Toshiba V Series User Manual

Integrated controller

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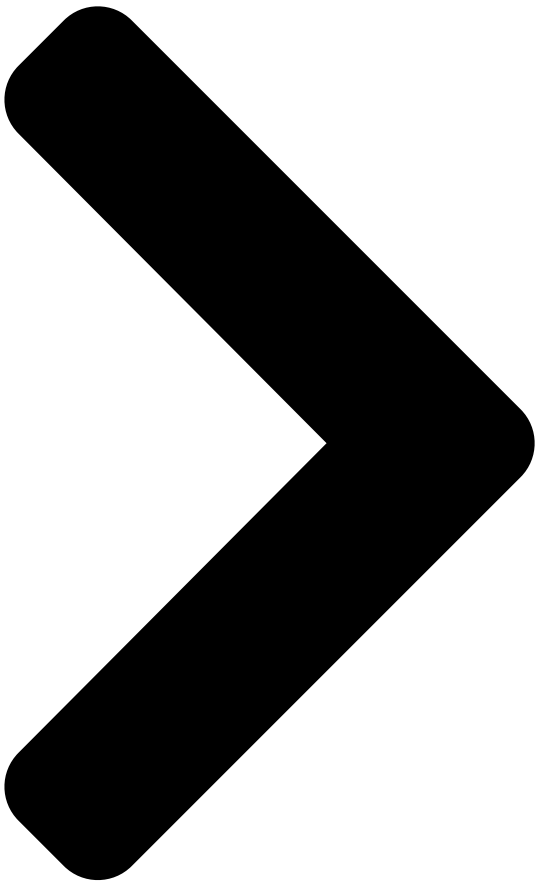

6F8C1120

odel 2000 Ethernet (OPCN-2) Re ote I/O Station Module (FL654) User's Manual

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Integrated Controller V

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Summary of Contents for Toshiba V Series

Page 1 6F8C1120 odel 2000 FL-net (OPCN-2) Re ote I/O Station Module (FL654) User's Manual...

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Page 3 Safety Precautions This manual contains important information for the operator to

operate this product safely and correctly and avoid bodily injury and property damage. Grasp the meanings of the following marks and their descriptions before reading this manual. Hazard Classifications Indicates a potentially hazardous situation which, if not avoided, could WARNING result in serious injury or death.

Page 4 1. Checking the Warning Labels on the Main Unit Make sure warning markings is attached on the main unit. If any of them are missing or the wording is illegible, contact Toshiba's Service Department. 2. Precautions on Installation WARNING Mandatory Be sure to ground the model 2000.

Page 5 Mandatory Mandatory Install the model 2000 at a place where Avoid entering wire scraps or other foreign maintenance and inspection are easy to do. debris into the model 2000, and related Otherwise, recovery from failure may take much equipment. more time, leading to a serious accidents. Otherwise, it can cause fire, failure or malfunction.

Page 6 4. Precautions for Operation WARNING Mandatory Mandatory Configure emergency stop interlocking circuit Be sure to keep the terminal block covers outside the model 2000. closed during power ON. Otherwise, failure and malfunction of the model Do not touch the terminals. Otherwise, it can cause electric shock or injury.

Page 7 Operation under such situation can cause fire or electrical shock. Also unauthorized repairing will cause fire or serious accidents. Do not attempt to repair. Contact Toshiba for repairing. 5. Safety Precautions for Maintenance and Inspection WARNING Forbidden Mandatory...

Page 8 CAUTION Forbidden Mandatory Be careful not to hit or fall off the model 2000 by Place any modules removed from the unit on a accident. conductive bat or conductive bag (containing a Excess shock can cause failure. spare board, etc.) on an grounded desk. Otherwise, static electricity can damage components of the module.

Page 9 Otherwise, it can cause malfunction, machine the model 2000. damage or fire due to overheat. Contact Toshiba for repairing. Operation under such situation can cause fire or electrical shock. 6F8C1120...

Page 10 CAUTION Forbidden Forbidden Do not touch any components, terminals, Do not forcibly bend or pull or distort the power connectors, or printed circuit boards in the cord and other cables. Otherwise, they can be module. cut off or cause overheat. Otherwise, it can cause the IC or LSI or the like to be broken by static electricity, resulting in failure or malfunction.

