

# Paperless Recorder

RD-MV204-1  
Starts at  
**\$4234**

26 cm (10.4")  
TFT Color Display

RD-MV102-1  
Starts at  
**\$2673**

14 cm (5.5")  
TFT Color Display

**Ethernet  
(10BASE-T)**



\*Optional



RD-MV210-1, \$4454, shown smaller than actual size.



- ✓ Up to 12 Channels on RD-MV100
- ✓ Up to 30 Channels on RD-MV200

\* See page S-18 for details.

- ✓ **Programmable Inputs:** RTD, Thermocouple, Voltage
- ✓ **TFT Color LCD for Better Viewing**
- ✓ **Removable Storage on 3.5" Floppy Disk, Zip Disk, or PCMCIA ATA Flash Memory Card**
- ✓ **Data Collection Over Ethernet Network (Standard)**
- ✓ **Network-Compatible Sophisticated Software**
- ✓ **Highly Reliable Hardware**

Today's users want mobile capabilities in all types of devices that use information. Cellular phones and notebook computers are embodiments of this concept of mobility. With the RD-MV100/200 OMEGA is now setting the mobility standard for data loggers. The RD-MV100/200's internal memory can store approximately 27 hours of continuous data when recording at 1-second intervals with a 6-channel model, or 8 hours when using a 20-channel model. The RD-MV100/200 is standard equipped with an Ethernet (10BASE-T) port for high-speed communications. The Ethernet capability makes it possible to form a simple network of PCs and RD-MV100/200 units using a hub or connect the RD-MV100/200 to a LAN.

## Common Specifications

### Removable Storage Medium:

3 options (3.5" floppy disk, zip disk, PCMCIA ATA flash memory card)

Inputs: DC voltages, thermocouples, resistance temperature detectors, and digital inputs can be mixed

### RD-MV100 External Dimensions:

Approx 225 H x 152 W x 240 mm D (9 x 6 x 9.5")

**Weight:** Approx 4 kg (8.8 lb)

### RD-MV200 External Dimensions:

Approx 338 H x 281 W x 252 mm D (13 x 11 x 10")

**Weight:** Approx 7 kg (15.4 lb)

### Input Unit:

Input Types: Floating unbalanced input, inter-channel isolation; (however, a common terminal is used for b terminals of RTDs)

### Measurement Intervals:

RD-MV102/104/204/208: 125 ms  
RD-MV106/112/210/220/230: 1 second (measurement interval is 2 seconds when the A/D integrating time is set to 100 ms)

### Input Ranges, Measuring Ranges, and Measurement/Display Accuracy:

(Reference operating conditions: 23 ±2°C; 55 ±10% RH; supply voltage: 90 to 132, 180 to 250 Vac; supply frequency: 50/60 Hz ±1%; warmup time: 30 minutes or longer; performance under conditions, such as vibrations, which do not affect equipment operations)

### Reference Junction Compensation

**(RJC):** INT (internal)/EXT (external) switching possible

**RJC Accuracy:** Type R, S, B, C: ±1°C;

Type K, J, E, T, N, L, U: ±0.5°C (when measured at 0°C or higher)

**Maximum Input Voltage:** 2 Vdc or lower voltage range and thermocouple: ±10 Vdc (continuous); 6 V, 20 Vdc voltage range: ±30 Vdc (continuous)

**Input Resistance:** 2 Vdc or lower voltage range and thermocouple: 10 MΩ or greater; 6 V, 20 Vdc voltage range: approx 1 MΩ

### Input External Resistance:

**DC Voltage, Thermocouple Input:** 2 KΩ or less

**RTD Input:** 10 Ω or less per line (equal on all 3 lines)

**Input Bias Current:** 10 nA or less

### Maximum Common Mode Noise

**Voltage:** 250 Vac rms (50/60 Hz)

**Common Mode Rejection Ratio:** 120 dB (50/60 Hz ±0.1%; 500 Ω unbalanced; negative terminal to ground)

### Normal Mode Rejection Ratio:

40 dB (50/60 Hz ±0.1%)

