WEB DATA LOGGER

Web-Enabled Remote Terminal Unit for Monitoring, Event Reporting and Data Logging

DL8 Series

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 (between isolated circuits)

COMMUNICATION
- IP: DHCP client is supported. Manual setting of IP address, subnet mask, default gateway and DNS server also available.
- Modbus/TCP slave: Remote supervisory control 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): The DL8 can be a web server. 'Data,' 'Trend' and 'Event Log' views are accessible from remote locations.
- Web server function (Cloud): The DL8 can be an FTP client, and uploads 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 1.4.x or later)

BROWSING DEVICE
- PC
  - OS: Windows Vista, Windows 7 (32 bit/64 bit), Windows 8.1 (32 bit/64 bit)
  - Browser: Internet Explorer 10, Internet Explorer 11, Firefox 13.0.1 or later, Chrome 26.0.1410.43m or later
- Tablet, Smart Phone
  - OS: iPad, iPhone (iOS5 or later), Android terminal (Android4.0 or later)
  - Browser: iOS: Safari, Android: Chrome

EXTERNAL DIMENSIONS

STANDARDS & APPROVALS
- CE conformity:
  - EMS EN 61000-6-2: 2005

ETHERNET
- 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, 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 input: 24 V DC ±10%, 12 W
- Internal power: 5 V DC, 1.6 A
- Excitation supply output: 24 V DC ±10%, 7 A
- Power output current consumption must be under 7 A.
- 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)

M-SYSTEM CO., LTD.
www.m-system.com
Pre-installed user-friendly browser views for smart phones

‘Data’, ‘Trend’ and ‘Event Log’ views are ready for monitoring purpose. Each one is basic but useful, designed for ease of browsing on smart phones and tablets. No additional application program is needed, just have your mobile terminal with internet browser.

‘User Defined View’ feature is added with the DL8-D, which enables users to add their original data displays and graphics using HTML and JavaScript.

Browse, Report and Log

Four types of DL8 are available: Type A for ‘Browsing’ function with an internet browser; Type B added with ‘Reporting’ function by e-mails; Type C added with ‘Logging’ function with an SD card memory, and Type D with ‘I/O Mapping’ over Modbus/TCP network.

Flexible I/O signal types and scalable points

The DL8 is composed of an RTU module plus dedicated I/O modules for analog I/O, status (discrete) I/O and pulse count inputs which can be used in free combinations to meet exact users’ needs of I/O types and number of points. The minimum configuration consists of two analog inputs or four discrete inputs, while the maximum consists of 32 analog inputs 32 analog outputs, plus 64 discrete inputs, 64 discrete outputs and 32 pulse count inputs.

Enjoy modern communication infrastructure

Various network protocols are usable: TCP/IP, SMTP client, SNTP client, HTTP server, FTP client and server, Modbus/TCP master and slave. The latest communication infrastructure such as optical, ADSL, CATV broadbands, high-speed mobile communications and Wi-Fi networks.
Pre-installed user-friendly browser views for smartphones. Data, Trend, and Event Log views are ready for monitoring purposes. Each one is basic but useful, designed for ease of browsing on smartphones and tablets. No additional application program is needed, just have your mobile terminal with an internet browser.

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*1. User Defined View is an optional feature available with the DL8-D.

M-System does not provide smart phones and/or telecommunication services.
M-System does not provide cloud server services.

The DL8 may be used in monitoring applications which you thought were unable to meet your cost requirements.

- Construction machine
- Convenience store
- Greenhouse
- Elevated water tank
- Electric furnace
- Reservoir pond
- Winery/Brewery
- Building

Construction Machine
Convenience Store
Greenhouse
Large Equipment
Winery/Brewery
Building
**RTU MODULE**
‘Browsing,’ ‘Reporting,’ ‘Logging,’ ‘I/O Marshalling’ and ‘Advanced View’ functions can be combined to suit your applications at the minimum cost.

**I/O MODULE**
Economical slim I/O modules are selectable by signal types and number of points up to 16 modules. External Modbus/TCP slave modules can be also added.

