User's Manual

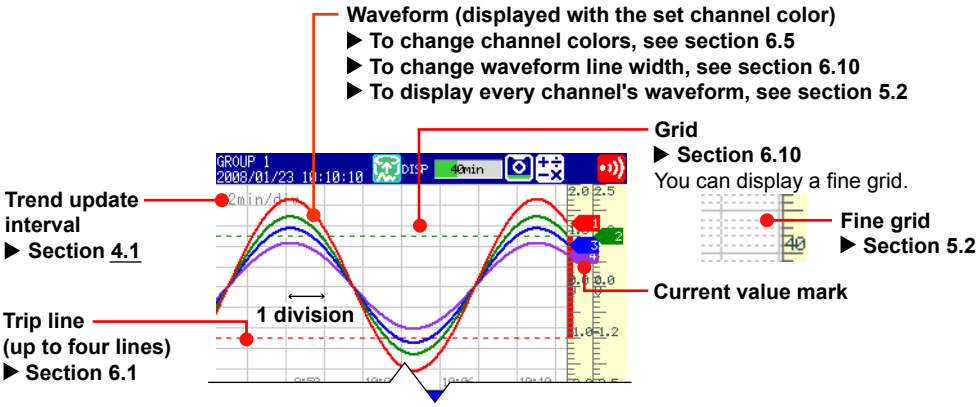
Notice of Alterations

Models MV1004/MV1006/MV1008/MV1012/MV1024
MV2008/MV2010/MV2020/MV2030/MV2040/MV2048

MV1000/MV2000

Please make the following alterations to the User's Manual IM MV1000-01E (see underlined text).

■ Page 1-11 "Trend Display (T-Y)"

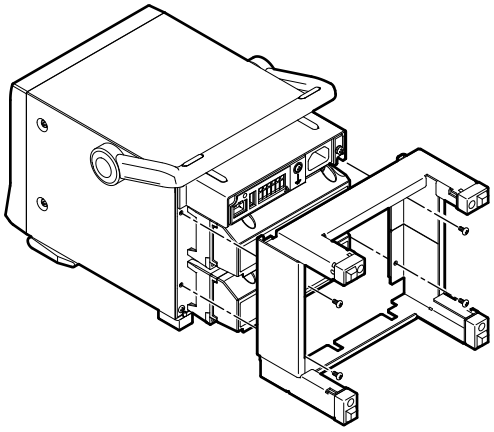


■ Page 2-2 "Installation"

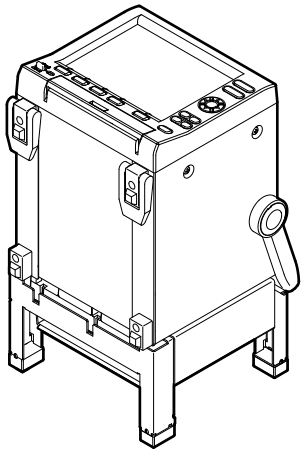
- Using the vertical stand (MV1000 only)

  The MV1000 can be installed vertically by attaching the vertical stand (sold separately).
  The appropriate screw tightening torque is 0.6 N•m. Be sure to support the instrument from the bottom when attaching the stand.

Attaching the stand



Instrument placement



- Installing on a panel

  The MV can be installed on a panel by using the rack mount kit (sold separately).
  See the external dimensions for the installation procedure.

■ Page 1-33 "File Names"

Type	Description	
Date	•••	
Sequence	Display data Event data Manual sampled data Snapshot data	[7-digit][Specified string] . [Extension] Ex.: 000123_AAAAAAAAAAA.DAD
	Report data	[7-digit][Specified string][Type] . [Extension] Ex.: 000123_AAAAAAAAAAAHD.DAR
Batch name	•••	

Item	Description	
7-digit	Consists of a 6-digit number and 1-character delimiter.	
	6-digit number	A sequence number in the order of occurrence. The number ranges from 000001 to 999999. If the number reaches 999999, it returns to 000000.
	1-character delimiter	Starts with '_' and takes on the following values: A to Z and 0 to 9. If a file with the same name exists in the specified directory, the file is saved by changing the delimiter to prevent overwriting. Example:If a file named "000123_AAAAAAAAAAA.DAD" already exists, the file is saved to the name "000123AAAAAAAAAAAA.DAD."
Date	•••	
•••		

