

GAT10-CC RS-485/CC-Link Converter Instruction Manual

Thank you for purchasing our product. Please check that the delivered product is the item exactly as ordered by you. Please read this manual thoroughly to understand the contents before you start operating the product.

* Please ensure that this instruction manual is given to the final user of the product.

* For details of the operation and parameters of a Shimaden product to be connected to this instrument, please refer to the instruction manual on the product and the appropriate communication interface instruction manual.

* This instruction manual is meant for persons involved in wiring, installation, operation and routine maintenance for the GAT10-CC. It describes matters to be attended to in handling it, how to install it, wiring for it, its functions and operating procedure. It is requested that for ready reference, this manual is kept at the work site where the GAT10-CC is used.

In operating it, please follow the instructions contained herein.

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1. Safety Rules

This instruction manual describes matters to be attended to concerning safety, potential damage to equipment and/or facilities, additional explanations and notes under the following headings:

"⚠ Warning" © This heading indicates that failure to follow instructions could cause injury or even death.

"⚠ Caution" © This heading indicates that failure to follow instructions could cause damage to equipment and/or facilities.

"Note" © This heading indicates additional explanations or notes.

The safety rules apply only to this product. For those as a sequencer system, please refer to the User's Manual of Mitsubishi Electric Corporation's CPU Unit.

⚠ Warning

This apparatus is designed for general industrial use. Therefore, it should not be used in any way that might result in injury or fatality, or must be used only after adequate safety measures are taken. No responsibility will be taken for any accident resulting from the usage of this product without appropriate safety measures being in place.

⚠ Warning

- This apparatus must be housed, for example, in a control box to prevent the terminal board from coming into accidental physical contact with personnel.
- This apparatus should not be taken out of the case. If your hand or an electric conductor is put inside it, an electric shock may result in serious injury or even death.
- Make sure that the protective conductor terminal is grounded.

⚠ Caution

If there are any possibility of doing harm or damage to peripheral devices, equipment or products and if this apparatus goes out of order, you must take appropriate safety measures such as installing the proper fuse or an overheating prevention device before you start using the instrument. No responsibility will be taken for any accident resulting from the usage of this product without appropriate safety measures being in place.

⚠ Caution

- As means to turn the power off, a switch or a breaker should be installed in the external power circuit to be connected to the power supply terminal of this apparatus. The switch or the breaker should be installed adjacently to the apparatus and in a position which allows easy operation, with an indication that it is a means of disconnecting the apparatus from its power source. The switch or the breaker should meet the appropriate requirements of IEC60947.
- Fuse: The instrument has no built-in fuse. Ensure to install a fuse in the power circuit to be connected to the power supply terminal. The fuse should be placed between the apparatus and the switch or the breaker, and should be attached to the L side of the power terminal.
Fuse Rating/Characteristic: 250VAC 0.5A/ In the case of a medium time-lagged or time-lagged type switch, one which meets the requirements of IEC60127 should be used.
- Make sure that a draft hole should not be blocked and that it should be protected from dust and dirt. Otherwise, a temperature rise and deteriorated insulation might shorten the life of the product or result in machine trouble or even a fire.
- It should be noted that repeated endurance tests for voltage, noise, surging and the like may lead to deterioration of the apparatus.
- Users are prohibited from remodeling the apparatus or using it in a prohibited or unauthorized manner.

[Notes on Matters concerning Design]

⚠ Warning

- If the data link goes out of communication on the CC-Link, data of the master unit is retained. In a sequence program, an interlocking circuit should be formed by the use of communication status data so that the system works on the safe side.

⚠ Caution

- Control lines and communication cables should not be bundled with the main power circuit or the power line, or installed adjacently. They should be spaced apart by more than 100 mm as a guideline. Failure to do this may result in erroneous action due to noise.

2. Preliminary Steps

2.1 Confirmation of Specification Codes

Please confirm that the delivered product is exactly as you specified by comparing the model codes pasted on the case of the apparatus with the following codes.

Example of model code: GAT10-CC-90-0
 ① ②

Table 2.1 Model Codes

Item		Code and Description	
①	Power supply	90: 100-240V AC	08: 24V AC/DC
②	Special note	0: Without	9: With

2.2 Checking Attached Items

This instruction manual: 1
 Mounting base: 1
 Terminal resistor 110Ω: 1
 (Color codes: Brown, brown, black, black. Brown)

Note: If you find a problem with the product or some of the attached items missing, please contact our agent or our sales office in your neighborhood.

2.3 Installation Site

⚠ Caution

Avoid the following places. Installation in such a place may result in trouble of or damage to the instrument, or may lead to the occurrence of fire or other dangerous situation in the worst case.

- Where flaming gas, corrosive gas, soot, or particles that can deteriorate electrical insulation is generated or is abundant
- Where ambient temperature lowers below -10°C or exceeds 50°C
- Where relative humidity exceeds 90%RH or falls below dew point
- Where highly intense vibration or impact is generated
- Near high voltage power lines or where inductive interference can affect the operation of the apparatus
- Where the instrument is exposed to dew drops or direct rays of the sun
- Where the elevation is in excess of 2,000 m
- Outdoors
- Where the apparatus is directly exposed to the flow of emitted air

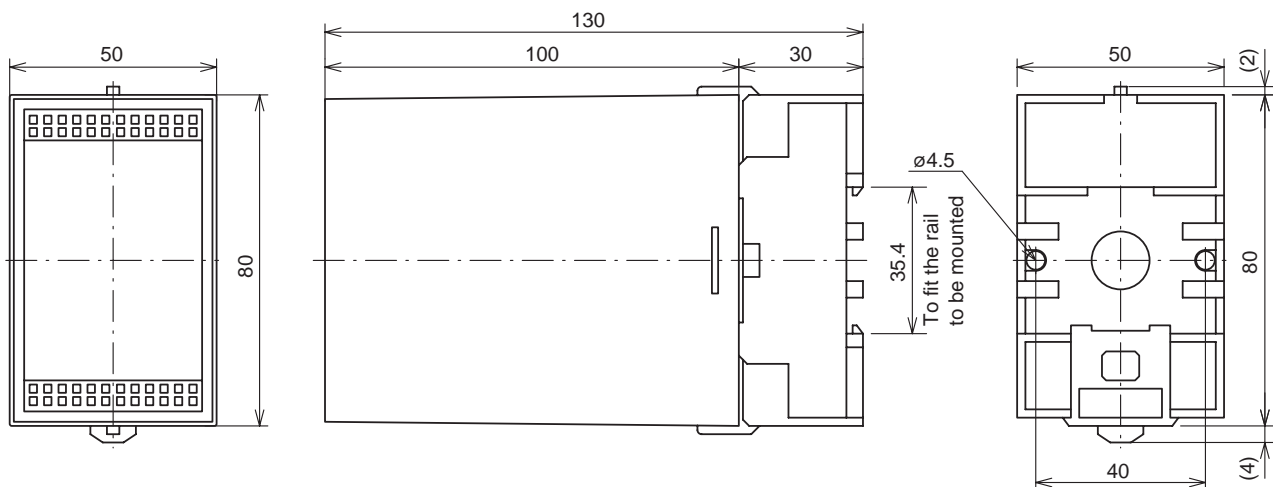
2.4 Wiring

⚠ Caution

In wiring, close attention should be paid to the following.

- Always disconnect the apparatus from any power source during wiring operation to prevent an electric shock.
- Make sure that the protective conductor terminal Ⓢ is grounded properly. Otherwise, an electric shock may result.
- Don't touch the wired terminals and charged devices while the instrument is energized.

2.5 External Dimensions

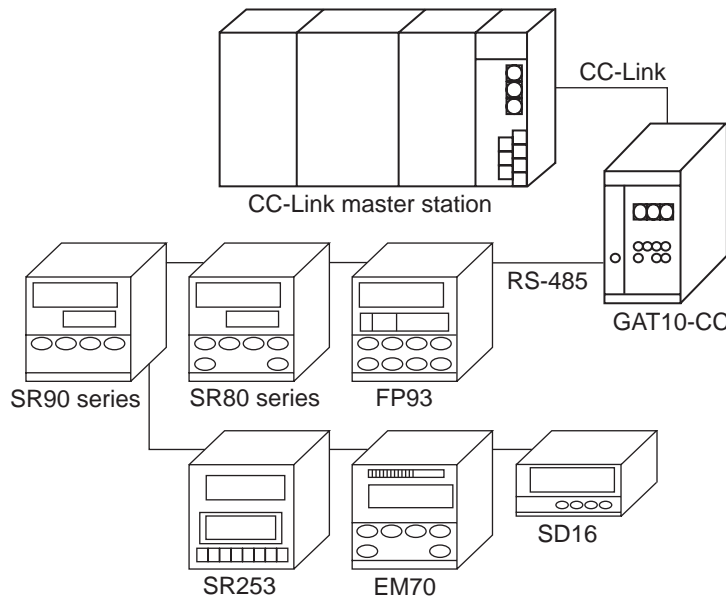


3. General

3.1 General description

- (1) This instruction manual describes the specifications of the GAT10-CC for use as a remote device station of the CC-Link system, its handling and programming method.
- (2) The GAT10-CC enables writing and reading, from the CC-Link, of measured temperature values, set temperature values and parameters for eight units maximum of Shimaden products equipped with RS-485 communication function.
- (3) The GAT10-CC is capable of dealing with the following Shimaden products:
 Digital controllers: SR80 series, SR90 series, SR253 and FP93
 Digital indicator: SD16
 Servo controller: EM70
- (4) CC-Link is an abbreviation of "control and communication link" and is abbreviated as CC-link in this instruction manual.
 The CC-Link is a system to connect an input/output unit, an intelligent function unit, a special function unit and the like, which are installed dispersedly and allows them to be controlled from a CC-Link master station.
 - (4)-1 When various units of a system are installed in a dispersed configuration, wiring for entire system can be accomplished economically.
 - (4)-2 ON/OFF information concerning input and output of each unit and numerical data can be received/transmitted easily and quickly.
 - (4)-3 When a plurality of PLC is connected, a simple dispersed system can be constructed.
 - (4)-4 As it is possible to connect various devices produced by associated manufacturers, customers' systems can be extended or modified to meet a number of requirements.

Note: For details of the CC-link, please refer to the Specifications of CC-Link published by the CC-Link Association.



3.2 Specifications of CC-Link

Table 3.3 Specifications of CC-Link

Item	Specifications					
Version of CC-Link	1.10					
Communication system	Broadcast polling					
Synchronization system	Frame synchronization					
Type of transmission line	Bus type (EIA RS-485 compliant)					
Communication speed	156K/625K/2.5M/5M/10M bps					
Type of station	Remote device station					
The number of occupying stations	4					
Type of device	Gateway					
Remote station numbers	1~61					
Maximum transmission distance	Transmission rate	156k	625k	2.5M	5M	10M
	Total distance	1200m	900m	400m	160m	100m
The number of connectable units	The number of stations which satisfies the following formulae (1) and (2) $(1 \times a) + (2 \times b) + (3 \times c) + (4 \times d) \leq 64 \dots (1)$ a: No. of modules occupying 1 station, b: No. of modules occupying 2 stations, c: No. of modules occupying 3 stations, d: No. of modules occupying 4 stations. $(16 \times A) + (54 \times B) + (88 \times C) \leq 2304 \dots (2)$ A: No. of remote I/O station modules, B: No. of remote device station modules, C: No. of local station modules					
Connectable cable	CC-Link dedicated cable					
Terminal resistor	110Ω, 1/2W × 2 (connected between DA and DB)....both trunk line ends					

3.3 Specifications of RS-485

Table 3.4 Specifications of RS-485

Item	Specifications
Signal level	EIA RS-485 compliant
Communication system	2-line half duplex multidrop
Synchronization system	Start-stop synchronization
Communication distance	500 m (differs depending on conditions)
Communication speed	19200 bps
Transmission procedure	No procedure
Data format	Data 7 bits, even parity stop 1 bit
Communication data	ASCII data
The number of connectable products	Maximum 8 Shimaden products with RS-485 communication option
Connectable products	SR80 series, SR90 series, SR253, SD16, EM70, FP93
Scan time	Shorter than 1.5 seconds on an average (when 8 Shimaden units are connected, and without SV value updating and extended display/setting)

3.4 External Appearance

The apparatus

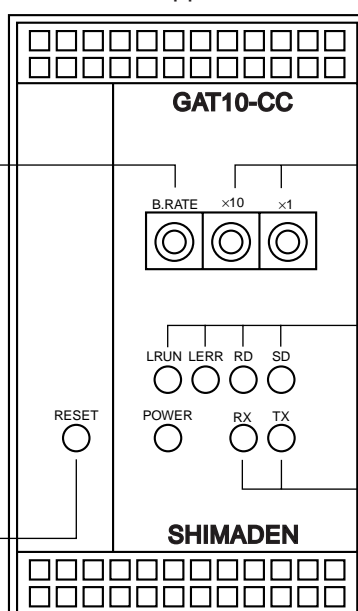
*CC-Link transmission rate setting switch
Note: A set value becomes effective upon applying power or resetting.

Table 3.1 Transmission rate setting

Position	Transmission rate
0	156kbps
1	625kbps
2	2.5Mbps
3	5Mbps
4	10Mbps

Factory set value is 156 kbps.

Reset switch —
 For resetting the apparatus



*Switch for setting CC-Link station numbers

This apparatus is of the 4 possessory station type.

Set the number of the first station.

The setting range is from 01 to 61.

The factory set value is 00.

Note: A set value becomes effective upon applying power or resetting.

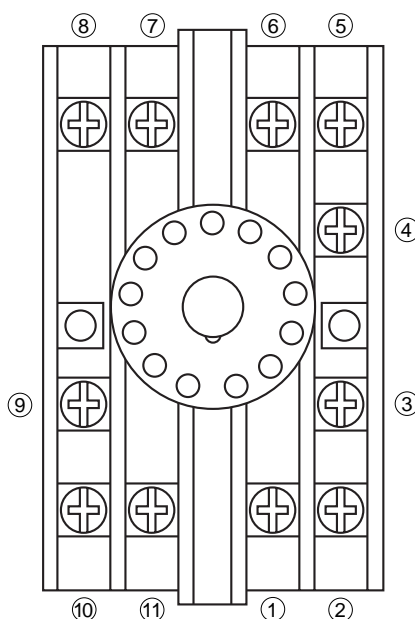
Operating condition of CC-Link is displayed.

Operating condition of RS-485 communication is displayed.

Mounting base

Table 3.2 Terminal arrangement

No.	Name of signal
①	RS-485: -
②	RS-485: +
③	RS-485: SG
④	Power supply: FG
⑤	Power supply: N
⑥	Power supply: L
⑦	CC-Link: FG
⑧	CC-Link: SLD
⑨	CC-Link: DG
⑩	CC-Link: DB
⑪	CC-Link: DA



4. Wiring

4.1 CC-Link dedicated cable

- (1) In the CC-Link system, CC-Link dedicated cable (version 1.10 compliant) should be used.
- (2) For the CC-Link, use CC-Link dedicated cable recommended in Mitsubishi Electric Corporation CC-Link System Master/Local Unit User's Manual.
- (3) If any other cable than CC-Link dedicated cable is used, the performance of the CC-Link system will not be guaranteed.