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Page 12 Model 2000 FL-net (OPCN-2) Remote I/O Station Module (FL654) User's Manual...

Page 13 Preface This User's Manual is documentation for the Integrated Controller V-series Model 2000 FA Control Network [FL-net (OPCN-2)] Remote I/O Station (FL654). It describes these module hardware and how to handle and operate them. Note that the overall information on FL-net is described in the FL-net Common User's Manual;...

Page 14 Introduction The user's manuals for this network include the following; it is also advisable to read through them. In particular, be sure to read through the FL-net Common User's Manual because it provides common descriptions regarding FL-net. Moreover, also read through the documentation of equipment to be connected and engineering tools.

Page 15 Be Sure To Observe The Following Observe the following precautions for securing operator safety and maintaining proper module operations when operating it. Carefully read and understand this User's Manual before operating the module. Do not install or store the module under the following environment: (1) Dusty locations (2) Locations where corrosive gases (such as SO and H...

Page 16 Introduction FL654 supports 10BASE-T(10Mbps) network and 100BASE-TX(100Mbps) network. At present, the FL-net standard is specified to use 10Mbps network. Please unite the network speed of the FL-net devices to 10Mbps and use them. The device of 10Mbps must not

exist together to the device of 100Mbps on the same network even when the device of 100Mbps is allowed in the FL-net standard in the future.

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Page 19 CONTENTS ăăăăăăăăăăăăăăăăăă 9.3 Master Station Setup Procedure ăăăăăăăăăăăăăăăăăăăăăăăăăăăăăă 9.4 Replacing modules ăăăă Chapter 10 Maintenance Using V-Tool ăăăăăăăăăăăăăăăăăăăăăăăăăăă 10.1 Maintenance Function 10.1.1 Download Function ăăăăăăăăăăăăăăăăăăăăăăăăăăăăă66 10.1.2 Memory Clear Function ăăăăăăăăăăăăăăăăăăăăăăăăă67 10.1.3 Version Read-out Function ăăăăăăăăăăăăăăăăăăăăă68 10.1.4 Event Log Read-out ăăăăăăăăăăăăăăăăăăăăăăăăăăă68 10.1.5 Operation Mode Setting ăăăăăăăăăăăăăăăăăăăăăăăăă70 10.1.6 Calendar/Time Setting ăăăăăăăăăăăăăăăăăăăăăăăăă71 10.1.7 LAN Management Information ăăăăăăăăăăăăăăăăă72...

Page 20 CONTENTS xviii Model 2000 FL-net (OPCN-2) Remote I/O Station Module (FL654) User's Manual...

Page 21 Chapter 1 Overview The Integrated Controller V-series model 2000 FL-net Remote I/O Station Module (hereafter referred to as "FL654") is a remote I/O station module that connects integrated controller Model 2000 I/O modules to FL-net. Use of the FL654 enables the integrated controller Model 2000 I/O modules to be connected to the FL-net system without a controller.

Page 22 (1) FL-net compliant The FL654 is a product complying with FL-net of the Japan Electrical Manufacturers' Association (JEMA). It can be connected to Toshiba FL-net products. Moreover, the FL654 intends to obtain JEMA certification; it can also be connected to other manufacturers'...

Page 23 Chapter 2 Specifications Provides the FL654 module specifications in Table 2-1. Table 2-1 FL654 Module Specifications Item Description Remarks Transmission Transmission Compliant with FA control network [FL-net The standard noted at the spec. standards (OPCN-2)] protocol version 2.00 left conforms to JEMA 1492 of the Japan Electrical Manufacturers'...

Page 24 Chapter 2 Specifications Note1: The types of connectable I/O modules are as follows: I/O module types Models Input modules DI632D/DI633/DI634/DI635/DI635H/DI653/IN653/IN663 Output modules DO633/DO633P/DO634/DO635/AC663/RO662S/RO663 Analog input modules AD624L/AD634L/AD624/AD674/AD628S/AD638S Analog output modules DA622L/DA622/DA672 Note2: This transmission performance is the initial target performance of FL-net. To achieve this, each transmission station must transmit data and receive and send the token within approx.

