IR-M1000 SERIES
INFRARED MOISTURE METER

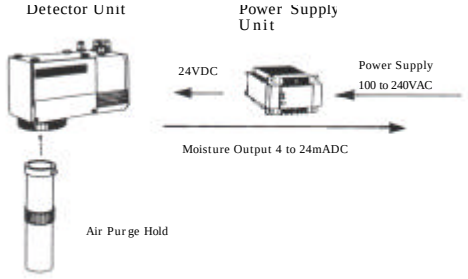
PS PERFORMANCE SPECIFICATION CHINO

MODEL IR-M1□□□□□ (Detector Unit)
IR-GMEG1□□ (Setting Display Unit)

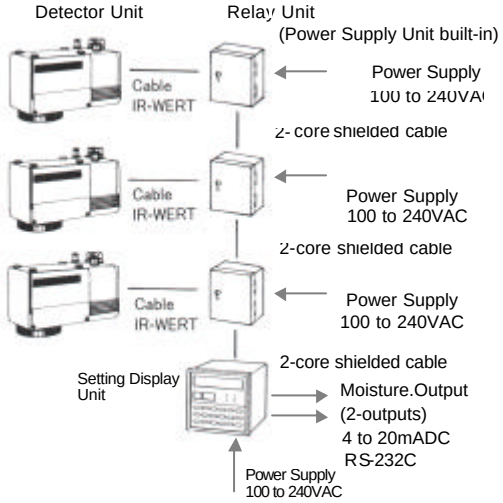
The IRM 1000 is a reflection system on-line moisture meter utilizing the infrared absorption of moisture.
Converting capabilities are built into the compact designed detector unit for easy installation and operation. Maximum 99 calibration curves can be stored into the detector memory for numerous measurement applications. The detector can be used by itself or connected to a PC/plant control system, as both analog and digital outputs are provided.
A remote setting display unit, connectable up to 9 detector units, can be used to set various detector functions and also displays moisture values.

CONFIGURATION

- **SINGLE UNIT APPLICATION**



- **COMBINATION WITH SETTING DISPLAY UNIT (MULTIPLE UNIT APPLICATION)**



The relay unit are not necessary for the connection with 2 sets of the detector unit, but 2 sets of the power supply unit are necessary.

The following models are only available with CE-marking.	
Detector unit	IR-M1□00SV
Setting display unit	IR-GMEG1□V

MODELS

• DETECTOR UNIT

IR-M1 □□□□□

Object
- 1: Universal type
- 2: High moisture type
- 3: Micro moisture meter

Measuring wavelength
- 0: Standard
- 9: Special wavelength

External input/output
- 0: Moisture output 4 to 20mA DC (std)
- 5: Compensation input 4 to 20mA DC

Communication interface
- S: RS-485 (std)
- R: RS-232C
- A: RS-422A
- * S in case of combination with setting display unit

Special specification
- Blank: None
- N: Without keys and display
- S: Small diameter type
- V: With CE-marking
- X: Other special specs.

• SETTING DISPLAY UNIT

IR-GMEG1 □□

External output
- 1:4 to 20mA DC (std)

Communication interface
- R: RS-232C (std)
- A: RS-422A
- S: RS-485

Special specification
- Blank: None
- V: With CE-marking (24V DC power supply)
- X: Other special specs.

• POWER UNIT

IR-WEP

GENERAL SPECIFICATIONS

- **DETECTOR UNIT (Models IR-M1100, IR-M1200)**

Measuring system: Infrared reflection type 3-wavelength system
Measuring distance: 300mm (Distance of 200 to 400mm is possible.)
Measuring area:
50 X 50mm (at measuring distance of 300mm)
Small diameter type 30 X 30mm
Moisture output: 4 to 20mADC (Load resistance: less than 50012)
(1) Output accurac y ±0.5% of full scale
(2) Stability ±1% of full scale under EMC test environment (applicable to CE-marking model only)
Compensation input: 4 to 20mADC (option)
(For compensation of sample temperature, measuring distance, etc.)
The unit with compensation input has no moisture out put.
Communication output:
RS-485, RS-232C or RS-422A (to be specified)
RS-485 for combination with setting display unit
Output renewal cycle: 28ms
Reproducibility:
Within [detector unit output (x) ±0.003) by an output checking plate (under the same condition of ambient tem perature and humidity)
Note: As the above reproducibility is by the output checking plate, the reproducibility on exact measurement differs.
Display: Data LED 5-digit
Calib. curve number LED 2-digit
Setting: By keys or communication
Calibration curve:
Linear to cubic expression or broken line
Numbers of calibration curve: 99 curves
Calibration curve correction:
Correction at zero and span
Calibration curve creation: Regression calculation
Smoothing: 0 to 99 seconds
(Less than 10 sec.: per 0.1 sec., More than 10 sec.: per 1 sec.)
Calibration: By output checking plate
Self-diagnostic:
Display by LED or output by communication of calibration data error, RAM error, abnormal motor rotation, lamp power failure, abnormal communication, high/low ambient temperature, low reflection of sample, etc.
Working temperature range:
0 to 50 °C (Air is necessary for more than 45°C.)
Rated supply voltage: 24VDC
Allowable voltage fluctuation: 18 to 30VDC
Power consumption: Max. approx. 36VA
Allowable vibration: Less than 3G
Connection: Terminals connection
Casing: Aluminum casing, drip-proof structure (conforming to 1EC529 1P65)
Mounting: Suspension system using four M8 bolts
Weight: Approx. 4kg
With a power-supply unit IR-WEP