<table>
<thead>
<tr>
<th>Type</th>
<th>Featured Functions (See right page)</th>
<th>I/O Module Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Browse</td>
<td></td>
<td>DL8-A</td>
</tr>
<tr>
<td>B</td>
<td>Browse</td>
<td>Report</td>
<td>DL8-B</td>
</tr>
<tr>
<td>C</td>
<td>Browse</td>
<td>Report</td>
<td>DL8-C</td>
</tr>
<tr>
<td>D</td>
<td>Browse</td>
<td>Report</td>
<td>I/O Marshalling Advanced View</td>
</tr>
</tbody>
</table>

**Signal Type**

<table>
<thead>
<tr>
<th>Signal Type</th>
<th>Max. Capacity per Module</th>
<th>I/O Module Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog Input</td>
<td>32 points</td>
<td>DC current input (2 points, isolated)</td>
<td>R8-SS2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC current input (4 points, non-isolated)</td>
<td>R8-SS4N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC current input (4 points, sensor exc., non-isolated)</td>
<td>R8-SS4NJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC voltage input (2 points, isolated)</td>
<td>R8-SV2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC voltage input (4 points, non-isolated)</td>
<td>R8-SV4N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thermocouple input (2 points, isolated)</td>
<td>R8-TS2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RTD input (4 points, non-isolated)</td>
<td>R8-RS4N</td>
</tr>
<tr>
<td>Discrete Input</td>
<td>64 points</td>
<td>Contact input (4 points, NPN)</td>
<td>R8-DA4A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contact input (16 points, NPN)</td>
<td>R8-DAM16A</td>
</tr>
<tr>
<td>Pulse Input</td>
<td>32 points</td>
<td>Totalized pulse input (4 points, NPN/PNP/voltage pulse)</td>
<td>R8-PA4</td>
</tr>
<tr>
<td>Analog Output</td>
<td>32 points</td>
<td>DC voltage output (4 points, non-isolated)</td>
<td>R8-YV4N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC current output (2 points, isolated, 24 mm wide)</td>
<td>R8-YS2</td>
</tr>
<tr>
<td>Discrete Output</td>
<td>64 points</td>
<td>Transistor output (4 points, NPN, shortcircuit protection)</td>
<td>R8-DC4A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transistor output (4 points, NPN, shortcircuit protection)</td>
<td>R8-DC4A2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Photo MOSFET relay output (4 points)</td>
<td>R8-DC4C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transistor output (16 points, NPN, shortcircuit protection)</td>
<td>R8-DCM16A</td>
</tr>
</tbody>
</table>

*1. Including extended remote I/Os

**Modbus RTU**

*GR8-EM ETHERNET ADAPTOR*
**DL8-C and -D SD Card Slot**

**Selected Features at Minimum Cost**

- **External Modbus/TCP**
- **I/O Marshalling**
- **Logging**, **I/O Marshalling**, **Report**, and 'Advanced View'

**Economical slim I/O**

- Added slave modules can be also selectable by functions can be combined to suit your applications at the minimum cost.

**Replaceable module by module**

- Shock/vibration resistant, Discrete Output, Analog Output, Pulse Input, Discrete Input, Type ModelFeatured Functions (See right page)
- *Transistor output (16 points, NPN, shortcircuit protection)*
- *Photo MOSFET relay output (4 points)*
- *Transistor output (4 points, NPN, shortcircuit protection)*
- *DC current output (2 points, isolated, 24 mm wide)*
- *Contact input (16 points, NPN)*
- *Contact input (4 points, NPN)*
- *RTD input (4 points, non-isolated)*
- *Thermocouple input (2 points, isolated)*
- *DC voltage input (4 points, non-isolated)*
- *DC current input (4 points, sensor exc., non-isolated)*

**Type ModelFeatured Functions (See right page)**

- 64 points
- 32 points
- DC voltage output (4 points, non-isolated)
- Totalized pulse input (4 points, NPN/PNP/voltage pulse)
- 64 points
- 32 points

**Log**

- Browsing / Uploading CSV File

**I/O Marshalling**

- Browsing (Direct)
- Browsing (Cloud)

**Alarm Contact**

- Browsing

**Extended I/O**

- E-Mail

**Buzzer / Lamp**

- SD Card

**Modbus/TCP**

- FTP Server

**GR8-EM ETHERNET ADAPTOR for Modbus RTU extension**

<table>
<thead>
<tr>
<th>Type</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