Page 25: Chapter 3 Hardware Ăăăăăăăăăăăăăăăăăăăăăă5

Chapter 3 Hardware Describes the parts of the FL654 module. 3.1 Part Names LED indicators RUN/HALT switch Node address switches (NA-H/-L) Modular connector (LINE) Tool connection connector (TOOL) 8 TBH TBL LBH Operation setting switch Talker block head Listener block head setting switch setting switch Figure 3-1 Parts of the FL654...

Page 26: Led

Chapter 3 Hardware 3.2 LED Indicators The descriptions of indications of the LED indicators are given in Table 3-1. □□□□□ ○RUN ○LNK ○LNT ○PER ○I/O Figure 3-2 LED Indicators Table 3-1

Descriptions of Indications of LED Indicators Indication in Normal Description of Indication Possible Cause in Details Name...

Page 27: Run/Halt Switch

3.3 RUN/HALT Switch 3.3 RUN/HALT Switch This switch stops/starts the FL654's I/O module input and output. Generally, the switch is used in the RUN position, and it is switched to HALT if I/O module input/output is to be temporarily halted. If the switch is changed over from HALT to RUN in a mid-course, I/O module input/output maintains the status brought about at power-ON or in the RUN condition before switching.

Page 28: Tool Connection Port

Chapter 3 Hardware 3.6 Tool Connection Port (TOOL) This port is an RS-232C port for PC connection. It is used to check the automatic setting status of I/O module. Use the Microsoft HyperTerminal running in the PC. For how to use it, see Chapter 6, I/O Module Registration/Setting Method.

Page 29: Operation Setting

3.7 Operation Setting Switch 3.7 Operation Setting Switch This is an 8-bit DIP switch that sets up FL654 operations, and is located in the lower left side face of the module when facing the module. It is set using a small flat-head screwdriver.

Page 30: Talker Block Head/Listener Block Head Setting Switches (Tbh/Tbl/Lbh/Lbl)

Chapter 3 Hardware 3.8 Talker Block Head/Listener Block Head Setting Switches (TBH, TBL, LBH, and LBL) These switches set the head addresses of the FL654 talker area and listener area in the FL-net cyclic common memory. They are hexadecimal rotary switches, and are located in the lower left side face of the module when facing the module.

Page 31: Chapter 4 Configuration, Installation, And Wiring

4.4 □□□□□□□□□ Chapter 4 Configuration, Installation, and Wiring Provides descriptions of the configuration, installation, and wiring of the FL654. 4.1 Configuration of the FL654 Remote I/O Station The FL654 remote I/O station has the same system configuration as the basic hardware configuration 2 (standalone module) of the integrated controller model 2000 sequence controller S2.

Page 32

Chapter 4 Configuration, Installation, and Wiring Base BU668 Dual-purpose base and BU666 expansion base BU664 Power module 100 to 240 AC input, 5 V PS691 output at 8 A 100 to 240 AC input, 5 V PS693 output at 7 A 24 V DC input PS632 Expansion interface...

Page 33

4.1 Configuration of the FL654 Remote I/O Station Digital I/O Module, Analog I/O Module Number Classification Model of Words in Use 12 to 24 V DC/AC input module, 8 points, independent common DI632D 12 to 24 V DC/AC input module, 16 points DI633 24 V DC input module, 32 points DI634...

Page 34: Installing Modules

Chapter 4 Configuration, Installation, and Wiring 4.2 Installing Modules CAUTION Before installing or removing a module, always turn OFF power. Installation or removal of a module while the power is applied may result in breakdown or electric shock. The following describes the module installation procedure: (1) Check that power to the remote I/O station is OFF.

Page 35: Connecting The Communication Cable

4.4 Connecting the Communication Cable 4.4 Connecting the Communication Cable The FL654 supports 10BASE-T and 100BASE-TX. Follow the procedure below to connect the communication cable. The following describe connection of the cable on the assumption that a UTP cable has already been provided.

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Chapter 4 Configuration, Installation, and Wiring Model 2000 FL-net (OPCN-2) Remote I/O Station Module (FL654) User's Manual...

