

**DX1000/DX1000N/DX2000
EtherNet/IP
Communication Interface**

vigilantplant®

Thank you for purchasing Daqstation DX1000, DX1000N, or DX2000 (Hereafter, called "DX").

This manual explains the EtherNet/IP communication function of the DX. Read this manual together with other User's Manuals (IM04L41B01-01E, IM04L42B01-01E, and IM04L41B01-17E).

Notes

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History

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Symbols Used in This Manual

- **Units**

- k: Denotes 1000. Examples: 5 kg, 100 kHz
- K: Denotes 1024. Example: 640 Kbytes

- **Cautionary notes**

In this User's Manual, cautionary notes are distinguished by the following symbols:



Refer to corresponding location on the instrument. This symbol appears on dangerous locations on the instrument which require special instructions for proper handling or use. The same symbol appears in the corresponding place in the manual to identify those instructions.

WARNING

Calls attention to actions or conditions that could cause serious injury or death to the user, and precautions that can be taken to prevent such occurrences.

CAUTION

Calls attentions to actions or conditions that could cause light injury to the user or damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

Note

Calls attention to information that is important for proper operation of the instrument.

- **Bold characters**

Denotes key or character string that appear on the DX screen.

The symbol ◇ indicates the key operation and menu selection procedure on the DX.

Assumption of Explanation

The explanation in this manual assumes that the DX is connected via communications with Rockwell Automation's Programmable Logic Controller (PLC) of the Allen-Bradley brand. The basic items for this configuration are explained. For the operation procedures of Rockwell Automation products, see the user's manuals of these products.

This manual is intended for those who have used an Allen-Bradley PLC and EtherNet/IP.

In this manual, the screens of the DX1000 are used. The content displayed on the DX2000 screens are not different from those displayed on the DX1000 screen.

Contents

| | |
|---|----|
| Symbols Used in This Manual | 2 |
| Assumption of Explanation | 3 |
| Introduction of Features | 5 |
| EtherNet/IP | 5 |
| What the DX Can Do | 6 |
| Settings of the DX | 6 |
| Access to the DX | 6 |
| Connection to a Network | 7 |
| Cable Connection | 7 |
| Settings of the DX | 7 |
| Other | 7 |
| Preparation for PLC | 8 |
| EDS File | 8 |
| System Configuration | 8 |
| Explicit Message | 9 |
| System Configuration on PLC | 9 |
| Data on the DX | 12 |
| I/O Messages | 13 |
| System Configuration on PLC | 13 |
| Data on the DX | 13 |
| Communication Considerations | 14 |
| About Communication Interval | 14 |
| Access to Non-existent Data | 14 |
| When the DX Data Type Differs from the Data Type Specified in a Command | 14 |
| On Models with the PROFIBUS-DP Interface (/CP1 option) | 15 |
| Specifications | 16 |
| Example of an Explicit Message Using RSLogix 5000 | 17 |
| Example of I/O Message Using RSLogix 5000 | 19 |
| Index | 20 |

Introduction of Features

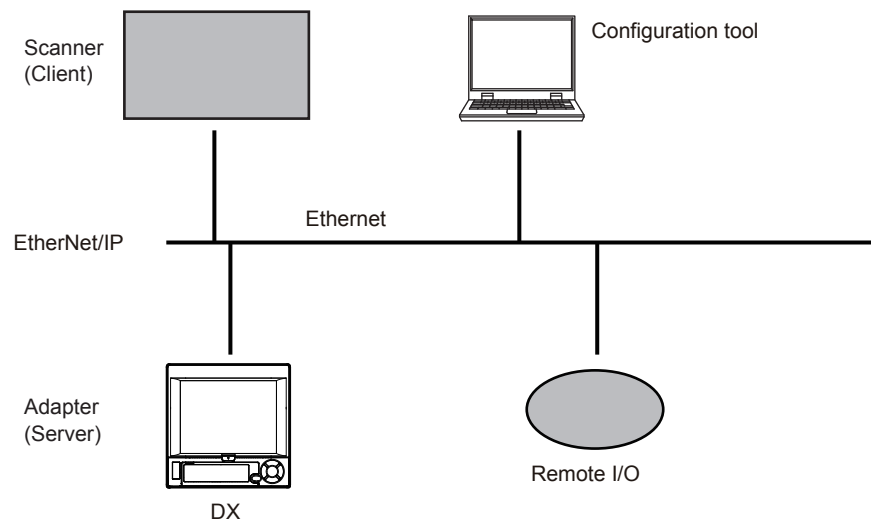
EtherNet/IP

EtherNet/IP is a protocol that extends Common Industrial Protocol (CIP) to Ethernet. The use of Ethernet enables high-speed and periodic exchange of massive control and monitoring data between control devices placed at dispersed locations.

