

TOSHIBA

Toshiba V Series User Manual

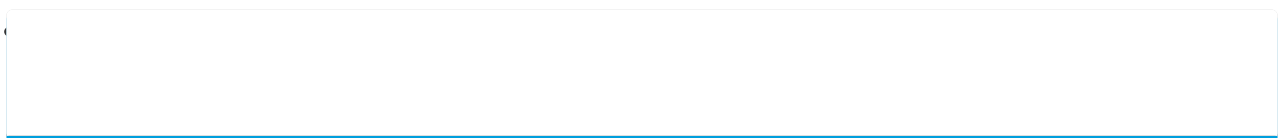
Admap-5m an712 module

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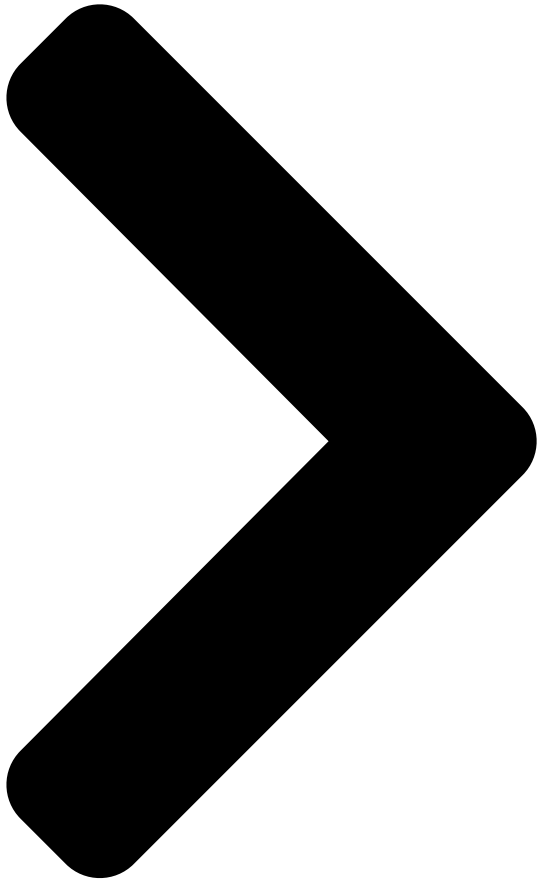
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TOSHIBA
ADMAP-5M AN712 Module User's Manual

Integrated Controller



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Summary of Contents for Toshiba V Series

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[Page 2](#) Important Information No patent liability is assumed by TOSHIBA Corporation with respect to use of information, illustrations, circuits, equipment or examples of application in this publication. TOSHIBA Corporation reserves the right to make changes and improvements to this publication and/or related products at any time without notice.

[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, WARNING could result in serious injury or death.

[Page 4](#) 1. Checking the Warning Labels on the Main Unit Make sure warning markings are 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 equipment.

[Page 5](#) 3. Safety Precautions on Maintenance and inspection WARNING Mandatory Mandatory Turn off power removing or connecting any Turn off power removing any modules after modules, boards, or devices. installing. Otherwise, it can cause electrical shock, or Otherwise, exposed conductive parts of wire machine damage.

[Page 6](#) User's manual. beyond normal range or if failure is occurred Otherwise, it can cause malfunction, machine in the equipment. damage or fire due to overheat. Contact Toshiba for repairing. Operation under such situation can cause fire or electrical shock. CAUTION Forbidden...

[Page 7](#) Forbidden Forbidden Do not disassemble or modify the equipment. Do not enter wire scrapes or other foreign Otherwise, it can cause malfunction or failure. debris into the equipment. Also, do not insert metal parts into them. They can cause fire or accidents. 6.

[Page 8](#) Toshiba is not liable for any incidental loss caused by the use or non-use of this product, such as loss of business profits, suspension of business, or loss or change of data on memory.

[Page 9](#) Preface This manual presents an overview of the TOSHIBA Integrated Controller V Series Model 3000 ADMAP-5M module AN712, and describes the procedures for its installation, operation, inspection and maintenance. To use the product correctly and safely, be sure to read the Safety Precautions in advance.

[Page 10](#) If the ambient temperature or the internal temperature of the equipment has arisen too high, or if the equipment has developed a fault, stop using it, switch power off, and contact the nearest Toshiba service station. Do not open the case of the equipment while it is in operation except when setting the switches.

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[Page 13](#) CONTENTS 7 Installation and Wiring87 7.1 Installation (Installing in the Base Unit) ... 88 7.2 ADMAP-5M Cable Connection89 7.3 Serial Communication Port (RS-232C) Cable Connection .

[Page 15: Overview](#)

Chapter 1 Overview The AN712 module is used for connecting the process control LAN ADMAP-5M to the Integrated Controller V Series model 3000. A coaxial dual line bus cable is available for interfacing the AN712 module. Up to four AN712 modules can be installed in the base unit. An external view and an example of system configuration are shown below.

[Page 16](#) The AN712 module is used for connecting the process control LAN ADMAP-5M to the Integrated Controller V Series model 3000. Data can be exchanged between the connected devices on the ADMAP-5M and connected devices of the Integrated Controller V Series. ADMAP-5M has the following features. • Open • ...

