

- Desktop or panel mount
- IP65 protects against dust and moisture
- 5.7in. real-time color display
- 10 analog input channels (voltage, thermocouple, RTD, and humidity)
- 4 logic/pulse inputs
- 4 relay alarm outputs
- Records to USB memory stick
- Auto data archive via LAN



Features

Wide Voltage Measurement Range

Each M100 analog channel can measure from 20 mV to 50 VFS across 12 programmable measurement ranges.

Full Electrical Isolation Per Channel

Each analog M100 channel is electrically isolated from all others and from instrument ground to allow accurate and safe measurements in industrial applications where ground potential differences are common.

Multiple Measurement Functions

Use the M100 to measure voltages, currents, 4/0-20 mA process current loops, thermocouple- and RTD-based temperatures and humidity.

Two Humidity measurement modes

The M100 features a canned dry/wet bulb calculation for humidity measurements, or use the optional B-530 humidity sensor.

Three Data Recording Modes

The MT100 creates a permanent record of recorded data in one of three ways: To its internal 12 MB memory; to a USB memory stick; to a connected FTP file server over a LAN. File sizes as large as 2GB are supported.

Four Discrete Inputs

The MT100 provides discrete input channels that can be used for counting and rotational speed measurement applications. Or program the discrete inputs as simple logic level input channels.

Four Alarm Outputs

Program the MT100 to trigger its alarm outputs as a function of analog input signal level judgment, pulse judgment, or logic pattern. Built-in relays on each channel simplify external wiring. Alarms can be triggered from analog data based on simple threshold, window in, window out, and rate of change definitions.

Bright TFT LCD Color Display

The focal point of the MT100 is its built-in 5.7-inch color display that allows real time trending, data review, and complete instrument configuration.

Wide Sample Interval Selections

Sample intervals can be programmed to be one of eighteen values ranging from 100 ms to one hour.

Engineering Units Scaling

Each MT100 channel allows up to four break points to be programmed for accurate scaling into meaningful units like psi, grams, newtons, gallons per minute, etc.

Flexible Triggering Options

Allows data capture to be started or stopped based upon signal level, an external event, date/time, alarm, duration, or Boolean channel combinations. Analog signal triggers can be programmed based upon level and window tests: above threshold, below threshold, inside window, or outside window.

Real Time and Post-recorded Calculations

The MT100 may be programmed to calculate average value, peak value, minimum value, rms, and arithmetic operations (+, -, ×, /) between channels.

Built-in LAN and Web Server

The MT100 provides an Ethernet connection that allows data file transfers, remote control, real time monitoring, and email alarms.

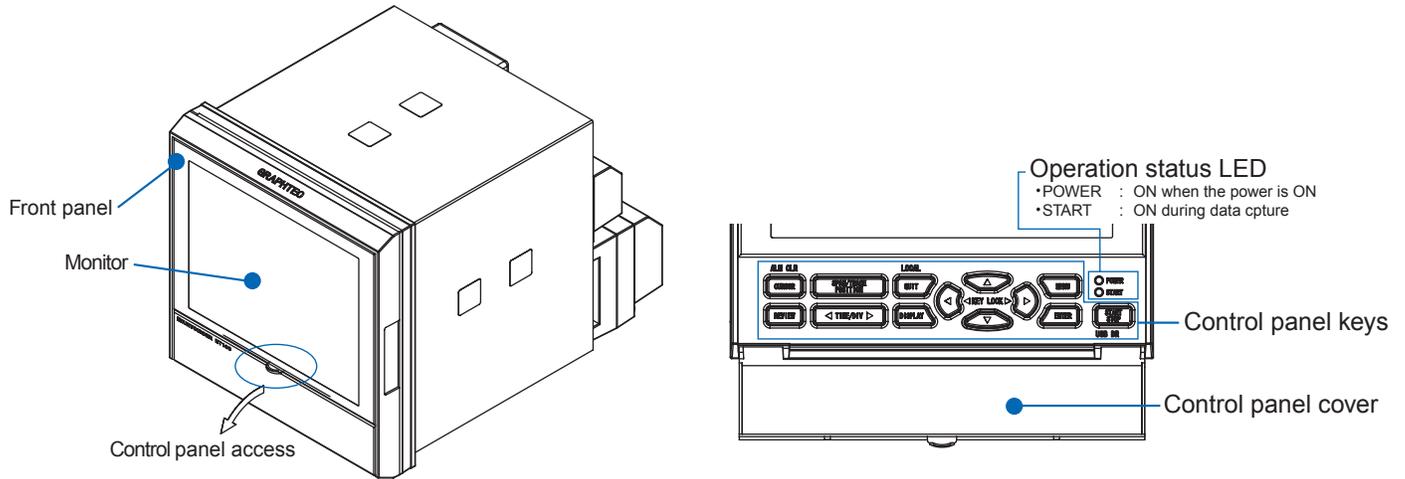
Panel-mount or Optional Desktop Enclosure

The MT100 can be mounted to a panel using included hardware, or purchase an optional desktop enclosure with a carrying handle for portable use.

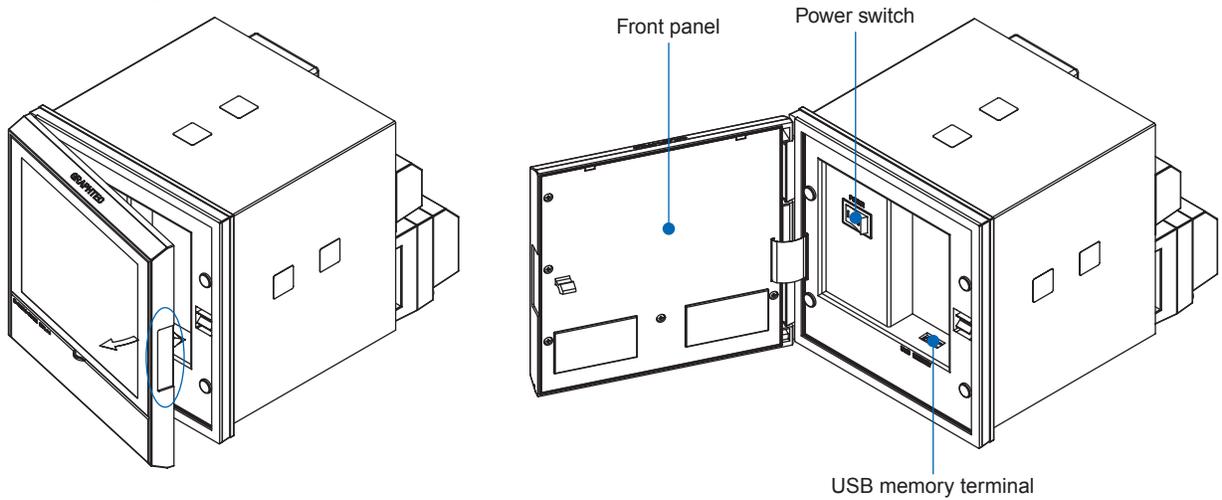
The MT100 is a feature-packed process monitor for nearly any industrial application to replace traditional chart and circular recorders, digital and analog panel meters, and other less capable monitoring equipment. Its 10 isolated analog input channels are complemented by four logic channels that are programmable as either discrete or pulse inputs. The 10 analog channels may be programmed on a channel-by channel basis to measure voltage from $\pm 20\text{mV}$ to 50V full scale across 12 ranges, thermocouple- or RTD-based temperature, or 4-20 or 0-20 mA current loops. Nearly all thermocouple types are supported; along with both PT100 and PT1000 RTDs. MT100 logic inputs detect state changes, while pulse inputs may be used for count and/or rate determinations. A separate trigger input allows the instrument to synchronize its measurements to external events. The MT100 measures humidity using either a built-in dry bulb/wet bulb calculation, or by using an optional humidity probe. All measurements are displayed in real time on its built-in color display, and may be simultaneously recorded to internal memory, a standard removable USB memory stick, or to a LAN-based file server. Each of four alarm outputs with flexible trigger definitions allow the MT100 to handle any alarm load up to 250 VAC /2 A, meaning that the MT100 can directly control most lights or audible alarms without external circuitry. If it's connected to a PC on its LAN connection it can even send you an email during an alarm event.

