

## Paperless Recorder MOUNTCORDER

# MT100

Isolated  
10 channels



## Multi function input

Voltage Temperature Humidity Logic/Pulse

Long term large size data can be stored directly into the USB memory

Real time data transfer by LAN/USB

[ Dust proof, drip proof, vibration proof for use at harsh environment ]

[ Analog recorder chart paper image for easy-to-read waveform display ]

[ Compact design 144(W) x 144(H) x 200(D) mm ]



Installing to the control system



Using as the desk top type  
(the desk top case is an option)



Installing to the environmental chamber

Main Unit Specifications		
Item	Description	
Number of analog input channels	10 channels	
External Input/Output	Trigger input, Logic input 4 ch or Pulse input 4 ch, Alarm output 4 ch	
Sampling interval	100 ms to 1 h (Max:100 ms/10ch)	
TIME/DIV	1 sec/DIV to 72 h/DIV	
Trigger function	Type	Start Data capture starts when a trigger is generated Stop Data capture stops when a trigger is generated
	Condition	Start Off, Level, Alarm, Scheduled time, External, Day
		Stop Off, Level, Alarm, Scheduled time, Time, Day, External
	Alarm function	Condition Analog H, L, Window In, Window Out, Rate of change Logic H, L Pulse H, L, Window In, Window Out, Rate of change
Alarm output	No. of channels	4
	Output format	Relay contact output (NO/NC)
	Output conditions	Level judgement, Window judgement, Logic pattern judgement, Pulse judgement
	Output terminal	M4 screw terminal
Pulse input range	Rating	250 VAC/2A, 30 VDC/2A
	Count mode	50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S. (max. 50 k/sampling interval)
	Inst. Mode	50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S. (max. 50 k/sampling interval)
	RPM mode	50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M RPM/F.S. (max. 50 k/sec)
Calculation function	Statistics calculation *1	Average, Peak, maximum, Minimum, RMS (2 calculations can be set simultaneously)
	Calculation between channels	Addition, Subtraction, Multiplication, Division (for analog input ch1 to ch10)
Wet-and dry-bulb temperature conversion	Humidity is calculated from the measured temperature of Wet-bulb and Dry-bulb (Dry bulb : fixed to ch1, Wet bulb : fixed to ch2, Range 0 to 100 %)	
Other function	Searching, Annotation input, Message, Marker function	
Interface to PC	Ethernet (10BASE-T / 100BASE-TX), USB (Compatible with full speed)	
Ethernet function	Web server function, FTP server function, FTP client function, NTP client function	
USB function	USB drive mode (File transfer/delete of internal memory)	
Internal storage device	Internal flash memory : 14 Mbyte, USB memory slot (compatible with full speed) *2	
Display	Size	5.7 inch TFT color LCD
	Displayed items	Waveforms + Digital values (vertical, horizontal), Digital + Calculation, Bar graph (vertical)
Clock accuracy (23°C environment)	±0.002 % (within approx. 50 sec per month)	
Operating environment	Temperature : 0 to 50 °C, Humidity : 5 to 85 % R.H.	
Withstand voltage	Between each input channel and GND: 1 minute at 350 Vp-p Between input terminals: 1 minute at 350 Vp-p	
Power supply	100 to 240 V AC / 50 to 60 Hz, M4 screw terminal (Power cord is not attached)	
Power consumption	38 VA (when LCD is ON)	
External dimensions (W x H x D) (approx.)	144 mm x 144 mm x 200 mm	
Weight (approx.)	2.1 kg	
Vibration resistance	Compatible with JIS Vibration testing methods for automobile Type 1 Class A-equivalent Dust proof, Drip proof: IP65 compatible (for front panel only)	