■ Page 4-2 "Disp data > Save interval (when recording display data)"

Trend/Storage interval[1]	**5s**[2]	**10s**[2]	**15s**[2]	**30s**	**1min**
Sampling interval	125ms	250ms	500ms	1s	2s
Selectable Save Interval Values	10 min to 12 h	10 min to 1 day	10 min to 3 days	10 min to 7 days	10 min to 14 days
Trend/Storage interval[1]	**2min**	**5min**	**10min**	**15min**	**20min**
Sampling interval	4s	10s	20s	30s	40s
Selectable Save Interval Values	10 min to 14 days	10 min to 31 days	10 min to 31 days	10 min to 31 days	1 h to 31 days
Trend/Storage interval[1]	**30min**	**1h**	**2h**	**4h**	**10h**
Sampling interval	1min	2min	4min	8min	20min
Selectable Save Interval Values	1 h to 31 days	1 h to 31 days	2 h to 31 days	4 h to 31 days	8 h to 31 days

■ Page 13-18 "Normal mode rejection ratio"

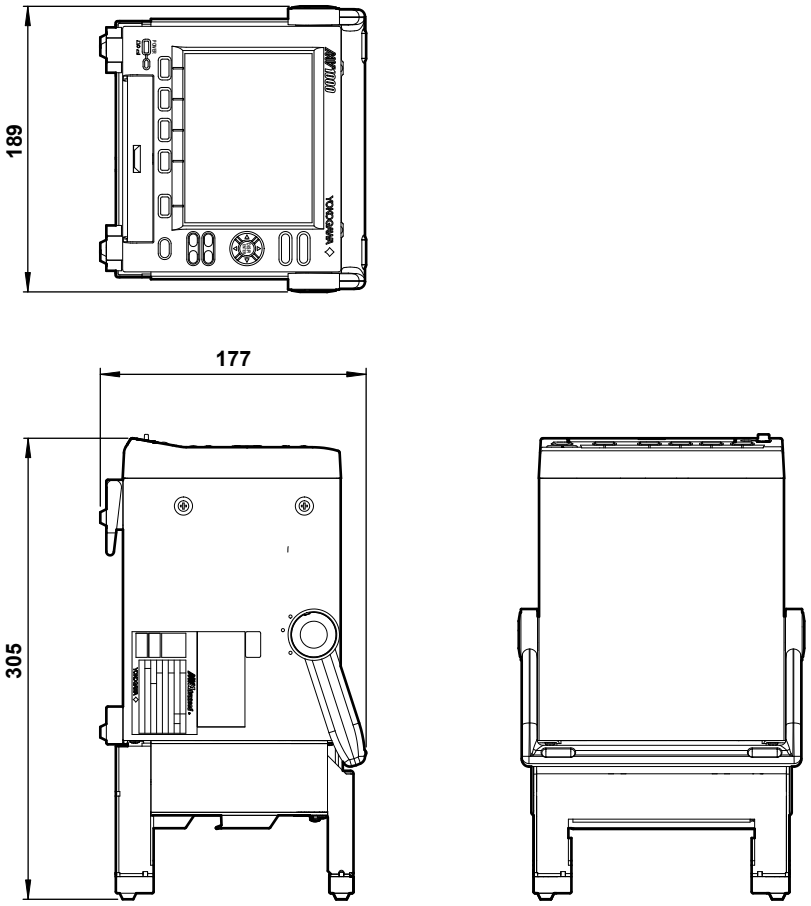
When the A/D integration time is 20 ms

40 dB or more (50 Hz ± 0.1%)

■ Page 13-20 “External Dimensions”

