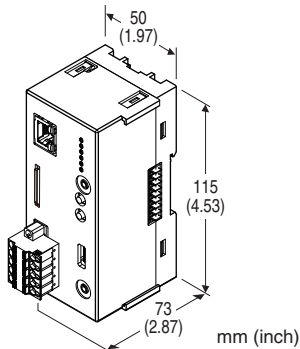


## Web Data Logger DL8

### WEB-ENABLED REMOTE TERMINAL UNIT

#### Functions and features

- Remote monitoring of equipment and plants by using modern communication infrastructure
- Monitoring and logging of a wide variety of signals including temperature, pressure, voltage, discrete signal status
- Flexible I/O types and scalable points by combining built-in R8 Series I/O modules
- Type A has basic 'Browsing' function with web browser.
- Type B is added with 'Reporting' function by e-mails.
- Type C is added with 'Recording' function with SD card.
- Type D is added with 'Advanced' functions of peer-to-peer connection of I/O signals and customized web browser view.
- Type E is added with 'Expanded Communication' functions of SLMP client, HTTPS, and FTPS protocols.



### MODEL: DL8-[1]-R[2]

#### ORDERING INFORMATION

- Code number: DL8-[1]-R[2]  
Specify a code from below for each of [1] and [2].  
(e.g. DL8-D-R/Q)
- Specify the specification for option code /Q  
(e.g. /C01)

#### [1] MODULE TYPE

- A:** Modbus/TCP (Ethernet) (Server/client)  
Web server
- B:** Modbus/TCP (Ethernet) (Server/client)  
Web server, reporting by e-mail, FTP client
- C:** Modbus/TCP (Ethernet) (Server/client)  
Web server, reporting by e-mail, FTP server/client, data logger
- D:** Modbus/TCP (Ethernet) (Server/client)  
Web server, reporting by e-mail, FTP server/client, data logger, I/O mapping, user-defined Web browser view
- E:** Modbus/TCP (Ethernet) (Server/client)

SLMP Client, Web server (HTTP, HTTPS), reporting by e-mail, FTP server/client, FTPS server/client, data logger, I/O mapping, user-defined Web browser view

#### POWER INPUT

##### DC power

R: 24 V DC

(Operational voltage range:  $\pm 10\%$ ; ripple 10 %p-p max.)

#### [2] OPTIONS

blank: none

/Q: With options (specify the specification)

#### SPECIFICATIONS OF OPTION: Q

**COATING (For the detail, refer to M-System's web site.)**

/C01: Silicone coating

/C02: Polyurethane coating

#### RELATED PRODUCTS

R8 Series remote I/O modules

(model: R8-SS2, R8-SS4NJ, R8-SS4N, R8-SST8, R8-SV2, R8-SV4N, R8-FS16N, R8-TS2, R8-RS4N, R8-CT4E, R8-YS2, R8-YS2NJ, R8-YST4N, R8-YV4N, R8-PA4, R8-PA4F, R8-PC4A, R8-DA4A, R8-DAM16A, R8-DAT16A2, R8-DC4A, R8-DC4A2, R8-DC4C, R8-DCT4D, R8-DCM16A, R8-DCM16ALZ, R8-DCM16ALK, R8-DCM16ALH, R8-DCM32B2, R8-DCT16A2, R8-PS1)

- PC Configurator cable (model: MCN-CON or COP-US)
- PC configurator software (model: DLCFG)
- PC configurator software (model: R8CFG)
- Local certification authority creator (model: LCA-DL8)

Software downloadable at M-System's web site.

- SD card

An SD card is necessary to store data.

Use the specified model number of memory card.

Available for purchase from M-System. Consult M-System.

- Hagiwara Solutions NSD6-004GH

(NSDA-004GL ... discontinued)

#### PACKAGE INCLUDES...

- Protective cover
- Ferrite core

**GENERAL SPECIFICATIONS****Connection****•Power supply (exc. supply), RUN contact output:**

Tension clamp terminal (Front Twin connection)