[Page 17: Names And Functions Of Parts](#)

Chapter 2 Names and Functions of Parts Status LEDs • RUN • HLTH • SCAN • RING Station address setting switches • STN-H • STN-L Operation mode setting switches • S1 • S2 • S3 ADMAP maintenance console • AO connector • ...

[Page 18](#) Chapter 2 Names and Functions of Parts The main function of the parts are shown below. (1) Status LEDs Table 2-1 Description Normally RUN (green) Hardware operation status ON: Module operating OFF: Module trouble HLTH (green) Module transmission status ON: Module transmitting OFF: Wrong switch setting SCAN (green) Scan transmission status...

[Page 19: Settings](#)

- Be sure to set station addresses. Check that the stations of your system are not of the same address.
- If you have any question, contact the Toshiba service office concerned. 6F8C1048...

[Page 20: Switch Setting](#)

Chapter 3 Settings 3.1 Switch Setting Set the switches for selecting an operation mode and a station address before switching the AN712 module on. These switches are on the front panel of the AN712 module. The switch setting procedures are described below. 3.1.1 Station address setting switches (STN-H, STN-L) STN-H and STN-L are hexadecimal rotary switches used to select an ADMAP node...

[Page 21: Operation Mode Setting Switches \(Stc\)](#)

3.1Switch Setting 3.1.2 Operation Mode Setting Switches (STC) The operation mode setting switches are an 8-bit DIP type used to select its mode of operation. Use a small screwdriver for setting a mode. Each of these switches is described in Table 3-2 Operation Mode Setting. Turning the switch lever of each bit DIP switch sets it to ON, and turning it to the right sets it to OFF.

[Page 22: Tool Setting And Operation](#)

RS-232C cable to the S3CPU is not possible. Connection must be via Ethernet. Engineering Tool Ethernet connection (module registration, AN712 function setting, execution, read) Ethernet V series model 3000 Engineering Tool ADMAP-5M RS-232 connection (module registration) Figure 3-3 Engineering Tool Connection model 3000 ADMAP-5M AN712 Module User's Manual...

[Page 23: An712 Module Registration](#)

3.2Tool Setting and Operation 3.2.1 AN712 module registration The procedures for registering AN712 modules and a network in cases where AN712 modules are installed in an S3 controller are described below. (1) Station registration Register stations, which include AN712 modules, on the Product View screen. Select [Station] under a created system (Integrated Controller ADMAP system in the example), and choose [New Create (W)].

[Page 24](#) Chapter 3 Settings Register modules under [Unit]. Select [Module] under [Unit] (BU748 in the example), and choose [New Create (W)]. Select [AN712] in the module adding dialog box. model 3000 ADMAP-5M AN712 Module User's Manual...

[Page 25](#) 3.2Tool Setting and Operation (2) Network registration Set a network with Product View. Select [Network] under [System], and chosen [New Create (W)]. Select [ADMAP-5MLAN] in the network adding dialog box. 6F8C1048...

[Page 26](#) Chapter 3 Settings Select [Module] under the added [ADMAP-5MLAN], and choose [New Create (W)]. The added AN712 is shown in the module adding dialog box. Selecting it connects it to the ADMAP-5MLAN. model 3000 ADMAP-5M AN712 Module User's Manual...

[Page 27](#) 3.2Tool Setting and Operation The status of the added module is shown as follows. 6F8C1048...

[Page 28: An712 Module Setting And Operation](#)

Chapter 3 Settings 3.2.2 AN712 module setting and operation Register transmission rates (high, medium low), transmitting nodes (AN712 modules for scan transmission), and output (controller to refresh scan transmission area) for the blocks 0 to 1024 of scan transmission area of the ADMAP-5MLAN network. (1) Scan transmission block registration Select [Scan memory] under [ADMAP-5MLAN] on Product View, and choose [Transmission block].

[Page 29](#) 3.2Tool Setting and Operation In transmission block registration, register three items: transmission rate, transmitting nodes, and output. [Word No.] and [Word block] are for selecting a number of words per block, but it is not necessary to register anything in these

columns because the ADMAP- 5M has a fixed word length from 0 to 64.

[Page 30](#) Chapter 3 Settings Then, check the scan transmission blocks. Select the [Transmission block] tab on the module parameter screen. If [Tool (T)] is selected under [Display], one of the scan transmission blocks registered in Step (1) corresponding to the specified AN712 module is displayed. If [Module (M)] is selected under [Display], the information registered in the AN712 module is displayed.

[Page 31: An712 Module Ras Display Operation](#)

3.2Tool Setting and Operation 3.2.3 AN712 module RAS display operation On the Product view screen select the station that includes the AN712 module you wish to operate, to open the System View screen After selecting the [Main slot No.] cell for the AN712 module, select [Tool (T)] to open the menu for operation with the AN712 module.

[Page 32](#) Chapter 3 Settings (2) Scan data access In accessing scan data, double-click the block you wish to access on the LAN transmission map] screen so that 64 words of data are shown for that block. By selecting a block No., the desired block can be accessed for data. Select either decimal or hexadecimal for the desired form of display.

