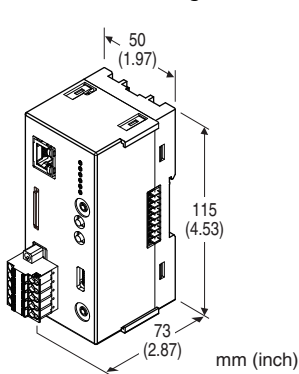


Web Data Logger DL8

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.



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

ORDERING INFORMATION

- Code number: DL8-[1]-R[2]
Specify a code from below for each [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

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-SS4N, 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-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)

- PC Configurator cable (model: MCN-CON or COP-US)
- PC configurator software (model: DLCFG)
- PC configurator software (model: R8CFG)

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 mm², stripped length 10 mm)

Recommended solderless terminal

AI0,25-10YE 0.25 mm² (Phoenix Contact)

AI0,34-10TQ 0.34 mm² (Phoenix Contact)

AI0,5-10WH 0.5 mm² (Phoenix Contact)

AI0,75-10GY 0.75 mm² (Phoenix Contact)

AI1-10RD 1.0 mm² (Phoenix Contact)
AI1,5-10BK 1.5 mm² (Phoenix Contact)
AI2,5-10BU 2.5 mm² (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.)

(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

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, HTTP, FTP, SMTP, SNMP

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

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

Firefox 61.0.1

Chrome 68.0.3440.75

Tablet

•OS:
iPad (iOS 11.4.1); Android terminal (Android 8.0)

•Browser:

iOS: Safari; Android: Chrome

Smart phone

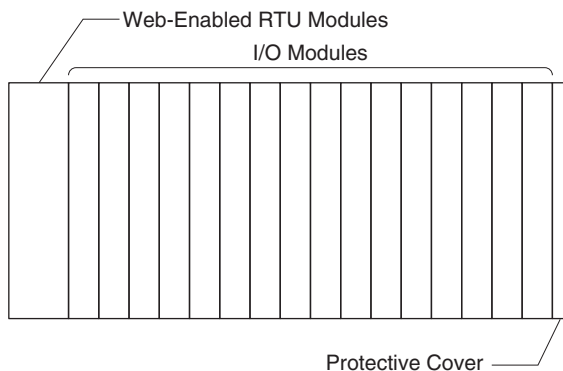
•OS
iPhone (iOS 11.4.3); Android terminal (Android 8.0)

•Browser:

iOS:Safari; Android: Chrome

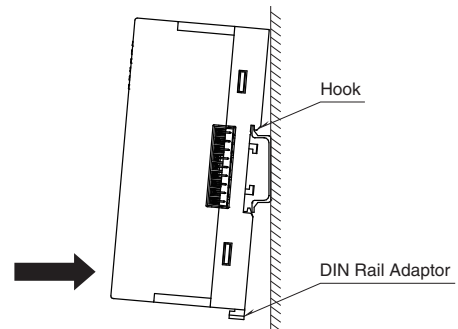
BASIC CONFIGURATIONS

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.

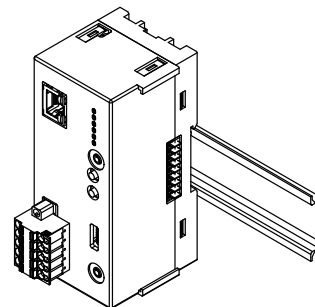


■ HOW TO MOUNT THE MODULE ON DIN RAIL

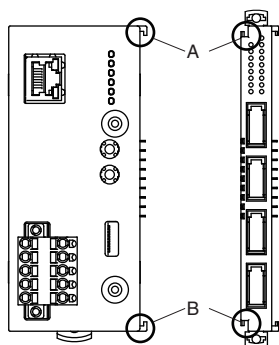
• Web-Enabled RTU Modules



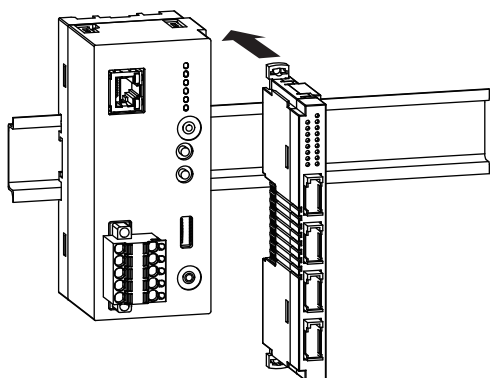
Position the upper hook at the rear on the DIN rail and push in the lower. When removing the module, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