Devices that support EtherNet/IP are available from many vendors. Among them, Rockwell Automation's Programmable Logic Controller (PLC) and Remote I/O of the Allen-Bradley brand are widely used. Yokogawa's DX, equipped with the EtherNet/IP server function, supports communications with these PLCs.

Configuration Components

- Scanner (Client)
A device that launches a request on EtherNet/IP. This is either a PLC or PC. For the DX, PLCs such as Allen-Bradley PLC-2, PLC-5, SLC 500, MicroLogix, CompactLogix, and ControlLogix represent a Scanner (Client).
- Adapter (Server)
A remote I/O device that the Scanner (Client) can access to read or write data. The DX is an Adapter (Server).
- Configuration tool
A tool used to configure the system. This is either a PC on which configuration software has been installed or the software itself. Rockwell Automation RSLinx500 and RSLinx5000 and the communication driver software RSLinx are configuration tools.



Note

For details of EtherNet/IP, see the information supplied by the Open DeviceNet Vendor Association (ODVA).

What the DX Can Do

The DX provides the following functions:

- Participate in an EtherNet/IP network as an Adapter (Server).
- Communicate with new and old Allen-Bradley PLCs such as MicroLogix, CompactLogix, ControlLogix, SLC 500, PLC-5, and PLC-2.
- Support both Explicit and I/O messages.
- PLCs can access internal data of the DX.

| Data | Access |
|---|------------|
| Measurement channel data | Read |
| Computation channel ^{*1} data | Read |
| Communication input data ^{*1*2} | Read/write |
| External input channel data ^{*3} | Read/write |

*1 Optional (/M1 and /PM1).

*2 Communication input data, if coded in a calculation expression in the computation channel, can be displayed on the DX.

*3 This function is available only on the DX2000. Optional (/MC1).

The following shows examples of usage.

- Data on devices on a network can be recorded by a PLC to the DX.
- Data measured by the DX can be acquired by a PLC.

Settings of the DX

The DX is ready to use after the following settings have been made.

- IP address and other settings required to connect to Ethernet
- Enabling of EtherNet/IP server function

Access to the DX

The DX is a passive device on an Ethernet network. The DX cannot launch a request. A PLC launches a request to the DX.

A request is called a "message". There are two message types: Explicit message and I/O messages (Implicit message). An Explicit message, included in control logic, is used to access the DX, only when required, and transmit data. An I/O message is used to transmit pre-specified DX data at intervals.

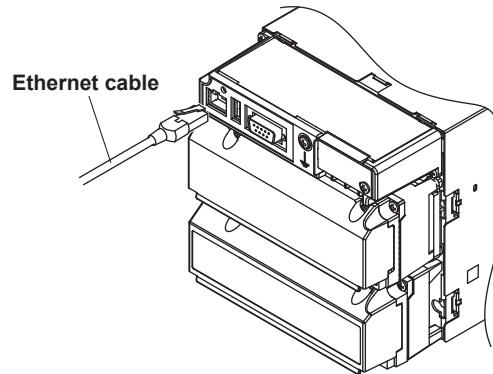
The DX supports communications with old-model Allen-Bradley PLCs not compatible with EtherNet/IP. The DX can also communicate with PLCs compatible with Programmable Controller Communication Command (PCCC) using conversion of PCCC to EtherNet/IP at the gateway. PCCC refers to serial communications that are also called DF1 communications.

The DX supports EtherNet/IP in which PCCC requests are encapsulated. It can communicate also with PLCs that support encapsulated PCCC.

Connection to a Network

Cable Connection

Connect the Ethernet cable to the Ethernet port provided on the back of the DX.



CAUTION

Be sure to connect an Ethernet cable with an FCC-compliant plug. Otherwise, the MV may malfunction.

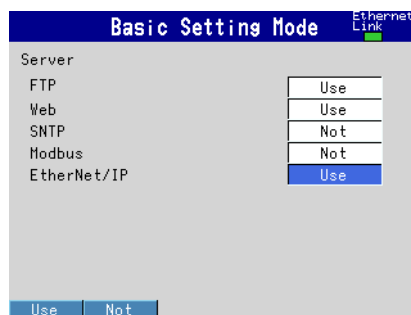
Settings of the DX

IP Address, Host Information, and DNS Setting, etc.

