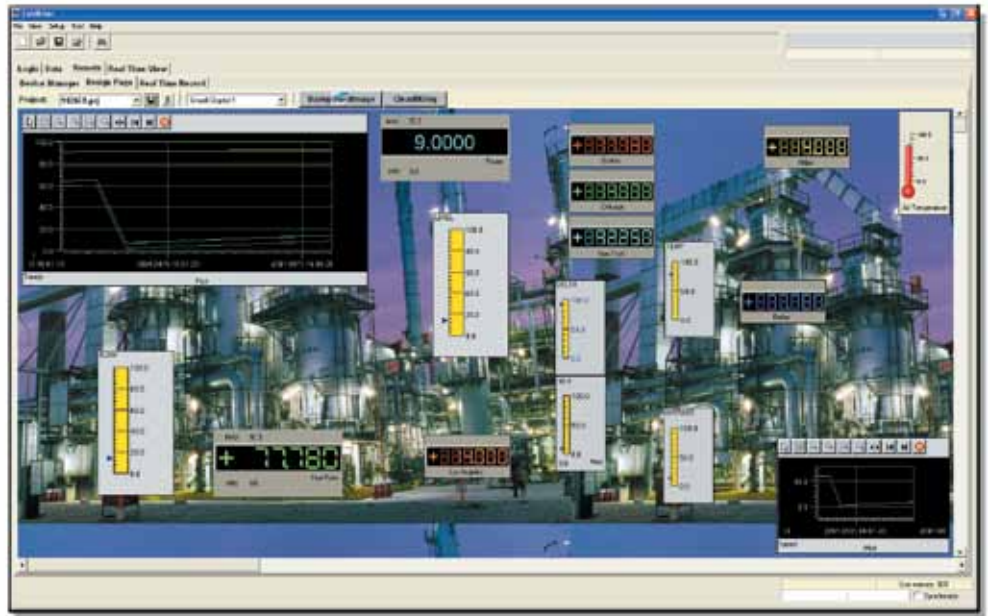
data management via searching, reviewing, printing, or exporting historic data, Exhibitor Software allows real-time monitoring and recording independently as well, while historic recording is not affected. Also featured is the OPC

Client which enables the user to build custom screens selecting various display elements and data from multiple OPC Servers, including devices other than RD8300's. (Windows™ XP/2000 Compatible).

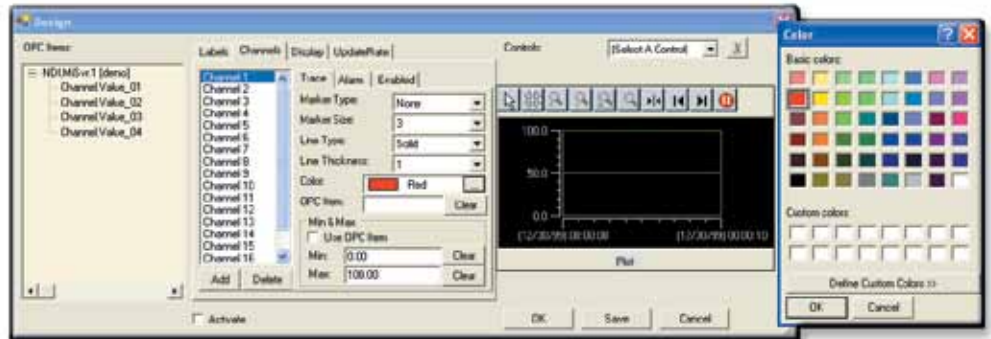


## Customizable Real-Time View

Use Exhibitors design page features to create custom real time display projects that can be saved and recalled with a click of the mouse. Create bar graphs, digital panel meters, thermometers or trend screens from live data coming from any RD8300 or other OPC compliant device accessible on the network. Using the OPC device manager, Exhibitor allows you to connect to OPC servers anywhere there is a network connection. A user definable list of data is then accessible by the design page, where customized real-time displays are built using the user friendly graphic user interface. To place items, simply point, clicks, and drags. Save your project for future use and the next time it is opened all servers are automatically connected and data will begin displaying immediately. Go one step further, and record real time data to your PC.



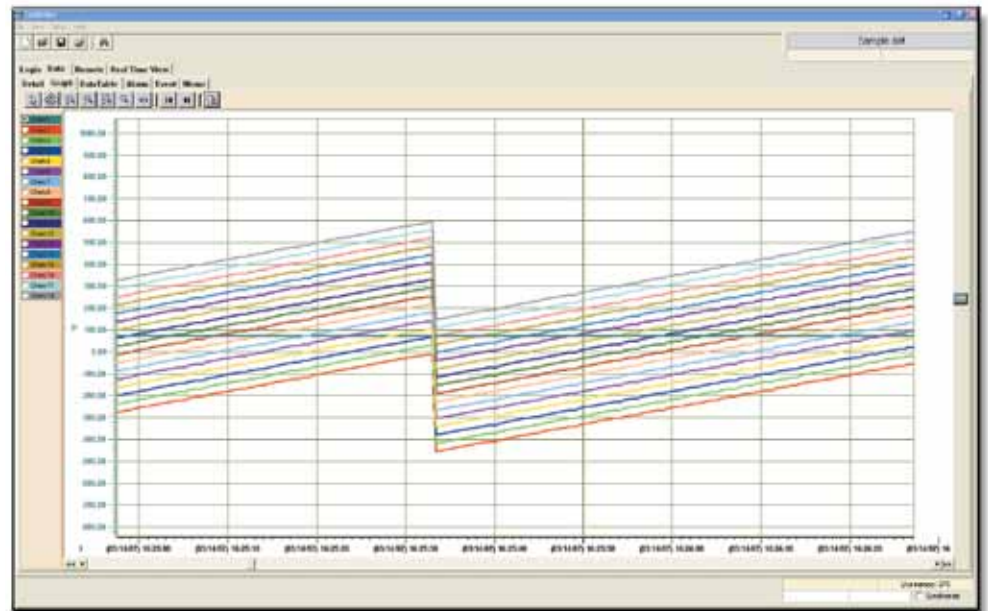
Real Time Screen



Select the type of control to be displayed then customize its size, color and location.

## Graphical Review

The composite graphical view can display all inputs and calculated data from a particular recording session. The user is able to manipulate the graph to make it easy to see interaction between recorded channels, turn channels off and on, change color schemes, expand, compress, zoom, and print. Individual channels can be displayed for detailed analysis. There is a summary function for the individual channels which provides minimum, maximum, averages and time and date for the records. The same analysis tools used for the multi-channel graph are used to scroll through data, zoom, review and expand the single channel graphs.



Graphical Review Chart



Tabular Data Screen

## Tabular Data Review

The data table view displays recorded data in tabular format. All recorded information within a file can be viewed or deselected along with time stamps. Using the one click export feature, the table can be exported to Excel™ in its entirety or in portions. The data table and graph can be synchronized so that they are interactive during analysis of records. Double clicking a value in the data table will automatically bring you to the graph page with that value and time highlighted. Move the cursor over the point and detailed information is provided. Also available are separate alarm, event, and memo review screens. Memo review lists all on-screen annotations in a record.

## Specifications

**Input Resolution:** 0.0015% of full scale, 16 bit unless otherwise stated

**Input Impedance:** >1 MΩ

**Input Channels:** 6 or 12 direct input plus 6 additional calculated channels

**Maximum Input:** 50 Vdc

### Isolation:

**Channel to Channel:** 350 Vdc or RMS AC

**Channel to Chassis:** 2000 Vdc or RMS AC

**Isolation Category II:** Pollution Degree 2

**Measurement Rate:** 10 times per second on all direct input channels

**Common Mode Noise Rejection:** >100 dB, 50/60 Hz, filter enabled

**Normal Mode Noise Rejection:** >50 dB at 50/60 Hz, filter enabled

**Math Functions:** Fully programmable +, -, x, /, square root, sine, cosine, tangent, log, totalization, powers, averages, conditional logic; AND, NOT, OR, +, >, <, gated timers; can use live channels in calculation; can define 6 constants and 6 functions per channel

## Analog Inputs

**DC Voltage:** ±125 mV, ±250 mV, ±500 mV, ±1.00V, ±3.0V, ±6.0V, ±12.0V, ±24.0V

**Accuracy:** Ranges to 1V ±0.06%, Ranges > 1V ±0.1%

**DC Current:** 4 to 20 mA, 0 to 20 mA, 10 to 50 mA

**Accuracy:** ±0.15% using external 50 Ω 0.1% ¼ watt shunt

### Thermocouple (Per ITS90):

**Resolution:** 0.1°C, thermocouple burnout detection: automatic

### Reference Junction Compensation

**Accuracy:** ±2.5°C (0 to 50°C)

**Data Storage Capacity:** Data stored in non-volatile RAM and recorded automatically to:

**Removable Media Types:** CompactFlash™ or USB drive to 4 GB

**Internal Media Type:** SD card (secure digital) to 4 GB

**File Types:** Data files, alarm and event files, configuration files, language files, multiple files of different names on a single disk

## Display

**Type:** Color CCFL backlit active matrix TFT liquid crystal display

**Size:** 142 mm (5.6") diagonal

T/C Type	Range (°C)	Accuracy (°C)	Range (°F)	Accuracy (°F)
J	-210 to -100°C	±2.5°C	-340 to -150°F	±5°F
	-100 to 1200°C	±1.5°C	-150 to 2190°F	±3°F
K	-270 to -100°C	±2.5°C	-450 to -150°F	±5°F
	-100 to 1372°C	±1.5°C	-150 to 250°F	±3°F
T	-270 to -100°C	±2.5°C	-450 to -150°F	±5°F
	-100 to 400°C	±1.5°C	-150 to 750°F	±3°F
E	-270 to -100°C	±2.5°C	-450 to -150°F	±5°F
	-100 to 1000°C	±1.5°C	-150 to 1832°F	±3°F
N	-270 to -100°C	±2.5°C	-450 to -150°F	±5°F
	-100 to 1300°C	±1.5°C	-150 to 2372°F	±3°F
S	-50 to 1768°C	±3°C	-58 to 3200°F	±6°F
B	0 to 1820°C	±4°C	32 to 3300°F	±7°F