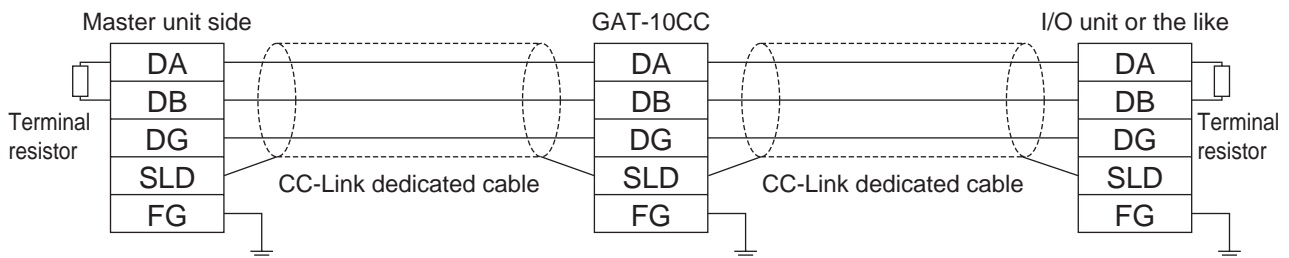
4.2 Maximum Transmission Distance

Table 4.1 Maximum Transmission Distance

Communication speed	Length of cable between stations	Maximum transmission distance
156Kbps	20cm or more	1200m
625Kbps	20cm or more	900m
2.5Mbps	20cm or more	400m
5Mbps	20cm or more	160m
10Mbps	20cm or more	100m

4.3 Connection of CC-Link dedicated cable

- (1) The order of cable connection has nothing to do with the station numbers.
- (2) For the units on both ends of the CC-Link, the "terminal resistor" supplied as accessories to those units should be connected. Connect each terminal resistor across DA and DB.
- (3) Terminal resistor to be connected in the CC-Link system should be 110Ω 1/2W.
- (4) The master unit can be connected other than on both ends.
- (5) Avoid star connection.
- (6) How to connect the GAT10-CC to the master unit via CC-Link dedicated cable is illustrated below.

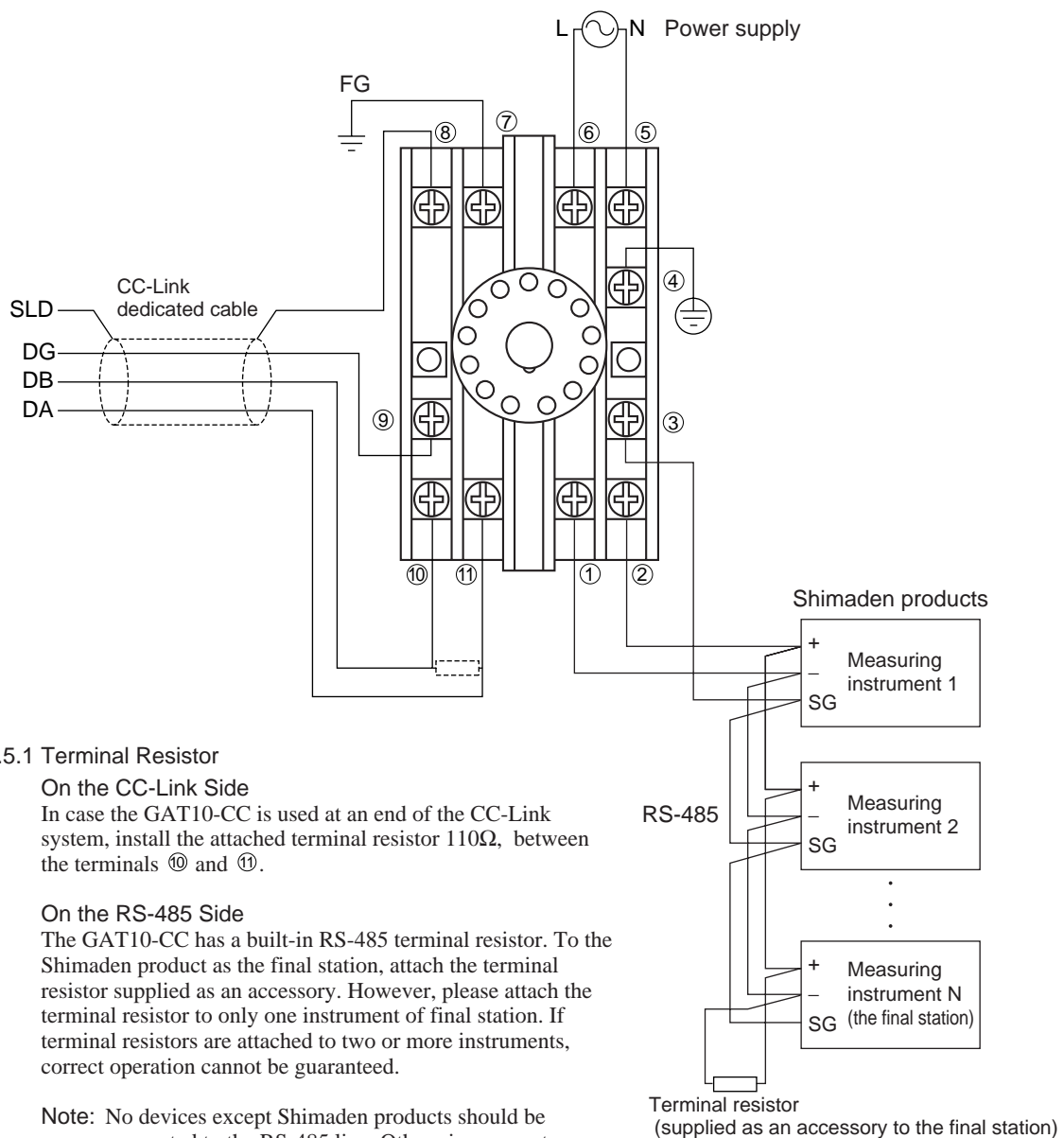


4.4 Notes on Wiring

The Version 1.10 of CC-Link dedicated cable should not be used together with its 1.00 version. If Version 1.10 cable is mixed with a Version 1.00 cable, all cables are taken for Version 1.00 and normal data transmission cannot be guaranteed. Connect the shielding wire of CC-Link dedicated cable to the "SLD" of each unit, pass it through "FG" and carry out the D type (the 3rd grade) or higher type grounding on both ends. Ensure that the D type (3rd grade) or higher type grounding for each "FG" terminal is carried out. If you fail to do so, the instrument may not operate correctly. "SLD" and "FG" are connected inside the body of the GAT10-CC.

4.5 Wiring

Carry out wiring by referring to the following drawing.



4.5.1 Terminal Resistor

On the CC-Link Side

In case the GAT10-CC is used at an end of the CC-Link system, install the attached terminal resistor 110Ω, between the terminals ⑩ and ⑪.

On the RS-485 Side

The GAT10-CC has a built-in RS-485 terminal resistor. To the Shimaden product as the final station, attach the terminal resistor supplied as an accessory. However, please attach the terminal resistor to only one instrument of final station. If terminal resistors are attached to two or more instruments, correct operation cannot be guaranteed.

Note: No devices except Shimaden products should be connected to the RS-485 line. Otherwise, correct operation cannot be guaranteed.

4.5.2 External Wiring

As one of the requirements for enabling the GAT10-CC to function thoroughly and to establish a highly reliable system, external wiring that is not easily affected by noise is necessary. The following are matters to be attended to for external wiring.

- (1) Use a different cable for CC-Link and for power supply to keep the system unaffected by surge or induction on the power supply side.
- (2) The external wiring should not be bundled with or installed adjacently to a power circuit line or a high voltage line. Otherwise it will easily be affected by noise, surge or induction.
- (3) For a shielded cable, one-point grounding on the PLC side is recommended. Depending on the condition of external noise, however, it may be better to ground on the external side.

4.6 Maintenance

Although no particular maintenance is required for GAT10-CC, you should check the inspection items listed in the Mitsubishi Electric Corporation PLC User's Manual so that your system can always be used in optimal conditions.

5. Setting before Operation and Procedure

5.1 Setting for CC-Link

Set a CC-Link communication speed and station numbers for the GAT10-CC. Set values become effective upon applying power or resetting.

When GAT10-CC setting is carried out through the CC-Link, the GAT10-CC should be regarded as a "remote device" occupying 4 stations. The number of modules and the number of occupying stations have to be taken into consideration in carrying out network setting on the CC-Link master station side.

5.2 RS-485 Communication Parameter Setting for Shimaden Product

For communication with the GAT10-CC, set parameters as follows:

- Communication address: Set in a range from "1 to 8" so as not to overlap.
- Data format: "7E1" (default value)
- Start character: "STX" (default value)
- BBC operation: "1" (default value)
- Communication speed: Set it to "19200bps".
- Communication delay: Use a default value as it is.
Note: There are different default values of communication delay, namely, "20" for SR80 series, SR90 series, EM70 and FP93; "40" for SR253; and "80" for SD16.
- Communication memory mode: In case SV and other parameters are changed frequently through the CC-Link, it is recommended to change the communication memory mode. Please note, however, that in this case, some parameters are not stored when power is turned off. For further explanation, refer to the Instruction Manual of Shimaden products.

5.3 Linking to PLC master station

- (1) The GAT10-CC, is allocated for "I/O" in the relay/register area with the master unit as a remote device station.
- (2) The allocated relay/register area is treated as areas divided by channels and data are exchanged between the connected GAT10-CC and the master unit.

5.4 Master station Areas Used for CC-Link

Table 5.1 Master Station Areas

	Remote I/O		Remote register	
	Input	Output	Input	Output
Classification	Relay	Relay	Register	Register
The number of points	128 bit	128 bit	16 Word	16 Word
Description	Bit area allocated for input	Bit area allocated for output	Input register allocated on a unit of words	Output register allocated on a unit of words
Area	RXn0~RX (n+7) F	RYn0~RY (n+7) F	RWwn~RWwn+F	RWrn~RWrn+F

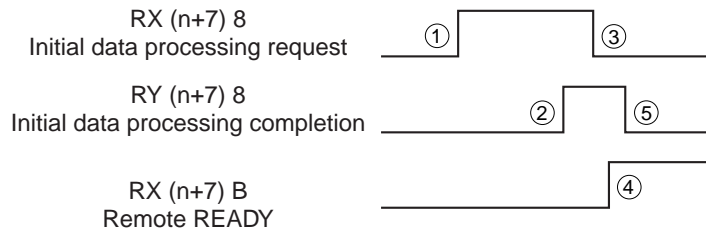
n: Address given to master unit by the station number setting (indicated by hexadecimal numbers)

5.5 Notes on PLC Programming

5.5.1 Procedure of Initial Data Processing Request

In the following, the GAT10-CC action in response to the application of power or resetting and basic timing of a request for initial data process are described.

- ① Upon applying power or resetting, the GAT10-CC turns the "initial data processing request flag" $RX(n+7)8$ of remote input/ output ON.
- ② A higher order sequence turns the "initial data processing completion flag" $RY(n+7)8$ of remote input/output ON.
- ③ Seeing the "initial data processing completion flag" $RX(n+7)8$ of the remote input/output (②) turn ON, the GAT10-CC turns the "initial data processing request flag" $RY(n+7)8$ OFF.
- ④ The GAT10-CC turns the "Remote READY" $RX(n+7)B$ ON.
- ⑤ The higher order sequence turns the "initial data processing finish flag" $RY(n+1)8$ OFF.

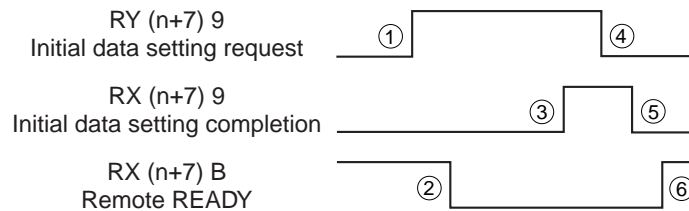


5.5.2 Procedure of Requesting Initial Data Setting

A request for initial data setting does not cause the GAT10-CC to carry out any particular processing for "remote input" $RXn0\sim RX(n+7)F$ and "remote register" $RWrn\sim RWrn+F$. Only hand shaking is carried out.

Basic timing of a request for initial data setting is shown below.

- ① A higher order sequence turns the "initial data setting request flag" $RY(n+7)9$ ON.
- ② The GAT10-CC turns "remote READY" $RX(n+7)B$ OFF.
- ③ After turning $RXn0\sim RX(n+7)F$ ON and setting 0 for $Rwrn\sim RWrn+F$, the GAT10-CC turns the "initial data setting completion flag" $RX(n+7)9$ ON.
- ④ Seeing the "initial data setting completion flag" $RX(n+7)9$ turn ON, the higher order sequence turns the "initial data setting request flag" $RY(n+7)9$ OFF.
- ⑤ The GAT10-CC turns the "initial data setting completion flag" $RX(n+7)9$ OFF.
- ⑥ "Remote READY" $RX(n+7)B$ is turned ON.



5.6 Remote Input and Output Signals

Allocation of input and output signals and the respective functions are described in the following.

5.6.1 Remote Input (GAT10→Master)

The following are remote input areas:

- (1) ch1~ch8 Event 1
The status of the event 1 action of each channel is shown. The bits are ON during the event action and remain OFF when the event alarm is not in operation or the event alarm option is not added.
- (2) ch1~ch8 Event 2
The status of the event 2 action of each channel is shown. The bits are ON during the event action and remain OFF when the event alarm is not in operation or the event alarm option is not added.
- (3) ch1~ch8 Scaleover
The bits turn ON when scaleover occurs on either the higher or the lower limit of measured values of each channel or when a cold contact compensator goes out of order, and remain ON while normal action goes on.
- (4) ch1~ch8 Communication Error
The communication status of the measuring instrument of each channel is shown. The bits turn ON when a communication error occurs or when disconnected and remain OFF while communication is in its normal state.
- (5) ch1~ch8 PID/AT
The status of auto-tuning execution of each channel is shown. The bits are ON while auto-tuning is executed and remain OFF during PID control.
- (6) Hardware Error Flag RXnF
The bits turn ON when a setting number of extension setting/extension display is invalid or when writing a parameter into a measuring instrument fails. In case extension setting/extension display are carried out in a plurality of channels, the bits turn ON upon the occurrence of an error on one or more channels.
- (7) ch1~ch8 Error Flag RX(n+1)0~RX(n+1)7
The bits turn ON when a setting number of extension setting/extension display of each channel is invalid or when writing a parameter into a measuring instrument fails and remain OFF in the normal state.
- (8) System Area
Remote input called the system area is allocated to RX(n+7)8~RX(n+7)B. This is the interface area between the CC-Link supported devices and the master module.

5.6.2 Remote Output (Master→GAT10)

The following are remote output areas:

- (1) Setting Numbers for Extension Display/Extension Setting
In the remote register area, an item to be input or output can be changed from the user sequence by using a setting number and a hand shaking bit.
Such a remote register is defined as an extension area. Input is called display and output is called setting. Areas in which a command number is written to decide for what purpose the extension area is used are secured in RYn0~RYn5 and RYn6~RYnB. RYnC, RYnD, RXnC and RXnD are used as flag areas for such hand shaking.
For details, see 5.8 "Extension Display and Extension Setting."
- (2) RUN/STOP RYnF
If this is ON, writing a parameter or changing an SV in a measuring instrument is not allowed. In ordinary use, it should remain OFF (default).
- (3) ch1~ch8 Extension Display/Setting Flag RY(n+1)0~RY(n+1)7
For which channel extension display/setting is carried out is set. For details, see 5.8 "Extension Display and Extension Setting."
- (4) System Area
Remote output called the system area is allocated to RY(n+7)8~RY(n+7)A. This is the interface area between the CC-Link supported devices and the master module.

The GAT10-CC uses 128 input points and 128 output units for data exchange with the master unit.

Table 5.2 shows the allocation of input and output signals and names of signals.

"RX" in each device number represents an input signal from the GAT10-CC to the master unit and "RY" an output signal from the master unit to the GAT10-CC.

Avoid reading/writing in unused areas and reserved areas. If done, normal operation will not be guaranteed.