See Section 1.3 of the *Communication Interface User's Manual (IM04L41B01-17E)*.

EtherNet/IP Server Settings

- ◇ Press **MENU** (to switch to setting mode), hold down **FUNC** for 3 s (to switch to basic setting mode), and select the **Menu** tab > **Communication (Ethernet)** > **Server** > **Server modes**.



- **Server**
Set **EtherNet/IP** to **Use**.

Note

The EtherNet/IP server settings can be checked on the Network Information Screen of the DX. You can open the Network Information Screen by pressing the **FUNC** > **Network info** soft key.

Other

When the DX is in the basic setting mode, communications are available but input/output data is invalid.

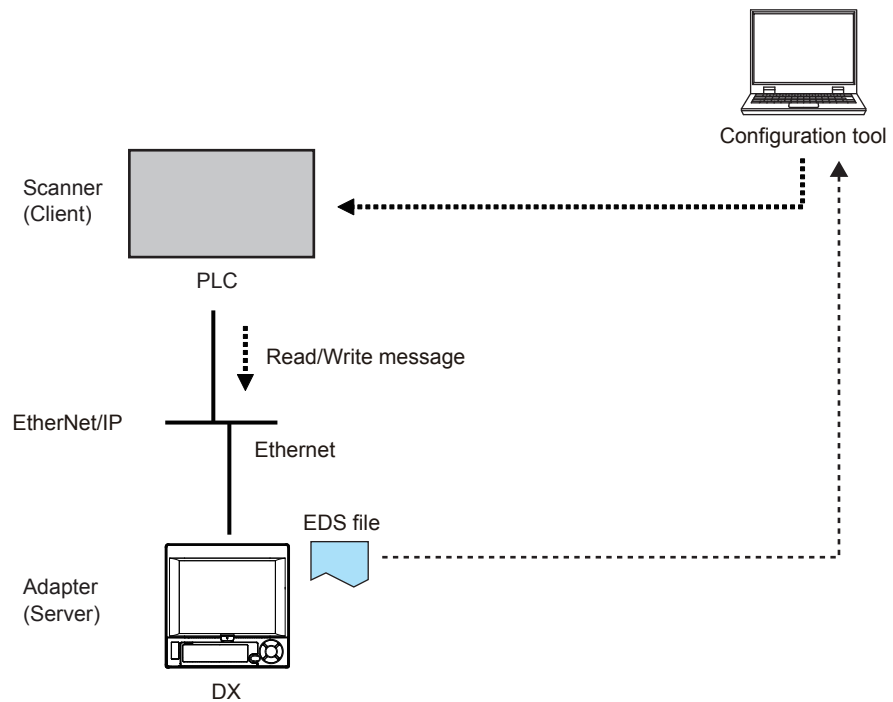
Preparation for PLC

EDS File

Installation

To have the DX participate in a network, first install the DX device profile (Electronic Data Sheet; EDS file) in the configuration tool. A PLC communicates with the DX based on the information in the EDS file.

Conduct installation using the "EDS Hardware Installation Tool" of RSLinx. For information on using the configuration tool, see the user's manual of the configuration tool.



How to Obtain the EDS File

Obtain the EDS file from the Yokogawa Web site:

URL: www.yokogawa.com/ns/dxadv/download/

System Configuration

Use the configuration tool to make the communication settings.

Use RSLinx, RSLogix500, or RSLogix5000 to make an Explicit message or I/O message, download it to the PLC, and execute it.

For information on using the configuration tool and a PLC, see the user's manuals of these products.

Explicit Message

An Explicit message is a point-to-point, request/response-type communication.

System Configuration on PLC

Use the configuration tool to code an Explicit message as an MSG instruction in the control logic. In the MSG instruction, set all the information including a target device, target register, and read/write. Download the created control logic to a PLC and execute it.

On the DX, the data count to be accessed per MSG instruction should be 100 or less.

In Case of PLC-2, PLC-5, and SLC

- Commands**

When creating an MSG instruction, specify a command. The DX supports the following commands:

| Target PLC | Command name |
|------------|-----------------------------|
| PLC-2 | PLC2 Unprotected Read/Write |
| PLC-5 | PLC5 Word Range Read/Write |
| | PLC5 Typed Read/Write |
| SLC | SLC Typed Read/Write |

- Specification of data to be accessed**

Specify which of the data in the DX should be accessed. The PLC-2, PLC-5, and SLC manage data to be accessed in units of "files."