**Thermocouple Burnout:** Sensor ON/OFF switching possible; burnout upscale/downscale switching possible

### Calculation

**Difference Calculation:** Difference calculation between any channels

### Difference Calculation Range:

DCV, TC, RTD

**Linear Scaling:** Scaling range: DCV, TC, RTD; scalable value: -30000 to 30000

Input	Range/Type	Measuring range	Measurement accuracy (digital display)	Digital display maximum resolution	
DCV	20 mV	-20.00 to 20.00 mV	(0.1% of rdg + 2 digits)	10 V	
	60 mV	-60.00 to 60.00 mV		10 V	
	200 mV	-200.00 to 200.00 mV		100 V	
	2 V	-2.000 to 2.000 V		1 mV	
	6 V	-6.000 to 6.000 V		1 mV	
	20 V	-20.00 to 20.00 V		10 mV	
TC	R*1	0.0 to 1760.0C	32 to 3200F	(0.15% of rdg + 1C) R, S: 0 to 100C, 3.7C; 100 to 300C, 1.5C B: 400 to 600C, 2C; if less than 400C, accuracy is not guaranteed	
	S*1	0.0 to 1760.0C	32 to 3200F		
	B*1	0.0 to 1820.0C	32 to 3200F		
	TC	K*1	-200.0 to 1370.0C	-328 to 2498F	(0.15% of rdg + 0.7C) If -200 to -100C, then (0.15% of rdg + 1C)
		E*1	-200.0 to 800.0C	-328.0 to 1472.0F	
		J*1	-200.0 to 1100.0C	-328.0 to 2012.0F	(0.15% of rdg + 0.5C)
		T*1	-200.0 to 400.0C	-328.0 to 752.0F	If -200 to -100C, then (0.15% of rdg + 0.7C)
		N*1	0.0 to 1300.0C	32 to 2372F	(0.15% of rdg + 0.7C)
		C*2	0.0 to 2315.0C	-328.0 to 4199F	(0.15% of rdg + 1C)
		L*3	-200.0 to 900.0C	-328.0 to 1652.0F	(0.15% of rdg + 0.5C)
		U*3	-200.0 to 400.0C	-328.0 to 752.0F	If -200 to -100C, then (0.15% of rdg + 0.7C)
	RTD*5	Pt100*4	-200.0 to 600.0C		(0.15% of rdg + 0.3C)
JPt100*4		-200.0 to 550.0C			
DI	Voltage input	OFF: Less than 2.4 V ON: 2.4 V or greater		0.1C	
	Contact input	Contact ON/OFF			

\*1 R, S, B, K, E, J, T, N: IEC584-1 (1995), DIN IEC584, JIS C 1602-1995

\*2 C: W-5%, Rd/W-26%, Rd ASTM E988

\*3 L: Fe-CuNi, DIN43710, U: Cu-CuNi, DIN43710

\*4 Pt100: JIS C 1604-1997, IEC751-1995, DIN IEC751-1996,

JPt100: JIS C 1604-1989, JIS C 1606-1989

\*5 Measuring current: i = 1 mA

### Square Root Scaling:

Scaling range: DCV

Scalable value: -30000 to 30000

### Display Unit

**Display Colors:** Trend and bar graph

displays: 12 colors for RD-MV100,

16 colors for RD-MV200

Background: white or black

### Trend Display:

**Direction:** Vertical or horizontal

**Number of Windows:** Switching between 4 (4 groups)

**Thickness:** 1, 2, or 3 dots

**Waveform Update Rate:** 15 or 30 seconds (125 ms measurement interval model only); 1, 2, 5, 10, 20, or 30 minutes; or 1, 2, 4 hours (per div)

### Bar Graph Display:

**Direction:** Vertical or horizontal

**Number of Windows:** Switching between 4 (4 groups)

**Scale:** Can be set in range of 4 to 12

### Horizontal Bar Graph Reference

**Position:** End or center

**Update Rate:** 1 second

**Digital Display:** Update rate: 1 second

**Overview Display:** Measurement values and alarm status on all channels

**Information Display:** Alarm summary, message summary, memory information, media information, etc.

### Other Displayed Information:

Memory status, scale values (0, 100%, display ON/OFF switching capability); grid (number of divisions can be set between 4 and 12), and hours: minutes; time (year/month/date, hours/minutes/seconds); trip line (thickness: 1, 2, or 3 dots); Messages (maximum 16 characters, up to 8 types), alarm marks