MT100 Major Components and Functions

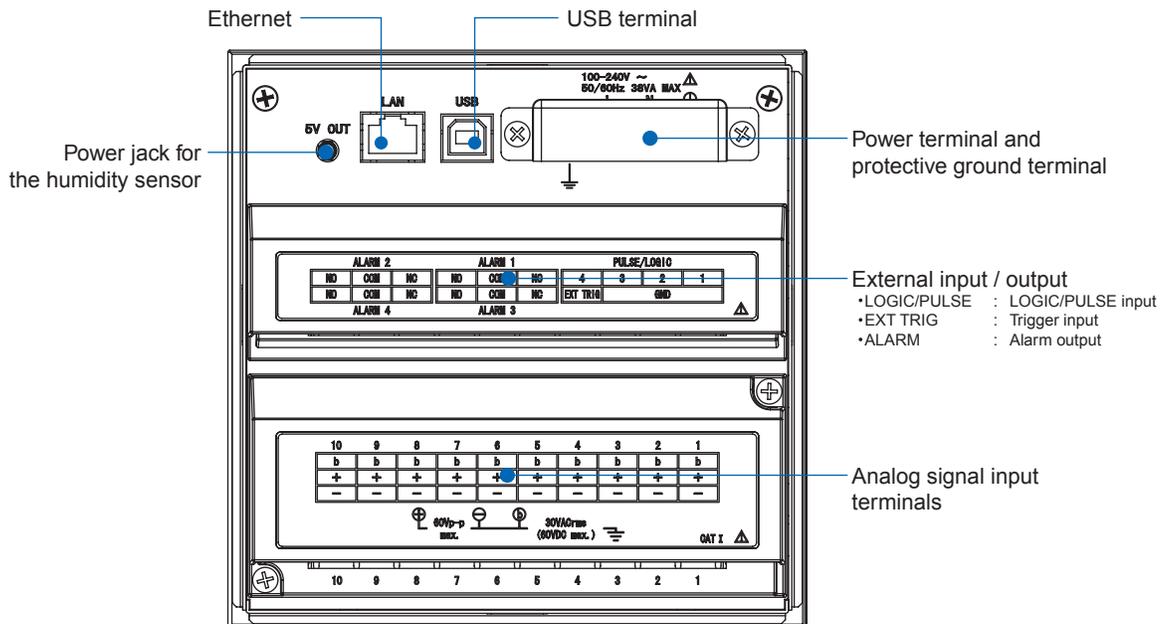
Front panel and controls access



Behind the front panel



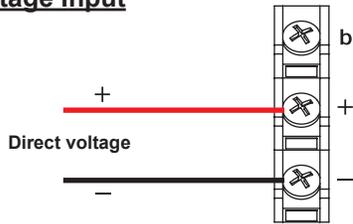
Rear panel view



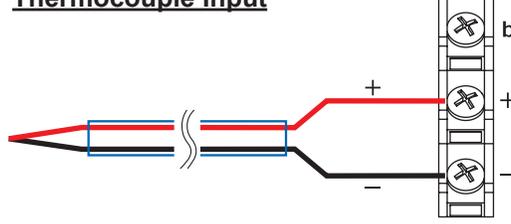
MT100 Signal I/O Connections

Analog inputs

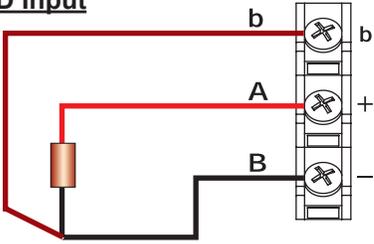
Voltage Input



Thermocouple Input

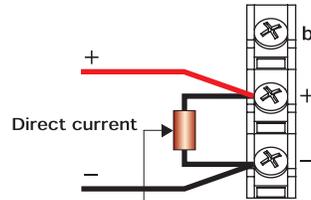


RTD Input



Lead wire resistance should be 10 Ω or below per wire, and equivalent among the three wires.

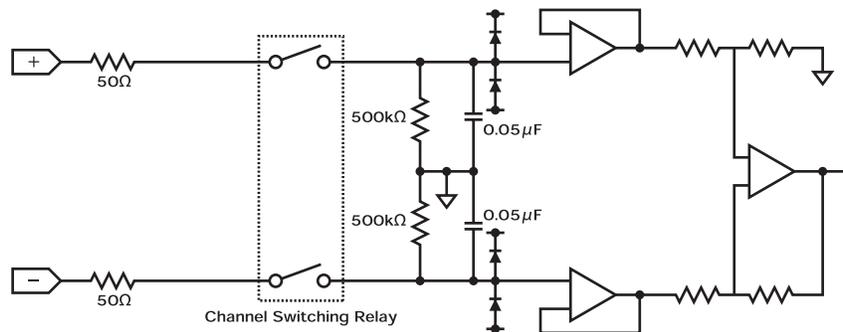
Current Input



Optional model R250

Shunt resistance
Ex: for current in the 4 to 20 mA range, apply a resistance of 250 Ω ($\pm 0.1\%$) and perform measurement in the 1 to 5 V range.

Analog input circuit per channel



- + High -voltage terminal (terminal for high voltage signals)
- Low-voltage terminal (terminal for low-voltage input signals)
- b Dedicated terminal when connection resistance temperature detector

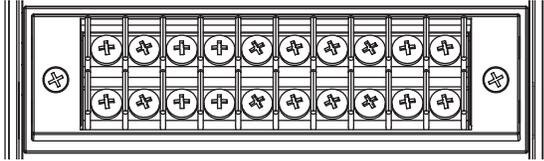
*Resistance temperature detector input terminals A (+) and B (-) are isolated within each channel. Terminal b is shorted within all channels.

Item	Description
Input configuration	Input configuration Isolated input, scanning
Analog voltage	20, 50, 100, 200, 500 mV/F.S.; 1, 2, 5, 10, 20, 50 V/F.S.; 1-5V
Thermocouples	Thermocouples K, J, E, T, R, S, B, N, W (WRe 5-26)
Resistance temperature detector	Pt100, JPt100, Pt1000 (IEC751)
A/D resolution	16-bit
Filter	Off, 2, 5, 10, 20, 40 Filter operation is on a moving average basis. The average value of the set sampling count is used.

MT100 Signal I/O Connections (continued)

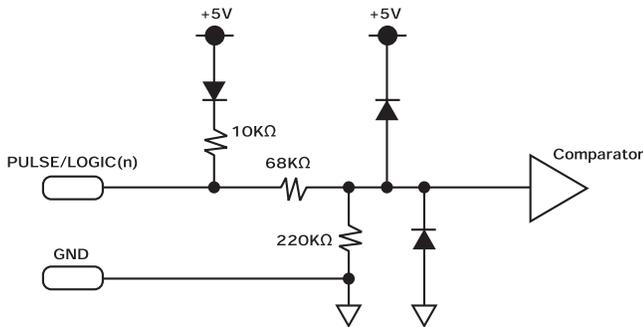
Discrete inputs and outputs, and equivalent circuits

Connections for discrete inputs and outputs are made directly to the 20-terminal connection panel located at the back of the MT100.



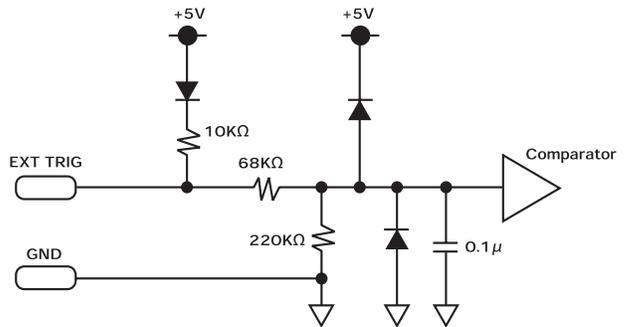
ALARM 2			ALARM 1			PULSE/LOGIC			
NO	COM	NC	NO	COM	NC	4	3	2	1
NO	COM	NC	NO	COM	NC	EXT TRIG	GND		
ALARM 4			ALARM 3						

Typical pulse/logic input (4 each)



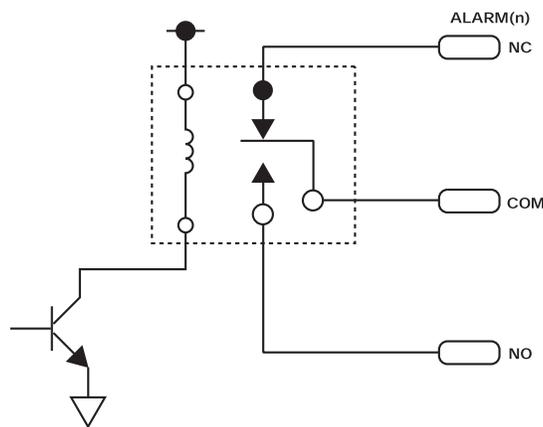
Item	Description
Number of input channels	4
Input voltage range	0 to +24V max. (single-ended ground input)
Threshold level	Approx. +2.5V
Hysteresis	Approx. 0.5 V (+2.5 to +3 V)

External trigger input



Item	Description
Number of input channels	1
Input voltage range	0 to +24V max. (single-ended ground input)
Threshold level	Approx. +2.5V
Hysteresis	Approx. 0.5 V (+2.5 to +3 V)