## RTD

**Base Accuracy:** 0.2% or 0.5°C (1°F)

**Resolution:** 0.1°C, 2 or 3 wire connection; cable compensation to +50 Ω, open and short circuit detection

**Resolution:** 320 W x 240 H pixels

**Interface:** Resistive analog touch screen control

**Display Builder:** Allows user to create custom displays

RTD Type	Range (°C)	Range (°F)
100 Ω Plt 385	-220 to 85°C	-364 to 1560°F
100 Ω Plt 392	-180 to 820°C	-292 to 1500°F
200 Ω Plt 385	-220 to 400°C	-364 to 750°F
200 Ω Plt 392	-180 to 400°C	-292 to 750°F
100 Ω Ni	-70 to 300°C	-94 to 570°F
120 Ω Ni	-70 to 300°C	-94 to 570°F
1000 Ω Ni	-60 to 209°C	-76 to 408°F
10 Ω Cu	-70 to 170°C	-94 to 338°F*

\* 0.5% ±0.5°C

### Frequency Inputs (2 or 4 Channels):

**Range:** 0 to 5000 Hz all channels, 0 to 10,000 Hz 1 channel

**Accuracy:** 0.005% ±1 digit

## Recording

**Recording Rates:** User programmable from 10 samples per second to 1 sample every 24 hours

**Data Format:** Proprietary encrypted format. user file naming

**Display Modes:** Graphic trending (vertical or horizontal), bar graphs (vertical or horizontal), digital meter (large or small), alphanumeric alarm and event log

**Virtual Chart Speed:** Programmable from 10 mm/hr to 10,000 mm/hr (0.5 inch/hour to 600 inches/hour)

**Display Windows:** Time/date, graphics (bars, large digital, trends) disk status, system status, menu button bar, unit identification. alarms/events

**Communications**

**Network:** 10/100 Base T Ethernet per 802.3, RJ45 connection

**Servers:** Webserver supports http and ftp protocols, OPC Modbus over ethernet server

**Serial:** Isolated RS485/RS232 Modbus® interface (option)

**Power**

**Requirements:** 100 to 240 Vac, 50/60 Hz; 35 VA max optional ±15%

**Power Fail Protection:**

Programmed parameters stored in non-memory; clock battery backed; internal battery backup provides shutdown and the ability to survive brownouts and short blackouts seconds)

**Power Output:** Optional isolated 24 Vdc @ 120 mA output

**Input/Output**

**Digital I/O:** 6 or 12 relay outputs, form A (normally open SPST contacts) rated at 200 Vdc @ 0.5 A max, 2 digital control inputs +5 to +12 Vdc @ 20 mA (optional), control inputs may be used for record start/stop, alarm acknowledge and channel reset functions

**Safety and Environmental**

**Operating Range:**

**Protection:** IP65 when mounted in panel

**Safety:** Meets the requirements accordance of EN61010-1 when installed in accordance with the instructions in the manual

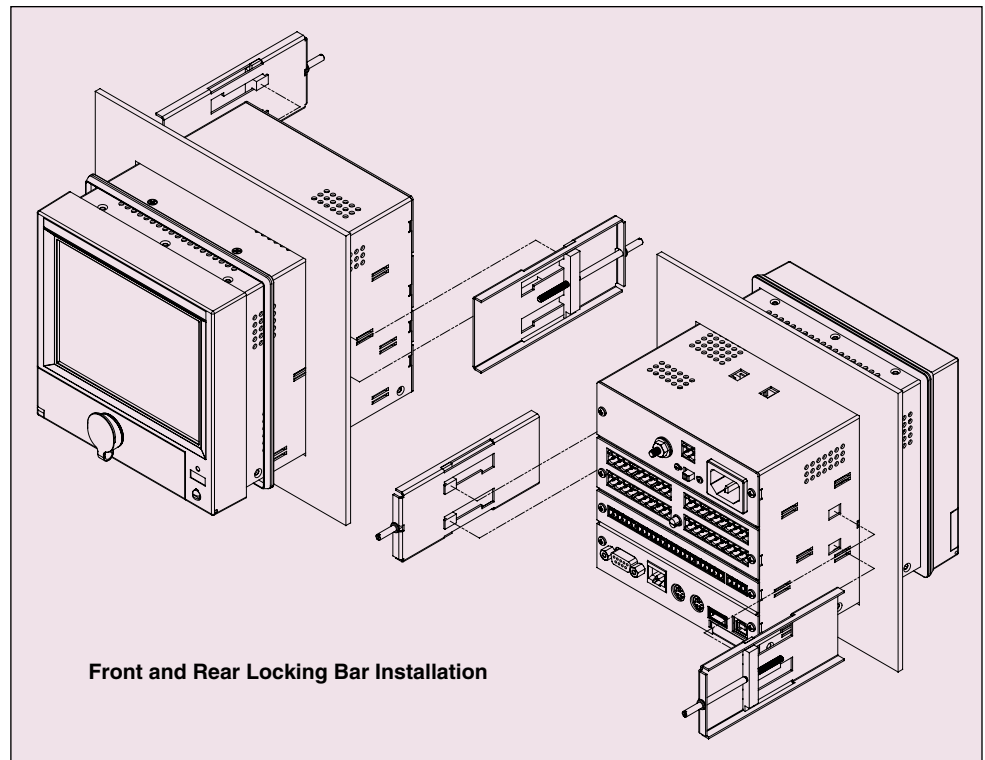
**UL and cUL:** Pending

**EMC:** Meets the requirements of EN61326.2003 and CE directive 89/336/EEC

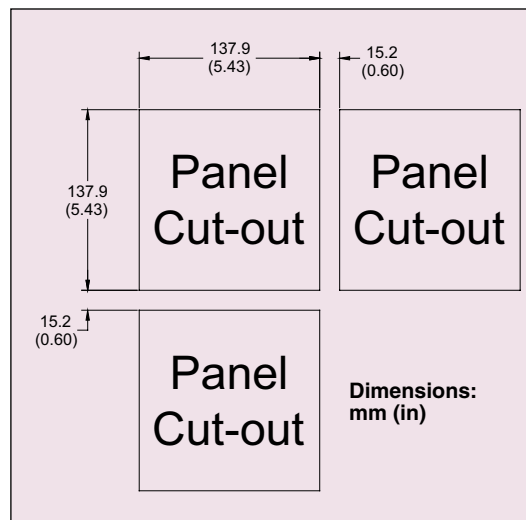
**Weight:** Approximately 3.17 kg (7 lb)

**Standard Features**

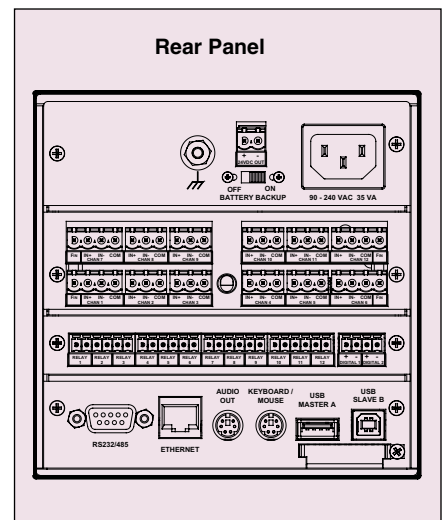
- 142 mm (5.6") color QVGA TFT LCD display with touch screen and integral stylus
- CompactFlash™ drive (front), USB thumb drive port (front)
- USB master (rear), USB slave (rear), Internal memory
- Mouse/keyboard connection (rear)
- Audio: line in, line out, microphone (rear)
- RJ45 ethernet port (rear)
- NEMA 4 (IP65) front bezel with locking media drive door



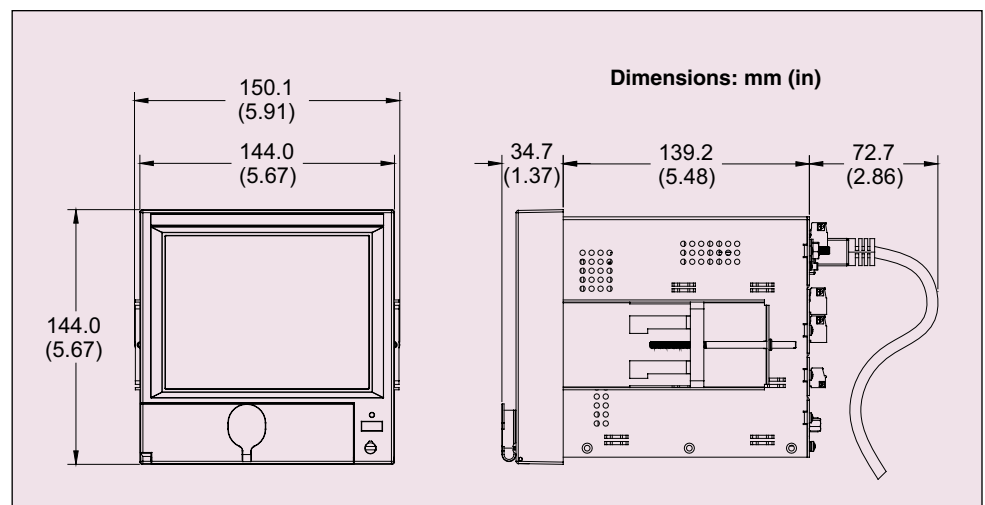
Front and Rear Locking Bar Installation



Dimensions: mm (in)