### Data Reference Function

Data can be played back from internal memory or a removable storage medium

**Display Types:** Split screen (divided in 2) or whole screen; time axis operations:

Zoom-in/-out display, scrolling

### Storage Functions

**Removable Storage Drive:** A drive for the following types of media can be selected when you place your order:

3.5" floppy disk (2HD), Zip disk, or PCMCIA ATA flash memory card

**Data Saving Method:** Manual saving or auto-saving



**Manual Saving:** Saves data when a removable storage medium is inserted

### Auto-Saving

**Saving Display Data:** Saves data to a removable storage medium periodically (every 10 minutes to 31 days)

**Saving Event Data:** Saves data to a removable storage medium periodically (every 3 minutes to 31 days when trigger is not yet specified) or saves data when sampling period ends (when trigger is specified)

### Data Saving Intervals

**Display Data Files:** Interval varies according to the waveform update rate

#### Event Data Files:

Sampling interval is specified

#### Event Data File Sampling Intervals:

**RD-MV102/104/204/208:** 125, 250, 500 ms; 1, 2, 5, 10, 30, 60, or 120 seconds

**Measurement Data Files:** The following two types of files can be created:

1. Event data files (to save instantaneous values sampled at specified sampling intervals)
2. Display data files (to save maximum and minimum values occurring in display update interval in measurement data sampled at measurement interval)

The two files can be combined as follows:

1. Event data file (trigger only) plus display data file
2. Display data file only
3. Event data file only

**Data Format:** OMEGA® standard format (binary format)

### Display Data

**Measurement Data:** 4 bytes per data

**Calculation Data:** 8 bytes per data

### Event Data

**Measurement Data:** 2 bytes per data;

**Calculation Data:** 4 bytes per data

### Manual Sampling Data

**Storage Trigger:** Key input or contact input

**Data Format:** ASCII format

**Maximum Stored Data:** 50 data

**TLOG Data (with calculation option only):**

Time series integrated (totalized) value, maximum value, minimum value, average value, max/min value

**Storage Trigger:** Data saved when TLOG time is up

**Report Data (with calculation**

**option only):** Periodic average value, maximum value, minimum value, and integrated (totalized) value

Types: hourly reports, daily reports, daily + weekly reports, daily + monthly reports

**Data Format:** ASCII

### Screen Copying Function

**Copying Method:** Key input

**Data Format:** PNG

**Output to:** Removable storage medium or online output

### Trigger Functions

**Event Data File:** Select FREE, TRIG, or ROTATE mode

### Display Data + Event Data File:

Select TRIG or ROTATE mode

**Trigger Source:** Key input, remote control (optional), alarm

**Pretrigger:** Works with event data; 0, 5, 25, 50, 75, 95, or 100%

### Alarm Functions

**Maximum Number:** A maximum of 4 alarms can be set on each channel

**Alarm Types:** High/low limits, high/low difference limits, rate of change increase/decrease limits

### Rate of Change Alarm

**Time Interval:**

Measurement interval x 1 to 15

**Display:** Status (alarm type) and common alarm display in digital display area when alarm occurs; hold/no hold switching capability

**Hysteresis:** ON (0.5% of display span)/OFF switching (common to all channels/levels)

**Outputs:** 2, 4, 6, 12, or 24 (12 and 24 can be specified for RD-MV200 only) operation excitation/no excitation, hold/no hold switching capability

### Storage

**Stored Information:** Alarm occurrence/clear time, alarm type

#### Number of Saved Items:

Maximum 120 (most recent)

### COMMUNICATION FUNCTIONS

**Network Type:** Ethernet (10BASE-T)

**Basic Protocol:** TCP/IP

**File Transfer Function:** Automatic transfer from RD-MV100/200 (FTP client protocol); file transfer in response to request from host computer (FTP server protocol)

**Real Time Monitor Function:**

Real time online monitoring of RD-MV100/200 measurement data (proprietary protocol)

**Transferable Files:** Display data files, event data files, report data, and screenshot data

**FTP Server Functions:** Directory operations on a removable storage medium, file output, file deletion, and information on available memory space in a storage medium

**Display:**

**RD-MV100:** 5.5" TFT color LCD (320 x 240 dots)

**RD-MV200:** 10.4" TFT color LCD (640 x 480 dots)

### Supply Voltage

**AC Power Supply:** 90 to 132, 180 to 250 Vac, 50/60 Hz, 80 VA

**DC Power Supply:** 10 to 18 Vdc, 42 VA

**Ambient:** 5 to 40°C

### Optional Specifications

**Alarm Output Relay Contacts**

(/A1, /A2, /A3, /A4, /A5) :