[Page 33](#) 3.2Tool Setting and Operation (5) Inring map The inring map shows the status of the stations participating in the ADMAP-5M. When the [Inring map (I)] on the LAN management information screen is clocked, the inring map data is shown. In the example shown below, the three stations of addresses 1, 6 and 10 are inring.

[Page 34: Station Console](#)

Chapter 3 Settings 3.2.4 Station console The ADMAP station console is a tool exclusive to the AN712 module. The console may be directly connected to the AN712 module to execute the following functions. For details, refer to the ADMAP Station Console Ver. 2 Manual (6F8C0549).
—...

[Page 35: Operation](#)

Manual and make sure never to set the switches wrong. • If power cannot be switched on or if other kind of trouble occurs, stop use and contact the Toshiba service office concerned. • If you have any question, contact the Toshiba service office concerned. 6F8C1048...

[Page 36: Check Before Operation](#)

When the EN7 modules start, check that they are operating normally, referring to Table 2-1, Status LEDs. If the modules fail to start, or if their operation is not normal, stop use and contact the nearest Toshiba service office. 4.3 Stopping Operation stops when power is switched off.

[Page 37: Application Interface](#)

Chapter 5 Application Interface 5.1 Service Interface The AN712 module interfaces user applications using communication FB (function block), table transfer and table initialize instructions. Figure 5-1 is a diagrammatic representation of it. `ser processing program (scan transmission, message client) Communication FB Batch I/O direct I/O...`

[Page 38: Common Memory Map](#)

Chapter 5 Application Interface 5.2 Common Memory Map The common memory area of the AN712 module allocated to the station global memory area covers scan transmission data, scan transmission healthy information, station status, etc., which are defined as global variables and can be directly accessed using batch I/O or TMOV/TINZ_REAL/TINZ_DWORD instructions, for example.

[Page 39: Common Memory Information](#)

5.3Common Memory Information 5.3 Common Memory Information 5.3.1 Socket unit information This information to be refreshed indicates the status of each socket of the AN712 module. The sockets 0 to 11 installed in the AN712 module are allocated to word offset addresses as follows.

[Page 40: Station Online Map](#)

Chapter 5 Application Interface 5.3.2 Station online map This information indicates whether stations on the ADMAP-5M are engaged in the token ring and are online. The station online map has the structure shown in figure 5-4. `AN_ONLMAP_offset 2880` □...

[Page 41: Station Status](#)

5.3Common Memory Information 5.3.4 Station status Station status shows the operating status of the AN712 module. (Figure 5-6) `AN_STSTS_offset SRXONLSTATE 2953` □...

[Page 42: Station Live List](#)

Chapter 5 Application Interface 5.3.5 Station live list The station live list shows the transmission status of each ADMAP-5M station. (Figure 5- AN_LVLS_offset XCHCMP 28896) □...

[Page 43: Local Station Address](#)

5.3Common Memory Information 5.3.6 Local station address The local station address information set by the AN712 module is shown below. (Figure 5-8) `AN_STNADR_offset (Reserved) 2954` □...

[Page 44: Communication Fb Interface](#)

Chapter 5 Application Interface 5.4 Communication FB Interface This section describes the communication FB (function block) instructions (USEND_T, URCV_T) that are used for instructing the AN712 module socket interface from the S3 controller. The specifications and limitations, basically the same as those of Ethernet modules, are also described here.

[Page 45](#) 5.4Communication FB Interface [Socket service command] Three commands, that is, UDP open request (16#0031), UDP send request (16#0032), and UDP close request, can be used. If a TCP command, usable in Ethernet communication requests in general, is requested, the return value (-54) is sent back. [Request commands] (1) UDP open request •...

[Page 46](#) Chapter 5 Application Interface (2) UDP transmission request • Local station data is sent using an opened UDP. • Transfer data word No.: 10 to 500 words <Request command structure> Slot No. of requested ADMAP-5M module (AN712) Command (16#0032) Socket No. D-IP address D-UDP Port No.

[Page 47](#) 5.4Communication FB Interface (3) UDP close request To terminate an open UDP. Reception request (unlimited wait) is also reset. <Request command structure> Slot No. of requested ADMAP-5M module (AN712) Command (16#0034) Socket No. Socket No.: Socket identifier (0 to 11) (Identifier obtained by opening UDP) <Error status>...

[Page 48: Socket Communication Reception \(Urcv_T Instruction\)](#)

Chapter 5 Application Interface 5.4.2 Socket communication reception (URCV_T instruction) –Graphic representation– `Instance name URCV_Execution request Done output REQDONE`...

[Page 49](#) 5.4Communication FB Interface [Socket service command] Compared with the case of Ethernet communication requests in general, only two commands, that is, AN712 module management socket identifier acquire (16#0016) and UDP receive request (16#0033), can be used. If other commands are requested, the return value (-54) is sent back.

[Page 50](#) Chapter 5 Application Interface (2) UDP receive request • Data is received from an opened UDP socket. • Receive data word number: 501 words maximum (including those in the area where received byte numbers are stored) <Request command structure> Slot No. of requested ADMAP-5M module (AN712) Command (16#0033) Socket No.

[Page 51: Communication Fb Request Sequence](#)

5.5Communication FB Request Sequence 5.5 Communication FB Request Sequence Messages are sent and received to and from the S3CPU and the AN712 module using FB (communication function block) by the sequence shown in figure 5-12 and figure 5- S3 module AN712 module Application S3 socket processing...

