INDUSTRIAL CONTROL COMMUNICATIONS, INC.

Mitsubishi MELSEC Server Driver Manual

October 30, 2014

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1 Mitsubishi MELSEC Server

1.1 Overview

The MELSEC server driver provides direct access to the internal database from a MELSEC or SLMP client. Only limited configurability is provided: the database is exposed to the client in a default manner. For additional information regarding the MELSEC protocol, refer to the Mitsubishi MELSEC Communication Protocol reference manual.

Other notes of interest are:

- All communication is conducted exclusively via TCP/IP.
- The TCP port is user-configurable.
- Supports up to 8 simultaneous connections.
- The maximum MELSEC frame size is 1460 bytes. Refer to Table 1 for the device point limitations per command.
- The 3E Random Write command will attempt to write to all requested device points even if an error is encountered. Ensure that all requested device points are valid before using Random Write.
- All commands support only word-size access.
- The driver will trigger a timeout event whenever a connection timeout or socket-level error occurs.
- When configurable on the client, use the following settings:
    - Network number = 0
    - PC number = 0xFF
    - Module I/O number = 0x3FF
    - Module station number = 0

1.2 Device Mapping

The only supported device type is the File Register (“ZR”). The 3E frame type hex code for the File Register device is 0xB0, and the 1E frame type hex code is 0x5A52.

By default, device points are mapped to the internal database according to the following scheme:

ZR0 maps to database address 0,

ZR1 maps to database address 2,

ZR2 maps to database address 4,

:

Arithmetically, the device point-to-address relationship can be described via Equation 1:

$$address = 2 \times (point)$$ **Equation 1**

1.3 Supported Commands

Table 1 defines the commands that are supported by the driver.

Table 1: Supported MELSEC Server Commands

Frame Type	Command Name	Command Code	Subcommand Code	Max Points
3E	Batch Read	0x0401	0x0000	724
3E	Batch Write	0x1401	0x0000	719
3E	Random Read	0x0403	0x0000	192
3E	Random Write	0x1402	0x0000	192
1E	Batch Read	0x01	NA	256
1E	Batch Write	0x03	NA	256

1.4 Server Settings

Timeout Time

Defines the maximum number of milliseconds for a break in network communications before a timeout event will be triggered. To disable timeout processing, set this field to 0.

- If a particular open socket experiences no activity for more than the timeout time setting, then the driver assumes that the client or network has experienced some sort of unexpected problem, and will close that socket.
- Because the timeout determination is performed on a per-socket basis, note that a certain degree of caution must be exercised when using the network timeout feature to avoid “nuisance” timeouts from occurring. Specifically, do not perform inadvisable behavior such as sending a request from the client device, and then closing the socket prior to successfully receiving the server’s response. The reason for this is because the server will experience an error when attempting to respond via the now-closed socket. Always be sure to manage socket life cycles “gracefully”, and do not abandon outstanding requests.
- If a socket error occurs (regardless of whether the error was due to a communication lapse or abnormal socket error), the driver will trigger a timeout event.

TCP Port

Defines the local TCP port (1025…65534) on which the driver will listen for connections from the client. Ensure that this port assignment is unique, and does not conflict with other running drivers.

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