DETECTOR UNIT (MODEL: IR-M1300)

Measuring system: Reflection type 2-wavelength system
Reproducibility: Within [detector unit output (x) ±0.015]
* For other specifications, lease refer to Models IR - M 1100 and IR-M1200.

CE-marking <Standard>
EN55011 group 1 class A
EN50082-2 (industrial environment)
<Directive>
89/336/EEC, 92/31/EEC (amendment)
93/68/EEC (amendment)

- **SETTING DISPLAY UNIT**

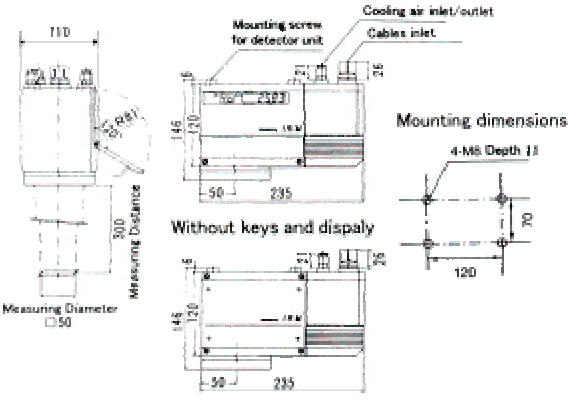
Detector unit input:
RS-485, Connectable with maximum 9 detector units
Analog output: 4 to 20mADC (Load resistance: less than 500Ω), 2 outputs
Output accuracy: ±0.5% of full scale
Communication output: RS-232C, RS-485 or RS-422A (to be specified)
Output renewal cycle: 28ms x (number of detector unit connected)
Display: Data LED 5-digit
Calib. curve number LED 2-digit
Detector unit number LED 1-digit
External setting:
Setting of detector unit number, calibration curve number, calibration, preset output and hold by external contact
Alarm: Higher/lower limits alarm
Contact 2 outputs (H-C-L)
Self-diagnostic: Contact 1 output
Working ambient temperature: 0 to 50°C
Rated supply voltage: 100 to 240VAC 50Hz / 60Hz
Allowable voltage fluctuation: 85 to 264VAC
Power consumption: Max. about 15VA
Casing: ABS resin
Front panel: Drip-proof structure (conforming to IP-65)
Mounting: Panel-mount type
Weight: Approx. 0.6kg

CE-marking specifications
Analog output: 4 to 20mADC (Load resistance: less than 50012), 1 output
(1) Output accuracy ±0.5% of full scale
(2) Stability ±3% of full scale under EMC test environment
Rated power supply: 24VDC
Allowable voltage fluctuation
+10% to (-)10% of rated value
Power consumption: About 10VA

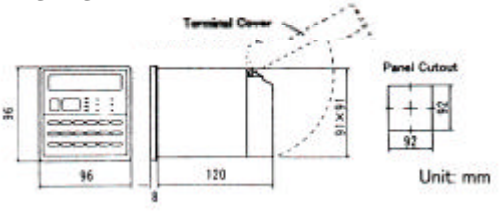
OUTSIDE DIMENSIONS

- **DETECTOR UNIT**
IR-M 1000

With keys and display (standard)



- **SETTING DISPLAY UNIT**
IR-GMEG



■ ACCESSORIES

• POWER SUPPLY UNIT IR-WEP (with CE-marking)

Output voltage: 24VDC

Output current: 2.1A

Working ambient temperature: -10 to +50°C

Rated supply voltage: 100 to 120VAC/200 to 240VAC, switching system, 47 to 450Hz

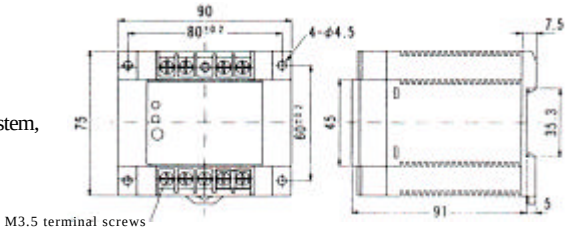
Allowable voltage fluctuation: 85 to 132VAC/170 to 264VAC

Power consumption: Max. approx. 160VA

Casing: Resin

Mounting: Wall-mount type (DIN rail mounting)

Weight: Approx. 380g



- **CONNECTING CABLE IR-WERT**

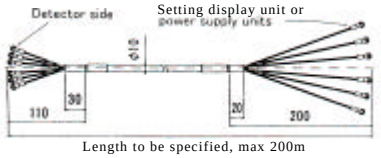
This is a cable to be used for connection between the detector unit and the setting display unit (or the power supply unit).