Rear Panel



Dimensions: mm (in)





Model No.	Description
RD8306	6 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory
RD8306-DC	6 universal inputs, 6 math channels, 12 to 24 Vdc, 512 MB internal memory
RD8306-ST	6 universal inputs, 6 math channels, 100/240 Vac w/screw terminals, 512 MB internal memory
RD8306-R6	6 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, 6 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8306-R12	6 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8306-C24	6 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, RS232/485 serial communication
RD8306-XP	6 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, 24 Vdc, 120 mA transmitter power supply
RD8306-2GB	6 universal inputs, 6 math channels, 100/240 Vac, 2 GB internal memory
RD8306-2GB-R12-C24-XP	6 universal inputs, 6 math channels, 100/240 Vac, 2 GB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs, RS232/485 serial communication, 24 Vdc 120 mA transmitter power supply
RD8312	12 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory
RD8312-DC	12 universal inputs, 6 math channels, 12 to 24 Vdc, 512 MB internal memory
RD8312-ST	12 universal inputs, 6 math channels, 100/240 Vac with screw terminals, 512 MB internal memory
RD8312-R6	12 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, 6 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8312-R12	12 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8312-C24	12 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, RS232/485 serial communication
RD8312-XP	12 universal inputs, 6 math channels, 100/240 Vac, 512 MB internal memory, 24 Vdc, 120 mA transmitter power supply
RD8312-2GB	12 universal inputs, 6 math channels, 100/240 Vac, 2 GB internal memory
RD8312-2GB-R12-C24-XP	12 universal inputs, 6 math channels, 100/240 Vac, 2GB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs, RS232/485 serial communication, 24 Vdc, 120 mA transmitter power supply

**Options (Field Installable)**

Model No.	Description
RD8300-6CH	6 channel adder module with connectors
RD8300-R6	6 form A relay output module with connectors
RD8300-R12	12 form A relay output with connectors
RD8300-XP	24 Vdc transmitter power supply module with connector

**Accessories**

RD8300-SW	Windows® XP/Vista compatible software program
RD8300-SE-21CFR11*	Compliant Windows XP/Vista Compatible Software
RD8300-21CFR-CS	21CFR p.11 compliance statement
RD8300-21CFR-CDP	21CFR p.11 compliance documentation package
RD8300-NIST†	NIST traceable certificate of calibration with documentation
RD8300-50OHM	50 Ω external shunt resistor 0.1% accuracy
RD8300-NYLONCC	Padded nylon carrying case with shoulder strap
RD8300-CFCR	Compact flash card reader for USB connection
RD8300-AUDIOSPLITTER	Splitter for audio port (includes cable)
RD8300-KEYSPPLITTER	Splitter for keyboard and mouse port (includes cables)
RD8300-STYLUS	3 pack of stylus
RD8300-KEYS	Replacement media flap key (pair)
RD8300-256MBCF	256 MB compact flash card
RD8300-512MBCF	512 MB compact flash card
RD8300-1GBCF	1 GB compact flash card
RD8300-2GBCF	2 GB compact flash card

Comes complete with operator's manual.

\* For FDA21CFR11 Compliant Firmware add suffix "-21CFR11" to model number for an additional cost.

Ordering Examples: RD8306-ST, 6 universal inputs, 6 math channels, 100/240 Vac with screw terminals, 512 MB internal memory.

# Paperless Recorder/ Data Acquisition System

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)

## RD8800 Series



- ✓ 2, 4, 6 or 12 Isolated Analog Inputs
- ✓ 142 mm (5.6") TFT Color Graphic Display with Touchscreen Control
- ✓ Record Data on CompactFlash™ Memory Cards
- ✓ Windows Based Software (Optional)
- ✓ Math Functions Include +, -, x, ÷, Logarithms, Totalization, Powers, Averages, Timers and Custom Equations
- ✓ Independent Recording Rates for Each Channel
- ✓ Set Up and Automatically Search Data Files by Signal Values, Alarms, or Date/Time Parameters
- ✓ Alarm/Event Information
- ✓ 5 Alarms (High, Low, and Rate of Change) per Channel

### RD8800-SW Windows® Based Software

- ✓ Direct Data Transfer
- ✓ Simultaneous Multi-File Viewing
- ✓ Multi-Drop up to 31 Units Via RS485 with MODBUS Protocol
- ✓ Remote Data Acquisition and Recorder Configuration
- ✓ Search, Combine, Analyze, Print, and Export Data Files to Other Programs



## Specifications

### Input Signals

**Thermocouple:** J, K, T, E, R, S, B, C, N  
**RTD:** 10 Ω Cu, 100 Ω  
**Pt 385:** 100 Ω Pt 392, 200 Ω  
**Pt 385:** 200 Ω Pt 392, 120 Ω Ni 385

**DC Voltage:** Linear, square root, logarithmic

**DC Current:** 0/4 to 20 mA, 10 to 50 mA

### Input Accuracy

**Thermocouple:** ±1.5°C for J, K, T, E, N (Nicrosil-Nisil); ±3°C for R, S and C; ±4°C for B

**RTD:** ±0.5°C or 0.2%

**DC Voltage:** ±0.06% for ±150 mV, ±1.25V, ±2.5V; ±0.1% for ±12.5V, ±25V

**Current:** ±0.15% with external 50 Ω 0.1% shunt

**Input Resolution:** 0.0015% of full scale, 16-bit

**Input Impedance:** >10 MΩ on 150 mV, 1.25V, 2.5V, >100 K on 5, 12.5, 25V ranges

**Max Input:** 50 Vdc

**Scan Rate:** All points measured every 125 ms

**Isolation:** 300 Vdc or peak Vac between channels

**Common Mode Noise Rejection:** >100 dB, 50/60 Hz

### Normal Mode Noise Rejection:

>50 dB, 50/60 Hz

**EMC Compliance:** Meets or exceeds the requirements of EMC 89/336/EEC

### Recording

**Recording Rates:** User programmable from 8 samples per second to 1 sample every 10 min

**Format:** Windows compatible file system; proprietary file structure

**Storage Capacity:** 256 MB samples on 128 MB flash card

**Internal Memory:** 1 MB RAM (non-volatile)

### Display

**Display Type Color:** CCFL backlit active matrix TFT liquid crystal display 142 mm (5.6")

**Resolution Color:** 320 H x 234 V pixel

**Display Modes:** Graphics (trending, vertical or horizontal), bar graphs (vertical or horizontal), digital meter, alphanumeric alarm and event data or combinations on a split screen; review trend data; search by time, date or signal value

**Display Update Rate:** 1 sec; data update rate programmable from 1 to 60 sec

**Virtual Chart Speed:** Programmable, 10 mm/hr to 15,000 mm/hr (0.5 in/hr to 600 in/hr); chart speed is

**Virtual Chart Scales:** 2 sets of 8 scales

**Display Windows:** Time/date, graphics (bars, large digital, trends), disk status, system status, menu button bar, unit identification, alarms/events

**Buffer:** Internal buffer enables real time browsing of historic chart data independent of recorded data

**Configuration:** Touchscreen control menu with button bar or simple programming on IBM compatible PC with optional software

**Software:** Spreadsheet export utility software included; graphical software optional; Windows XP/ Vista/7/8/10; on CD

**Options**

**Alarm Contacts:** 3 or 6 isolated form C, 3 A @ 250 Vac or 26 Vdc

**Remote Inputs:** 3 isolated inputs user selectable as dry contact or 5 to 12 Vdc activated; inputs share a common terminal; configurable for chart control, alarm, acknowledge/reset, event markers, totalizer reset or logic input

**Communications:** ESD protected RS232 with full hand shaking; supports modem or isolated

**RS485 Network Port:** Serial protocol, MODBUS® RTU or MODBUS ASCII

**Ethernet:** 10BaseT

**Power**

**Power Requirements:** 100 to 240 Vac, 50/60 Hz, or 125 to 300 Vdc, 35 VA max

**Power Fail Protection:**

Programmed parameters stored in non-volatile memory; clock battery backed; detention time without power >12 months

**Environmental**

**Operating Temperature:**

-10 to 50°C (14 to 122°F)

**Operating Humidity:**

10% to 80% RH non-condensing

**Wash Down:** IP65 front panel only

**Safety:** Meets UL-311-1 and EN61010-1

**Dimensions:**

144 L x 144 W x 236 D mm

(5.669 x 5.669 x 9"); panel cutout:

138 L x 138 W mm (5.43 x 5.43")

**Weight:** Approx 3.2 kg (7 lb)



**Wireless Conversion Receivers Available. For Details Visit OMEGA**

**RD8800-SW graphical software, sold separately.**

To Order	
Model No.	Description
RD8802CF	Recorder, 2 input, color
RD8804CF	Recorder, 4 input, color
RD8806CF	Recorder, 6 input, color
RD8812CF	Recorder, 12 input, color

Options	
Model No.	Description (Field Installable)
RD8800-AL3	Alarms, 3-relay contacts, 3 control inputs
RD8800-AL6	Alarms, 6-relay contacts, 3 control inputs
RD8800-C24	Communications, RS232/RS485
RD8800-EI	Communications, Ethernet

Accessories	
Model No.	Description
RD8800-SW	Software, graphical
RD8800-SWEI	Software to support ethernet option and multiple recorders (no graphics)
RD8800-512CF	Memory card, 512 MB compact flash
RD8800-CR-3-2	Card reader, cable and software

Comes complete with operator's manual, utility software and AC power cord for connection to the standard IEC320 AC power supply connector (similar to PC's) on the rear of the recorder.