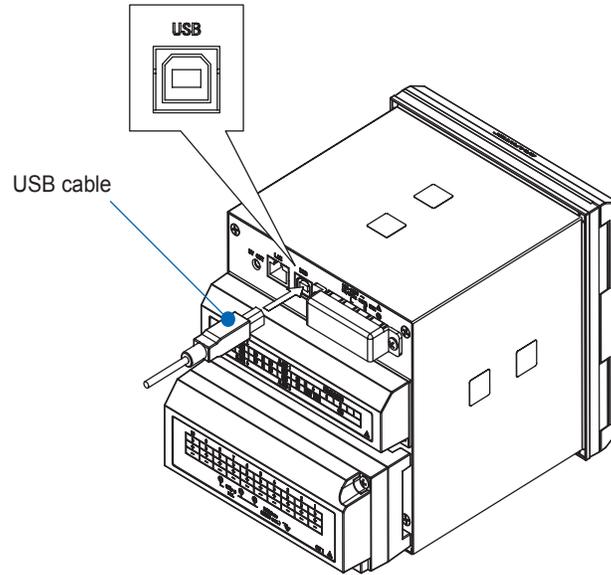
Typical alarm output (4 each)



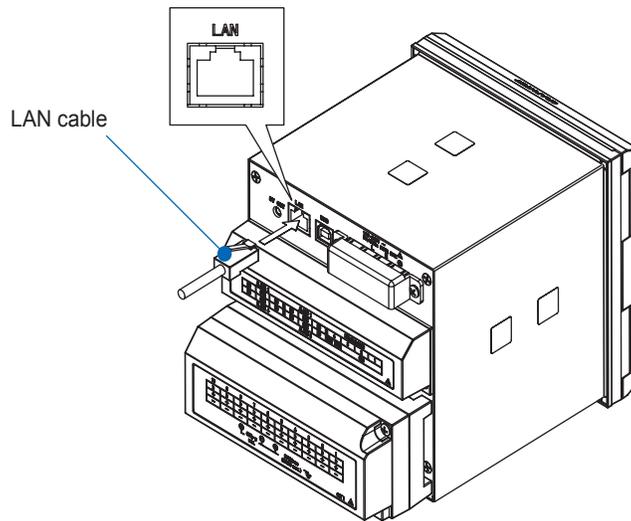
Item	Description
Number of output channels	4
Output format	Relay contact output (NO/NC) <relay ratings> contact rating : 250 VAC/2A, 30 VDC/2A contact relay life : 100,000 operations
Withstand voltage	Between output and GND: 1000 VAC/1 minute

Connecting the MT100 to a PC

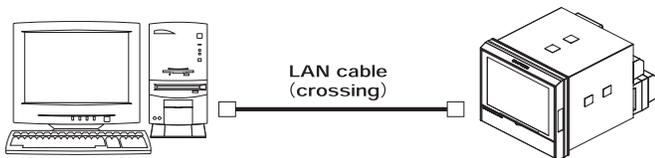
Connection using a USB cable



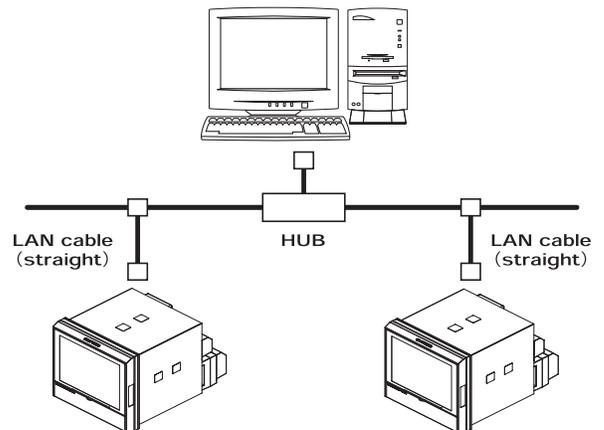
Connection using a LAN



Use a crossover cable when connecting directly to a PC

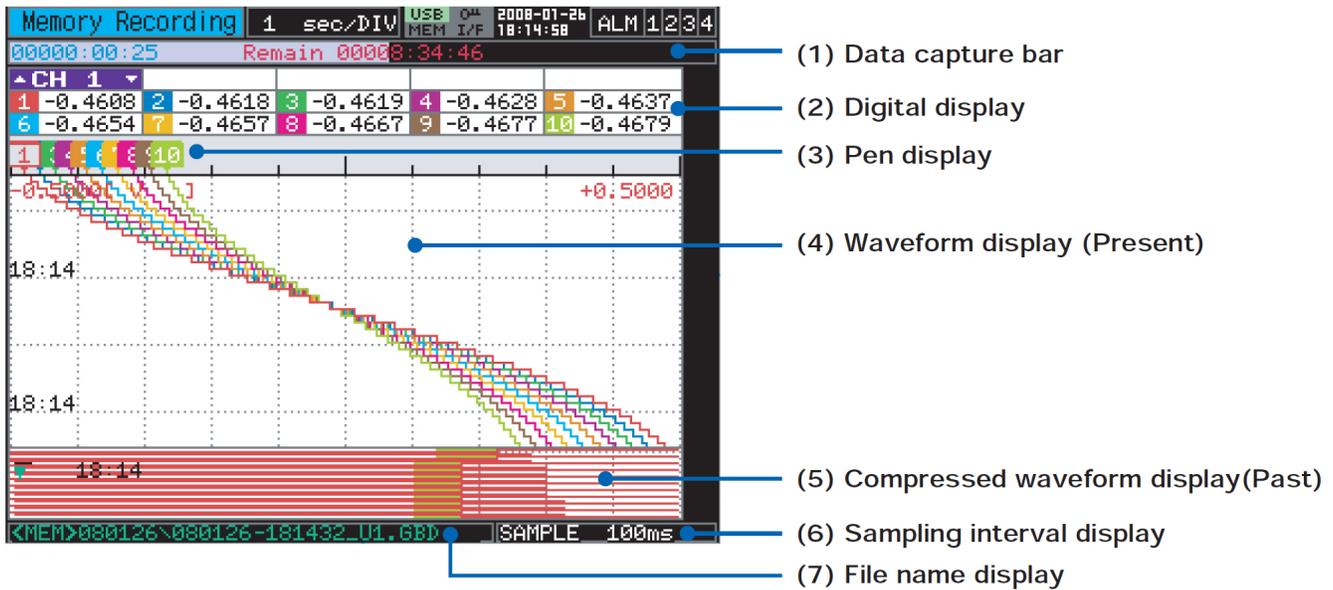


Use a straight cable when connecting to a hub or switch

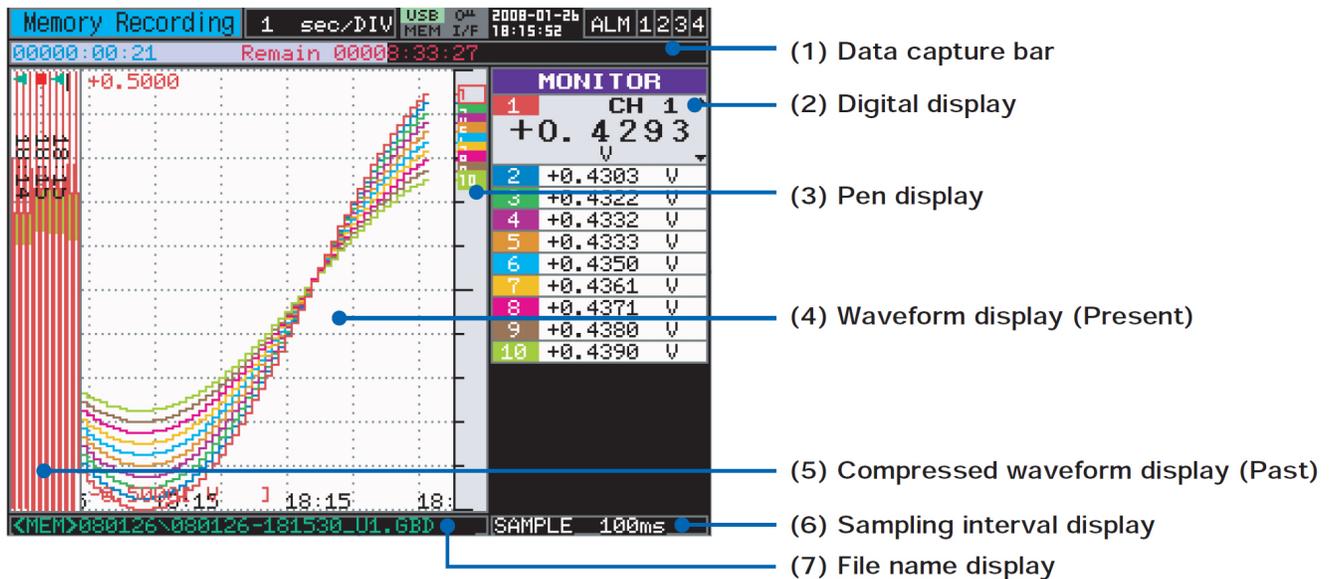


The MT100's Built-in Display

Using the vertical direction scrolling mode



Using the horizontal direction scrolling mode



(1) Data capture bar

Indicates capture time and remaining capacity of the capturing media during data capture.

(2) Digital display

Displays the input value of each channel in real time.

(3) Pen, trigger and alarm display

Displays the position of each channel signal with icons in real time. Also displays the trigger level, position and direction along with alarm thresholds.

