Toshiba AD268 User Manual

Programmable controller prosec t2-series analog i/o modules

1
2
3
4
Table Of Contents
5
6
7
8
9
10
11
12
13
14
15
16
17

-

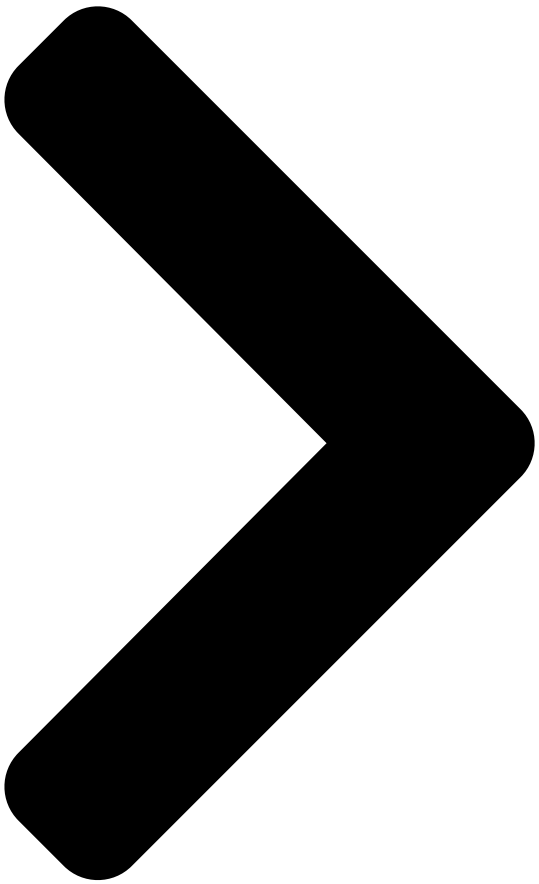
Table of Contents

-

Troubleshooting

-

Bookmarks



UM-TS02
-E026
PROGRAMMABLE CONTROLLER

T2-series

TOSHIBA

PROSEC

ANALOG I/O MODULES

AD268 / DA264 / TC218

USER'S MANUAL

TOSHIBA CORPORATION

Table of Contents

Next Page

1
2
3
4
5

Troubleshooting

Related Manuals for Toshiba AD268

I/O Systems Toshiba FL654A User Manual

Fl-net remote i/o station module (116 pages)

I/O Systems Toshiba 8-Channel RTD Input RT318 Specifications

8-channel rtd input (4 pages)

Summary of Contents for Toshiba AD268

Page 1 UM-TS02 -E026 PROGRAMMABLE CONTROLLER T2-series PROSEC ANALOG I/O MODULES AD268 / DA264 / TC218 USER'S MANUAL TOSHIBA CORPORATION CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 2 Because controlled system applications vary widely, you should satisfy yourself as to the acceptability of this equipment for your intended purpose. In no event will Toshiba Corporation be responsible or liable for either indirect or consequential damage or injury that may result from the use of this equipment.

Page 3: Safety Precautions

Safety Precautions CAUTION Turn off power to the PLC (T2, T2E or T2N) and to this module (AD268, DA264 or TC218) before removing or mounting this module. Failure to do so can cause electrical shock or damage to this product.

Page 4: About This Manual

About This Manual About This Manual This manual describes the specification and the operations of Toshiba's analog I/O modules (AD268, DA264 and TC218) for PROSEC T2 series programmable controllers. Read this manual carefully for your correct operation of these modules.

Page 5: Table Of Contents

Table of Contents Table of Contents Safety Precautions .....1 About This Manual .....2 Part 1 8 Channel Analog Input Module AD268 Introduction ..... 8 AD268 functions ..... 8 External features ..... 9 Specifications ..... 10 Specifications ..... 10 Internal block diagram .....

Page 6 Sample program to access the parameters ..... 55 Troubleshooting ..... 56 RAS information ..... 56 Troubleshooting .....56 Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 7 Table of Contents Part 3 8 Channel Thermocouple Input Module TC218 Introduction ..... 60 TC218 functions ..... 60 External features ..... 61 Specifications .....

Page 8 Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 9 Part 1 8 Channel Analog Input Module AD268 1. Introduction, 8 2. Specifications, 10 3. Input Type Setting, 12 4. Wiring, 14 5. I/O Allocation and Programming, 17 6. Parameters, 24 7. Troubleshooting, 32 User’s Manual CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 10: Introduction

PART 1 AD268 1. Introduction The AD268 is an 8 channel analog input module for the T2 series programmable controllers. The AD268 converts external analog signals (voltage or current) into digital values cyclically so that the T2 can process the analog signals.

