

# TEM12000 - SERIES

TEM12700



TEM12500



## COMMUNICATION MANUAL

TEMPERATURE & HUMIDITY  
PROGRAMMABLE CONTROLER

※ This manual applies to TEMI2500 and TEMI2700.  
The model stated the manual content is TEMI2500.

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# 1 Safety Precautions

Thank you for purchasing TEMI2500, programmable temperature & humidity controller.  
This Communication Manual describes communication of the TEMI2500 controller.



## SAFETY SYMBOL MARKS

(A) Symbolizes 'Caution' and 'Warning'. The information with this symbol is especially important for preventing from user injury and protecting the product and system.



(1) Product : This symbol indicates an imminently hazardous situation which if not avoided, will result in serious injury or system damage.

(2) Communication Manual : This symbol indicates potential hazard that may cause personal injury by electrical shock.

(B) Symbolizes 'Protective Earth (PE) Terminal.'



This symbol indicates that the terminal must be connected to the Ground prior to operating.

(C) Symbolizes 'Supplementary Explanation.'



The information with this symbol describes additional explanation for features.

(D) Symbolizes 'Reference.'

☞ This symbol indicates further information and page to refer.



## Precautionary Remarks on this Communication Manual

- (A) This manual should be passed on the End- User and kept at a suitable place for easy review in time.
- (B) Read and understand this Communication Manual carefully before using the product.
- (C) This Communication Manual describes functions and features of the product in detail, and SAMWONTECH can not guarantee against over applications would suit a customer's particular purpose which is not described in this manual.
- (D) Unauthorized duplication and modification of this Communication Manual are strongly prohibited.
- (E) The contents of this manual may be modified without prior notice.
- (F) If any errors or omissions in this manual should come to the attention of the user, feel free to contact our sales representatives or our sales office.



### Precautions for Safety and Unauthorized Modification

- (A) For protecting and ensuring the safety of this product and relevant system, all of the safety instructions and precautions should be well recognized and strictly observed by all users.
- (B) SAMWONTECH does not guarantee against damage resulting from unauthorized alteration, misuse, or abuse.
- (C) When using additional safety circuit or part such as Noise Filter to protect this product and relevant system, it is strongly required to install that to outside of this product. Additional installation and modification inside of this product are prohibited.
- (D) Do not try to disassemble, repair, or modify the product. It may become the cause of a trouble such as malfunction, electric shock, fire.
- (E) Contact our sales dept. for part replacement or consumables.
- (F) Keep the product away from water inflowing. This may become a critical cause of trouble.
- (G) External shock on the product may lead to damage and malfunction.



### Limitation of Liability

- (A) SAMWONTECH does not guarantee or accept responsibility for this product other than the clauses stated in our warranty policy.
- (B) SAMWONTECH assumes no liability to any party for any loss or damage, direct or indirect, caused by the use or any unpredictable defect of the product.



### Warranty Policy

- (A) Warranty term of this TEMI2500 is one year after delivery to the first purchaser for being free of defects in materials and faulty workmanship under the condition that the product has been applied according to this manual.
- (B) The repairing cost will be charged for defective product out of warranty period. This charge will be the actual cost estimated by SAMWONTECH.
- (C) Repairing cost may be charged even if within warranty period for following cases.
  - (1) Damage due to USER FAULT (Ex.: Product initialization by password loss)
  - (2) Damage due to natural disaster (Ex.: fire, flood)
  - (3) Damage due to additional removal and re-installation after the first one.
  - (4) Damage due to unauthorized disassembles, modification and alternation.
  - (5) Damage due to unexpected power failure caused unstable power supply.
  - (6) Others
- (D) If any A/S is required, feel free to contact our sales office or a representative.

## 2. Communication Specification

The TEMI2500 controller provides Half-Duplex method support on RS232C and RS485 communication interface.

- RS232C interface supports 1:1 direct communication between host computer on network system and TEMI2500.
- RS485 interface supports to connect upper level network system with up to 31 slave TEMI2500 controller.

### ■ Parameters for communication setting

Parameter	Range	Description
PROTOCOL	PCLINK	Default protocol
	PCLINK+SUM	Default protocol + CheckSum
	MODBUS ASC	MODBUS ASCII
	MODBUS RTU	MODBUS RTU
SPEED (BPS)	9600	9600 bps
	19200	19200 bps
	38400	38400 bps
	57600	57600 bps
	115200	115200 bps
PARITY	NONE	None Parity
	EVEN	Even Parity
	ODD	Odd Parity
STOP BIT	1	1 bit
	2	2 bits
DATA LENGTH	7	7 bits
	8	8 bits
ADDRESS	1~99	Address
RESPONSE TIME	0~10	RESPONSE TIME (=PROCESS TIME+RESPONSE*10msec)

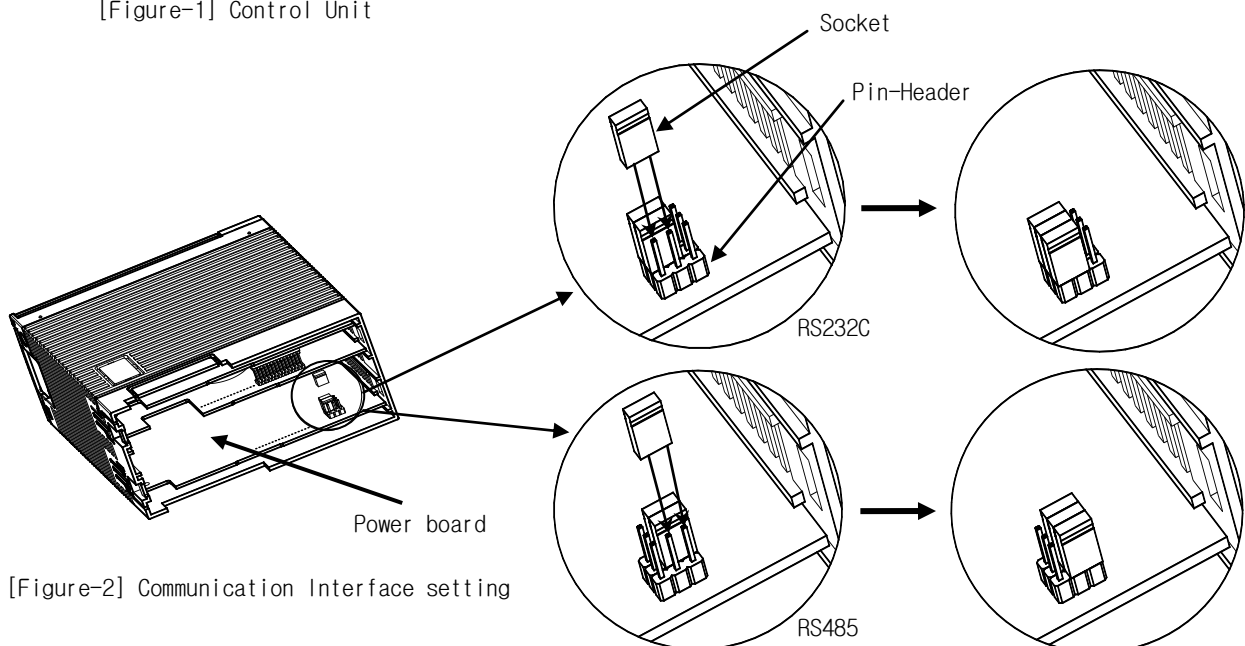
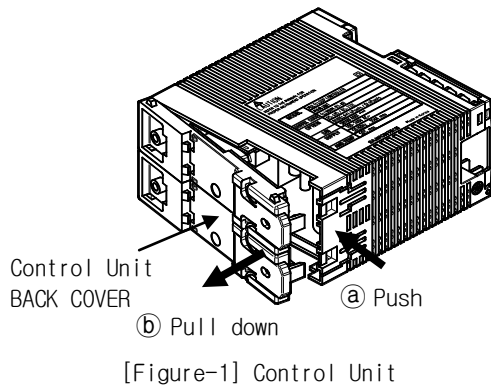
### ■ Factory default value

• PROTOCOL	PCLINK+SUM(PCLINK+CheckSum)
• SPEED (BPS)	9600 bps
• PARITY	NONE
• STOP BIT	1 (1 bit)
• DATA LENGTH	8 (8 bits)
• ADDRESS	1
• RESPONSE	0 (Process time + 10 msec)

### 3. Communication setting

TEMI2500 provides flexible communication interface RS232C or RS485 from Control Unit directly.

- ▶ After detaching BACK COVER from Control Unit shown as [Figure-1], communication interface between RS232C and RS485 can be selected with socket and pin-header on power board of Control Board.
- ▶ It is recommended to use tool like tweezers for setting socket to pin-header correctly.
- ☞ **Make sure setup completed correctly.**

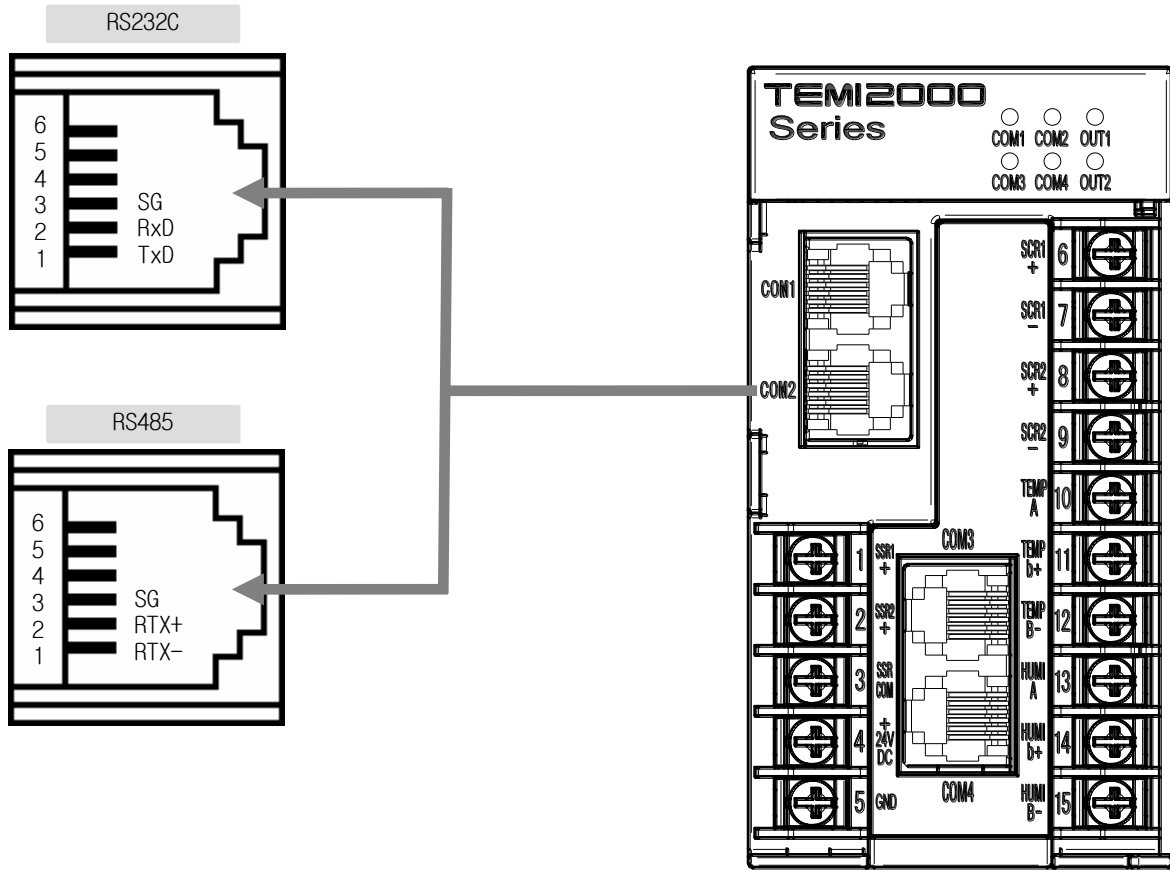


- ▶ Do not disassemble Power board from Control Unit case during setting comm. interface.
- ▶ It is recommended to use tool like tweezers for setting comm. interface.
- ▶ Make sure setup completed correctly.

### 4. Wiring for Communication

Connector wiring between TEMI2500 and network system depends on communication interface setting (RS232C/RS485).

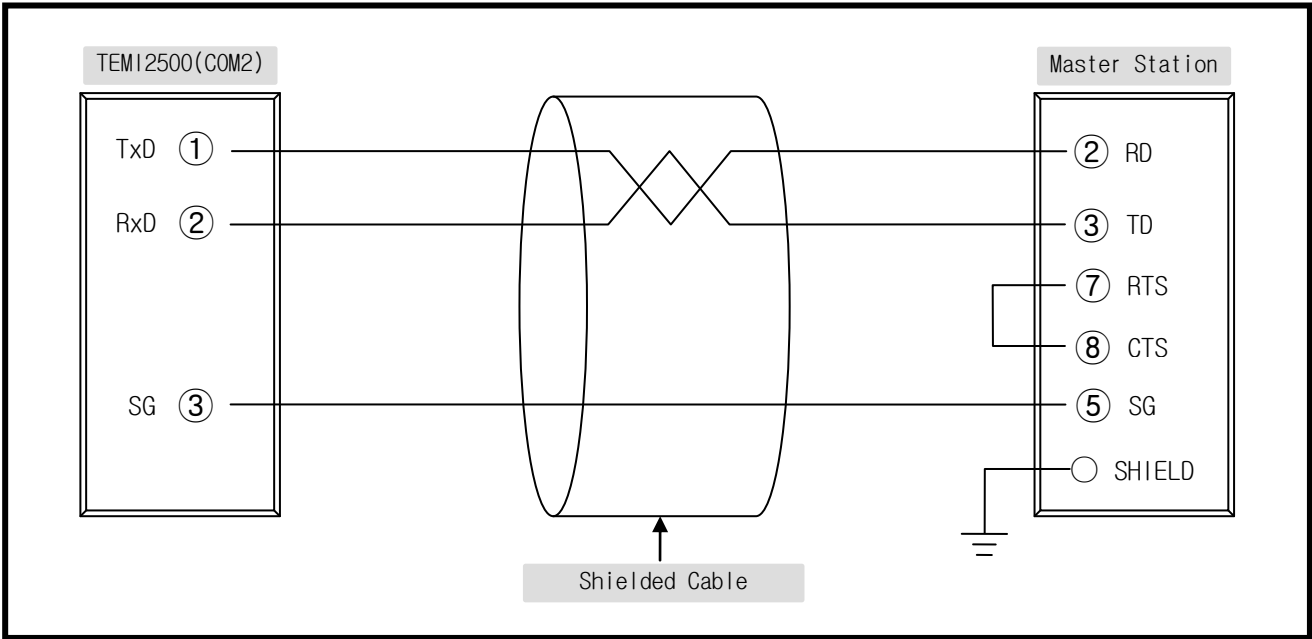
■ Modular Connector Pin-Mapping for COM2 port



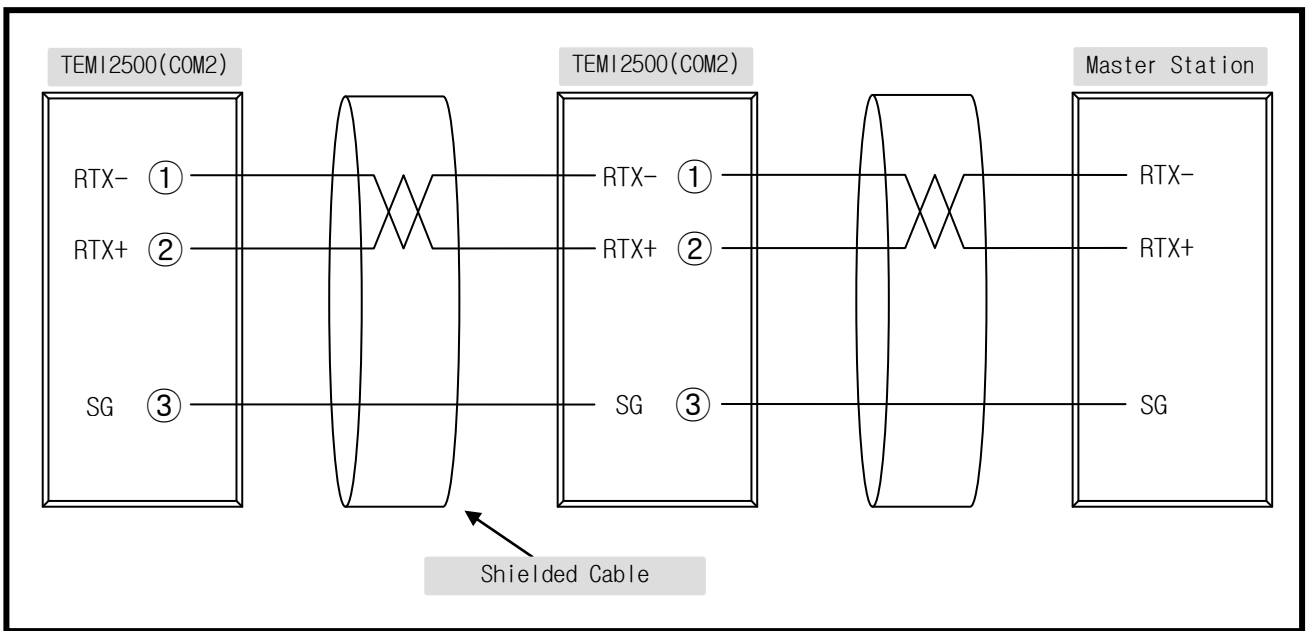
■ Description of Modular Connector Pin-Mapping for COM2 port

PIN no.	RS232C		RS485	
	Signal	Symbol	Signal	Symbol
1	Transmit Data	TxD	Receive/Transmit Data -	RTX-
2	Receive Data	RxD	Receive/Transmit Data +	RTX+
3	Signal Ground	SG	Signal Ground	SG
4	-	-	-	-
5	-	-	-	-
6	-	-	-	-

■ 6 Pin connector wiring for RS232C interface



■ 6 Pin connector wiring for RS485 interface



☞ Up to 31 slave TEMI2500 controllers can be connected to a master device by multi-drop networking.