(4) Waveform plot display (real time display)

Displays measurement signals as waveforms in real time.

(5) Compressed waveforms (historical display)

Displays compressed measurement signals of historic data with an adjustable compression factor.

(6) Sampling interval display

Displays the currently set sampling interval.

(7) File name display

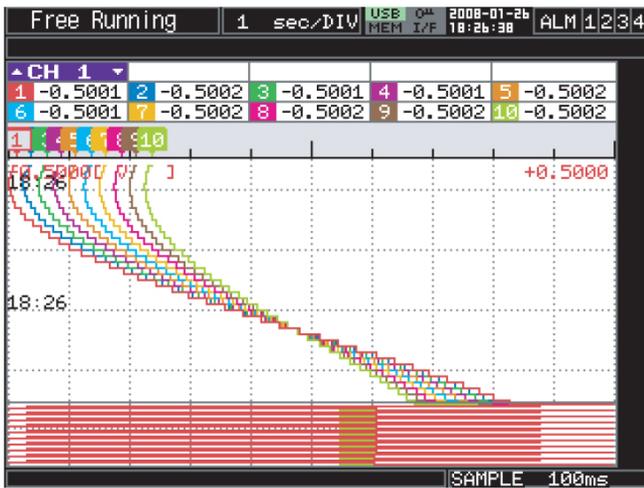
Displays the name of the file currently being captured.

Major Display Functions

The focal point for the MT100 during both setup and operation is its large, easy to see 5.7-in. full color display that can be programmed to operate in a variety of ways to complement both your real time and post recording measurement needs.

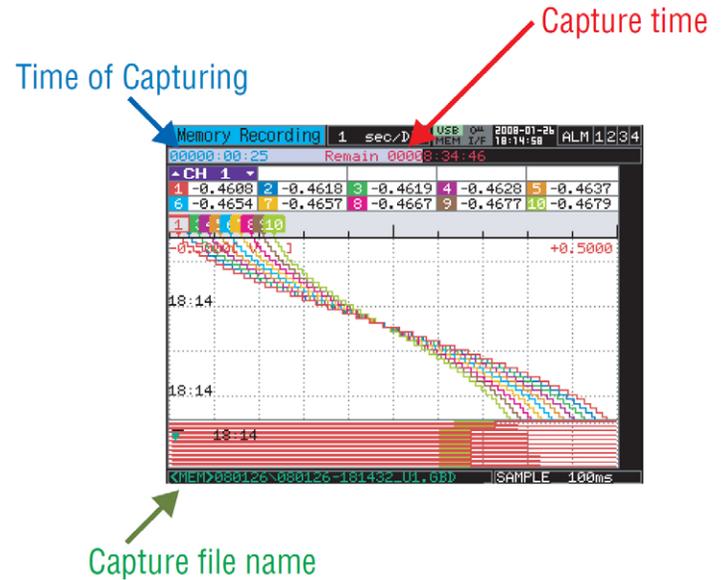
Free running (real time)

Primarily used to set up the system to capture data. You can view any input signal as a waveform or digital value.



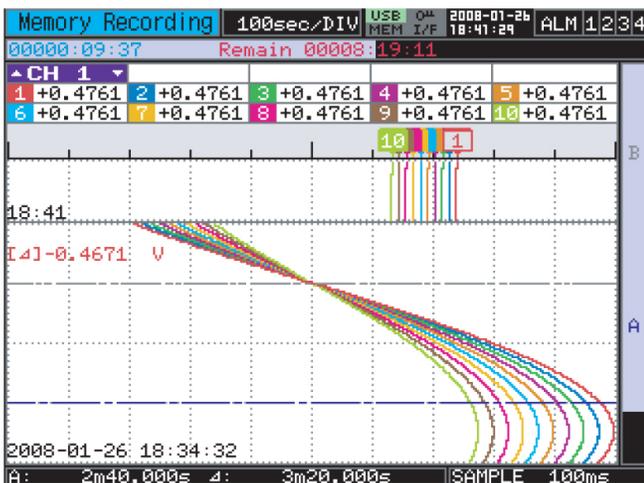
Capturing (real time)

Data is captured into the Internal memory or USB device. Changing settings, except for some functions, using the MENU key is disabled.



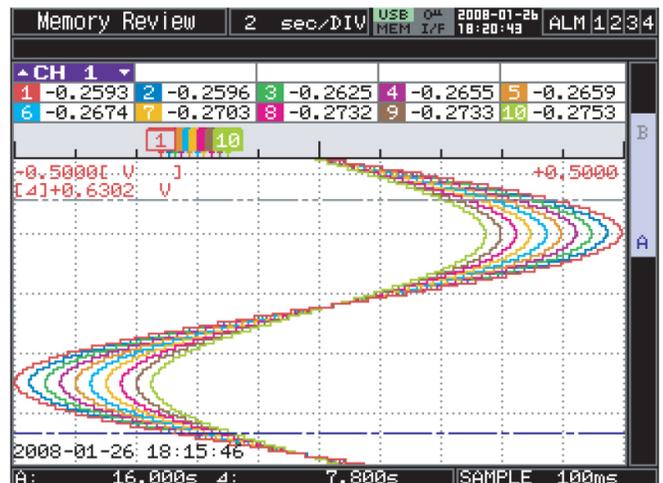
Dual view (real time & historic)

You can replay data during capture. Waveform displayed in the upper screen (right screen, when set to horizontal scroll) is real time data, and the lower screen (left screen, when set to horizontal scroll) is the previously recorded historic data.



Replaying (historic)

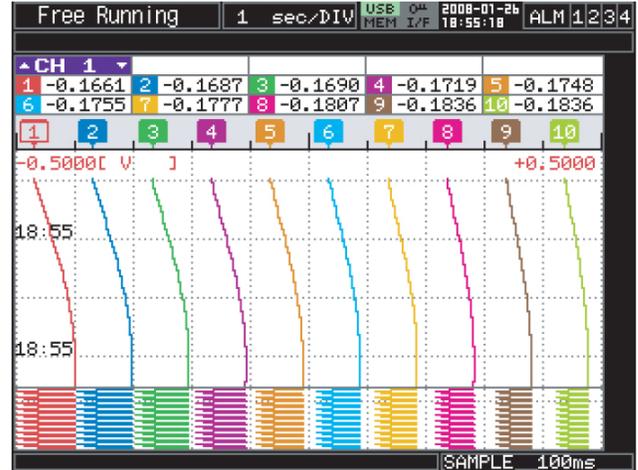
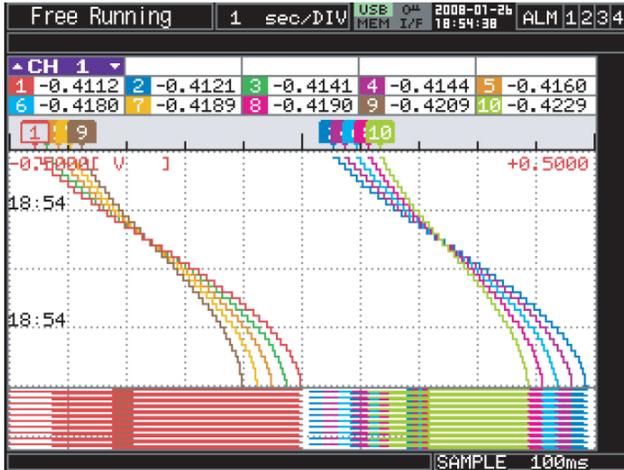
After data capture to memory has ceased the display can be dedicated to reviewing previously recorded data.



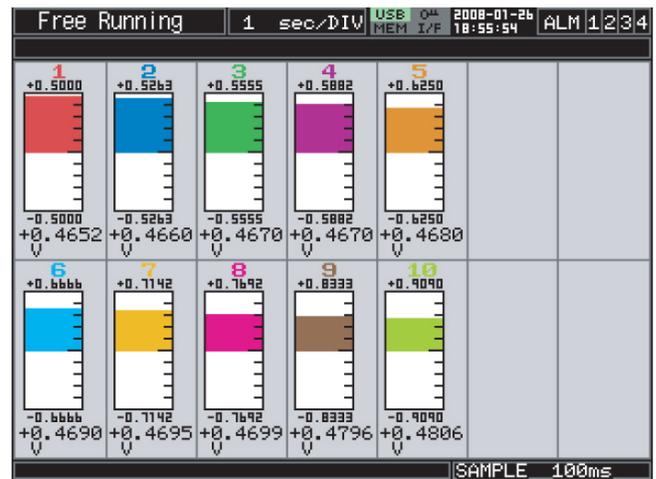
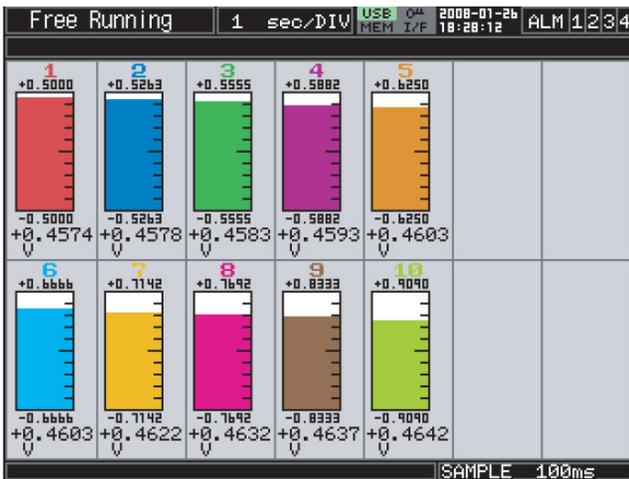
Major Display Functions (continued)

The MT100's display can be further tailored to adapt to almost any measurement situation. You have control over the number of displayed waveform zones, from one to 10. One zone displays up to ten MT100 channels overlapped; two zones displays up to five channels per zone; five zones displays up to two channels per zone; ten zones displays up to ten channels each in its own zone. Further, each channel's waveform trace can be independently configured for color and trace width, or disabled entirely. Finally, the display can be configured for a bar graph display to yield an entirely different look and feel.