Page 37: Chapter 5 Startup

4.4 □□□□□□□□□ Chapter 5 Startup This chapter describes the FL654 module startup procedure. There are the following two modes for I/O module input/output operations: (1) FL654 recognizes the I/O module composition when the power supply is turned on, and FL654 executes the input/output operation by this module composition. (AUTO) (2) After confirming the I/O module composition when the power supply is turned on, the user saves the I/O module composition in non-volatile memory in FL654.

Page 38: Startup Procedure Flow

Chapter 5 Startup 5.1 Startup Procedure Flow (1) For performing I/O module input/output based on saved information: FL654 switch settings in step (i) Begin □Node address: Depends on the system. □Talker block head and listener block head: (i) Install the power, expansion, FL654, and I/O Depends on the system.

Page 39 5.1 Startup Procedure Flow CAUTION There are the following two modes for I/O module input/output operations: (1) FL654 recognizes the I/O module composition when the power supply is turned on, and FL654 executes the input/output operation by this module composition. (AUTO) (2) After confirming the I/O module composition when the power supply is turned on, the user saves the I/O module composition in non-volatile memory in FL654.

Page 40 Chapter 5 Startup Model 2000 FL-net (OPCN-2) Remote I/O Station Module (FL654) User's Manual...

Page 41: Chapter 6 I/O Module Registration And Setting Method

06/06/05 Chapter 6 I/O Module Registration and Setting Method The FL654 has the function of automatically recognizing connected I/O modules. The FL654 automatically recognizes the connected I/O modules and automatically allocates the I/O modules to the talker and listener areas in the FL-net cyclic common memory. The user checks these automatically allocated information using MS Windows HyperTerminal from a PC, and if there is no problem, save it in the FL654's non-volatile memory.

Page 42: Connecting Pc To The Fl654

Chapter 6 I/O Module Registration and Setting Method 6.2 Connecting PC to the FL654 Connect a PC to the FL654 using the cable between the PC's RS-232C port and the FL654's TOOL connection port. (For the connection cable, see Chapter 3.) 6.3 Starting MS Windows HyperTerminal Start the MS Windows HyperTerminal, register the name, and set up the property as follows:...

Page 43 6.4 Checking Procedure 6.4 Checking Procedure Display shown in Figure 6-2 automatically appears on the PC screen. If there is no problem in the I/O module configuration, press the [Y] key and then the [ENTER] key. Then the I/O configuration information will be written in the nonvolatile memory in the module.

Page 44 Chapter 6 I/O Module Registration and Setting Method ********** Talker area head address: C1 0036W C1: Common memory area 1 Listener area head address: C2 0000W C2: Common memory area 2 ********** UNIT[0] SLOT(0): X 1W Talk 0036W SLOT(1): Y 1W Listen 0000W SLOT(2): X 1W Talk 0037W SLOT(3): Y 1W Listen 0001W SLOT(4): X 1W Talk 0038W...

Page 45: Chapter 7 Input/Output Operation

Chapter 7 Input/Output Operation Describes the I/O module input/output operations of the FL654. 7.1 Overview of Input/Output Operations The FL654 occupies one continuous talker area and one continuous listener area in Area 1 or 2 of the FL-net cyclic transmission common memory. The talker and listener areas are independent of each other.

Page 46: Setting Up The Talker And Listener Areas

Chapter 7 I/O Module Input/Output 7.2 Setting up the Talker and Listener Areas The FL654's talker and listener areas are provided in Area 1 or Area 2 of the FL-net cyclic transmission common memory. Setup of the talker and listener areas is achieved using the talker block head/listener block head setting switches at the lower left side face of the module.

Page 47 7.2 Setting up the Talker and Listener Areas (2) Setting the head address The talker

area head address is set using the talker block head setting switch (TBH/TBL) located on the side face of the module, while the listener area head address is set using the listener block head setting switch (LBH/LBL).

Page 48 Chapter 7 I/O Module Input/Output (b) I/O statuses These items indicate I/O module information on an I/O slot basis. The following bits indicate the status of the I/O module of [unit number] - [slot number]. [0: I/O module abnormal, 1: I/O module normal] Table 7-1 I/O Module Status Status 1 Status 2...