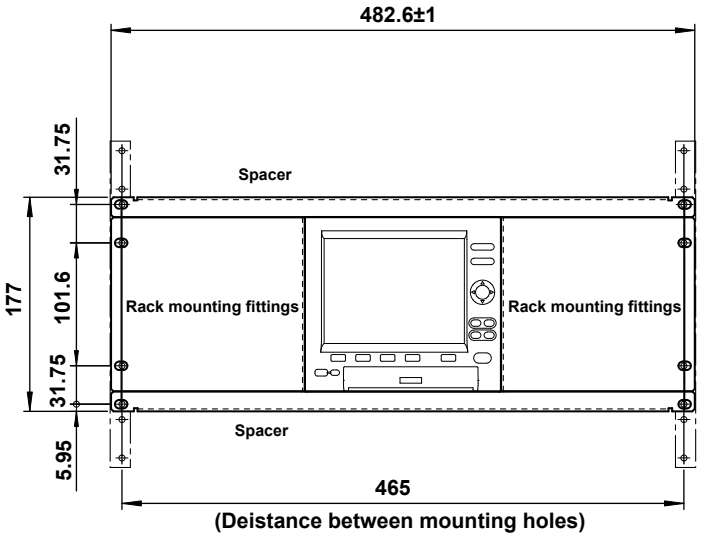
MV1000

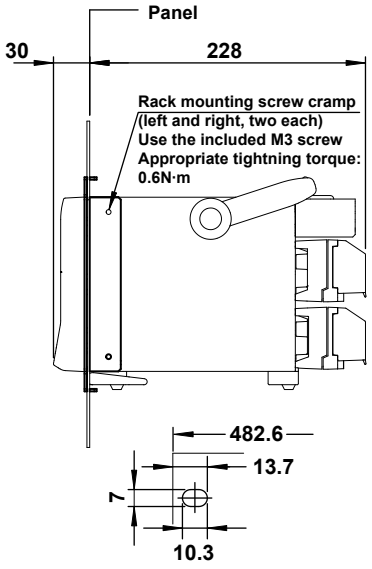
With vertical stand attached



Dimensions when rack-mounted

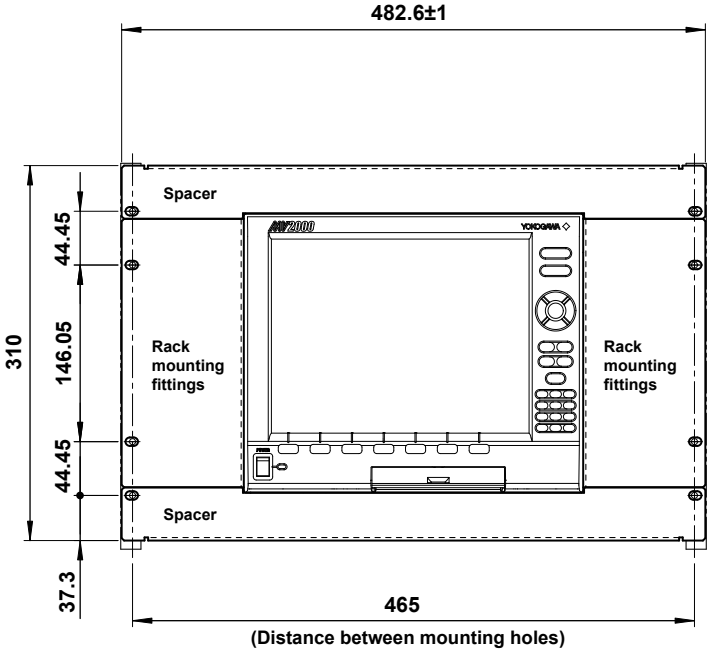
- MV1000
  With an EIA/ANSI-compliant rack

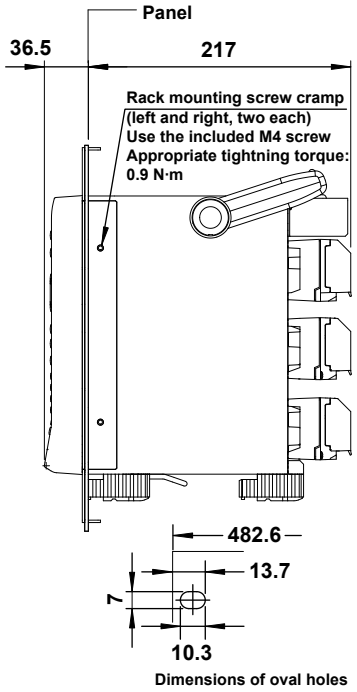




Dimension of oval holes

- MV2000
  With an EIA/ANSI-compliant rack





Dimensions of oval holes

■ MV1000 Rechargeable Battery Model is added

Please add the following contents

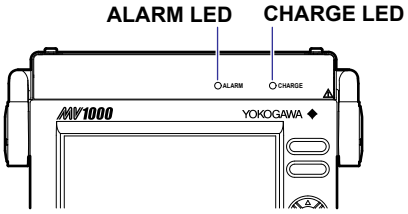
Recycle Mark

The Ni-MH battery that is used by the MV1000 is recyclable.
The following recycle mark is used on the battery and in this user's manual to indicate that it is recyclable.