Waveform zones configured as 2 and 10

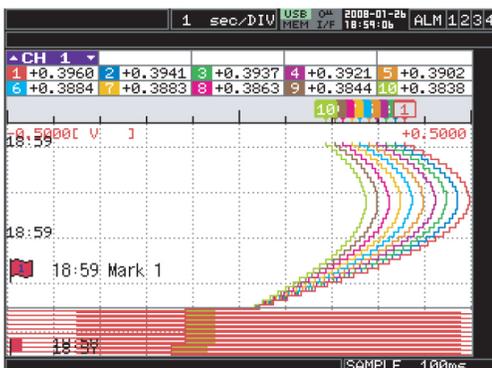


Typical waveform bar graph displays



User Event Markers Enhance Data Interpretation

With the MT100 you can register as many as eight unique text strings that describe possible events that may occur during recording, and then trigger them during recording to permanently place one or more asynchronously during recording.



19:21

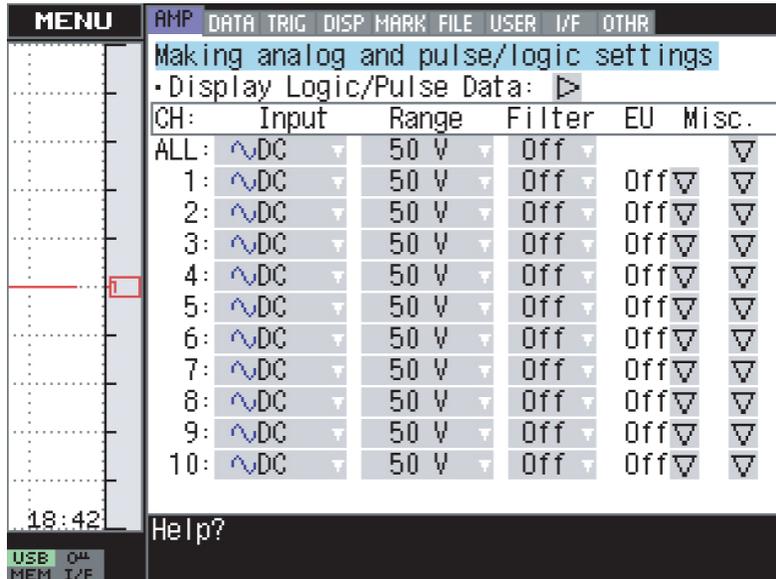
Mark 1

↑
The text string you entered will be displayed here.

Measurement Settings per Channel

The MT100 allows unequalled control over the how you acquire data. From allowing measurement function to be programmed per channel to the application of a moving average filter per channel, the MT100 lets you tailor its operation to exactly what your application demands.

Typical menu screen



Analog and discrete settings overview

Items	Settings 1	Settings 2	Selections Available
Input			Off, DC(Voltage), TEMP(Temperature), RH(Humidity)
Range	DC		20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 20, 50, 1-5 V
	TEMP		TC-K, TC-J, TC-T, TC-R, TC-E, TC-B, TC-S, TC-N, TC-W, Pt100, JPt100, Pt1000
Filter			Off, 2, 5, 10, 20, 40
EU	Function		Off, ON
(Scaling settings)	Meas. Value (Upper/Lower)		enter numerical value
	EU Value (Upper/Lower)		enter numerical value
	Dec pt		1, 10, 100, 1000, 10000
	Select		Length, Area, Volume, Velocity, Accel., Freq., Mass, Energy, Pressure, Flow, Temp
	Choose		select
Misc.	CALC. Settings	CALC.	Off, ON, D/W (CH2 only, calculate with dry bulb CH1/wet bulb CH2)
		Operation	CHn (+, -, x, /) CHn
		Scaling	/ 1000000, / 1000, x 1, x 1000, x 1000000
		Upper/Lower	enter numerical value
		Dec pt	1, 10, 100, 1000, 10000
		Select	Length, Area, Volume, Velocity, Accel., Freq., Mass, Energy, Pressure, Flow, Temp
		Choose	select
		Unit	enter text
	Span settings	Upper/Lower	enter numerical value
	Annotation string		enter text (max. 11 characters)
Perform Auto Zero ADJ.		► Execute	
Reset Auto Zero ADJ.		► Execute	
Logic/Pulse	Logic/Pulse		Off, Logic, Pulse
	Logic	Filter	Off, ON
		Input	Off, Revol., Counts, Inst.
	Pulse	Filter	Off, ON
		Slope	H, L
		EU	Function
		Meas. Value	enter numerical value
		EU Value	enter numerical value
		Select	Length, Area, Volume, Velocity, Accel., Freq., Mass, Energy, Pressure, Flow, Temp
	Choose	select	
	Unit	enter text	

Flexible Trigger Settings for Data Capture and Alarms

The MT100 can adapt to virtually any data recording condition, regardless of how unusual. Trigger conditions can be set independently per channel, with Boolean AND and OR operations to combine multiple-channel triggers. Supported trigger states include standard \pm level thresholds as well as window definitions. Triggers can also be configured to set an alarm state on any one of the MT100's four alarm relay outputs.

Trigger settings overview

Trigger Level Settings

• Display Logic/Pulse Data: ▶

• Combination: ① OR

CH:	Mode	Lower-Level	Upper	
1:	H ②	+ 0.00	▶ ③	V
2:	L	+ 0.00	▶	V
3:	Win In	+ 0.00	+ 12.50	V ▾
4:	Win Out	+ 0.00	+ 12.50	V ▾
5:	Off			
6:	Off			
7:	Off			
8:	Off			
9:	Off			
10:	Off			

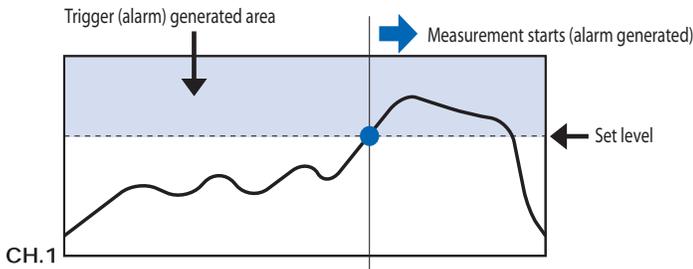
OK
Cancel

Items	Settings 1	Settings 2	Selections Available		
Trigger Settings	Start Source		Off, Level, Alarm, Ext., Date, Weekly		
	Off		None		
	Level	Combination	Mode	Analog : Off, H, L, Win In, Win Out Pulse : Off, H, L, Win In, Win Out Logic : Off, H, L	
			Level	set numeric value	
			Alarm	Alarm port number	1, 2, 3, 4
			External input		None
	Date		Date, Time		
	Weekly		Weekly, Time		
	Stop Source		Off, Level, Alarm, Ext., Date, Weekly, Time		
	Off		None		
	Level	Combination	Mode	Analog : Off, H, L, Win In, Win Out Pulse : Off, H, L, Win In, Win Out Logic : Off, H, L	
			Level	set numeric value	
			Alarm	Alarm port number	1, 2, 3, 4
			External input		None
	Date		Date, Time		
	Weekly		Weekly, Time		
	Time		1 s to 9999 h 59 min 59 s		
	Repeat	Repeat		Off, ON	
		Repeat interval		1 min to 199 h 59 min	
	Alarm Settings	Alarm Level settings	CH	CH1 to CH10, Pulse1 to Pulse4, LOGIC	
Mode			Off, H, L, Win In, Win Out, RC		
Level			set numeric value		
Output			1, 2, 3, 4		
Alarm Hold			On, Off		
Send burnout alarm			On, Off		
Data points of RC Alarm			1 to 32		