Page 49 7.2 Setting up the Talker and Listener Areas Common memory's Common memory's talker area listener area Address Address Status (4W) 200h Unit 0 slot 5 DO633(1W) 201h Unit 0 slot 6 DO633(1W) 202h Unit 0 slot 7 DO633(1W) 203h Unit 0 slot 8 DO633(1W) Unit 0 slot 1 DI633(1W) 204h Unit 1 slot 3 DA622(2W)

Page 50: Precautions For Usage

Chapter 7 I/O Module Input/Output 7.3 Precautions for Usage To expand I/O modules, add the module(s) after the configuration of the I/O modules already installed. This allows the I/O modules to be expanded without affecting the existing allocated I/O configuration. Model 2000 FL-net (OPCN-2) Remote I/O Station Module (FL654) User's Manual...

Page 51: Chapter 8 Ras Function

Chapter 8 RAS Function Describes the FL654's RAS function. 8.1 LED Indication The front panel of the FL654 module has LED indicators. The indication of these LED indicators allows the module status to be identified. In the normal state, the "PER" LED goes off, while the other LEDs are all lit (green). For more information on this, see Chapter 3.

Page 52: Operation In The Event Of Fl-Net Failure

Chapter 8 RAS Function 8.4 Operation in the Event of FL-net Failure (1) Operation in the event of disconnection from network If the FL654 is disconnected from the FL-net, it holds or clears outputs to the output modules. Selection of hold or clear is set using the operation setting switch. (2) Operation in the event of stop receiving data If an update of the overall listener area of the local station is stopped for more than 500 ms, the FL654 holds or clears outputs to the output modules.

Page 53: Led Indication In The Event Of Module Down

8.5 LED Indication in the Event of Module Down 8.5 LED Indication in the Event of Module Down Table 8-1 LED display when FL654 is down Status (i) Format error Blink (ii) Parameter save failure (iii) FL-network entry failure (i) Failure of Ethernet setting (operation setting switch bits 1 and 2) Blink (ii) LAN controller failure detection (i) Node number setting error...

Page 54: Gathering Ras Information Using Hyper Terminal

Chapter 8 RAS Function 8.6 Gathering RAS information using Hyper Terminal When FL654 is operated by "LOCK" or "AUTO", RAS information on FL654 can be gathered by connecting the personal computer that operates the Windows hyper terminal with the serial cable. RAS information that can be gathered is as follows.

Page 55: Node Status

8.6 Gathering RAS information using Hyper Terminal 8.6.2 Node Status Input form DISP MODE Execution result (example) >disp mode mode : RUN(I/O-RUN) message : enable cyclic : enable : ON : OFF PVERR : OFF GDLINK : ON (10M - Half Duplex) DPADR : OFF TEST...

Page 56 Chapter 8 RAS Function Table 8-4 Down code Down code Description 0x0010 External WDT error NMI occurred due to an external WDT. 0x0020 Bus stall NMI occurred due to bus stall. 0x0030 Occurrence of general exception Occurrence of general exception 0x0160 ROM area check failure Error was detected by FROM's BCC check at initialization.

Page 57: Version Display

8.6 Gathering RAS information using Hyper Terminal 8.6.3 Version Display Input form VER Execution result (example) >ver FL654 monitor date : Dec 24 2004 S/W : 01.30 (9FLRDD) H/W : 01h > 8.6.4 I/O Layout Input form IOLAYOUT Execution result (example) >iolayout ********** Talker area head address:...

Page 58: Cyclic Node Map

Chapter 8 RAS Function 8.6.5 In-ring Node Map Input form DISP OLM Execution result (example) >disp olm Online Map FEDCBA9876543210 0 0000000011111110 node 15 ... node 0 1 0000000000000000 node 31 ... node 16 2 1111111111111111 3 0000000000000000 4 0000000000000000 5 0000000000000000 6 0000000000001111 7 1111000000000000...

Page 59: Ras Counter

8.6 Gathering RAS information using Hyper Terminal 8.6.7 Common Memory Area Data Input form CMMREAD <node> <node> Contents 1 ... FE Common memory area of specified node Execution result (example) >cmmread 1 [C1] 0000 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 [C2] 0000 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0010 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00...

