

## 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):  
•  $\pm 10$  V DC to  $\pm 0.8$  V DC (input resistance:  $\geq 1$  M $\Omega$ )  
•  $\pm 0.8$  V DC to  $\pm 80$  mV DC (input resistance:  $\geq 100$  k $\Omega$ )  
•  $\pm 80$  mV DC to  $\pm 10$  mV DC (input resistance:  $\geq 100$  k $\Omega$ )

#### ■ 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:**  $\leq 0.5$  V /  $\leq 500$   $\Omega$

**OFF voltage / resistance:**  $\geq 4.0$  V DC /  $\geq 20$  k $\Omega$

**Input current:** Approx. 3.8 mA

**Input resistance:** Approx. 1 k $\Omega$

**ON delay:**  $\leq 2.0$  msec.

**OFF delay:**  $\leq 2.0$  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:**  $\leq 1$   $\Omega$

**Leakage current at open circuit:**  $\leq 0.1$  mA

**ON delay:**  $\leq 50$  msec.

**OFF delay:**  $\leq 1$  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 x number of channels (per file)

#### ■ DATA FILE NAME

Files are named YYYYMMDDhhmmss when saved to the micro SD card. e.g.)

#### ■ DEDICATED FORMAT

202406111000000000.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).

Configurator software (Model: VR144CFG)  
[https://www.mgco.jp/download\\_w\\_dl\\_vr144cfgE.html](https://www.mgco.jp/download_w_dl_vr144cfgE.html)

4



Website



Request Info

Your local representative:

5.7-inch TFT LCD display / Touch panel PAPERLESS RECORDER VR144E-G16

5.7-inch TFT LCD display / Touch panel

# PAPERLESS RECORDER

## VR144E-G16

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



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.

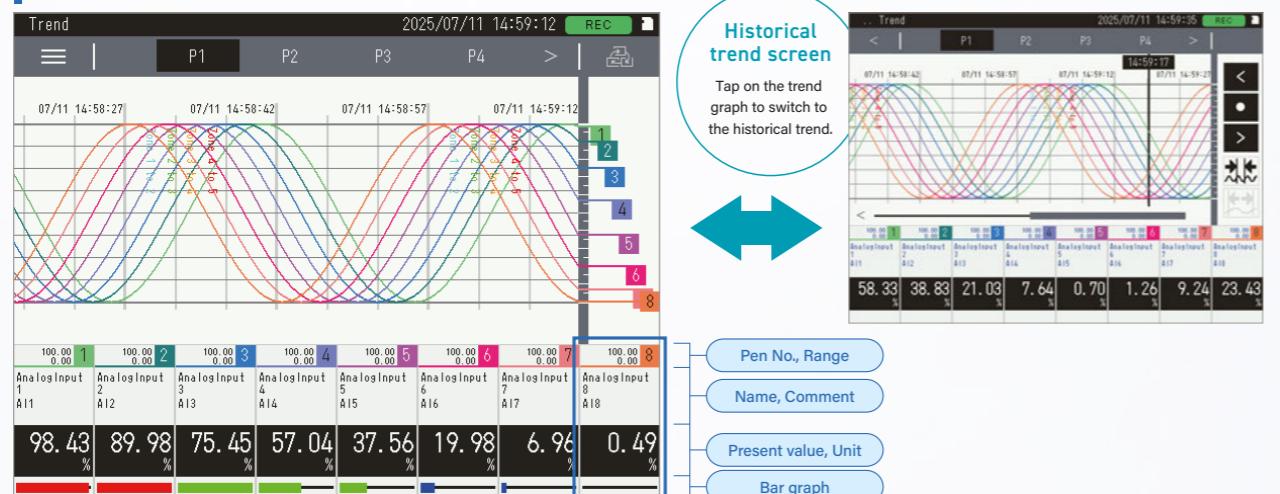
- 100 msec. sampling rate
- Records measurement data and operation status to internal memory (Storing to SD card is also possible)
- Recorded data can be displayed and analyzed using the dedicated application
- Graphic panel showing measurement status can be created
- Usable to trigger input and alarm 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



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

### Overview



### Bar graph



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



Easy-to-read 5.7 inch TFT color LCD



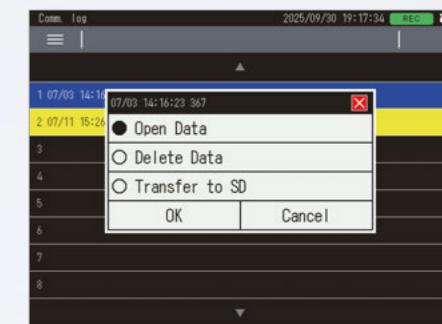
Micro SD card that can be removed from the front