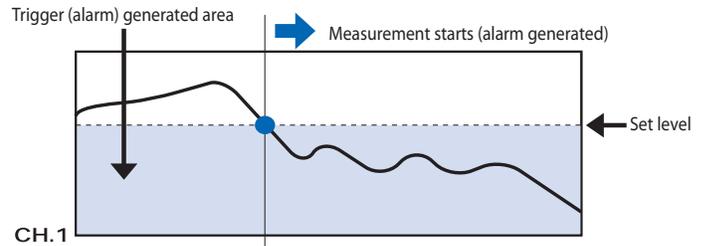
Flexible Trigger Settings for Data Capture and Alarms (continued)

MT100 trigger and alarm states

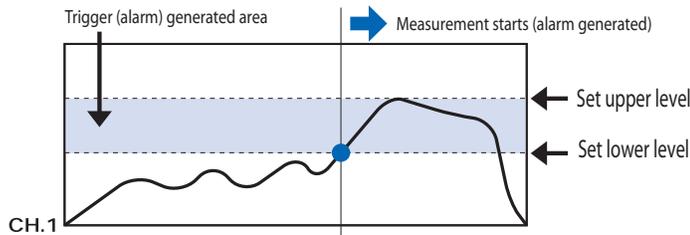
Trigger on positive threshold



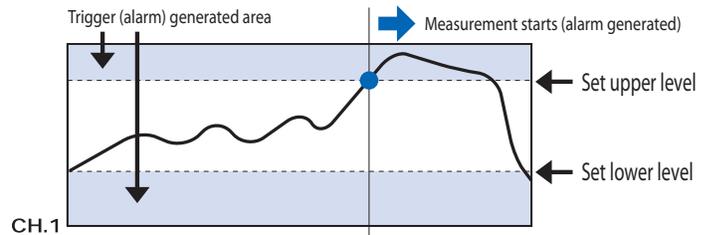
Trigger on negative threshold



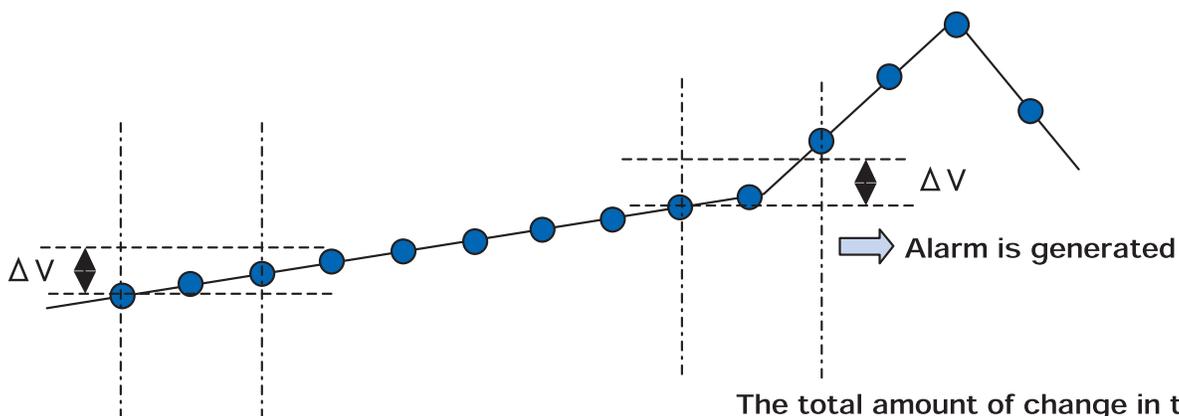
Trigger when inside window



Trigger when outside window



Alarm on rate of change

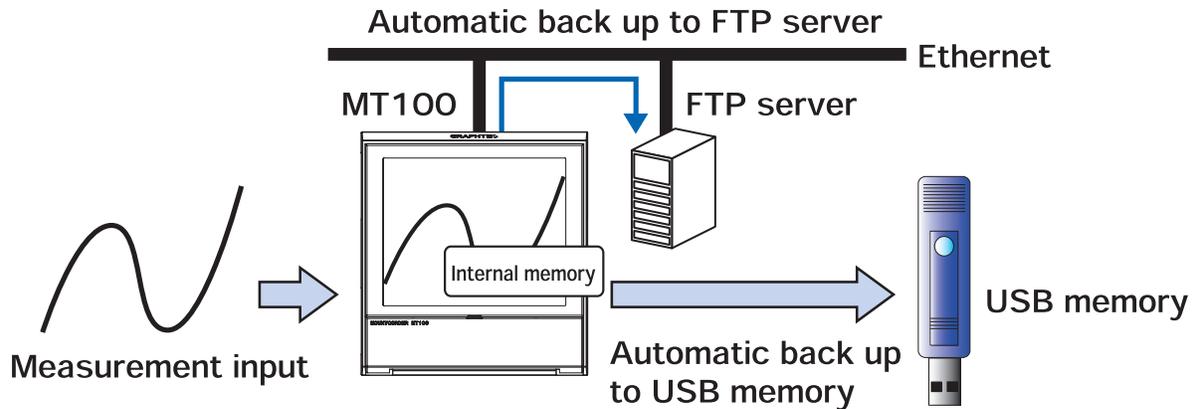


The total amount of change in the three points exceeds the specified value (ΔV)

The total amount of change in the three points is equal to or less than the specified value (ΔV). Alarm is not generated.

Built-in Backup Processes Protect Data

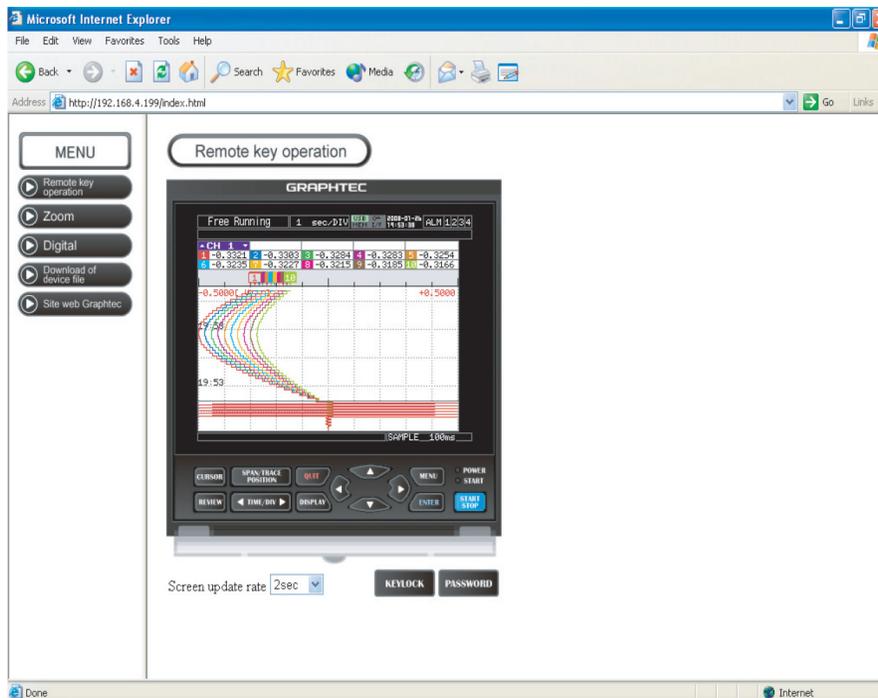
The MT100 provides a built-in facility that allows the instrument to back up data recorded to its internal memory. You can back up to either a standard USB memory stick inserted behind the MT100's front panel, or to a local or remote FTP file server over the MT100's Ethernet interface. Data back up can be either disabled, or set to back up at pre-defined intervals ranging from one to 24 hours.



Item	Description
Backup Intervals	Sets the interval to perform back up of captured data. Off, 1, 2, 6, 12, 24 h
Backup Desination	Sets the location where back up data will be stored.†
	USB1 Data is backed up in the USB memory. This is enabled only when data is captured in the internal Flash memory.
	FTP Data is backed up in the FTP server in the network. * FTP settings in the FILE menu is required.
Folder Name	Specifies the folder where data will be saved. ex) \GRAPHTEC\TEST\20071204

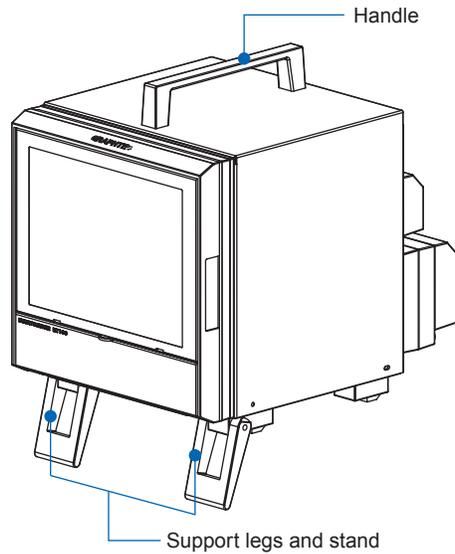
Built-in Web Server

The MT100 features a built-in web server that allows you to access data and remotely control and configure the instrument from any local or remote location and from any standard Internet browser.