Table 5.2 List of Remote Input and Output Signals (In the case of controller 1/2)

GAT10-CC→Master		Master→GAT10-CC		
Device No.	Name of Signal	Device No.	Name of Signal	
RXn0	ch1 Event 1	RYn0	Setting number for (extension) display	
RXn1	ch1 Event 2	RYn1		
RXn2	ch1 Scaleover	RYn2		
RXn3	ch1 Communication error	RYn3		
RXn4	ch1 PID/AT	RYn4		
RXn5	ch2 Event 1	RYn5	Setting number for (extension) setting	
RXn6	ch2 Event 2	RYn6		
RXn7	ch2 Scaleover	RYn7		
RXn8	ch2 Communication error	RYn8		
RXn9	ch2 PID/AT	RYn9		
RXnA	Unused	RYnA	Extension display flag	
RXnB		RYnB		
RXnC	Extension display complete	RYnC		Extension setting flag
RXnD	Extension setting complete	RYnD		Unused
RXnE	Unused	RYnE		RUN/STOP
RXnF	Hardware error flag	RYnF	ch1 Extension display/ setting flag	
RX (n+1) 0	ch1 Error flag	RY (n+1) 0	ch2 Extension display/ setting flag	
RX (n+1) 1	ch2 Error flag	RY (n+1) 1	ch3 Extension display/ setting flag	
RX (n+1) 2	ch3 Error flag	RY (n+1) 2	ch4 Extension display/ setting flag	
RX (n+1) 3	ch4 Error flag	RY (n+1) 3	ch5 Extension display/ setting flag	
RX (n+1) 4	ch5 Error flag	RY (n+1) 4	ch6 Extension display/ setting flag	
RX (n+1) 5	ch6 Error flag	RY (n+1) 5	ch7 Extension display/ setting flag	
RX (n+1) 6	ch7 Error flag	RY (n+1) 6	ch8 Extension display/ setting flag	
RX (n+1) 7	ch8 Error flag	RY (n+1) 7	Unused	
RX (n+1) 8	ch1 Remote register error flag	RY (n+1) 8		
RX (n+1) 9	ch2 Remote register error flag	RY (n+1) 9		
RX (n+1) A	ch3 Remote register error flag	RY (n+1) A		
RX (n+1) B	ch4 Remote register error flag	RY (n+1) B		
RX (n+1) C	ch5 Remote register error flag	RY (n+1) C		
RX (n+1) D	ch6 Remote register error flag	RY (n+1) D		
RX (n+1) E	ch7 Remote register error flag	RY (n+1) E		
RX (n+1) F	ch8 Remote register error flag	RY (n+1) F		
RX (n+2) 0	ch3 Event 1	RY (n+2) 0		
RX (n+2) 1	ch3 Event 2	RY (n+2) 1		
RX (n+2) 2	ch3 Scaleover	RY (n+2) 2		
RX (n+2) 3	ch3 Communication error	RY (n+2) 3		
RX (n+2) 4	ch3 PID/AT	RY (n+2) 4		
RX (n+2) 5	ch4 Event 1	RY (n+2) 5		
RX (n+2) 6	ch4 Event 2	RY (n+2) 6		
RX (n+2) 7	ch4 Scaleover	RY (n+2) 7		
RX (n+2) 8	ch4 Communication error	RY (n+2) 8		
RX (n+2) 9	ch4 PID/AT	RY (n+2) 9		

Table 5.3 List of Remote Input and Output Signals (in the case of controller 2/2)

GAT10-CC→Master		Master→GAT10-CC		
Device No.	Name of Signal	Device No.	Name of Signal	
RX (n+2) A	ch5 Event 1	RY (n+2) A	Unused	
RX (n+2) B	ch5 Event 2	RY (n+2) B		
RX (n+2) C	ch5 Scaleover	RY (n+2) C		
RX (n+2) D	ch5 Communication error	RY (n+2) D		
RX (n+2) E	ch5 PID/AT	RY (n+2) E		
RX (n+2) F	ch6 Event 1	RY (n+2) F		
RX (n+3) 0	ch6 Event 2	RY (n+3) 0		
RX (n+3) 1	ch6 Scaleover	RY (n+3) 1		
RX (n+3) 2	ch6 Communication error	RY (n+3) 2		
RX (n+3) 3	ch6 PID/AT	RY (n+3) 3		
RX (n+3) 4	ch7 Event 1	RY (n+3) 4		
RX (n+3) 5	ch7 Event 2	RY (n+3) 5		
RX (n+3) 6	ch7 Scaleover	RY (n+3) 6		
RX (n+3) 7	ch7 Communication error	RY (n+3) 7		
RX (n+3) 8	ch7 PID/AT	RY (n+3) 8		
RX (n+3) 9	ch8 Event 1	RY (n+3) 9		
RX (n+3) A	ch8 Event 2	RY (n+3) A		
RX (n+3) B	ch8 Scaleover	RY (n+3) B		
RX (n+3) C	ch8 Communication error	RY (n+3) C		
RX (n+3) D	ch8 PID/AT	RY (n+3) D		
RX (n+3) E	Unused	RY (n+3) E		
RX (n+3) F	Unused	RY (n+3) F		
RX (n+4) 0	Unused	RY (n+4) 0		Unused
~		RY (n+6) F		
RX (n+6) F	Reserved	RY (n+7) 0		Reserved
RX (n+7) 0		RY (n+7) 1		
RX (n+7) 1		RY (n+7) 2		
RX (n+7) 2		RY (n+7) 3		
RX (n+7) 3		RY (n+7) 4		
RX (n+7) 4		RY (n+7) 5		
RX (n+7) 5		RY (n+7) 6		
RX (n+7) 6		RY (n+7) 7		
RX (n+7) 7	RY (n+7) 8	Initial data processing complete flag		
RX (n+7) 8	Initial data processing request flag	RY (n+7) 9	Initial data setting request flag	
RX (n+7) 9	Initial data setting complete flag	RY (n+7) A	Error reset request flag	
RX (n+7) A	Error status flag	RY (n+7) B	Reserved	
RX (n+7) B	Remote READY	RY (n+7) C		
RX (n+7) C	Reserved	RY (n+7) D		
RX (n+7) D		RY (n+7) E		
RX (n+7) E		RY (n+7) F		
RX (n+7) F				

The digital indicator SD16 and the servo controller EM70 are characteristically different from the controllers. Please refer to the following table.

Table 5.4

Controller (SR90 series, etc.)	Digital indicator SD16	Servo controller EM70
Event 1	Alarm 1	Event 1
Event 2	Alarm 2	Event 2
Scaleover	Scaleover	Scaleover
PID/AT	not available	not available

5.7 Remote Register

The GAT10-CC has a remote register for exchanging data with the master unit. The allocation of the remote register and the structure of data are described in the following.

5.7.1 Remote Register Area RWr (GAT10→Master)

This area is used as an input area when viewed from the master unit.

- (1) ch1~ch8 PV Value
The GAT10-CC processes communication with the respective controllers asynchronously with the master unit sequence and stores measured temperature values (PV) read regularly in the remote register.
- (2) For ch1~ch8 Extension Display
For details, see 5.8 "Extension Display/Extension Setting."

5.7.2 Remote Register Area RWw (Master→GAT10)

This area is used as an output area when viewed from the master unit.

- (1) ch1~ch8 SV Value
The GAT10-CC processes communication with the respective controllers asynchronously with the master unit sequence and writes set values of temperature (SV values) in the remote register regularly. After initial data processing finishes, the set temperature values (SV) of the controllers are constantly updated. If updating fails, the ch1~ch8 remote register error flags (See page 12) turn to "1."
- (2) For ch1~ch8 Extension Setting
For details, see 5.8 "Extension Display/Extension Setting."

5.7.3 Allocation of Remote Register

The GAT10-CC stores measured temperature values (PV) and extension display values in the remote register addresses RWrn~RWrn+F, channel by channel.

A higher order sequence stores set temperature values (SV) and extension setting values in the remote register addresses RWwn~RWwn+F, channel by channel.

Values are in binary notation with 16-bit codes.

Table 5.5 Allocation of Remote Register

GAT10-CC→Master		Master→GAT10-CC	
Device No.	Name of Signal	Device No.	Name of Signal
RWrn	ch1 PV	RWwn	ch1 SV
RWrn+1	ch2 PV	RWwn+1	ch2 SV
RWrn+2	ch3 PV	RWwn+2	ch3 SV
RWrn+3	ch4 PV	RWwn+3	ch4 SV
RWrn+4	ch5 PV	RWwn+4	ch5 SV
RWrn+5	ch6 PV	RWwn+5	ch6 SV
RWrn+6	ch7 PV	RWwn+6	ch7 SV
RWrn+7	ch8 PV	RWwn+7	ch8 SV
RWrn+8	ch1 For [Extension] Display	RWwn+8	ch1 For [Extension] Setting
RWrn+9	ch2 For [Extension] Display	RWwn+9	ch2 For [Extension] Setting
RWrn+A	ch3 For [Extension] Display	RWwn+A	ch3 For [Extension] Setting
RWrn+B	ch4 For [Extension] Display	RWwn+B	ch4 For [Extension] Setting
RWrn+C	ch5 For [Extension] Display	RWwn+C	ch5 For [Extension] Setting
RWrn+D	ch6 For [Extension] Display	RWwn+D	ch6 For [Extension] Setting
RWrn+E	ch7 For [Extension] Display	RWwn+E	ch7 For [Extension] Setting
RWrn+F	ch8 For [Extension] Display	RWwn+F	ch8 For [Extension] Setting

The digital indicator SD16 and the servo controller EM70 are characteristically different from the controllers. Please refer to the following table.

Table 5.6

Controller (SR90 series, etc.)	Digital indicator SD16	Servo controller EM70
PV	PV	Opening value
SV	not available	not available

5.8 Extension Display/Extension Setting

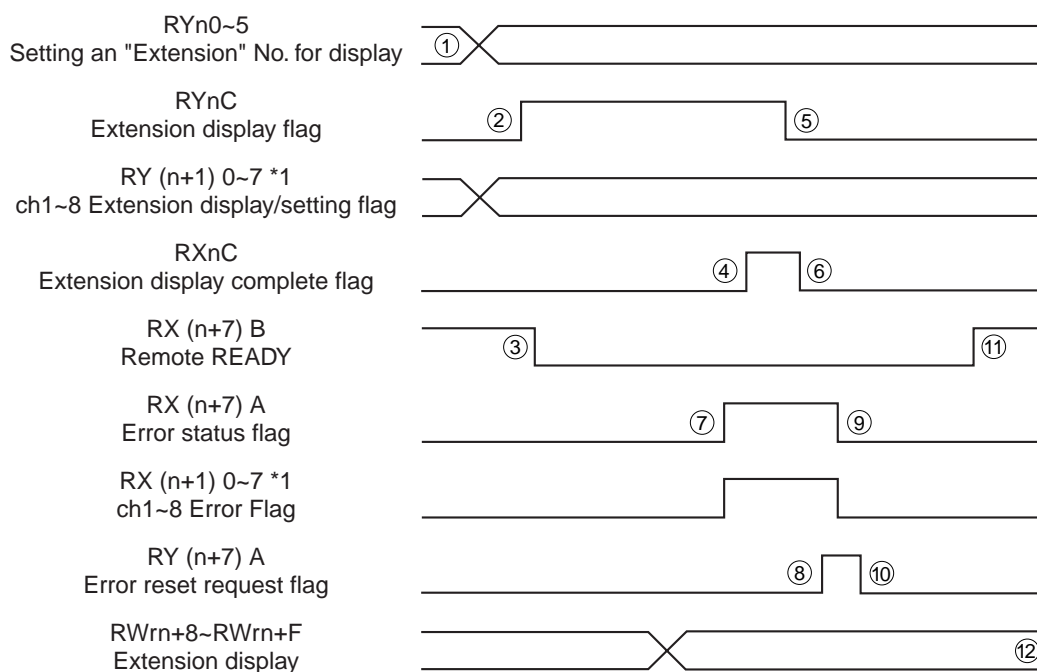
- (1) Extension display/Extension setting uses the remote output area and the extension area of remote register and read and write various parameters of Shimaden products connected to the GAT10-CC from the master unit.
- (2) A set value is changed or read once for the GAT10-CC in response to each request for extension display or extension setting.
- (3) When display or setting is carried out, parameters should be set in the remote register.
- (4) A setting number and parameters have to be set before turning the "extension display flag" or the "extension setting flag" ON.

Note: For setting numbers, see Appendix "List of Setting Numbers for Shimaden Products."

Note: For details on parameters, see instruction manuals for Shimaden Products.

5.8.1 Extension Display

- ① The setting number of a parameter desired to be displayed should be written in the binary notation by a higher order sequence in the "Extension display setting numbers" RYn0~RYn5 of remote I/O.
- ② The higher order sequence turns the "Extension display flag" RYnC of remote I/O ON.
- ③ The GAT10-CC turns the "Remote READY" RX(n+7)B OFF.
- ④ The GAT10-CC turns the "Extension display complete flag" RXnC ON.
- ⑤ After confirming that the "Extension display complete flag" RXnC is turned ON, the higher order sequence turns the "Extension display flag" RYnC OFF.
- ⑥ The GAT10-CC turns the "Extension display complete flag" RXnC OFF.
- ⑦ If an error arises, the GAT10-CC turns the "Error status flag" RX(n+7)A of remote I/O ON. In case it is not turned ON, proceed to ⑩.
- ⑧ When the "Error status flag" RX(n+7)A is ON, the higher order sequence turns the "Error reset request flag" RY(n+7)A ON.
- ⑨ The GAT10-CC turns the "Error status flag" RX(n+7)A of remote I/O OFF.
- ⑩ The higher order sequence turns the "Error reset request flag" RY(n+7)A OFF. (To know the contents of the error, read an error code by means of an extension display.)
- ⑪ The GAT10-CC turns the "Remote READY" RX(n+7)B of remote I/O ON.
- ⑫ The higher order sequence can read display data by the use of the "Extension display" RWrn+8~RWrn+F of the remote register. (If the "error status flag" is turned ON, the remote register RWrn+8~RWrn+F remains as the data previously displayed.)

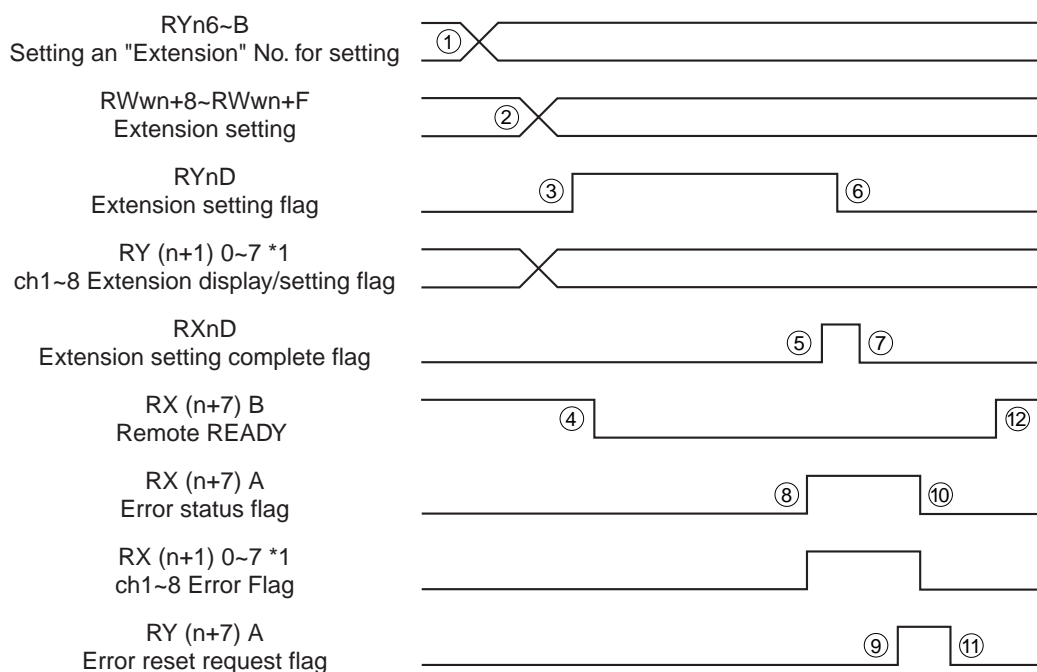


Note: Carry out the next processing only after confirming that the "Remote READY" RX(n+7)B is turned ON.