☞ Make sure to install 200Ω (1/4W) resistor on Last Leg at both end of terminal Slave and Master(PC, PLC).



## 5. Communication Command

### 5.1 The Frame Structure of standard protocol

The frame structure of protocol transmitting upper-level network system to TEMI2500

①	②	③	④	⑤	⑥	⑦	⑧
STX	Address	Command	,	Data	SUM	CR	LF

#### ① Protocol Header

The beginning of communication command with STX (Start of Text), ASCII string with 0x02.

#### ② Slave TEMI2500 Address

Slave unit address of TEMI2500.

#### ③ Command

Function Command for communication. (Refer to 5.2 ~ 5.10).

#### ④ Delimiter

Symbolize to separate Command and Data by Comma. (',')

#### ⑤ Data

Formal text strings regulated by communication command rule.

#### ⑥ Check Sum

- 'SUM' protocol is a more sophisticated one which includes Check Sum as an error check.
- Check Sum is calculated as following.

- 1) Add the ASCII code of characters from the character next to STX one by one up to the character prior to SUM
- 2) Represent the lowest one byte of the sum as a hexadecimal notation (2 characters).

#### ⑦, ⑧ Protocol Tail

ASCII code to close communication command by indicating CR(0x0D) and LF(0x0A).

■ Example for SUM

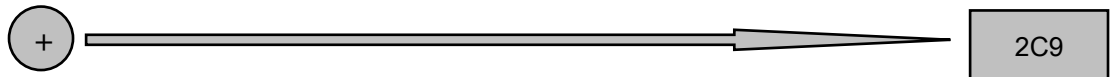
◆ Example

To read the consecutively D-Register from D0001 (TEMP.PV) to D0006 (HUMI.SP)

- Request : [stx]01RSD,06,0001[cr][lf]
- Request (with CheckSum) : [stx]01RSD,06,0001**C9**[cr][lf]

☞ As shown below, hexa decimal value adding each text at 01RSD,06,0001 by ASCII code is 2C9, and lower digit 2 characters **C9** will be used for CheckSum.

Text	0	1	R	S	D	,	0	6	,	0	0	0	1
Ascii value	30	31	52	53	44	2C	30	36	2C	30	30	30	31



■ ASCII Table

High Low	0	1	2	3	4	5	6	7
0	NUL	DLE	SPACE	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	\$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	¥	l	
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

## 5.2 Type of Communication Command

Two types of commands are provided on TEMI2500. One is general READ/WRITE command to read and write information on D-Register, and the other is Reference command to read self-information of TEMI2500.

### ■ Reference Command

Command	Description
AMI	Displays model name and Version-Revision of TEMI2500

### ■ READ/WRITE Command

Command	Description
RSD	Read data in consecutive D-Register in sequence (Read)
RRD	Read data in arbitrary single D-Register (Read)
WSD	Write data in consecutive D-Register in sequence (Write)
WRD	Write data in arbitrary single D-Register (Write)
STD	Register arbitrary single address to monitor (D-Register Monitoring Set)
CLD	Read data in address registered by STD command (D-Register Monitoring Call)

☞ Each Command can read or write up to 64 D-Register and all of the SED/CLD data will be reset by power OFF, so the data should be registered again.

### 5.3 ERROR Response

When an Error occurs during communication, TEMI2500 transmits a frame as following.

Bytes	1	2	2	2	2	1	1
Frame	STX	Address	NG	Error Code	SUM	CR	LF

#### ▣ Description of Error Code

Error Code	Description	Remarks
01	Invalid Command setting	
02	Invalid D-Register setting	
04	Data Setting Error	Invalid text data input (Available 0~9, A~F : hexadecimals)
08	Invalid Format configuration	<ul style="list-style-type: none"> <li>▪ Different command format with designated</li> <li>▪ Different number of setting with designated</li> </ul>
11	Checksum Error	
12	Monitoring Command Error	No setup Monitoring Command
00	Other Errors	

### 5.4 RSD Command

RSD Command is used to read data in a part of D-Register by consecutive address in sequence.

#### Request Message Frame

Bytes	1	2	3	1	2	1	4	2	1	1
Frame	STX	Address	RSD	,	Count Number	,	D-Reg.	SUM	CR	LF

#### Response Message Frame

Bytes	1	2	3	1	2	1	4	1	...
Frame	STX	Address	RSD	,	OK	,	Data - 1	,	...

	1	4	2	1	1
	,	Data - n	SUM	CR	LF

- Count Number : 1 ~ 64
- Data : Hexa-decimal 16bit string 4 character with no decimal point

#### Example

To read the D-Register **FROM** D0001 (TEMP.PV) **TO** D0002 (TEMP.SP)

- Request : [stx]01RSD,02,0001[cr][lf]
- Request (with CheckSum) : [stx]01RSD,02,0001C5[cr][lf]  
 ([stx] = 0x02, [cr] = 0x0d, [lf] = 0x0a)

Response data will be same as below, when 50.0 of D0001 (TEMP.PV) and 30.0 of D0002 (TEMP.SP)

- Response : [stx]01RSD,OK,01F4,012C[cr][lf]
- Response (with CheckSum) : [stx]01RSD,OK,01F4,012C19[cr][lf]

※ Converting procedure 4digits hexadecimal response to decimal value.

- ① Radix conversion (Decimalize) : 01F4(hexadecimal) → 500(decimal)
- ② Multiply factor (decimal point) : 500 \* 0.1 → 50.0

## 5.5 RRD Command

RRD Command is used to read data in arbitrary single D-Register.

### Request Message Frame

Bytes	1	2	3	1	2	1	4	1	...
Frame	STX	Address	RRD	,	Count Number	,	D-Reg.- 1	,	...

1	4	2	1	1
,	D-Reg.- n	SUM	CR	LF

### Response Message Frame

Bytes	1	2	3	1	2	1	4	1	...
Frame	STX	Address	RRD	,	OK	,	Data - 1	,	...

1	4	2	1	1
,	Data - n	SUM	CR	LF

- Count Number : 1 ~ 64
- Data : Hexa-decimal 16bit string 4 character with no decimal point

#### ◆ Example

To read the D-Register D0001 (TEMP.PV) and D0002 (TEMP.SP)

- Request : [stx]01RRD,02,0001,0002[cr][lf]
- Request (with CheckSum) : [stx]01RRD,02,0001,0002B2[cr][lf]

Response data will be same as below, when 50.0 of D0001 (TEMP.PV) and 30.0 of D0002 (TEMP.SP)

- Response : [stx]01RRD,OK,01F4,012C[cr][lf]
- Response (with CheckSum) : [stx]01RRD,OK,01F4,012C18[cr][lf]

## 5.6 WSD Command

WSD command is used to write data to a part of D-Register by consecutive address in sequence.

### Request Message Frame

Bytes	1	2	3	1	2	1	4	1	4
Frame	STX	Address	WSD	,	Count Number	,	D-Reg.	,	Data - 1

1	...	1	4	2	1	1
,	...	,	Data - n	SUM	CR	LF

### Response Message Frame

Bytes	1	2	3	1	2	2	1	1
Frame	STX	Address	WSD	,	OK	SUM	CR	LF

- Count Number : 1 ~ 64
- Data : Hexa-decimal 16bit string 4 character with no decimal point

#### ◆ Example

To write data to the D-Register **FROM** D0102 (TEMP.SP) **TO** D0103 (HUMI.SP) on FIX mode operation

- Setting TEMP.SP : 50.0 °C → Remove decimal point(500) → Hexadecimalize (0x01F4)
- Setting HUMI.SP : 80.0 % → Remove decimal point(800) → Hexadecimalize (0x0320)

- Request : [stx]01WSD,02,0102,01F4,0320[cr][lf]
- Request(with CheckSum) : [stx]01WSD,02,0102,01F4,0320C4[cr][lf]

## 5.7 WRD Command

WRD Command is used to write data in arbitrary single D-Register.

### Request Message Frame

Bytes	1	2	3	1	2	1	4	1	4
Frame	STX	Address	WRD	,	Count Number	,	D-Reg. - 1	,	Data - 1

1	...	1	4	1	4	2	1	1
,	...	,	D-Reg. - n	,	Data - n	SUM	CR	LF

### Response Message Frame

Bytes	1	2	3	1	2	2	1	1
Frame	STX	Address	WRD	,	OK	SUM	CR	LF

- Count Number : 1 ~ 64
- Data : Hexa-decimal 16bit string 4 character with no decimal point

#### ◆ Example

To write 50.0 °C into the D0102(TEMP.SP) and 0.5 °C into the D0106(TEMP.SLOPE) on FIX mode operation.

- Setting TEMP.SP : 50.0 °C → Remove decimal point (500) → Hexadecimalize (0x01F4)
- Setting TEMP.SLOPE : 0.5 °C → Remove decimal point (5) → Hexadecimalize (0x0005)

- Request : [stx]01WRD,02,0102,01F4,0106,0005[cr][lf]
- Request(with CheckSum) : [stx]01WRD,02,0102,01F4,0106,0005B6[cr][lf]



## 5.8 STD Command

STD Command is used to list the D-Registers that is necessary to monitor frequently.

### Request Message Frame

Byte	1	2	3	1	2	1	4	1	4
Frame	STX	Address	STD	,	Count Number	,	D-Reg. - 1	,	D-Reg. - 2

1	...	1	4	1	4	2	1	1
,	...	,	D-Reg. - (n-1)	,	D-Reg. - n	SUM	CR	LF

### Response Message Frame

Byte	1	2	3	1	2	2	1	1
Frame	STX	Address	STD	,	OK	SUM	CR	LF

- Count Number : 1 ~ 64

#### Example

To register D0001(TEMP.PV), D0002(TEMP.SP), D0005(HUMI.PV) and D0006(HUMI.SP)

- Request : [stx]01STD,04,0001,0002,0005,0006[cr][lf]
- Request(with CheckSum) : [stx]01STD,04,0001,0002,0005,00069A[cr][lf]

## 5.9 CLD Command

CLD Command is used to read data in the address which had been registered by STD command.

### Request Message Frame

Bytes	1	2	3	2	1	1
Frame	STX	Address	CLD	SUM	CR	LF

### Response Message Frame

Bytes	1	2	3	1	2	1	4	1	4
Frame	STX	Address	CLD	,	OK	,	Data - 1	,	Data - 2

1	...	1	4	1	4	2	1	1
,	...	,	Data - (n-1)	,	Data - n	SUM	CR	LF

- Count Number : 1 ~ 64

## 5.10 AMI Command

AMI Command is used to get the controller own-information.

### Request Message Frame

Bytes	1	2	3	2	1	1
Frame	STX	Address	AMI	SUM	CR	LF

### Response Message Frame

Bytes	1	2	3	1	2	1
Frame	STX	Address	AMI	,	OK	,

9	2	7	2	1	1
Model Name	SPACE	Version-Revision	SUM	CR	LF

### ◆ Exmapple

To confirm controller own information

- Request : [STX]01AMI[CR][LF]
- Response (with CheckSum) : [STX]01AMI38[CR][LF]
  
- Response : [STX]01AMI,OK,TEMI-2000[sp][sp]V00-R00[CR][LF]
- Response (with CheckSum) : [stx]01AMI,OK,TEMI-2000[sp][sp]V00-R001D[cr][lf]

## 6. MODBUS Protocol

### 6.1 The Frame Structure of MODBUS protocol

#### ▣ Data Format

Item	ASCII	RTU
Protocol Header	:(Colon)	N/A
Protocol Tail	[CR][LF]	N/A
Data length	7-bit(Fixed)	8-bit(Fixed)
Data type	ASCII	Binary
Error detecting	LRC (Longitudinal Redundancy Check)	CRC-16 (Cyclic Redundancy Check)
Data time interval	Under 1sec.	Under 24-bit time

#### ▣ The Frame Structure of MODBUS protocol

##### ▶ Modbus ASCII

Protocol Header	Address	Function Code	Data	LRC Check	Protocol Tail
1 character	2 character	2 character	N character	2 character	2 character (CR+LF)

##### ▶ Modbus RTU

Protocol Header	Address	Function Code	Data	LRC Check	Protocol Tail
N/A	8-Bit	8-Bit	N * 8-Bit	16-Bit	N/A

- N : Number of Hexadecimal data

## 6.2 Function Code

TEMI2500 MODBUS protocol provides two function code subsets for READ/WRITE of D-Register and Loop-Back detecting test.

Function Code	Description
03	Read data in consecutive D-Register in sequence
06	Write data to arbitrary single D-Register
08	Diagnostics(Loop-Back Test)
16	Write data to consecutive D-Register in sequence



When using MODBUS, D-Register has to be subtracted '1' from the D-Register table we offer this manual, because it starts '0' D-Register address on MODBUS protocol.

### 6.3 Function code – 03

Function code-03 is used to read the data of consecutive D-Register block in sequence up to 64 registers.

#### Request Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave Address	2 characters	8-Bit
Function code-03	2 characters	8-Bit
D-Register Hi	2 characters	8-Bit
D-Register Lo	2 characters	8-Bit
Address Count Hi	2 characters	8-Bit
Address Count Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

#### ◆ Example

Request message to read the D-Register **FROM** D0001 (TEMP.PV) **TO** D0002 (TEMP.SP) should be

- MODBUS ASCII :010300000002FA[cr][lf]
- MODBUS RTU 010300000002C40B

☞ D-Register has to be subtracted '1' from the designated address number on D-Register table in this manual.

#### Response Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave Address	2 characters	8-Bit
Function code-03	2 characters	8-Bit
Data byte count	2 characters	8-Bit
Data - 1 Hi	2 characters	8-Bit
Data - 1 Lo	2 characters	8-Bit
...	...	...
Data - n Hi	2 characters	8-Bit
Data - n Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

#### ◆ Example

Response data will be same as below, when 49.3 of D0001 (TEMP.PV) and 10.8 of D0002 (TEMP.SP)

- MODBUS ASCII :01030401ED006C9E[cr][lf]
- MODBUS RTU 01030401ED006C6BD7

## 6.4 Function code – 06

Function code-06 is used to write data in arbitrary single D-Register.

### Request Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave Address	2 characters	8-Bit
Function code-06	2 characters	8-Bit
D-Register Hi	2 characters	8-Bit
D-Register Lo	2 characters	8-Bit
Write Data Hi	2 characters	8-Bit
Write Data Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

#### Example

Request message to write '2' to D0100 (pattern number) should be

- MODBUS ASCII :01060063000294[cr][lf]
- MODBUS RTU 010600630002F815

D-Register has to be subtracted '1' from the designated address number on D-Register table in this manual.

### Response Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave Address	2 characters	8-Bit
Function code-06	2 characters	8-Bit
D-Register Hi	2 characters	8-Bit
D-Register Lo	2 characters	8-Bit
Write Data Hi	2 characters	8-Bit
Write Data Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

#### Example

Without any trouble, response message will be

- MODBUS ASCII :01060063000294[cr][lf]
- MODBUS RTU 010600630002F815

## 6.5 Function code – 08

Function code-08 is used to test loopback for self-diagnosis.

### Request Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave Address	2 characters	8-Bit
Function code-08	2 characters	8-Bit
Diagnosis code Hi	2 characters	8-Bit
Diagnosis code Lo	2 characters	8-Bit
Data Hi	2 characters	8-Bit
Data Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

#### Example

Request message to test loopback for self-diagnosis should be

- MODBUS ASCII :010800000002F5[cr][lf]
- MODBUS RTU 01080000000261CA

### Response Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave Address	2 characters	8-Bit
Function code-08	2 characters	8-Bit
Diagnosis code Hi	2 characters	8-Bit
Diagnosis code Lo	2 characters	8-Bit
Data Hi	2 characters	8-Bit
Data Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

#### Example

Without any trouble, response message will be

- MODBUS ASCII :010800000002F5[cr][lf]
- MODBUS RTU 01080000000261CA



## 6.6 Function code – 16

Function code-16 is used to write the data into consecutive D-Register block in sequence up to 64 registers.

### Request Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave address	2 characters	8-Bit
Function code-16	2 characters	8-Bit
D-Register Hi	2 characters	8-Bit
D-Register Lo	2 characters	8-Bit
Address Count Hi	2 characters	8-Bit
Address Count Lo	2 characters	8-Bit
Data byte Count	2 characters	8-Bit
Data – 1 Hi	2 characters	8-Bit
Data – 1 Lo	2 characters	8-Bit
...	...	...
Data – n Hi	2 characters	8-Bit
Data – n Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

### Example

Request message to write '10.0' to the D0102(TEMP.SP) and '20.0' to the D0103(HUMI.SP) on FIX mode operation should be

- MODBUS ASCII :01100065000204006400C858[cr][lf]
- MODBUS RTU 01100065000204006400C875F1

### Response Message Frame

Factor	ASCII	RTU
Protocol Header	:(Colon)	-
Slave address	2 characters	8-Bit
Function code-16	2 characters	8-Bit
D-Register Hi	2 characters	8-Bit
D-Register Lo	2 characters	8-Bit
Address Count Hi	2 characters	8-Bit
Address Count Lo	2 characters	8-Bit
Error detecting	2 characters	16-Bit
Protocol Tail	2 characters (CR+LF)	-

### Example

Without any trouble, response message will be

- MODBUS ASCII :01100065000288[cr][lf]
- MODBUS RTU 01100065000251D7

## 7. D-REGISTER Description

D-Register is group of communication data to monitor and control all status of TEMI2500.

D-Register is grouped by consecutive 100 addresses based on its concerned function as shown below.