Unit side connector: MSTB2,5/5-GF-5,08AU

Cable side connector: TFKC2,5/5-STF-5,08AU

(Applicable wire size: 0.2 - 2.5 mm<sup>2</sup>, stripped length 10 mm)**Recommended solderless terminal**AI0,25-10YE 0.25 mm<sup>2</sup> (Phoenix Contact)AI0,34-10TQ 0.34 mm<sup>2</sup> (Phoenix Contact)AI0,5-10WH 0.5 mm<sup>2</sup> (Phoenix Contact)AI0,75-10GY 0.75 mm<sup>2</sup> (Phoenix Contact)AI1-10RD 1.0 mm<sup>2</sup> (Phoenix Contact)AI1,5-10BK 1.5 mm<sup>2</sup> (Phoenix Contact)AI2,5-10BU 2.5 mm<sup>2</sup> (Phoenix Contact)**•Ethernet:** RJ-45 connector**•Internal bus, internal power, exc. supply:** Connector**Housing material:** Flame-resistant resin (gray)**Max. number of I/O modules:** 16

(Max. consumption current of I/O modules: 1.6 A)

**Isolation:** Ethernet to internal bus or internal power or power supply (exc. supply) to RUN contact output to FE (No isolation between discrete input/output and power supply of the I/O modules when used with the DL8.)**Calendar clock:** Year (4 digits), month, date, day, hour, minute, second**Status indicator LED:** POWER, LOGGING, SD CARD, SEND, COM, ERROR**RUN contact output:** Photo MOSFET relay (no polarity); (OFF in error detected)

•Peak load voltage: 50 V max.

•Continuous load current: 50 mA max.

•Peak load current: 300 mA max. (≤0.1 sec.)

**•Operation**

Power down: OFF

Firmware operating: ON

Error in Ethernet LNK: OFF

Internal bus error: OFF

SD card writing error: OFF

(Run contact output is applicable for Type C with the DL8 firmware version 1.4.x or later.)

**ETHERNET COMMUNICATION****Communication Standard:** IEEE 802.3u**Transmission:** 10BASE-T, 100BASE-TX**Baud rate:** 10/100 Mbps (Auto Negotiation function)**Protocol:** TCP/IP, Modbus/TCP, SLMP, HTTP, HTTPS, FTP, FTPS, SMTP, SNTP**Transmission media:** 10BASE-T (STP, Category 5), 100BASE-TX (STP, Category 5e)**Max. length of fieldbus segment:** 100 meters**Ethernet indicator LED:** DPLX, LNK**IP address:** 192.168.0.1 (factory setting)**INSTALLATION****Power consumption**

•DC: Approx. 12 W 24 V DC (@ internal power max. current 1.6 A)

**Internal power supply (power supply for I/O module):**

• DC power supply: 5 V DC

• Current capacity: 1.6 A

**Excitation supply output (excitation for I/O module)**

•DC: 24 V DC ±10 %

•Operational current: 7 A

(From power supply (excitation supply) connector, via connector for internal bus, supplied to each I/O module. Power output current consumption must be under operational current.)

**Operating temperature:** -10 to +55°C (14 to 131°F)**Operating humidity:** 30 to 90 %RH (non-condensing)**Atmosphere:** No corrosive gas or heavy dust**Mounting:** DIN rail**Weight:** 190 g (0.42 lb)**PERFORMANCE****Battery:** Vanadium-lithium secondary battery (undetachable)**Calendar clock accuracy:** Monthly deviation 2 minutes at 25°C**Battery backup:** Approx. 2 months**Insulation resistance:** ≥ 100 MΩ with 500 V DC**Dielectric strength:** 1500 V AC @ 1 minute (Ethernet to internal bus or internal power or power supply (exc. supply) to RUN contact output to FE)**STANDARDS & APPROVALS****EU conformity:**

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

EN 50581

## COMPATIBLE BROWSING DEVICE

### ■ Software requirement

Functional checked environment

#### PC

##### •OS:

Windows 7 (32-bit/64-bit), Windows 8.1 (32-bit/64-bit), Windows 10 (32-bit/64-bit)

##### •Browser:

Internet Explorer 11

Microsoft Edge 44

Firefox 71.0

Chrome 79.0

#### Tablet

##### •OS:

iPad (iPadOS 13.3); Android terminal (Android 9.0)

##### •Browser:

iOS: Safari; Android: Chrome

#### Smart phone

##### •OS

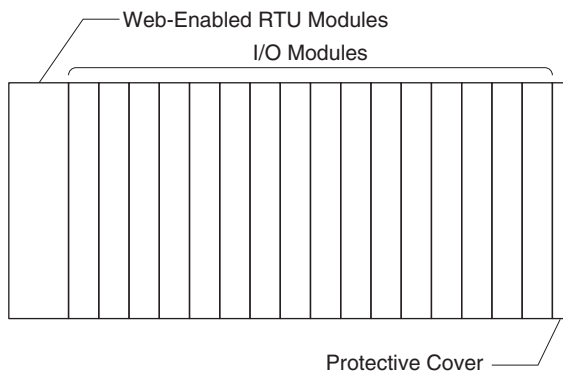
iPhone (iOS 13.3); Android terminal (Android 9.0)