Analog input Specifications		
Item	Description	
Type of input terminal	M4 screw type terminal	
Measurement range	Voltage	20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 20, 50, V, 1-5 V F.S.
	Temperature	Thermocouple : K, J, E, T, R, S, B, N, W (WRε5-26) R.T.D. : Pt100, JPt100, Pt1000 (IEC751)
	Humidity	0 to 100 % RH (Voltage 0 to 1 V conversion, when using optional B-530 humidity sensor is used) Off, 2, 5, 10, 20, 40 (Moving average)
Input filter	Off, 2, 5, 10, 20, 40 (Moving average)	
Measurement accuracy *3	Voltage	±0.1 % of F.S.
		Thermocouple
	R/S	0 ≤ TS ≤ 100 °C ± 5.2 °C
		100 < TS ≤ 300 °C ± 3.0 °C
	B	R : 300 < TS ≤ 1600 °C ± (0.05 % of rdg + 2.0 °C)
		S : 300 < TS ≤ 1760 °C ± (0.05 % of rdg + 2.0 °C)
		400 ≤ TS ≤ 600 °C ± 3.5 °C
	K	600 < TS ≤ 1820 °C ± (0.05 % of rdg + 2.0 °C)
		-200 ≤ TS ≤ -100 °C ± (0.05 % of rdg + 2.0 °C)
	E	-100 < TS ≤ 1370 °C ± (0.05 % of rdg + 1.0 °C)
-200 ≤ TS ≤ -100 °C ± (0.05 % of rdg + 2.0 °C)		
T	-100 < TS ≤ 800 °C ± (0.05 % of rdg + 1.0 °C)	
	-200 ≤ TS ≤ -100 °C ± (0.1 % of rdg + 1.5 °C)	
J	-100 < TS ≤ 400 °C ± (0.1 % of rdg + 0.5 °C)	
	-200 ≤ TS ≤ -100 °C ± 2.7 °C	
N	-100 < TS ≤ 100 °C ± 1.7 °C	
	100 < TS ≤ 1100 °C ± (0.05 % of rdg + 1.0 °C)	
W	0 ≤ TS ≤ 1300 °C ± (0.1 % of rdg + 1.0 °C)	
	0 ≤ TS ≤ 2000 °C ± (0.1 % of rdg + 1.5 °C)	
R.T.D.	Pt100 -200 to 850 °C (FS = 1050 °C) ± (0.05 % of rdg + 0.5 °C)	
	JPt100 -200 to 500 °C (FS = 700 °C) ± (0.05 % of rdg + 0.5 °C)	
	Pt1000 -200 to 500 °C (FS = 700 °C) ± (0.05 % of rdg + 0.5 °C)	
* If the reference junction compensation is internal, add ± 0.5 °C to each of the above values.		
A/D converter	16 bit (out of which 14 are internally acknowledged)	
Maximum input voltage	60 Vp-p (Between ± terminals)	
	60 Vp-p (Between input terminals)	
	60 Vp-p (Between input terminal and GND)	
Withstand voltage	Between each input channel and GND: 1 minute at 350 Vp-p	
	Between input terminals: 1 minute at 350 Vp-p	

\*1 for realtime and between cursors (when data reviewing)

\*2 1 file 2 GB (it depends on used USB memory)

\*3 Thermocouple: 0.32φ for T type, 0.65φ for other types

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ER01803 Vol.1

# Easy-to-view, easy-to-use paperless recorder

MOUNTCORDER  
**MT100**

## Ten isolated channels and multifunction input to accommodate various measurement needs.

An isolated input system has been implemented to enable worry-free measurement. Ten input channels have been provided to meet multichannel needs.

### Abundant selection of input types to meet diverse measurement needs

- Voltage**   **Temperature**
- Humidity**   **Logic/Pulse**

### Rear panel terminal block

M4 screw terminals have been used for the input terminals to simplify wiring. The terminals can be tightened easily with a screwdriver. If an abnormal value arises, the alarm function informs the operator of the abnormality. Alarm output terminals for four channels are provided as standard.



### Two types of humidity measurement are enabled. Humidity

#### Using the dedicated humidity sensor (B-530)

Humidity measurement can be performed by connecting the dedicated humidity sensor to an analog terminal on the MT100 unit.

- Operating temperature range: -25°C to +80°C
- Operating humidity range: 0% RH to 100% RH.
- Relative humidity measurement precision: ±3% RH (5% RH to 98% RH at 25°C)
- External dimensions: Φ14 mm x 80 mm (excluding the cable)
- Cable length: 3 m



#### Direct connection of dry-bulb and wet-bulb sensors

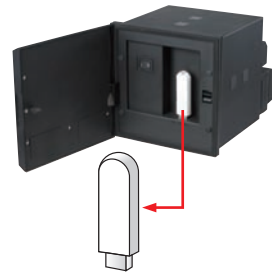
Temperature and humidity are calculated from the dry-bulb and wet-bulb temperatures measured by the dry-bulb and wet-bulb sensors and then displayed. The widely used Sprung's formula is employed for these calculations. The dry-bulb sensor is connected to Ch 1, and the wet-bulb sensor is connected to Ch 2. Calculation is performed using data captured by Ch 1 and 2.