For an external input channel, separate access destinations are used for reading and writing.

Command: PLC2 Unprotected Read/Write

| Data to be accessed | | File number |
|--------------------------------------|--------|------------------|
| Type | Number | Data type: INT16 |
| Measurement channel | 1 | 1000 |
| | 2 | 1001 |
| | ... | ... |
| | 47 | 1046 |
| | 48 | 1047 |
| Computation channel | 101 | 2000 |
| | 102 | 2001 |
| | ... | ... |
| | 159 | 2058 |
| | 160 | 2059 |
| Communication input data | C01 | 3000 |
| | C02 | 3001 |
| | ... | ... |
| | C59 | 3058 |
| | C60 | 3059 |
| External input channel (for writing) | 201 | 4000 |
| | 202 | 4001 |
| | ... | ... |
| | 439 | 4238 |
| | 440 | 4239 |
| External input channel (for reading) | 201 | 4500 |
| | 202 | 4501 |
| | ... | ... |
| | 439 | 4738 |
| | 440 | 4739 |

"..." stands for data in numerical order.

Commands: PLC5 Word Range Read/Write, PLC5 Typed Read/Write, and SLC Typed Read/Write

| Data to be accessed | | File number | | |
|--------------------------------------|--------|--------------------|--------------------|--------------------|
| Type | Number | Data type INT16 | Data type INT32 | Data type FLOAT |
| Measurement channel | 1 | N10:00 | L10:00 | F10:00 |
| | 2 | N10:01 | L10:01 | F10:01 |
| | ... | ... | ... | ... |
| | 47 | N10:46 | L10:46 | F10:46 |
| | 48 | N10:47 | L10:47 | F10:47 |
| Computation channel | 101 | N20:00 | L20:00 | F20:00 |
| | 102 | N20:01 | L20:01 | F20:01 |
| | ... | ... | ... | ... |
| | 159 | N20:58 | L20:58 | F20:58 |
| | 160 | N20:59 | L20:59 | F20:59 |
| Communication input data | C01 | N30:00 | L30:00 | F30:00 |
| | C02 | N30:01 | L30:01 | F30:01 |
| | ... | ... | ... | ... |
| | C59 | N30:58 | L30:58 | F30:58 |
| | C60 | N30:59 | L30:59 | F30:59 |
| External input channel (for writing) | 201 | N40:00 | L40:00 | F40:00 |
| | 202 | N40:01 | L40:01 | F40:01 |
| | ... | ... | ... | ... |
| | 439 | N42:38 | L42:38 | F42:38 |
| | 440 | N42:39 | L42:39 | F42:39 |
| External input channel (for reading) | 201 | N45:00 | L45:00 | F45:00 |
| | 202 | N45:01 | L45:01 | F45:01 |
| | ... | ... | ... | ... |
| | 439 | N47:38 | L47:38 | F47:38 |
| | 440 | N47:39 | L47:39 | F47:39 |

Specify a data address, for example, as N10:0 (where N is INT16, the file number is 10, and the element number is 0).

Use only N file for command, "PLC5 Word Range Read/Write"

"..." stands for data in numerical order.

In Case of CompactLogix, etc.

- **Command: CIP Data Table Read/Write**

The DX supports the following commands:

| Target PLC | Command name |
|--------------------|---------------------------|
| CompactLogix, etc. | CIP Data Table Read/Write |

- **Specifying data to be accessed**

Specify which of the data in the DX should be accessed. For Logix, data can be accessed by a "tag name".

For an external input channel, separate access destinations are used for reading and writing.

