MG CO., LTD.
Make Greener automation

2026-02
EC-7063
Rev. 0

5.7-inch TFT LCD display / Touch panel

PAPERLESS RECORDER
VR144E-G16

Equipped with a clear and easy-to-read
TFT LCD display

9/16 DIN
144
mm

Model: VR144E-G16 CE IP55

Touch panel

Front panel
IP55

micro
SD

Introducing a new VR Series Paperless Recorder model that supports field operations with a wide variety of display screens and reliable basic functions.

The Paperless Recorder (Model: VR144E-G16) is equipped with a 5.7-inch touch-panel TFT color LCD on the 144-mm square front panel, which not only displays trend graphs and digital values in vivid colors but also allows for intuitive touch panel operation. Other key features include a graphic panel that can create any two screens, a log recording function, an e-mail reporting function, and an FTP client/server function. The I/O configuration consists of 16 Ai, 2 Di, and 2 Do points, allowing direct signal take-in and output.

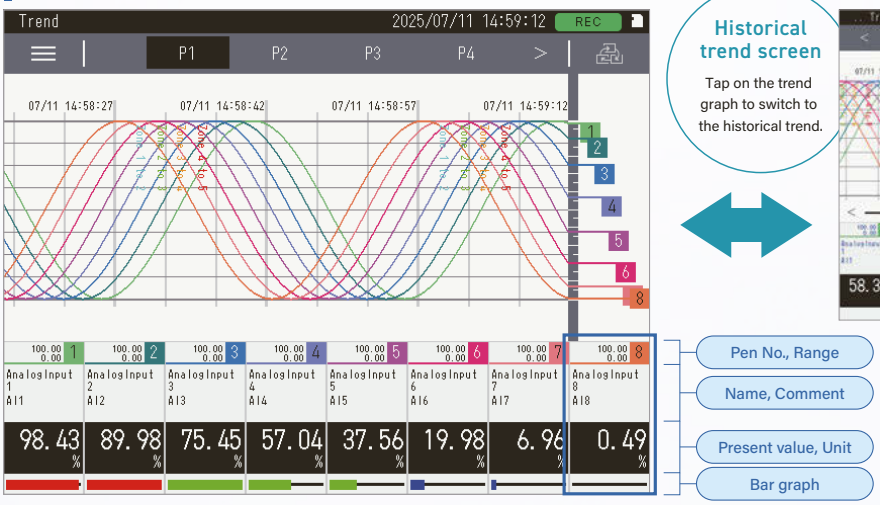
- 100 msec. sampling rate
- Records measurement data and operation status to internal memory (Storing to SD card is also possible)
- Recorded data can be displayed and analyzed using the dedicated application
- Graphic panel showing measurement status can be created
- Usable to trigger input and alarm output
- DC voltage input 16 points, Discrete input 2 points, Photo MOSFET relay output 2 points

Feature 01

Real-time measurement data can be checked, and past records can be viewed as needed.

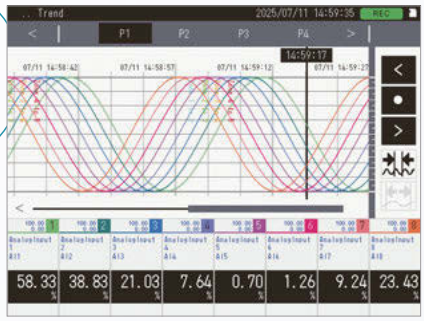
Displays include trend view and overview, which can be used for different purposes. Past records can also be freely viewed by switching to the historical trend display.

Trend Graph



Historical trend screen

Tap on the trend graph to switch to the historical trend.



The trend graph screen displays graphs for the items per page (4 pens/page or 8 pens/page) set in the display setting. All input/output channels (Ai/Di/Oi/Do) are assigned to each pen.