- **Browse**
  - Browsing (Direct)
  - Browsing (Cloud)
  - Extended I/O

- **Report**
  - E-Mail
  - Alarm Contact
  - FTP Client

- **Log**
  - Data Logging
  - FTP Server

- **I/O Marshalling Advanced View**
  - I/O Mapping
  - User Defined View

**INTERNET**

- **FTP Server**
- **FTP Client**
- **CSV File**
- **Cloud Server** (Browsing / Uploading)
- **E-Mail**

**LOCAL**

- **Tablet**
- **Smart Phone**

**Tablet**

- Browsing (Direct)
- Browsing (Cloud)
- E-Mail
- CSV File
- FTP Server
- FTP Client
- SD Card

**Smart Phone**

- Browsing
- Wi-Fi

**Modbus/RTU**

- 53U
- R7M

**Modbus Device**

- Browsing (Direct)
- Browsing (Cloud)

**User Defined View**

- 1. M-System does not provide cloud server services.
- 2. A Wi-Fi access point is required to use Wi-Fi connection.
Direct or Cloud Access with a Web Browser

Direct Access (1 : 1)
• I/O signal status in the DL8 web server can be directly monitored and manipulated with an internet browser.

Cloud Access (N : N)
• The DL8 operating as FTP client uploads web use files to a cloud server.
• Multiple users can access it at once without extra load at the DL8.
• Multiple DL8 data can be managed by directories in the server.

Extended Modbus I/O

• I/Os located within 500-meter distance can be collected and accessed via single DL8 module.
• M-System’s remote I/O model R7E, R6-NE1/2, R3-NE1 and other general Modbus/TCP slaves can be connected.
• Local I/O data collected at the DL8 can be polled by a SCADA system via internet or intranet (LAN).

GENERAL I/O SETTING

<table>
<thead>
<tr>
<th>CH assignment</th>
<th>Built-in module : Module address + Ch. No. Modbus device : Node + Register type + Register address</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH designation</td>
<td>User defined channel ID (32 characters) + tag name / comment (64 characters)</td>
</tr>
</tbody>
</table>

AI : ANALOG INPUT (or 16-bit data)

<table>
<thead>
<tr>
<th>Data type</th>
<th>% : [% x 100] format (-2000 to 12000) for voltage / current input  Int : Signed 16-bit integer format (-32768 to 32767) for temperature input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter</td>
<td>None / Moving Average / Delay Buffer</td>
</tr>
<tr>
<td>Engineering unit</td>
<td>User defined (16 characters)</td>
</tr>
</tbody>
</table>

PI : PULSE INPUT (or 32-bit data)

<table>
<thead>
<tr>
<th>Accumulation</th>
<th>Totalizing count deviation from reset status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering unit</td>
<td>User defined (16 characters)</td>
</tr>
<tr>
<td>Reset input</td>
<td>Di CH</td>
</tr>
</tbody>
</table>

DI : DISCRETE INPUT

<table>
<thead>
<tr>
<th>Data type</th>
<th>Status : ON/OFF Counter : ON/OFF Time duration or number of status change is counted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset input</td>
<td>Di CH</td>
</tr>
</tbody>
</table>

Modbus RTU

- Max. 12 Nodes (Modbus Slave)

*1. Pi is for pulse accumulation and 32-bit signed integer data.
**E-Mail & Alarm Contact Output**

- Events can be reported by text message.
- Selected channel data can be attached.
- Regular reporting and test mailing are also possible.
- SMTP over SSL encryption
- Events can trigger an alarm contact at a discrete output module.
- Specified Do can be turned on after a mail delivery

**FTP Client**

**CSV File Upload**

- Specified channel data can be converted into user-defined CSV files and uploaded to an FTP server.
- Data transfer in the preset time intervals

**FTP Server**

**Data Logging in SD Card**

- Data is sampled and stored in CSV format in an SD card.
- The host supervising system (PC) can upload CSV data files from the DL8 operating as FTP server.

**Modbus TCP Master**

**I/O Mapping**

- Peer-to-peer connection between Modbus/TCP slaves
- DI/DO and AI/AO signal marshaling is easily set up on the DL8
- Remote multiplex transmission on IP network

**Easy Setup**

Simply choose input and output on the list.