| Data to be accessed | | Tag name | | |
|---|--------|--------------------|--------------------|--------------------|
| Type | Number | Data type INT16 | Data type INT32 | Data type FLOAT |
| Measurement channel | 1 | int[1000] | int[1000] | real[1000] |
| | 2 | int[1001] | dint[1001] | real[1001] |
| | ... | ... | ... | ... |
| | 47 | int[1046] | dint[1046] | real[1046] |
| | 48 | int[1047] | dint[1047] | real[1047] |
| Computation channel | 101 | int[2000] | dint[2000] | real[2000] |
| | 102 | int[2001] | dint[2001] | real[2001] |
| | ... | ... | ... | ... |
| | 159 | int[2058] | dint[2058] | real[2058] |
| | 160 | int[2059] | dint[2059] | real[2059] |
| Communication input data | C01 | int[3000] | dint[3000] | real[3000] |
| | C02 | int[3001] | dint[3001] | real[3001] |
| | ... | ... | ... | ... |
| | C59 | int[3058] | dint[3058] | real[3058] |
| | C60 | int[3059] | dint[3059] | real[3059] |
| External input channel (for writing) | 201 | int[4000] | dint[4000] | real[4000] |
| | 202 | int[4001] | dint[4001] | real[4001] |
| | ... | ... | ... | ... |
| | 439 | int[4238] | dint[4238] | real[4238] |
| | 440 | int[4239] | dint[4239] | real[4239] |
| External input channel (for reading) | 201 | int[4500] | dint[4500] | real[4500] |
| | 202 | int[4501] | dint[4501] | real[4501] |
| | ... | ... | ... | ... |
| | 439 | int[4738] | dint[4738] | real[4738] |
| | 440 | int[4739] | dint[4739] | real[4739] |

"..." stands for data in numerical order.

Data Type

For a PLC, you can specify the type of read or write data using a file number or tag name in a command. However, the data type is fixed to INT16 for commands "PLC2 Unprotected Read/Write" and "PLC5 Word Range Read/Write."

On the other hand, the data types on the DX are determined as shown in the following section, "Data on the DX". For values to be used when the data type specified for a PLC in a command is different from the type of data on the DX, see "Communication Considerations" (on Page 14).

Data on the DX

Data Count

The data count on the DX is as follows:

| Model | Measurement channel | | Computation channel | | Communication input data | | External input channel | |
|--------|---------------------|-----------|---------------------|-----------|--------------------------|-----------|------------------------|--------|
| | Count | Number | Count | Number | Count | Number | Count | Number |
| DX1002 | 2 | 001 – 002 | 12 | 101 – 112 | 24 | C01 – C24 | - | - |
| DX1004 | 4 | 001 – 004 | | | | | | |
| DX1006 | 6 | 001 – 006 | 24 | 101 – 124 | | | | |
| DX1012 | 12 | 001 – 012 | | | 60 | C01 – C60 | - | - |
| DX2004 | 4 | 001 – 004 | 12 | 101 – 112 | | | | |
| DX2008 | 8 | 001 – 008 | | | | | | |
| DX2010 | 10 | 001 – 010 | 60 | 101 – 160 | | | | |
| DX2020 | 20 | 001 – 020 | | | | | | |
| DX2030 | 30 | 001 – 030 | | | | | | |
| DX2040 | 40 | 001 – 040 | | | | | | |
| DX2048 | 48 | 001 – 048 | | | | | | |

Data Type

The data types on the DX are shown in the following table:

| Data | Data type | | Remarks |
|-----------------------------|-----------|------------------------------|---|
| Measurement channel data | INT16 | 16-bit signed integer | To acquire a physical value, it is necessary to obtain the decimal place and unit information in advance. |
| Computation channel data | INT32 | 32-bit signed integer | |
| Communication input data | FLOAT | 32-bit floating-point number | - |
| External input channel data | INT16 | 16-bit signed integer | To acquire a physical value, it is necessary to obtain the decimal place and unit information in advance. |

I/O Messages

System Configuration on PLC

An I/O message is also called an Implicit message. An I/O message is used to transmit pre-specified I/O data at intervals. An I/O message is exchanged via a connection path which is first set in RSLinx and read into RSLogix. A connection path defines the IP address of the DX, communication port of the PLC, and distinction of input/output.

A device, once configured in RSLinx, can be downloaded into an RSLogix project. The DX is configured as a "Generic Ethernet Module" in RSLogix.

Instance ID

Each data on the DX corresponds to the instance ID of an Assembly object. In an I/O message, use an instance ID to code the data on the DX to be accessed. The following table lists instance IDs, sizes, and data types.