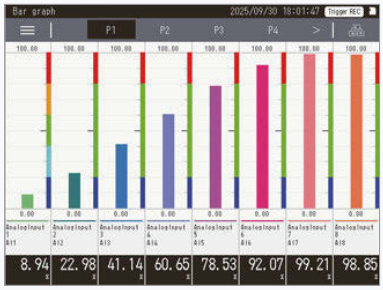
Number of pens	64 (4 pen/page or 8 pen/page)
I/O channels Ai, Di, Oi, Do (all channels) assigned to pens	Ai, Di, Oi, Do (all channels)
Graph scale	0% and 100% positions specified by engineering unit values.
Data format	Dedicated format (binary, extension "TRD") or CSV format(UTF-8/SJIS).
Recorded content	Trend data, event data, comment data

Data size	Max. 50000 samples per file x 64 pens
Auto-start	Recording can start automatically when VR144E-G16 is started. Specify either Stop / Normal / Trigger.
Storing interval	100 ms, 500 ms, 1 sec., 2 sec., 5 sec., 10 sec., 1 min., 2 min., 5 min., 10 min., 30 min., 1 hour

Overview

Displays the latest data for each channel. The display per screen can be selected from 16, 32, 64, or 128 points.

Bar graph



Displays the latest input/output values. Displays the channel assigned to the pen.

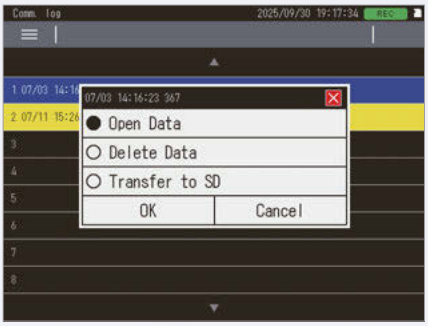
Event history

Displays up to the 40 most recent event logs that have occurred, regardless of whether event log recording is enabled or disabled.

Feature 02

The VR144E-G16 records measurement data and operation/stop status of devices and equipment in the internal memory and saves it to a micro SD card.

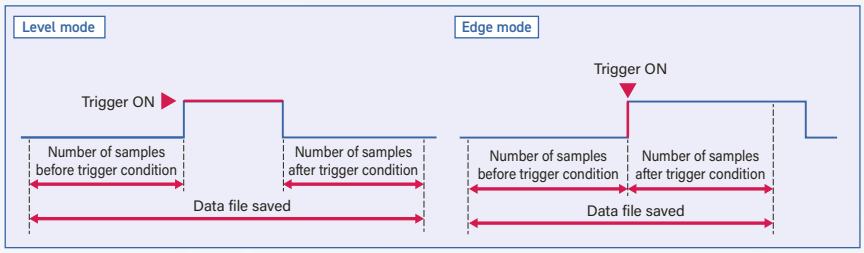
It displays and deletes trend and log data, transfers data to a micro SD card, transitions memory blocks, clears trend and log data, and initializes trend and log data in memory blocks recorded in the internal memory.



Feature 03

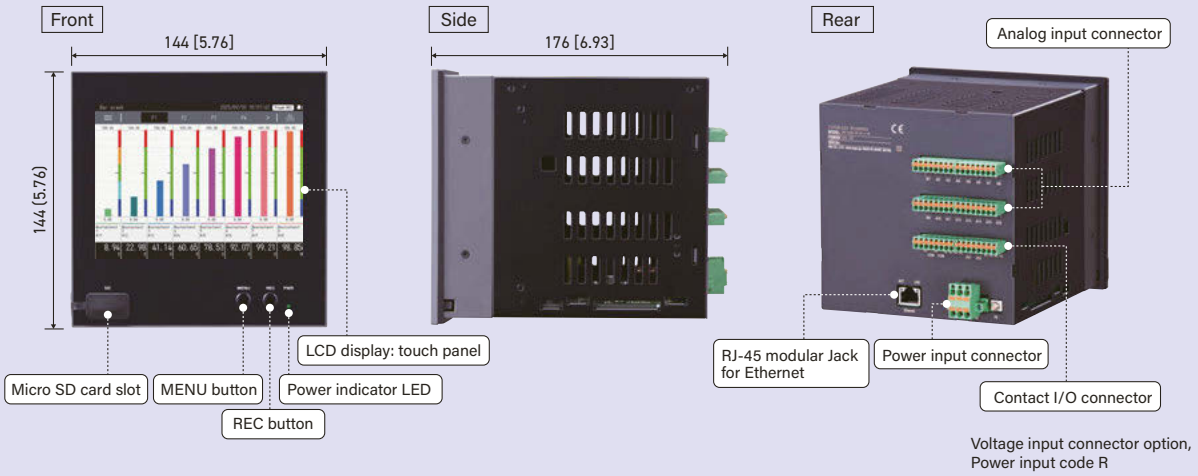
I/O signals can be used for trigger input and alarm output.