**Note:** To special order AC power screws in place of the cord, add "-ST" suffix for additional cost. To special order 18 to 30 Vdc power option, add suffix "-DC" for additional cost. Options may be shipped installed in the recorder by adding option suffix and price to base model.

**Ordering Examples:** RD8802CF, color 2-input recorder and RD8800-AL3, alarms, 3 relay contacts, and 3 control inputs.

**OCW-3.** OMEGACARE<sup>SM</sup> extends standard 2-year warranty to a total of 5 years.



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.





**RD8900 Series**



- Up to 18 Isolated Analog Inputs
- 6.1" Color TFT Display
- Plug and Play I/O Cards, 6 Slots
- User Friendly with Bar Graph, Numerical, Vertical or Horizontal Trend Display
- Auto LCD Shut Off via Infrared Detector, Prolongs Life and Saves Power
- Stores Data on Supplied 128 MB Flash Card
- Ethernet Interface Standard with RS232/422/485 Optional
- Windows Graphical Software Standard and Optional Software for Real Time View
- Portable Benchtop Option



RD8906.

The OMEGA® RD8900 Series paperless recorder offers real time display of data in a variety of formats on a high resolution (VGA) color TFT display. The user friendly unit with plug and play cards can easily be set to monitor, record, and evaluate any application. The user can access data on the screen, as well as from a remote site via the standard ethernet or optional RS232/422/485 serial interface. The historical data may be stored in a flash ROM, compact flash card, or collected in a remote host PC for evaluation and print out. The unit's compact size saves space and requires less than 7" behind a panel.

**Specifications**

**Display:** 6.1" TFT LCD, 640X480 pixel resolution, 256 colors

**Analog Input Card:**  
 RD8900-A11, A12, A13

**Resolution:** 18 bits  
**Sampling Rate:** 5 times/sec  
**Maximum Rating:**  
 -2 Vdc minimum, 12 Vdc maximum (1 min for mA input)  
**Temperature Effect:**  $\pm 1.5 \mu V/^{\circ}C$  for all inputs except mA input  
 $\pm 3.0 \mu V/^{\circ}C$  for mA input  
**Sensor Lead Resistance Effect:**  
 T/C:  $0.2 \mu V/\Omega$   
**3-wire RTD:**  $2.6^{\circ}C/\Omega$  of resistance difference of 2 leads  
**2-wire RTD:**  $2.6^{\circ}C/\Omega$  of resistance sum of 2 leads  
**Burn-Out Current:** 200 nA  
**Common Mode Rejection Ratio (CMRR):** 120 dB  
**Normal Mode Rejection Ratio (NMRR):** 55 dB  
**Isolation Breakdown Voltage Among Channels:** 430 Vac minimum  
**Sensor Break Detection:** Sensor open for TC, RTD and mV inputs, below 1 mA for 4 to 20 mA input, below 0.25V for 1 to 5V inputs, unavailable for other inputs

**Sensor Break Responding Time:**  
 Within 10 seconds for TC, RTD and mV inputs, 0.1 second for 4 to 20 mA and 1 to 5V inputs

**Digital Input Card (RD8900-DI6)**

**Channels:** 6 per card  
**Logic Low:** -30V minimum, 0.8V max  
**Logic High:** 2V minimum, 30V max  
**External Pull-Down Resistance:** 1 k $\Omega$  maximum  
**External Pull-Up Resistance:** 1.5 M $\Omega$  minimum

**Digital Output Card (RD8900-DO6)**

**Channels:** 6 per card  
**Contact Form:** N O (form A)  
**Relay Rating:** 5 A/240 Vac, life cycles 200,000 for resistive load

**Comm Module (RD8900-RS)**

**Interface:** RS232 (1 unit), RS485 or RS422 (up to 247 units)  
**Protocol:** MODBUS® protocol RTU mode  
**Address:** 1 to 247

**Baud Rate:** 0.3 to 38.4 Kbits/sec

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)

**Parity Bit:** none, even or odd

**Stop Bit:** 1 or 2 bits

**Standard Ethernet Communication**

**Protocol:** Mod Bus TCP/IP, 10 BaseT; auto polarity correction for 10 BaseT

**Ports:** AUI (attachment unit Interface) and RJ-45 auto-detect capability

**Memory**

**Storage Memory on Board:** 8 MB

**CF Card:** 128 MB standard; optional 1 GB

**Infrared Detector**

**Distance:** Detect moving human body within 2 m

**Power:** 90 to 264 Vac, 47 to 63 Hz, 60 VA, 30 W max (standard); 11 to 18 or 18 to 36 Vdc 60 VA, 30 W max (optional)

**Environmental and Physical**

**Operating Temperature:** 5 to 50°C (40 to 122°F)

**Storage Temperature:** -25 to 60°C (-12 to 140°F)

**Humidity:** 20 to 80% RH (non-condensing)

**Insulation Resistance:** 20 MΩ minimum (at 500 Vdc)

**Dielectric Strength:** 3000 Vac 50/60 Hz for 1 minimum

**Vibration Resistance:** 10 to 55 Hz, 10 m/S<sup>2</sup> for 2 hour

**Shock Resistance:** 30 m/S<sup>2</sup> (3 g) for operation, 100 g for transportation

**Dimensions:** 166 W x 144 H x 174 mm D (6.54 x 5.67 x 6.85") for panel mount

**Panel Cutout:** 138 x 138 mm (5.44 x 5.44")

**Approval Standards**

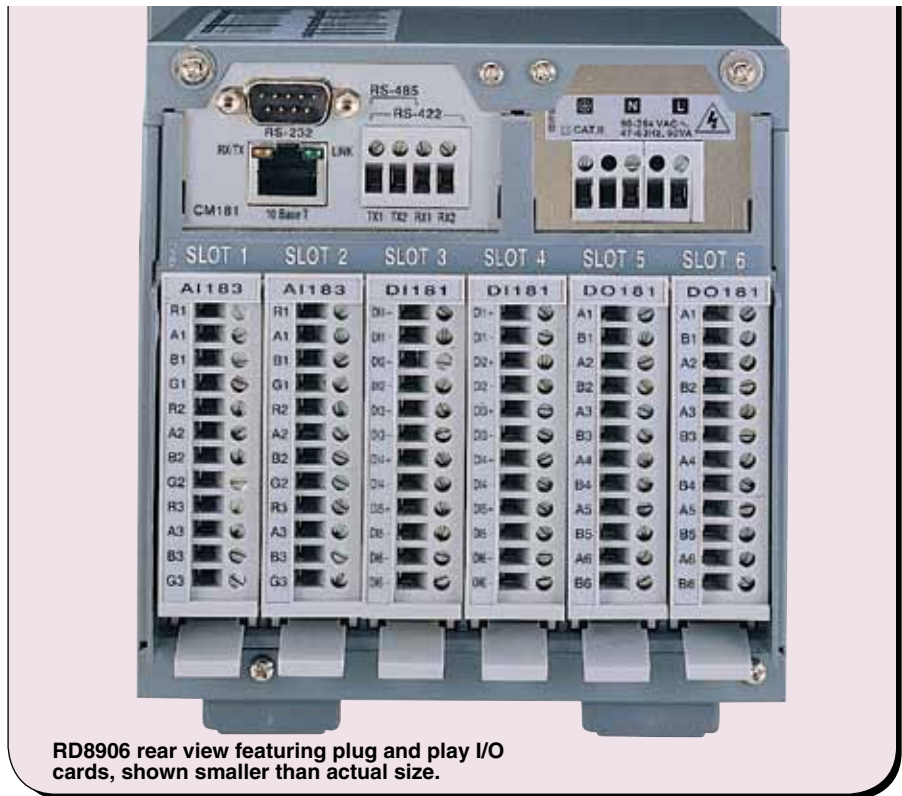
**Safety:** CE; EN61010-1 (IEC1010-1) Overvoltage category II, pollution degree 2

**Protective Class:** IP-30 front panel, indoor use, IP-20 housing and terminals

**EMC**

**Emission:** EN50081-1, EN61326 (EN55011 class B, EN61000-3-2, EN61000-3-3)

**Immunity:** EN50082-2, EN61326 (EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN50204)



RD8906 rear view featuring plug and play I/O cards, shown smaller than actual size.

**Characteristics**

Type	Range	Accuracy @25°C	Input Impedance
J	-120 to 1000°C (-184 to 1832°F)	±1°C	2.2 MΩ
K	-200 to 1370°C (-328 to 2498°F)	±1°C	2.2 MΩ
T	-250 to 400°C (-418 to 752°F)	±1°C	2.2 MΩ
E	-100 to 900°C (-148 to 1652°F)	±1°C	2.2 MΩ
B	0 to 1820°C (32 to 3308°F)	±2°C (200 to 1820°C)	2.2 MΩ
R	0 to 1767.8°C (32 to 3214°F)	±2°C	2.2 MΩ
S	0 to 1767.8°C (32 to 3214°F)	±2°C	2.2 MΩ
N	-250 to 1300°C (-418 to 2372°F)	±1°C	2.2 MΩ
L	-200 to 900°C (-328 to 1652°F)	±1°C	2.2 MΩ
PT100 (DIN)	-210 to 700°C (-346 to 1292°F)	±0.4°C	1.3 kΩ
PT100 (JIS)	-200 to 600°C (-328 to 1112°F)	±0.4°C	1.3 kΩ
mV	-8 to 70 mV	±0.05%	2.2 MΩ
mA	-3 to 27 mA	±0.05%	70.5 Ω
0~1V	-0.12 to 1.15V	±0.05%	32 kΩ
0~5V	-1.3 to 11.5V	±0.05%	332 kΩ
1~5V	-1.3 to 11.5V	±0.05%	332 kΩ
0~10V	-1.3 to 11.5V	±0.05%	332 kΩ

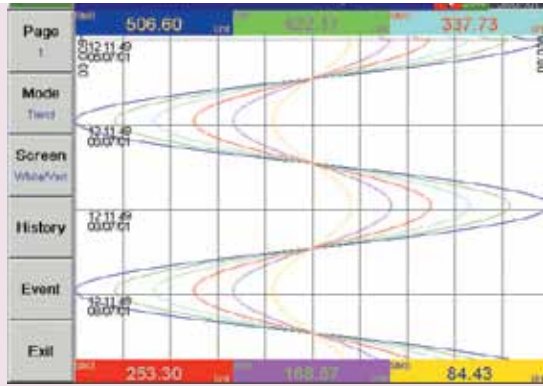


OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. OMEGACARE<sup>SM</sup> covers parts, labor, and equivalent loaners. Ask your sales representative for full details when placing an order.

Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it) - Rometec srl - [www.rometec.it](http://www.rometec.it) - [info@rometec.it](mailto:info@rometec.it)

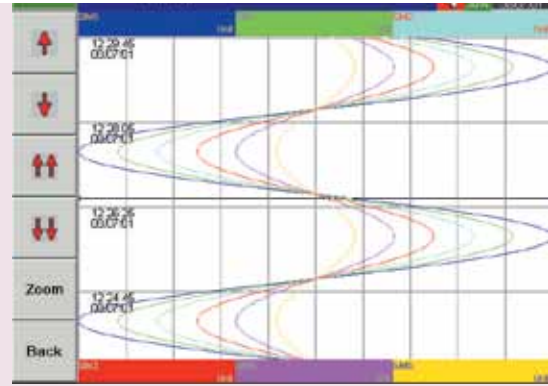


**Trend Mode**



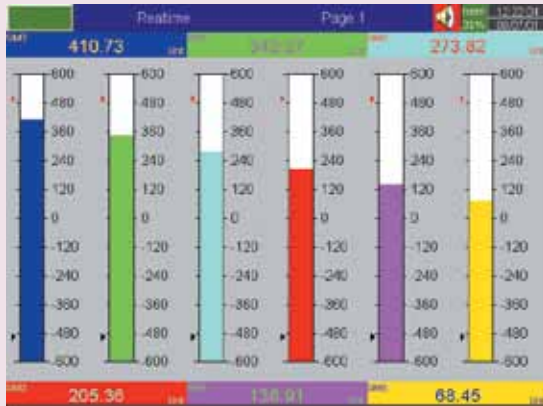
- ✓ View max 6 real time data trends vertically
- ✓ Recognize data trends easily by different colors and tag names
- ✓ Switch to other configured pages easily by "Page" function key
- ✓ Display current "Time/Date" information
- ✓ Remind the user of "Alarm" or "Memory Full"

**Historical Mode**



- ✓ Display max 6 sets of historical data simultaneously
- ✓ View desired data section by "▲" and "▼" function keys
- ✓ Access precise data value at a point selected by moving the "ruler"
- ✓ "Zoom" to expand/contract the display time span
- ✓ View historical data trends and their respective data values
- ✓ Recognize trends easily by different colors and individual tag names

**Bar Graph Mode**



- ✓ View max 6 real time data in bar graphs
- ✓ Scale individually by user in "configuration"
- ✓ Display data value and tag name in different colors together with each bar graph
- ✓ Mark "Hi/Lo" alarm limits
- ✓ Display current "Time/Date" information
- ✓ Remind the user of the "Alarm" or "Memory Full"

**Alarm List**

Ack	Type	Source	Active Time	Clear Time	Status
3	Event	FW ON	2001/07/12 21:37		
4	LoAlarm	SM6	2001/07/12 21:41	2001/07/12 25:10	Closed
5	LoAlarm	SM12	2001/07/12 21:41	2001/07/12 25:44	Closed
6	LoAlarm	SM18	2001/07/12 21:41	2001/07/12 25:56	Closed
7	HiAlarm	SM1	2001/07/12 22:12	2001/07/12 25:3	Closed
8	HiAlarm	SM6	2001/07/12 22:33	2001/07/12 25:34	Closed
9	HiAlarm	SM18	2001/07/12 25:43	2001/07/12 30:18	Closed
10	HiAlarm	SM6	2001/07/12 26:35	2001/07/12 29:11	Closed
11	HiAlarm	SM12	2001/07/12 26:45	2001/07/12 29:11	Closed
12	LoAlarm	SM12	2001/07/12 29:12	2001/07/12 31:5	Closed
13	LoAlarm	SM6	2001/07/12 29:57	2001/07/12 31:5	Closed
14	LoAlarm	SM1	2001/07/12 31:58	2001/07/12 31:58	Closed
15	LoAlarm	SM18	2001/07/12 30:52	2001/07/12 31:51	Closed
16	HiAlarm	SM12	2001/07/12 31:5	2001/07/12 31:47	Closed
17	LoAlarm	SM6	2001/07/12 31:58	2001/07/12 31:58	Closed
18	LoAlarm	SM12	2001/07/12 31:49	2001/07/12 31:27	Closed
19	HiAlarm	SM6	2001/07/12 31:19	2001/07/12 34:8	Closed
20	HiAlarm	SM18	2001/07/12 31:30	2001/07/12 34:6	Closed
21	HiAlarm	SM6	2001/07/12 31:19	2001/07/12 34:6	Closed
22	HiAlarm	SM12	2001/07/12 31:29	2001/07/12 35:7	Closed
23	LoAlarm	SM6	2001/07/12 34:6	2001/07/12 37:7	Closed
24	LoAlarm	SM18	2001/07/12 34:12	2001/07/12 37:7	Closed
25	LoAlarm	SM6	2001/07/12 34:53	2001/07/12 37:7	Closed
26	LoAlarm	SM12	2001/07/12 35:8	2001/07/12 37:7	Closed
27	LoAlarm	SM12	2001/07/12 35:8		Alarm
28	LoAlarm	SM6	2001/07/12 37:19		Alarm
29	LoAlarm	SM6	2001/07/12 37:19		Alarm

- ✓ List all the alarm records clearly with useful information
- ✓ Browse through the alarm list or "acknowledge" alarm easily by function keys on the vertical bar
- ✓ Remind the user of the alarm status in different colors

**Numerical Mode**



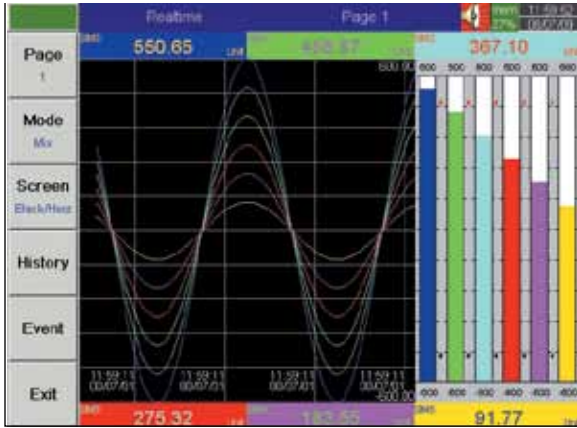
- ✓ View max 6 real time data in numbers
- ✓ Display data value and tag name in different color
- ✓ Mark "Hi/Lo" alarm limits
- ✓ Display current "Time/Date" information
- ✓ Remind the user of the "Alarm" or "Memory Full"

**Configuration Mode**

Event	Type	Set-Point	Job1	Job2
1	Hi	500.00	LogAlarm	NoAction
2	Lo	-500.00	LogAlarm	NoAction

- ✓ Configure pen (input/output, pen name, event, job.....)
- ✓ Configure page (color, pen, decimal, pen width.....)
- ✓ Configure timer
- ✓ Configure instrument (storage media, display, communication, time/date.....)





RD8906 with benchtop conversion kit, RD8900-BPS.



To Order	
Model No.	Description
RD8901	Recorder, 1-input, color, 5 spare I/O slots
RD8902	Recorder, 2-input, color, 5 spare I/O slots
RD8903	Recorder, 3-input, color, 5 spare I/O slots
RD8904	Recorder, 4-input, color, 4 spare I/O slots
RD8905	Recorder, 5-input, color, 4 spare I/O slots
RD8906	Recorder, 6-input, color, 4 spare I/O slots
RD8909	Recorder, 9-input, color, 3 spare I/O slots
RD8912	Recorder, 12-input, color, 2 spare I/O slots
RD8915	Recorder, 15-input, color, 1 spare I/O slot
RD8918	Recorder, 18-input, color, no spare I/O slots

**Options (Field Installable in Spare I/O Slots, One Slot Required for Each Item)**

Model No.	Description
RD8900-AI1	Analog input card, 1-channel
RD8900-AI2	Analog input card, 2-channels
RD8900-AI3	Analog input card, 3-channels
RD8900-DI6	Digital input card, 6 inputs
RD8900-DO6	Digital output card, 6 relays/alarms
RD8900-TPS	Transmitter power supply (24 Vdc 180 mA)

**Accessories**

Model No.	Description
RD8900-DCPS	DC power supply
RD8900-BPS	Kit to convert to benchtop style
RD8900-SW2	Software, real time graphical via comm port
1GB-FC	Memory card, 1 GB compact flash (optional); standard with recorder: 128 MB

Comes complete with operator's manual, panel mounting brackets, basic observer software for non-communication application and 128 MB flash card.