Page 11: External Features

1. Introduction PART 1 AD268 1.2 External features Model type AD268 Status indication LED Removable terminal block Analog input terminal External power supply connection terminal Line ground and Frame ground terminal Terminal block fixing screw 2-points User’s Manual CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 12: Specifications

2. Specifications PART 1 AD268 2. Specifications This section describes the AD268 specifications. The general specification for the AD268 conforms to the specification for the T2 PLC. 2.1 Specifications Item AD268 Input type Voltage input Current input -5 to 5V...

Page 13: Internal Block Diagram

The converted digital data reaches to the internal control circuit through optical isolator. Every time when the T2 CPU requests to read the converted data, the internal control circuit sends the data to the T2 CPU. The AD268's parameters are stored in the EEPROM. User’s Manual...

Page 14: Input Type Setting

3. Input Type Setting The AD268 supports multiple input ranges, 5V, 10V, 0 to 5V, 0 to 10V, 1 to 5V, 0 to 20mA, or 4 to 20mA. The input range is selected by jumper plug setting and the parameter writing by the T2 program.

Page 15: Parameter Setting By Software

PART 1 AD268 3.2 Parameter setting by software The input range of the AD268 is specified by writing the following parameter data into the AD268's buffer memory. To access the buffer memory, T2 user program (READ and WRITE instructions) is required.

Page 16: Wiring

Channel 7 input Channel 8 input External 24Vdc power (+) External 24Vdc power (-) Line filter ground Frame ground Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 17: Signal Wiring

4. Wiring PART 1 AD268 4.2 Signal wiring Voltage input AD268 Voltage source Set the jumper +15V plug to Side 1 Shielded twisted-pair cable -15V n : Channel number (1 to 8) Internal circuit AG : Analog ground FG : Frame ground...

Page 18: Wiring Precautions

(6) If the converted data is not stable owing to electrical noise, it is recommended to use the input averaging function to reduce the noise interference. For the averaging function, refer to

section 6. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 19: I/O Allocation And Programming

In this case, the AD268 is mounted in the slot 0 of base unit BU218. In the above example, the AD268 is allocated on the unit-0, slot-0. And 8 I/O registers, XW000 to XW007 are assigned to the AD268.

Page 20: A/D Conversion Data

PART 1 AD268 5.2 A/D conversion data The analog signals received by the AD268 are converted into the digital data in this module. These converted digital data are read by T2 CPU in the batch I/O processing and stored in the assigned input registers as follows.

Page 21 5. I/O Allocation and Programming PART 1 AD268 5V range: A/D conversion data Input voltage Resolution Hexadecimal Integer Upper limit +5.1196 V H3FFF 16383 Full scale (positive) +5 V H3E80 16000 +0.3125 mV H0001 H0000 0.3125 mV / bit -0.3125 mV...

Page 22 32000 H3FFF 16383 Analog input -10.2V +5.1196V +10.2V D = 3200 D: Digital data A: Analog signal (V) Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 23 5. I/O Allocation and Programming PART 1 AD268 0 to 5V / 0 to 20mA range: Input voltage/current A/D conversion data Resolution 0 to 5 V 0 to 20 mA Hexadecimal Integer Upper limit +5.1196 V +20.479 mA H3FFF 16383...

Page 24 4 to 20mA range: +5.1196V 20.479mA D = 800 A - 3200 D: Digital data A: Analog signal (mA) Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 25: Programming

To read the A/D conversion data, there is no need to use special instruction. The A/D conversion data are automatically stored in the assigned input registers (XW registers). For example, when the AD268 is allocated to XW000 to XW007, the A/D conversion data of each channel is stored as follows.

Page 26: Parameters

PART 1 AD268 6. Parameters The AD268 has the memory that stores the control parameters, input type designation, module status information, etc. This memory is called the buffer memory. To access (read/write) this memory from the T2 program, READ and WRITE instructions are used.

Page 27 6. Parameters PART 1 AD268 Address Contents H8028 Analog input actual value for channel 1 H8029 Analog input actual value for channel 2 H802A Analog input actual value for channel 3 H802B Analog input actual value for channel 4 H802C...

Page 28 Gain calibration value & Offset calibration value: (Gain: H8000 to H8007, Offset: H8008 to H800F) At the factory shipment, the AD268 is calibrated for each input range. Therefore, there is no need for user to calibrate normally. However, depending on the usage condition, field adjustments are required. For this purpose, the AD268 has the gain and offset calibration function.