| Type | Number | Operation type | Instance ID | Size | Data type | |
|--------------------------|-----------|---------------------|---------------------|---------------|-----------|---|
| Measurement channel | 001 – 048 | Producer | 110 | 192 (4 x 48) | INT32 | |
| | 001 – 048 | Producer | 115 | 192 (4 x 48) | FLOAT | |
| Computation channel | 101 – 160 | Producer | 120 | 240 (4 x 60) | INT32 | |
| | 101 – 160 | Producer | 125 | 240 (4 x 60) | FLOAT | |
| Communication input data | C01 – C60 | Producer / Consumer | 130 | 240 (4 x 60) | INT32 | |
| | C01 – C60 | Producer / Consumer | 135 | 240 (4 x 60) | FLOAT | |
| External input channel | 201 – 300 | Producer / Consumer | 140 | 400 (4 x 100) | INT32 | |
| | 301 – 400 | Producer / Consumer | 141 | 400 (4 x 100) | INT32 | |
| | 401 – 440 | Producer / Consumer | 142 | 160 (4 x 40) | INT32 | |
| | 201 – 300 | Producer / Consumer | 145 | 400 (4 x 100) | FLOAT | |
| | 301 – 400 | Producer / Consumer | 146 | 400 (4 x 100) | FLOAT | |
| | 401 – 440 | Producer / Consumer | 147 | 160 (4 x 40) | FLOAT | |
| | 201 – 300 | Producer | 150 | 400 (4 x 100) | INT32 | |
| | 301 – 400 | Producer | 151 | 400 (4 x 100) | INT32 | |
| | 401 – 440 | Producer | 152 | 160 (4 x 40) | INT32 | |
| | 201 – 300 | Producer | 155 | 400 (4 x 100) | FLOAT | |
| | 301 – 400 | Producer | 156 | 400 (4 x 100) | FLOAT | |
| | 401 – 440 | Producer | 157 | 160 (4 x 40) | FLOAT | |
| | - | | Configuration | 190 | 0 | - |
| | - | | Producer / Consumer | 191 | 0 | - |

Explanation

- The DX data can be accessed using the INT32 or FLOAT type. Data can be accessed by the type based on the specified instance ID.
- The operation type "Producer" indicates a read-only instance and "Producer/Consumer" indicates a read/write instance.
- For an external input channel, instance IDs 150 to 157 are for reading and 140 to 147 are for writing.

Data on the DX

See the explanation in the previous section on Explicit messages.

Communication Considerations

About Communication Interval

Data Update

The DX data is updated in a scan interval. Even if a PLC accesses the data at shorter intervals than the DX scan intervals, the data is updated only at scan intervals.

Communication Interval

A PLC should access the DX at intervals of 125 ms or longer.

- * This is required to maintain compatibility with other protocols supported by the DX than EtherNet/IP.

Access to Non-existent Data

If non-existent data is accessed, either of the following operations occur.

- 0 is read if non-existent data is read.
- Nothing is done if non-existent data is written.

When the DX Data Type Differs from the Data Type Specified in a Command

Each data on the DX has a fixed data type.

Data on the DX which includes special data accessed using the same data type is transmitted unchanged. Data on the DX accessed using a different data type has its data type converted. The following explains the conversion rules:

Reading Data on the DX

| DX | | Data type to be specified in a command | | |
|--------------------------------------|-----------|---|--|--|
| Type | Data type | INT16 | INT32 | FLOAT |
| Measurement channel | INT16 | The data is read without change. | The data is converted into INT32 (including special data). | The data is computed based on the decimal point information set in each channel. ^{*1} |
| Computation channel | INT32 | There are limitations of INT16. ^{*2} | The data is read without change. | The data is computed based on the decimal point information set in each channel. ^{*1} |
| Communication input data | FLOAT | The data is converted to INT16. | The data is converted to INT32. | The data is read without change. |
| External input channel (for reading) | INT16 | The data is read without change. | The data is converted into INT32 (including special data). | The data is computed based on the decimal point information set in each channel. ^{*1} |

*1 Special data will have the following values:

| Data | Value |
|----------------|-----------------|
| + Over | 7f800000H (+∞) |
| - Over | ff800000H (-∞) |
| Skip | ff800002H (Nan) |
| Error | ff800004H (Nan) |
| INVALID | ff800005H (Nan) |
| Burnout (Up) | 7f800006H (Nan) |
| Burnout (Down) | ff800006H (Nan) |

*2 The following values are used.

| Data | Value |
|----------------------|---|
| + Over | 32767 |
| - Over | -32768 |
| Skip | -32768 |
| Error | -32768 |
| INVALID | -32768 |
| Less than -32768 | -32768 |
| More than 32767 | 32767 |
| Other than the above | The data is read without change as INT16. |

Writing Data to the DX

| DX | | Data type to be specified in a command | | |
|--------------------------------------|-----------|---|---|---|
| Type | Data type | INT16 | INT32 | FLOAT |
| Communication input data | FLOAT | The data is written without change. | The data is written without change. | The data is written without change. |
| External input channel (for writing) | INT16 | The data is written without change. ^{*1} | The data is written without change. ^{*1} | The data is converted to INT16. ^{*2} |

*1

| Input value | DX value |
|------------------|-------------------------------------|
| More than 30000 | 7FFFH |
| -30000 to 30000 | The data is written without change. |
| Less than -30000 | 8001H |

*2 The data is converted as follows:

A FLOAT value with the same number of decimal places as the one specified for the channel is converted to INT16. Other numbers are ignored.