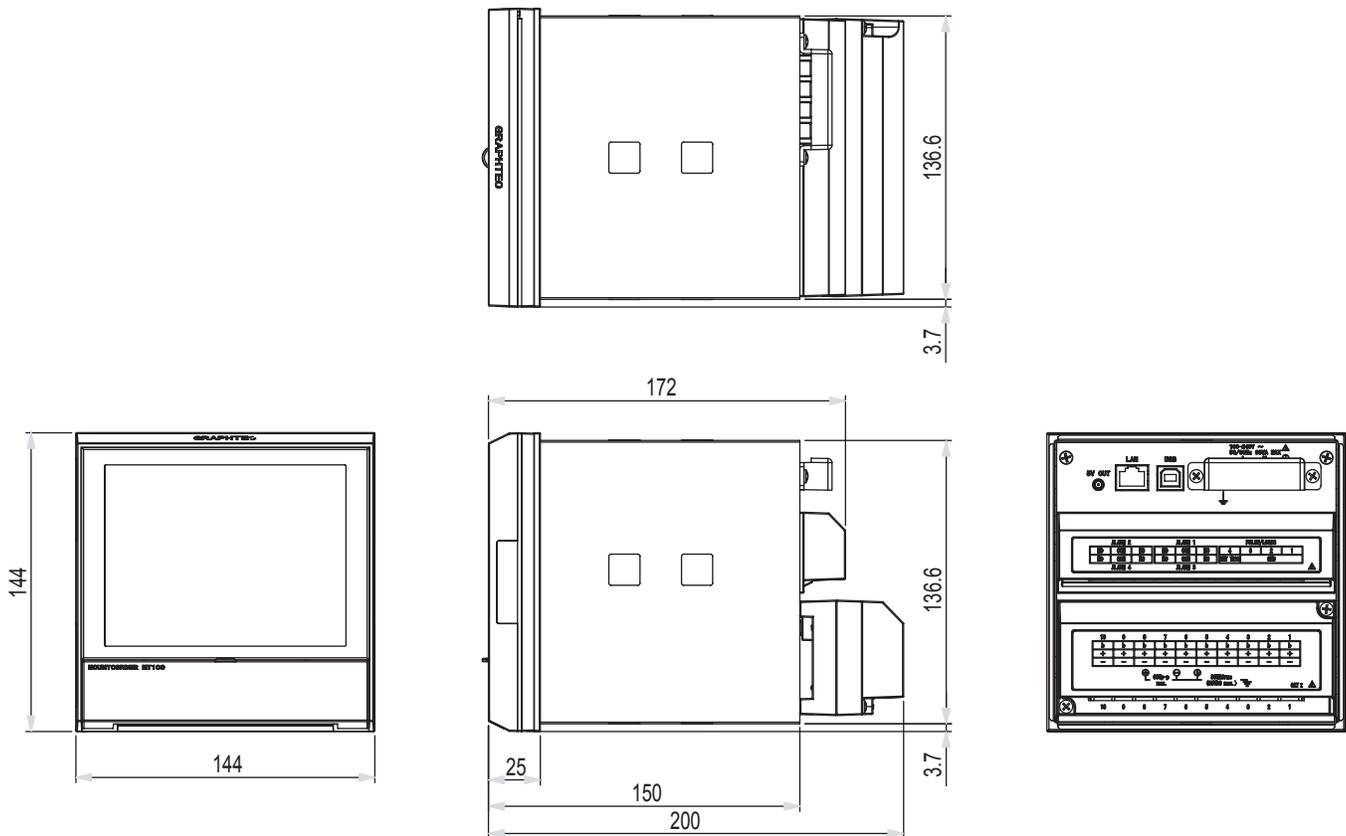


Optional Desktop Enclosure

Mount the MT100 in an appropriately sized panel opening using the supplied hardware, or purchase the optional desktop enclosure with handle for a more portable solution.



MT100 External Dimensions



Dimensional precision: ± 5 mm
Unit: mm

MT100 Specifications

Overall Specifications

- Number of analog inputs:** 1 unit (10 channels)
- External input/output:** Trigger input, Logic input 4 channels or Pulse input 4 channels, Alarm output
- PC interface:** Ethernet (10BASE-T/100BASE-TX), USB (Full-Speed supported) provided as standard features
- Internal memory devices:** Internal memory: Approx. 14 MB
USB memory slot (FullSpeed supported) provided as a standard feature.
- Data backup functions:** Setup conditions: EEPROM; Clock: Lithium secondary battery
- Clock accuracy (23°C environment):** ±0.002 % (approx. 50 seconds per month)
- Operating Environment:** 0 to 50°C, 5 to 85 % RH
- Withstand voltage:** Between each input channel and GND: 1 minute at 350 Vp-p; Between each input terminal: 1 minute at 350 Vp-p; Between AC input and GND: 1 minute at 2000 VAC; Between alarm terminal and GND: 1 minute at 1000 VAC
- Insulation resistance:** Between AC input and GND: 20M or higher (500VDC); Between alarm terminal and GND: 50M or higher (500VDC); Between each input channel and GND: 50M or higher (500VDC)
- Power supply:** AC input: 100 to 240 VAC/50 to 60 Hz
Terminal type: M4 screw type terminals
- Power Consumption:** AC Power consumption

No.	Condition	
1	When the LCD is ON	38VA
2	When the screensaver is operating	30VA

Note: normal status is when LCD brightness is set to MAX

- External Dimensions:** 144 × 144 × 200 mm
- Weight:** 2.1 kg
- Vibration-tested conditions:** Protective class : IP65 compatible (surface panel only); Vibration : Equivalent to automobile parts Type 1 Category A classification

Internal Memory Devices

- Memory capacity:** Internal memory : Approx. 14 MB Flash Memory
USB memory : Max 2 GB (depends on the type of USB memory used)
- Memory contents:** Setup conditions, measured data, screen copy

PC Interface

- Interface types:** Ethernet (10BASE-T/100BASE-TX)
USB (FullSpeed)
- Software functions:** Data transfer to the PC (realtime, memory)
PC control of the MT100
- Ethernet functions:** Web server function : Displays MT100's screen image on Web browser, operation of MT100
FTP server function : Transfers and deletes files from internal memory and USB memory
FTP client function : Supports backup of data in internal memory and USB memory
NTP client function : Adjusts internal clock
- USB functions:** USB drive mode : Transfers and deletes files from internal memory
- Realtime data transfer speed:** 100 msec/10 ch maximum

Monitor

- Display:** 5.7-inch TFT color LCD (QVGA: 320 x 240 dots)
- Displayed languages:** Japanese, English, Others
- Backlight life:** 40,000 hrs (when brightness is down to 50 %), depends on operation environment
- Backlight:** Screen saver function (10, 30 sec; 1, 2, 5, 10, 30, 60 min.); Off during operation, resumed by key operation and alarm

Function Specifications

- Display screen:** Waveform screen + Digital screen (vertical, horizontal), Digital screen + Calculation
Display screen, Bar Graph screen (vertical)
- Note: Can be key-toggled*
- Sampling interval:** 100 ms/10 ch maximum
100, 125, 200, 250, 500 ms; 1, 2, 5, 10, 20, 30 sec; 1, 2, 5, 10, 20, 30 min; 1 h
- TIME/DIV:** 1, 2, 5, 10, 20, 30 sec/DIV; 1, 2, 5, 10, 20, 30 min/DIV; 1, 2, 5, 10, 12, 24, 72 h/DIV
- EU (scaling function):** 4 points can be set for each channel
- Bar graph display:** Display direction: Vertical, 10 ch + pulse 4 ch
Reference position: Bottom or center
Scale divided into: 10 (fixed)
- Review function:** Data replay during data capture
- Data save functions:** Capture to internal memory; Capture to USB memory; Setup data can be saved (to internal or USB memory); Copy of data screen can be saved (to internal or USB memory); Back up function (internal memory -> USB memory, internal memory -> PC*1, USB memory -> PC*1); File name increment feature.
- Note: USB memory can be removed during data capture.*
- Statistical calculation:** Types of statistical calculation: Average value, peak value, maximum value, minimum value, RM
Number of operations : Maximum of 2 can be set simultaneously
Method : Realtime and between cursors specified (during data replay)
- Note: Realtime calculation results are displayed in Digital screen + Calculation Display screen.*
- Calculation between channels:** Calculation types: Addition, subtraction, multiplication, division
Input : Analog ch 1 to 10
- Wet and dry bulb conversion:** Function: Converts dry bulb or wet bulb temperature to humidity
Dry bulb: 1 ch fixed (input temperature, outputs temperature)
Wet bulb: 2 ch fixed (input wet bulb temperature, calculates humidity with 1 ch; temperature. Outputs humidity.)
Measurement range : 0 to 100 % RH.
- Note: Some dry bulb or wet bulb temperatures may not be calculated.*
- Search functions:** Function: Search the captured data for the required number of points
Search type : Channel, Pulse, Logic, Level, Alarm search
- Annotation input function:** Function: A comment can be input for each channel
Inputtable characters: Alphanumerics
Number of characters : 11 (displayed up to 8 characters)
- Message/marker function:** Function : Records message/marker at the specified timing
Number of registered messages: 8
Markers: Start/stop, trigger, alarm, power failure
Messages: Input arbitrary messages before capture
- ## Trigger Functions
- Repeat Trigger:** Off, On
- Trigger types:** Start: Data capture starts when a trigger is generated
Stop : Data capture stops when a trigger is generated
- Trigger settings:** Start: Off, Level, Alarm, External, Date, Weekly
Stop: Off, Level, Alarm, External, Date, Weekly, Time
- Trigger judgment modes:** Analog: H, L, Window In, Window Out
Logic: H, L
Pulse: H, L, Window In, Window Out