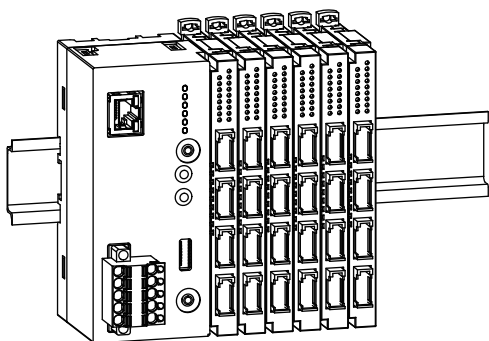
• I/O Module



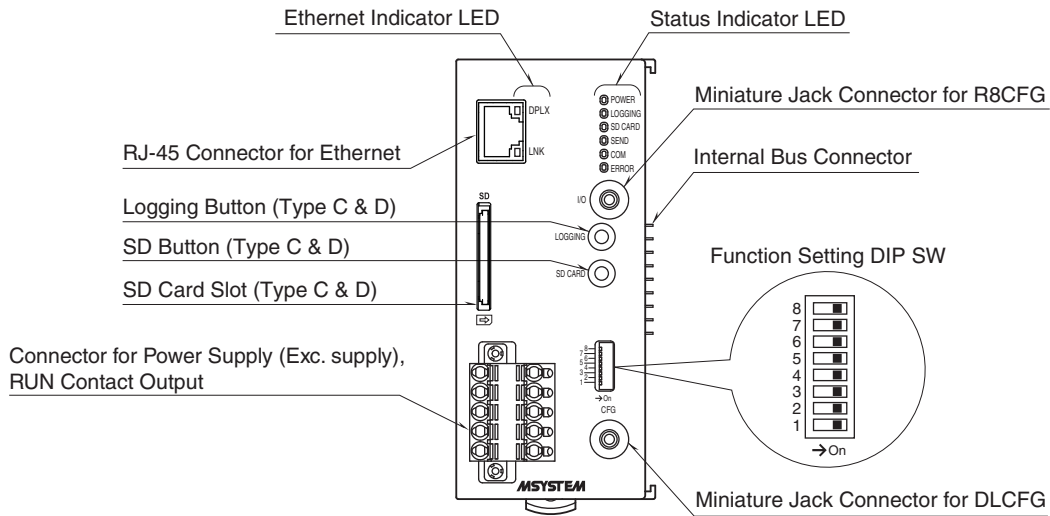
Confirm that the locking clamps of the I/O module are set.
Insert the module in parallel to the next one while aligning the grooves of both modules (A & B in the above figure).
Maintain it perpendicularly to the rail.



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)
SD CARD	Green	ON during SD card mounted Blinking at reading/writing SD card (Type C & D)
SEND	Green	Blinking at e-mailing
COM	Green	Blinking at communication (except Modbus/TCP master)
ERROR	Red	ON at error • R8 I/O module reading error • SD card access error • SD card insufficient capacity

■ ETHERNET INDICATOR LED

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

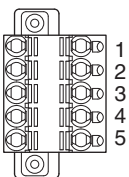
CONNECTION DIAGRAMS

■ 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

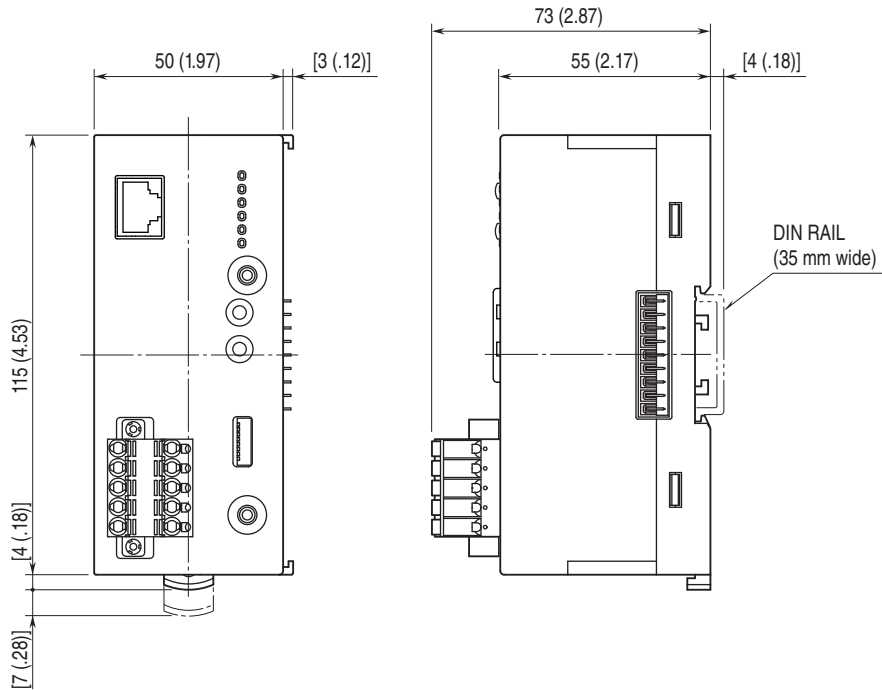
Cable side connector: TFKC2,5/5-STF-5,08AU