Example: If the number of decimal places of channel 201 is "2" (For example, the range can be set is from -200.00 to 200.00),

A FLOAT value up to two decimal places is rounded to an integer. See the example in the following table.

| Input value FLOAT | DX value INT16 (fixed point) |
|----------------------|---------------------------------|
| 12.34 | 1234 |
| 12.6 | 1260 |
| 0.0012 | 0 |
| 0.004 | 0 |
| 0.005 | 1 |
| 300.00 | 30000 |
| 300.01 | 7FFFH (+ Over) |
| -300.00 | -30000 |
| -300.01 | 8001H (- Over) |

The following values are written.

| Input value (value after conversion) | DX value |
|--------------------------------------|-------------------------------------|
| More than 30000 | 7FFFH |
| -30000 to 30000 | The data is written without change. |
| Less than -30000 | 8001H |

On Models with the PROFIBUS-DP Interface (/CP1 option)

On models with the PROFIBUS-DP interface (/CP1 option), the communication input data for C01 to C24 (on the DX1000) or for C01 to C32 (on the DX2000) is reserved for PROFIBUS-DP. Because of this, the following limitations apply to EtherNet/IP communications.

Limitations on Explicit Messages

You cannot write values to these registers (but you can read their values).

I/O Message Limitations

You cannot use instance ID 130 or 135.

Specifications

The following table shows the basic specifications of the EtherNet/IP server function of the DX.

| Specifications | Description |
|-------------------------------|--|
| Implementation level | Level 2 (Message Server + I/O Server) |
| Maximum number of connections | 20 connections (10 sessions) ^{*1,2} |
| Ports used | 44818/tcp, 44818/udp, 2222/udp ^{*3} |
| Supported protocols | EIP/PCCC, EIP/native ^{*4} |
| Messaging | Explicit (UCMM, Class 3) + I/O (Class 1) |
| Object | Assembly, PCCC, Data Table ^{*5} |
| Authentication | File No. 10591 (Sep 4, 2007) |

*1 A "session," a framework of connection management in the encapsulation protocol layer of EtherNet/IP, provides similar functions as a TCP connection to carry out message communications.

*2 Although multiple connections can be made in one session, the total number of connections cannot exceed the maximum number of connections.

*3 44818/tcp is used mainly for Explicit messages, 2222/udp for I/O messages, and 44818/udp for communications of response to RSWHo of RSLinx.

*4 CSP/PCCC (Allen Bradley Ethernet) is not supported.

*5 The description of common object is omitted.

Example of an Explicit Message Using RSLogix 5000

This is an example of using RSLogix 5000 to configure an Explicit message to be sent to the DX by a PLC supporting the CIP Data Table Read/Write command.

This section assumes that the reader is familiar with the operations of RSLogix 5000 and RSLinx and that RSLogix 5000 can communicate with the target DX via RSLinx.

Tag

Making tags initially will be useful. Go to Controller Organizer (a tree on the left side of the screen) and open Controller Tag to make a tag with Data Type of Message (Name the tag as MSG1). Also, make a tag used to retain data to be written to the DX (Name the tag as DATATransfer and store 10 FLOAT values). Make a bit used to launch a message as WriteMessageBit.


Controller Tags

| Name | Data Type |
|-----------------|-----------|
| DATATransfer | REAL[10] |
| MSG1 | Message |
| WriteMessageBit | BOOL |

MSG Instruction

Go to the Input/Output tab, then the Ladder Element toolbar to select MSG. The MSG block is inserted as ladder output. Tag MSG1 is assigned to the MSG block.



Make the MSG block settings (Click the  button in the MSG block). The following shows an example in which the PLC writes data to the communication input data C01 to C10 on the DX.

Set the Message Type as "CIP Data Table Write," Source Element as "DATATransfer" (a tag in the PLC described earlier), Number of Element as "10" (which can be set to a larger value if more data should be read or written per message). Set the Destination Element as "real[3000]." This corresponds to communication input data C01 on the DX.