## Large volumes of data can be directly captured to a USB memory stick over a long period of time.

A USB memory stick is used for the recording medium. A large volume of data measured over a long period of time on the ten available channels can be directly written to and stored on the memory stick. The MT100's internal memory consists of 14-MB flash media.

### Data capture time (when measurement is performed on ten channels)

Capture interval (sampling speed)	100ms	1s	10s	1min
14-Mbyte internal flash memory	Approx. 13 hours	Approx. 5 days	Approx. 53 days	Approx. 323 days
USB memory stick (256 Mbytes)	Approx. 9 days	Approx. 98 days	Approx. 987 days	Approx. 5,925 days



### USB memory stick replaceable even during measurement

The USB memory stick can be removed\* even while long-term recording is being performed to enable checking of measurement that is still in progress. If the USB memory stick is removed, data capture is switched to the MT100's internal buffer memory for a period of approximately 10 minutes. When the USB memory stick is reinserted in the MT100, data is once again captured to the memory stick.

\*Key operation is required at the time of USB memory stick removal.

## Dustproof, moisture-proof, vibration-resistant structure for severe measurement environments; space-saving design.

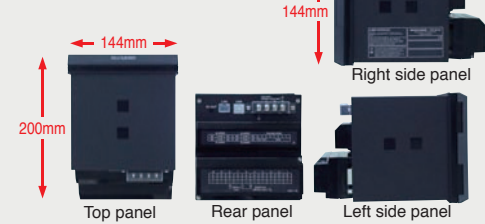
In order to withstand severe field environments, the structure has been designed to be dustproof, moisture-proof, and vibration-resistant. The front panel of the MT100 unit is an IP65-compliant structure that is both dustproof and moisture-proof. To prevent the penetration of dust, there are no slits in the MT100 unit itself. In addition, the unit's vibration-resistant structure complies with the Vibration Testing Methods for Automobile Parts Standard, Type 1 Class A.

The front panel's dustproof and moisture-proof structure complies with IP65 protection standards.

The vibration-resistant structure complies with the [Vibration Testing Methods for Automobile Parts Standard, Type 1 Class A].

Moreover, the space-saving design offers a reduced depth of only 200 mm to enable easy installation in various types of test systems.

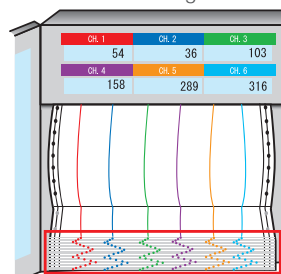
### Dust cannot enter the main unit because there are no slits.



## Easy-to-view waveform displays presented as if on chart paper used by analog recorders.

A large-format 5.7-inch color TFT liquid crystal display, bright and easy to read, is built-in. The measurement results are faithfully reproduced in the display formats used by conventional analog recorders. Waveform displays that are similar to those of pen recorders or dot-printing recorders enable the measurement progress to be easily ascertained at a glance. Four display formats are provided to enable the most easy-to-view format to be selected for each measurement application.

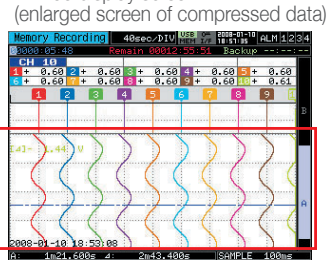
### Conventional analog recorder



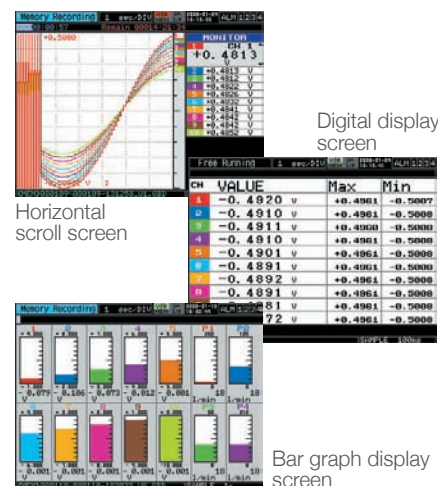
### MT100 (Vertical scroll screen)



### MT100 display screen (enlarged screen of compressed data)



A compressed display of the time axis is provided at the bottom of the screen. As with a pen recorder or a dot-printing recorder, the waveform display enables the measurement progress to be easily ascertained at a glance. The compression ratio can be set in ten increments within the 1/10 to 1/100 TIME/DIV range.