D-Register address	Group Name	Description	Read	Write
D0001~D0099	PROCESS	General operation process information	○	◆
D0100~D0199	FUNCTION	Operating Function setting	○	○
D0200~D0299	RESERVATION	Time & Reserve operation setting	○	△
D0300~D0399	ON/OFF SIGNAL	ON/OFF signal setting	○	○
D0400~D0499	INNER SIGNAL	INNER signal setting	○	○
D0500~D0599	ALARM SIGNAL	ALARM signal setting	○	○
D0600~D0699	TIME SIGNAL	TIME signal setting	○	○
D0700~D0799	PID	P.I.D setting	○	○
D0800~D0899	COMMUNICATION	Communication concerned information	○	◆
D0900~D0999	INPUT	Sensor Input setting	○	○
D1000~D1099	OUTPUT	Control Output setting	○	○
D1100~D1199	DO CONFIG	DO(Digital Output) setting	○	△
D1200~D1299	DI CONFIG1	DI(Digital Input) setting	○	○
D1300~D1399	DI CONFIG2	DI NAME input-1	○	○
D1400~D1499	DI CONFIG3	DI NAME input-2	○	○
D1500~D1599	PICTURE	USER SCREEN setting	○	○
D1600~D1699	INITIAL	Initial system setting	○	○
D1700~D1799	PROGRAM	Program pattern profile setting	○	○
D1800~D1899	PATTERN INFO1	Pattern profile information -1	○	◆
D1900~D1999	PATTERN INFO2	Pattern profile information -2	○	◆
D2000~D2099	RESERVED	Blank. Not available yet	◆	◆
D2100~D2999	FILE1 ~ FILE9	Recorded Trend file information	○	◆

☞ D-Register is composed of hexadecimal 4 digit (2-Byte).

- ○ : Available to read / write over all designated address range.
- △ : Available to read / write in part of designated address range.
- ◆ : Not available to read / write over all designated address range

## 7.1 PROCESS Group

PROCESS group consists of fundamental parameter information concerned with operation process and status. Below table describes the detail Bit Map information of some parameter that indicates its status by Bit.

### ■ Bit Map information of TEMI2500

BIT	NOWSTS	IS.STS	TS.STS	ALM.STS	ONOFF.STS	DOCTR.STS
	(D0010)	(D0011)	(D0012)	(D0013)	(D0014)	(D0015)
0	RESET	IS1	TS1	ALM1	T1	T.RUN
1	FIX	IS2	TS2	ALM2	T2	H.RUN
2	PROG	IS3	TS3	ALM3	T3	T.WAIT
3	HOLD	IS4	TS4	ALM4	T4	H.WAIT
4	WAIT	IS5		ALM5	T5	T.UP
5	TEMP AT	IS6		ALM6	T6	T.SOAK
6	HUMI AT	IS7		ALM7	T7	T.DOWN
7		IS8		ALM8	T8	H.UP
8		IS9			T9	H.SOAK
9		IS10			T10	H.DOWN
10						FEND
11					H1	PTEND
12					H2	DRAIN
13					H3	1.REF
14					H4	2.REF
15					H5	

BIT	CTR.STS	D0.STS1	D0.STS2	DI.DATA	ADERR.STS	SYS.STS
	(D0016)	(D0017)	(D0018)	(D0019)	(D0020)	(D0045)
0	T.RUN	D01	D017	DI1	TEMP +OVER	DISP.COMERR
1	H.RUN	D02	D018	DI2	TEMP -OVER	IO.COMERR
2	T.WAIT	D03	D019	DI3	TEMP S.OPN	SD.INSERT
3	H.WAIT	D04	D020	DI4		
4	T.UP	D05	D021	DI5		
5	T.SOAK	D06	D022	DI6		
6	T.DOWN	D07	D023	DI7		
7	H.UP	D08	D024	DI8		
8	H.SOAK	D09	D025	DI9	HUMI +OVER	
9	H.DOWN	D010	D026	DI10	HUMI -OVER	
10	FEND	D011	D027	DI11	HUMI S.OPN	
11	PTEND	D012	D028	DI12		
12	DRAIN	D013	D029	DI13		
13	1.REF	D014	D030	DI14		
14	2.REF	D015	D031	DI15		
15		D016	D032	DI16	DRY PV OVER	

## ■ Bit Map status information D-Register

D-Reg.	Symbol	Descriptions
D0010	NOWSTS	Current operation status information.
D0011	IS.STS	INNER signal generating status information.
D0012	TS.STS	TIME signal generating status information.
D0013	ALM.STS	ALARM signal generating status information.
D0014	ONOFF.STS	ON/OFF signal generating status information.
D0015	DOCTR.STS	Other D0 signal generating status information.
D0016	CTR.STS	Displayed D0 signal status information on 2 <sup>nd</sup> Oper screen
D0017	D0.STS1	Actual generating Do signal status through I/O board
D0018	D0.STS2	
D0010	DI.DATA	DI Error outbreak status information.
D0020	ADERR.STS	Error status out of control range

## ■ Common process information D-Register for both PROG / FIX

D-Reg.	Symbol	Descriptions
D0001	TEMP.NPV	Current temperature PV
D0002	TEMP.NSP	Current temperature SP
D0003	WET.NPV	Current WET temperature PV
D0004	WET.NSP	Current WET temperature SP
D0005	HUMI.NPV	Current relative humidity PV
D0006	HUMI.NSP	Current humidity SP
D0007	TEMP.MVOUT	Current temperature percentage control output (MV)
D0008	HUMI.MVOUT	Current humidity percentage control output (MV)
D0009	C.PIDNO	Currently running PID number
D0024	RUN.TIME_H	Process time (Hour)
D0025	RUN.TIME_M	Process time (Minute)
D0026	RUN.TIME_S	Process time (Second)

## ■ PROGRAM operation process information D-Register

D-Reg.	Symbol	Descriptions
D0027	RUN.PTNO	Currently running program pattern number
D0028	RUN.SEGNO	Currently running program segment number
D0029	NOW.PT.RPT	Count of current Repeat operation at running pattern
D0030	TOTAL.PT.RPT	Total Programmed Count of Repeat op. at running pattern
D0031	NOW.SEG.RPT	Count of current Repeat operation at running segment
D0032	TOTAL.SEG.RPT	Total Programmed Count of Repeat op. at running segment
D0033	NOW.SEGTIME_H	Process time(High) of currently running segment
D0034	NOW.SEGTIME_L	Process time(Low) of currently running segment
D0035	TOTAL.SEGTIME_H	Programmed total time(High) of currently running segment
D0036	TOTAL.SEGTIME_L	Programmed total time(Low) of currently running SEG
D0039	PREV.TEMP.TSP	Temperature Target Set Point of the preceding segment
D0040	NOW.TEMP.TSP	Temperature Target Set Point of the current segment
D0041	PREV.HUMI.TSP	Humidity Target Set Point of the preceding segment
D0042	NOW.HUMI.TSP	Humidity Target Set Point of the current segment
D0050	USED PATTERN	Total number of programmed pattern
D0051	USED SEGMENT	Total number of programmed segment

## 7.2 FUNCTION Group

FUNCTION group consists of setting parameter D-register related with operational function and process.

### Common Operational Function setting D-Register for both PROG / FIX

D-Reg.	Symbol	Descriptions
D0108	FUZZY	FUZZY Function (0:OFF, 1:ON)
D0112	KEYLOCK	KEYLOCK Function (0:OFF, 1:ON)
D0114	LIGHT.OFFTM	Backlight ON time
D0123	MEM.FULL	Recording mode when internal memory FULL (0:OFF, 1:ON)
D0124	DRAW.CYCLE	Sampling time for recording on internal memory
D0125	PV.GRP_RECORD	Activating to record on internal memory (0:OFF, 1:ON)
D0129	REC.OP	Activating to record on SD memory card (0:OFF, 1:ON)
D0130	REC.CYCLE	Sampling time for recording on SD memory card
D0131	BACK.ITEM	BACKUP ITEM setting
D0132	BACK.DIR	BACKUP DIRECTION setting
D0136	TEMP.AT	Carrying out temperature Auto-Tuning (0:OFF, 1:ON)
D0137	HUMI.AT	Carrying out humidity Auto-Tuning (0:OFF, 1:ON)
D0147	PV.FONT	PV FONT select (0:HEAD, 1:NORM, 2:ART)
D0148	HUMI.DISPLAY	Relative Humidity display (0:AUTO, 1:MANUAL)
D0149	BUZ.ONOFF	Buzzer sound ( 0: UNUSE, 1: USE )

### PROGRAM Operation & Function setting D-Register

D-Reg.	Symbol	Descriptions
D0100	SET_PTNO	Pattern Number to run program operation
D0140	WAIT.USE	WAIT Function (0:UNUSE, 1:USE )
D0141	WAIT_TZONE	Temperature WAIT ZONE setting
D0142	WAIT_HZONE	Humidity WAIT ZONE setting
D0143	WAIT_TIME	WAIT TIME setting
D0144	WAIT.METHOD	Target of WAIT function (0:ALL, 1:SEG )

### FIX Operation & Function setting D-Register

D-Reg.	Symbol	Descriptions
D0102	FIX.TEMP_TSP	Temperature Set Point on FIX operation
D0103	FIX.HUMI_TSP	Humidity Set Point on FIX operation
D0109	TIME.OP	TIME OPERATION (0:UNUSE, 1:USE)
D0110	TIME.OP_H	HOUR setting for TIME OPERATION
D0111	TIME.OP_M	MINUTE setting for TIME OPERATION

■ OPERATION mode & performance setting D-Register

D-Reg.	Symbol	Process method	Setting	Description
D0101	COM.OPMODE	RUN	1	Start running PROG/FIX Oper.
		HOLD	2	HOLD ON/OFF
		STEP	3	Segment STEP
		STOP	4	Stop PROG/FIX Operation
D0104	OP.MODE	PROG	0	Set PROG Operation MODE
		FIX	1	Set FIX Operation MODE
D0105	PWR.MODE	STOP	0	Not using Power-Mode
		COLD	1	COLD MODE
		HOT	2	HOT MODE

☞ To activate PROG operation RUN or FIX operation RUN, TEMI2500 should be in individual corresponding STOP(PROG STOP/FIX STOP) state. For example, to activate PROG operation RUN from currently operating FIX RUN state, convert the operation state to PROG STOP (D0104 = 0000, D0101 = 0004) first, then you can activate PROG operation RUN.

### 7.3 RESERVATION Group

RESERVATION group consists of setting and information parameter D-Register related with TIME for Reserve Operation and current time installed in TEMI2500.

#### ■ TIME setting and information D-Register

D-Reg.	Symbol	Description	Read	Write
D0201	NOW.YEAR	Current YEAR installed in TEMI2500	○	×
D0202	NOW.MONTH	Current MONTH installed in TEMI2500	○	×
D0203	NOW.DAY	Current DAY installed in TEMI2500	○	×
D0204	NOW.AMPM	Current TIME-AM/PM installed in TEMI2500	○	×
D0205	NOW.HOUR	Current HOUR installed in TEMI2500	○	×
D0206	NOW.MIN	Current MN. installed in TEMI2500	○	×
D0207	C.YEAR	Current YEAR setting in TEMI2500	×	○
D0208	C.MONTH	Current MONTH setting in TEMI2500	×	○
D0209	C.DAY	Current DAY setting in TEMI2500	×	○
D0210	C.AMPM	Current TIME-AM/PM setting in TEMI2500	×	○
D0211	C.HOUR	Current HOUR setting in TEMI2500	×	○
D0212	C.MIN	Current MN. setting in TEMI2500	×	○
D0213	R.YEAR	YEAR setting for RESERVE Operation	○	○
D0214	R.MONTH	MONTH setting for RESERVE Operation	○	○
D0215	R.DAY	DAY setting for RESERVE Operation	○	○
D0216	R.AMPM	TIME-AM/PM setting for RESERVE Operation	○	○
D0217	R.HOUR	HOUR setting for RESERVE Operation	○	○
D0218	R.MIN	MIN. setting for RESERVE Operation	○	○

#### ■ RESERVE Operation

D-Reg.	Symbol	Operation	Setting	Description
D200	RESERVE	OFF	0	Release RESERVE Oper.
		ON	1	Set RESERVE Oper.

## 7.4 ON/OFF SIGNAL Group

This setting parameter D-register group is used to establish 9 ON/OFF SIGNALs for temperature and 4 ON/OFF signal for humidity.

### ■ ON/OFF SIGNAL setting D-Register

D-Reg.	Symbol	Descriptions
D0301	T1.LSP	Low SP for temperature ON/OFF SIGNAL 1 (T1)
D0302	T1.MSP	Middle SP for temperature ON/OFF SIGNAL 1 (T1)
D0303	T1.HSP	High SP for temperature ON/OFF SIGNAL 1 (T1)
D0304	T1.HDV	High zone Deviation for operating Point at High Zone T1
D0305	T1.LDV	Low zone Deviation for operating Point at Low Zone T1
...	...	...
D0385	H4.LSP	Low SP for humidity ON/OFF SIGNAL 4 (H4)
D0386	H4.MSP	Middle SP for humidity ON/OFF SIGNAL 4 (H4)
D0387	H4.HSP	High SP for humidity ON/OFF SIGNAL 4 (H4)
D0388	H4.HDV	High zone Deviation for operating Point at High Zone H4
D0389	H4.LDV	Low zone Deviation for operating Point at Low Zone H4



## 7.5 INNER SIGNAL Group

This setting parameter D-register group is used to establish 10 INNER SIGNALs.

### INNER SIGNAL setting D-Register

D-Reg.	Symbol	Descriptions
D0401	IS1.TGT	Target of INNER SIGNAL 1 (Temp/Humi)
D0402	IS1.TYPE	Object Type of Target of INNER SIGNAL 1 (SP/PV/MV)
D0403	IS1.BAND	Direction Band of INNER SIGNAL 1 (IN-B/OUT-B)
D0404	IS1.TEMPRH	Temperature range HIGH of INNER SIGNAL 1
D0405	IS1.TEMPRL	Temperature range LOW of INNER SIGNAL 1
D0406	IS1.TEMPDYT	DELAY TIME of Temperature INNER SIGNAL 1
D0407	IS1.HUMIRH	Humidity range HIGH of INNER SIGNAL 1
D0408	IS1.HUMIRL	Humidity range LOW of INNER SIGNAL 1
D0409	IS1.HUMIDYT	DELAY TIME for Humidity INNER SIGNAL 1
.	.	.
.	.	.
.	.	.
D0482	IS10.TGT	Target of INNER SIGNAL 10 (Temp/Humi)
D0483	IS10.TYPE	Object Type of Target of INNER SIGNAL 10 (SP/PV/MV)
D0484	IS10.BAND	Direction Band of INNER SIGNAL 10 (IN-B/OUT-B)
D0485	IS10.TEMPRH	Temperature range HIGH of INNER SIGNAL 10
D0486	IS10.TEMPRL	Temperature range LOW of INNER SIGNAL 10
D0487	IS10.TEMPDYT	DELAY TIME of Temperature INNER SIGNAL 10
D0488	IS10.HUMIRH	Humidity range HIGH of INNER SIGNAL 10
D0489	IS10.HUMIRL	Humidity range LOW of INNER SIGNAL 10
D0490	IS10.HUMIDYT	DELAY TIME for Humidity INNER SIGNAL 10

## 7.6 ALARM SIGNAL Group

This setting parameter D-register group is used to establish 8 ALARM signals.

### ■ ALARM signal setting D-Register

D-Reg.	Symbol	Descriptions
D0500	ALM.OP	Condition of ALARM Operation (RUN/ALWAYS)
D0501	ALM1.TGT	Target object of ALARM signal 1 (TEMP/HUM1)
D0502	ALM1.TYPE	Type of ALARM signal 1
D0503	ALM1.TPOINT	Target Point of Temperature ALARM signal 1
D0504	ALM1.TH_POINT	Limit HIGH point of Temperature ALARM signal 1
D0505	ALM1.TL_POINT	Limit LOW point of Temperature ALARM signal 1
D0506	ALM1.THYS	Hysteresis of Temperature ALARM signal 1
D0507	ALM1.TDYT	DELAY TIME of Temperature ALARM signal 1
D0508	ALM1.HPOINT	Target Point of Humidity ALARM signal 1
D0509	ALM1.HH_POINT	Limit HIGH point of Humidity ALARM signal 1
D0510	ALM1.HL_POINT	Limit LOW point of Humidity ALARM signal 1
D0511	ALM1.HHYS	Hysteresis of Humidity ALARM signal 1
D0512	ALM1.HDYT	DELAY TIME of Humidity ALARM signal 1
.	.	.
.	.	.
.	.	.
D0585	ALM8.TGT	Target object of ALARM signal 1 (TEMP/HUM1)
D0586	ALM8.TYPE	Type of ALARM signal 1
D0587	ALM8.TPOINT	Target Point of Temperature ALARM signal 1
D0588	ALM8.TH_POINT	Limit HIGH point of Temperature ALARM signal 1
D0589	ALM8.TL_POINT	Limit LOW point of Temperature ALARM signal 1
D0590	ALM8.THYS	Hysteresis of Temperature ALARM signal 1
D0591	ALM8.TDYT	DELAY TIME of Temperature ALARM signal 1
D0592	ALM8.HPOINT	Target Point of Humidity ALARM signal 1
D0593	ALM8.HH_POINT	Limit HIGH point of Humidity ALARM signal 1
D0594	ALM8.HL_POINT	Limit LOW point of Humidity ALARM signal 1
D0595	ALM8.HHYS	Hysteresis of Humidity ALARM signal 1
D0596	ALM8.HDYT	DELAY TIME of Humidity ALARM signal 1

## 7.7 TIME SIGNAL Group

This setting parameter D-register group is used to establish 16 TIME SIGNALs.