[Page 52](#) Chapter 5 Application Interface S3 module AN712 module Application

[Page 53: Communication Fb Message Format](#)

5.6Communication FB Message Format 5.6 Communication FB Message Format The user may allocate a format, application by application, for general messages to be sent and received via a socket interface. However, messages to be sent and received to and from the AN712 module are exchanged via a socket interface in a format in which a 14-byte (7-word) header and 2-byte (1-word) auxiliary information are added to identify the use of such messages as transmission messages for use in the TOSDIC-CIE or TOSDIC-AD system, or as management and control messages for the AN712 itself.

[Page 54: Tosdic-Cie System Message Format](#)

Chapter 5 Application Interface 5.7 TOSDIC-CIE System Message Format The TOSDIC-CIE 6000/5000 system uses the MMS format for message transmission. The basic text format of MMS message transmission is shown in figure 5-15. o m m a n d / B y t e a d d r e s s R e s p o n s e + 0 0 (0 x 0 0 □...

[Page 55](#) 5.7TOSDIC-CIE System Message Format o m m a n d / B y t e a d d r e s s R e s p o n s e + 0 0 (0 x 0 0 □ S o c k e t d a t a h e a d e r □ ' A N 7 2 M M S R R + 0 4 (0 x 0 4 □...

[Page 56: Word Units](#)

Chapter 5 Application Interface A list of accessible information on MMS command messages and response messages and message types is shown in Table 5-1. Table 5-1 Information Accessible by TOSDIC-CIE 6000/5000 System Item Header Description Tag information table MMS RC/MMS RR Tag parameter read by specifying a terminal read unit (PCS, DPCS, SIF5300, TIF)

[Page 57: Tag Information Table \(Pv/Loop Parameter\) Read](#)

5.7TOSDIC-CIE System Message Format 5.7.1 Tag information table (PV/LOOP parameter) read <Function> To read any information (PV range, PV range high/low, etc.) specified by the offset of the information table tagged by a TOSDIC-CIE controller (PCS, DPCS, ISF5300). <Message format> B y t e a d d r e s s + 0 0 (0 x 0 0 □...

[Page 58](#) Chapter 5 Application Interface 5.7.2 Tag information table (PV/LOOP parameter) write (in word units) <Function> To write any information (PV range, PV range high/low, etc.) specified by the offset of the information table tagged by a TOSDIC-CIE controller (PCS, DPCS, ISF5300) in word units.

[Page 59: Bit Units\)](#)

5.7TOSDIC-CIE System Message Format 5.7.3 Tag information table (PV/LOOP parameter) write (in bit units) <Function> To write any information (PV range, PV range high/low, etc.) specified by the offset of the information table tagged by a TOSDIC-CIE controller (PCS, DPCS, ISF5300) in bit units. <Message format>...

[Page 60: Double Word Units\)](#)

Chapter 5 Application Interface 5.7.4 Tag information table (PV/LOOP parameter) write (in double word units) <Function> To write any information (PV range, PV range high/low, etc.) specified by the offset of the information table tagged by a TOSDIC-CIE controller (PCS, DPCS, ISF5300) in word units.

[Page 61: Pcs Parameter Read](#)

5.7TOSDIC-CIE System Message Format 5.7.5 PCS parameter read <Function> To read parameters (XPR, XPW, etc.) of the controller PCS <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 M M S R T y p e : S p e c i f y t h e f o l l o w i n g p a r a m e t e r + 4 (0 x 0 E □...

[Page 62: Pcs Parameter Write \(In Word Units\)](#)

Chapter 5 Application Interface 5.7.6 PCS parameter write (in word units) <Function> To write parameters (XPW, XTS, etc.) of the controller PCS in word units <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □...

[Page 63: Pcs Parameter Write \(In Bit Units\)](#)

5.7TOSDIC-CIE System Message Format 5.7.7 PCS parameter write (in bit units) <Function> To write parameters (XPF, XTR, etc.) of the controller PCS in bit units <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □...

[Page 64: Pcs Parameter Write \(In Double Word Units\)](#)

Chapter 5 Application Interface 5.7.8 PCS parameter write (in double word units) <Function> To write parameter (XPR) of the controller PCS in double word units <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □...

[Page 65: Polynomial Line Table Read](#)

5.7TOSDIC-CIE System Message Format 5.7.9 Polynomial line table read <Function> To read the polynomial line tables of the controller PCS and DPCS <Message format> B y t e a d d r e s s ' A N 7 1 2 M M S R + 0 0 (0 x 0 0 □...

[Page 66: Polynomial Line Table Write](#)

Chapter 5 Application Interface 5.7.10 Polynomial line table write <Function> To write the polynomial line tables of the controller PCS and DPCS <Message format> B y t e a d d r e s s ' A N 7 1 2 M M S W + 0 0 (0 x 0 0 □...

[Page 67: Station Sys Information Detail Read](#)

5.7TOSDIC-CIE System Message Format 5.7.11 Station SYS information detail read (1) Serial I/O card status read <Function> To read the down status of controller PCS serial I/O cards <Message format> B y t e a d d r e s s ' A N 7 1 2 M M S R o m m a n d + 0 0 (0 x 0 0 □...