Page 60: Event Log

Chapter 8 RAS Function 8.6.9 Event Log Input form DISP TRC Execution result (example) >disp trc Trace 001: 0004 0001 0000 0000 0000 99-01-01 00:00:00 002: 0005 0001 4000 2200 0000 99-01-01 00:00:00 003: 0006 0000 0000 0001 0000 99-01-01 00:00:00 004: 0005 0001 2030 1030 0000 99-01-01 00:00:00 005: 0090 0000 0000 0000 0000 99-01-01 00:00:05 006: 0006 0000 0001 0002 0000 99-01-01 00:00:05...

Page 61 8.6 Gathering RAS information using Hyper Terminal Table 8-5 Event code and Contents Info Event Contents/Notes code 0x0000 0x0002 WDT error Address Address 0x0002 (Low) (High) 0x0004 Bus stall 0x0005 SRAM access error 0x0001 Power ON 0x0004 0x0003 Soft reset 0x0000 Mode change in initialize Before...

Page 62: Fl-Net Log

Chapter 8 RAS Function 8.6.10 FL-net Log Input form MSTCLOG Execution result (example) >mstclog [Send_Recv] SendCount Total socket transmission frequency SendErr Total socket transmission error frequency EthSendErr : 0 Nonuse RecvCount Total socket reception frequency RecvErr Total socket reception error frequency EthRecvErr : 0 Nonuse [Frame]...

Page 63: Chapter 9 Startup Using V-Tool

Chapter 9 Startup Using V-Tool This chapter describes the setting and the startup procedure of FL654 that uses V-Tool. "TOOL specification" is possible since firmware version "1.40" of FL654. Please confirm the firmware version of FL654 with the version seal on the module side. The version of V-Tool that can be applied to FL654 of "TOOL specification"...

Page 64: Outline Of Operation

Chapter 9 Startup Using V-Tool 9.1 Outline of Operation 9.1.1 Module Setting The modules that can be set using V-Tool is as follows (Refer to Figure 9-1). (1) FL654 that connected V-Tool directly (2) Remote I/O station via FL-net (FL654 or FL754) FL754 .....

Page 65 9.1 Startup Procedure 9.1.2 Allocation of I/O Module Data to Common Memory When FL654 operates by "TOOL specification", FL654 subordinate's I/O module data is allocated to FL-net common memory as follows. (1) Input module data can be allocated freely to FL654 talker area by each input module. FL654 talker area can be allocated in both area1 and area2 in FL-net common memory.

Page 66: Sample System

Chapter 9 Startup Using V-Tool 9.2 Startup Procedure 9.2.1 Sample System The remote I/O start-up procedure is explained by the following sample. 10BASE-T Master Remote 628S Node Node Input Output Input Output Input Output 16pt 16pt 64pt 64pt Fig 9-3 Sample system FL612 FL654 0~15W Talker area...

Page 67 9.1 Startup Procedure Address Address Area 1 FL612 talker block Area 1 FL654 talker block (word) (word) Output data for FL654 DO633 FL654 Healthy counter I/O module status Output data for FL654 DO635 Reserved (Nonuse) Input data of FL654 DI633 Input data of FL654 DI635 Address Address...

Page 68 Chapter 9 Startup Using V-Tool 9.2.2 About “FL-net LAN” and “FL-net ControlLAN” When the network where the FL-net communication was used is registered on V-Tool, it is necessary to register FL-net module (FL312,FL612) and FL-net remote I/O station (FL654,FL754)

in another network type. This is because of the limitation in the specification of V-Tool.

Page 69: Download

9.1 Startup Procedure 9.2.3 Startup Flow This section describes how to set up the remote I/O module using V-Tool to start up the system. Figure 9-1 shows a flow of building a new integrated controller. System registration (Off-line work using V-Tool) Prepare the remote I/ O module.

Page 70: System Registration

Chapter 9 Startup Using V-Tool 9.2.4 System Registration System registration is performed off-line using V-Tool at system design. The following describes this procedure in details. After system registration, the master station creates user programs using the network variables. (1) Creating the system folder Create the target system folder (e.g., FL-net (RIO_2000)).