*1 Note: Extension displays of a plurality of Shimaden products are carried out simultaneously by operating "ch1~ch8 extension display/setting flag" RY(n+1)0~7. When all RY(n+1) 0~7 are OFF, no extension display is carried out. By means of "ch1~ch8 error flag" RX(n+1) 0~7, whether or not of the occurrence of an extension display, error can be known for each channel.

5.8.2 Extension Setting

- ① The setting number of a parameter desired to be set should be written in the binary notation by a higher order sequence in the "Extension setting numbers for setting" RYn6~RYnB of remote I/O.
- ② The higher order sequence writes setting data in the "extension setting" RWwn+8~RWwn+F of remote register ON.
- ③ The higher order sequence turns the "Extension setting flag" RYnD ON.
- ④ The GAT10-CC turns the "Remote READY" RX(n+7)B of remote I/O OFF.
- ⑤ The GAT10-CC turns the "Extension setting complete flag" RXnD ON.
- ⑥ After confirming that the "Extension setting complete flag" RXnD is turned ON, the higher order sequence turns the "Extension setting flag" RY(n)D OFF.
- ⑦ The GAT10-CC turns the "Extension setting complete flag" RXnD OFF.
- ⑧ If an error arises, the GAT10-CC turns the "Error status flag" RX(n+7)A of remote I/O ON. In case it is not turned ON, proceed to ⑫.
- ⑨ When the "Error status flag" RX(n+7)A is ON, the higher order sequence turns the "Error reset request flag" RY(n+7)A ON.
- ⑩ The GAT10-CC turns the "Error status flag" RX(n+7)A of remote I/O OFF.
- ⑪ The higher order sequence turns the "Error reset request flag" RY(n+7)A OFF. (To know the contents of the error, read an error code on an extension display.)
- ⑫ The GAT10-CC turns the "Remote READY" RX(n+7)B of remote I/O ON.



Note: Please follow the following steps after confirming that "Remote READY" RX(n+7)B is ON.

Note: A set temperature value (SV) is updated by the values in remote register addresses RWwn~RWwn+F. A value rewritten in extension setting may soon be overwritten with a value of remote register in some cases.

*1 Note: Extension settings of a plurality of Shimaden products are carried out simultaneously by operating "ch1~ch8 extension display/setting flag" RY(n+1)0~7. When all RY(n+1) 0~7 are OFF, no extension setting is carried out.

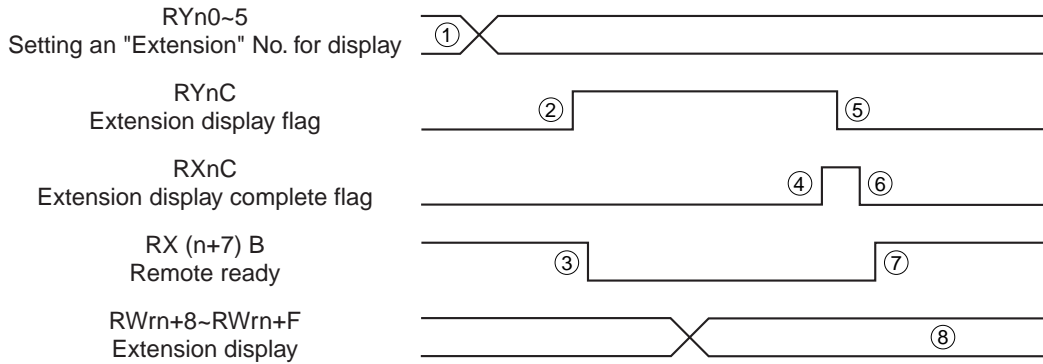
By means of "ch1~ch8 error flag" RX(n+1) 0~7, whether or not of the occurrence of an extension setting error can be known for each channel.

5.8.3 Error Codes during Extension Display/Extension Setting

In the event an error arises on an extension display, the previous extension display value remains in the remote register $RW_{n+8}\sim RW_{n+F}$.

If an error arises in the extension setting, there will be no writing. Data of remote register $RW_{n+8}\sim RW_{n+F}$ will remain unchanged.

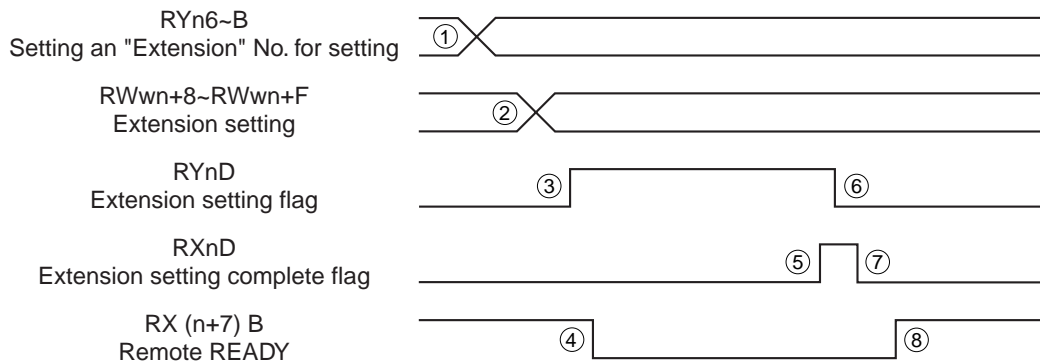
- ① The extension display number "61" should be written in the binary notation by a higher order sequence in the "Extension display setting numbers" $RY_{n0}\sim RY_{n5}$ of remote I/O.
- ② The higher order sequence turns the "Extension display flag" RY_{nC} of remote I/O ON.
- ③ The GAT10-CC turns the "Remote READY" $RX(n+7)B$ of remote I/O OFF.
- ④ The GAT10-CC turns the "Extension display complete flag" RX_{nC} ON.
- ⑤ After confirming that the "Extension display complete flag" RX_{nC} is turned ON, the higher order sequence turns the "Extension display flag" RY_{nC} of remote I/O OFF.
- ⑥ The GAT10-CC turns the "Extension display complete flag" RX_{nC} OFF.
- ⑦ The GAT10-CC turns the "remote READY" $RX(n+7)B$ of remote I/O ON.
- ⑧ Through the higher order sequence, error codes read in the remote registers $RW_{n+8}\sim RW_{n+F}$ can be read. For error codes, see "Table 7.1 List of Error Codes."



5.8.4 Extension Table Switching

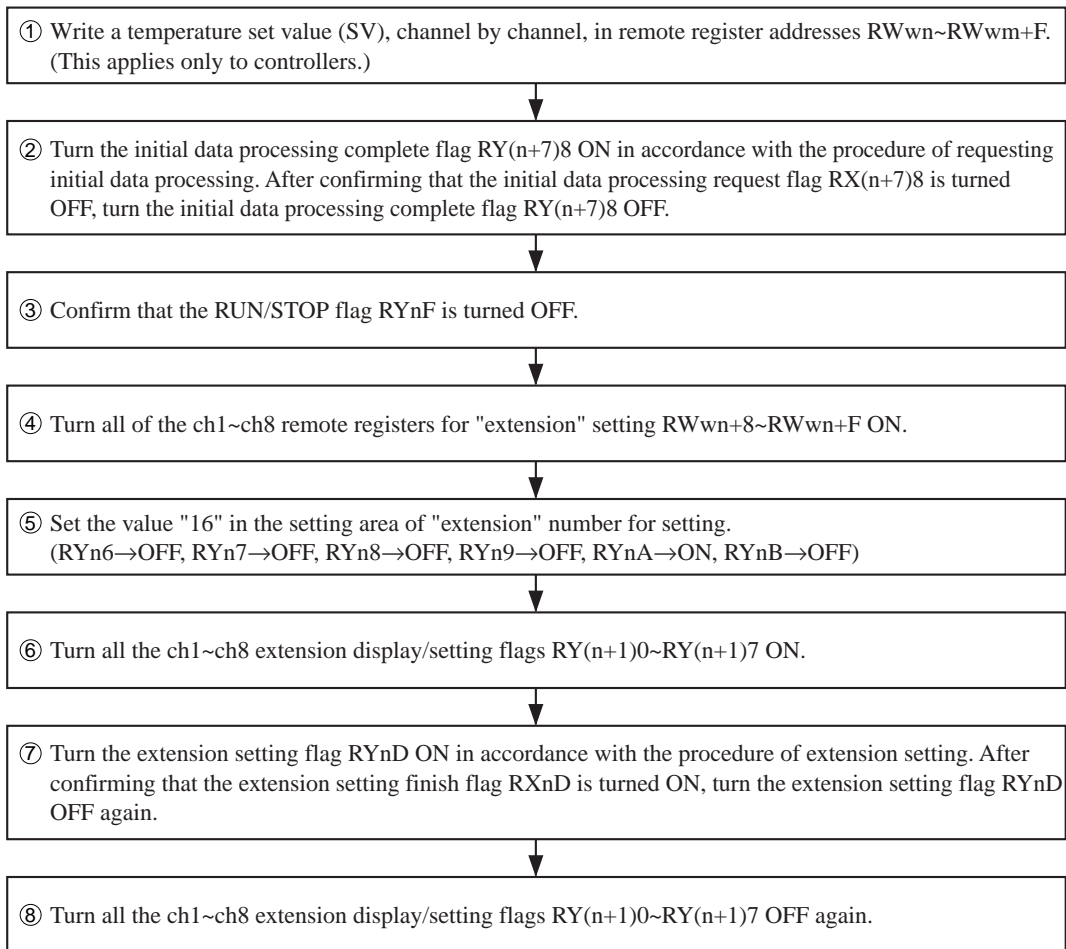
It is always possible to change the extension table number.

- ① The extension setting number "63" should be written in the binary notation by a higher sequence in the "Extension setting numbers for setting" $RY_{n6}\sim RY_{nB}$ of remote I/O.
- ② An extension table number is written in the remote registers $RW_{n+8}\sim RW_{n+F}$.
- ③ The higher order sequence turns the "Extension setting flag" RY_{nD} ON.
- ④ The GAT10-CC turns the "Remote READY" $RX(n+7)B$ OFF.
- ⑤ The GAT10-CC turns the "Extension setting complete flag" RX_{nD} ON.
- ⑥ After confirming that the "Extension setting complete flag" RX_{nD} is turned ON, the higher order sequence turns the "Extension setting flag" RY_{nD} of remote I/O OFF.
- ⑦ The GAT10-CC turns the "Extension setting complete flag" RX_{nD} OFF.
- ⑧ The GAT10-CC turns the "Remote READY" $RX(n+7)B$ of remote I/O ON.



6. Notes on Control

Although PV and remote input can be read from the master side even in the initial state, the following processes are required to enable updating of SV values by using a remote register, and extension display/setting:



Note 1: Once the above processes are completed, values written in the remote registers RWwn~RWwn+7 are reflected to SV values of controllers connected to the GAT10-CC on a real time basis. (This applies to controllers only. Processing is not carried out for EM70 and SD16.)

Note 2: In case the COM lamp of each connected controller lights upon applying power for the second time and beyond, usually processing of steps ④~⑧ is not necessary. Upon completion of the process ③, temperature set values (SV) of controllers can be updated through remote registers.

Note 3: In case instruments connected to the GAT10-CC are controllers, the step ① must be carried out in the beginning.

Note 4: In the above procedure, processing is performed for all the channels. When it is intended to enable writing of SV values or extension setting only for a specific channel, turn only the flag for that channel ON in step ⑥.

Note 5: It should be noted that keeping all the ch1~ch8 extension display/setting flags RY(n+1)0~RY(n+1)7 (See page 12) ON, extension display/setting is executed for all the channels.

Note 6: Values to be written in the remote registers RWwn~RWwn+7 must fall within a range between the higher limit value and the lower limit value of set value limiter. In the event the SV value of a controller cannot be changed even after the above procedure is completed, recheck the setting of higher and lower limit values of set value limiter for the said controller.

Note 7: When the SV value of a controller fails to be updated, the ch1~ch8 remote register error flags RX(n+1)8~RX(n+1)F (See page 12) turns ON. You should always watch these flags to confirm that SV values are updated normally.

Note 8: When the steps ④~⑧ are carried out, the communication mode of an instrument connected to the GAT10-CC turns to "Remote" and the COM lamp lights. It should be noted that this mode imposes restrictions on changing of various parameters by front key operation. For the method of changing the communication mode, refer to the instruction manual of communication interface for the Shimaden product.

7. Troubleshooting

7.1 Error Code

- (1) When data is read on extension display or data is written in extension setting through the sequencer CPU, the GAT10-CC checks the specifications of the Shimaden product of the appropriate channel, whether or not of the inclusion of the option, the write mode, the execution command, the range of data, etc. and records an error code inside it if an error arises. The master PLC can read the error code by using the extension display function of the setting number "61." For details of the error codes, refer to Table 5.1 List of Error Codes.
- (2) For resetting an error code, turn the "Error reset request" RY(n+7)A ON, and the "Error status flag" RX(n+7)A of the GAT10-CC is turned OFF.

Table 7.1 Error Codes

Error code	Type of Error	Error Code Description
0 (0x00)	Normal response	Normal response during extension display or extension setting
9 (0x09)	Data error	Written data out of effective range
10 (0x0A)	Execution command error	Execution command not accepted
11 (0x0B)	Write mode error	Extension setting carried out when data change is not possible.
12 (0x0C)	Specification/option error	Extension setting carried out for function not specified or optioned.

7.2 CC-Link Communication Status

The communication status is seen by means of LED lamps on the front surface of the GAT10-CC. In case something goes out of order, check the lighting of the lamps.

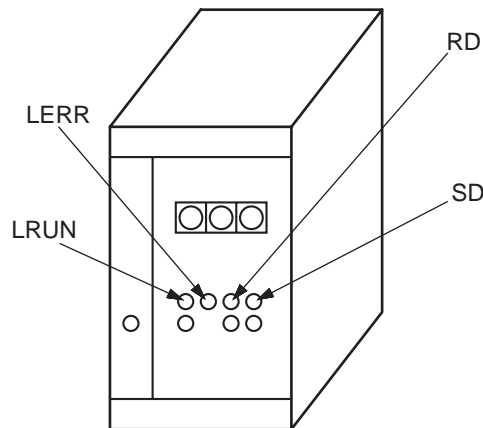


Table 7.2 LED Display

LED Display				Contents	Remedial Measure
LRUN	LERR	RD	SD		
●	○	●	◎*1	Data link normal	
●	◎	●	◎*1	Normal communication, but affected by noise	Check cables and take measure to remove noise effect.
○	○	○	○	Disconnection or shorting of cable	Check connection of cable.
○	△	△	△	Error in cable wiring	Check connection of cable.
○	○	●	△	Address (station No.) overlap	Check setting of addresses (station No.).
○	○	●	○	Not set as parameter of master station (set in reserved station)	Check master station's setting and set appropriately.
○	○	●	○	Error in setting communication speed	Check communication speed.

●: Light is on. ◎: Blinking ○: Light is off. △: Instable

If your problem is not solved, check whether lamp is on or off and contact our sales office.

*1 Note: The SD lamp blinks in different cycles depending on whether or not of an error at some station, or some other situations.

Appendix – List of Setting Numbers for Shimaden Products

1. SR80 Series
2. SR90 Series
3. SR253
4. SD16
5. EM70
6. FP93

The setting numbers of Shimaden products connectable to the GAT10-CC are shown in the following.
By setting "TBL" 0-6, the number of accessible parameters increases.