[Page 68](#) Chapter 5 Application Interface (2) New type serial (intelligent) I/O card status read <Function> To read the down status of controller PCS new type serial (intelligent) I/O cards <Message format> B y t e a d d r e s s ' A N 7 1 2 M M S R o m m a n d + 0 0 (0 x 0 0 □...

[Page 69](#) 5.7TOSDIC-CIE System Message Format B y t e a d d r e s s ' A N 7 1 2 M M S R o m m a n d + 0 0 (0 x 0 0 □ A u x .

[Page 70](#) Chapter 5 Application Interface (3) Parallel I/O card status read <Function> To read the down status of controller PCS parallel I/O cards <Message format> B y t e a d d r e s s ' A N 7 1 2 M M S R o m m a n d + 0 0 (0 x 0 0 □...

[Page 71: Calendar Setting](#)

5.7TOSDIC-CIE System Message Format 5.7.12 Calendar setting <Function> To update the time of all ADMAP stations <Message format> B y t e a d d r e s s ' A N 7 1 2 M M S I + 0 0 (0 x 0 0 □ o m m a n d A u x .

[Page 72: Dpcs Parameter Read](#)

Chapter 5 Application Interface 5.7.13 DPCS parameter read <Function> To read the parameters (DPCS parameters) of the controller DPCS <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 M M S R + 4 (0 x 0 E □...

[Page 73: Dpcs Parameter Write](#)

5.7TOSDIC-CIE System Message Format 5.7.14 DPCS parameter write <Function> To write the parameters (DPCS parameters) of the controller DPCS <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 M M S W + 4 (0 x 0 E □...

[Page 74: Ois Parameter Read](#)

Chapter 5 Application Interface 5.7.15 OIS parameter read <Function> To read the parameters (OIS parameters) of OIS <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 M M S R + 4 (0 x 0 E □...

[Page 75: Ois Parameter Write](#)

5.7TOSDIC-CIE System Message Format 5.7.16 OIS parameter write <Function> To write the parameters (OIS parameters) of OIS <Message format> o m m a n d B y t e a d d r e s s + 0 0 (

0x00 □ 'AN712MMSW + 4(0x0E □...

[Page 76: Mw Value Write \(%Mv\)](#)

Chapter 5 Application Interface 5.7.17 MW value write (%MV) <Function> To write MV values expressed in percentage (%) in the controllers (PCS and DPCS) <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □...

[Page 77: Mv Value Write \(Dmv\)](#)

5.7TOSDIC-CIE System Message Format 5.7.18 MV value write (ΔMV) <Function> To write ΔMV values expressed in seconds in the controllers (PCS and DPCS) <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □...

[Page 78](#) Chapter 5 Application Interface o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 M M S W + 4 (0 x 0 E □...

[Page 79: Tosdic-Ad System Message Format](#)

5.8TOSDIC-AD System Message Format 5.8 TOSDIC-AD System Message Format The TOSDIC-AD system uses messages in the LLC (Logical Link Control) data link format shown in figure 5-17. o m m a n d / B y t e a d d r e s s R e s p o n s e + 0 0 (0 x 0 0 □...

[Page 80](#) Chapter 5 Application Interface o m m a n d / B y t e a d d r e s s R e s p o n s e + 0 0 (0 x 0 0 □ S o c k e t d a t a h e a d e r □ ' A N 7 2 P C L R S ' + 0 4 (0 x 0 4 □...

[Page 81: Service Access Point Registration](#)

5.8TOSDIC-AD System Message Format 5.8.1 Service access point registration <Function> To register service access points <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 2 P C L S P ' A u x i l i a r y i n f o r m a t i o n □...

[Page 82: Raw Data Read](#)

Chapter 5 Application Interface 5.8.2 Raw data read <Function> To read raw data as specified by a TOSDIC-AD system DPCS <Message format> o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 P L M ' A u x i l i a r y i n f o r m a t i o n □...

[Page 83](#) 5.8TOSDIC-AD System Message Format R e s p o n s e B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 P L R S ' A u x .

[Page 84: Parameter Read](#)

Chapter 5 Application Interface 5.8.3 Parameter read <Function> To read parameters from a TOSDIC-AD system DPCS <Message format> –Individual parameters– o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 P L M ' A u x i l i a r y i n f o r m a t i o n □...

[Page 85](#) 5.8TOSDIC-AD System Message Format –Group parameters– o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 P L M A u x i l i a r y i n f o r m a t i o n □...

[Page 86: Parameter Write](#)

Chapter 5 Application Interface 5.8.4 Parameter write <Function> To write parameters from a TOSDIC-AD system DPCS <Message format> –Individual parameters– o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 P L M ' A u x i l i a r y i n f o r m a t i o n □...

[Page 87](#) 5.8TOSDIC-AD System Message Format –Group parameters– o m m a n d B y t e a d d r e s s + 0 0 (0 x 0 0 □ ' A N 7 1 2 P L M ' A u x i l i a r y i n f o r m a t i o n □...

[Page 88: An712 Module Management And Control](#)

Chapter 5 Application Interface 5.9 AN712 Module Management and Control The AN712 management and control message transmission illustrated in figure 5-19 is used for sending instruction messages to the AN712 module. o m m a n d / B y t e a d d r e s s R e s p o n s e + 0 0 (0 x 0 0 □...

