

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	0.1C				
	S*1	0.0 to 1760.0C	32 to 3200F						
	B*1	0.0 to 1820.0C	32 to 3200F						
	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	(0.15% of rdg + 0.5C)
						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							
	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

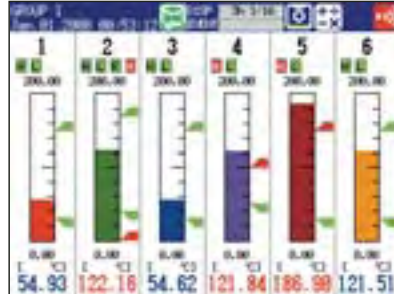
The configuration software can be used to enter various RD-MV100/200 configurations either online or using a removable medium



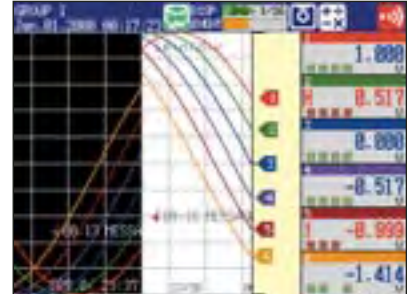
Display Types



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.

OMEGACARESM extended warranty program is available for models shown on this page. OMEGACARESM 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, OMEGACARESM 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

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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