## Can also be used as a desktop measuring instrument

A desktop case is provided as an option to enable the MT100 to be used as a desktop measuring instrument when a measuring instrument cannot be built into the test system. Since the desktop case can be freely attached and removed by the customer, the MT100 can be used either as a built-in model or as a standalone model to suit the measurement application.



## Convenient interfaces when the MT100 is used as a standalone model

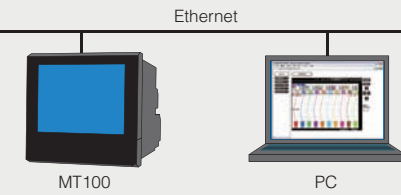
USB and Ethernet interfaces are provided as standard to enable connection to a PC and the transfer of data in real time.

## Comprehensive network functions

A diverse range of network functions can be used to suit the measurement application.

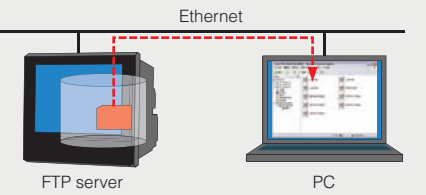
### WEB server function

Waveform display and MT100 settings can be made via a web browser such as Internet Explorer.



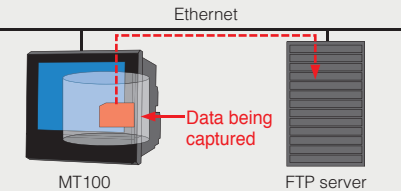
### FTP server function

Data stored in the MT100's internal memory or the USB memory stick can be transferred or deleted through operations performed at the computer.



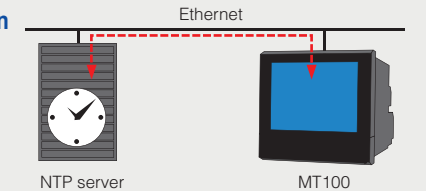
### FTP client function

The data captured to the MT100's internal memory or the USB memory stick can be automatically backed up to the FTP server at fixed intervals.



### NTP client server function

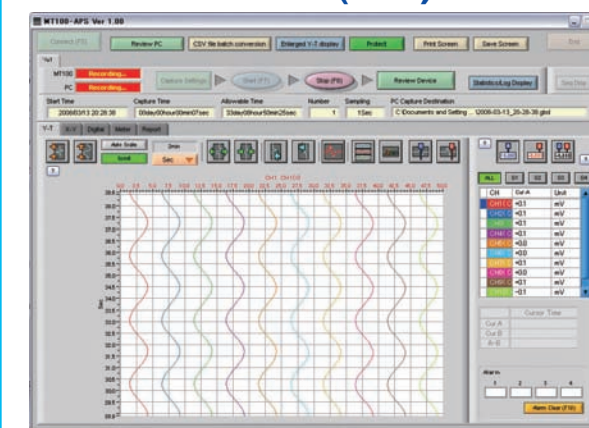
The MT100's time can be synchronized to the NTP server's time at periodic intervals. (NTP: Network Time Protocol)



## MT100 application software

The application software provided as a standard accessory with the MT100 enables easy online measurement and conversion of the data file format.

### Main screen (Y-T)

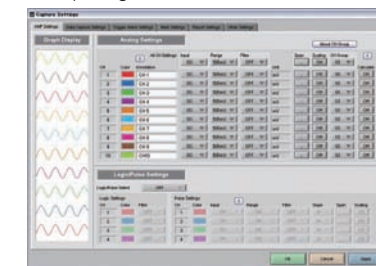


### Easy settings

Icon keys have been provided for intuitive waveform operations.



The number of setting screens has been reduced to only six. Settings in the amp setting screen and other screens can be performed while viewing the input signals.



### Convenient functions

- Statistical calculation/Alarm history
- Password protection function
- Batch conversion of the captured data to CSV format
- Search function for specific points in the captured data
- Direct to Excel function
- Channel group function
- Comment input function

### Various screen displays

Y-T, X-Y, Digital display, Meter display, and Report display screens have been provided to suit various measurement applications. In addition, the Replay display screen can be specified as Y-T, X-Y between cursors or Digital display.

### Measurement screens



### Replay screens