##### •Browser:

iOS:Safari; Android: Chrome

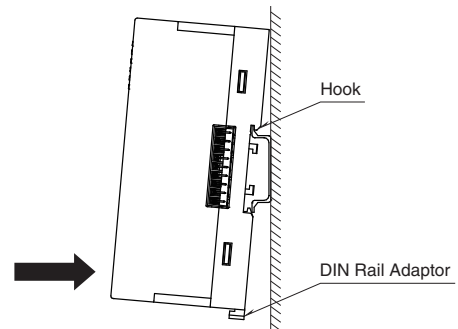
## BASIC CONFIGURATIONS

The modules' addresses can be set freely from 0 to 31 regardless the mounting location. However, be sure not to use duplicated addresses. A 4-point analog I/O module occupies 2 addresses. E.g. when R8-SV4N is set to address 5, Input 1 and Input 2 are assigned to address 5, Input 3 and Input 4 are assigned to address 6. In this case, do not set other I/O modules to address 6.

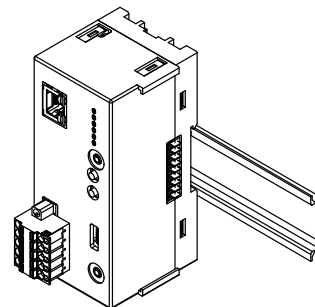


### ■ HOW TO MOUNT THE MODULE ON DIN RAIL

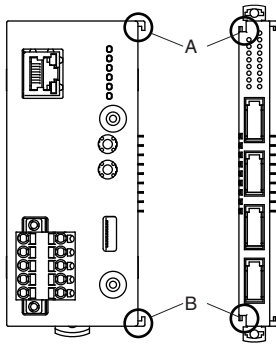
#### • Web-Enabled RTU Modules



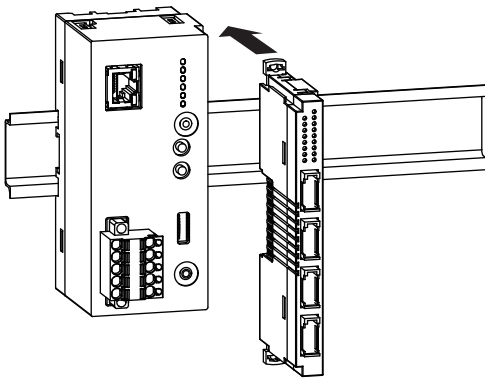
Position the upper hook at the rear on the DIN rail and push in the lower. When removing the module, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