After trigger conditions for each channel of Ai, Di, and Oi are set, the set number of samples before and after the occurrence is transitioned to the memory block as a single recorded data. At the same time, the recorded data in the memory block is transferred to a micro SD card and saved as a file. Two trigger record modes can be selected: Level and Edge.

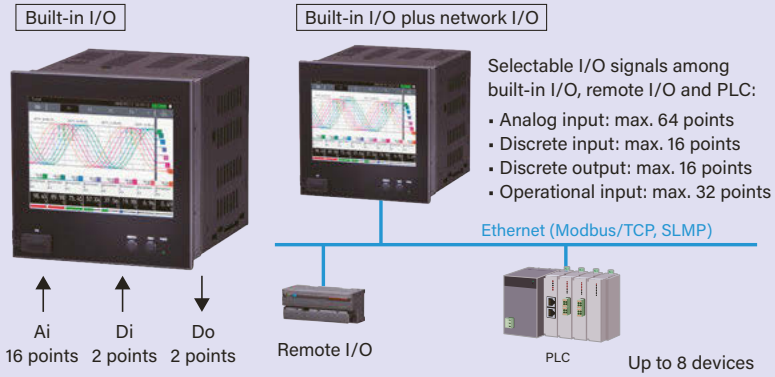


Component identification

unit: mm [inch]



System configuration



What is an operational input?

The following functions can be applied to analog signal inputs for recording:

Operational functions

Addition and subtraction / Multiplication / Division / Square root / Moving average / Delay buffer / exp / Common logarithm / Natural logarithm / Peak hold (max) / Valley hold (min) / Analog accumulation / Power / F value calculation / Antilogarithm / Scaling / Time

Main Specifications

INPUT & OUTPUT

ANALOG INPUT

Input signal: DC voltage, 16 points (non-isolated between channels)
Select input range from the following
(ch. 1, ch. 2):
- ±10 V DC to ±0.8 V DC (input resistance: ≥ 1 MΩ)
- ±0.8 V DC to ±80 mV DC (input resistance: ≥ 100 kΩ)
- ±80 mV DC to ±10 mV DC (input resistance: ≥ 100 kΩ)

CONTACT INPUT

Contact input: Dry contact, 2 points
Common: Negative common per 2 points
Maximum inputs applicable at once: No limit
Rated detective voltage: Approx. 5 V DC (internal supply)
ON voltage / resistance: ≤ 0.5 V / ≤ 500 Ω
OFF voltage / resistance: ≥ 4.0 V DC / ≥ 20 kΩ
Input current: Approx. 3.8 mA
Input resistance: Approx. 1 kΩ
ON delay: ≤ 2.0 msec.
OFF delay: ≤ 2.0 msec.

OUTPUT

Photo MOSFET relay output, 2 points
Rated load voltage: 48 V peak AC / DC
Rated output current: 0.2 A per point
Output ON resistance: ≤ 1 Ω
Leakage current at open circuit: ≤ 0.1 mA
ON delay: ≤ 50 msec.
OFF delay: ≤ 1 msec.
(Recommended to protect the contact and to eliminate noise when driving an inductive load.)

ALARM OUTPUT

Do designated as alarm contact output can be turned ON at event occurrence.