Functions of Setting Numbers 16, 61, 62 and 63

Setting No.	Parameter	Function
16	COM	Writing the value "1" makes extension setting and writing of SV values possible. The default is "0." Reading and writing are always possible.
61	ERR	If extension display/setting fails, you can read an error code. Only reading is possible.
62	MODEL	The model codes of Shimaden products connected to ch1~ch8 can be read. Only reading is possible. For the model codes, see the following table.
63	TBL	The extension table No. is set. The setting range differs by product as shown in the following table. Reading and writing are always possible.

Model Codes and Extension Table No. for Shimaden Products

Products No.	Model Code	TBL
SR80 Series	1	0/1
SR90 Series	2	0
SR253	3	0~6
SD16	4	0
EM70	5	0/1
FP93	6	0~6

Special functions are allocated to the setting numbers; 16, 61, 62 and 63, which are common to all of the connectable products.
For details of other parameters than the above, please refer to the instruction manuals of Shimaden products.

1. SR80 Series

SR80 Series (1/3)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
0	0	PV_W	100	–	Measured value (read only)
0	1	OUT1W	102	–	Control output 1 value (read only)
0	2	HB_W	109	–	HB Current value (read only)
0	3	SV1	300	300	Set value 1
0	4	AT	104	184	Auto tuning execution
0	5	PB1	400	400	SV1 control output 1 proportional band
0	6	IT1	401	401	SV1 control output 1 integral time
0	7	DT1	402	402	SV1 control output 1 derivative time
0	8	PV_B	701	701	PV bias
0	9	EV1_SP	501	501	Event 1 set value
0	10	EV2_SP	509	509	Event 2 set value
0	11	Reserved			
0	12				
0	13				
0	14				
0	15				
0	16	COM	104	18C	Communication mode
0	17	STBY	104	186	Standby
0	18	MAN	104	185	Manual
0	19	SV No	106	180	Execution SV No.
0	20	REM	104	187	Remote
0	21	SV2	301	301	Set value 2
0	22	SB	311	311	SV bias
0	23	REM_W	108	–	Remote input value (read only)
0	24	OUT1_W	–	182	Control output 1 set value during MAN (write only)
0	25	OUT2_W	–	183	Control output 2 set value during MAN (write only)
0	26	OUT2W	103	–	Control output 2 output value (read only)
0	27	DF1	404	404	SV1 Hysteresis
0	28	SF1	407	407	SV1 Control output 1 target value function
0	29	MR1	403	403	SV1 Manual reset
0	30	PB21	460	460	SV1 Control output 2 proportional band
0	31	IT21	461	461	SV1 Control output 2 integral time
0	32	DT21	462	462	SV1 Control output 2 derivative time
0	33	DF21	464	464	SV1 Action hysteresis
0	34	DB21	463	463	SV1 Dead band
0	35	SF21	467	467	SV1 Control output 1 Target value function
0	36	PB2	408	408	SV2/SB Remote control output 1 proportional band
0	37	IT2	409	409	SV2/SB Remote control output 1 integral time
0	38	DT2	40A	40A	SV2/SB Remote control output 1 derivative time
0	39	DF2	40C	40C	SV2/SB Remote control output 1 action hysteresis
0	40	SF2	40F	40F	SV2/SB Remote control output 1 target value function
0	41	MR2	40B	40B	SV2/SB Remote control output 1 manual reset
0	42	PB22	468	468	SV2/SB Remote control output 2 proportional band
0	43	IT22	469	469	SV2/SB Remote control output 2 integral time
0	44	DT22	46A	46A	SV2/SB Remote control output 2 derivative time
0	45	DF22	46C	46C	SV2/SB Remote control output 2 action hysteresis
0	46	DB22	46B	46B	SV2/SB Remote control output 2 dead band
0	47	SF22	46F	46F	SV2/SB Remote control output 2 Target value function

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR80 Series (2/3)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
0	48	EV1_MD	500	500	Event 1 mode
0	49	EV1_DF	502	502	Event 1 action hysteresis
0	50	EV1_STB	503	503	Event 1 Standby action
0	51	EV1_TM	504	504	Event 1 delay time
0	52	EV2_MD	508	508	Event 2 mode
0	53	EV2_DF	50A	50A	Event 2 action hysteresis
0	54	EV2_STB	50B	50B	Event 2 Standby action
0	55	EV2_TM	50C	50C	Event 2 delay time
0	56	EV3_MD	510	510	Event 3 mode
0	57	EV3_SP	511	511	Event 3 set value
0	58	EV3_DF	512	512	Event 3 action hysteresis
0	59	EV3_STB	513	513	Event 3 standby action
0	60	EV3_TM	514	514	Event 3 delay time
0	61	ERR			
0	62	MODEL			
0	63	TBL			
1	0-16	Common with TBL Number 0			
1	17	DI1	580	580	DI1 layout
1	18	DI2	581	581	DI2 layout
1	19	HBM	592	592	Heater break alarm mode
1	20	HBS	590	590	Heater break alarm
1	21	HBL	591	591	Heater loop alarm
1	22	RAMP_UP	30C	30C	Ascending slope
1	23	RAMP_DW	30D	30D	Descending slope
1	24	RAMP_UNT	30E	30E	Slope unit
1	25	RAMP_RTE	30F	30F	Slope magnification
1	26	REM_B	316	316	Remote bias
1	27	REM_F	317	317	Remote filter
1	28	REM_P	31D	31D	Remote point
1	29	REM_D	31E	31E	Remote point action hysteresis
1	30	REM_L	314	314	Remote scale lower limit value
1	31	REM_H	315	315	Remote scale higher limit value
1	32	SV_MD	312	312	SV/SB setting mode
1	33	SV_L	30A	30A	Lower limit value of set value limiter
1	34	SV_H	30B	30B	higher limit value of set value limiter
1	35	ACTMD	600	600	Output characteristics
1	36	01_CYC	601	601	Control output 1 proportional cycle
1	37	02_CYC	604	604	Control output 2 proportional cycle
1	38	011_L	405	405	SV1 control output 1 lower limit output limiter
1	39	011_H	406	406	SV1 control output 1 higher limit output limiter
1	40	021_L	465	465	SV1 control output 2 lower limit output limiter
1	41	021_H	466	466	SV1 control output 2 higher limit output limiter
1	42	012_L	40D	40D	SV2/SB remote control output 1 lower limit output limiter
1	43	012_H	40E	40E	SV2/SB remote control output 1 higher limit output limiter
1	44	022_L	46D	46D	SV2/SB remote control output 2 lower limit output limiter
1	45	022_H	46E	46E	SV2/SB remote control output 2 higher limit output limiter
1	46	DI_FLG	10B	-	DI input condition flag (read only)
1	47	STOP	-	18B	Stop (write only)

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR80 Series (3/3)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
1	48	AO1_MD	5A0	5A0	Analog output mode
1	49	AO1_L	5A1	5A1	Lower limit side of analog output scale
1	50	AO1_H	5A2	5A2	Higher limit side of analog output scale
1	51	ERR_OUT1	602	602	Control output 1 error output
1	52	ERR_OUT2	605	605	Control output 2 error output
1	53	PV_F	702	702	PV filter
1	54	ATP	610	610	AT point
1	55	KLOCK	611	611	Keylock
1	56	SC_L	114	–	Lower limit value of measuring range (read only)
1	57	SC_H	115	–	Lower limit value of measuring range (write only)
1	58	DP	113	–	Position of decimal point (read only)
1	59	EXE_FLG	104	–	Action flag (read only)
1	60	EV_FLG	105	–	Event flag (read only)
1	61–63	Common with TBL Number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

2. SR90 Series

SR90 Series (1/2)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
0	0	PV_W	100	–	Measured value (read only)
0	1	OUT1_W	102	–	Control output 1 value (read only)
0	2	HB_W	109	–	HB Current value (read only)
0	3	SV1	300	300	Set value 1
0	4	AT	104	184	Auto tuning execution
0	5	PB1	400	400	Control output 1 proportional band
0	6	IT1	401	401	Control output 1 integral time
0	7	DT1	402	402	Control output 1 derivative time
0	8	PV_B	701	701	PV bias
0	9	EV1_SP	501	501	Event 1 set value
0	10	EV2_SP	509	509	Event 2 set value
0	11	Reserved			
0	12				
0	13				
0	14				
0	15				
0	16	COM	104	18C	Communication mode
0	17	MAN	104	185	Manual
0	18	SV_L	30A	30A	Lower limit value of set value limiter
0	19	SV_H	30B	30B	Higher limit value of set value limiter
0	20	011_L	405	405	Control output 1 lower limit output limiter
0	21	011_H	406	406	Control output 1 higher limit output limiter
0	22	021_L	465	465	Control output 2 lower limit output limiter
0	23	021_H	466	466	Control output 2 higher limit output limiter
0	24	OUT1_W	–	182	Control output 1 set value during MAN (write only)
0	25	OUT2_W	–	183	Control output 2 set value during MAN (write only)
0	26	OUT2W	103	–	Control output 2 Output value (read only)
0	27	DF1	404	404	Control output 1 Action hysteresis
0	28	SF1	407	407	Control output 1 Target value function
0	29	MR1	403	403	Manual reset
0	30	PB21	460	460	Control output 2 proportional band
0	31	IT21	461	461	Control output 2 integral time
0	32	DT21	462	462	Control output 2 derivative time
0	33	DF21	464	464	Control output 2 action hysteresis
0	34	DB21	463	463	Dead band
0	35	SF21	467	467	Control output 2 Target value function
0	36	HBS	590	590	Heater break alarm
0	37	HBL	591	591	Heater loop alarm
0	38	HB_MD	592	592	Heater break alarm mode
0	39	HB_STB	594	594	Heater break standby
0	40	AO1_MD	5A0	5A0	Analog output mode
0	41	AO1_L	5A1	5A1	Lower limit value of analog output scale
0	42	AO1_H	5A2	5A2	Higher limit value of analog output scale
0	43	ACTMD	600	600	Output characteristics
0	44	01_CYC	601	601	Control output 1 proportional cycle
0	45	02_CYC	604	604	Control output 2 proportional cycle
0	46	SOFTD1	60A	60A	Soft start 1 setting data
0	47	PV F	702	702	PV filter

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR90 Series (2/2)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
0	48	EV1_MD	500	500	Event 1 mode
0	49	EV1_DF	502	502	Event 1 set value
0	50	EV1_STB	503	503	Event 1 standby action
0	51	Unused			
0	52	EV2_MD	508	508	Event 2 mode
0	53	EV2_DF	50A	50A	Event 2 set value
0	54	EV2_STB	50B	50B	Event 2 standby action
0	55	KLOCK	611	611	Keylock
0	56	SC_L	708	–	Lower limit value of measuring range (read only)
0	57	SC_H	709	–	Higher limit value of measuring range (read only)
0	58	DP	707	–	Position of decimal point (read only)
0	59	EXE_FLG	104	–	Action flag (read only)
0	60	EV_FLG	105	–	Event flag (read only)
0	61	ERR			
0	62	MODEL			
0	63	TBL			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

3. SR253

SR253 (1/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
0	0	PV value	100	–	Measured value (read only)
0	1	OUT1	102	–	Control output 1 value (read only)
0	2	CT Current	109	–	HB Current value (read only)
0	3	SV No.1	300	300	Set value 1
0	4	AT	104	184	Auto tuning execution
0	5	PID No.1 P1	400	400	PID1 control output 1 proportional band
0	6	PID No.1 I1	401	401	PID1 control output 1 integral time
0	7	PID No.1 D1	402	402	PID1 control output 1 derivative time
0	8	PV Bias	701	701	PV bias
0	9	Event1 Set Point	501	501	Event 1 set value
0	10	Event2 Set Point	509	509	Event 2 set value
0	11	Reserved			
0	12				
0	13				
0	14				
0	15				
0	16	Operation	104	18C	Communication mode
0	17	Control Exe	104	186	Standby
0	18	Control A/M	104	185	Manual
0	19	Execution SV No.	106	180	Execution SV No.
0	20	REM	104	187	Remote
0	21	SV No.2	301	301	Set value 2
0	22	SV No.3	302	302	Set value 3
0	23	REM value	108	–	Remote input value (read only)
0	24	OUT1	–	182	Control output 1 set value during MAN (write only)
0	25	OUT2	–	183	Control output 2 set value during MAN (write only)
0	26	OUT2	103	–	Control output 2 output value (read only)
0	27	PID No.1 DF1	404	404	PID1 Control output 1 Action hysteresis
0	28	SF (common)	407	407	Target value function
0	29	PID No.1 MR	403	403	PID1 manual reset
0	30	PID No.2 P1	408	408	PID2 control output 1 proportional band
0	31	PID No.2 I1	409	409	PID2 control output 1 integral time
0	32	PID No.2 D1	40A	40A	PID2 control output 1 derivative time
0	33	PID No.2 DF1	40C	40C	PID2 control output 1 action hysteresis
0	34	PID No.2 MR	40B	40B	PID2 manual reset
0	35	PID No.3 P1	410	410	PID3 control output 1 proportional band
0	36	PID No.3 I1	411	411	PID3 control output 1 integral time
0	37	PID No.3 D1	412	412	PID3 control output 1 derivative time
0	38	PID No.3 DF1	414	414	PID3 control output 1 action hysteresis
0	39	PID No.3 MR	413	413	PID3 manual reset
0	40	PID No.4 P1	418	418	PID4 control output 1 proportional band
0	41	PID No.4 I1	419	419	PID4 control output 1 integral time
0	42	PID No.4 D1	41A	41A	PID4 control output 1 derivative time
0	43	PID No.4 DF1	41C	41C	PID4 control output 1 action hysteresis
0	44	PID No.4 MR	41B	41B	PID4 manual reset
0	45	PV D.P.	113	–	Position of decimal point (read only)
0	46	EXE_FLG	104	–	Action flag (read only)
0	47	EV_FLG	105	–	Event flag (read only)