---

**Table of Data Logging in SD Card**

<table>
<thead>
<tr>
<th>Character set</th>
<th>Shift JIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>32 channels selected among AI, DI, Di count, PI, Do, Ao</td>
</tr>
<tr>
<td>Storing interval (synchronized with RTC)</td>
<td>1 / 2 / 5 / 10 / 20 / 30 sec</td>
</tr>
<tr>
<td>Storing interval &amp; FTP transfer cycle</td>
<td>1 / 2 sec : Transferred every 1 min / 10 min / 1 hour (selectable) 5 / 10 / 30 sec : Transferred every 10 min / 1 hour (selectable) 1 / 2 / 5 / 10 / 30 min : Transferred every day Dateline can be specified.</td>
</tr>
<tr>
<td>Analog file deletion</td>
<td>Firmware V.1.4.x or later</td>
</tr>
<tr>
<td>Logging time duration</td>
<td>Approx. 180 days for 32 points with 1-sec. intervals (counting only the logging data files)</td>
</tr>
<tr>
<td>FTP client</td>
<td>Explorer or Browser (Internet Explorer 10, 11, Firefox 13.0.1 or later)</td>
</tr>
</tbody>
</table>

*2. V.1.5.0 or later

**Note:** Do/Ao assigned for I/O mapping cannot be controlled via Modbus/TCP or web browser view.
Smart Phone / Tablet / Laptop PC

Web Browsed Views Designed for Mobiles

Display Examples with iPhone or Android™
Trend view optimized for the aspect ratio of a smart phone screen

Display Examples with iPad
Event log view designed for ease of reading on the vertical screen of a tablet

Large sized buttons are placed for ease of operating on the small sized screen of a smart phone.

● iPhone and iPad are registered trademarks of Apple Inc.
● Android and Android logo are trademarks of Google Inc.
Short trend and digital data displays are available to monitor analog, discrete and totalized pulse signals. Event log is also available to review alarm events. All the views can be quickly ready for use by simple setting.

### TREND

#### TREND VIEW SPECIFICATIONS

- **Sampling rate**: 1 s / 5 s / 10 s / 30 s / 1 min / 5 min / 10 min / 30 min / 1 h / 1 day
- **Number of pages**: 8 pages
- **Number of chs**: 4 chs per page
- **Pen color**: User defined (RGB)
- **Graph range**: User defined (engineering unit value)
- **Number of samples**: Max. 7200 points per ch
- **Scrollable charts**: 1 to 10 (720 samples per chart span)

### EVENT LOG

#### EVENT LOG SPECIFICATIONS

- **Analog signal**: Alarm triggered when measured value passes across the setpoint.
- **Discrete signal**: Alarm triggered when status changes.
- **Totalized count**: Alarm triggered when pulse count exceeds the setpoint. (Counter can be reset.)
- **Pulse signal**: Alarm triggered when measured value passes across the setpoint.

### DATA

#### ANALOG INPUT DATA DISPLAY

- Channel No.
- Channel name
- Engineering unit value
- % value
- Status
- Zone color

#### DISCRETE INPUT DATA DISPLAY

- Count
- Unit
- Reset button
- Status color

#### PULSE INPUT DATA DISPLAY

- Engineering unit value
- Unit
- Reset button
- Zone color

#### DISCRETE OUTPUT DATA DISPLAY

- Status
- ON button
- OFF button

#### ANALOG OUTPUT DATA DISPLAY

- Engineering unit value
- Output control
**USER DEFINED VIEWS**

Customized Web Browser Views

---

**DATA VIEW BY HTML**

Example using the DL8 original tags

---

**GRAPHIC VIEW**

Example using JavaScript

---

**USING THE DL8 ORIGINAL TAGS**

The DL8 original tags in an HTML file are automatically converted into corresponding text/data string by the DL8. Users who do not have technical knowledge of programming scripts can easily create an original data view.

The DL8 User Defined View must be created and used under the user’s sole responsibility, including its display components and functions.
Customized Web Browser Views

USER DEFINED VIEWS

The DL8 User Defined View must be created and used under the user’s sole responsibility, including its display components and functions. Users who do not have technical knowledge of programming can easily create an original data view.

USING THE DL8 ORIGINAL TAGS

Example using the DL8 original tags

Example using

Turning Pump ON/OFF

Setting Valve Opening

Creating User’s Original Views by JavaScript or HTML

Measured data strings can be output as JavaScript arrays. Users who have knowledge and skills of JavaScript language, HTML and CSS used to build a web site can freely create original trend graphs, bargraphs and graphic views.