Page 71 9.1 Startup Procedure (c) Set the S2PU72 and FL612 parameters. (d) Create the other station for the master station. The other station needs to be registered to use data that send from FL654 in master station. Example: Register Other station “Dummy station(FLx12)” Register “FLStn”...

Page 72 Chapter 9 Startup Using V-Tool (3) Registering the remote side (FL654). (a) Create the remote station folder. Example: FL654 (model 2000) (b) Register the base, FL654, and I/O modules. Registration of the remote side (FL654) (c) FL654 module parameter setting IP address, the first address and the amount of transmission words of area1, the first address and the amount of transmission words of area2 are set at this stage.

Page 73 9.1 Startup Procedure (d) Create the other station for the remote station. The other station needs to be registered to use data that send from FL612 in remote I/O station. Example: Register Other station “Dummy station(FLx54)” Register “FLStn” as unit and “FL_Y” as module Registration of dummy station 6F8C1120...

Page 74 Chapter 9 Startup Using V-Tool (4) Registering LAN configuration (a) Create an FL-net Control LAN folder under the network folder. (b) Register the FL654 and the other station for the FL654 in the “Module” folder below the FL-net Control LAN folder. (c) Create an FL-net LAN folder below the Network folder.

Page 75 9.1 Startup Procedure (5) FL654 subordinate's I/O module registration FL654 subordinate's I/O module is registered. When the check is put on "The I/O variable automatic registration" on the module addition screen, the I/O variable that agrees with the content of the I/O module is registered. It should not be work to register the I/O variable separately.

Page 76 Chapter 9 Startup Using V-Tool (7) Confirmation I/O variables When I/O modules are registered, I/O variables are automatically registered. When right-click on I/O module (for instance, DI635) with mouse pointer, and "I/O variable" is selected, the I/O variable screen is displayed. Please change on I/O variable screen when you change the variables.

Page 77 9.1 Startup Procedure (8) Registering network variables The network variable is registered at every talker block. (a) Talker block registration of FL612 -> FL654 data In the following example, I/O variable (=IO01001_00000102) output to DO633 is allocated to "Talker block: 0 (the dummy station for a remote I/O talker area in FL-net common memory area1)".

Page 78 Chapter 9 Startup Using V-Tool (b) Talker block registration of FL654 -> FL612 data In the following example, I/O variable (=IO01001_00000101) input from DI633 is allocated to "Talker block: 1 (FL654 talker area in FL-net common memory area1)". I/O variable (=IO01001_00000103) input from DI635 is similarly allocated to "Talker block: 1".

Page 79 9.1 Startup Procedure (c) Listener block registration of FL654 -> FL612 data In the following example, I/O variable (=IO01001_01) input from DI633 is allocated to "Listener block of dummy station for remote I/O”. After the variable of the transmission block is selected, "Allocated to the input variable"...

Page 80: Preparing Remote I/O Modules

Chapter 9 Startup Using V-Tool 9.2.5 Preparing Remote I/O Modules This section prepares the FL654 for downloading I/O configuration information to it. (1) Preparation for download (a) Set

the FL654 operation setting switch so that SW3 is ON and SW4 is OFF (TOOL specification).

Page 81 9.1 Startup Procedure 9.2.7 Download Download the I/O configuration information using V-Tool. There are the following two methods for downloading I/O configuration information. (1) Local connection Directly connect V-Tool to the TOOL connection connector in the FL654 that is the target for download.

Page 82: Master Station Setup Procedure

Chapter 9 Startup Using V-Tool 9.3 Master Station Startup Procedure The following procedure is necessary on the FL612 side besides download to FL654. (1) Talker block is registered on "Scanning memory folder" of "FL-net LAN". The talker block of the dummy station for the master station and the talker block of FL612 are registered respectively.

Page 83 9.1 Startup Procedure (2) Register network variables to talker blosk Talker block Data flow Data type Variable Data length Healthy counter FL654_2_HLT1 1 word I/O status FL654_2_IOSTS1 32 bits FL654 -> FL612 Reserved FL654_2_RSV1 1 word DI633 input FL654_2_DI633_01 16 bits DI635 input FL654_2_DI635_03...

