SAMWON TECH

SDR100 - SERIES

SDR102, SDR104, SDR106, SDR112

Communication Manual

Digital Recorder

※ This Manual applies to SDR102, SDR104, SDR106, SDR112.
The model stated the manual content is SDR112.

Table of Contents

1. Instruction (Warning) on Safety

Thanks a lot for purchasing our Digital Recorder (SDR112).
This Communication Manual describes how to install and operate the product.

SAFETY SYMBOL MARK

(A) Indicates “Handle with Care” or “Caution”. Violation to the instruction may cause death, serious injury or serious damage to the product.

(1) Product: Appears when the item shall be well aware to protect human body and product.
(2) Communication Manual: Caution is indicated to prevent danger to user life and body when it is concerned.

(B) Indicates “Ground Terminal”.

Must make Ground to earth during installation and operation.

(C) Indicates “Additional Information”.

It describes additional information for the explanation.

(D) Indicates “Reference”.

☞ It describes items to reference and referencing page.

Caution for this Communication Manual

(A) Hand this Communication Manual to final User to carry with always, and store it nearby to reference anytime when needed.
(B) Use this product when you are fully acquainted with the Communication Manual.
(C) This Manual explains the detailed functions of the product, and it does not guaranty any other items except the Communication Manual.
(D) It is not allowed to edit or copy part or all of this Communication Manual without permission.
(E) The contents of this Manual may be changed without prior information or advanced notice.
(F) This Manual is prepared with the best knowledge, but please contact the company you purchase (Distributor) or our Sales Department if there is insufficient, wrong or missing item.

Caution for Safety & Modify(Change) of this Product

(A) For the safety of this product and the system to be connected to the product, use the product after fully aware the Safety Warnings (Instruction) in the Communication Manual.

(B) Our company does not have responsibility for any damage caused by using handling different from the Communication Manual, or damage from carelessness.

(C) For the protection and safety purpose of this product and the system connected to this product, extra protection or safety circuit must be installed outside the product. It is prohibited to modify (change) or add inside the product.

(D) Do not arbitrary disassemble, repair or modify. It can be the cause of electric shock, fire or malfunction.

(E) Please contact our Sales Department when changing the part or expendable items.

(F) Prevent moisture from entering the equipment. It may be the cause of trouble.

(G) Prevent strong shock to the product. It may be the cause of product damage or malfunction.

Regarding Warranty for the Product

(A) Our company does not have any warranty of responsibility except the items specified in our Quality Assurance condition.

(B) Our company does not have any responsibility for any direct or indirect damage to the User or the third party due to unpredictable fault and natural disaster in using the Product.

Regarding the Product Quality Assurance

(A) Product Warranty Period is one year from the date of purchase. It will be repaired free of charge for fault happened during normal operation according to the Communication Manual.

(B) Repair for product problem after the warranty period will be charged (actual expense) according to our company standard.

(C) Following troubles will be charged even within the warranty period.
  (1) Trouble due to User mistake or error (Ex: Initialization due to lost Password, etc)
  (2) Trouble due to natural disaster (Ex: Fire, Flood, etc.)
  (3) Trouble due to transfer of the product after installation.
  (4) Trouble due to arbitrary product disassemble, modify or damage
  (5) Trouble due to power trouble such as unstable power, etc.
  (6) Others

(D) Please contact the company you purchased (Distributor) or our Sales Department when you need A/S due to product trouble.

2. Communication Specification

Communication of SDR112 is made through RS485 type 2-wire Half-Duplex, and it is able to connect up to 30 devices with upper level computers using the prepared Protocol.