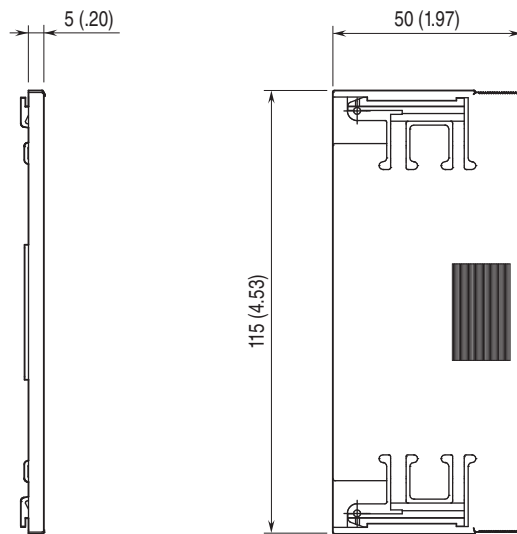
No.	ID	FUNCTION
1	24V	Power supply (exc. supply) 24 V DC
2	0V	Power supply (exc. supply) 0 V DC
3	RUN	RUN contact output
4	RUN	RUN contact output
5	FE	Power supply (exc. supply) earth

EXTERNAL DIMENSIONS unit: mm (inch)

■UNIT



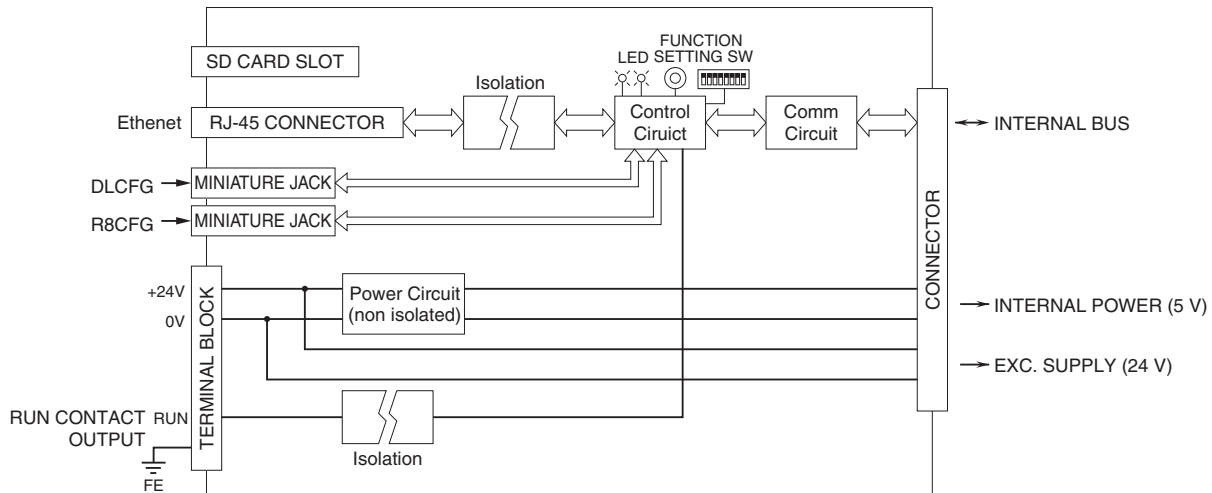
■PROTECTIVE COVER



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.

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)

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)

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)

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)

The recorded data is uploaded to an FTP server 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)

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)

Reading and deleting files in the SD card by an FTP client is available.

Compatible FTP client

- Explorer

- FFFTP
- Web browser
Internet Explorer version 11
Firefox version 61.0.1
Chrome version 68.0.3440.75

I/O MAPPING (Type D)

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)

The browser view is user-definable.