Message Configuration

| Configuration Tab | |
|---------------------|----------------------|
| Message Type | CIP Data Table Write |
| Source Element | DATATransfer |
| Number Of Element | 10 |
| Destination Element | real[3000] |

Next, go to the Communication tab and set a connection path to the DX. The path name should consist of the PLC Ethernet port name (LocalENB in this example), comma, 2, comma, and the DX IP address in this order.

Message Configuration

| Communication Tab | |
|-------------------|--------------------------|
| Path | LocalENB,2,192.168.1.126 |

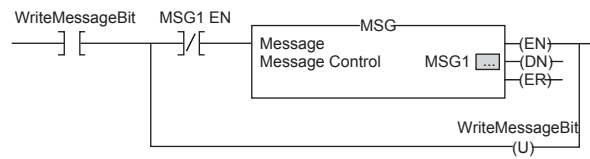
If the connection path to the DX is configured using RSLinx, the connection path is changed to an automatically named pathname (DXADV of ETHERNET-MODULE DXADV shown in the figure below in this example). If the DX is not configured, the I/O Configuration tree does not show ETHERNET-MODULE DXADV. The connection path in the Communication tab is not replaced, either.

I/O Configuration



Message Launch Logic

Lastly, configure the message launch logic. In the example shown in the figure below, the MSG block is launched and writes data to the DX when the WriteMessageBit is On. At the same time, the WriteMessageBit is changed to Off and writing is ended.



Example of I/O Message Using RSLogix 5000

Connection with DX

First, define the connection with DX using RSLinx. Go to Communication on the menu bar and select Configure Drivers.

Next, select Ethernet Devices and click Add New....

Enter a driver name. In this example, DXADV is entered but other names can also be entered.

Enter the IP address of DX and click OK.

DX is displayed on the RSWho list of RSLinx.

Configuration of Communication Settings

Open RSLogix 5000 and select a PLC used to communicate with DX. Right-click Ethernet in I/O Configuration and select New Module.

Click + to open the list. Select ETHERNET-MODULE and click OK. An ETHERNET-MODULE setup window will open.

The following shows an example of reading data in measurement channels 001 to 010 and writing the data to communication input data C01 to C20. Data can be accessed using the INT32 type.

In the Name field, enter DXADV (or other communication connection name). Since data is accessed using INT32, keep Comm Format as Data-DINT. In IP Address, enter the IP address of DX.

In Connection Parameter, define the input and output. In Input and Output, enter a respective instance ID and size. In Configuration, enter an instance ID of 190 and a size of 0.

New Module

| | |
|--------------------------|--------------|
| Name | DXADV |
| Comm Format | Data-DINT |
| Address/Host Name | |
| IP Address | 10.0.232.126 |

| Connection Parameter | | |
|----------------------|-------------------|-------------|
| | Assembly Instance | Size |
| Input | 110 | 10 (32-bit) |
| Output | 130 | 20 (32-bit) |
| Configuration | 190 | 0 (8-bit) |

Tag

In Controller Tag, the DXADV:I and DXADV:O tags to be used in control logic have been made. Click + to expand the tag and see all the points of a size specified in the module definition.

Index

A

adapter5
 assembly object13

B

basic setting mode7

C

cable connection7
 CIP Data Table Read/Write17
 client5
 commands9
 Common Industrial Protocol5
 communication input data 9, 10, 11
 communication interval14
 computation channel 9, 10, 11
 configuration components5
 configuration tool5
 consumer13

D

data type12, 14
 data update14
 device profile8
 DF1 communications6
 DNS7
 DX features6
 DX settings6

E

EDS file8
 EtherNet/IP server7
 Ethernet port7
 Explicit message9
 Explicit message example17
 external input channel 9, 10, 11

H

host information7

I

I/O message13
 i/o message13
 Implicit message13
 installation8
 instance ID13
 IP address7

M

measurement channel 9, 10, 11
 message6
 message launch logic18
 MSG instruction9, 17

N

non-existent data, accessing14

P

PCCC6

PLC2 Unprotected Read/Write9
 PLC5 Word Range Read/Write10
 producer13
 programmable logic controller3

R

RSLinx17
 RSLogix 500017

S

scanner5
 server5, 7
 SLC Typed Read/Write10
 specifications16
 symbols (used in the manual)2
 system configuration9

T

tag17