Ni-MH

Indication of recharging

When the battery needs recharging after it is used over a given period, the ALARM LED (red) turns ON. The operation time from the point when the ALARM LED turns ON until the battery becomes empty is normally 10 minutes to 15 minutes. However, this varies depending on how it is used. If the battery was not fully charged, the battery may become empty in less than 5 minutes. Therefore, charge the battery immediately when the ALARM LED turns ON.



When an external storage medium is in operation, the ALARM LED may turn ON due to the changes in the load of the battery voltage.
If the ALARM LED turns ON while data is being saved, you can continue the save operation until the battery is empty.
The MV1000 has a built-in over-discharge protection circuit. To prevent the battery from over discharge, a shutdown operation is performed to cut off the current from the battery after a short time after the ALARM LED turns ON.
Thus, the power to the MV1000 is automatically turned OFF after the ALARM LED turns ON. If you leave the MV1000 in this condition for an extended time, the battery may over discharge due to the minute consumption of power by the internal circuit operation. If the MV1000 automatically turns OFF after the ALARM LED turns ON, make sure to turn the power switch of the MV1000 to the OFF position.
Charging of the battery starts when the power to the MV1000 is turned OFF. In this case, the CHARGE LED and the ALARM LED may blink simultaneously, but the ALARM LED will turn OFF after charging the battery for awhile.
Additionally, while the battery is installed, the battery power is consumed through minute current even if the power switch of the MV1000 is turned OFF. If you are not using the MV1000 for an extended time, remove and store the battery.

Note

With Ni-MH batteries, a phenomenon called memory effect occurs in which the apparent battery capacity decreases when shallow charge and discharge cycles are repeated followed by a deep discharge. In such case, the capacity recovers by repeating the cycle of operating the MV100 until shutdown (discharge the battery until the end-ofdischarge voltage) and recharging several times.

The battery is charged by leaving the AC adapter connected, whether the power switch is ON or OFF. The battery voltage is different during AC adapter operation and battery operation. The ALARM LED does not turn ON during AC adapter operation even when recharging is necessary. Note the following points.

When the AC adapter and the battery are used simultaneously, the AC adapter is used at higher priority. If the AC power supply is cut off such when a power failure occurs, the MV1000 automatically switches to battery operation. When the AC power supply recovers, the MV1000 returns to AC adapter operation. If you are using the battery as backup power, fully charge the battery before using it.

Approximate Time of Operation [1]

The time of operation with the battery varies depending on the operating conditions.

Model	Operation Time [2]		
Usage Condition	Minimum consumption	Normal consumption	Maximum consumption
MV1004	10 hours	8 hours	4 hours
MV1008, MV1024	9 hours	7 hours	5 hours
MV1012	13 hours	9 hours	4 hours

1 Reference values when operated at room temperature.

2 See “Power Supply” in the specifications for the instrument’s operating conditions.

Battery Life

The number of times the battery can be recharged is approximately 300 (depends on the condition in which it is used). If the operation time is short even when it is fully charged, the battery is dead. Replace with a new battery.

Name	Part Number	Qty.	Notes
Battery box	B8805HA	1	When using the MV1000 with power supply voltage suffix code -3

Replacing the Battery

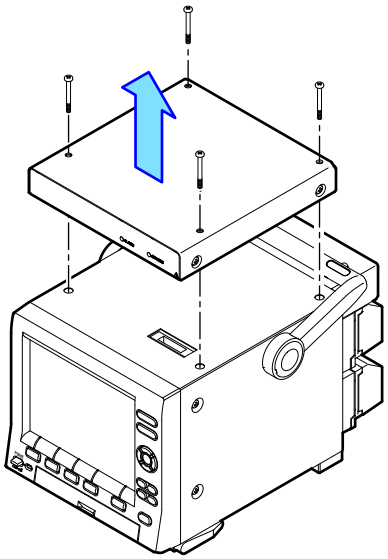
Follow the procedures below to replace the battery box.