Structure: 4-core cabtyre cable (With duplex shield)

Outside diameter: ϕ10mm

Length: Max. 200m

Connection: Tips at both ends

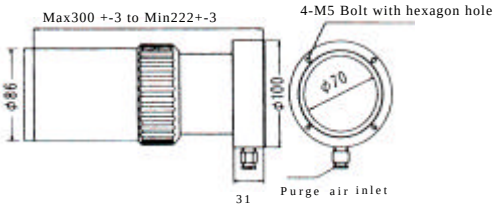


- **AIR PURGE HOOD IR-WEA**

This is used for shielding external light and for air-purging a measuring window and measuring optical path. The output checking plate is connectable to the hood end.

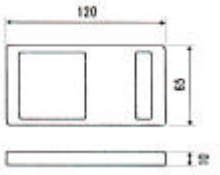
Purge air: Flow 50 to 200N*l* /min
Pressure Max. 200kPa

(Please use instrumentation air not including oil, dust, etc.)



- **OUTPUT CHECKING PLATE IR-WEB (IR-WEB3 for IR-M 1300)**

This is mounted at the air purge hood to check the detector unit output at site.



- **WATER COOLING PLATE IR-WEW**

This is used on the condition that the detector unit is mounted at the ambient temperature is more than 45°C.

1 plate or 2 plates are mounted on the detector unit depended on condition.

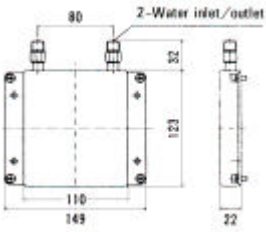
However 2 -plate usage is limited to the detector unit without keys and display.

Ambient temperature: 0 to 60°C (using one plate)
0 to 80°C (using two plates)

Material: SUS304

Weight: 1kg

Cooling Water: Flow 0.5 to 1*l* /min
Presssure Max. 200kPa
Temperature Less than 30°C at water outlet

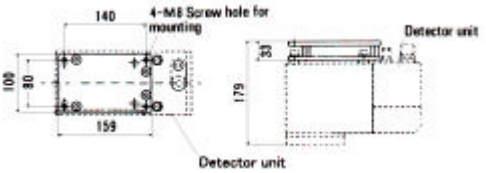


- **MOUNTING ADAPTER IR-WED**

This is used to mount the IR-M 1000 detector unit by not changing the mounting place, in case that the IR-M1000 detector unit is used as a replacement of the IR- M100 detector unit which has already been mounted.

Material: Aluminum

Weight: 0.8kg



- **AIR COOLING BOX IR-WEX**

This is used for dust-proof and to cool the detector unit by air.

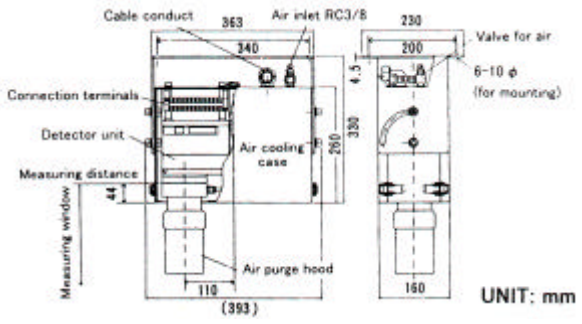
(The detector unit is placed in the air cooling box.)

Ambient temperature: 0 to 55°C

Material: SUS304 (Air cooling case)
Iron (Mounting metal)

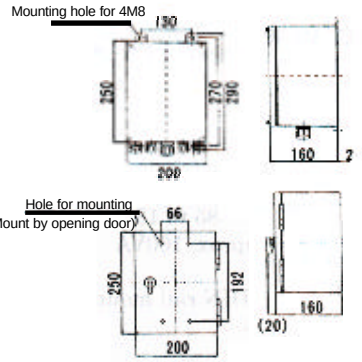
Air: Flow 100 to 500N*l* /min

Weight: 14kg



■ RELAY UNIT

This unit is used as relay terminals for the connection with Multiple detector units. The power supply unit is to be built in. Model IR-WEE2 is drip-proof structure.