Analog input, analog output, discrete input, discrete output, trend data, event data and other variety of array files are available.

JAVASCRIPT ARRAY FILES

FILE NAME

data_di.js

data_ai.js

data_ao.js

data_di.js

DATA

DI Channel var di_ch = ["DI1", "DI2", ...];

DI CH name var di_name = ["DI1", "DI2", ...];

Number of DI channels var di_chs = 16;

AI Channel var ai_ch = ["AI1", "AI2", ...];

AI CH name var ai_name = ["AI1", "AI2", ...];

Number of AI channels var ai_chno = [1, 2, ...];

AI Zone name var ai_area = ["HH", "H", ...];

AI Engineering unit var ai_unit = ["km", "kg", ...];

AI % value [% x 100] var ai_per = [-20.00, 5.00, ...];

AI Engineering unit value var ai_real = [-50.32, 30.55, ...];

AI CH comment var ai_comm = ["Ai-0001", "Ai-0002", ...];

AI CH name var ai_name = ["AI1", "AI2", ...];

TREND DATA

TREND DATA

trend_p1.js

trend_p8.js

trend_p1.js

Number of AD channels var ao_chs = 16;

AD Channel var ao_ch = ["AO1", "AO2", ...];

AD CH name var ao_name = ["AO1", "AO2", ...];

AD CH comment var ao_comm = ["Do-0001", "Do-0002", ...];

AD Engineering unit value var ao_real = [0.00, 0.00, 0.00, ...];

AD Engineering unit var ao_unit = ["V", "A", ...];

Enable/Disable AO control var ao_enable = [1, 0, ...];

AD Web control limit (lower) var ao_lower = [0.00, 0.00, 0.00, ...];

AD Web control limit (upper) var ao_upper = [100.00, 100.00, 100.00, ...];

Authorization level var auth_level = 0;

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control)

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control

FILE NAME DATA VARIABLE DEFINITION FORMAT

dl_header.js Present time var year, mon, day, hour, min, sec;

data_ai.js Number of AI channels var ai_chno = [1, 2, ...];

data_ao.js Number of AO channels var ao_chs = 16;

data_di.js Number of DI channels var di_chs = 16;

data_di.js Number of array elements in the following format descriptions

(AO Web control limit (lower) var ao_lower = [0.00, 0.00, 0.00, ...];

AO Web control limit (upper) var ao_upper = [100.00, 100.00, 100.00, ...];

Authorization level var auth_level = 0;

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control)

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control

(0: Unauthorized 1: Authorized for monitoring 2: Authorized for control

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TREND DATA

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Simulated Imagery. View samples are not provided by M-System.
DL8 SETUP / SYSTEM CONFIGURATIONS

The DLCFG PC Configurator software is available to customize the views with the user specific information and various parameters. The user-friendly program is easy to use for anyone without special knowledge about network and software. The DLCFG can be downloaded for free of charge at M-System's web site.

Setup

The DLCFG PC Configurator software is available to customize the views with the user specific information and various parameters. The user-friendly program is easy to use for anyone without special knowledge about network and software. The DLCFG can be downloaded for free of charge at M-System's web site.

Setup Items

- **USER SETTING**
  - SYSTEM
    - Name
    - Time Zone
    - Start Mode
  - INPUT/OUTPUT
    - Modbus/TCP Node
      - Ao
      - Do
    - Pi
  - COMMUNICATION
    - Web Server
    - Modbus/TCP Slave
    - SMTP/POP3
    - FTP Client
    - FTP Server
  - E-MAIL
    - Address List
    - Event Report
    - Regular Report
    - Delivery Failure Report
  - LOGGING
    - General
    - Data Logging
    - Channel Event Log
  - I/O MAPPING
    - Ao
    - Do

- **MAINTENANCE SETTING**
  - Date / Time
  - User Defined Imagery
  - MAC Address
  - DL8 Version
  - System Log
  - Preset Count
  - FTP Client Test
  - Test Mail
  - Start/Stop Logging
  - Disk Usage
  - User Defined Browser View

How to Set Up

- **SETUP SYSTEM CONFIGURATION**
  - Via Network
    - PC Configurator Software
    - DL8
    - Windows PC
  - Mail Setting via Browser
    - Mail address and texts can be set to the DL8 from your smart phone via internet.
  - Local Setting
    - PC Configurator Software
    - DL8
    - Windows PC
    - DL8