### ■ TIME SIGNAL setting D-Register

D-Reg.	Symbol	Descriptions
D0601	TS2DYTM_H	DELAY TIME (HOUR) of generating TIME SIGNAL 2.
D0602	TS2DYTM_L	DELAY TIME (MIN.& SEC.) of generating TIME SIGNAL 2.
D0603	TS2KPTM_H	OPER.TIME (HOUR) to keep generating TIME SIGNAL 2.
D0604	TS2KPTM_L	OPER.TIME (MIN.& SEC.) to keep generating TIME SIGNAL 2.
.	.	.
.	.	.
.	.	.
D0661	TS17DYTM_H	DELAY TIME (HOUR) of generating TIME SIGNAL 17.
D0662	TS17DYTM_L	DELAY TIME (MIN.& SEC.) of generating TIME SIGNAL 17.
D0663	TS17KPTM_H	OPER.TIME (HOUR) to keep generating TIME SIGNAL 17.
D0664	TS17KPTM_L	OPER.TIME (MIN.& SEC.) to keep generating TIME SIGNAL 17.

## 7.8 PID Group

This setting Group is used for 6 PID subsets for Temperature/Humidity and 3 subsets for Temperature only.

### Common PID setting D-Register

D-Reg.	Symbol	Descriptions
D0701	T.RP1	Temperature Reference Point 1 (T1) to define PID ZONE
D0702	T.RP2	Temperature Reference Point 2 and 3 (T2, T3) to define PID ZONE
D0703	T.RP3	
D0705	H.RP1	Humidity Reference Point 1 and 2 (T1, T2) to define PID ZONE
D0706	H.RP2	
D0708	AT_DISPLAY	Setting to display or hide AT KEY
D0709	TEMP.AT_POINT	Temperature Point for Auto-Tuning
D0710	HUMI.AT_POINT	Humidity Point for Auto-Tuning
D0711	HUMI.CMOD	Humidity Control Mode
D0712	TEMP.ONOFFHYS	Set the ON/OFF control temperature hysteresis.
D0713	HUMI.ONOFFHYS	Set the ON/OFF control humidity hysteresis.
D0870,D0871	1.TEMP_DB, 1.TEMP_MR	Set the DEADBAND and MANUAL RESET for PID1
.	.	.
.	.	.
.	.	.
D0870,D0871	6.HUMI_DB, 6.HUMI_MR	Set the DEADBAND and MANUAL RESET for PID6

### General(Heating) PID setting D-Register

D-Reg.	Symbol	Descriptions
D0715	1.TEMP_P	Temperature Proportional band of PID1
D0716	1.TEMP_I	Temperature Integral time of PID1
D0717	1.TEMP_D	Temperature Differential time of PID1
D0718	1.TEMP_OH	Temperature control Output High limit of PID1
D0719	1.TEMP_OL	Temperature control Output Low limit of PID1
.	.	.
.	.	.
.	.	.
D0785	6.HUMI_P	Humidity Proportional band of PID6
D0786	6.HUMI_I	Humidity Integral time of PID6
D0787	6.HUMI_D	Humidity Differential time of PID6
D0788	6.HUMI_OH	Humidity control Output High limit of PID6
D0789	6.HUMI_OL	Humidity control Output Low limit of PID6

### Cooling PID setting D-Register

D-Reg.	Symbol	Descriptions
D0810	1.TEMP_CP	Temperature Proportional band of PID1
D0811	1.TEMP_CI	Temperature Integral time of PID1
D0812	1.TEMP_CD	Temperature Differential time of PID1
D0813	1.TEMP_COH	Temperature control Output High limit of PID1
.	.	.
.	.	.
.	.	.
D0866	6.HUMI_CP	Temperature Proportional band of PID6
D0867	6.HUMI_CI	Temperature Integral time of PID6
D0868	6.HUMI_CD	Temperature Differential time of PID6
D0869	6.HUMI_COH	Temperature control Output High limit of PID6

## 7.9 COMMUNICATION Group

This group is consists of information parameter D-Register concerned communication.

### ■ COMMUNICATION concerned information D-Register

D-Reg.	Symbol	Descriptions
D0801	PROTOCOL	Communication Protocol information
D0802	BPS	Communication speed (Baud Rate) information.
D0803	PARITY	Parity information
D0804	STOP.BIT	Stop Bit information
D0805	DATA.LENGTH	Data Length information
D0806	ADDRESS	Slave Address information
D0807	RESPONSE	Response Time information.

## 7.10 INPUT Group

This INPUT group is used for setting parameter D-Register for sensor and its bias.

### ■ INPUT setting D-Register

D-Reg.	Symbol	Descriptions
D0901	TEMP.IN	Temperature INPUT SENSOR type
D0902	TEMP.INRH	Temperature Range HIGH
D0903	TEMP.INRL	Temperature Range LOW
D0904	TEMP.BIAS	Temperature offset value of ALL BIAS for whole range.
D0905	TEMP.INFL	Temp. sensor filter to suppress fluctuation by Noise
D0906	TEMP.INSH	Temperature SCALE HIGH of whole range (SPAN)
D0907	TEMP.INSL	Temperature SCALE LOW of whole range (SPAN)
D0910	HUMI.IN	Humidity INPUT SENSOR type
D0911	HUMI.INRH	Humidity Range HIGH
D0912	HUMI.INRL	Humidity Range LOW
D0913	HUMI.BIAS	Humidity offset value of ALL BIAS for whole range.
D0914	HUMI.INFL	Humidity sensor filter to suppress fluctuation by Noise
D0915	HUMI.DFL	Humidity Display Filter to adjust PV waving
D0916	HUMI.INSH	Humidity SCALE HIGH of whole range (SPAN)
D0917	HUMI.INSL	Humidity SCALE LOW of whole range (SPAN)
D0920	DRY.LH	DRY temperature range Limit HIGH
D0921	DRY.LL	DRY temperature range Limit LOW
D0922	WET.ADJV	Equalize DRY and WET temperature
D0933~D0936	BP1.DDV~BP4.DDV	Piece BIAS offset value for each DRY temp. Bias Point
D0937~D0940	BP1.DPV~BP4.DPV	DRY temp.Bias Point to apply offset value
D0943~D0946	BP1.WDV~BP4.WDV	Piece BIAS offset value for each WET temp. Bias Point
D0947~D0950	BP1.WPV~BP4.WPV	WET temp.Bias Point to apply offset value
D0953~D0956	BP1.HDV~BP4.HDV	Piece BIAS offset value for each Humidity Bias Point
D0957~D0960	BP1.HPV~BP4.HPV	Humidity Bias Point to apply offset value

## 7.11 OUTPUT Group

This INPUT group is used for setting parameter D-Register for control output and retransmission.

### ■ OUTPUT setting D-Register

D-Reg.	Symbol	Descriptions
D1002	TEMP.DIR	PID Control DIRECTION (FWD/REV) for temperature
D1003	TEMP.HCT	[HEAT] Pulse CYCLE TIME when 'SSR' temperature Control Output
D1004	TEMP.ARW	ARW (Anti Reset Wind-up) function for temperature
D1005	TEMP.HATG	[HEAT] Temperature Auto-Tuning GAIN value for Manual PID
D1009	HUMI.DIR	PID Control DIRECTION (FWD/REV) for humidity
D1010	HUMI.HCT	[HEAT] Pulse CYCLE TIME when 'SSR' humidity Control Output
D1011	HUMI.ARW	ARW (Anti Reset Wind-up) function for humidity
D1012	HUMI.HATG	[HEAT] Humidity Auto-Tuning GAIN value for Manual PID
D1015	TEMP.RETT	Target TYPE of temperature retransmission
D1016	TEMP.RETH	Range HIGH of temperature retransmission
D1017	TEMP.RETL	Range LOW of temperature retransmission
D1020	HUMI.RETT	Target TYPE of humidity retransmission
D1021	HUMI.RETH	Range HIGH of humidity retransmission
D1022	HUMI.RETL	Range LOW of humidity retransmission
D1025	TEMP.CCT	[COOL] Pulse CYCLE TIME when 'SSR' temperature Control Output
D1026	TEMP.CATG	[COOL] Temperature Auto-Tuning GAIN value for Manual PID
D1027	HUMI.CCT	[COOL] Pulse CYCLE TIME when 'SSR' humidity Control Output
D1028	HUMI.CATG	[COOL] Humidity Auto-Tuning GAIN value for Manual PID
D1031~D1034	OUT1.TYPE~ OUT4.TYPE	Setting the ouput terminal of OUT1~OUT4.
D1037~D1040	OUT1.MODE~OUT4.MODE	Setting the output type of OUT1~OUT4. (0:SSR, 1:SCR)

## 7.12 DO CONFIG Group

DO CONFIG group consists of setting and information parameter D-Register related to establish RELAY number on I/O board to generate signal and its sub setting for auxiliary Digital Output.

### ■ DO CONFIG setting and information D-Register

D-Reg.	Symbol	Descriptions
D1101~D1110	IS1.RLY~IS10.RLY	RELAY No.on I/O for INNER SIGNAL
D1111	UKEY.RLY	RELAY No.on I/O for USER KEY signal
D1112~D1115	TS1.RLY~TS4.RLY	RELAY No.on I/O for TIME SIGNAL
D1116~D1123	ALM1.RLY~ALM8.RLY	RELAY No.on I/O ALARM signal
D1124~D1153	T1.RLY~H5.DYT	RELAY No.on I/O and DELAY TIME for ON/OFF SIGNAL
D1154,D1155	TRUN.RLY,TRUN.DYT	RELAY No.on I/O and DELAY TIME for TEMP. RUN signal
D1156,D1157	HRUN.RLY,HRUN.DYT	RELAY No.on I/O and DELAY TIME for HUMI. RUN signal
D1158,D1159	TSOPN.RLY,TSOPN.KPT	RLY No.on I/O and KEEP TIME for TEMP.SENSOR-OPEN signal
D1160,D1161	HSOPN.RLY,HSOPN.KPT	RLY No.on I/O and KEEP TIME for HUMI.SENSOR-OPEN signal
D1162,D1163	TWAIT.RLY,TWAIT.KPT	REALY No.on I/O and KEEP TIME for TEMP. WAIT signal
D1164,D1165	HWAIT.RLY,HWAIT.KPT	REALY No.on I/O and KEEP TIME for HUMI. WAIT signal
D1166,D1167	TUP.RLY,TUP.DEV	RELAY No.on I/O and DEVIATION for TEMP. UP signal
D1168,D1169	HUP.RLY,HUP.DEV	RELAY No.on I/O and DEVIATION for HUMI. UP signal
D1170,D1171	TSOAK.RLY,TSOAK.KPT	REALY No.on I/O and KEEP TIME for TEMP. SOAK signal
D1172,D1173	HSOAK.RLY,HSOAK.KPT	REALY No.on I/O and KEEP TIME for HUMI. SOAK signal
D1174,D1175	TDOWN.RLY,TDOWN.DEV	RELAY No.on I/O and DEVIATION for TEMP. DOWN signal
D1176,D1177	HDOWN.RLY,HDOWN.DEV	RELAY No.on I/O and DEVIATION for HUMI. DOWN signal
D1178,D1179	FEND.RLY,FEND.KPT	RLY No.on I/O and KEEP TIME for FIX-END signal
D1180,D1181	PTEND.RLY,PTEND.KPT	RLY No.on I/O and KEEP TIME for program PTN-END signal
D1182,D1183	DRAIN.RLY,DRAIN.KPT	RELAY No.on I/O and OPER.TIME for DRAIN signal
D1184,D1185	DRAIN_RH,DRAIN_RL	Range High/Low limit for DRAIN ON/OFF operation
D1186,D1187	ERROR.RLY,ERROR.KPT	REALY No.on I/O and KEEP TIME for ERROR signal
D1188,D1189	1REF.RLY,1REF.DYT	RELAY No.on I/O and DELAY TIME for 1 <sup>st</sup> Refrigerator oper.
D1190,D1191	2REF.RLY,2REF.DYT	RELAY No.on I/O and DELAY TIME for 2 <sup>nd</sup> Refrigerator oper.
D1270~D1285	D11.RLY~D116RLY	RELAY No.on I/O for DI SIGNAL.
D1286~D1297	USER.RLY1~USER.RLY12	RELAY No.on I/O for MANUAL SIGNAL.
D1298	USER.RLY_ON/OFF	Switch "ON" the relay for the corresponding number manually.



■ DO CONFIG 관련 D-Register 2

D-Reg.	Symbol	Descriptions
D1581	TFIXTIMER.RLY	RELAY No.on I/O for TEMP. FIXTIMER signal
D1582	TFIXTIMER.DEV	DEVIATION for TEMP. FIXTIMER signal
D1583	TFIXTIMER.DLY	DELAY TIME for TEMP. FIXTIMER signal
D1584	TFIXTIMER.OPT	OPERATION TIME for TEMP. FIXTIMER signal
D1585	HFIXTIMER.RLY	RELAY No.on I/O for HUMI. FIXTIMER signal
D1586	HFIXTIMER.DEV	DEVIATION for HUMI. FIXTIMER signal
D1587	HFIXTIMER.DLY	DELAY TIME for HUMI. FIXTIMER signal
D1588	HFIXTIMER.OPT	OPERATION TIME for HUMI. FIXTIMER signal
D1591	TEMPUP.DEVSEL	Operating conditions for TEMP. UP signal (Operating conditions 0:[TSP-NSP] ,1:[TSP-NPV])
D1592	TEMPDN.DEVSEL	Operating conditions for TEMP. DOWN signal (Operating conditions 0:[TSP-NSP] ,1:[TSP-NPV])
D1593	HUMIUP.DEVSEL	Operating conditions for HUMI. UP signal (Operating conditions 0:[TSP-NSP] ,1:[TSP-NPV])
D1594	HUMIDN.DEVSEL	Operating conditions for HUMI. DOWN signal (Operating conditions 0:[TSP-NSP] ,1:[TSP-NPV])
D1670	LOG.OUTRLY1	REALY No.on I/O for LOGICAL SIGNAL1
D1671	LOG.SRCLRYa1	Operand relay-a for LOGICAL SIGNAL1
D1672	LOG.SRCLRYb1	Operand relay-b for LOGICAL SIGNAL1
D1673	LOG.OPERAND1	Operator for LOGICAL SIGNAL1
.	.	.
.	.	.
.	.	.
D1678	LOG.OUTRLY3	REALY No.on I/O for LOGICAL SIGNAL3
D1679	LOG.SRCLRYa3	Operand relay-a for LOGICAL SIGNAL3
D1680	LOG.SRCLRYb3	Operand relay-b for LOGICAL SIGNAL3
D1681	LOG.OPERAND3	Operator for LOGICAL SIGNAL3

## 7.13 DI CONFIG Group

DI CONFIG group consists of setting parameter D-Register for DI ERROR and its name.

### ■ DI CONFIG setting D-Register

D-Reg.	Symbol	Descriptions
D1201	DISP.METHOD	DISPLAY METHOD for DI ERROR
D1202	DI1.OP_MODE	OPERATION MODE when DI 1 ON
D1203	DI2.OP_MODE	OPERATION MODE when DI 2 ON
D1204	DI3.OP_MODE	OPERATION MODE when DI 3 ON
D1205	BUZ.TIME	KEEP TIME to generating BUZZER sound
D1206	DIDET.TIME	DETECT TIME to recognize DI ERROR from actual occurrence
D1209,D1210	DI1.OP,DI1.DYT	DI 1 OPERATION after detecting and DELAY TIME
.	.	.
.	.	.
.	.	.
D1239,D1240	DI16.OP,DI16.DYT	DI 1 OPERATION after detecting and DELAY TIME
D1242	DI1.DETECT	Setting the DI1 sensing method (0:A-TYPE, 1:B-TYPE)
.	.	.
.	.	.
.	.	.
D1257	DI16.DETECT	Setting the DI1 sensing method (0:A-TYPE, 1:B-TYPE)
D1301~D1312	DI1.NAME1~DI1.NAME12	DI 1 ERROR NAME.
.	.	.
.	.	.
.	.	.
D1485~D1496	DI16.NAME1~DI16.NAME12	DI 16 ERROR NAME

## 7.14 PICTURE Group

PICTURE group consists of setting parameter D-Register for User Screen viewer.

### ■ PICTURE setting D-Register

D-Reg.	Symbol	Descriptions
D1501	VIEW.ROTATE	Setting for using User Screen viewer.
D1502	R.ST_TIME	START TIME by no key input to activate User Screen Viewer
D1503	R.INT_TIME	INTERVAL TIME to display next image.

## 7.15 INITIAL Group

INITIAL group consists of setting parameter D-Register for system initial configuration.

### ■ INITIAL setting D-Register

D-Reg.	Symbol	Descriptions
D1601	LANGUAGE	Language for using TEMI2500
D1602	DISP.MODE	DISPLAY MODE for 'Initial Logo screen' when PWR ON
D1603	UKEY.USE	Setting for using USER KEY
D1606~D1618	INFORM1.NAME1 ~INFORM1.NAME13	Name of INIT INFORMATION 1 when setting 'TEXT' on DISPLAY MODE
.	.	.
.	.	.
.	.	.
D1632~D1644	INFORM3.NAME1 ~INFORM3.NAME13	Name of INIT INFORMATION 3 when setting 'TEXT' on DISPLAY MODE
D2001~D2059	1LAMP_IS1 ~ 1LAMP_DRAN	STATUS DISPLAY LAM.

## 7.16 PROGRAM PATTERN Group and Setting

### 7.16.1 PROGRAM Group

PROGRAM group consists of parameter D-Register to arrange program PATTERN organized by each segment profile. Each segment should be established step by step.