1 Check that the power to the MV1000 is OFF.

2 If you are using an AC adapter, remove the AC adapter’s power cord from the outlet.

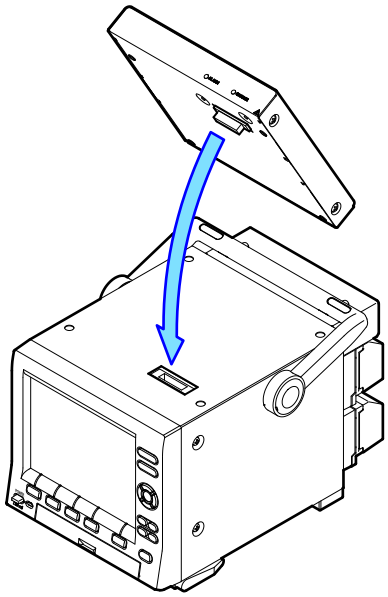
3 Remove the four mounting screws from the battery box.

4 Rremove the battery box by lifting straight up.

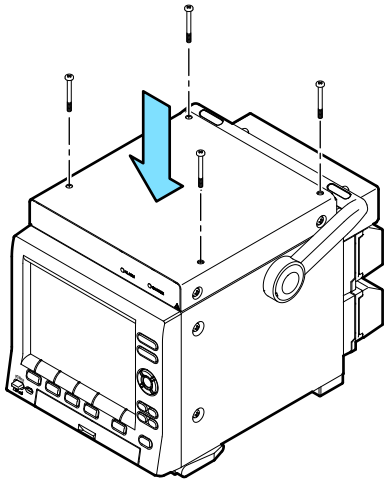


5 Prepare the new battery box.

6 Align the new battery box connector with the connector on the MV1000, then connect the battery box to the MV1000.



7 Fasten the battery box in using four screws. The appropriate screw tightening torque is 0.6 N•m.



WARNING

Do not disassemble the battery box.

Battery Recycling

To save valuable resources, send used battery packs to your nearest YOKOGAWA dealer.

Specification

Construction

Item	Specifications
External dimensions	189(W) × 186(H) × 259(D) mm
Weight	MV1004, MV1006, MV1012: Approx. 4.5 kg, MV1008, MV1024: Approx. 4.7 kg

Normal Operating Conditions

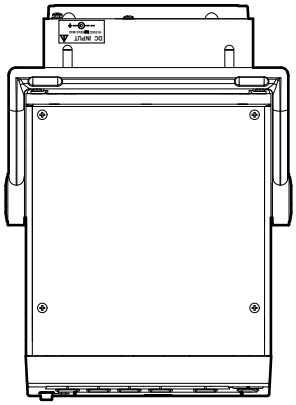
Item	Specifications
Ambient temperature:	0 to 40 °C

Power Supply (Power supply voltage suffix code -3)

Item	Specifications			
Battery drive mode				
When the AC adapter and the battery are used in combination, the AC adapter is the primary power supply.				
Charging function	Charge mode by connecting the AC adapter, whether the power switch is ON or OFF.			
Charge time	Approx. 2.5 hours			
Number of times chargeable	Approx. 300 times (depends on operating conditions)			
LED display	ALARM LED : Lights when the battery voltage drops CHARGE LED : Lights or blinks depends on the charging conditions			
When using the AC adapter				
Rated supply voltage	100 to 240 VAC			
Supply voltage range	90 to 264 VAC			
Rated power supply frequency	50 Hz or 60 Hz			
Power supply frequency	48 to 62 Hz			
Rated AC adapter output voltage	19.5 V (18.0 to 20.0 V)			
Maximum AC adapter output current	4.7 A			
Maximum input power consumption	125 VA			
Power consumption	**Supply voltage**	**Minimum**	**Normal**	**Maximum**
	100 VAC	105 VA	105 VA	115 VA
	240 VAC	105 VA	115 VA	125 VA
	The operating conditions of the MV1000 and MV2000 are as follows: Minimum: No USB connection, no optional terminal, back light saver ON, Auto save ON Normal: No USB connection, no optional terminal, LCD brightness 2, Auto save ON Maximum: No USB connection, with optional terminals, LCD brightness 8, Auto save ON			
Dielectric strength	1500 VAC (50/60 Hz) for one minute between the AC adapter power supply line and earth			
Miscellaneous	A/D converter integration time: Fixed to 20 ms (50 Hz) if set to Auto			

External Dimensions

MV1000 Rechargeable Battery Model (Power supply voltage suffix code is -3)



REAR VIEW