**Notes:** Recorder offers Ethernet interface as standard. To include RS232/422/485 communications add "-RS" suffix for an additional cost. Feature may be field installed by ordering **RD8900-RS**. To include counter/totalizer math functions add "-MATH" suffix for an additional cost. Standard software provided with recorder supports transfer of data and recorder configuration only via the memory card. User must have a memory card reader (not provided) connected with the host computer. The data may be read, analyzed, printed or transferred via an Excel type file to another application. The RD8900-SW2 allows above, plus supports real time monitoring and configuration via the communications port. Software is Windows 98, NT, 2000 and XP compatible.

**Ordering Examples:** **RD8906**, recorder with 6 inputs, plus **RD8900-DO6**, digital output card, plus **1GB-FC**, memory card.

**OCW-3**, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.

**RD8903**, recorder with 3 inputs, plus **RD8900-DI6**, digital input card, plus **RD8900-BPS**, kit to convert to benchtop style, plus **RD8900-SW2**, software for real time graphical via communications port.

**OCW-3**, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.



# Paperless Recorder

## with Standard Ethernet and USB Communications Interface

### RD9900 Series



- ✓ Employing Clear 144 mm (5.67") TFT Color LCD
- ✓ Large Capacity of Data Memory and Various Recording Method
- ✓ Multi-Points Recording with High-Speed/Accuracy
- ✓ Easy Operating and Programming Without Manuals
- ✓ LAN Network Capability
- ✓ Safety System and Reliability
- ✓ Analyzing/Data Acquisition Application Software

RD9900 Series are network-compatible paperless recorders with high performance and high operating function employed high visibility 5.6" TFT color LCD. High speed of sampling rate 100 ms for 12 points and high accuracy of  $\pm 0.1\%$  were realized, and measured data is stored into internal memory and maximum 2 GB compact flash card. As it can be monitored by a web browser display on several computers on intranet or internet, FTP transfer of data file and e-mail notification are also available. The recorder can be used for various applications such as data management, research, development, remote and wide range monitoring by utilizing internet environment.

### Specifications

#### Input Specifications

**Number of Measuring Points:**

- RD9906: 6 points
- RD9912: 12 points

**Input Types:** Universal (refer to the table of inputs for RD200/2800)

**Accuracy Rating:** Refer to the table of inputs for RD200/RD2800 at [omgama.com/rd200\\_rd2800](http://www.rometec.com/rd200_rd2800)



RD9912 shown smaller than actual size.

#### Reference Junction Compensation

**Accuracy:** Type K, E, J, T, N, Platine II;  $\pm 0.5^\circ\text{C}$  or less; R, S, NiMo-Ni, CR-AuFe, WRe5-WRe26, W-Wre, U, L;  $\pm 1.0^\circ\text{C}$  or less

**Sampling Rate:** Approximately 100 ms for all points

**Burnout:** Disconnection of input signal is detected on thermocouple and resistance thermometer input; UP/DOWN disable is selectable for each input

**Scaling:** Range/scale is selectable when DC voltage/current is programmed

**Digital Filter:** Programming FIR filter for each point (common to all points)

#### Allowable Signal Source Resistance:

**Thermocouple Input (Burnout Disable)/DC Voltage Input**

( $\pm 2\text{V}$  or less): 1 k $\Omega$  or less

**DC Voltage Input ( $\pm 5$  to  $\pm 50\text{V}$ ):** 100  $\Omega$  or less

**Resistance Thermometer:** Per wire 10  $\Omega$  or less (same resistance for 3 wires)

**Input Resistance:** DC voltage, thermocouple input; approximately 1 M $\Omega$

**Maximum Input Voltage:** DC voltage input ( $\pm 2\text{V}$  or less)/thermocouple input (burnout disable),  $\pm 10\text{Vdc}$

**DC Voltage Input ( $\pm 5$  to  $\pm 50\text{V}$ ):**  $\pm 60\text{Vdc}$

**Dielectric Strength Between Channels:** 1000 Vac or more between each channel (high strength semiconductor relay used)

#### Display Specifications

**Display:** 144 mm (5.67") TFT color LCD

#### Display Types:

**Measured Data Display:** Trend screen, data screen, bar-graph screen

#### Historical Trend Display:

Simultaneous display with real-time trend is available

**Information Display:** Alarm display, marker list, file list

**Setting Screen:** Alarm, computation, memory, system, maintenance, communication, etc.

**Trend Screen:** 12 colors selectable

**Display Screen:** 5 screens (5 groups)

**Display Points:** Maximum 44 points/screen/

**Time Axis Direction:** Vertical or horizontal

**Line Width:** 1/3/5 dot selectable

**Scale Display:** 4 scales

**Tag/Data Display (Show/hide selectable)**



**Display Points:** Maximum 44 points/screen  
**Display Contents:** Measured value, channel/tag, unit, alarm status

**Bargraph Screen:** 12 colors selectable  
**Display Screen:** 5 screens (5 groups)  
**Display Points:** Maximum 44 points/screen  
**Display Direction:** Vertical or horizontal  
**Scale Display:** 1 scale

**Information Display:**  
**Alarm Display** (Alarm activation/released history display)  
**Marker List**  
**File List** (Group data file list display)

**LCD Back Light:** Auto/manual OFF function  
**LCD Brightness:** 4 levels adjustment

### Recording Specifications

**Internal Memory:** Flash memory, 4 MB capacity  
**External Memory:** CF card, 32 MB to 2 GB capacity; 128 MB CF card is included as standard  
**Recording Cycle:** 100, 200, 500 ms; 1, 2, 3, 5, 10, 15, 20, 30 s; 1, 2, 3, 5, 10, 15, 20, 30, 60 min  
**Numbers of Logging Files:** 250/numbers of used groups  
**Logging Data:** Measured data; file name (group name), time of day, month and year of recording start, tag, measured data, alarm status/types  
**Storing Types:** Binary/CSV type  
**Storing Methods:**

**Manual Start/Stop:** Dedicated key operation  
**Schedule:** Designation for time of day and date  
**Trigger Signal:** Alarm event pre-trigger is selectable

**Measuring Numbers of Pre-Trigger:** Maximum 950 data  
**Recording Cycle\*:** Up to 3 groups of 12 points/group can be programmed for 100, 200 and 500 ms recording; 5 groups of 44 points/group for recording with 1s or more (total of 100 points programming possible)  
**Recording Duration (CF Card):** When 6 channels recorded in sampling mode (real data)

Recording Cycle*	128 MB	256 MB	512 MB	1 GB	2 GB
0.1 sec	6.32 days	12.6 days	25.3 days	50.6 days	101 days
1 sec	63.2 days	126 days	253 days	1.4 yrs	2.8 yrs
60 sec	10 yrs	21 yrs	42 yrs	83 yrs	166 yrs

When 12 channels recorded in sampling mode (real data)

Recording Cycle	128 MB	256 MB	512 MB	1 GB	2 GB
0.1 sec	3.16 days	6.32 days	12.6 days	25.3 days	50.6 days
1 sec	31.6 days	63.2 days	126 days	253 yrs	1.4 yrs
60 sec	5.2 yrs	10 yrs	21 yrs	42 yrs	83 yrs

### Computation Specifications

**Computation Points:** Maximum 44 points  
**Computation Types:**  
**Arithmetic Operations:** Addition, subtraction, multiplication, division, remainder, exponential  
**Comparison Operations:** Equality, inequality, great, less, equality/great, equality/less  
**Logical Operations:** AND, OR, XOR, NOT  
**General Functions:** Round-up, round-down, absolute value, square root, exponent of e, natural logarithm, common logarithm  
**Integration Operations:** Analog integration, digital integration  
**Channel Data Operations:** Measured data computation, calculated data computation

**Setup:** Up to 7 alarms can be programmed per channel  
**Alarm Types:** Upper limit, lower limit, differential higher limit, differential lower limit (deadband is selectable), abnormal data  
**Delay Function:** Setup range of alarm delay, 1 to 3600 sec  
**Alarm Settings:** AND/OR selectable

### Communication Functions Network

**FTP Server:** Data file can be read from the network computer  
**Web Server:** Conformed to HTTP1.0; displays the alarm, information of maintenance by browser software (Internet Explorer 5.0 or later, Net Scape 6.0 or later, Opera 7 or later) User's ID and password registration available  
**E-Mail:** E-Mail notification at specified time for alarm activation; report data at specified time is selectable from all registered

### USB Communications\*\*

**USB:** Communication type, USB1.1  
**Transfer Systems:** Bulk transfer, control transfer  
**Communication Contents:** File transfer by virtual drive connection

### General Specifications

**Rated Power Voltage:** 100 to 240 Vac (universal power supply); 50/60 Hz  
**Maximum Power Consumption:** 50 VA (DO: all points ON, 240 Vac)  
**Reference Operating Condition:**

**Ambient Temperature/Humidity Range:** 21 to 25°C, 45 to 65% RH  
**Power Voltage:** 100 Vac, ±1.0%  
**Power Frequency:** 50/60 Hz ±0.5%  
**Attitude:** Left/right 0°, forward/backward 0°  
**Warm-Up Time:** Longer than 30 minutes

### Normal Operating Condition:

**Ambient Temperature/Humidity Range:** 0 to 50°C, 20 to 80% RH  
**Power Voltage:** 90 to 264 Vac  
**Power Frequency:** 50/60 Hz ±2%  
**Attitude:** Left/right 0°, forward tilting 0°, backward tilting 0° to 20°

### Transportation Condition (At the Packed Condition on Shipment from Our Factory):

**Ambient Temperature/Humidity Range:** -20 to 60°C, 5 to 90% RH (note: no dew condensation)  
**Vibration:** 10 to 60 Hz, 0.5 G (4.9 m/S<sup>2</sup>) or less  
**Impact:** 40 G (392 m/S<sup>2</sup>) or less

**Storage Condition:** Ambient temperature/humidity range -20 to 60°C, 5 to 90%RH (note: no dew condensation)

**Power Failure Protection:** Setups and data are backed up by flash memory

**Clock:** Lithium battery backs up RAM (minimum 5 years)

### Insulation Resistance:

**Secondary Terminals and Protective Conductor Terminals:** 20 MΩ or more at 500 Vdc  
**Primary Terminals and Protective**

**Conductor Terminals:** 20 MΩ or more at 500 Vdc  
**Primary and Secondary Terminals:** 20 MΩ or more at 500 Vdc

### Dielectric Strength:

**Secondary Terminals and Protective Conductor Terminals:** 1 minute at 500 Vac  
**Primary Terminals and Protective Conductor Terminals:** 1 minute at 1500 Vac  
**Primary and Secondary Terminals:** 1 minute at 2300 Vac

\*\* See next page for additional information.