#### ■ Program PATTERN setting D-Register

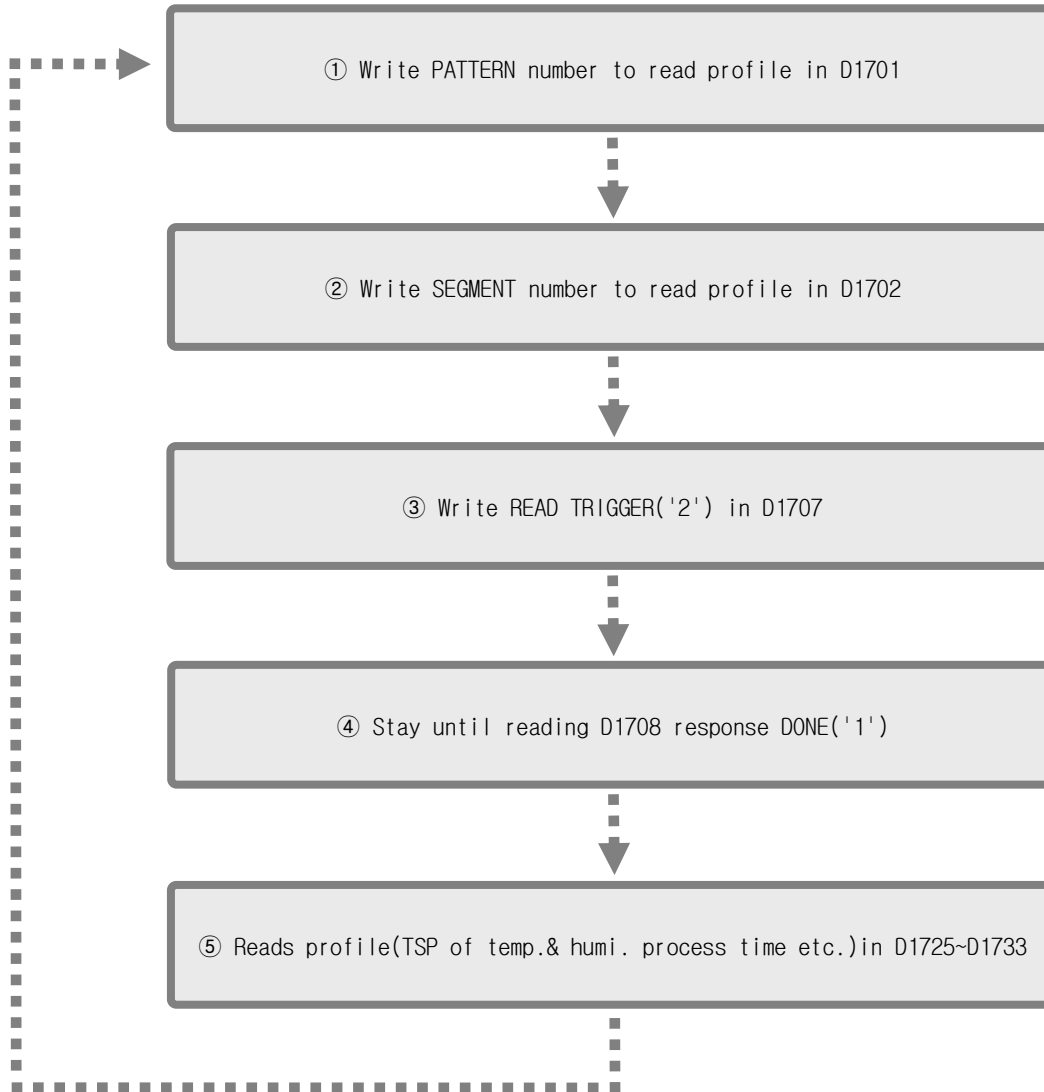
D-Reg.	Symbol	Range	Description
D1701	COM_PTNO	1~120	Program PATTERN number to Read or Write
D1702	COM_SEGNO	0	To Read or Write in D1736~D1757
		1~99	Segment number to Read or Write
D1703	PTCOPY_START	-	First target (START) pattern number to paste
D1704	PTCOPY_END	-	Last target (END) pattern number to paste
D1705	PTDEL_START	-	First target (START) pattern number to delete
D1706	PTDEL_END	-	Last target (END) pattern number to delete
D1707	TRIGGER	1	INIT : Initialize D1701~D1708 to '0'
		2	READ : Read profiles in D1701 and D1702
		3	WRITE : Write profiles in D1701 and D1702
		4	PT COPY : Copy PTN in D1701 to PTN designated in D1703~1704
		5	PT DEL : Delete PTN designated in D1705~D1706
		6	PT NAME READ : Read PTN NAME in D1701
		7	PT NAME WRITE : Write PTN NAME in D1701
		8	ALL PT : Write pattern profile at D1701 into D2100
D1708	ANSWER	0	FULL : Excessive number of pattern or segment setting
		1	DONE : Normally accessed of D1707(TRIGGER) command
		2	PT EMPTY : No profile in designated pattern
		3	SEG EMPTY : No profile in designated segment
		4	PT RUN : Program RUN state of designated PTN
		5	PARA ERROR : Program setting Error of D1701~D1707
D1711~D1722	PATTERN_NAME1~12	-	Pattern NAME to Read or Write
D1725	TEMP.TSP	-	TEMP. Target Set Point(TSP) to Read or Write
D1726	HUMI.TSP	-	HUMI. Target Set Point(TSP) to Read or Write
D1727	SEG.TIME_H	-	Target Process time (HOUR) of segment to Read or Write
D1728	SEG.TIME_L	-	Target Process time (MIN & SEC) of segment to Read or Write
D1729	TS1	-	TS1 to Read or Write
D1730	TS2	-	TS2 to Read or Write
D1731	TS3	-	TS3 to Read or Write
D1732	TS4	-	TS4 to Read or Write
D1733	SEG.WAIT	-	WAIT to Read or Write

■ PROGRAM and its REPEAT operation setting D-Register

D-Reg.	Symbol	Descriptions
D1736	START.CODE	START CODE for operation (0:NOW PV, 1:TEMP SP, 2:HUMI SP)
D1737	START.TEMP_SP	Temperature START SP (TEMP.SSP)
D1738	START.HUMI_SP	Humidity START SP (HUMI.SSP)
D1741	PT.RPT	Count number for PATTERN REPEAT (0:Infinitely, 1 ~ 99)
D1742	PT.EMOD	PATTERN END MODE (0:RESET, 1:SEG HOLD, 2:LINK RUN )
D1743	LINK.PT	LINK PATTERN ( 1 ~ 120 )
D1746	SEG_RPT.S1	SEGMENT REPEAT START-1
D1747	SEG_RPT.E1	SEGMENT REPEAT END-1
D1748	SEG_RPT.C1	SEGMENT REPEAT COUNT-1
D1749	SEG_RPT.S2	SEGMENT REPEAT START-2
D1750	SEG_RPT.E2	SEGMENT REPEAT END-2
D1751	SEG_RPT.C2	SEGMENT REPEAT COUNT-2
D1752	SEG_RPT.S3	SEGMENT REPEAT START-3
D1753	SEG_RPT.E3	SEGMENT REPEAT END-3
D1754	SEG_RPT.C3	SEGMENT REPEAT COUNT-3
D1755	SEG_RPT.S4	SEGMENT REPEAT START-4
D1756	SEG_RPT.E4	SEGMENT REPEAT END-4
D1757	SEG_RPT.C4	SEGMENT REPEAT COUNT-4

## 7.16.2 How to READ program PATTERN

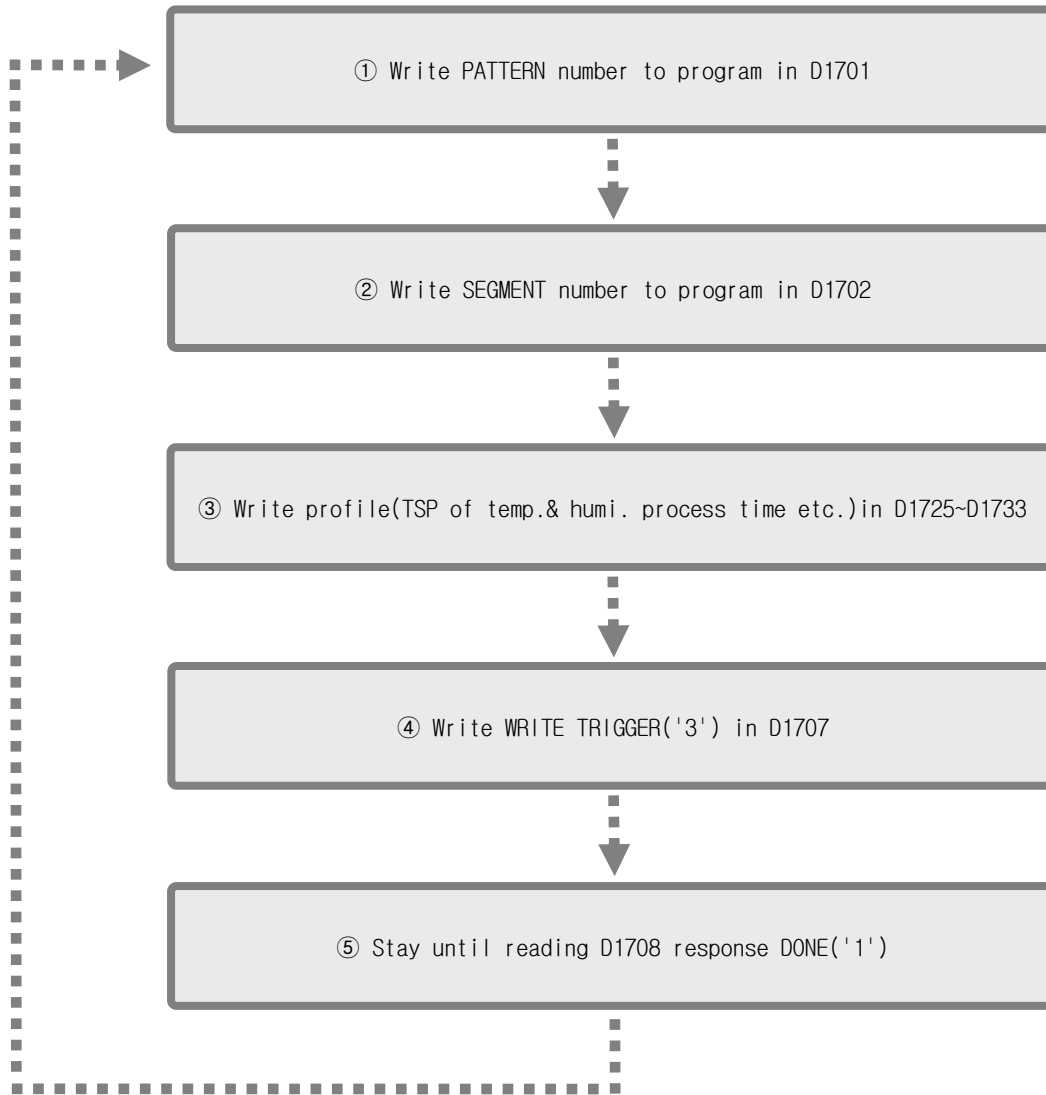
▶ Below describes process step to read programmed PATTERN profile in TEMI2500.



Above process step ① ~ ⑤ is used to read 'ONE SEGMENT' profile among all in programmed pattern. To read many segments, reiterate ① ~ ⑤ process step by changing segment number. Setting '0' in D1702 at process step ② will read profile in D1736~D1757.

## 7.16.3 How to WRITE program PATTERN

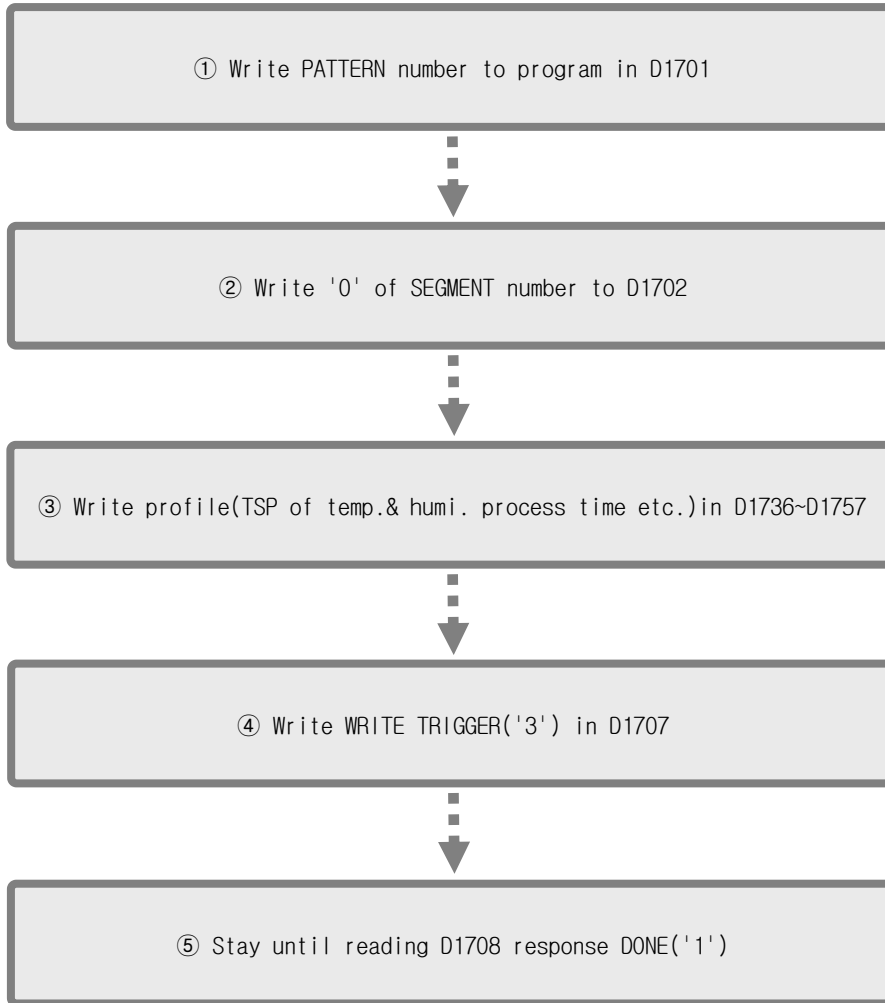
▶ Below describes process step to write programming PATTERN profile in TEMI2500.



Above process step ① ~ ⑤ is used to write 'ONE SEGMENT' profile among all in programmed pattern. Reiterate ① ~ ⑤ process step by changing segment number to write many segments.

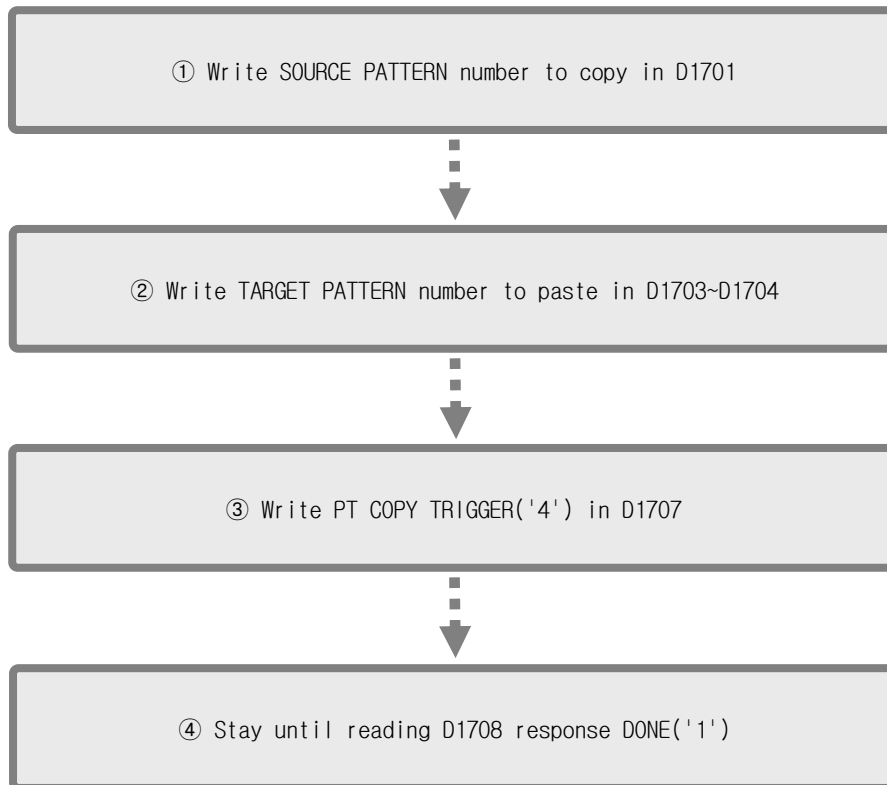


▶ Below describes process step to write program in D1736-D1757.

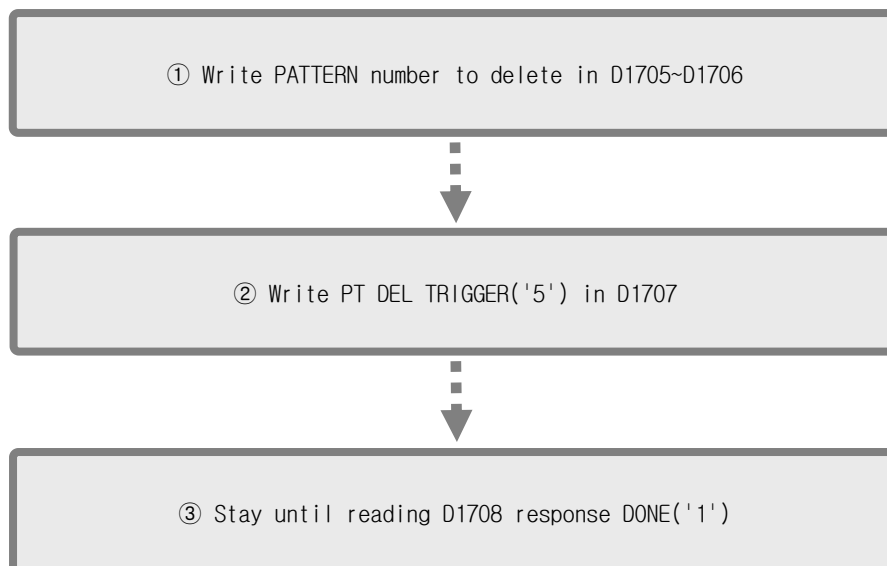


## 7.16.4 FILE EDIT (PATTERN COPY / DELETE)

▶ Below describes step to copy pattern.