MT100 Specifications (continued)

External Input/Output Functions

- Input/output types:**
- Trigger input (1 ch)
 - Logic input (4 ch) or Pulse input (4 ch)
 - Alarm output (4 ch)

**Switch between Logic and Pulse*

- Input specifications:** Terminal type : M4 screw type terminals
 Maximum input voltage : 0 to 24 V (single-ended ground input)
 Input threshold voltage : Approx. 2.5 V
 Hysteresis : Approx. 0.5 V (+ 2.5 to + 3 V)

- Alarm output specifications:** Output format : Relay contact output (NO/NC)
 Terminal type : M4 screw type terminals
 Rated : 250 VAC/2A
 Output conditions : Level judgment, window judgment, logic pattern judgment, pulse judgment, rate of change judgement

**Set output conditions of four channel values.*

- Pulse input:** Revolutions mode (engines, etc.)
 Function : Counts the number of pulses per second; enables them to be converted to rpms
 Span : 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M RPM/F.S.
 Counts mode (electric meters, etc.)
 Function: Displays a count of the number of pulses for each sampling interval from the start of measurement
 Span : 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S.
 Inst. Mode
 Function: Counts the number of pulses for each sampling interval
 Resets the count value after each sampling interval
 Span : 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S.
 Maximum number of pulse input
 Counts, Inst. Modes : 50 k/sampling interval
 Revolution counts mode : 50 k/s

Control Software

- Compatible operating system:** Windows 2000, XP, Vista (32-bit version, 64-bit version)
- Functions:** Main unit control, realtime data capture, data conversion
- Allowed connection:** Up to 10
- Number of channels per connection:** 10 ch maximum
- Maximum number of channels:** 100 ch maximum
- Settings:** AMP settings, data settings, trigger/alarm settings, report settings, others
- Captured data:** Realtime data (CSV, Binary)
 Memory data (CSV, Binary)
 USB memory data (CSV, Binary)
- Display:** Analog waveforms, logic waveforms, pulse waveforms, digital values
- Display modes:** Y-T View, X-Y View, Digital View, Meter View, Report View
- File conversion:** Between cursors, All data
- Monitor functions:** Alarm monitor enables sending of email to the specified address
- Dual-screen function:** Displays the current data alongside past data
- Statistic/History:** Displays maximum, minimum, and average values during measurement
- Report function:** Enables creation of daily or monthly files

Input Unit Specifications

- Number of input channels:** 10 channels
- Input terminal type:** M4 screw type terminals
- Input method:** Photo MOS relay scanning system
 All channels isolated, balanced input
- Scan speed:** 0.1s/10 ch maximum
- Measurement ranges:** Voltage: 20, 50, 100, 200, 500 mV; 1, 2, 5, 10, 20, 50 V; 1-5 V F.S.
 Temperature: Thermocouples: K, J, E, T, R, S, B, N, W (WRe5-26); Resistance temperature detector: Pt100, JPt100, Pt1000 (IEC751)
 Humidity: 0 to 100% (voltage 0 V to 1 V scaling conversion) *with B-530 (option)

Measurement accuracy*

Voltage: 0.1% of Full Scale

Temperature (Thermocouple):

TC	Measurement Temperature Range (°C)	Measurement Accuracy (°C)
R/S	0 ≤ Ts ≤ 100	±5.2
	100 < Ts ≤ 300	±3.0
	R: 300 < Ts ≤ 1600 S: 300 < Ts ≤ 1760	±(0.05% of rdg +2.0) ±(0.05% of rdg +2.0)
B	400 ≤ Ts ≤ 600	±3.5
	600 < Ts ≤ 1820	±(0.05% of rdg +2.0)
K	-200 ≤ Ts ≤ -100	±(0.05% of rdg +2.0)
	-100 < Ts ≤ 1370	±(0.05% of rdg +1.0)
E	-200 ≤ Ts ≤ -100	±(0.05% of rdg +2.0)
	-100 < Ts ≤ 800	±(0.05% of rdg +1.0)
T	-200 ≤ Ts ≤ -100	±(0.1% of rdg +1.5)
	-100 < Ts ≤ 400	±(0.1% of rdg +0.5)
J	-200 ≤ Ts ≤ -100	±2.7
	-100 < Ts ≤ 100	±1.7
	100 < Ts ≤ 1100	±(0.05% of rdg +1.0)
N	0 ≤ Ts ≤ 1300	±(0.1% of rdg +1.0)
W	0 ≤ Ts ≤ 2000	±(0.1% of rdg +1.5)

Reference contact compensation accuracy: ±0.5°C
 Thermocouple diameters T: 0.32 φ, others: 0.65 φ

Resistance Temperature Detector:

Type	Measurement Temperature Range (°C)	Applied Current	Measurement Accuracy (°C)
Pt100	-200 to 850 (FS=1050)	1mA	±(0.05% of rdg +0.5°C)
Jpt100	-200 to 500 (FS=700)	1mA	±(0.05% of rdg +0.5°C)
Pt1000	-200 to 500 (FS=700)	0.2mA	±(0.05% of rdg +0.5°C)

* 23°C ±3°C when 30 minutes have elapsed after the power was switched on (filter On (10), 1 s/20 ch sampling, GND connected).

- Reference contact compensation accuracy:** Internal/External switching
- A/D converter:** 16 bits (out of which 14 bits are internally acknowledged)
- Temperature coefficient:** Gain: 0.01% of F.S./ °C
- Input resistance:** 1 MΩ ±5%
- Allowable signal source resistance:** Within 300 Ω
- Maximum permissible input voltage:** Between +/- terminals : 60 Vp-p
 Between input terminal/input terminal : 60 Vp-p
 Between input terminal/GND : 60 Vp-p
- Withstand voltage:** Between input terminal/input terminal : 1 minute at 350 Vp-p
 Between input terminal/GND : 1 minute at 350 Vp-p
- Insulation resistance:** Between input terminal/GND : At least 50MΩ (at 500 VDC)
- Common mode rejection ratio:** At least 90 dB (50/60 Hz; signal source 300 Ω or less)
- Noise:** At least 48 dB (with +/- terminals shorted)
- Filter:** Off, 2, 5, 10, 20, 40
 Filter operation is on a moving average basis.
 The average value of the set sampling count is used.

MT100 Included and Optional Accessories

Included Accessories

Item	Description	Quantity
Quick Start Guide	MT100-UM-8xx	1
CD-ROM	MT100-CDM0xM (User Manual, Application software)	1
Panel mount bracket	1 set includes two brackets	2

Optional Desktop Case model B-541

Item	Description
Contents	Desktop case, power cable (corresponding to area), instruction manual, screws (4)
Power supply cord rating and length	UL : 125 V/10 A Approx. 1.8 m U suffix

Optional Humidity Sensor model B-530

Item	Description
Allowable temperature range	-25 to 80°C
Allowable Humidity Range	0 to 100%
Relative humidity measurement accuracy	±3% RH (5 to 98% RH at 25°C)
Method	Capacitance method
Relative humidity measurement accuracy 5 to 98%	0 to 10°C (±5%RH); 10 to 20°C (±4%RH); 20 to 30°C (±3%RH); 30 to 40°C (±4%RH); 40 to 50°C (±5%RH); 50 to 60°C (±6%RH); 60 to 70°C (±7%RH); 70 to 80°C (±8%RH)
Response time	15 s (90% response when membrane filter installed)
Sensor output	0 to 1 VDC
Sensor power source	5 to 16 VDC
Power consumption	approx. 4mA
External dimensions	14mm × 80 mm (excluding cable)
Cable length	3m

Ordering Guide

Description	Order No.	Description	Order No.
MT100 Paperless chart recorder and data logger with 10 isolated analog inputs that can be programmed on a channel-by channel basis to measure voltage from ±20mV to 50V full scale across 12 ranges, thermocouple- or RTD-based temperature, or 4-20 or 0-20 mA current loops.	MT100	Desktop Case Portable desktop enclosure with handle for portability.	B-541
		Humidity Sensor 3-meter with dedicated power connector.	B-530
		Resistor Precision 250 Ω resistor, 0.1%	R250



DATAQ Instruments, Inc.
 241 Springside Drive
 Akron, Ohio 44333
 Phone: 330-668-1444
 Fax: 330-666-5434

Data Acquisition Product Links

(click on text to jump to page)

[Data Acquisition](#) | [Data Logger](#) | [Chart Recorder](#)