**Options Specifications**

Name	Contents
Alarm Output	Relay contact output at alarm activation and abnormal input; output points: 12; contact capacity: mechanical relay, 100 Vac 0.5 A, 240 Vac 0.2 A
Communication Interface	Communication interface for high-order instruments RS232C/RS485 switchable **Ethernet and USB equipped as standard

\*\* See previous page for additional information.

**Case Assembly Material:**

**Door Frame:** ABS resin  
**Case:** Steel

**Color:**

**Door Frame:** Black (equivalent to Mussel N3.0)  
**Case:** Painting color, gray (equivalent to Mussel N7.0)

**Weight:** 2.2 kg (4.85 lb)

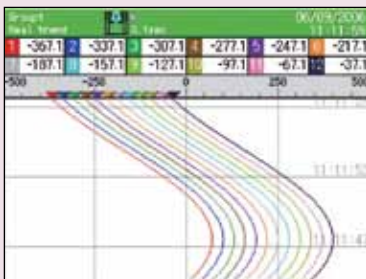
**Mounting:** Panel mounting

**Terminal Screws:**

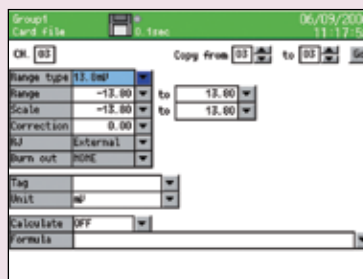
**Power Terminals/Protective Conductor Terminals/Communications Terminals:** M4.0

**Measuring Input Terminals/Alarm Output Terminals/Remote Contact Terminals:** M3.5

**RD9900 Series Screens**



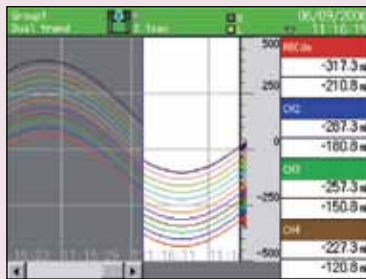
**Real Time Trend Screen**  
Display data (measured and virtual) of selected group. Vertical trend and horizontal trend.



**Input/Computation Setting**



**Bar-Graph Screen**  
Display data (measured and virtual) of selected group. Combination display with real-time trend is available.



**Dual Trend Screen**  
Two split display for real-time and historical trend. Scroll available for historical trend.

CH	CH1	CH2
CH0	-346.1	-316.1
CH1	-256.1	-226.1
CH2	-166.1	-136.1
CH3	-76.1	-46.1

**Data Screen**  
Display data (measured and virtual) of selected group. Simultaneous display of alarm status.

Start date and time	End date and time	Data count
06/09/2009 11:04:53	06/09/2009 11:05:04	125
06/09/2009 11:06:29	06/09/2009 11:06:32	3545
05/09/2009 19:42:48	05/09/2009 10:42:33	235
07/06/2009 14:05:48	07/06/2009 14:07:54	1263
07/06/2009 13:56:42	07/06/2009 14:05:47	5460
07/06/2009 13:54:32	07/06/2009 13:56:12	1005
07/06/2009 13:41:39	07/06/2009 13:42:13	345
07/06/2009 13:40:32	07/06/2009 13:40:46	144
07/06/2009 13:37:44	07/06/2009 13:37:09	83
07/06/2009 11:36:53	07/06/2009 11:37:40	479
07/06/2009 11:27:47	07/06/2009 11:26:52	5460
07/06/2009 11:18:41	07/06/2009 11:27:45	5460
07/06/2009 11:09:35	07/06/2009 11:19:40	5460
07/06/2009 11:00:29	07/06/2009 11:09:34	5460
07/06/2009 10:54:10	07/06/2009 11:00:04	1045
07/06/2009 10:44:10	07/06/2009 10:56:14	1243

**Information Setting Screen**

No.	Type	Value	Ref. CH	Deadband	Delay
RL1	Upper	0.0	01	0.0	0
RL2	None	0.0	01	0.0	0
RL3	None	0.0	01	0.0	0
RL4	None	0.0	01	0.0	0

**Alarm Settings**

Schedule settings	No settings
Data settings	Data Time
Start date and time	01/01/03 00:00
End date and time	02/01/03 00:00
Day setting	Sun Mon Tue Wed Thu Fri Sat
Days days	[ ][ ][ ][ ][ ][ ][ ]
Start time	00:00
End time	00:00

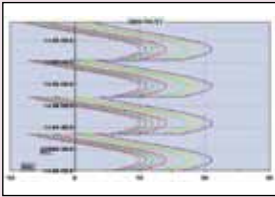
**Schedule Setting Screen**



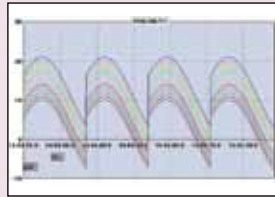
OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

## Application Software ZAILA (Sold Separately)

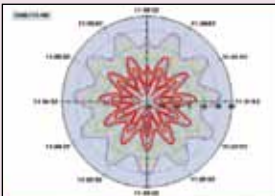
The software is applied for replay display/wave editing operation of recorded data in RD9900 series. It has replay display of vertical/horizontal trend and circular trend function, and also analyzing function such as magnify/reduce/partially magnify of graphs and message insert.



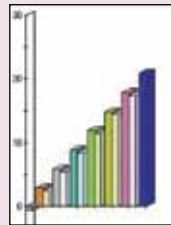
Trend Screen  
(Vertical Flow)



Trend Screen  
(Horizontal Flow)



Circular  
Chart



Bar Graph

- ✓ Trend display: Selectable from Trend Display Window (Vertical Flow, Horizontal Flow) and Circular Trend Display Window
- ✓ Continuous Replay Display Window: Trend is Scrolled Continuously (Automatically); Scroll Changes by Speed and Renewal Data Number
- ✓ Data List Display Window: Displays Registered Data as List Display
- ✓ Bar-Graph: Displays by bar; Message Can be Inserted Into Bar-Graph
- ✓ Data Between Markers: Displays Date/Time, Time Difference Between 2 Data, Data Difference, Maximum, Minimum, Average, Standard Deviation and Median Among all Data
- ✓ Alarm Display: Points for Alarm Activation at Each Level are Displayed on a Trend Graph
- ✓ Settings: Cursor, Trend Line, Scale Axis, Time Axis, Title Input on the Graph, Graph Assistant and Magnify/Reduce/Rotation of Graphs

### Environment

**CPU:** 1GHz or more

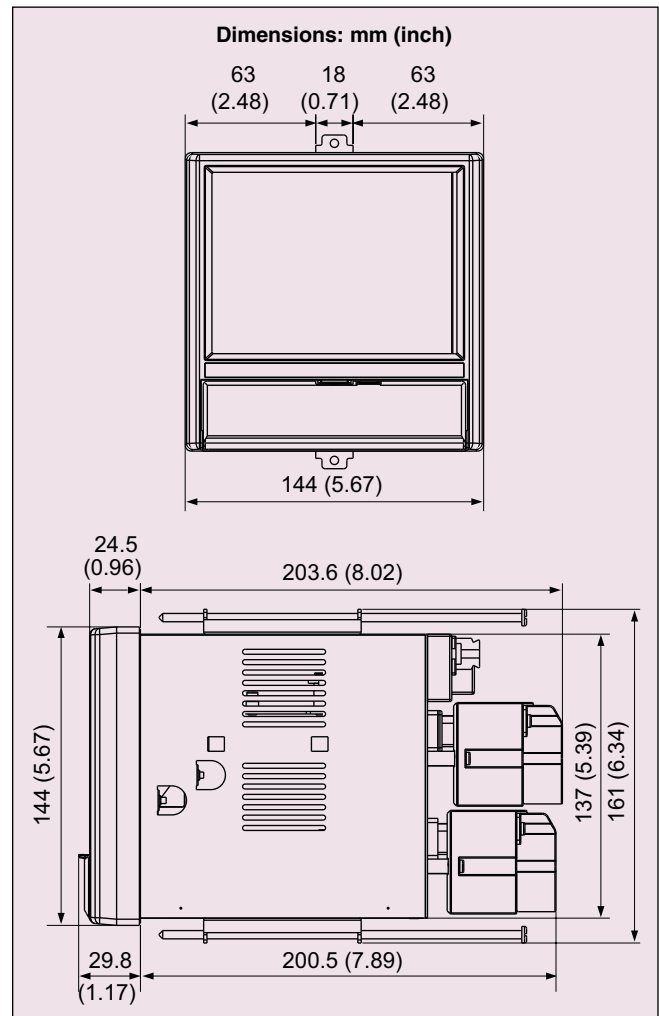
**OS:** Windows 98/Me/2000/XP Home/XP Pro

**Memory:** 256 MB or more (512 MB or more recommended)

**Disk Drive:** CD-ROM drive

**Hard Disk:** Disk space 100MB or more

**Language:** English, Japanese, Chinese (simplified and traditional characters)



### To Order

Model No.	Description
RD9906	6 points paperless recorder
RD9912	12 points paperless recorder
POWERCORD-SE	Power cord

### Option Boards

Model No.	Description
RD9900-C24	RS232C/RS485 communication interface
RD9900-AL12	12 point mechanical relay

### Option Software

Model No.	Description
RD9900-ZAILA	ZAILA data analysis software

Comes complete with operator's manual and 128 MB compact flash card.