EVENT

- Zone output of Ai, Di, Oi
- Communication failure in e-mail reporting, FTP client, Modbus/TCP and SLMP

FUNCTIONS USING LAN/INTERNET

EVENT REPORTING E-MAIL

E-mail reporting function is available at event occurrence or at the specified time.
Encrypted communication is supported. (SMTP over SSL)
Selected Do can be turned on after sending an e-mail.
- **Number of e-mail recipients**: 16
- **Number of event reporting messages**: 32
- **Number of regular reporting messages**: 32
- **Channel status**: Ai, Di, Oi, Do data status can be included in a mail.

FTP CLIENT

Files stored in the micro SD card can be uploaded to an FTP server.
- Supports FTPS (Explicit mode)

FTP SERVER

Reading and deleting files in the SD card by an FTP client is available.
Simultaneous connection: 1
Operation verified FTP client: FFFTP

TIMEKEEPING

SNTP client
- The recorder's internal time can be adjusted automatically.
- Time adjustment is performed when the power is turned on and at the specified time.

TREND DATA STORING

Trend data, event data and comment data are recorded in memory blocks and then transferred to the SD card at the specified time intervals.
Recording method is selectable from normal recording or trigger recording.

NUMBER OF MEMORY BLOCKS

64 blocks

MEMORY BLOCK TRANSITION TIMING

When 50,000 events of trend data are recorded and at micro SD card writing timing

RECORDING METHOD

- **Normal recording**: Recording continuously until recording is manually stopped.
- **Trigger recording (edge)**: Recording up to 1200 samples of data before and after the trigger condition is met, respectively.
- **Trigger recording (level)**: Recording data during the trigger condition is met.

SAMPLING RATE

- 100 ms

STORING RATE

100 ms, 500 ms, 1 sec., 2 sec., 5 sec., 10 sec., 1 min., 2 min., 5 min., 10 min., 30 min., 1 hour

TREND DATA

- **Number of channels**: Max. 64 (select from Ai, Di, Do, Oi)
- **Number of events**: Max. 50000 sample × number of channels (per file)

EVENT DATA

- **Event:** Zone transition for Ai and Oi, change of Di status
- **Recorded content**: Time, event
- **Number of events**: 3000 (per file)

COMMENT DATA

- **Maximum number of input characters**: 32
- **Recorded content**: Time, comment
- **Number of events**: 1000 (per file)

DATA FORMAT

Dedicated format (binary, extension "TRD") or CSV format (UTF-8/SJIS).

VIEWER SOFTWARE

The data stored in the SD card can be displayed on dedicated Viewer Software (Model: TRViewer)*1.
Also, data can be converted to CSV format file.

SD CARD WRITING TIMING

Storing rate	SD card writing timing
100 ms	10 min., 30 min., 1 hour
500 ms	30 min., 1 hour, 6 hours
1 sec.	1 hour, 6 hours, 12 hours
2 sec.	1 hour, 6 hours, 12 hours, 1 day
5 sec.	6 hours, 12 hours, 1 day
10 sec.	6 hours, 12 hours, 1 day
1 min.	1 day, 1 week
2 min.	1 day, 1 week
5 min.	1 day, 1 week, 1 month
10 min.	1 day, 1 week, 1 month
30 min.	1 day, 1 week, 1 month
1 hour	1 week, 1 month

DATA FILE NAME

Files are named YYYYMMDhhmmss when saved to the micro SD card.
e.g.)
Dedicated format:
20240611100000000.TRD
CSV format:
20240611100000_T.CSV (trend)
20240611100000_E.CSV (event)
20240611100000_C.CSV (comment)

AUTO DELETING FUNCTION

- When the function is disabled, recording is possible until the SD card's storage capacity is exhausted.
- When the function is enabled, if the SD card's storage capacity falls below 100MB, the oldest data will be deleted(excluding the data from the past 4 years).

(*1)Viewer Software (Model: TRViewer) is downloadable for free from our website.

Configurator software (Model: VR144CFG)
https://www.mgco.jp/download_w/dl_vr144cfgE.html

Website

Request Info

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