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR253 (2/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
0	48	EV1 Mode	500	500	Event 1 mode
0	49	EV1 Diffrentl	502	502	Event 1 action hysteresis
0	50	EV1 Inhibit	503	503	Event 1 standby action
0	51	EV1 Delay	504	504	Event 1 delay time
0	52	EV2 Mode	508	508	Event 2 mode
0	53	EV2 Diffrentl	50A	50A	Event 2 action hysteresis
0	54	EV2 Inhibit	50B	50B	Event 2 standby action
0	55	EV2 Delay	50C	50C	Event 2 delay time
0	56	EV3 Mode	510	510	Event 3 mode
0	57	EV3 Set Point	511	511	Event 3 Set value
0	58	EV3 Diffrentl	512	512	Event 3 action hysteresis
0	59	EV3 Inhibit	513	513	Event 3 standby action
0	60	EV3 Delay	514	514	Event 3 delay time
0	61	ERR			
0	62	MODEL			
0	63	TBL			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR253 (3/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
1	0-16	Common with TBL number 0			
1	17	Execution PID No	107	-	0 (SV No.1)~10 (REM) (read only)
1	18	CT Current	10A	-	HL Current (read only)
1	19	DI_FLG	10B	-	DI input status flag (read only)
1	20	Unit	110	-	Unit of measured value (read only)
1	21	Range	111	-	Range of measuring range (read only)
1	22	CJ/Pt Type	112	-	Temperature sensor type (read only)
1	23	PV Sc_L	114	-	Lower limit of measuring range (read only)
1	24	PV Sc_H	115	-	Higher limit of measuring range (read only)
1	25	Figur	116	-	(read only)
1	26	USGN	117	-	(read only)
1	27	Execution SV No (Q)	-	181	0 (SV No.1)~10 (REM) Quick change (write only)
1	28	Ramping Run	-	18B	0: RUN 1: STOP (write only)
1	29	COMDIR_FLG	-	18D	COMDIR flag (write only)
1	30	PV value (higher order)	200	-	Within measuring range (read only)
1	31	PV value (lower order)	201	-	
1	32	Execution SV value (higher order)	202	-	Within measured value limiter (read only)
1	33	Execution SV value (lower order)	203	-	
1	34	REM value (higher order)	204	-	Within measured value limiter (read only)
1	35	REM value (lower order)	205	-	
1	36	SV No.4	303	303	Set value 4
1	37	SV No.5	304	304	Set value 5
1	38	SV No.6	305	305	Set value 6
1	39	SV No.7	306	306	Set value 7
1	40	SV No.8	307	307	Set value 8
1	41	SV No.9	308	308	Set value 9
1	42	SV No.10	309	309	Set value 10
1	43	SV Limit_L	30A	30A	Within measuring range (However SV Limit_L<SV Limit_H)
1	44	SV Limit_H	30B	30B	
1	45	RAMP Up	30C	30C	0-9999
1	46	RAMP Down	30D	30D	0-9999
1	47	RAMP Unit	30E	30E	0: Sec 1: Min
1	48	RAMP Rate	30F	30F	0: x1 1: x0.1
1	49	SV Select	310	310	0: Key 1: EXT
1	50	REM Sc_L	314	314	Within measuring range
1	51	REM Sc_H	315	315	
1	52	REM Bias	316	316	-9999~9999 Unit
1	53	REM Filt	317	317	0~300
1	54	REM Trak	318	318	0: NO 1: YES
1	55	REM PID	319	319	0 (PID No.1)~9 (PID No.10)
1	56	REM Mode	31A	31A	0: RSV 1: CTRL
1	57	REM P. B	31B	31B	0.0~999.9%
1	58	REM Time	31C	31C	0~9999
1	59	Unused			
1	60				
1	61-63	Common with TBL number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR253 (4/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
2	0-16	Common with TBL number 0			
2	17	1_01 Lmt_L	405	405	-5.0~104.9%
2	18	1_01 Lmt_H	406	406	-4.9~105.0%
2	19	2_01 Lmt_L	40D	40D	-5.0~104.9%
2	20	2_01 Lmt_H	40E	40E	-4.9~105.0%
2	21	3_01 Lmt_L	415	415	-5.0~104.9%
2	22	3_01 Lmt_H	416	416	-4.9~105.0%
2	23	4_01 Lmt_L	41D	41D	-5.0~104.9%
2	24	4_01 Lmt_H	41E	41E	-4.9~105.0%
2	25	PID No.5 P1	420	420	0.0~999.9% (0.0=OFF)
2	26	PID No.5 I1	421	421	0~6000 Sec (0=OFF)
2	27	PID No.5 D1	422	422	0~3600 Sec (0=OFF)
2	28	PID No.5 MR	423	423	-50.0~50.0%
2	29	PID No.5 DF1	424	424	1~9999 Unit
2	30	5_01 Lmt_L	425	425	-5.0~104.9%
2	31	5_01 Lmt_H	426	426	-4.9~105.0%
2	32	PID No.6 P1	428	428	0.0~999.9% (0.0=OFF)
2	33	PID No.6 I1	429	429	0~6000 Sec (0=OFF)
2	34	PID No.6 D1	42A	42A	0~3600 Sec (0=OFF)
2	35	PID No.6 MR	42B	42B	-50.0~50.0%
2	36	PID No.6 DF1	42C	42C	1~9999 Unit
2	37	6_01 Lmt_L	42D	42D	-5.0~104.9%
2	38	6_01 Lmt_H	42E	42E	-4.9~105.0%
2	39	PID No.7 P1	430	430	0.0~999.9% (0.0=OFF)
2	40	PID No.7 I1	431	431	0~6000 Sec (0=OFF)
2	41	PID No.7 D1	432	432	0~3600 Sec (0=OFF)
2	42	PID No.7 MR	433	433	-50.0~50.0%
2	43	PID No.7 DF1	434	434	1~9999 Unit
2	44	7_01 Lmt_L	435	435	-5.0~104.9%
2	45	7_01 Lmt_H	436	436	-4.9~105.0%
2	46	PID No.8 P1	438	438	0.0~999.9% (0.0=OFF)
2	47	PID No.8 I1	439	439	0~6000 Sec (0=OFF)
2	48	PID No.8 D1	43A	43A	0~3600 Sec (0=OFF)
2	49	PID No.8 MR	43B	43B	-50.0~50.0%
2	50	PID No.8 DF1	43C	43C	1~9999 Unit
2	51	8_01 Lmt_L	43D	43D	-5.0~104.9%
2	52	8_01 Lmt_H	43E	43E	-4.9~105.0%
2	53	PID No.9 P1	440	440	0.0~999.9% (0.0=OFF)
2	54	PID No.9 I1	441	441	0~6000 Sec (0=OFF)
2	55	PID No.9 D1	442	442	0~3600 Sec (0=OFF)
2	56	PID No.9 MR	443	443	-50.0~50.0%
2	57	PID No.9 DF1	444	444	1~9999 Unit
2	58	9_01 Lmt_L	445	445	-5.0~104.9%
2	59	9_01 Lmt_H	446	446	-4.9~105.0%
2	60	Unused			
2	61-63	Common with TBL number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR253 (5/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
3	0-16	Common with TBL number 0			
3	17	PID No.10 P1	448	448	0.0~999.9% (0.0=OFF)
3	18	PID No.10 I1	449	449	0~6000 Sec (0=OFF)
3	19	PID No.10 D1	44A	44A	0~3600 Sec (0=OFF)
3	20	PID No.10 MR	44B	44B	-50.0~50.0%
3	21	PID No.10 DF1	44C	44C	1~9999 Unit
3	22	10_01 Lmt_L	44D	44D	-5.0~104.9%
3	23	10_01 Lmt_H	44E	44E	-4.9~105.0%
3	24	PID No.1 P2	460	460	0.0~999.9% (0.0=OFF)
3	25	PID No.1 I2	461	461	0~6000 Sec (0=OFF)
3	26	PID No.1 D2	462	462	0~3600 Sec (0=OFF)
3	27	PID No.1 DB	463	463	-20000~20000 Unit
3	28	PID No.1 DF2	464	464	1~9999 Unit
3	29	1_02 Lmt_L	465	465	-5.0~104.9%
3	30	1_02 Lmt_H	466	466	-4.9~105.0%
3	31	PID No.2 P2	468	468	0.0~999.9% (0.0=OFF)
3	32	PID No.2 I2	469	469	0~6000 Sec (0=OFF)
3	33	PID No.2 D2	46A	46A	0~3600 Sec (0=OFF)
3	34	PID No.2 DB	46B	46B	-20000~20000 Unit
3	35	PID No.2 DF2	46C	46C	1~9999 Unit
3	36	2_02 Lmt_L	46D	46D	-5.0~104.9%
3	37	2_02 Lmt_H	46E	46E	-4.9~105.0%
3	38	PID No.3 P2	470	470	0.0~999.9% (0.0=OFF)
3	39	PID No.3 I2	471	471	0~6000 Sec (0=OFF)
3	40	PID No.3 D2	472	472	0~3600 Sec (0=OFF)
3	41	PID No.3 DB	473	473	-20000~20000 Unit
3	42	PID No.3 DF2	474	474	1~9999 Unit
3	43	3_02 Lmt_L	475	475	-5.0~104.9%
3	44	3_02 Lmt_H	476	476	-4.9~105.0%
3	45	PID No.4 P2	478	478	0.0~999.9% (0.0=OFF)
3	46	PID No.4 I2	479	479	0~6000 Sec (0=OFF)
3	47	PID No.4 D2	47A	47A	0~3600 Sec (0=OFF)
3	48	PID No.4 DB	47B	47B	-20000~20000 Unit
3	49	PID No.4 DF2	47C	47C	1~9999 Unit
3	50	4_02 Lmt_L	47D	47D	-5.0~104.9%
3	51	4_02 Lmt_H	47E	47E	-4.9~105.0%
3	52	PID No.5 P2	480	480	0.0~999.9% (0.0=OFF)
3	53	PID No.5 I2	481	481	0~6000 Sec (0=OFF)
3	54	PID No.5 D2	482	482	0~3600 Sec (0=OFF)
3	55	PID No.5 DB	483	483	-20000~20000 Unit
3	56	PID No.5 DF2	484	484	1~9999 Unit
3	57	5_02 Lmt_L	485	485	-5.0~104.9%
3	58	5_02 Lmt_H	486	486	-4.9~105.0%
3	59	Unused			
3	60				
3	61-63	Common with TBL number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR253 (6/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
4	0-16	Common with TBL number 0			
4	17	PID No.6 P2	488	488	0.0~999.9% (0.0=OFF)
4	18	PID No.6 I2	489	489	0~6000 Sec (0=OFF)
4	19	PID No.6 D2	48A	48A	0~3600 Sec (0=OFF)
4	20	PID No.6 DB	48B	48B	-20000~20000 Unit
4	21	PID No.6 DF2	48C	48C	1~9999 Unit
4	22	6_02 Lmt_L	48D	48D	-5.0~104.9%
4	23	6_02 Lmt_H	48E	48E	-4.9~105.0%
4	24	PID No.7 P2	490	490	0.0~999.9% (0.0=OFF)
4	25	PID No.7 I2	491	491	0~6000 Sec (0=OFF)
4	26	PID No.7 D2	492	492	0~3600 Sec (0=OFF)
4	27	PID No.7 DB	493	493	-20000~20000 Unit
4	28	PID No.7 DF2	494	494	1~9999 Unit
4	29	7_02 Lmt_L	495	495	-5.0~104.9%
4	30	7_02 Lmt_H	496	496	-4.9~105.0%
4	31	PID No.8 P2	498	498	0.0~999.9% (0.0=OFF)
4	32	PID No.8 I2	499	499	0~6000 Sec (0=OFF)
4	33	PID No.8 D2	49A	49A	0~3600 Sec (0=OFF)
4	34	PID No.8 DB	49B	49B	-20000~20000 Unit
4	35	PID No.8 DF2	49C	49C	1~9999 Unit
4	36	8_02 Lmt_L	49D	49D	-5.0~104.9%
4	37	8_02 Lmt_H	49E	49E	-4.9~105.0%
4	38	PID No.9 P2	4A0	4A0	0.0~999.9% (0.0=OFF)
4	39	PID No.9 I2	4A1	4A1	0~6000 Sec (0=OFF)
4	40	PID No.9 D2	4A2	4A2	0~3600 Sec (0=OFF)
4	41	PID No.9 DB	4A3	4A3	-20000~20000 Unit
4	42	PID No.9 DF2	4A4	4A4	1~9999 Unit
4	43	9_02 Lmt_L	4A5	4A5	-5.0~104.9%
4	44	9_02 Lmt_H	4A6	4A6	-4.9~105.0%
4	45	PID No.10 P2	4A8	4A8	0.0~999.9% (0.0=OFF)
4	46	PID No.10 I2	4A9	4A9	0~6000 Sec (0=OFF)
4	47	PID No.10 D2	4AA	4AA	0~3600 Sec (0=OFF)
4	48	PID No.10 DB	4AB	4AB	-20000~20000 Unit
4	49	PID No.10 DF2	4AC	4AC	1~9999 Unit
4	50	10_02 Lmt_L	4AD	4AD	-5.0~104.9%
4	51	10_02 Lmt_H	4AE	4AE	-4.9~105.0%
4	52	Zone 1	4C0	4C0	Within measuring range
4	53	Zone 2	4C1	4C1	
4	54	Zone 3	4C2	4C2	
4	55	Zone 4	4C3	4C3	
4	56	Zone 5	4C4	4C4	
4	57	Zone 6	4C5	4C5	
4	58	Zone 7	4C6	4C6	
4	59	Zone 8	4C7	4C7	
4	60	Unused			
4	61-63	Common with TBL number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR253 (7/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
5	0-16	Common with TBL number 0			
5	17	Zone 9	4C8	4C8	Within measuring range
5	18	Zone 10	4C9	4C9	
5	19	Zone HYS	4CA	4CA	0~10000 Unit
5	20	Zone PID	4CB	4CB	0: Single 1: Zone
5	21	Event 1 Charac	505	505	0: Open 1: Close
5	22	Event 2 Charac	50D	50D	
5	23	Event 3 Charac	515	515	
5	24	DO1 Mode	518	518	DO1 mode
5	25	DO1 Set Point	519	519	DO1 set value
5	26	DO1 Diffrentl	51A	51A	1~9999 Unit
5	27	DO1 Inhibit	51B	51B	0: OFF 1: ON
5	28	DO1 Delay	51C	51C	0~9999 Sec
5	29	DO1 Charac	51D	51D	0: Open 1: Close
5	30	DO2 Mode	520	520	DO2 action mode
5	31	DO2 Set Point	521	521	DO2 set value
5	32	DO2 Diffrentl	522	522	1~9999 Unit
5	33	DO2 Inhibit	523	523	0: OFF 1: ON
5	34	DO2 Delay	524	524	0~9999 Sec
5	35	DO2 Charac	525	525	0: Open 1: Close
5	36	DO3 Mode	528	528	DO3 mode
5	37	DO3 Set Point	529	529	DO3 set value
5	38	DO3 Diffrentl	52A	52A	1~9999 Unit
5	39	DO3 Inhibit	52B	52B	0: OFF 1: ON
5	40	DO3 Delay	52C	52C	0~9999 Sec
5	41	DO3 Charac	52D	52D	0: Open 1: Close
5	42	DO4 Mode	530	530	DO4 mode
5	43	DO4 Set Point	531	531	DO4 set value
5	44	DO4 Diffrentl	532	532	1~9999 Unit
5	45	DO4 Inhibit	533	533	0: OFF 1: ON
5	46	DO4 Delay	534	534	0~9999 Sec
5	47	DO4 Charac	535	535	0: Open 1: Close
5	48	DO5 Mode	538	538	DO5 mode
5	49	DO5 Set Point	539	539	DO5 set value
5	50	DO5 Diffrentl	53A	53A	1~9999 Unit
5	51	DO5 Inhibit	53B	53B	0: OFF 1: ON
5	52	DO5 Delay	53C	53C	0~9999 Sec
5	53	DO5 Charac	53D	53D	0: Open 1: Close
5	54	DI1	580	580	0: Nop 1: Manual 2: Remote 3: Auto Tune 4: Standby 5: Dir Act 6: Stop 7: Direct
5	55	DI2	581	581	
5	56	DI3	582	582	
5	57	DI4	583	583	
5	58	Unused			
5	59				
5	60				
5	61-63	Common with TBL number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

SR253 (8/8)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
6	0-16	Common with TBL number 0			
6	17	HBA Curr	590	590	0.0~30.0A or 0.0~50.0A (0.0=OFF)
6	18	HLA Curr	591	591	0.0~30.0A or 0.0~50.0A (0.0=OFF)
6	19	HA Mode	592	592	0: LOCK 1: REAL
6	20	AO1 Mode	5A0	5A0	0: PV 1: SV 2: DEV 3: OUT 1 4: OUT 2
6	21	AO1 Sc_L	5A1	5A1	PV, SV→ Within measuring range DEV→ -100.0~100.0%
6	22	AO1 Sc_H	5A2	5A2	OUT1, OUT2 → 0.0~100.0% However AO1 Sc_L ≠ AO1 Sc_H
6	23	AO2 Mode	5A4	5A4	0: PV 1: SV 2: DEV 3: OUT 1 4: OUT 2
6	24	AO2 Sc_L	5A5	5A5	PV, SV→ Within measuring range DEV→ -100.0~100.0%
6	25	AO2 Sc_H	5A6	5A6	OUT1, OUT2 → 0.0~100.0% However AO2 Sc_L ≠ AO2 Sc_H
6	26	MEM	5B0	5B0	0: EEP 1: RAM
6	27	Out Actn	600	600	0: Rev Act. 1: Dir Act.
6	28	Out 1 Cyc	601	601	1~200 Sec
6	29	Err Out1	602	602	-0.5~105.0%
6	30	Out 2 Cyc	604	604	1~200 Sec
6	31	Err Out 2	605	605	-0.5~105.0%
6	32	AT Point	610	610	0~10000 Unit
6	33	Key Lock	611	611	0: OFF 1: LOCK 1 2: LOCK 2 3: LOCK 3
6	34	Disp Ret	612	612	0, 10~120 Sec (0=OFF)
6	35	Mode	613	613	During output 1 → 0: MODE 0 2: MODE 2 During output 2 → 0: MODE 0 1: MODE 1 2: MODE 2 3: MODE 3
6	36	PV Filt	702	702	0~300 (0=OFF)
6	37-60	Unused			
6	61-63	Common with TBL number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