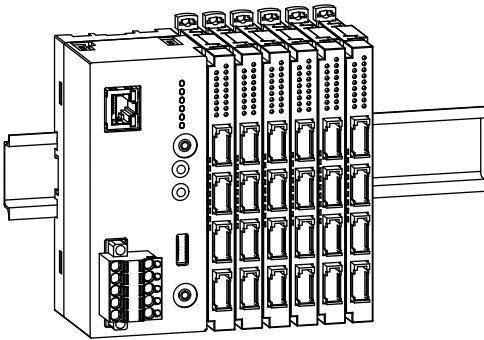
## • I/O Module



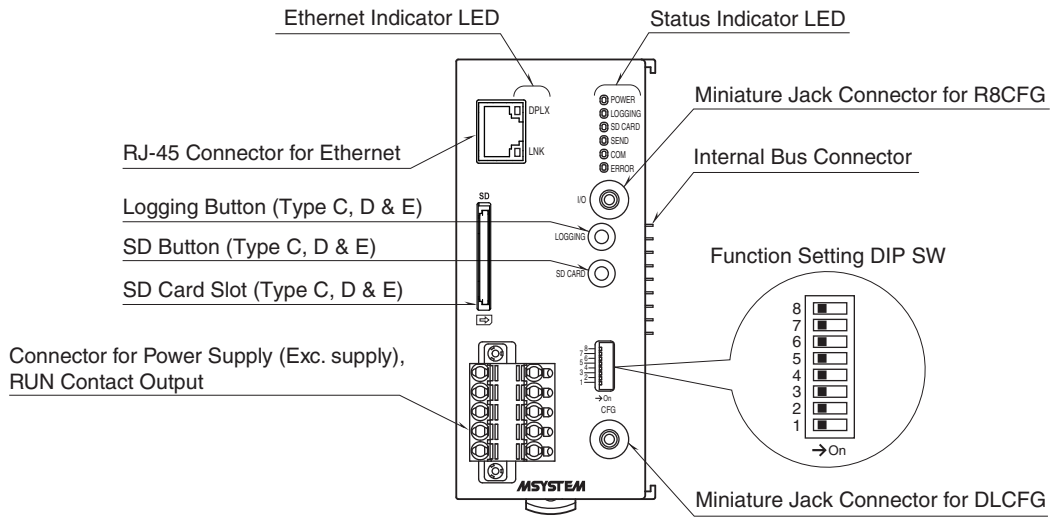
Confirm that the locking clamps of the I/O module are set.  
Insert the module in parallel to the next one while aligning the grooves of both modules (A & B in the above figure).  
Maintain it perpendicularly to the rail.



More I/O modules can be added in the same manner.



## EXTERNAL VIEW



### ■ STATUS INDICATOR LED

LED	Color	Function
POWER	Green	ON at device operating normally Blinking at Ethernet LINK error Blinking before obtaining DHCP address
LOGGING	Green	ON at logging (Type C, D & E)
SD CARD	Green	ON during SD card mounted Blinking at reading/writing SD card (Type C, D & E)
SEND	Green	Blinking at e-mailing
COM	Green	Blinking at communication (except Modbus/TCP master & SLMP Client)
ERROR	Red	ON at error <ul style="list-style-type: none"> <li>• R8 I/O module reading error</li> <li>• SD card access error</li> <li>• SD card insufficient capacity</li> </ul>

### ■ ETHERNET INDICATOR LED

LED	Color	Function
DPLX	Amber	ON at full duplex
LNK	Green	ON at link

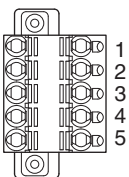
## CONNECTION DIAGRAMS

### ■ POWER SUPPLY (EXC. SUPPLY), RUN CONTACT OUTPUT CONNECTOR TERMINAL ASSIGNMENT

Printed-circuit board connector (Phoenix Contact)

Unit side connector: MSTBV2,5/5-GF-5,08AU

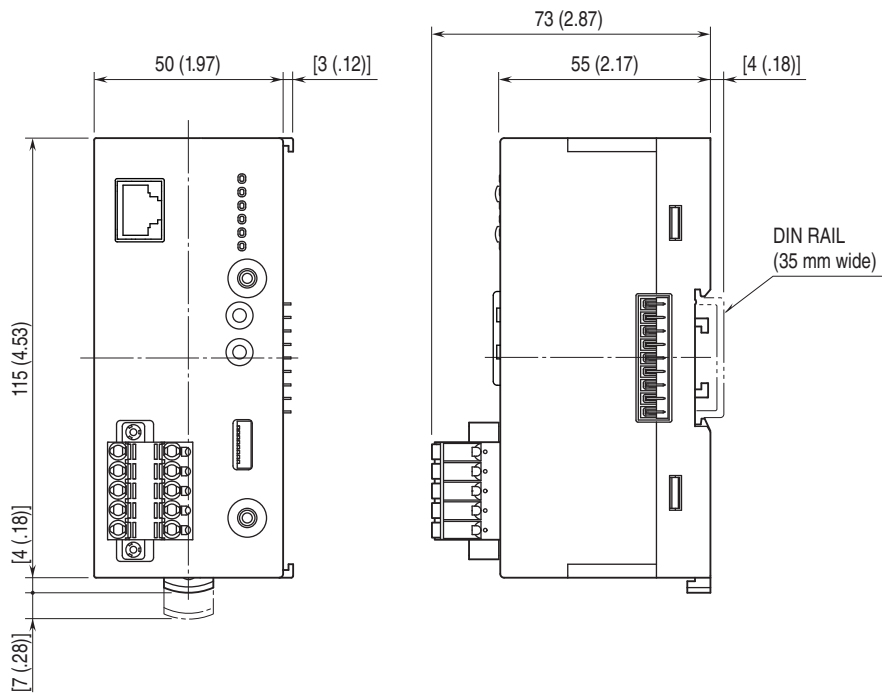
Cable side connector: TFKC2,5/5-STF-5,08AU