Page 29 6. Parameters PART 1 AD268 Averaging times: (H8010 to H8017) This parameter is for the averaging processing for the analog input data. The moving average is calculated by the given averaging times parameter. For example, if the averaging times parameter is 10, the average value of latest 10 times conversion is output as the A/D conversion data.

Page 30 6. Parameters PART 1 AD268 Command register: (H8020) This register is used to issue the following commands to the AD268. To issue the command, write the command value by using WRITE instruction. Value Command Description Write 0 after the command processing is completed.

Page 31 1 when the AD268's processor is not normal. ROM status 1 when the AD268's EEPROM is not normal. DP-RAM status 1 when the AD268's DP-RAM (buffer memory) is not normal. Reserved External 24V error 1 when the external 24Vdc is not normal.

Page 32: Parameter Setting Procedure

When you change the AD268 parameters, such as input type settings, gain/offset calibrations and averaging times, use the following procedure. Step (1) Write the value "0" into the command register of the AD268 buffer memory (address H8020) by WRITE instruction. H8020...

Page 33: Sample Program For Setting The Parameters

This is an example to set the input type as 0 to 10V range (type = 1) for each channel. In this sample program, it is assumed that he AD268 is allocated to XW000 to XW007. For details of READ and WRITE instructions, refer to the T-series Instruction Set manual.

Page 34: Troubleshooting

PART 1 AD268 7. Troubleshooting 7.1 RAS information The RUN LED is provided on the front of the AD268. When the AD268 is operating normally, this LED is lit. Also the module status information is provided in the AD268's buffer memory (addresses H8030 to H8037).

Page 35: Troubleshooting

7. Troubleshooting PART 1 AD268 7.2 Troubleshooting The table below shows the trouble and its remedy. Trouble Module Module operation Cause Remedy status info Input type Bit 7 is ON The error channel Invalid input type Set the correct setting error...

Page 36 Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 37 Part 2 4 Channel Analog Output Module DA264 1. Introduction, 36 2. Specifications, 38 3. Output Type Setting, 40 4. Wiring, 41 5. I/O Allocation and Programming, 44 6. Parameters, 51 7. Troubleshooting, 56 User's Manual CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 38: Introduction

3) 16-bit high-resolution D/A conversion 4) High-speed (1ms/channel) conversion cycle 5) Offset calibration function 6) Output hold function Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 39: External Features

1. Introduction PART 2 DA264 1.2 External features Model type DA264 Status indication LED Removable terminal block Analog output terminal External power supply connection terminal Line ground and Frame ground terminal Terminal block fixing screw 2-points User's Manual CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 40: Specifications

24Vdc 10% - 240mA Internal 5Vdc current 230mA or less consumption External connection 20-pin removable terminal block Weight Approx. 300g Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 41: Internal Block Diagram

2. Specifications PART 2 DA264 2.2 Internal block diagram Amplifier Buffer Voltage (V V) output Amplifier Current T2 CPU (V I) output Amplifier Buffer Voltage (V V) output Amplifier Current (V I) output Reference voltage Regulator +15V -15V Voltage check circuit The DA264 performs the following operations.

Page 42: Output Type Setting

The factory setting is 0 to 5V / 0 to 20mA range. Refer to section 6 for the sample program to set the output type. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone:

800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 43: Wiring

4. Wiring PART 2 DA264 4. Wiring 4.1 Terminal arrangement DA264 terminal block Terminal Signal Function name Channel 1 Voltage output Channel 1 Current output Channel 2 Voltage output Channel 2 Current output Channel 3 Voltage output Channel 3 Current output Channel 4 Voltage output Channel 4 Current output External 24Vdc power (+)

Page 44: Signal Wiring

(a) However, depending on the Internal circuit condition, connect grounding individually by opening LG and FG. (b) Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 45: Wiring Precautions

4. Wiring PART 2 DA264 4.3 Wiring precautions (1) Use shielded twisted-pair cables for analog output signal lines and wire them in shortest distance. Connect the cable shield to ground in shortest distance for EMC conformity. Normally the grounding method (a) is recommended. However, depending on the condition, method (b) or (c) may be useful for stable operation.

Page 46: I/O Allocation And Programming

In the above example, the DA264 is allocated on the unit-0, slot-0. And 4 I/O registers, YW000 to YW003 are assigned to the DA264. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 47: D/A Conversion Data

5. I/O Allocation and Programming PART 2 DA264 5.2 D/A conversion data To output the desired analog signals from the DA264, simply write the appropriate data into the assigned I/O registers YW(n) to YW(n+3) for the DA264. The data of YW(n) to YW(n+3) are transferred to the DA264 at the T2's batch I/O processing. Then in the DA264, these D/A conversion data are converted into the analog signals and output from the DA264.