4. SD16

SD16 (1/1)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
0	0	PV value	100	–	Measured value
0	1	Unused			
0	2				
0	3				
0	4				
0	5				
0	6				
0	7				
0	8	PV Bias	701	701	PV bias
0	9	AL1 Set Point	501	501	Alarm 1 set value
0	10	AL2 Set Point	509	509	Alarm 2 set value
0	11	Reserved			
0	12				
0	13				
0	14				
0	15				
0	16	Operation	104	18C	Communication mode
0	17	Ao1 Sc_L	5A1	5A1	Lower limit value of analog output setting
0	18	Ao1 Sc_H	5A2	5A2	Higher limit value of analog output setting
0	19	Key Lock	611	611	Key lock
0	20	PV Filt	702	702	PV filter
0	21	UNIT	704	704	Temperature unit
0	22	RANGE	705	705	Measuring range
0	23	in_L	708	708	Lower limit value of linear input setting
0	24	in_H	709	709	Higher limit value of linear input setting
0	25–47	Unused			
0	48	AL1 Mode	500	500	Alarm 1 action mode
0	49	AL1 Diffrentl	502	502	Alarm 1 action hysteresis
0	50–51	Unused			
0	52	AL2 Mode	508	508	Alarm 2 action mode
0	53	AL2 Diffrentl	50A	50A	Alarm 2 action hysteresis
0	54–57	Unused			
0	58	DP	707	707	Position of decimal point
0	59	EXE_FLG	104	–	Action Flag (read only)
0	60	EV_FLG	105	–	Event flag (read only)
0	61	ERR			
0	62	MODEL			
0	63	TBL			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

5. EM70

EM70 (1/2)

TBL	Setting No.	Parameter	Address(R)	Address(W)	Remarks
0	0	POSI	142	–	Degree of opening (read only)
0	1	DI_FLG	10B	–	External input status flag (read only)
0	2	INP_RANGE	111	–	Input range (read only)
0	3	INP_MOD	118	–	Input type (read only)
0	4	INP	140	–	Input value (read only)
0	5	DES	141	–	Target opening value (read only)
0	6	LOOP_ERR	144	–	Control loop error (read only)
0	7	Unused			
0	8				
0	9	EV1_SP	501	501	Event 1 set value
0	10	EV2_SP	509	509	Event 2 set value
0	11	Reserved			
0	12				
0	13				
0	14				
0	15				
0	16	COM	104	18C	Communication mode
0	17	STBY	104	186	Standby
0	18	AO_MOD	5A0	5A0	Analog output mode
0	19	AO_L	5A1	5A1	Lower limit value of analog output scale
0	20	AO_H	5A2	5A2	Higher limit value of analog output scale
0	21	COM_MEM	5B0	5B0	Communication memory mode
0	22	KEY_LOCK	611	611	Keylock
0	23	INP_FILT	642	642	Input filter
0	24	SQUARE	643	643	Square root extraction
0	25	SCL_MOD	647	647	Scaling mode
0	26	SCL_L	648	648	Lower limit value of scaling
0	27	SCL_H	649	649	Higher limit value of scaling
0	28	POSI_L	64C	64C	Lower limit value of degree of opening limiter
0	29	POSI_H	64D	64D	Higher limit value of degree of opening limiter
0	30	ACT_MOD	650	650	Control characteristics
0	31	DB	652	652	Dead band
0	32	ZS_MOD	655	655	Zero span mode
0	33	SPEED	656	656	Motor speed adjustment
0	34	IN_ERR_MOD	657	657	Disposition mode during input scale over
0	35	IN_ERR_PRE	658	658	Degree of opening during input scale over
0	36	P_ERR_MOD	659	659	Processing mode during potentiometer scale over
0	37	OPN_CLS_TM	65A	65A	OPEN CLOSE time during potentiometer scale over
0	38	DI_MOD	660	660	External input mode
0	39	DI1_SIGNL	662	662	External input 1 individual setting
0	40	DI2_SIGNL	663	663	External input 2 individual setting
0	41	DI3_SIGNL	664	664	External input 3 individual setting
0	42	DI1_S_PRE	666	666	Opening of external input 1 individual setting
0	43	DI2_S_PRE	667	667	Opening of external input 2 individual setting
0	44	DI3_S_PRE	668	668	Opening of external input 3 individual setting
0	45	DI_PRE1	66A	66A	Opening value 1 of external input
0	46	DI_PRE2	66B	66B	Opening value 2 of external input
0	47	DI_PRE3	66C	66C	Opening value 1 of external input

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

EM70 (2/2)

TBL	Setting No.	Parameter	Address(R)	Address(W)	Remarks
0	48	EV1_M	500	500	Event 1 mode
0	49	EV1_DF	502	502	Event 1 action hysteresis
0	50	EV1_STB	503	503	Event 1 standby action
0	51	EV2_M	508	508	Event 2 mode
0	52	EV2_DF	50A	50A	Event 2 action hysteresis
0	53	EV2_STB	50B	50B	Event 2 standby action
0	54	EV3_M	510	510	Event 3 mode
0	55	EV3_SP	511	511	Event 3 set value
0	56	EV3_DF	512	512	Event 3 action hysteresis
0	57	EV3_STB	513	513	Event 3 standby action
0	58	Unused			
0	59	EXE_FLG	104	–	Action flag (read only)
0	60	EV_FLG	105	–	Event flag (read only)
0	61	ERR			
0	62	MODEL			
0	63	TBL			
1	0–16	Common with TBL Number 0			
1	17	DI_PRE4	66D	66D	External input degree of opening value 4
1	18	DI_PRE5	66E	66E	External input degree of opening value 5
1	19	DI_PRE6	66F	66F	External input degree of opening value 6
1	20	DI_PRE7	670	670	External input degree of opening value 7
1	21–60	Unused			
1	61–63	Common with TBL Number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

6. FP93

FP93 (1/7)

TBL	Setting No.	Parameter	Address(R)	Address(W)	Remarks
0	0	PV_W	100	–	Measured value (read only)
0	1	OUT1_W	102	–	Control output 1 value (read only)
0	2	Unused			
0	3	SV1	300	300	FIX SV value
0	4	AT	104	184	Autotuning execution
0	5	PB1	400	400	Control output 1 proportional band 1
0	6	IT1	401	401	Control output 1 integral time 1
0	7	DT1	402	402	Control output 1 derivative time 1
0	8	PV_B	701	701	PV bias
0	9	EV1_SP	501	501	Event 1 set value
0	10	EV2_SP	509	509	Event 2 set value
0	11	Reserved			
0	12				
0	13				
0	14				
0	15				
0	16	COM	104	18C	Communication mode
0	17	EV_FLG	105	–	Event DO output flag
0	18	EXE_PID	107	–	Execution PID No. (read only)
0	19	DI_FLG	10B	–	DI input condition flag (read only)
0	20	UNIT	110	–	Input unit (read only)
0	21	RANGE	111	–	Measuring range (read only)
0	22	DP	113	–	Position of decimal point (read only)
0	23	SC_L	114	–	Lower limit value of measuring range (read only)
0	24	SC_H	115	–	Higher limit value of measuring range (read only)
0	25	E_PRG	120	–	Program action flag (read only)
0	26	E_PTN	121	–	Execution pattern No. (read only)
0	27	E_RPT	123	–	Number of times of execution pattern (read only)
0	28	E_STP	124	–	Execution step No. (read only)
0	29	E_TIM	125	–	Remaining time of execution step (read only)
0	30	E_PID	126	–	Execution PID No.
0	31	MAN	104	185	Manual
0	32	RST	–	190	Reset (read only)
0	33	HLD	–	191	Hold (read only)
0	34	ADV	–	192	Advance (write only)
0	35	SV_L	30A	30A	Lower limit set value limiter
0	36	SV_H	30B	30B	Higher limit set value limiter
0	37	MR1	403	403	Manual reset 1
0	38	DF1	404	404	Control output 1 action hysteresis 1
0	39	O11_L	405	405	Control output 1 lower output limiter 1
0	40	O11_H	406	406	Control output 1 higher output limiter 1
0	41	SF1	407	407	Control output 1 Target value function 1
0	42–58	Unused			
0	59	EXE_FLG	104	–	Action flag (read only)
0	60	Unused			
0	61	ERR			
0	62	MODEL			
0	63	TBL			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

FP93 (2/7)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
1	0-16	Common with TBL number 0			
1	17	PB2	408	408	Control output 1 proportional band 2
1	18	IT2	409	409	Control output 1 integral time 2
1	19	DT2	40A	40A	Control output 1 derivative time 2
1	20	MR2	40B	40B	Manual reset 2
1	21	DF2	40C	40C	Control output 1 action hysteresis 2
1	22	012_L	40D	40D	Control output 1 lower output limiter 2
1	23	012_H	40E	40E	Control output 1 higher output limiter 2
1	24	SF2	40F	40F	Control output 1 Target value function 2
1	25	PB3	410	410	Control output 1 proportional band 3
1	26	IT3	411	411	Control output 1 integral time 3
1	27	DT3	412	412	Control output 1 derivative time 3
1	28	MR3	413	413	Manual reset 3
1	29	DF3	414	414	Control output 1 action hysteresis 3
1	30	013_L	415	415	Control output 1 lower output limiter 3
1	31	013_H	416	416	Control output 1 higher output limiter 3
1	32	SF3	417	417	Control output 1 target value function 3
1	33	PB4	418	418	Control output 1 proportional band 4
1	34	IT4	419	419	Control output 1 integral time 4
1	35	DT4	41A	41A	Control output 1 derivative time 4
1	36	MR4	41B	41B	Manual reset 4
1	37	DF4	41C	41C	Control output 1 action hysteresis 4
1	38	014_L	41D	41D	Control output 1 lower output limiter 4
1	39	014_H	41E	41E	Control output 1 higher output limiter 4
1	40	SF4	41F	41F	Control output 1 target value function 4
1	41	PB5	420	420	Control output 1 proportional band 5
1	42	IT5	421	421	Control output 1 integral time 5
1	43	DT5	422	422	Control output 1 derivative time 5
1	44	MR5	423	423	Manual reset 5
1	45	DF5	424	424	Control output 1 action hysteresis 5
1	46	015_L	425	425	Control output 1 lower output limiter 5
1	47	015_H	426	426	Control output 1 higher output limiter 5
1	48	SF5	427	427	Control output 1 target value function 5
1	49	PB6	428	428	Control output 1 proportional band 6
1	50	IT6	429	429	Control output 1 integral time 6
1	51	DT6	42A	42A	Control output 1 derivative time 6
1	52	MR6	42B	42B	Manual reset 6
1	53	DF6	42C	42C	Control output 1 action hysteresis 6
1	54	016_L	42D	42D	Control output 1 lower output limiter 6
1	55	016_H	42E	42E	Control output 1 higher output limiter 6
1	56	SF6	42F	42F	Control output 1 target value function 6
1	57	Unused			
1	58				
1	59				
1	60				
1	61-63	Common with TBL number 0			

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FP93 (3/7)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
2	0-16	Common with TBL number 0			
2	17	ZSP1	4C0	4C0	Zone 1 SP
2	18	ZSP2	4C1	4C1	Zone 2 SP
2	19	ZSP3	4C2	4C2	Zone 3 SP
2	20	ZHYS	4CA	4CA	Zone hysteresis
2	21	ZPID	4CB	4CB	Zone PID
2	22	EV1_MD	500	500	Event 1 mode
2	23	EV1_SP	501	501	Event 1 set value
2	24	EV1_DF	502	502	Event 1 action hysteresis
2	25	EV1_STB	503	503	Event 1 standby
2	26	EV2_MD	508	508	Event 2 mode
2	27	EV2_SP	509	509	Event 2 set value
2	28	EV2_DF	50A	50A	Event 2 action hysteresis
2	29	EV2_STB	50B	50B	Event 2 standby
2	30	EV3_MD	510	510	Event 3 mode
2	31	EV3_SP	511	511	Event 3 set value
2	32	EV3_DF	512	512	Event 3 action hysteresis
2	33	EV3_STB	513	513	Event 3 standby
2	34	DO1_MD	518	518	DO1 mode
2	35	DO2_MD	520	520	DO2 mode
2	36	DO3_MD	528	528	DO3 mode
2	37	DO4_MD	530	530	DO4 mode
2	38	DI1	581	581	DI1 mode
2	39	DI2	582	582	DI2 mode
2	40	DI3	583	583	DI2 mode
2	41	AO1_MD	5A0	5A0	Analog output mode
2	42	AO1_L	5A1	5A1	Lower limit value of analog output scale
2	43	AO1_H	5A2	5A2	Higher limit value of analog output scale
2	44	COM_MEM	5B0	5B0	Communication memory mode
2	45	ACTMD	600	600	Output characteristics
2	46	01_CYC	601	601	Control output 1 proportional cycle
2	47	KLOCK	611	611	Keylock
2	48	PV_B	701	701	PV bias
2	49	PV_F	702	702	PV filter
2	50	PRG_MD	800	800	Program mode
2	51	ST_PTN	802	802	Start pattern No.
2	52	PTN_MOD	818	818	Number of patterns
2	53	TIM_MOD	819	819	Time mode
2	54	SHT_MOD	81A	81A	Instantaneous stop mode
2	55	SCO_MOD	81B	81B	Input error mode
2	56	FIX PID No	820	820	FIX PID No.
2	57	Unused			
2	58				
2	59				
2	60				
2	61-63	Common with TBL number 0			

NOTE: Address (R) or Address (W) represents the data address (hexadecimal display, only last 3 digits) which stores parameter values. For further details, please refer to the "Communication Interface Instruction Manual" for Shimaden products.