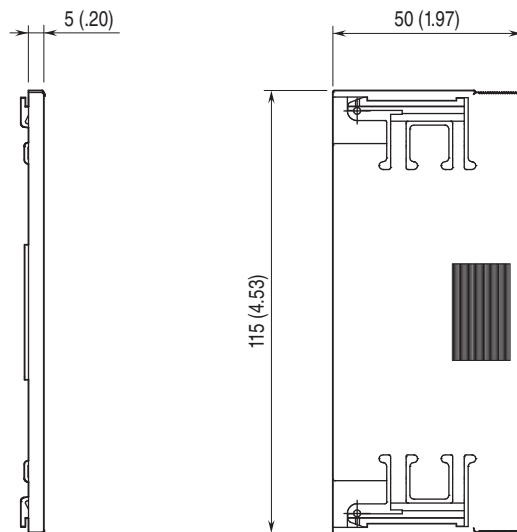
No.	ID	FUNCTION
1	24V	Power supply (exc. supply) 24 V DC
2	0V	Power supply (exc. supply) 0 V DC
3	RUN	RUN contact output
4	RUN	RUN contact output
5	FE	Power supply (exc. supply) earth

**EXTERNAL DIMENSIONS unit: mm (inch)**

■UNIT



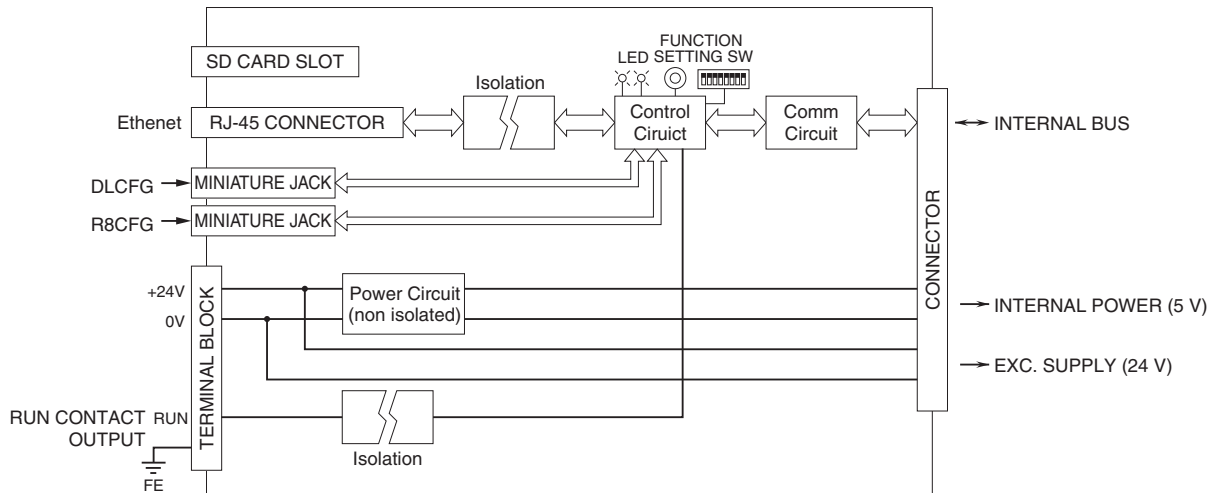
■PROTECTIVE COVER



## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

Note: In order to improve EMC performance, bond the FE terminal to ground.

Caution: FE terminal is NOT a protective conductor terminal.



## COMMUNICATION

### IP:

DHCP client is supported. Manual setting of IP address, subnet mask, default gateway and DNS server available too.

### Modbus/TCP slave:

Remote observation system via SCADA etc.

### Modbus/TCP master:

I/O expansion with remote I/O, e.g. R3 or R7 series, is available. Measuring points in multiple locations can be handled collectively.

### SLMP Client:

DL8 allows I/O expansion by connecting with the SLMP-compatible CPU unit of Mitsubishi programmable-controller MELSEC; and collectively handles data from measuring points in multiple locations.

### Web server function (Direct):

This unit can be a Web server, and 'Data,' 'Trend' and 'Event Log' views are available from remote location.

### Web server function (Cloud):

This unit can be an FTP client, and upload the Web files to a cloud server.

Users can browse the cloud server.

Multiple users can access it at once without extra load at the unit. (only browsing, operation not available.)