▶ Below describes step to delete pattern.



## 7.17 PATTERN INFO

PATTERN INFO group consists of programmed pattern and segment information parameter D-Register.

### ■ Programmed pattern and segment information D-Register

D-Reg.	Symbol	Descriptions
D1801	NPT1	The number of programmed SEGMENT in PATTERN no.1
.	.	.
.	.	.
D1920	NPT120	The number of programmed SEGMENT in PATTERN no.120

## 7.18 FILE

FILE group consists of profile information of programmed pattern parameter D-Register.

### ■ FILE information D-Register

D-Reg.	Symbol	Descriptions
D2101~D2199	C.TSP1~C.TSP99	Temperature SP in reading pattern.
D2201~D2299	C.HSP1~C.HSP99	Humidity SP in reading pattern.
D2301~D2399	C.SRTIME_H1~C.SRTIME_H99	Total operation time (Hour) in reading pattern.
D2401~D2499	C.SRTIME_L1~C.SRTIME_L99	Total operation time (Minute&Second) in reading pattern.
D2501~D2599	C.TS1_1~C.TS1_99	TS1 in reading pattern.
D2601~D2699	C.TS2_1~C.TS2_99	TS2 in reading pattern.
D2701~D2799	C.TS3_1~C.TS3_99	TS3 in reading pattern.
D2801~D2899	C.TS4_1~C.TS4_99	TS4 in reading pattern.
D2901~D2999	C.WAIT_USE1~C.WAIT_USE99	WAIT function profile in reading pattern.

**D-Register 0000 ~ 0599**

: Read Only

D-Reg.	PROCESS	FUNCTION	RESERVATION	ON/OFF SIGNAL	INNER SIGNAL	ALARM SIGNAL
	0	100	200	300	400	500
0		SET.PTNO	RESERVE			ALM.OP
1	TEMP.NPV	COM.OPMODE	NOW.YEAR	T1.LSP	IS1.TGT	ALM1.TGT
2	TEMP.NSP	FIX.TEMP_TSP	NOW.MONTH	T1.MSP	IS1.TYPE	ALM1.TYPE
3	WET.NPV	FIX.HUMI_TSP	NOW.DAY	T1.HSP	IS1.BAND	ALM1.TPOINT
4	WET.NSP	OP.MODE	NOW.AMPM	T1.HDV	IS1.TEMPRH	ALM1.TH_POINT
5	HUMI.NPV	PWR.MODE	NOW.HOUR	T1.LDV	IS1.TEMPRL	ALM1.TL_POINT
6	HUMI.NSP	TEMP.SLOPE	NOW.MIN		IS1.TEMPDYT	ALM1.THYS
7	TEMP.MVOUT	HUMI.SLOPE	C.YEAR		IS1.HUMIRH	ALM1.TDYT
8	HUMI.MVOUT	FUZZY	C.MONTH	T2.LSP	IS1.HUMIRL	ALM1.HPOINT
9	C.PIDNO	TIME.OP	C.DAY	T2.MSP	IS1.HUMIDYT	ALM1.HH_POINT
10	NOW.STS	TIME.OP_H	C.AMPM	T2.HSP	IS2.TGT	ALM1.HL_POINT
11	IS.STS	TIME.OP_M	C.HOUR	T2.HDV	IS2.TYPE	ALM1.HHYS
12	TS.STS	KEYLOCK	C.MIN	T2.LDV	IS2.BAND	ALM1.HDYT
13	ALM.STS		R.YEAR		IS2.TEMPRH	ALM2.TGT
14	ONOFF.STS	LIGHT.OFFTM	R.MONTH		IS2.TEMPRL	ALM2.TYPE
15	DOCTR.STS		R.DAY	T3.LSP	IS2.TEMPDYT	ALM2.TPOINT
16	CTR.STS		R.AMPM	T3.MSP	IS2.HUMIRH	ALM2.TH_POINT
17	USEROUT.STSL		R.HOUR	T3.HSP	IS2.HUMIRL	ALM2.TL_POINT
18	USEROUT.STSH		R.MIN	T3.HDV	IS2.HUMIDYT	ALM2.THYS
19	DI.DATA			T3.LDV	IS3.TGT	ALM2.TDYT
20	ADERR.STS	RESTRICT_MAIN			IS3.TYPE	ALM2.HPOINT
21					IS3.BAND	ALM2.HH_POINT
22				T4.LSP	IS3.TEMPRH	ALM2.HL_POINT
23				T4.MSP	IS3.TEMPRL	ALM2.HHYS
24	RUN.TIME_H	REC.PLACE		T4.HSP	IS3.TEMPDYT	ALM2.HDYT
25	RUN.TIME_M			T4.HDV	IS3.HUMIRH	ALM3.TGT
26	RUN.TIME_S			T4.LDV	IS3.HUMIRL	ALM3.TYPE
27	RUN.PTNO				IS3.HUMIDYT	ALM3.TPOINT
28	RUN.SEGNO				IS4.TGT	ALM3.TH_POINT
29	NOW.PT.RPT	REC.OP		T5.LSP	IS4.TYPE	ALM3.TL_POINT
30	TOTAL.PT.RPT	REC.CYCLE		T5.MSP	IS4.BAND	ALM3.THYS
31	NOW.SEG.RPT	BACK.ITEM		T5.HSP	IS4.TEMPRH	ALM3.TDYT
32	TOTAL.SEG.RPT	BACK.DIR		T5.HDV	IS4.TEMPRL	ALM3.HPOINT
33	NOW.SEGTIME_H			T5.LDV	IS4.TEMPDYT	ALM3.HH_POINT
34	NOW.SEGTIME_L				IS4.HUMIRH	ALM3.HL_POINT
35	TOTAL.SEGTIME_H				IS4.HUMIRL	ALM3.HHYS
36	TOTAL.SEGTIME_L	TEMP.AT		T6.LSP	IS4.HUMIDYT	ALM3.HDYT
37		HUMI.AT		T6.MSP	IS5.TGT	ALM4.TGT
38				T6.HSP	IS5.TYPE	ALM4.TYPE
39	PREV.TEMP.TSP			T6.HDV	IS5.BAND	ALM4.TPOINT
40	NOW.TEMP.TSP	WAIT.USE		T6.LDV	IS5.TEMPRH	ALM4.TH_POINT
41	PREV.HUMI.TSP	WAIT_TZONE			IS5.TEMPRL	ALM4.TL_POINT
42	NOW.HUMI.TSP	WAIT_HZONE			IS5.TEMPDYT	ALM4.THYS
43		WAIT_TIME		T7.LSP	IS5.HUMIRH	ALM4.TDYT
44		WAIT.METHOD		T7.MSP	IS5.HUMIRL	ALM4.HPOINT
45				T7.HSP	IS5.HUMIDYT	ALM4.HH_POINT
46				T7.HDV	IS6.TGT	ALM4.HL_POINT
47		PV.FONT		T7.LDV	IS6.TYPE	ALM4.HHYS
48		HUMI.DISPLAY			IS6.BAND	ALM4.HDYT
49		BUZ.ONOFF			IS6.TEMPRH	ALM5.TGT

D-Reg.	PROCESS	FUNCTION	RESERVATION	ON/OFF SIGNAL	INNER SIGNAL	ALARM SIGNAL
	0	100	200	300	400	500
50	USED PATTERN			T8.LSP	IS6.TEMPRL	ALM5.TYPE
51	USED SEGMENT			T8.MSP	IS6.TEMPDYT	ALM5.TPOINT
52				T8.HSP	IS6.HUMIRH	ALM5.THPOINT
53				T8.HDV	IS6.HUMIRL	ALM5.TLPOINT
54				T8.LDV	IS6.HUMIDYT	ALM5.THYS
55					IS7.TGT	ALM5.TDYT
56					IS7.TYPE	ALM5.HPOINT
57				T9.LSP	IS7.BAND	ALM5.HHPOINT
58				T9.MSP	IS7.TEMPRH	ALM5.HLPOINT
59				T9.HSP	IS7.TEMPRL	ALM5.HHYS
60		USER KEY		T9.HDV	IS7.TEMPDYT	ALM5.HDYT
61				T9.LDV	IS7.HUMIRH	ALM6.TGT
62					IS7.HUMIRL	ALM6.TYPE
63					IS7.HUMIDYT	ALM6.TPOINT
64				H1.LSP	IS8.TGT	ALM6.THPOINT
65				H1.MSP	IS8.TYPE	ALM6.TLPOINT
66				H1.HSP	IS8.BAND	ALM6.THYS
67				H1.HDV	IS8.TEMPRH	ALM6.TDYT
68				H1.LDV	IS8.TEMPRL	ALM6.HPOINT
69					IS8.TEMPDYT	ALM6.HHPOINT
70					IS8.HUMIRH	ALM6.HLPOINT
71				H2.LSP	IS8.HUMIRL	ALM6.HHYS
72				H2.MSP	IS8.HUMIDYT	ALM6.HDYT
73				H2.HSP	IS9.TGT	ALM7.TGT
74				H2.HDV	IS9.TYPE	ALM7.TYPE
75				H2.LDV	IS9.BAND	ALM7.TPOINT
76					IS9.TEMPRH	ALM7.THPOINT
77					IS9.TEMPRL	ALM7.TLPOINT
78				H3.LSP	IS9.TEMPDYT	ALM7.THYS
79				H3.MSP	IS9.HUMIRH	ALM7.TDYT
80				H3.HSP	IS9.HUMIRL	ALM7.HPOINT
81				H3.HDV	IS9.HUMIDYT	ALM7.HHPOINT
82				H3.LDV	IS10.TGT	ALM7.HLPOINT
83					IS10.TYPE	ALM7.HHYS
84					IS10.BAND	ALM7.HDYT
85				H4.LSP	IS10.TEMPRH	ALM8.TGT
86				H4.MSP	IS10.TEMPRL	ALM8.TYPE
87				H4.HSP	IS10.TEMPDYT	ALM8.TPOINT
88				H4.HDV	IS10.HUMIRH	ALM8.THPOINT
89				H4.LDV	IS10.HUMIRL	ALM8.TLPOINT
90					IS10.HUMIDYT	ALM8.THYS
91						ALM8.TDYT
92						ALM8.HPOINT
93						ALM8.HHPOINT
94						ALM8.HLPOINT
95						ALM8.HHYS
96						ALM8.HDYT
97						
98						
99						

**D-Register 0600 ~ 1199**

D-Reg.	TIME SIGNAL	PID	COMMUNICATION	INPUT	OUTPUT	DOCONF IG
	600	700	800	900	1000	1100
0						
1	TS2DYTM_H	T.RP1	PROTOCOL	TEMP.IN	TEMP.OUT	IS1.RLY
2	TS2DYTM_L	T.RP2	BPS	TEMP.INRH	TEMP.DIR	IS2.RLY
3	TS2KPTM_H	T.RP3	PARITY	TEMP.INRL	TEMP.CT	IS3.RLY
4	TS2KPTM_L		STOP.BIT	TEMP.BIAS	TEMP.ARW	IS4.RLY
5	TS3DYTM_H	H.RP1	DATA.LENGTH	TEMP.INFL	TEMP.ATG	IS5.RLY
6	TS3DYTM_L	H.RP2	ADDRESS	TEMP.INSH		IS6.RLY
7	TS3KPTM_H		RESPONSE	TEMP.INSL		IS7.RLY
8	TS3KPTM_L	AT.DISPLAY			HUMI.OUT	IS8.RLY
9	TS4DYTM_H	TEMP.AT.POINT			HUMI.DIR	IS9.RLY
10	TS4DYTM_L	HUMI.AT.POINT	1.TEMP_CP	HUMI.IN	HUMI.CT	IS10.RLY
11	TS4KPTM_H	HUMI.CMOD	1.TEMP_CI	HUMI.INRH	HUMI.ARW	UKEY.RLY
12	TS4KPTM_L	TEMP.ONOFFHYS	1.TEMP_CD	HUMI.INRL	HUMI.ATG	TS1.RLY
13	TS5DYTM_H	HUMI.ONOFFHYS	1.TEMP_COH	HUMI.BIAS		TS2.RLY
14	TS5DYTM_L		2.TEMP_CP	HUMI.INFL		TS3.RLY
15	TS5KPTM_H	1.TEMP_P	2.TEMP_CI	HUMI.DFL	TEMP.RETT	TS4.RLY
16	TS5KPTM_L	1.TEMP_I	2.TEMP_CD	HUMI.INSH	TEMP.RETH	ALM1.RLY
17	TS6DYTM_H	1.TEMP_D	2.TEMP_COH	HUMI.INSL	TEMP.RETL	ALM2.RLY
18	TS6DYTM_L	1.TEMP_OH	3.TEMP_CP			ALM3.RLY
19	TS6KPTM_H	1.TEMP_OL	3.TEMP_CI			ALM4.RLY
20	TS6KPTM_L	2.TEMP_P	3.TEMP_CD	DRY.LH	HUMI.RETT	ALM5.RLY
21	TS7DYTM_H	2.TEMP_I	3.TEMP_COH	DRY.LL	HUMI.RETH	ALM6.RLY
22	TS7DYTM_L	2.TEMP_D	4.TEMP_CP	WET.ADJV	HUMI.RETL	ALM7.RLY
23	TS7KPTM_H	2.TEMP_OH	4.TEMP_CI			ALM8.RLY
24	TS7KPTM_L	2.TEMP_OL	4.TEMP_CD			T1.RLY
25	TS8DYTM_H	3.TEMP_P	4.TEMP_COH		TEMP.CCT	T1.DYT
26	TS8DYTM_L	3.TEMP_I	5.TEMP_CP		TEMP.CATG	T2.RLY
27	TS8KPTM_H	3.TEMP_D	5.TEMP_CI		HUMI.CCT	T2.DYT
28	TS8KPTM_L	3.TEMP_OH	5.TEMP_CD		HUMI.CATG	T3.RLY
29	TS9DYTM_H	3.TEMP_OL	5.TEMP_COH			T3.DYT
30	TS9DYTM_L	4.TEMP_P	6.TEMP_CP			T4.RLY
31	TS9KPTM_H	4.TEMP_I	6.TEMP_CI		OUT1.TYPE	T4.DYT
32	TS9KPTM_L	4.TEMP_D	6.TEMP_CD		OUT2.TYPE	T5.RLY
33	TS10DYTM_H	4.TEMP_OH	6.TEMP_COH	BP1.DDV	OUT3.TYPE	T5.DYT
34	TS10DYTM_L	4.TEMP_OL	7.TEMP_CP	BP2.DDV	OUT4.TYPE	T6.RLY
35	TS10KPTM_H	5.TEMP_P	7.TEMP_CI	BP3.DDV		T6.DYT
36	TS10KPTM_L	5.TEMP_I	7.TEMP_CD	BP4.DDV		T7.RLY
37	TS11DYTM_H	5.TEMP_D	7.TEMP_COH	BP1.DPV	OUT1.MODE	T7.DYT
38	TS11DYTM_L	5.TEMP_OH	8.TEMP_CP	BP2.DPV	OUT2.MODE	T8.RLY
39	TS11KPTM_H	5.TEMP_OL	8.TEMP_CI	BP3.DPV	OUT3.MODE	T8.DYT
40	TS11KPTM_L	6.TEMP_P	8.TEMP_CD	BP4.DPV	OUT4.MODE	T9.RLY
41	TS12DYTM_H	6.TEMP_I	8.TEMP_COH			T9.DYT
42	TS12DYTM_L	6.TEMP_D	9.TEMP_CP			T10.RLY
43	TS12KPTM_H	6.TEMP_OH	9.TEMP_CI	BP1.WDV		T10.DYT
44	TS12KPTM_L	6.TEMP_OL	9.TEMP_CD	BP2.WDV		H1.RLY
45	TS13DYTM_H	7.TEMP_P	9.TEMP_COH	BP3.WDV		H1.DYT
46	TS13DYTM_L	7.TEMP_I	1.HUMI_CP	BP4.WDV		H2.RLY
47	TS13KPTM_H	7.TEMP_D	1.HUMI_CI	BP1.WPV		H2.DYT
48	TS13KPTM_L	7.TEMP_OH	1.HUMI_CD	BP2.WPV		H3.RLY
49	TS14DYTM_H	7.TEMP_OL	1.HUMI_COH	BP3.WPV		H3.DYT