250 Vdc/0.1 A (resistance load), 250 Vac (50/60 Hz)/3 A. NO-C-NC (excitation/no excitation, AND/OR, hold/no hold switching capability)

### Serial Communications (/C2, /C3):

RS232 or RS422-A/485 (4-wire half-duplex multidrop connection); 1200, 2400, 4800, 9600, 19200, 38400 bps; 7 or 8 bits, 1 stop bit, odd/even/none parity

#### Fail/Memory End Output (/F1):

Relay output from back side before start time specified for display data file overwriting or when system abnormality occurs (1, 2, 5, 10, 20, 50, or 100 hours can be specified)

#### Screw Input Terminals (/H3):

(/H3 option for RD-MV100 only; specified suffix code for RD-MV200)

The standard clamp input terminals are replaced with screw type input terminals

### Mathematical Calculation and Report Functions (/M1):

Addition, subtraction, multiplication, division, square root, absolute value, common logarithm, exponent, power, relationships (<, >, =, ≠), logical calculations (AND, OR, NOT, XOR), time series data average; maximum, minimum, and integrated (totalized) values; up to 12 constants can be set for RD-MV100, 30 for RD-MV200

**Report Types:** Hourly reports, daily reports, daily + weekly reports, daily + monthly reports

**Calculation Types:** Average, maximum, minimum, and integrated (totalized) values

#### Remote Control (/R1):

Memory start/stop, event data file trigger, time adjustment, calculation start/stop, calculation data reset, manual sampling, message writing, alarm ACK

### Application Software

**DAQSTANDARD (included)**

**DATA VIEWER: Configuration software (see next page)**

**DAQEXPLORER (sold separately)**

**Functions include:**

Desktop (file transfers, configurations, etc., using operations on desktop); data monitoring; hardware configurations (online or using a removable storage medium; data viewer; printout of playback data; file conversion to ASCII, Lotus 1-2-3, and MS-Excel formats)



RD-MV106-1,  
\$2784, shown  
smaller than  
actual size.

## Data Viewer

The data viewer can be used to convert file formats and play back data files saved on the RD-MV100/RD-MV200 (event data, display data, TLOG data files), and data files transferred to a file server using a protocol such as FTP (event data, display data, TLOG data files); the file conversion functions let you convert RD-MV100/200

data files to ASCII format, as well as the formats of off-the-shelf spreadsheet programs such as Lotus 1-2-3 and MS-Excel

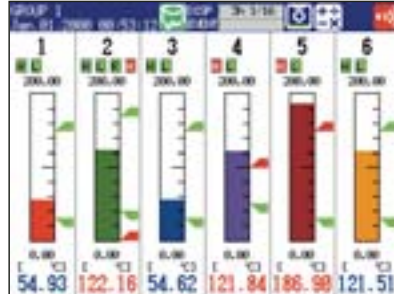
## Configuration Software

The configuration software can be used to enter various RD-MV100/200 configurations either online or using a removable medium

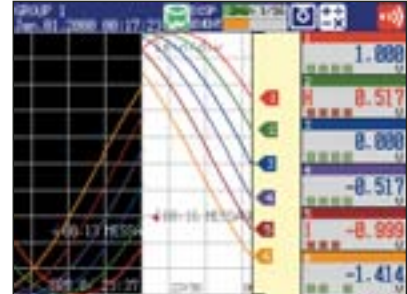
## Display Types



Digital Display



Bar Graph Display



Historical Trend Display



Overview Display



Information Display



4-Split Screen

Options (Add as Suffix)		
Model No.	Price	Description
/A1	\$166	Alarm: 2 points (RD-MV100 ONLY)
/AR1	303	Alarm: 2 points & remote control (RD-MV200 ONLY)
/A2	278	Alarm: 4 points (RD-MV100 ONLY)
/AR2	441	Alarm: 4 points & remote control (RD-MV200 ONLY)
/A3	414	Alarm: 6 points
/A4	827	Alarm: 12 points (RD-MV200 ONLY)
/A5	1240	Alarm: 24 points (RD-MV200 ONLY)
/C2	187	RS232C interface
/C3	187	RS422-A/485 interface
/D5	275	VGA output (RD-MV200 ONLY)
/F1	187	FAIL/memory end output relay
/H3	0	Screw input terminals (RD-MV100 ONLY)
/M1	221	Mathematical function (including report function)
/R1	166	Remote control
-CE	375	CE marked

Only one /A\* Type option per unit.