[Page 89: Scan Transmission Block Registration](#)

5.9AN712 Module Management and Control 5.9.1 Scan transmission block registration
<Function> To register scan transmission blocks for a specified AN712 module <Message format> B y t e a d d r e s s C o m m a n d ' A N 7 1 2 S M G R Q ' + 0 0 (0 x 0 0 □...

[Page 90](#) Chapter 5 Application Interface <Response status> 0x0000 Normal end 0x0201 Text length error 0x0203 Error in the number of transmission blocks set 0x0204 Error in the range of transmission block numbers 0x0205 Transmission blocks duplicated 0x0206 Scan transmission registration requested during scan transmission 0x0207 Scan transmission requested while scan transmission is inhibited (by DIP- SW setting)

[Page 91: Scan Transmission Cycle Setting](#)

5.9AN712 Module Management and Control 5.9.2 Scan transmission cycle setting <Function> To set scan transmission cycles for a specified AN712 module <Message format> B y t e a d d r e s s o m m a n d + 0 0 (0 x 0 0 □...

[Page 92: Scan Transmission Healthy Monitor Cycle Setting](#)

Chapter 5 Application Interface 5.9.3 Scan transmission healthy monitor cycle setting <Function> To set scan transmission healthy monitor cycles for a specified AN712 module <Message format> B y t e a d d r e s s C o m m a n d ' A N 7 1 2 M G R Q ' + 0 0 (0 x 0 0 □...

[Page 93: Scan Transmission Start/Stop](#)

5.9AN712 Module Management and Control 5.9.4 Scan transmission start/stop <Function> To instruct a specified AN712 module to start or stop scan transmission <Message format> C o m m a n d B y t e a d d r e s s ' A N 7 1 2 M G R Q ' + 0 0 (0 x 0 0 □...

[Page 94: Station Status Control](#)

Chapter 5 Application Interface 5.9.5 Station status control <Function> To control a specified AN712 module <Message format> B y t e a d d r e s s ' A N 7 1 2 M G R Q ' + 0 0 (0 x 0 0 □ C o m m a n d + 4 (0 x 0 E □...

[Page 95: System Operation](#)

Chapter 6 System Operation This chapter describes the setting and operation procedures necessary for system operation. 6.1 Preparations and Procedures for Start Mainly the items concerning the instructions that must be given by the host (S controller, for example) to a system that uses AN712 modules are described. 6.1.1 Switch setting Set the switches on the front panel of the AN712 module as follows: For a description of...

[Page 96: Inring And Online Requests](#)

Chapter 6 System Operation 6.1.2 Inring and online requests As the host issues an inring request (*1) to an AN712 module, it takes part in ADMAP-5M transmission. This state applies only to participation by the AN712 module in sending or receiving the ADMAP-5M token (transmission right), not to the execution of the AN712 module functions of scan transmission and message transmission.

[Page 97: Online Operation Initializing Process Flow](#)

6.1Preparations and Procedures for Start 6.1.6 Online operation initializing process flow The initializing items of a general application program for online operation are shown in the flowchart of figure 6-2. start *1: To be skipped if AO in Inring request Table 3-2 is ON.

[Page 98: Dual Line System](#)

Chapter 6 System Operation 6.2 Dual Line System Use of a dual-line S controller (SPU65) permits dual-line station configuration. No applications can be executed while the S3 dual-line system is in standby status, however, the standby set is unable to make inring requests or register scan transmission, etc. A redundant system must have information on the transmission status of the other set, so the standby set must be engaged in ADMAP transmission to permit the online set to monitor the status of the standby set.

[Page 99: Standby Operation](#)

6.2Dual Line System (4) S3 down or downgrade to standby If the S is judged irrecoverable by its own diagnostic function, the S3 forces itself down. The AN712 detects it with the healthy

counter and S3 operation monitor function, and stops scan transmission.

[Page 101: Installation And Wiring](#)

- Verify transmission at the application level using the transmission protocol.
- If power cannot be switched on or if other kind of trouble occurs, stop use and contact the Toshiba service office concerned.
- If you have any question, contact the Toshiba service office concerned.

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[Page 102: Installation \(Installing In The Base Unit\)](#)

Chapter 7 Installation and Wiring 7.1 Installation (Installing in the Base Unit) Caution • Place the base unit vertically, and use a special fan for forced air cooling. Working temperature range is as follows: 0 to 50 • Clamp the ferrite core to the AC power cord of the power unit. To install a module, insert it into the base unit along the module guide from the bottom of the module as shown in figure 7-1.

[Page 103: Admap-5M Cable Connection](#)

7.2ADMAP-5M Cable Connection 7.2 ADMAP-5M Cable Connection Connect ADMAP cables (coaxial cables) to the AN712 module, that is, to its type F coaxial connectors. □ Insert the coaxial cables (3C-2V) to the type F coaxial connectors (CN-A, CN-B), and turn them clockwise to tighten. Tighten them securely with a torque wrench 2.9 N-m (0 kgf-cm).

[Page 104: Serial Communication Port \(Rs-232C\) Cable Connection](#)

Chapter 7 Installation and Wiring 7.3 Serial Communication Port (RS-232C) Cable Connection The serial communication port (SC-CN) may be used for communication with the maintenance console during maintenance. Use the RS-232C for communication. The RS-232C cable connector is the 9-pin D-sub socket type. AN712 module Serial communication port (SC-CN)

[Page 105: Installing Ferrite Core / Frame Ground Cable](#)

7.4Installing Ferrite Core / Frame Ground Cable 7.4 Installing Ferrite Core / Frame Ground Cable In using an AN712 module, install the ferrite core supplied as an accessory to the input cable for the model 3000 power module. Connect the Frame Ground Terminal of the power module and the base unit in IV cable*. Power module PS791S Power terminal...

[Page 106: Module Replacement](#)

Chapter 7 Installation and Wiring 7.5 Module Replacement Caution • Before replacing an AN712 module, switch off the base unit and make sure that power is off. (1) Switch off the base unit, and check the LED indications to make sure that the power is off.

[Page 107: Maintenance And Inspection](#)

- If power cannot be switched on or if other kind of trouble occurs, stop use and contact the Toshiba service office concerned.
- If you have any question, contact the Toshiba service office concerned.

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[Page 108: Inspection](#)

Installation and Wiring Manual as to bends, radius, route, etc. If anything abnormal is found, contact the Toshiba service office concerned. Ventilation holes Check the front panel and top of the product that the ventilation holes are free of dust and dirt.

[Page 109: Troubleshooting](#)

Table 2-1, Status LEDs, or if an error is detected at a human interface station, stop using the product and contact the nearest Toshiba service office concerned. For how to read RAS data, system logs, etc., refer to the Operation Manual for the Engineering Tool.

[Page 110: Expendable Parts](#)

8.3 Expendable Parts To ensure safe use of the product for a long period of time to come, it is necessary to periodically replace expendable parts. For their replacement, contact the Toshiba service office concerned. Table 8-2 Expendable Parts and Recommended Replacement Intervals...

[Page 111: A Specifications](#)

Appendix A Specifications A.1 General Specifications Table A-1 General Specifications Specifications Item AN712 Working temperature range (Product 0 to 50 ambient temperature) Working humidity range: 10 to 95% RH (No condensation) Storage temperature range -25 to 75 Storage humidity range 5 to 95% RH (No condensation) Source voltage range 4.75 to 5.25 VDC (Rated:5.0VDC)

[Page 112: Admap-5M Transmission Specifications](#)

Appendix A Specifications A.2 ADMAP-5M Transmission Specifications Table A-2 ADMAP-5M Transmission Specifications Item Specifications Media access Token passing bus (IEEE802.4) Data transmission speed 5 Mbps Topology Dual bus Transmission cable/cable length Coaxial cables • Trunk cable: 500 m maximum per segment •...

[Page 113: Serial Communication Port \(RS-232C\) Transmission Specifications](#)

A.3 Serial Communication Port (RS-232C) Transmission A.3 Serial Communication Port (RS-232C) Transmission Specifications Table A-3 Serial Transmission Specifications Item Specifications Data transmission speed 4800 bps maximum Synchronizing Start-stop Transmission cable Cross cable with 9-pin-9-pin D-sub connector Cable length 15 m maximum Communication Full duplex Communication settings...

[Page 115: B Dimensions](#)

Appendix B Dimensions Figure B-1 Dimensions (mm) 6F8C1048...

[Page 117: C Accessories Related Products](#)

Appendix C Accessories Related Products Table C-1 Accessories Product Model Specifications Remarks Φ 6.0~7.0 Ferrite Core clamp SFC-6 Table C-2 Related Products Product Model Specifications Remarks Carrier band tap HMT-41 4-port type Carrier band tap HMT-21 2-port type Terminator A-244-1 $75 \pm 3\Omega$, 1/4W RS-232C cable GCJ6[] [*CS 9-pin D-sub...

[Page 119: Table](#)

Appendix D Decimal-hexadecimal Conversion Table Table D-1 Decimal-Hexadecimal Conversion Table Decimal Hexadecimal Decimal Hexadecimal Decimal Hexadecimal Decimal Hexadecimal 6F8C1048...

[Page 120](#) Appendix D Decimal-hexadecimal Conversion Table Table D-2 Decimal-Hexadecimal Conversion Table Decimal Hexadecimal Decimal Hexadecimal Decimal Hexadecimal Decimal Hexadecimal model 3000 ADMAP-5M AN712 Module User's Manual...

[Page 121: E Tag Information Tables](#)

Appendix E Tag Information Tables The structures of the tag information tables for the TOSDIC-CIE system PCS and DPCS are shown below. <PCS> • PB4, PBL • LMP • IND, PFI, WD • PID, SPI • DST <DPCS> • LP1, LP2, DI, DO3, DIO •...

[Page 122](#) Appendix E Tag Information Tables AI3 (id=200) Indicator (analog input) DPCS —Scan data— word address 00 (0x00) Bit 0: SCN Bit 02 (0x02) PS1) V-STATUS S...