Touch panel

### 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.

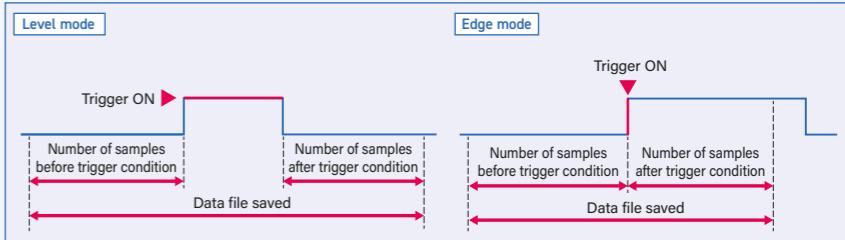
It displays and deletes trend and log data, transfers data to a micro SD card, transitions memory blocks, clears trend and log data, and initializes trend and log data in memory blocks recorded in the internal memory.



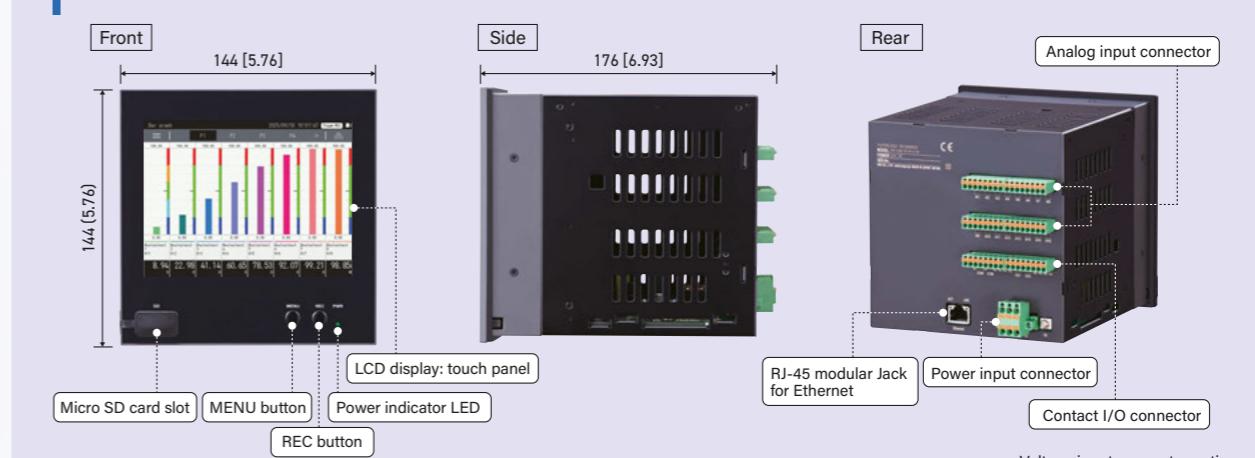
### Feature 03

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

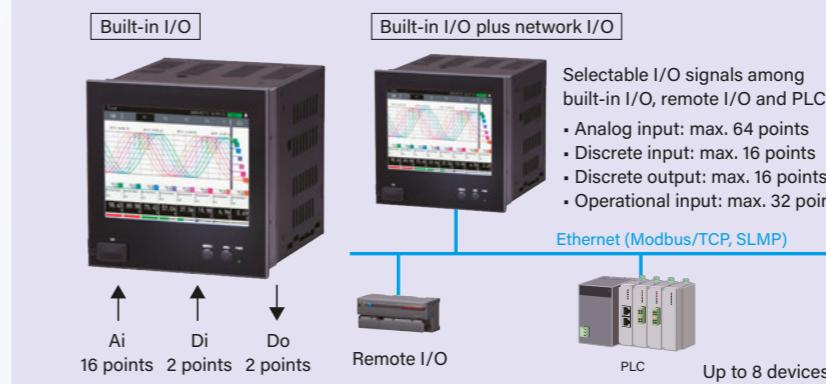
After trigger conditions for each channel of Ai, Di, and Oi are set, the set number of samples before and after the occurrence is transitioned to the memory block as a single recorded data. At the same time, the recorded data in the memory block is transferred to a micro SD card and saved as a file.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



### Component identification



### 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