Page 48

H3FFF 32767 16383 A = 0.3125 D: Digital data -5.12V Lower limit A: Analog signal (mV) HC180 -16000 Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 49

5. I/O Allocation and Programming PART 2 DA264 0 to 10V range: D/A conversion data Output voltage Resolution Hexadecimal Integer Upper limit H7F80 32640 +10.2 V Full scale (positive) H7D00 32000 +10 V 0.3125 mV / bit H0001 +0.3125 mV H0000 Analog output value +10V...

Page 50

0 to 20mA range: -32768 32767 16383 A = 1.25 D: Digital data A: Analog signal (A) Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 51

5. I/O Allocation and Programming PART 2 DA264 1 to 5V / 4 to 20mA range: D/A conversion data Output voltage/current Resolution Hexadecimal Integer 1 to 5 V 4 to 20 mA Upper limit H337F 13183 +5.1196 V +20.479 mA Full scale (positive) H3200 12800...

Page 52: Programming

Rung 2: During R1001 is ON, YW000 data is decreased by 32 (channel 1 analog output is decreased by 0.01V) every scan. It is lower-limited by -32000 (-10V). Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 53: Parameters

6. Parameters PART 2 DA264 6. Parameters The DA264 has the memory that stores the control parameters, output type designation, module status information, etc. This memory is called the buffer memory. To access (read/write) this memory from the T2 program, READ and WRITE

instructions are used. These parameter data are not maintained in the DA264.

Page 54 Offset calibration value Voltage Current Upper limit +39.69 mV +158.75 A Default value Lower limit -127 -39.69 mV -158.75 A Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 55 6. Parameters PART 2 DA264 Output type setting: (H8004 to H8007) This parameter is used to select the output type. This parameter also has a function to select either clear or hold the analog output signal in case of the T2 operation stop (Halt or Error). The available setting range is as follows.

Page 56 1 when the D/A conversion data is limited because of the range over. External 24V error 1 when the external 24Vdc is not normal. Reserved Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 57: Sample Program To Access The Parameters

6. Parameters PART 2 DA264 6.2 Sample program to access the parameters To write the parameters into the DA264's buffer memory, use the WRITE instruction. No special procedure is required. To read the parameters from the DA264's buffer memory, use the READ instruction. A sample program to write/read the parameters is shown below.

Page 58: Troubleshooting

Check the Internal 15V error is stopped. Output external 24Vdc voltage is not signal is 0V/0mA. power supply. normal. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 59 User's Manual CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 60 Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 61 Part 3 8 Channel Thermocouple Input Module TC218 1. Introduction, 60 2. Specifications, 62 3. Input Type Setting, 64 4. Wiring, 66 5. I/O Allocation and Programming, 69 6. Parameters, 75 7. Troubleshooting, 83 User's Manual CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 62 6) Burnout detection function 7) Input data averaging function 8) Gain and offset calibration function (100mV input only) Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 63 1. Introduction PART 3 TC218 1.2 External features Model type TC218 Status indication LED Removable terminal block Analog input terminal External power supply connection terminal Line ground and Frame ground terminal Terminal block fixing screw 2-points For thermocouple input, CH2 to CH8 are used to connect the thermocouple input wires. The CH1 is used to connect the thermistor to measure the ambient temperature for cold junction compensation.

Page 64 24Vdc 10% - 120mA Internal 5Vdc current 300mA or less consumption External connection 20-pin removable terminal block Weight Approx. 300g Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 65 2. Specifications PART 3 TC218 2.2 Internal block diagram Reference voltage Buffer Jumper +15V T2 CPU Buffer Jumper +15V EEPROM Buffer Jumper Regulator +15V -15V Voltage check circuit The TC218 performs the following operations. The external analog signals come to the buffer amplifier through the filter. The multiplexer sequentially selects CH1 to CH8 to convert the input analog signals into digital data via the A/D converter.

Page 66: Jumper Plug Setting

Use a pair of tweezers to set the jumper plug. Pay attention not to touch the components on the board other than the jumper plug. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 67 3. Input Type Setting PART 3 TC218 3.2 Parameter setting by software The input type of the TC218 is specified by writing the following parameter data into the TC218's buffer memory. To access the buffer memory, T2 user program (READ and WRITE instructions) is required.

Page 68 Channel 7 input Channel 8 input External 24Vdc power (+) External 24Vdc power (-) Line filter ground Frame ground Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 69 4. Wiring PART 3 TC218 4.2 Signal wiring 100mV input (CH1 to CH8) TC218 Voltage source +15V +15V Shielded twisted-pair cable Set the jumper plug to Side 3 -15V n : Channel number (1 to 8) Internal circuit AG : Analog ground FG : Frame ground Thermocouple input TC218...

Page 70 (6) When this module is used for thermocouple input, connect the thermistor to channel 1 (CH1). The thermistor is attached with this module. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 71 5. I/O Allocation and Programming PART 3 TC218 5. I/O Allocation and Programming 5.1 Allocation to the T2 registers The I/O type of the TC218 is "X 8W". When the automatic I/O allocation operation is performed with a TC218 mounted on the rack, the TC218 is allocated as "X 8W".

Page 72: A/D Conversion Data

-102mV +51.196mV +102mV D = 320 HC000 D: Digital data -16384 A: Analog signal (mV) H8300 -32000 -100mV Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 73 5. I/O Allocation and Programming PART 3 TC218 Thermocouple (type K) input: Input A/D conversion data Resolution temperature Hexadecimal Integer Burnout detection H7FFF 32767 Upper limit +1370 C H6B08 27400 Full scale (positive) H5DC0 24000 +1200 C H0001 +0.05 C 0.05 C / bit H0000 HFFFF...

Page 74 HF060 D = 20 -4000 +800 C Lower limit -200 C D: Digital data A: Temperature (C) Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 75 5. I/O Allocation and Programming PART 3 TC218 Thermocouple (type E) input: Input A/D conversion data Resolution temperature Hexadecimal Integer Burnout detection H7FFF 32767 Upper limit +1000 C H4E20 20000 Full scale (positive) H2EE0 12000 +600 C H0001 +0.05 C 0.05 C / bit H0000 HFFFF...

Page 76 490 to 510 C 9800 XW001 10200 450 to 490 C 9000 XW001 9800 Less than 450 C XW001 9000 Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 77 6. Parameters PART 3 TC218 6. Parameters The TC218 has the memory that stores the control parameters, input type designation, module status information, etc. This memory is called the buffer memory. To access (read/write) this memory from the T2 program, READ and WRITE instructions are used. 6.1 Memory map The contents of the TC218's buffer memory are as follows.

Page 78 H8035 Module status for channel 6 H8036 Module status for channel 7 H8037

Module status for channel 8 Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 79 6. Parameters PART 3 TC218 Gain calibration value & Offset calibration value: (100mV input only) (Gain: H8000 to H8007, Offset: H8008 to H800F) For the 100mV input, the gain and offset calibration is possible. In the TC218, the A/D conversion data is calculated as follows. A/D conversion data Offset Gain...

Page 80 Type K thermocouple Type J thermocouple Type E thermocouple 100mV The default setting value (factory setting) is 5 (100mV). Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 81 6. Parameters PART 3 TC218 Command register: (H8020) This register is used to issue the following commands to the TC218. To issue the command, write the command value by using WRITE instruction. Value Command Description Write 0 after the command processing is completed. When this command is issued, the parameters written into Parameter set the buffer memory are saved in the TC218 ‘s EEPROM, and...

Page 82 External 24V error 1 when the external 24Vdc is not normal. Initializing 1 during the TC218 is in initialization process. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 83: Parameter Setting Procedure

6. Parameters PART 3 TC218 6.2 Parameter setting procedure When you change the TC218 parameters, such as input type settings, gain/offset calibrations and averaging times, use the following procedure. Step (1) Write the value "0" into the command register of the TC218 buffer memory (address H8020) by WRITE instruction.

Page 84: Sample Program For Setting The Parameters

For reading the parameters from the TC218, there is no special procedure. Simply read the data from the TC218’s buffer memory by using READ instruction. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

Page 85 7. Troubleshooting PART 3 TC218 7. Troubleshooting 7.1 RAS information The RUN LED is provided on the front of the TC218. When the TC218 is operating normally, this LED is lit. Also the module status information is provided in the TC218‘s buffer memory (addresses H8030 to H8037).

Page 86 The A/D conversion Check the Internal 15V error is stopped. external 24Vdc voltage is not power supply. normal. Analog I/O Modules (AD268 / DA264 / TC218) CTi Automation - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.ctiautomation.net - Email: info@ctiautomation.net...

This manual is also suitable for:

Tc218Da264