Only one /C\* Type option per unit.

With /F1 option the /A3 (on RD-MV100) or /A5 (on RD-MV200) is not available.

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.

## MOST POPULAR MODELS HIGHLIGHTED!

### To Order (Specify Model Number)

Model No.	Price	Description
RD-MV102-1	\$2673	2-channel recorder
RD-MV104-1	3121	4-channel recorder
RD-MV106-1	2784	6-channel recorder
RD-MV112-1	3898	12-channel recorder
RD-MV204-1	4234	4-channel recorder
RD-MV208-1	4741	8-channel recorder
RD-MV210-1	4454	10-channel recorder
RD-MV220-1	5292	20-channel recorder
RD-MV230-1	6125	30-channel recorder

Comes with floppy disk storage, 120/240 Vac power, 3-pin power inlet with UL/CSA cable, clamp input terminals, and complete operator's manual.

To order Zip disk or ATA flash card change the "-1" to "-2" or "-3" respectively and add \$166. To order with 12 Vdc power input (includes AC adaptor), add suffix "-2" to model number and add \$386. To order with different power cord add suffix "-F" for VDE, "-R" for SAA, or "-S" for BS cable to model number. No additional cost.

Ordering Example: RD-MV106-1/A3/C3, 6-channel 120/240 Vac model with floppy disk storage, alarm relay output with 6-points and RS422-A485 interface, \$2784 + 414 + 187 = \$3385. OCW-3, OMEGACARE<sup>SM</sup> extends standard 2-year warranty to a total of 5 years (\$350), \$3385 + 350 = \$3735.

## Accessories

Model No.	Price	Description
RD-DXA200-02	\$438	DAQEXPLORER software
RD-MV-A1053MP	20	Zip disk
RD-MV-M1223RU-A	158	ATA 128 MB flash memory card
ME-1200	150	Reference Book: Introduction to the Design and Behavior of Bolted Joints







#### UNITED STATES

[www.omega.com](http://www.omega.com)  
1-800-TC-OMEGA  
Stamford, CT.

#### CANADA

[www.omega.ca](http://www.omega.ca)  
Laval(Quebec)  
1-800-TC-OMEGA

#### GERMANY

[www.omega.de](http://www.omega.de)  
Deckenpfronn, Germany  
0800-8266342

#### UNITED KINGDOM

[www.omega.co.uk](http://www.omega.co.uk)  
Manchester, England  
0800-488-488

#### FRANCE

[www.omega.fr](http://www.omega.fr)  
Guyancourt, France  
088-466-342

#### CZECH REPUBLIC

[www.omegaeng.cz](http://www.omegaeng.cz)  
Karviná, Czech Republic  
596-311-899

#### BENELUX

[www.omega.nl](http://www.omega.nl)  
Amstelveen, NL  
0800-099-33-44



## More than 100,000 Products Available!

### • Temperature

Calibrators, Connectors, General Test and Measurement Instruments, Glass Bulb Thermometers, Handheld Instruments for Temperature Measurement, Ice Point References, Indicating Labels, Crayons, Cements and Lacquers, Infrared Temperature Measurement Instruments, Recorders Relative Humidity Measurement Instruments, RTD Probes, Elements and Assemblies, Temperature & Process Meters, Timers and Counters, Temperature and Process Controllers and Power Switching Devices, Thermistor Elements, Probes and Assemblies, Thermocouples Thermowells and Head and Well Assemblies, Transmitters, Wire

### • Flow and Level

Air Velocity Indicators, Doppler Flowmeters, Level Measurement, Magnetic Flowmeters, Mass Flowmeters, Pitot Tubes, Pumps, Rotameters, Turbine and Paddle Wheel Flowmeters, Ultrasonic Flowmeters, Valves, Variable Area Flowmeters, Vortex Shedding Flowmeters

### • pH and Conductivity

Conductivity Instrumentation, Dissolved Oxygen Instrumentation, Environmental Instrumentation, pH Electrodes and Instruments, Water and Soil Analysis Instrumentation

### • Data Acquisition

Auto-Dialers and Alarm Monitoring Systems, Communication Products and Converters, Data Acquisition and Analysis Software, Data Loggers Plug-in Cards, Signal Conditioners, USB, RS232, RS485 and Parallel Port Data Acquisition Systems, Wireless Transmitters and Receivers

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### • Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters