

TR1D Series

Communication Manual MCT-TR1DC1-V2.0_EN

Thank you for purchasing an Autonics product.

This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

Autonics

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Preface

Thank you for purchasing Autonics products.

Be sure to read and follow the **Safety Precautions** thoroughly before use.

This manual contains information about the product and how to use it properly, so keep it in a place where users can easily find it.

Manual Guide

- Use the product after fully reading the contents of the manual.
- The manual explains the product functions in detail and does not guarantee the contents other than the manual.
- Any or all of the manual may not be edited or copied without permission.
- The manual is not provided with the product.
- Download and use from our website (www.autonics.com).
- The contents of the manual are subject to change without prior notice according to the improvement of the product's performance, and upgrade notices are provided through our website.
- We put a lot of effort to make the contents of the manual a little easier and more accurate. Nevertheless, if you have any corrections or questions, please feel free to comment through our website.

Common Symbols in the Manual



Failure to follow instructions may result in serious injury or death.



Failure to follow instructions may result in injury or product damage.



Supplementary explanation of the function



Example of that function



Important information about the feature

1. Modbus RTU and ASCII Protocol

1.1. Modbus

The Modbus industrial protocol was developed in 1979 to make communication possible between automation devices. The protocol has expanded to include implementations over serial, TCP/IP, and the user datagram protocol (UDP). Today, it is a common protocol used by countless devices for simple, reliable, and efficient communication across a variety of modern networks.



Refer to the reference document of developer for the details.

1.2. Frame Structure of Modbus RTU and ASCII

1.2.1. Read Coil Status (Func 01-01H)

Reads output (0X reference, Coil) ON/OFF status in the Slave device.

Query (Master)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Starting Address	2-byte	4-Char
No. of Points/Registers	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC: Slave Address to No. of Points

* Calculation range of LRC: Slave Address to No. of Registers

Response (Slave)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Byte Count	1-byte	2-Char
Data	1-byte	2-Char
Data	1-byte	2-Char
Data	1-byte	2-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Data

1.2.2. Read Input Status (Func 02-02H)

Reads Input ON/OFF status (1X reference) in Slave device.

Query (Master)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Starting Address	2-byte	4-Char
No. of Points/Registers	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC: Slave Address to No. of Points

* Calculation range of LRC: Slave Address to No. of Registers

Response (Slave)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Byte Count	1-byte	2-Char
Data	1-byte	2-Char
Data	1-byte	2-Char
Data	1-byte	2-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Data

1.2.3. Read Holding Registers (Func 03-03H)

Reads the Binary data of Holding Registers (4X reference) in Slave device.

Query (Master)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Starting Address	2-byte	4-Char
No. of Points/Registers	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC: Slave Address to No. of Points

* Calculation range of LRC: Slave Address to No. of Registers

Response (Slave)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Byte Count	1-byte	2-Char
Data	2-byte	4-Char
Data	2-byte	4-Char
Data	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Data

1.2.4. Read Input Registers (Func 04-04H)

Reads the Binary data of Input Registers (3X reference) in Slave device.

Query (Master)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Starting Address	2-byte	4-Char
No. of Points/Registers	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC: Slave Address to No. of Points

* Calculation range of LRC: Slave Address to No. of Registers

Response (Slave)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Byte Count	1-byte	2-Char
Data	1-byte	2-Char
Data	1-byte	2-Char
Data	1-byte	2-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Data

1.2.5. Force Single Coil (Func 05-05H)

Turns ON (FF00 H) or OFF (0000 H) of single coil (0X reference) status in Slave device.

Query (Master)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Coil Address	2-byte	4-Char
Force Data	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Force Data

Response (Slave)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Coil Address	2-byte	4-Char
Force Data	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Force Data

1.2.6. Preset Single Register (Func 06-06H)

Writes the Binary data of single Holding Registers (4X reference) in Slave device.

Query (Master)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Register Address	2-byte	4-Char
Preset Data	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Preset Data

Response (Slave)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Register Address	2-byte	4-Char
Preset Data	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Preset Data

1.2.7. Preset Multiple Registers (Func 16-10H)

Writes the Binary data of Holding Registers (4X reference) consecutively in Slave device.

Query (Master)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Starting Address	2-byte	4-Char
No. of Registers	2-byte	4-Char
Byte Count	1-byte	2-Char
Data	2-byte	4-Char
Data	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Data

Response (Slave)

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function	1-byte	2-Char
Starting Address	2-byte	4-Char
No. of Registers	2-byte	4-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to No. of Registers



It is recommended to use the Single Register Write function rather than Multi Register Write function if you use the slave (device) connecting with external devices such as PLC, Graphic Panel, except in the case of download that presets the minimum/maximum or basic value of parameter by Input specifications in PC Loader Program.

1.2.8. Exception Response - Error Code

If occurs an error, send a response command and transmit each Exception Code after set(1) the highest level bit of received command(Function).

Field Name	RTU	ASCII
Header	None	: (Colon, 0x3A)
Slave Address	1-byte	2-Char
Function + 80H	1-byte	2-Char
Exception Code	1-byte	2-Char
Error Check ⁰¹⁾	CRC (16-bit)	LRC (2-Char)
Trailer	None	CRLF (0x0D 0x0A)

01) Error Check

* Calculation range of CRC/LRC: Slave Address to Exception Code

1.2.8.1. Exception Codes

When the exception response situation, the device do not respond data, but send exception code only.

Exception Codes	Name	Descriptions
01	ILLEGAL FUNCTION	When a command is not supported.
02	ILLEGAL DATA ADDRESS	When Reserved area is read.
03	ILLEGAL DATA VALUE	When data write to out of setting range is requested.
04	SLAVE DEVICE FAILURE	When the parameter is locked or communication write is disable.
06	SLAVE DEVICE BUSY	When the device status cannot perform the requested order.

1.3. Autonics Modbus Address System

Parameter address structure

The parameter address is written in form 'Reference number - Decimal address (Hexadecimal address)'. For example, if the parameter address is **3 0 1001 (03E8)**, it means that **3** is Reference number, **1001** is Decimal address (DEC), **03E8** is Hexadecimal address (HEX).

Reference number per each FUNC

Reference	Function
0	FUNC 01 [R], FUNC 05 [W], FUNC 15 [MW]
1	FUNC 02 [R]
3	FUNC 04 [R]
4	FUNC 03 [R], FUNC 06 [W], FUNC 16 [MW]

Correlation between decimal address and hexadecimal address

The parameter address can be somewhat different for each manufacturer because the regulation for a starting number is not defined.

Autonics Modbus address is started at '1' for decimal (DEC) address, and at '0' for hexadecimal (HEX). So, decimal (DEC) address values are +1 for Hex (HEX) address values.



- 03E8 (HEX) → 1001 (DEC) (1000 + 1)
- 07D0 (HEX) → 2001 (DEC) (2000 + 1)
- 157C (HEX) → 5501 (DEC) (5500 + 1)

2. Modbus Mapping Table

The meaning of HI/LO address

Some parameters divide the value into two addresses (HI/LO) because it exceeds the maximum value (2^{16} , 16 bit) that can be sent from one address.

When inputting value greater than the maximum (2^{16} , 16 bit), convert it to hexadecimal (HEX), enter up to 4 digits (low 16bit) into the LO address and over 5 digits (high 16 bit) into the HI address.

For example, when inputting a value '99999' into 'Output hysteresis' parameter, convert '99999' into the hexadecimal value, "**1 869F**". Input '**1**'(0x0001) into HI address (OUT HYS HI [Output hysteresis], 400065(0040)) and '**869F**'(0x869F) into LO address (OUT HYS LO [Output hysteresis], 400066(0041)), and send them.

If under the maximum (2^{16} , 16 bit) is needed to be set, input '0'(0x0000) into HI address and the hexadecimal value (HEX) into LO address.

2.1. Read Coil Status.(Func 01) / Force Single Coil(Func 05) [Func:01/05, R/W : R/W]

No. (Address)	Classification	Description	Factory default
000001 (0000)	RUN/STOP ⁰¹⁾	Control output Run/Stop 0: RUN 1: STOP	STOP
000002 (0001)	AT ⁰¹⁾	Auto-tuning Run/Stop 0: OFF 1: ON	OFF
000003 (0003)	Alarm Reset ⁰¹⁾	Alarm output reset 0: OFF 1: ON	OFF
000004 to 000050	Reserved	-	-

- 01) Related coil, variable

2.2. Read Discrete Inputs.(Func 02) [Func:02, R/W : R]

No. (Address)	Classification	Description	Factory default
100001 (0000)	SV	SV front indicator 0: OFF 1: ON	-
100002 (0001)	°F	Unit front indicator 0: OFF 1: ON	-
100003 (0002)	°C	Unit front indicator 0: OFF 1: ON	-
100004 (0003)	OUT1	Control output 1 front indicator 0: OFF 1: ON	-
100005 (0004)	OUT2 / Transmission output2	Control output 2 / Transmission output 2 front indicator 0: OFF 1: ON	-
100006 (0005)	AL1	Alarm output 1 front indicator 0: OFF 1: ON	-
100007 (0006)	AL2	Alarm output 2 0: OFF 1: ON	-
100008 (0007)	UP	Deviation high limit front indicator 0: OFF 1: ON	-
100009 (0008)	MID	Front indicator 0: OFF 1: ON	-
100010 (0009)	DOWN	Deviation low limit front indicator 0: OFF 1: ON	-
100010 to 100050	Reserved	-	-

2.3. Read Input Registers (Func 04)[Func:04, R/W : R]

No. (Address)	Classification	Description	Factory default
300001 to 300100	Reserved	-	-
300101 (0064)	-	Product number H	1
300102 (0065)	-	Product number L	5160
300103 (0066)	-	Hardware version	☐
300104 (0067)	-	Software version	☐
300105 (0068)	-	Model name 1	"TR"
300106 (0069)	-	Model name 2	"1D"
300107 (006A)	-	Model name 3	"-1" 음션I/O
300108 (006B)	-	Model name 4	"4R" 전원/OUT 1
300109 (006C)	-	Model name 5	"N" OUT2
300110 (006D)	-	Model name 6	" "
300111 (006E)	-	Model name 7	" "
300112 (006F)	-	Model name 8	" "
300113 (0070)	-	Model name 9	" "
300114 (0071)	-	Model name 10	" "
300115 (0072)	-	Reserved	-
300116 (0073)	-	Reserved	-
300117 (0074)	-	Reserved	-
300118 (0075)	-	Coil status Start Address	0001
300119 (0076)	-	Coil status Quantity	3
300120 (0077)	-	Input status Start Address	0001
300121 (0078)	-	Input status Quantity	10
300122 (0079)	-	Holding Register Start Address	0001
300123 (007A)	-	Holding Register Quantity	351
300124 (007B)	-	Input Register Start Address	0001
300125 (007C)	-	Input Register Quantity	1008
300127 to 300200	Reserved	-	-
301001 (03E8)	PV	Present value -1999 to 9999 °C/°F	-

No. (Address)	Classification	Description	Factory default
301002 (03E9)	DOT	Decimal point position 0: 0 1: 0.0	0
301003 (03EA)	UNIT	Display unit 0: °C 1: °F	°C
301004 (03EB)	SV	Setting value L-SV to H-SV °C/°F	0
301005 (03EC)	Heater Current Monitoring	Heater current monitoring 0.0 to 50.0 A	0.0
301006 (03ED)	Front indicator	Front indicator 0: OFF 1: ON	-
301007 (03EE)	HEATING MV	Heating MV 0.0 to 100.0%	-
301008 (03EF)	COOLING MV	Cooling MV 0.0 to 100.0%	-
310009 to 310050	Reserved	-	-

Bit data consistence of 301006 (03ED) front display

Bit	Description	Set range
Bit 0	SV indicator	0 or 1
Bit 1	°F indicator	0 or 1
Bit 2	°C indicator	0 or 1
Bit 3	OUT1 indicator	0 or 1
Bit 4	OUT2/Transmission output 2 indicator	0 or 1
Bit 5	AL1 indicator	0 or 1
Bit 6	AL2 indicator	0 or 1
Bit 7	UP indicator	0 or 1
Bit 8	MID indicator	0 or 1
Bit 9	DOWN indicator	0 or 1

2.4. Read Holding Register(Func 03) / Preset Single Register(Func 06) / Preset Multiple Registers(Func 16).
[Func:03/06/16, R/W : R/W]

2.4.1. SV setting group

No. (Address)	Parameter	Description	Factory default
400001 (0000)	Set Value	SV setting value L-SV to H-SV °C/°F	0
400002 to 400050	Reserved	-	-

2.4.2. Parameter 1 group

No.(Address)	Parameter	Description	Factory default
400051 (0032)	LOCK	Lock 0: OFF 1: LOC1 2: LOC2 3: LOC3	OFF
400052 (0033)	CT-A	Heater current monitoring 0 to 500: 00.0 to 50.0 A (display range)	-
400053 (0034)	AT	Auto-tuning 0 : OFF 1 : ON	OFF
400054 (0035)	AL1	AL1 alarm temperature Deviation alarm: -F.S to F.S °C/°F Absolute value alarm: input specification	1250
400055 (0036)	AL2	AL2 alarm temperature Deviation alarm: -F.S to F.S °C/°F Absolute value alarm: input specification	1250
400056 (0037)	H-P	Heating proportional band 0.1 to 999.9 °C/°F	10.0
400057 (0038)	H-I	Heating integral time 0 to 9999 sec.	240
400058 (0039)	H-D	Heating derivative time 0 to 9999 sec.	49
400059 (003A)	C-P	Cooling proportional band 0.1 to 999.9 °C/°F	10.0
400060 (003B)	C-I	Cooling integral time 0 to 9999 sec.	240
400061 (003C)	C-D	Cooling derivative time 0 to 9999 sec.	49
400062 (003D)	DB	Dead band [Control type P.P, P.ON, ON.P] -proportional band to 0.0 to +proportional band °C/°F [Control type ON.ON] -999 to 999 (-199.9 to 999.9) °C/°F	0
400063 (003E)	REST	Manual reset 0.0 to 100.0 %	50.0
400064 (003F)	H.HYS	Heating hysteresis 1 to 100 (0.1 to 100.0)	2

No.(Address)	Parameter	Description	Factory default
400065 (0040)	H.OST	Heating OFF offset 1 to 100 (0.1 to 100.0)	0
400066 (0041)	C.HYS	Cooling hysteresis 1 to 100 (0.1 to 100.0)	2
400067 (0042)	C.OST	Cooling OFF offset 1 to 100 (0.1 to 100.0)	0
400068 to 400100	Reserved	-	-

2.4.3. Parameter 2 group

No. (Address)	Parameter	Description	Factory default
400101 (0064)	IN-T	Input type Refer to 'Input type'	KCA.H
400102 (0065)	UNIT	Temperature unit 0: °C 1: °F	°C
400103 (0066)	SPL.T	Sampling period 0: 50 ms 1: 100 ms 2: 250 ms	50
400104 (0067)	IN-B	Input correction -999 to 999 Digit (-199.9 to 999.9)	0
400105 (0068)	MAV.F	Input digital filter 0.1 to 120.0 sec.	0.1
400106 (0069)	L-SV	SV low limit value Input range of input type °C/°F $L-Sv \leq (H-Sv - 1\text{digit})$	-50
400107 (006A)	H-SV	SV high limit value Input range of input type °C/°F $H-Sv \geq (L-Sv + 1\text{digit})$	1200
400108 (006B)	O-FT	Control output mode 0: HEAT 1: COOL 2: H-C	H-C
400109 (006C)	C-MD	Control type [Standard control] 0: PID 1: ONOF [H&C control] 0: P.P 1: P.ON 2: ON.P 3: ON.ON	PP
400110 (006D)	OUT1	Control output 1 0: CURR 1: SSR	CURR
400111 (006E)	OUT2	Control output 1 range 0: 4-20 mA 1: 0-20 mA	4-20
400112 (006F)	O1.MA	Control output 2 0: CURR 1: SSR	CURR
400113 (0070)	O2.MA	Control output 2 range 0: 4-20 mA 1: 0-20 mA	4-20 mA
400114 (0071)	H-T	Heating control cycle 0.5 to 120.0 sec.	[Relay] 20.0 [SSR] 2.0

No. (Address)	Parameter	Description	Factory default
400115 (0072)	C-T	Cooling control cycle 0.5 to 120.0 sec.	[Relay] 20.0 [SSR] 2.0
400116 (0073)	AL-1	AL1 alarm operation Refer to 'Table. AL□ alarm operation'	AM1.A
400117 (0074)	A1.HY	AL1 hysteresis 1 to 100 °C/°F	1
400118 (0075)	AL-2	AL2 alarm operation Refer to 'Table. AL□ alarm operation'	AM2.A
400119 (0076)	A2.HY	AL2 hysteresis 1 to 100 °C/°F	1
400120 (0077)	LBA.T	LBA time 0 to 9999 sec.	0
400121 (0078)	LBA.B	LBA band 0 to 999 °C/°F (0 to 999.9)	2
400122 (0079)	AO.M1	Transmission output 1 mode 0: PV 1: SV 2: H-MV 3: C-MV	PV
400123 (007A)	FS1.L	Transmission output 1 low-limit Input range of input type	-50
400124 (007B)	FS1.H	Transmission output 1 high-limit Input range of input type	1200
400125 (007C)	AO.M2	Transmission output 2 mode 0: PV 1: SV 2: H-MV 3: C-MV	PV
400126 (007D)	FS2.L	Transmission output 2 low-limit Input range of input type	-50
400127 (007E)	FS2.H	Transmission output 2 high-limit Input range of input type	1200
400128 (007F)	DI-K	Digital input key 0: Not used 1: Stop control output 2: Auto-tuning execution 3: Alarm reset,	Stop control output
400129 (0080)	ER.MV	Sensor error, MV [Standard control] 0.0 (OFF) to 100.0 % (ON) [Heating-Cooling control] -100.0 (cooling ON) to 0.0 (OFF) to 100.0 % (heating ON)	0.0
400130 (0081)	DSP	Screen protection 0: OFF 1: 1 min. 2: 30 min. 3: 60 min.	OFF

No. (Address)	Parameter	Description	Factory default
400131 (0082)	PRCL	Communication protocol 0: RTU, 1: ASCII	RTU
400132 (0083)	ADRS	Communication address 1 to 99	1
400133 (0084)	BPS	Communication speed 0: 4800 bps 1: 9600 bps 2: 19200 bps 3: 38400 bps 4: 57600 bps 5: 115200 bps	9600 bps
400134 (0085)	PRTY	Communication parity bit 0: NONE 1: EVEN 2: ODD	NONE
400135 (0086)	STP	Communication stop bit 0: 1 bit 1: 2 bit	2 bit
400136 (0087)	RSW.T	Communication response time 5 to 99 ms	20
400137 (0088)	COMW	Communication write 0: Enable 1: Disable	Enable
400138 (0089)	INIT	Parameter reset 0: OFF 1: ON	OFF
400138 to 400150	Reserved	-	-

Table 1. AL□ alarm operation

Setting	Parameter	Alarm operation	Alarm option
0	AM0	Not used	-
10	AM1.A	Deviation high limit alarm	Standard alarm
11	AM1.B	Deviation high limit alarm	Alarm latch
12	AM1.C	Deviation high limit alarm	Standby sequence 1
13	AM1.D	Deviation high limit alarm	Alarm latch and sequence 1
14	AM1.E	Deviation high limit alarm	Standby sequence 2
15	AM1.F	Deviation high limit alarm	Alarm latch and sequence 2
20	AM2.A	Deviation low limit alarm	Standard alarm

Setting	Parameter	Alarm operation	Alarm option
21	AM2.B	Deviation low limit alarm	Alarm latch
22	AM2.C	Deviation low limit alarm	Standby sequence 1
23	AM2.D	Deviation low limit alarm	Alarm latch and sequence 1
24	AM2.E	Deviation low limit alarm	Standby sequence 2
25	AM2.F	Deviation low limit alarm	Alarm latch and sequence 2
30	AM3.A	Deviation high, low limit alarm	Standard alarm
31	AM3.B	Deviation high, low limit alarm	Alarm latch
32	AM3.C	Deviation high, low limit alarm	Standby sequence 1
33	AM3.D	Deviation high, low limit alarm	Alarm latch and sequence 1
34	AM3.E	Deviation high, low limit alarm	Standby sequence 2
35	AM3.F	Deviation high, low limit alarm	Alarm latch and sequence 2
40	AM4.A	Deviation high, low limit reserve alarm	Standard alarm
41	AM4.B	Deviation high, low limit reserve alarm	Alarm latch
42	AM4.C	Deviation high, low limit reserve alarm	Standby sequence 1
43	AM4.D	Deviation high, low limit reserve alarm	Alarm latch and sequence 1
44	AM4.E	Deviation high, low limit reserve alarm	Standby sequence 2
45	AM4.F	Deviation high, low limit reserve alarm	Alarm latch and sequence 2
50	AM5.A	Absolute value high limit alarm	Standard alarm

Setting	Parameter	Alarm operation	Alarm option
51	AM5.B	Absolute value high limit alarm	Alarm latch
52	AM5.C	Absolute value high limit alarm	Standby sequence 1
53	AM5.D	Absolute value high limit alarm	Alarm latch and sequence 1
54	AM5.E	Absolute value high limit alarm	Standby sequence 2
55	AM5.F	Absolute value high limit alarm	Alarm latch and sequence 2
60	AM6.A	Absolute value high limit alarm	Standard alarm
61	AM6.B	Absolute value high limit alarm	Alarm latch
62	AM6.C	Absolute value high limit alarm	Standby sequence 1
63	AM6.D	Absolute value high limit alarm	Alarm latch and sequence 1
64	AM6.E	Absolute value high limit alarm	Standby sequence 2
65	AM6.F	Absolute value high limit alarm	Alarm latch and sequence 2
70	SBA.A	Sensor break alarm	Standard alarm
71	SBA.B	Sensor break alarm	Alarm latch
80	LBA.A	Loop break alarm	Standard alarm
81	LBA.B	Loop break alarm	Alarm latch
90	HBA.A	Heater break alarm	Standard alarm
91	HBA.B	Heater break alarm	Alarm latch

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Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.

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