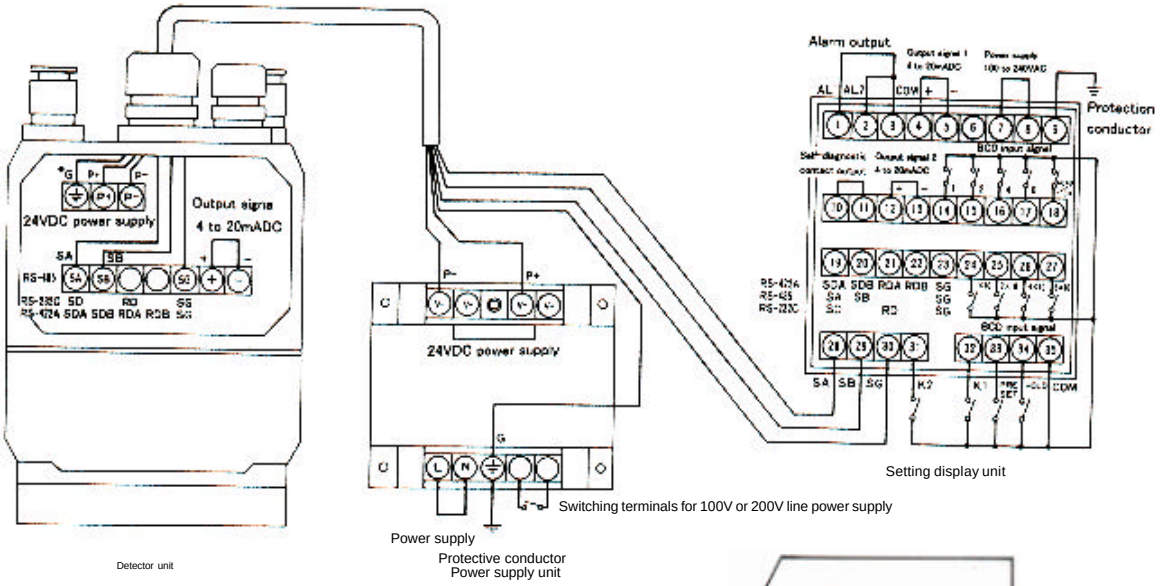
IR-WEE1

Working temperature range: 0 to 50°C
Material: Steel plate
Color: SYP/1, Light Beige
Weight: Approx. 4kg (including power supply unit)

IR-WEE2

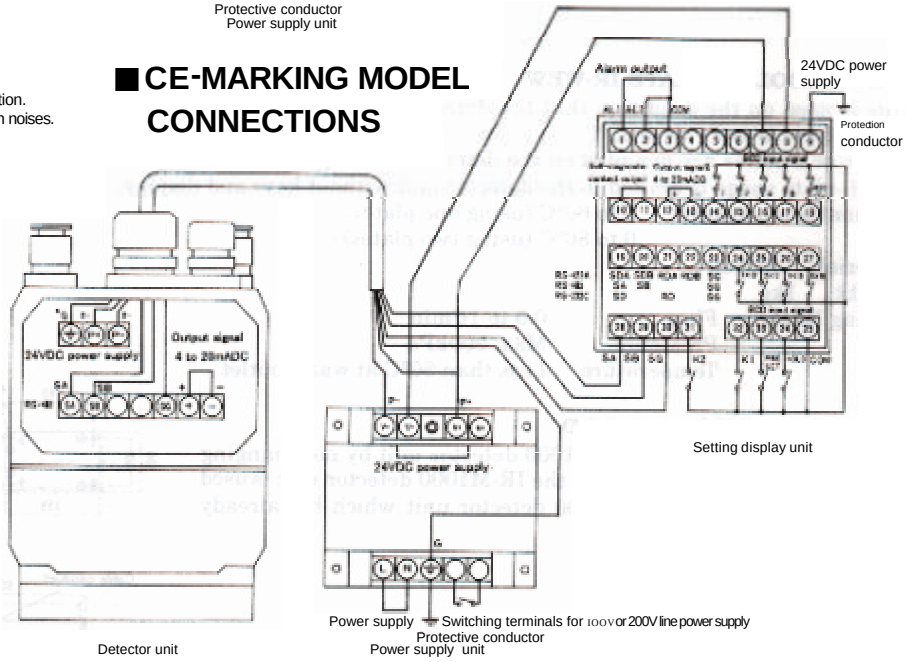
Working temperature range: 0 to 50°C
Material: SUS304
Weight: Approx. 4kg (including power supply unit)

■ CONNECTIONS



* Please do not connect on normal condition.
Please connect if the unit is interfered with noises.

■ CE-MARKING MODEL CONNECTIONS



· Please do not connect on normal condition.
Please connect if the unit is interfered with noises.

Specifications subject to change without notice. Printed in Japan (I) 1999. 6

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