**Ordering Examples:** RD9912, 12 points paperless recorder.

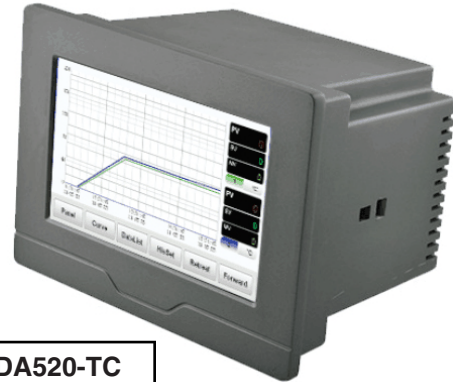
RD9906, 6 points paperless recorder and OCW-3, OMEGACARE<sup>SM</sup> extends standard 2-year warranty to a total of 5-years.

The RDA Paperless Recorder Series is a value priced large format touch screen datalogger that integrates measurement, display, alarm, and datalogging into one slim instrument. The RDA Series is available in both 5" and 7" display models. The instrument is easy to install and requires no external HMI. Depending on the model, the RDA Series can support 2, 4 or up to 6 input channels with either thermocouple or RTD input type with 0.2% FS measuring accuracy. Each channel can have independent input specification, with square-root, multiplication, addition and subtraction. All channels are equipped with digital adjustment and filtering functions.

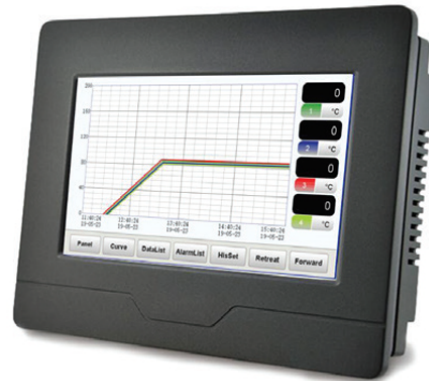
The RDA Series provides a real time trend records via trend graph or bar graph. History and alarm records can be reviewed in the logger itself with 150MB of internal storage or exported to external USB storage device. The RDA-740 and RDA-760 models have a slim installation depth of 40mm of for use where installation space is limited.

### Features

- Color TFT Touch Screen Display: 5" or 7"
- 2 Isolated Inputs for Thermocouple or RTD models
- 2 Internal Alarm setpoints per channel
- Maximum sample rate of 1 Hz
- Exportable data via USB Drive
- Low power consumption ( $\leq 5W$ )



**RDA520-TC  
RDA520-RTD**



**RDA740-TC    RDA760-TC  
RDA740-RTD    RDA760-RTD**

Omega model	RDA-520-RTD	RDA-520-TC	RDA-740- RTD	RDA-740- TC	RDA-760- RTD	RDA-760- TC
<b>Dimensions</b>						
<b>Diagonal Display Size</b>	5 inches (127mm)		7 inches (177.8mm)			
<b>External Size</b>	5.71 x 4.13 x 3.94 inches (145 x 105 x 100mm) (Width*Height*Depth)		7.99 x 6.10 x 1.57 inches (203 x 155 x 40mm) (Width*Height*Depth)			
<b>Installation Opening Size</b>	5.71 x 4.13 x 3.94 inches (145 x 105 x 100mm) (Width*Height*Depth)		7.56 x 5.47 inches (192 x 139mm) (Width*Height)			
<b>Display</b>						
<b>Color</b>	TFT True Color					
<b>Resolution</b>	800*480					
<b>Backlit</b>	Long-life LED					
<b>Input Method</b>	Screen Touching					



Omega model	MDA-520-RTD	MDA-520-TC	MDA-740- RTD	MDA-740- TC	MDA-760- RTD	MDA-760- TC
<b>Memory</b>						
<b>Storage</b>	150MB					
<b>Recording Interval (seconds)</b>	1, 2 3, 4, etc. User Defined					
<b>Instrument Input</b>						
<b>Input Type</b>	Two 2-wire RTD Pt100, Cu50, 0-80ohm, 0-400ohm, etc (Two inputs share one common port)	Two thermo-couples K, S, R, E, J, T, B, N, WRe5-WRe2 6	Four 2-wire RTD Pt100, Cu50, 0-80ohm, 0-400ohm, etc (Every two inputs share one common	Four thermo-couples K, S, R, E, J, T, B, N, WRe5-WRe2 6	Six 2-wire RTD Pt100, Cu50, 0-80ohm, 0-400ohm, etc (Every Two inputs share one common	Six thermo-couples K, S, R, E, J, T, B, N, WRe5-WRe2 6
<b>Measurement Accuracy</b>	0.2%FS 1 digit / 0.3%FS 1 digit (only for Cu50)	0.2% FS 1 digit. Internal cold junction compensation (CJC) will require an additional 1°C CJC error to be taken into consideration. The stated accuracy for type B thermocouple is only guaranteed between 600~1800°C (+1112 ~ +3272°F).	0.2%FS 1 digit / 0.3%FS 1 digit (only for Cu50)	0.2% FS 1 digit. Internal cold junction compensation (CJC) will require an additional 1°C CJC error to be taken into consideration. The stated accuracy for type B thermocouple is only guaranteed between 600~1800°C (+1112 ~ +3272°F).	0.2%FS 1 digit / 0.3%FS 1 digit (only for Cu50)	0.2% FS 1 digit. Internal cold junction compensation (CJC) will require an additional 1°C CJC error to be taken into consideration. The stated accuracy for type B thermocouple is only guaranteed between 600~1800°C (+1112 ~ +3272°F).
<b>Response Time</b>	≤1.5 seconds (digital filter parameter dL is set as 0 or 1)					
<b>Temperature Drift</b>	≤0.01%FS/°C (Typical 50ppm/°C)					



Omega model	RDA-520-RTD	RDA-520-TC	RDA-740- RTD	RDA-740- TC	RDA-760- RTD	RDA-760- TC
<b>Measuring Range</b>	Pt100: -200 ~ +800°C (-328 ~ +1472°F) , Cu50: -50 ~ +150°C (-58 ~ +302°F)	K -50 ~ +1300°C (-58 ~ +2372°F), S -50 ~ +1700°C (-58 ~ 3092°F) , R -50 ~ +1700°C (-58 ~ 3092°F, T -200 ~ + 350°C (-328 ~ +662°F), E 0 ~ +800°C (+32 ~ 1472°F) , J 0 ~ +1000°C (+32 ~ 1832 F), B +200 ~ +1800°C (+392 ~ 3272 F), N 0 ~ +1300°C (+32 ~ 2372°F), WRe3~WRe5 0 ~ +2300°C (+32 ~ +4172°F), WRe5~WRe26 0~+2300°C (+32 ~ +4172°F)	Pt100: -200 ~ +800°C (-328 ~ +1472 F) , Cu50: -50 ~ +150°C (-58 ~ +302 F)	K -50 ~ +1300°C (-58 ~ +2372°F), S -50 ~ +1700°C (-58 ~ 3092°F) , R -50 ~ +1700°C (-58 ~ 3092°F, T -200 ~ + 350°C (-328 ~ +662°F), E 0 ~ +800°C (+32 ~ 1472°F) , J 0 ~ +1000°C (+32 ~ 1832°F), B +200 ~ +1800°C (+392 ~ 3272°F), N 0 ~ +1300°C (+32 ~ 2372°F), WRe3~WRe5 0 ~ +2300°C (+32 ~ +4172°F), WRe5~WRe26 0~+2300°C (+32 ~ +4172°F)	Pt100: -200 ~ +800°C (-328 ~ +1472°F) , Cu50: -50 ~ +150°C (-58 ~ +302°F)	K -50 ~ +1300°C (-58 ~ +2372°F), S -50 ~ +1700°C (-58 ~ 3092°F) , R -50 ~ +1700°C (-58 ~ 3092°F, T -200 ~ + 350°C (-328 ~ +662°F), E 0 ~ +800°C (+32 ~ 1472°F) , J 0 ~ +1000°C (+32 ~ 1832°F), B +200 ~ +1800°C (+392 ~ 3272°F), N 0 ~ +1300°C (+32 ~ 2372°F), WRe3~WRe5 0 ~ +2300°C (+32 ~ +4172°F), WRe5~WRe26 0~+2300°C (+32 ~ +4172°F)

**General Specification**

<b>Electromagnetic Compatibility (EMC)</b>	4KV/5KHz according to IEC61000-4-4 (Electrical Fast Transient); 4KV according to IEC61000-4-5 (Electrical Surge).					
<b>Isolation Withstanding voltage</b>	Among power, relay contact or signal terminals 2300VDC. Among isolated electroweak terminals 600V					
<b>Power Supply</b>	100~240VAC, -15%, +10% / 50~60Hz					
<b>Power Consumption</b>	≤5W					
<b>Operating Environment</b>	Temperature -10~+60°C (+14 ~ +140 F) Humidity 90%RH					
<b>Storage Temperature</b>	-20 ~ +80°C (-4 ~ +176 F)					
<b>Unit Weight</b>	1.21 lbs (0.55kg)			1.54 lbs (0.7kg)		
<b>Cooling Method</b>	Natural Air Cooling					