+1. E-mail setting
+2. Special cable

PC Configurator Cable Model: COP-US
The DLCFG PC Configurator software is available to customize the views with user-specific information and various parameters. The user-friendly program is easy to use for anyone without special knowledge about network and software. The DLCFG can be downloaded for free of charge at M-System’s website.
DL8 APPLICATION EXAMPLES

The DL8 web data logger is suitable for a wide variety of monitoring applications such as: construction machines, convenience stores, large equipment, elevated water tanks, wineries, breweries, electric furnaces, reservoir ponds, building, etc.

CNG Gas Filling Stations
Also applicable to: Utility / Infrastructure Monitoring

- Material level monitoring
- Optimization of refilling schedule
- Effective service personnel assignment

Construction Machines
Also applicable to: Mobile Equipment

- Remote monitoring of mobile equipment
- Operation log for effective maintenance

Irrigation Canal Gate
Also applicable to: Utility / Infrastructure Monitoring

- Remote monitoring & control
- Alert mail to multiple users
- Web camera surveillance and telemetering via single fiber optics line

Gas Cogeneration Generator
Also applicable to: Green Energy Plants

- Utilizing existing in-house LAN
- Alerting facility manager and maintenance company at once in case of trouble
- Operation log for effective maintenance

Static IP or dynamic DNS is required.
Web-Enabled Remote Terminal Unit for Monitoring, Event Reporting and Data Logging

**Microbrewery**

Also applicable to: Small Scale Fermentation Plants

- Remote monitoring
- Utilizing existing in-house LAN and e-mail server
- Abnormality alert mail including update data

**Boiler Test Run Monitoring**

Also applicable to: Machinery & Equipment Monitoring

- Combination of the DL8/mobile router needs only a minimum space, ideal for temporary installation for the startup
- Supervisor and field operators can double-check the data at once

**Tank Farm**

Also applicable to: Utility / Infrastructure Monitoring

- Wireless data monitoring for HART wireless transmitters
- Monitoring of material level and temperature

**Water Quality Analyzer**

Also applicable to: Utility / Infrastructure Monitoring

- Water quality monitoring
- Effective service personnel assignment
RTU MODULE SPECIFICATIONS

GENERAL SPECIFICATIONS
Max. number of built-in I/O modules: 16
Max. consumption current of I/O modules is limited to 1.6 A.
Isolation: Ethernet to internal bus or internal power or power supply (exc. supply) to RUN contact output*1 to FE
Calendar clock: Year (4 digits), month, date, day, hour, minute, second
Status indicator LED: POWER, LOGGING, SD CARD, SEND, COM, ERROR
RUN contact output*1: Photo MOSFET relay (no polarity); OFF at error
*1. RUN contact output is available with the firmware version 1.4.x or later for the DL8-C.

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 (between isolated circuits)

STANDARDS & APPROVALS
EMI EN 61000-6-4: 2007/A1: 2011
EMS EN 61000-6-2: 2005

ETHERNET
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, SFTP
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 input: 24 V DC ±10%, 12 W
Internal power: 5 V DC, 1.6 A
Excitation supply output: 24 V DC ±10%, 7 A
Power output current consumption must be under 7 A.
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)

COMMUNICATION
IP: DHCP client is supported.
Manual setting of IP address, subnet mask, default gateway and DNS server also available.
Modbus/TCP slave: Remote supervisory control 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): The DL8 can be a web server.
'Data,' 'Trend' and 'Event Log' views are accessible from remote locations.
Web server function (Cloud): The DL8 can be an FTP client, and uploads 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)

BROWSING DEVICE
PC
• OS: Windows Vista, Windows 7 (32 bit/64 bit)
  Windows 8.1 (32 bit/64 bit)
• Browser: Internet Explorer 10, Internet Explorer 11
  Firefox 13.0.1 or later
  Chrome 26.0.1410.43m or later

Tablet, Smart Phone
• OS: iPad, iPhone (iOS5 or later)
  Android terminal (Android 4.0 or later)
• Browser:
  iOS: Safari
  Android: Chrome

EXTERNAL DIMENSIONS

Specifications are subject to change without notice. When ordering, use the latest data sheets available at M-System web site: www.m-system.com