[Page 123](#) AO3 (id=203) Analog output 3 DPCS —Scan data— word address 00 (0x00) Bit 0: MVRV (analog output value) 1: M02 (0x02) PS1)

[Page 124](#) Appendix E Tag Information Tables DI (id=208) Digital input DPC —Scan data— word address SS100 (0x00) STATUS SS1) Bit 8: FI19: FI2...

[Page 125](#) DIO (id=210) Digital input/output DPCS —Scan data— word address 00 (0x00) SS1) Bit 0: MVRTATU 1: M2: A3: FI14: FI2...

[Page 126](#) Appendix E Tag Information Tables DO3 (id=209) Digital output 3 DPCS —Scan data— word address SS100 (0x00) Bit 0: MVRSTATUS SS1) 1: M...

[Page 127](#) DST (id=71) Digital setter —Scan data— word address 00 (0x00) DATA (word, double word, real) —Tag information table—...

[Page 128](#) Appendix E Tag Information Tables IND (id=1) Indicator —Scan data— word address 00 (0x00) Bit 0: SCN Bit PS1) 02 (0x02) V-STATUS PS2)

[Page 129](#) LMP (id=79) Lamp switch —Scan data— SS1 00 (0x00) STATUS LS1) Bit 4: SCN 8: FI 19: FI 2 10: FI 3 11: FI 4...

[Page 130](#) Appendix E Tag Information Tables LOP (id=202) Regulator DPCS —Scan data— word address LS1 00 (0x00) Bit 0: SCN Bit 0: MVR 1: MPS 1)

[Page 131](#) LP1/LP2 (id=206/207) Device error type lamp/device status lamp DPCS —Scan data— word address SS1 00 (0x00) STATUS SS1) Bit 8: FI 1 10:...

[Page 132](#) Appendix E Tag Information Tables PA (id=201) Indicator (Pulse instantaneous value input) DPCS —Scan data— word address 00 (0x00) Bit 0: SCN Bit 02 (0x02) PS1) V-STATUS...

[Page 133](#) PBL (id=72) Illuminated pushbutton switch —Scan data— word address 00 (0x00) SS1) Bit 0: RMTATU 1: M 2: A 4: CN 8: FI 1...

[Page 134](#) Appendix E Tag Information Tables PB4 (id=73) 4-point illuminated pushbutton switch —Scan data— word address 00 (0x00) SS1) Bit 0: RMTATU 1: M 2: A...

[Page 135](#) PFI (id=10) Power factor meter —Scan data— word address 00 (0x00) Bit 0: SCN Bit 02 (0x02) PS1) V-STATUS PS2)

[Page 136](#) Appendix E Tag Information Tables PI (id=204) Total pulse value input DPCS —Scan data— word address 00 (0x00) Bit 0: SCN Bit V (total pulse value) 02 (0x02) PS1)

[Page 137](#) PID (id=15) Basic PID —Scan data— word address LS1 00 (0x00) Bit 0: SCN Bit 0: MVR 1: MPS 1) 02 (0x02)

[Page 138](#) Appendix E Tag Information Tables SPI (id=21) Sample PI —Scan data— word address LS1 00 (0x00) Bit 0: SCN Bit 0: MVR 1: MPS 1)

[Page 139](#) SQ (id=205) Sequence DPCS —Scan data— word address 00 (0x00) PAGE / OTEP Bit Bit 0: MVR QNO 1: MSS 1)

[Page 140](#) Appendix E Tag Information Tables WD (id=13) Anemoscope —Scan data— word address DC1 00 (0x00) Bit 0: SCN Bit PS1) 02 (0x02) STATUS...

[Page 141: F Abbreviations](#)

Appendix F Abbreviations Auto (automatic) mode Pulse conversion coefficient ALM: Sequence congestion error (DPCS) α (2DOF parameter) ALP: Bias BSN: Bus number C (cascade or CMP mode) CAS: Cascade enable CHI: Valve position input inactive CLI: Control inactive CMP: Computer mode Cycle time Wind direction DMV:...

[Page 142](#) Appendix F Abbreviations FFD: F/F input (dynamic) FFS: F/F input (static) FIL: Data uncollected Fln: Input flag n FOn: Output flag n Digital filter coefficient GAP: Gap gain GIN: Gain HOLD: Totalization hold IPL: Inverse polynomial line number Proportional gain Low cut LPA: Data output address...

[Page 143](#) Manual mode MV low value MV high value Maintenance or simulation under way MUE: MVU error Manipulated value MVE: MV readback error MVF: MV fixed fixed value mode MVH: MV high alarm MVL: MV low alarm MVR: MV remote mode NDV: Negative deviation limit NDV:...

[Page 144](#) Appendix F Abbreviations Engineering unit high Engineering unit low Remote

manual mode Ratio RUN: Sequence running (DPCS) SAD: Scan transmission terminal unit number SAUT: Sequence semi-automatic mode confirmed (DPCS) SCN: Scan off SCNF: Sequence confirmed (DPCS) SEQ: Sequence mode SET: Digital set value (word/double word/real) SLT: Slot number...

[Page 145](#) WDC: Wind direction count WPA: Wind direction input address ZPT: Cold compensation reference point (Zero point) 6F8C1048...

[Page 147](#) Control & Instrumentation Equipment'S Sales Department Sales Group 1 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 2002-2007 All Right Reserved.

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