D-Reg.	TIME SIGNAL	PID	COMMUNICATION	INPUT	OUTPUT	DOCONF IG
	600	700	800	900	1000	1100
50	TS14DYTM_L	8.TEMP_P	2.HUMI_CP	BP4.WPV		H4.RLY
51	TS14KPTM_H	8.TEMP_I	2.HUMI_CI			H4.DYT
52	TS14KPTM_L	8.TEMP_D	2.HUMI_CD			H5.RLY
53	TS15DYTM_H	8.TEMP_OH	2.HUMI_COH	BP1.HDV		H5.DYT
54	TS15DYTM_L	8.TEMP_OL	3.HUMI_CP	BP2.HDV		TRUN.RLY
55	TS15KPTM_H	9.TEMP_P	3.HUMI_CI	BP3.HDV		TRUN.DYT
56	TS15KPTM_L	9.TEMP_I	3.HUMI_CD	BP4.HDV		HRUN.RLY
57	TS16DYTM_H	9.TEMP_D	3.HUMI_COH	BP1.HPV		HRUN.DYT
58	TS16DYTM_L	9.TEMP_OH	4.HUMI_CP	BP2.HPV		TSOPN.RLY
59	TS16KPTM_H	9.TEMP_OL	4.HUMI_CI	BP3.HPV		TSOPN.KPT
60	TS16KPTM_L	1.HUMI_P	4.HUMI_CD	BP4.HPV		HSPON.RLY
61	TS17DYTM_H	1.HUMI_I	4.HUMI_COH			HSOPN.KPT
62	TS17DYTM_L	1.HUMI_D	5.HUMI_CP			TWAIT.RLY
63	TS17KPTM_H	1.HUMI_OH	5.HUMI_CI			TWAIT.KPT
64	TS17KPTM_L	1.HUMI_OL	5.HUMI_CD			HWAIT.RLY
65		2.HUMI_P	5.HUMI_COH			HWAIT.KPT
66		2.HUMI_I	6.HUMI_CP			TUP.RLY
67		2.HUMI_D	6.HUMI_CI			TUP.DEV
68		2.HUMI_OH	6.HUMI_CD			HUP.RLY
69		2.HUMI_OL	6.HUMI_COH			HUP.DEV
70		3.HUMI_P	1.TEMP_DB			TSOAK.RLY
71		3.HUMI_I	1.TEMP_MR			TSOAK.KPT
72		3.HUMI_D	2.TEMP_DB			HSOAK.RLY
73		3.HUMI_OH	2.TEMP_MR			HSOAK.KPT
74		3.HUMI_OL	3.TEMP_DB			TDOWN.RLY
75		4.HUMI_P	3.TEMP_MR			TDOWN.DEV
76		4.HUMI_I	4.TEMP_DB			HDOWN.RLY
77		4.HUMI_D	4.TEMP_MR			HDOWN.DEV
78		4.HUMI_OH	5.TEMP_DB			FEND.RLY
79		4.HUMI_OL	5.TEMP_MR			FEND.KPT
80		5.HUMI_P	6.TEMP_DB			PTEND.RLY
81		5.HUMI_I	6.TEMP_MR			PTEND.KPT
82		5.HUMI_D	7.TEMP_DB			DRAIN.RLY
83		5.HUMI_OH	7.TEMP_MR			DRAIN.KPT
84		5.HUMI_OL	8.TEMP_DB			DRAIN_RH
85		6.HUMI_P	8.TEMP_MR			DRAIN_RL
86		6.HUMI_I	9.TEMP_DB			ERROR.RLY
87		6.HUMI_D	9.TEMP_MR			ERROR.KPT
88		6.HUMI_OH	1.HUMI_DB			1REF.RLY
89		6.HUMI_OL	1.HUMI_MR			1REF.DYT
90			2.HUMI_DB			2REF.RLY
91			2.HUMI_MR			2REF.DYT
92			3.HUMI_DB			
93			3.HUMI_MR			
94			4.HUMI_DB			
95			4.HUMI_MR			
96			5.HUMI_DB			
97			5.HUMI_MR			
98			6.HUMI_DB			
99			6.HUMI_MR			

**D-Register 1200 ~ 1799**

D-Reg.	DI CONFIG1	DI CONFIG2	DI CONFIG3	PICTURE	INITIAL	PROGRAM
	1200	1300	1400	1500	1600	1700
0						
1	DISP.METHOD	DI1.NAME1	DI9.NAME1	VIEW.ROTATE	LANGUAGE	COM_PTNO
2	DI1.OP_MODE	DI1.NAME2	DI9.NAME2	R.ST_TIME	DISP.MODE	COM_SEGNO
3	DI2.OP_MODE	DI1.NAME3	DI9.NAME3	R.INT_TIME	UKEY.USE	PTCOPY_START
4	DI3.OP_MODE	DI1.NAME4	DI9.NAME4			PTCOPY_END
5	BUZ.TIME	DI1.NAME5	DI9.NAME5			PTDEL_START
6	DIDET.TIME	DI1.NAME6	DI9.NAME6		INFORM1.NAME1	PTDEL_END
7		DI1.NAME7	DI9.NAME7		INFORM1.NAME2	TRIGGER
8		DI1.NAME8	DI9.NAME8		INFORM1.NAME3	ANSWER
9	DI1.OP	DI1.NAME9	DI9.NAME9		INFORM1.NAME4	
10	DI1.DYT	DI1.NAME10	DI9.NAME10		INFORM1.NAME5	
11	DI2.OP	DI1.NAME11	DI9.NAME11		INFORM1.NAME6	PATTERN_NAME1
12	DI2.DYT	DI1.NAME12	DI9.NAME12		INFORM1.NAME7	PATTERN_NAME2
13	DI3.OP	DI2.NAME1	DI10.NAME1		INFORM1.NAME8	PATTERN_NAME3
14	DI3.DYT	DI2.NAME2	DI10.NAME2		INFORM1.NAME9	PATTERN_NAME4
15	DI4.OP	DI2.NAME3	DI10.NAME3		INFORM1.NAME10	PATTERN_NAME5
16	DI4.DYT	DI2.NAME4	DI10.NAME4		INFORM1.NAME11	PATTERN_NAME6
17	DI5.OP	DI2.NAME5	DI10.NAME5		INFORM1.NAME12	PATTERN_NAME7
18	DI5.DYT	DI2.NAME6	DI10.NAME6		INFORM1.NAME13	PATTERN_NAME8
19	DI6.OP	DI2.NAME7	DI10.NAME7		INFORM2.NAME1	PATTERN_NAME9
20	DI6.DYT	DI2.NAME8	DI10.NAME8		INFORM2.NAME2	PATTERN_NAME10
21	DI7.OP	DI2.NAME9	DI10.NAME9		INFORM2.NAME3	PATTERN_NAME11
22	DI7.DYT	DI2.NAME10	DI10.NAME10		INFORM2.NAME4	PATTERN_NAME12
23	DI8.OP	DI2.NAME11	DI10.NAME11		INFORM2.NAME5	
24	DI8.DYT	DI2.NAME12	DI10.NAME12		INFORM2.NAME6	
25	DI9.OP	DI3.NAME1	DI11.NAME1		INFORM2.NAME7	TEMP.TSP
26	DI9.DYT	DI3.NAME2	DI11.NAME2		INFORM2.NAME8	HUMI.TSP
27	DI10.OP	DI3.NAME3	DI11.NAME3		INFORM2.NAME9	SEG.TIME_H
28	DI10.DYT	DI3.NAME4	DI11.NAME4		INFORM2.NAME10	SEG.TIME_L
29	DI11.OP	DI3.NAME5	DI11.NAME5		INFORM2.NAME11	TS1
30	DI11.DYT	DI3.NAME6	DI11.NAME6		INFORM2.NAME12	TS2
31	DI12.OP	DI3.NAME7	DI11.NAME7		INFORM2.NAME13	TS3
32	DI12.DYT	DI3.NAME8	DI11.NAME8		INFORM3.NAME1	TS4
33	DI13.OP	DI3.NAME9	DI11.NAME9		INFORM3.NAME2	SEG.WAIT
34	DI13.DYT	DI3.NAME10	DI11.NAME10		INFORM3.NAME3	
35	DI14.OP	DI3.NAME11	DI11.NAME11		INFORM3.NAME4	
36	DI14.DYT	DI3.NAME12	DI11.NAME12		INFORM3.NAME5	START.CODE
37	DI15.OP	DI4.NAME1	DI12.NAME1		INFORM3.NAME6	START.TEMP_SP
38	DI15.DYT	DI4.NAME2	DI12.NAME2		INFORM3.NAME7	START.HUMI_SP
39	DI16.OP	DI4.NAME3	DI12.NAME3		INFORM3.NAME8	
40	DI16.DYT	DI4.NAME4	DI12.NAME4		INFORM3.NAME9	
41		DI4.NAME5	DI12.NAME5		INFORM3.NAME10	PT.RPT
42	DI1.DETECT	DI4.NAME6	DI12.NAME6		INFORM3.NAME11	PT.EMOD
43	DI2.DETECT	DI4.NAME7	DI12.NAME7		INFORM3.NAME12	LINK.PT
44	DI3.DETECT	DI4.NAME8	DI12.NAME8		INFORM3.NAME13	
45	DI4.DETECT	DI4.NAME9	DI12.NAME9			
46	DI5.DETECT	DI4.NAME10	DI12.NAME10			SEG_RPT.S1
47	DI6.DETECT	DI4.NAME11	DI12.NAME11			SEG_RPT.E1
48	DI7.DETECT	DI4.NAME12	DI12.NAME12			SEG_RPT.C1
49	DI8.DETECT	DI5.NAME1	DI13.NAME1			SEG_RPT.S2



D-Reg.	DI CONFIG1	DI CONFIG2	DI CONFIG3	PICTURE	INITIAL	PROGRAM
	1200	1300	1400	1500	1600	1700
50	DI9.DETECT	DI5.NAME2	DI13.NAME2			SEG_RPT.E2
51	DI10.DETECT	DI5.NAME3	DI13.NAME3			SEG_RPT.C2
52	DI11.DETECT	DI5.NAME4	DI13.NAME4			SEG_RPT.S3
53	DI12.DETECT	DI5.NAME5	DI13.NAME5			SEG_RPT.E3
54	DI13.DETECT	DI5.NAME6	DI13.NAME6			SEG_RPT.C3
55	DI14.DETECT	DI5.NAME7	DI13.NAME7			SEG_RPT.S4
56	DI15.DETECT	DI5.NAME8	DI13.NAME8			SEG_RPT.E4
57	DI16.DETECT	DI5.NAME9	DI13.NAME9			SEG_RPT.C4
58		DI5.NAME10	DI13.NAME10			
59		DI5.NAME11	DI13.NAME11	TFIXTIMER.RLY		
60		DI5.NAME12	DI13.NAME12	TFIXTIMER.DEV		
61		DI6.NAME1	DI14.NAME1	TFIXTIMER.DLY		
62		DI6.NAME2	DI14.NAME2	TFIXTIMER.OPT		
63		DI6.NAME3	DI14.NAME3	HFIXTIMER.RLY		
64		DI6.NAME4	DI14.NAME4	HFIXTIMER.DEV		
65		DI6.NAME5	DI14.NAME5	HFIXTIMER.DLY		
66		DI6.NAME6	DI14.NAME6	HFIXTIMER.OPT		
67		DI6.NAME7	DI14.NAME7			
68		DI6.NAME8	DI14.NAME8			
69		DI6.NAME9	DI14.NAME9			
70	DI1.RLY	DI6.NAME10	DI14.NAME10	LOG.OUTRLY1		
71	DI2.RLY	DI6.NAME11	DI14.NAME11	LOG.SRCRLYa1		
72	DI3.RLY	DI6.NAME12	DI14.NAME12	LOG.SRCRLYb1		
73	DI4.RLY	DI7.NAME1	DI15.NAME1	LOG.OPERAND1		
74	DI5.RLY	DI7.NAME2	DI15.NAME2	LOG.OUTRLY2		
75	DI6.RLY	DI7.NAME3	DI15.NAME3	LOG.SRCRLYa2		
76	DI7.RLY	DI7.NAME4	DI15.NAME4	LOG.SRCRLYb2		
77	DI8.RLY	DI7.NAME5	DI15.NAME5	LOG.OPERAND2		
78	DI9.RLY	DI7.NAME6	DI15.NAME6	LOG.OUTRLY3		
79	DI10.RLY	DI7.NAME7	DI15.NAME7	LOG.SRCRLYa3		
80	DI11.RLY	DI7.NAME8	DI15.NAME8	LOG.SRCRLYb3		
81	DI12.RLY	DI7.NAME9	DI15.NAME9	LOG.OPERAND3		
82	DI13.RLY	DI7.NAME10	DI15.NAME10			
83	DI14.RLY	DI7.NAME11	DI15.NAME11			
84	DI15.RLY	DI7.NAME12	DI15.NAME12			
85	DI16.RLY	DI8.NAME1	DI16.NAME1			
86	USER.RLY1	DI8.NAME2	DI16.NAME2			
87	USER.RLY2	DI8.NAME3	DI16.NAME3			
88	USER.RLY3	DI8.NAME4	DI16.NAME4			
89	USER.RLY4	DI8.NAME5	DI16.NAME5			
90	USER.RLY5	DI8.NAME6	DI16.NAME6			
91	USER.RLY6	DI8.NAME7	DI16.NAME7	TEMPUP.DEVSEL		
92	USER.RLY7	DI8.NAME8	DI16.NAME8	TEMPDN.DEVSEL		
93	USER.RLY8	DI8.NAME9	DI16.NAME9	HUMIUP.DEVSEL		
94	USER.RLY9	DI8.NAME10	DI16.NAME10	HUMIDN.DEVSEL		
95	USER.RLY10	DI8.NAME11	DI16.NAME11			
96	USER.RLY11	DI8.NAME12	DI16.NAME12			
97	USER.RLY12					
98	USER.RLY_ON/OFF					
99						

**D-Register 1800 ~ 2399**

D-Reg.	PATTERN INFO1	PATTERN INFO2	INITIAL 2	FILE1	FILE2	FILE3
	1800	1900	2000	2100	2200	2300
0		NPT100				
1	NPT1	NPT101	LAMP_IS1	C.TSP1	C.HSP1	C.SRTIME_H1
2	NPT2	NPT102	LAMP_IS2	C.TSP2	C.HSP2	C.SRTIME_H2
3	NPT3	NPT103	LAMP_IS3	C.TSP3	C.HSP3	C.SRTIME_H3
4	NPT4	NPT104	LAMP_IS4	C.TSP4	C.HSP4	C.SRTIME_H4
5	NPT5	NPT105	LAMP_IS5	C.TSP5	C.HSP5	C.SRTIME_H5
6	NPT6	NPT106	LAMP_IS6	C.TSP6	C.HSP6	C.SRTIME_H6
7	NPT7	NPT107	LAMP_IS7	C.TSP7	C.HSP7	C.SRTIME_H7
8	NPT8	NPT108	LAMP_IS8	C.TSP8	C.HSP8	C.SRTIME_H8
9	NPT9	NPT109	LAMP_IS9	C.TSP9	C.HSP9	C.SRTIME_H9
10	NPT10	NPT110	LAMP_IS10	C.TSP10	C.HSP10	C.SRTIME_H10
11	NPT11	NPT111	LAMP_TS1	C.TSP11	C.HSP11	C.SRTIME_H11
12	NPT12	NPT112	LAMP_TS2	C.TSP12	C.HSP12	C.SRTIME_H12
13	NPT13	NPT113	LAMP_TS3	C.TSP13	C.HSP13	C.SRTIME_H13
14	NPT14	NPT114	LAMP_TS4	C.TSP14	C.HSP14	C.SRTIME_H14
15	NPT15	NPT115	LAMP_AL1	C.TSP15	C.HSP15	C.SRTIME_H15
16	NPT16	NPT116	LAMP_AL2	C.TSP16	C.HSP16	C.SRTIME_H16
17	NPT17	NPT117	LAMP_AL3	C.TSP17	C.HSP17	C.SRTIME_H17
18	NPT18	NPT118	LAMP_AL4	C.TSP18	C.HSP18	C.SRTIME_H18
19	NPT19	NPT119	LAMP_AL5	C.TSP19	C.HSP19	C.SRTIME_H19
20	NPT20	NPT120	LAMP_AL6	C.TSP20	C.HSP20	C.SRTIME_H20
21	NPT21		LAMP_AL7	C.TSP21	C.HSP21	C.SRTIME_H21
22	NPT22		LAMP_AL8	C.TSP22	C.HSP22	C.SRTIME_H22
23	NPT23		LAMP_IS1	C.TSP23	C.HSP23	C.SRTIME_H23
24	NPT24		LAMP_T2	C.TSP24	C.HSP24	C.SRTIME_H24
25	NPT25		LAMP_T3	C.TSP25	C.HSP25	C.SRTIME_H25
26	NPT26		LAMP_T4	C.TSP26	C.HSP26	C.SRTIME_H26
27	NPT27		LAMP_T5	C.TSP27	C.HSP27	C.SRTIME_H27
28	NPT28		LAMP_T6	C.TSP28	C.HSP28	C.SRTIME_H28
29	NPT29		LAMP_T7	C.TSP29	C.HSP29	C.SRTIME_H29
30	NPT30		LAMP_T8	C.TSP30	C.HSP30	C.SRTIME_H30
31	NPT31		LAMP_T9	C.TSP31	C.HSP31	C.SRTIME_H31
32	NPT32		LAMP_T10	C.TSP32	C.HSP32	C.SRTIME_H32
33	NPT33		LAMP_H1	C.TSP3	C.HSP33	C.SRTIME_H33
34	NPT34		LAMP_H2	C.TSP34	C.HSP34	C.SRTIME_H34
35	NPT35		LAMP_H3	C.TSP35	C.HSP35	C.SRTIME_H35
36	NPT36		LAMP_H4	C.TSP36	C.HSP36	C.SRTIME_H36
37	NPT37		LAMP_H5	C.TSP3	C.HSP37	C.SRTIME_H37
38	NPT38		LAMP_D11	C.TSP38	C.HSP38	C.SRTIME_H38
39	NPT39		LAMP_D12	C.TSP39	C.HSP39	C.SRTIME_H39
40	NPT40		LAMP_D13	C.TSP40	C.HSP40	C.SRTIME_H40
41	NPT41		LAMP_D14	C.TSP41	C.HSP41	C.SRTIME_H41
42	NPT42		LAMP_D15	C.TSP42	C.HSP42	C.SRTIME_H42
43	NPT43		LAMP_D16	C.TSP43	C.HSP43	C.SRTIME_H43
44	NPT44		LAMP_D17	C.TSP44	C.HSP44	C.SRTIME_H44
45	NPT45		LAMP_D18	C.TSP45	C.HSP45	C.SRTIME_H45
46	NPT46		LAMP_D19	C.TSP46	C.HSP46	C.SRTIME_H46
47	NPT47		LAMP_D110	C.TSP47	C.HSP47	C.SRTIME_H47
48	NPT48		LAMP_D111	C.TSP48	C.HSP48	C.SRTIME_H48
49	NPT49		LAMP_D112	C.TSP49	C.HSP49	C.SRTIME_H49