Page 84: Replacing Modules

Chapter 9 Startup Using V-Tool 9.4 Replacing Modules Turn OFF the power, replace a module, and turn ON the power again on each remote I/O station. The procedure for this is as follows: (1) Turn OFF power to the remote I/O station. (2) Replace a module.

Page 85: Chapter 10 Maintenance Using V-Tool

Chapter 10 Maintenance Using V-Tool This chapter explains the maintenance procedure of FL654 that uses V-Tool. "TOOL specification" is possible since firmware version "1.40" of FL654. Please confirm the firmware version of FL654 with the version seal on the module side. The version of V-Tool that can be applied to FL654 of "TOOL specification"...

Page 86: Maintenance Function

Chapter 10 Maintenance Using V-Tool 10.1 Maintenance Function Maintenance functions possible by the combination of V-Tool and FL654 are as follows. Operate direct connection of Operate other remote I/O FL654 and V-Tool station via FL-net Download Function Available Available Memory Clear Function Available Available Version Read-out Function...

Page 87 10.1 FL654 Module 10.1.2 Memory Clear Function Initialize the FL654. When FL654 used in AUTO / LOCK specification is changed in TOOL specification, please switch specification after executing “memory clear” for deleting inside information. Even an opposite usage is similar. Moreover, in TOOL specification, please execute download again after executing “memory clear”...

Page 88 Chapter 10 Maintenance Using V-Tool 10.1.3 Version Read-out Function Display the version of the hardware/software composing the remote I/O station. (1) Click on the “Tool” menu in the System View/Station Status screen to display the menu. (2) In this menu, click on the “Version” item. The FL654 version information is displayed as shown below: 10.1.4 Event Log Read-out Function Read out event logs as follows:...

Page 89 10.1 FL654 Module Event No. Description Details C002 NMI occurrence AUX1 Address at which NMI occurred AUX2 = 0 (NMI) = 2 (external WDT error) = 4 (bus stall) = 5 (SRAM access error) 0004 Startup AUX1 = 1 (power ON) = 3 (software reset) 0005 Mode change...

Page 90 Chapter 10 Maintenance Using V-Tool 10.1.5 Operation Mode Setting Set the FL654 operation mode from the V-Tool. (1) Click on the “Tool” menu in the System View/Station Status screen to display the menu. (2) In this menu, click on the “Set Operation Mode” item. The Set Operation Mode screen appears.

Page 91 10.1 FL654 Module 10.1.6 Calendar/Time Setting FL654 doesn't maintain calendar/time for power supply OFF period. Therefore, correct time doesn't remain in event log information if it doesn't set it at time when restoring it at power supply OFF time. An initial value is 0:0:0, January 1, 1999.) [1] Set the FL654’s calendar/time from the V-Tool.

Page 92 Chapter 10 Maintenance Using V-Tool Usage Master station Preparation: One of the

master stations registers the area concerned in the talker block of the local station. (S2) side User application (per scan): Copies the values of SW [16] to SW [21] to addresses 01F9h to 01FEh. Stores the result of adding the year to second values in address 01FFh.

Page 93 10.2 V-Tool Error 10.2 V-Tool Error Table 10-2 V-Tool error Code Contents Factors 0x0000 Normal Normal 0x0002 Hardware is abnormal. Target node has seceded from the network though the command for that (time-out error etc.) node was received from V-Tool. 0x0004 Access refusal FL654 is set to AUTO/CONF specification, the following command was (operation mode is...

Page 94 Chapter 10 Maintenance Using V-Tool Code Contents Factors 0x0103 Text parameter error In the specification of the transmission area, *Head address in Area1: beyond the limits of 0 to 511. (In the case of master station calendar/Time setting function not used.). * Head address in Area1: beyond the limits of 0 to 504.

Page 95 Overseas Sales & Marketing Department - Group 3 TEL.: +81-3-3457-4894 1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan Microelectronics & System Components Department - System Components Support Group TEL.: +81-42-333-2192 1, Toshiba-cho, Fuchu-shi, Tokyo 183-8511, Japan © TOSHIBA Corporation 2006 All Right Reserved.

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This manual is also suitable for:

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