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

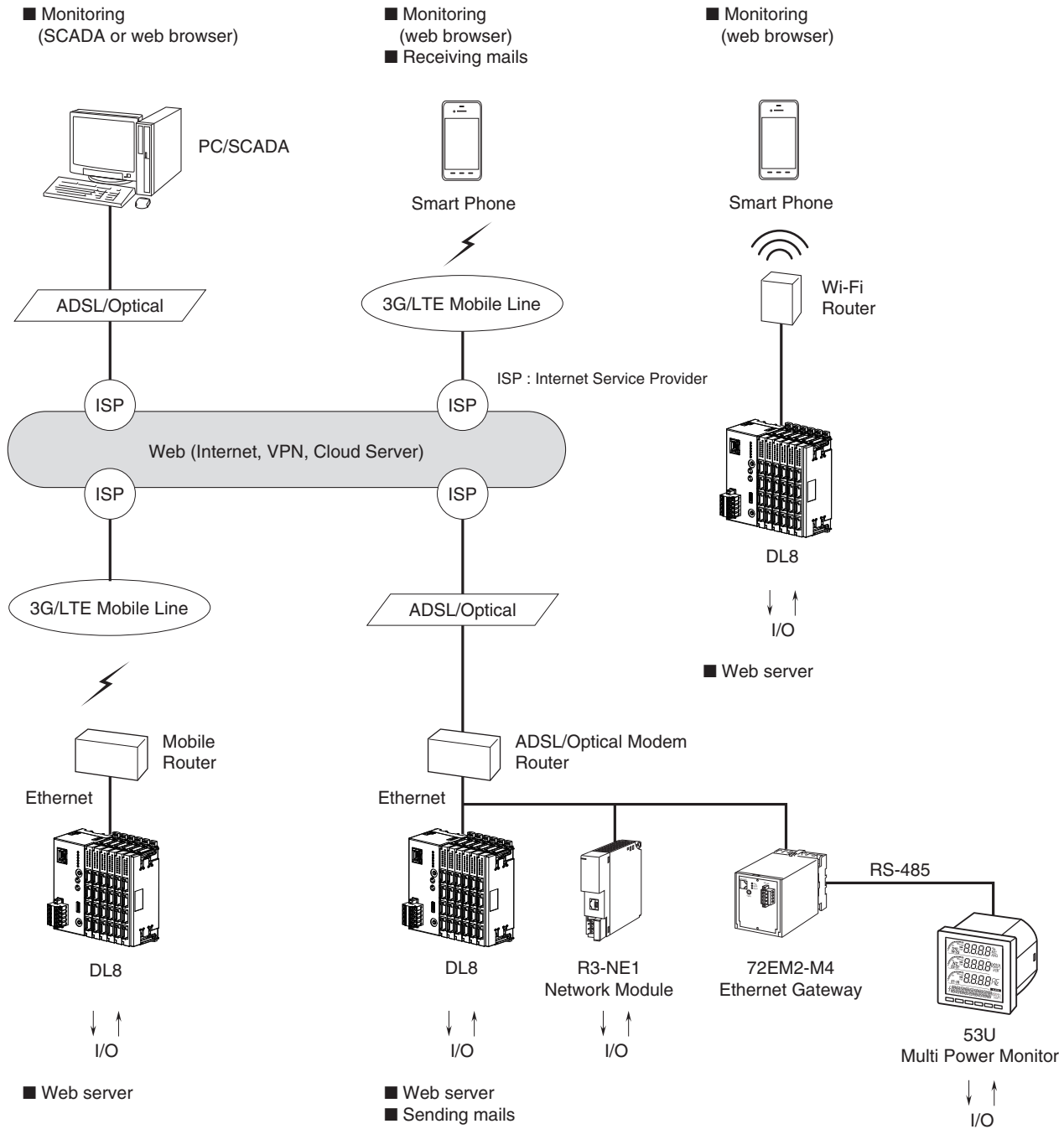
OTHER FUNCTIONS

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.)

SYSTEM CONFIGURATION EXAMPLES

Devices other than the DL8 in below provided by the user.



ISP: Internet Service Provider
 3G (3rd Generation): Third generation of mobile telecommunications technology
 LTE (Long-Term Evolution): Enhancement of the third generation

Note: An E-mail account for a mail server is required to use e-mailing function.



Specifications are subject to change without notice.