D-Reg.	PATTERN INFO1	PATTERN INFO2	RESERVED	FILE1	FILE2	FILE3
	1800	1900	2000	2100	2200	2300
50	NPT50		LAMP_D113	C.TSP50	C.HSP50	C.SRTIME_H50
51	NPT51		LAMP_D114	C.TSP51	C.HSP51	C.SRTIME_H51
52	NPT52		LAMP_D115	C.TSP52	C.HSP52	C.SRTIME_H52
53	NPT53		LAMP_D116	C.TSP53	C.HSP53	C.SRTIME_H53
54	NPT54		LAMP_TRUN	C.TSP54	C.HSP54	C.SRTIME_H54
55	NPT55		LAMP_HTUN	C.TSP55	C.HSP55	C.SRTIME_H55
56	NPT56		LAMP_SD	C.TSP56	C.HSP56	C.SRTIME_H56
57	NPT57		LAMP_REF1	C.TSP57	C.HSP57	C.SRTIME_H57
58	NPT58		LAMP_REF2	C.TSP58	C.HSP58	C.SRTIME_H58
59	NPT59		LAMP_DRAN	C.TSP59	C.HSP59	C.SRTIME_H59
60	NPT60			C.TSP60	C.HSP60	C.SRTIME_H60
61	NPT61			C.TSP61	C.HSP61	C.SRTIME_H61
62	NPT62			C.TSP62	C.HSP62	C.SRTIME_H62
63	NPT63			C.TSP63	C.HSP63	C.SRTIME_H63
64	NPT64			C.TSP64	C.HSP64	C.SRTIME_H64
65	NPT65			C.TSP65	C.HSP65	C.SRTIME_H65
66	NPT66			C.TSP66	C.HSP66	C.SRTIME_H66
67	NPT67			C.TSP67	C.HSP67	C.SRTIME_H67
68	NPT68			C.TSP68	C.HSP68	C.SRTIME_H68
69	NPT69			C.TSP69	C.HSP69	C.SRTIME_H69
70	NPT70			C.TSP70	C.HSP70	C.SRTIME_H70
71	NPT71			C.TSP71	C.HSP71	C.SRTIME_H71
72	NPT72			C.TSP72	C.HSP72	C.SRTIME_H72
73	NPT73			C.TSP73	C.HSP73	C.SRTIME_H73
74	NPT74			C.TSP74	C.HSP74	C.SRTIME_H74
75	NPT75			C.TSP75	C.HSP75	C.SRTIME_H75
76	NPT76			C.TSP76	C.HSP76	C.SRTIME_H76
77	NPT77			C.TSP77	C.HSP77	C.SRTIME_H77
78	NPT78			C.TSP78	C.HSP78	C.SRTIME_H78
79	NPT79			C.TSP79	C.HSP79	C.SRTIME_H79
80	NPT80			C.TSP80	C.HSP80	C.SRTIME_H80
81	NPT81			C.TSP81	C.HSP81	C.SRTIME_H81
82	NPT82			C.TSP82	C.HSP82	C.SRTIME_H82
83	NPT83			C.TSP83	C.HSP83	C.SRTIME_H83
84	NPT84			C.TSP84	C.HSP84	C.SRTIME_H84
85	NPT85			C.TSP85	C.HSP85	C.SRTIME_H85
86	NPT86			C.TSP86	C.HSP86	C.SRTIME_H86
87	NPT87			C.TSP87	C.HSP87	C.SRTIME_H87
88	NPT88			C.TSP88	C.HSP88	C.SRTIME_H88
89	NPT89			C.TSP89	C.HSP89	C.SRTIME_H89
90	NPT90			C.TSP90	C.HSP90	C.SRTIME_H90
91	NPT91			C.TSP91	C.HSP91	C.SRTIME_H91
92	NPT92			C.TSP92	C.HSP92	C.SRTIME_H92
93	NPT93			C.TSP93	C.HSP93	C.SRTIME_H93
94	NPT94			C.TSP94	C.HSP94	C.SRTIME_H94
95	NPT95			C.TSP95	C.HSP95	C.SRTIME_H95
96	NPT96			C.TSP96	C.HSP96	C.SRTIME_H96
97	NPT97			C.TSP97	C.HSP97	C.SRTIME_H97
98	NPT98			C.TSP98	C.HSP98	C.SRTIME_H98
99	NPT99			C.TSP99	C.HSP99	C.SRTIME_H99

**D-Register 2400 ~ 2999**

D-Reg.	FILE4	FILE5	FILE6	FILE7	FILE8	FILE9
	2400	2500	2600	2700	2800	2900
0						
1	C.SRTIME_L1	C.TS1_1	C.TS2_1	C.TS3_1	C.TS4_1	C.WAIT_USE1
2	C.SRTIME_L2	C.TS1_2	C.TS2_2	C.TS3_2	C.TS4_2	C.WAIT_USE2
3	C.SRTIME_L3	C.TS1_3	C.TS2_3	C.TS3_3	C.TS4_3	C.WAIT_USE3
4	C.SRTIME_L4	C.TS1_4	C.TS2_4	C.TS3_4	C.TS4_4	C.WAIT_USE4
5	C.SRTIME_L5	C.TS1_5	C.TS2_5	C.TS3_5	C.TS4_5	C.WAIT_USE5
6	C.SRTIME_L6	C.TS1_6	C.TS2_6	C.TS3_6	C.TS4_6	C.WAIT_USE6
7	C.SRTIME_L7	C.TS1_7	C.TS2_7	C.TS3_7	C.TS4_7	C.WAIT_USE7
8	C.SRTIME_L8	C.TS1_8	C.TS2_8	C.TS3_8	C.TS4_8	C.WAIT_USE8
9	C.SRTIME_L9	C.TS1_9	C.TS2_9	C.TS3_9	C.TS4_9	C.WAIT_USE9
10	C.SRTIME_L10	C.TS1_10	C.TS2_10	C.TS3_10	C.TS4_10	C.WAIT_USE10
11	C.SRTIME_L11	C.TS1_11	C.TS2_11	C.TS3_11	C.TS4_11	C.WAIT_USE11
12	C.SRTIME_L12	C.TS1_12	C.TS2_12	C.TS3_12	C.TS4_12	C.WAIT_USE12
13	C.SRTIME_L13	C.TS1_13	C.TS2_13	C.TS3_13	C.TS4_13	C.WAIT_USE13
14	C.SRTIME_L14	C.TS1_14	C.TS2_14	C.TS3_14	C.TS4_14	C.WAIT_USE14
15	C.SRTIME_L15	C.TS1_15	C.TS2_15	C.TS3_15	C.TS4_15	C.WAIT_USE15
16	C.SRTIME_L16	C.TS1_16	C.TS2_16	C.TS3_16	C.TS4_16	C.WAIT_USE16
17	C.SRTIME_L17	C.TS1_17	C.TS2_17	C.TS3_17	C.TS4_17	C.WAIT_USE17
18	C.SRTIME_L18	C.TS1_18	C.TS2_18	C.TS3_18	C.TS4_18	C.WAIT_USE18
19	C.SRTIME_L19	C.TS1_19	C.TS2_19	C.TS3_19	C.TS4_19	C.WAIT_USE19
20	C.SRTIME_L20	C.TS1_20	C.TS2_20	C.TS3_20	C.TS4_20	C.WAIT_USE20
21	C.SRTIME_L21	C.TS1_21	C.TS2_21	C.TS3_21	C.TS4_21	C.WAIT_USE21
22	C.SRTIME_L22	C.TS1_22	C.TS2_22	C.TS3_22	C.TS4_22	C.WAIT_USE22
23	C.SRTIME_L23	C.TS1_23	C.TS2_23	C.TS3_23	C.TS4_23	C.WAIT_USE23
24	C.SRTIME_L24	C.TS1_24	C.TS2_24	C.TS3_24	C.TS4_24	C.WAIT_USE24
25	C.SRTIME_L25	C.TS1_25	C.TS2_25	C.TS3_25	C.TS4_25	C.WAIT_USE25
26	C.SRTIME_L26	C.TS1_26	C.TS2_26	C.TS3_26	C.TS4_26	C.WAIT_USE26
27	C.SRTIME_L27	C.TS1_27	C.TS2_27	C.TS3_27	C.TS4_27	C.WAIT_USE27
28	C.SRTIME_L28	C.TS1_28	C.TS2_28	C.TS3_28	C.TS4_28	C.WAIT_USE28
29	C.SRTIME_L29	C.TS1_29	C.TS2_29	C.TS3_29	C.TS4_29	C.WAIT_USE29
30	C.SRTIME_L30	C.TS1_30	C.TS2_30	C.TS3_30	C.TS4_30	C.WAIT_USE30
31	C.SRTIME_L31	C.TS1_31	C.TS2_31	C.TS3_31	C.TS4_31	C.WAIT_USE31
32	C.SRTIME_L32	C.TS1_32	C.TS2_32	C.TS3_32	C.TS4_32	C.WAIT_USE32
33	C.SRTIME_L33	C.TS1_33	C.TS2_33	C.TS3_33	C.TS4_33	C.WAIT_USE33
34	C.SRTIME_L34	C.TS1_34	C.TS2_34	C.TS3_34	C.TS4_34	C.WAIT_USE34
35	C.SRTIME_L35	C.TS1_35	C.TS2_35	C.TS3_35	C.TS4_35	C.WAIT_USE35
36	C.SRTIME_L36	C.TS1_36	C.TS2_36	C.TS3_36	C.TS4_36	C.WAIT_USE36
37	C.SRTIME_L37	C.TS1_37	C.TS2_37	C.TS3_37	C.TS4_37	C.WAIT_USE37
38	C.SRTIME_L38	C.TS1_38	C.TS2_38	C.TS3_38	C.TS4_38	C.WAIT_USE38
39	C.SRTIME_L39	C.TS1_39	C.TS2_39	C.TS3_39	C.TS4_39	C.WAIT_USE39
40	C.SRTIME_L40	C.TS1_40	C.TS2_40	C.TS3_40	C.TS4_40	C.WAIT_USE40
41	C.SRTIME_L41	C.TS1_41	C.TS2_41	C.TS3_41	C.TS4_41	C.WAIT_USE41
42	C.SRTIME_L42	C.TS1_42	C.TS2_42	C.TS3_42	C.TS4_42	C.WAIT_USE42
43	C.SRTIME_L43	C.TS1_43	C.TS2_43	C.TS3_43	C.TS4_43	C.WAIT_USE43
44	C.SRTIME_L44	C.TS1_44	C.TS2_44	C.TS3_44	C.TS4_44	C.WAIT_USE44
45	C.SRTIME_L45	C.TS1_45	C.TS2_45	C.TS3_45	C.TS4_45	C.WAIT_USE45
46	C.SRTIME_L46	C.TS1_46	C.TS2_46	C.TS3_46	C.TS4_46	C.WAIT_USE46
47	C.SRTIME_L47	C.TS1_47	C.TS2_47	C.TS3_47	C.TS4_47	C.WAIT_USE47
48	C.SRTIME_L48	C.TS1_48	C.TS2_48	C.TS3_48	C.TS4_48	C.WAIT_USE48
49	C.SRTIME_L49	C.TS1_49	C.TS2_49	C.TS3_49	C.TS4_49	C.WAIT_USE49

D-Reg.	FILE4	FILE5	FILE6	FILE7	FILE8	FILE9
	2400	2500	2600	2700	2800	2900
50	C.SRTIME_L50	C.TS1_50	C.TS2_50	C.TS3_50	C.TS4_50	C.WAIT_USE50
51	C.SRTIME_L51	C.TS1_51	C.TS2_51	C.TS3_51	C.TS4_51	C.WAIT_USE51
52	C.SRTIME_L52	C.TS1_52	C.TS2_52	C.TS3_52	C.TS4_52	C.WAIT_USE52
53	C.SRTIME_L53	C.TS1_53	C.TS2_53	C.TS3_53	C.TS4_53	C.WAIT_USE53
54	C.SRTIME_L54	C.TS1_54	C.TS2_54	C.TS3_54	C.TS4_54	C.WAIT_USE54
55	C.SRTIME_L55	C.TS1_55	C.TS2_55	C.TS3_55	C.TS4_55	C.WAIT_USE55
56	C.SRTIME_L56	C.TS1_56	C.TS2_56	C.TS3_56	C.TS4_56	C.WAIT_USE56
57	C.SRTIME_L57	C.TS1_57	C.TS2_57	C.TS3_57	C.TS4_57	C.WAIT_USE57
58	C.SRTIME_L58	C.TS1_58	C.TS2_58	C.TS3_58	C.TS4_58	C.WAIT_USE58
59	C.SRTIME_L59	C.TS1_59	C.TS2_59	C.TS3_59	C.TS4_59	C.WAIT_USE59
60	C.SRTIME_L60	C.TS1_60	C.TS2_60	C.TS3_60	C.TS4_60	C.WAIT_USE60
61	C.SRTIME_L61	C.TS1_61	C.TS2_61	C.TS3_61	C.TS4_61	C.WAIT_USE61
62	C.SRTIME_L62	C.TS1_62	C.TS2_62	C.TS3_62	C.TS4_62	C.WAIT_USE62
63	C.SRTIME_L63	C.TS1_63	C.TS2_63	C.TS3_63	C.TS4_63	C.WAIT_USE63
64	C.SRTIME_L64	C.TS1_64	C.TS2_64	C.TS3_64	C.TS4_64	C.WAIT_USE64
65	C.SRTIME_L65	C.TS1_65	C.TS2_65	C.TS3_65	C.TS4_65	C.WAIT_USE65
66	C.SRTIME_L66	C.TS1_66	C.TS2_66	C.TS3_66	C.TS4_66	C.WAIT_USE66
67	C.SRTIME_L67	C.TS1_67	C.TS2_67	C.TS3_67	C.TS4_67	C.WAIT_USE67
68	C.SRTIME_L68	C.TS1_68	C.TS2_68	C.TS3_68	C.TS4_68	C.WAIT_USE68
69	C.SRTIME_L69	C.TS1_69	C.TS2_69	C.TS3_69	C.TS4_69	C.WAIT_USE69
70	C.SRTIME_L70	C.TS1_70	C.TS2_70	C.TS3_70	C.TS4_70	C.WAIT_USE70
71	C.SRTIME_L71	C.TS1_71	C.TS2_71	C.TS3_71	C.TS4_71	C.WAIT_USE71
72	C.SRTIME_L72	C.TS1_72	C.TS2_72	C.TS3_72	C.TS4_72	C.WAIT_USE72
73	C.SRTIME_L73	C.TS1_73	C.TS2_73	C.TS3_73	C.TS4_73	C.WAIT_USE73
74	C.SRTIME_L74	C.TS1_74	C.TS2_74	C.TS3_74	C.TS4_74	C.WAIT_USE74
75	C.SRTIME_L75	C.TS1_75	C.TS2_75	C.TS3_75	C.TS4_75	C.WAIT_USE75
76	C.SRTIME_L76	C.TS1_76	C.TS2_76	C.TS3_76	C.TS4_76	C.WAIT_USE76
77	C.SRTIME_L77	C.TS1_77	C.TS2_77	C.TS3_77	C.TS4_77	C.WAIT_USE77
78	C.SRTIME_L78	C.TS1_78	C.TS2_78	C.TS3_78	C.TS4_78	C.WAIT_USE78
79	C.SRTIME_L79	C.TS1_79	C.TS2_79	C.TS3_79	C.TS4_79	C.WAIT_USE79
80	C.SRTIME_L80	C.TS1_80	C.TS2_80	C.TS3_80	C.TS4_80	C.WAIT_USE80
81	C.SRTIME_L81	C.TS1_81	C.TS2_81	C.TS3_81	C.TS4_81	C.WAIT_USE81
82	C.SRTIME_L82	C.TS1_82	C.TS2_82	C.TS3_82	C.TS4_82	C.WAIT_USE82
83	C.SRTIME_L83	C.TS1_83	C.TS2_83	C.TS3_83	C.TS4_83	C.WAIT_USE83
84	C.SRTIME_L84	C.TS1_84	C.TS2_84	C.TS3_84	C.TS4_84	C.WAIT_USE84
85	C.SRTIME_L85	C.TS1_85	C.TS2_85	C.TS3_85	C.TS4_85	C.WAIT_USE85
86	C.SRTIME_L86	C.TS1_86	C.TS2_86	C.TS3_86	C.TS4_86	C.WAIT_USE86
87	C.SRTIME_L87	C.TS1_87	C.TS2_87	C.TS3_87	C.TS4_87	C.WAIT_USE87
88	C.SRTIME_L88	C.TS1_88	C.TS2_88	C.TS3_88	C.TS4_88	C.WAIT_USE88
89	C.SRTIME_L89	C.TS1_89	C.TS2_89	C.TS3_89	C.TS4_89	C.WAIT_USE89
90	C.SRTIME_L90	C.TS1_90	C.TS2_90	C.TS3_90	C.TS4_90	C.WAIT_USE90
91	C.SRTIME_L91	C.TS1_91	C.TS2_91	C.TS3_91	C.TS4_91	C.WAIT_USE91
92	C.SRTIME_L92	C.TS1_92	C.TS2_92	C.TS3_92	C.TS4_92	C.WAIT_USE92
93	C.SRTIME_L93	C.TS1_93	C.TS2_93	C.TS3_93	C.TS4_93	C.WAIT_USE93
94	C.SRTIME_L94	C.TS1_94	C.TS2_94	C.TS3_94	C.TS4_94	C.WAIT_USE94
95	C.SRTIME_L95	C.TS1_95	C.TS2_95	C.TS3_95	C.TS4_95	C.WAIT_USE95
96	C.SRTIME_L96	C.TS1_96	C.TS2_96	C.TS3_96	C.TS4_96	C.WAIT_USE96
97	C.SRTIME_L97	C.TS1_97	C.TS2_97	C.TS3_97	C.TS4_97	C.WAIT_USE97
98	C.SRTIME_L98	C.TS1_98	C.TS2_98	C.TS3_98	C.TS4_98	C.WAIT_USE98
99	C.SRTIME_L99	C.TS1_99	C.TS2_99	C.TS3_99	C.TS4_99	C.WAIT_USE99



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