FP93 (4/7)

TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
3	0-16	Common with TBL number 0			
3	17	PO1 STP	882	882	Pattern No.1 Step numbers
3	18	PO1 RPT	883	883	Pattern No.1 Number of execution pattern
3	19	PO1 ST_SV	884	884	Pattern No.1 Start SV value
3	20	PO1 GUA_Z	885	885	Pattern No.1 Guarantee Zone
3	21	PO1 PV_ST	887	887	Pattern No.1 PV start
3	22	PO1 EV1	889	889	Pattern No.1 Level value of EV1
3	23	PO1 EV2	88A	88A	Pattern No.1 Level value of EV2
3	24	PO1 EV3	88B	88B	Pattern No.1 Level value of EV3
3	25	PO1 TS1STP	88E	88E	Pattern No.1 Time signal 1 ON/OFF STP
3	26	PO1 TS1_ON	88F	88F	Pattern No.1 Time signal 1 ON Time
3	27	PO1 TS1_OFF	890	890	Pattern No.1 Time signal 1 OFF Time
3	28	PO1 TS2STP	891	891	Pattern No.1 Time signal 2 ON/OFF STP
3	29	PO1 TS2_ON	892	892	Pattern No.1 Time signal 2 ON Time
3	30	PO1 TS2_OFF	893	893	Pattern No.1 Time signal 2 OFF Time
3	31	PO1 S01_SV	8A0	8A0	Pattern No.1 Step No.1 SV value
3	32	PO1 S01_TM	8A1	8A1	Pattern No.1 Step No.1 Step Time
3	33	PO1 S01_PE	8A2	8A2	Pattern No.1 Step No.1 PID No.
3	34	PO1 S02_SV	8A4	8A4	Pattern No.1 Step No.2 SV value
3	35	PO1 S02_TM	8A5	8A5	Pattern No.1 Step No.2 Step Time
3	36	PO1 S02_PE	8A6	8A6	Pattern No.1 Step No.2 PID No.
3	37	PO1 S03_SV	8A8	8A8	Pattern No.1 Step No.3 SV value
3	38	PO1 S03_TM	8A9	8A9	Pattern No.1 Step No.3 Step Time
3	39	PO1 S03_PE	8AA	8AA	Pattern No.1 Step No.3 PID No.
3	40	PO1 S04_SV	8AC	8AC	Pattern No.1 Step No.4 SV value
3	41	PO1 S04_TM	8AD	8AD	Pattern No.1 Step No.4 Step Time
3	42	PO1 S04_PE	8AE	8AE	Pattern No.1 Step No.4 PID No.
3	43	PO1 S05_SV	8B0	8B0	Pattern No.1 Step No.5 SV value
3	44	PO1 S05_TM	8B1	8B1	Pattern No.1 Step No.5 Step Time
3	45	PO1 S05_PE	8B2	8B2	Pattern No.1 Step No.5 PID No.
3	46	PO1 S06_SV	8B4	8B4	Pattern No.1 Step No.6 SV value
3	47	PO1 S06_TM	8B5	8B5	Pattern No.1 Step No.6 Step Time
3	48	PO1 S06_PE	8B6	8B6	Pattern No.1 Step No.6 PID No.
3	49	PO1 S07_SV	8B8	8B8	Pattern No.1 Step No.7 SV value
3	50	PO1 S07_TM	8B9	8B9	Pattern No.1 Step No.7 Step Time
3	51	PO1 S07_PE	8BA	8BA	Pattern No.1 Step No.7 PID No.
3	52	PO1 S08_SV	8BC	8BC	Pattern No.1 Step No.8 SV value
3	53	PO1 S08_TM	8BD	8BD	Pattern No.1 Step No.8 Step Time
3	54	PO1 S08_PE	8BE	8BE	Pattern No.1 Step No.8 PID No.
3	55	PO1 S09_SV	8C0	8C0	Pattern No.1 Step No.9 SV value
3	56	PO1 S09_TM	8C1	8C1	Pattern No.1 Step No.9 Step Time
3	57	PO1 S09_PE	8C2	8C2	Pattern No.1 Step No.9 PID No.
3	58	PO1 S10_SV	8C4	8C4	Pattern No.1 Step No.10 SV value
3	59	PO1 S10_TM	8C5	8C5	Pattern No.1 Step No.10 Step Time
3	60	PO1 S10_PE	8C6	8C6	Pattern No.1 Step No.10 PID No.
3	61-63	Common with TBL number 0			

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TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
4	0-16	Common with TBL number 0			
4	17	PO2 STP	902	902	Pattern No.2 Step numbers
4	18	PO2 RPT	903	903	Pattern No.2 Number of execution pattern
4	19	PO2 ST_SV	904	904	Pattern No.2 Start SV value
4	20	PO2 GUA_Z	905	905	Pattern No.2 Guarantee Zone
4	21	PO2 PV_ST	907	907	Pattern No.2 PV start
4	22	PO2 EV1	909	909	Pattern No.2 Level value of EV1
4	23	PO2 EV2	90A	90A	Pattern No.2 Level value of EV2
4	24	PO2 EV3	90B	90B	Pattern No.2 Level value of EV3
4	25	PO2 TS1STP	90E	90E	Pattern No.2 Time signal 1 ON/OFF STP
4	26	PO2 TS1_ON	90F	90F	Pattern No.2 Time signal 1 ON Time
4	27	PO2 TS1_OFF	910	910	Pattern No.2 Time signal 1 OFF Time
4	28	PO2 TS2STP	911	911	Pattern No.2 Time signal 2 ON/OFF STP
4	29	PO2 TS2_ON	912	912	Pattern No.2 Time signal 2 ON Time
4	30	PO2 TS2_OFF	913	913	Pattern No.2 Time signal 2 OFF Time
4	31	PO2 S01_SV	920	920	Pattern No.2 Step No.1 SV value
4	32	PO2 S01_TM	921	921	Pattern No.2 Step No.1 Step Time
4	33	PO2 S01_PE	922	922	Pattern No.2 Step No.1 PID No.
4	34	PO2 S02_SV	924	924	Pattern No.2 Step No.2 SV value
4	35	PO2 S02_TM	925	925	Pattern No.2 Step No.2 Step Time
4	36	PO2 S02_PE	926	926	Pattern No.2 Step No.2 PID No.
4	37	PO2 S03_SV	928	928	Pattern No.2 Step No.3 SV value
4	38	PO2 S03_TM	929	929	Pattern No.2 Step No.3 Step Time
4	39	PO2 S03_PE	92A	92A	Pattern No.2 Step No.3 PID No.
4	40	PO2 S04_SV	92C	92C	Pattern No.2 Step No.4 SV value
4	41	PO2 S04_TM	92D	92D	Pattern No.2 Step No.4 Step Time
4	42	PO2 S04_PE	92E	92E	Pattern No.2 Step No.4 PID No.
4	43	PO2 S05_SV	930	930	Pattern No.2 Step No.5 SV value
4	44	PO2 S05_TM	931	931	Pattern No.2 Step No.5 Step Time
4	45	PO2 S05_PE	932	932	Pattern No.2 Step No.5 PID No.
4	46	PO2 S06_SV	934	934	Pattern No.2 Step No.6 SV value
4	47	PO2 S06_TM	935	935	Pattern No.2 Step No.6 Step Time
4	48	PO2 S06_PE	936	936	Pattern No.2 Step No.6 PID No.
4	49	PO2 S07_SV	938	938	Pattern No.2 Step No.7 SV value
4	50	PO2 S07_TM	939	939	Pattern No.2 Step No.7 Step Time
4	51	PO2 S07_PE	93A	93A	Pattern No.2 Step No.7 PID No.
4	52	PO2 S08_SV	93C	93C	Pattern No.2 Step No.8 SV value
4	53	PO2 S08_TM	93D	93D	Pattern No.2 Step No.8 Step Time
4	54	PO2 S08_PE	93E	93E	Pattern No.2 Step No.8 PID No.
4	55	PO2 S09_SV	940	940	Pattern No.2 Step No.9 SV value
4	56	PO2 S09_TM	941	941	Pattern No.2 Step No.9 Step Time
4	57	PO2 S09_PE	942	942	Pattern No.2 Step No.9 PID No.
4	58	PO2 S10_SV	944	944	Pattern No.2 Step No.10 SV value
4	59	PO2 S10_TM	945	945	Pattern No.2 Step No.10 Step Time
4	60	PO2 S10_PE	946	946	Pattern No.2 Step No.10 PID No.
4	61-63	Common with TBL number 0			

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TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
5	0-16	Common with TBL number 0			
5	17	PO3 STP	982	982	Pattern No.3 Step numbers
5	18	PO3 RPT	983	983	Pattern No.3 Number of execution pattern
5	19	PO3 ST_SV	984	984	Pattern No.3 Start SV value
5	20	PO3 GUA_Z	985	985	Pattern No.3 Guarantee Zone
5	21	PO3 PV_ST	987	987	Pattern No.3 PV start
5	22	PO3 EV1	989	989	Pattern No.3 Level value of EV1
5	23	PO3 EV2	98A	98A	Pattern No.3 Level value of EV2
5	24	PO3 EV3	98B	98B	Pattern No.3 Level value of EV3
5	25	PO3 TS1STP	98E	98E	Pattern No.3 Time signal 1 ON/OFF STP
5	26	PO3 TS1_ON	98F	98F	Pattern No.3 Time signal 1 ON Time
5	27	PO3 TS1_OFF	990	990	Pattern No.3 Time signal 1 OFF Time
5	28	PO3 TS2STP	991	991	Pattern No.3 Time signal 2 ON/OFF STP
5	29	PO3 TS2_ON	992	992	Pattern No.3 Time signal 2 ON Time
5	30	PO3 TS2_OFF	993	993	Pattern No.3 Time signal 2 OFF Time
5	31	PO3 S01_SV	9A0	9A0	Pattern No.3 Step No.1 SV value
5	32	PO3 S01_TM	9A1	9A1	Pattern No.3 Step No.1 Step Time
5	33	PO3 S01_PE	9A2	9A2	Pattern No.3 Step No.1 PID No.
5	34	PO3 S02_SV	9A4	9A4	Pattern No.3 Step No.2 SV value
5	35	PO3 S02_TM	9A5	9A5	Pattern No.3 Step No.2 Step Time
5	36	PO3 S02_PE	9A6	9A6	Pattern No.3 Step No.2 PID No.
5	37	PO3 S03_SV	9A8	9A8	Pattern No.3 Step No.3 SV value
5	38	PO3 S03_TM	9A9	9A9	Pattern No.3 Step No.3 Step Time
5	39	PO3 S03_PE	9AA	9AA	Pattern No.3 Step No.3 PID No.
5	40	PO3 S04_SV	9AC	9AC	Pattern No.3 Step No.4 SV value
5	41	PO3 S04_TM	9AD	9AD	Pattern No.3 Step No.4 Step Time
5	42	PO3 S04_PE	9AE	9AE	Pattern No.3 Step No.4 PID No.
5	43	PO3 S05_SV	9B0	9B0	Pattern No.3 Step No.5 SV value
5	44	PO3 S05_TM	9B1	9B1	Pattern No.3 Step No.5 Step Time
5	45	PO3 S05_PE	9B2	9B2	Pattern No.3 Step No.5 PID No.
5	46	PO3 S06_SV	9B4	9B4	Pattern No.3 Step No.6 SV value
5	47	PO3 S06_TM	9B5	9B5	Pattern No.3 Step No.6 Step Time
5	48	PO3 S06_PE	9B6	9B6	Pattern No.3 Step No.6 PID No.
5	49	PO3 S07_SV	9B8	9B8	Pattern No.3 Step No.7 SV value
5	50	PO3 S07_TM	9B9	9B9	Pattern No.3 Step No.7 Step Time
5	51	PO3 S07_PE	9BA	9BA	Pattern No.3 Step No.7 PID No.
5	52	PO3 S08_SV	9BC	9BC	Pattern No.3 Step No.8 SV value
5	53	PO3 S08_TM	9BD	9BD	Pattern No.3 Step No.8 Step Time
5	54	PO3 S08_PE	9BE	9BE	Pattern No.3 Step No.8 PID No.
5	55	PO3 S09_SV	9C0	9C0	Pattern No.3 Step No.9 SV value
5	56	PO3 S09_TM	9C1	9C1	Pattern No.3 Step No.9 Step Time
5	57	PO3 S09_PE	9C2	9C2	Pattern No.3 Step No.9 PID No.
5	58	PO3 S10_SV	9C4	9C4	Pattern No.3 Step No.10 SV value
5	59	PO3 S10_TM	9C5	9C5	Pattern No.3 Step No.10 Step Time
5	60	PO3 S10_PE	9C6	9C6	Pattern No.3 Step No.10 PID No.
5	61-63	Common with TBL number 0			

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TBL	No.of Setting	Parameter	Address(R)	Address(W)	Remarks
6	0-16	Common with TBL number 0			
6	17	PO4 STP	A02	A02	Pattern No.4 Step numbers
6	18	PO4 RPT	A03	A03	Pattern No.4 Number of execution pattern
6	19	PO4 ST_SV	A04	A04	Pattern No.4 Start SV value
6	20	PO4 GUA_Z	A05	A05	Pattern No.4 Guarantee Zone
6	21	PO4 PV_ST	A07	A07	Pattern No.4 PV start
6	22	PO4 EV1	A09	A09	Pattern No.4 Level value of EV1
6	23	PO4 EV2	A0A	A0A	Pattern No.4 Level value of EV2
6	24	PO4 EV3	A0B	A0B	Pattern No.4 Level value of EV3
6	25	PO4 TS1STP	A0E	A0E	Pattern No.4 Time signal 1 ON/OFF STP
6	26	PO4 TS1_ON	A0F	A0F	Pattern No.4 Time signal 1 ON Time
6	27	PO4 TS1_OFF	A10	A10	Pattern No.4 Time signal 1 OFF Time
6	28	PO4 TS2STP	A11	A11	Pattern No.4 Time signal 2 ON/OFF STP
6	29	PO4 TS2_ON	A12	A12	Pattern No.4 Time signal 2 ON Time
6	30	PO4 TS2_OFF	A13	A13	Pattern No.4 Time signal 2 OFF Time
6	31	PO4 S01_SV	A20	A20	Pattern No.4 Step No.1 SV value
6	32	PO4 S01_TM	A21	A21	Pattern No.4 Step No.1 Step Time
6	33	PO4 S01_PE	A22	A22	Pattern No.4 Step No.1 PID No.
6	34	PO4 S02_SV	A24	A24	Pattern No.4 Step No.2 SV value
6	35	PO4 S02_TM	A25	A25	Pattern No.4 Step No.2 Step Time
6	36	PO4 S02_PE	A26	A26	Pattern No.4 Step No.2 PID No.
6	37	PO4 S03_SV	A28	A28	Pattern No.4 Step No.3 SV value
6	38	PO4 S03_TM	A29	A29	Pattern No.4 Step No.3 Step Time
6	39	PO4 S03_PE	A2A	A2A	Pattern No.4 Step No.3 PID No.
6	40	PO4 S04_SV	A2C	A2C	Pattern No.4 Step No.4 SV value
6	41	PO4 S04_TM	A2D	A2D	Pattern No.4 Step No.4 Step Time
6	42	PO4 S04_PE	A2E	A2E	Pattern No.4 Step No.4 PID No.
6	43	PO4 S05_SV	A30	A30	Pattern No.4 Step No.5 SV value
6	44	PO4 S05_TM	A31	A31	Pattern No.4 Step No.5 Step Time
6	45	PO4 S05_PE	A32	A32	Pattern No.4 Step No.5 PID No.
6	46	PO4 S06_SV	A34	A34	Pattern No.4 Step No.6 SV value
6	47	PO4 S06_TM	A35	A35	Pattern No.4 Step No.6 Step Time
6	48	PO4 S06_PE	A36	A36	Pattern No.4 Step No.6 PID No.
6	49	PO4 S07_SV	A38	A38	Pattern No.4 Step No.7 SV value
6	50	PO4 S07_TM	A39	A39	Pattern No.4 Step No.7 Step Time
6	51	PO4 S07_PE	A3A	A3A	Pattern No.4 Step No.7 PID No.
6	52	PO4 S08_SV	A3C	A3C	Pattern No.4 Step No.8 SV value
6	53	PO4 S08_TM	A3D	A3D	Pattern No.4 Step No.8 Step Time
6	54	PO4 S08_PE	A3E	A3E	Pattern No.4 Step No.8 PID No.
6	55	PO4 S09_SV	A40	A40	Pattern No.4 Step No.9 SV value
6	56	PO4 S09_TM	A41	A41	Pattern No.4 Step No.9 Step Time
6	57	PO4 S09_PE	A42	A42	Pattern No.4 Step No.9 PID No.
6	58	PO4 S10_SV	A44	A44	Pattern No.4 Step No.10 SV value
6	59	PO4 S10_TM	A45	A45	Pattern No.4 Step No.10 Step Time
6	60	PO4 S10_PE	A46	A46	Pattern No.4 Step No.10 PID No.
6	61-63	Common with TBL number 0			

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The contents of this manual are subject to change without notice.

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