**Analog input:** 32 points

**Discrete input:** 64 points

**Pulse input:** 32 points

**Discrete output:** 64 points

**Analog output:** 32 points (firmware version of the unit: 1.4.x or later)

\* For pulse input, only 32 bit data is available. It is not available for the products using 16 bit data (model: R3-PA16

etc.).

## ALARM OUTPUT (Type B, C, D & E)

Event can trigger an alarm contact at a discrete output module.

- Transition of analog input zone
- Transition of pulse input zone
- Status change of discrete input
- Count up of discrete input

## EVENT REPORTING E-MAIL (Type B, C, D & E)

Reporting e-mail function available at event or designated time.

Encrypted communication is supported. (SMTP over SSL).

The DL8 turns a designated Do ON after transmitting the report.

- Number of e-mail attention: 32
- Number of event report text: 32
- Number of regular report text: 1
- Channel status: AI, DI, PI, DO, AO status attachable to e-mail  
(DO and AO are available with firmware version of the unit 1.4.x or later)
- Output at transmitting failure: 1 point

## LOGGING (Type C, D & E)

Log files in text format are stored into an SD card. The number of logs depends on the free space of the SD card. Log file: System log, event log, e-mail report log, channel log

## FTP CLIENT (Type B, C, D & E)

The recorded data is uploaded to an FTP server and FTPS server (Type E) in CSV format in specified interval time.

User can define the CSV file.

- Number of channel: Max. 32 (Selectable within AI, DI, DI (counter), PI, DO, AO)  
(AO is selectable with firmware version of the unit 1.4.x or later)
  - Sampling rate (Firmware version 1.6.x or later)  
1 or 2 sec (Interval time: 1 or 10 min. or 1 hr.)  
5, 10 or 30 sec. (Interval time: 10 min. or 1 hr.)  
1, 2, 5, 10, 15, 20 or 30 min. (Interval time: 1 day)
  - Sampling rate (Firmware version 1.2.x or later)  
1 or 2 sec (Interval time: 1 or 10 min. or 1 hr.)  
5, 10 or 30 sec. (Interval time: 10 min. or 1 hr.)  
1, 2, 5, 10 or 30 min. (Interval time: 1 day)
  - Sampling rate (Firmware version 1.1.x or earlier)  
1, 2, 5, 10 or 30 sec. (Interval time: 1 hr.)  
1, 2, 5, 10 or 30 min. (Interval time: 1 day)
- Note: To confirm the firmware version, use the configurator software, model: DLCFG.

## TREND DATA STORING (Type C, D & E)

The logged data is written into the SD card in CSV format. User can define the CSV file.

- Number of channels: Max. 32 (Selectable within AI, DI, DI (counter), PI, DO, AO)  
(DO and AO are selectable with firmware version of the unit 1.4.x or later)
- AI sampling: Momentary, average, peak (max.), peak (min.)
- Logging rate:  
Second: 1, 2, 5, 10, 20, 30 sec.  
Minute: 1, 2, 5, 10, 15, 20, 30 min.  
(15 min. is selectable with firmware version 1.5.x or later)  
On the hour: 0 to 23 o'clock (1 or more times available; specify time delay for each set time)  
Day start time and days to log are available.
- Recordable up to the SD card size.  
Automatically deleted.  
(Auto delete is available with firmware version of the unit 1.4.x or later)
- Recording period (as a guide)  
Approx. 180 days  
(logging rate: 1 sec, 32 channels, only trend storing)

## FTP SERVER (Type C, D & E)

Reading and deleting files in the SD card by an FTP client and an FTPS client (Type E) are available.

Compatible FTP client

- Explorer

- FFFTP 4.4
- Web browser  
Internet Explorer version 11  
Firefox version 71.0  
Chrome version 79.0  
Compatible FTPS client
- FFFTP 4.4

## I/O MAPPING (Type D & E)

Multiplex Data Transmission for remote I/O and IP telemeter is available by registering DI-to-DO or AI-to-AO mapping information.

## USER DEFINED BROWSER VIEW (Type D & E)

The browser view is user-definable.

Development tools for HTML file are not available by M-System. Provide by customer.

## OTHER FUNCTIONS

Configuration: Configurable with the dedicated software model: DLCFG

Time zone: Selectable between -12:00 and +13:00

(Time zone setting by minutes is not available for the DL8 Ver.1.3 or earlier versions.)