▶ Communication Setup related Parameter

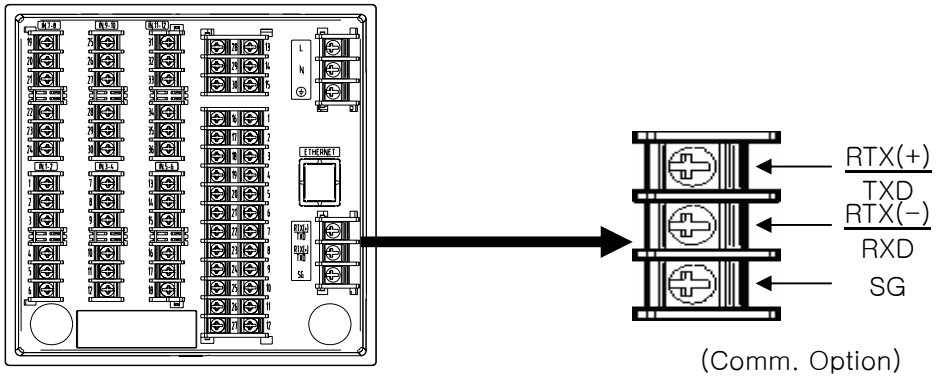
Parameter	Setup Range	Default Value
PROTOCOL	PCLINK	Basic Protocol
	PCLINK+SUM	Basic Protocol + CheckSum
	MODBUS ASC	MODBUS ASCII
	MODBUS RTU	MODBUS RTU
BAUD RATE	9600	9600 bps
	19200	19200 bps
	38400	38400 bps
	57600	57600 bps
	115200	115200 bps
PARITY	NONE	No Parity
	EVEN	Even Parity
	ODD	Odd Parity
STOP BIT	1	1 bit
	2	2 bits
DATA LENGTH	7	7 bits
	8	8 bits
EQUIPMENT ADDRESS	1~99	Equipment Address
RESPONSE TIME	0~10	Response Time (= Process Time + RESPONSE TIME * 10msec)

▶ Default Communication Parameter Value at factory output condition

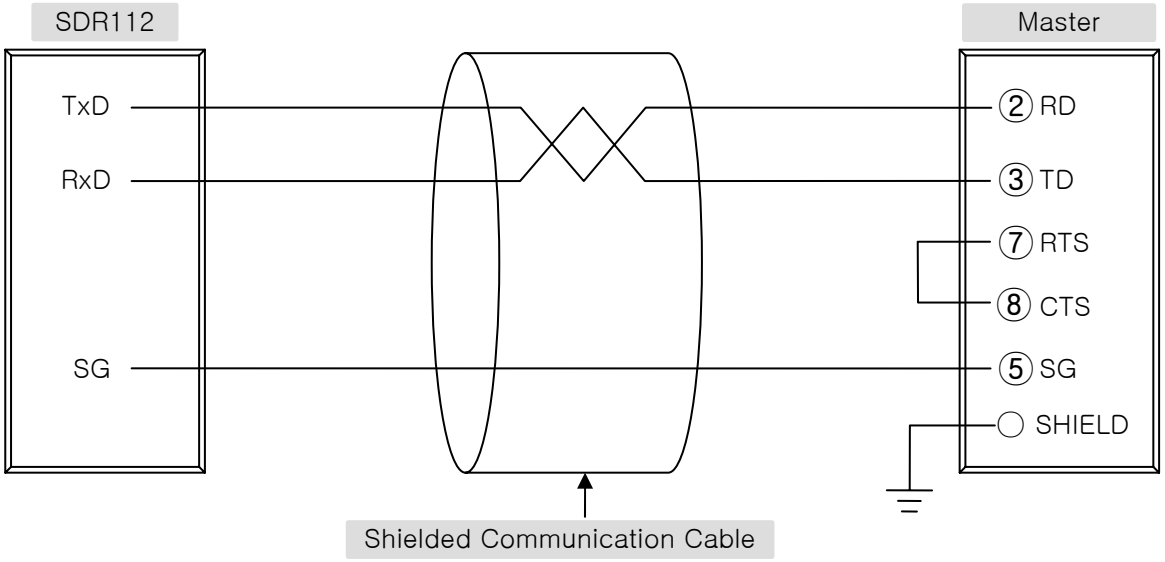
● PROTOCOL	PCLINK+SUM (PCLINK+CheckSum)
● Baud Rate (BPS)	9600 bps
● PARITY	NONE
● STOP BIT	1 (1 bit)
● DATA LENGTH	8 (8 bit)
● Equipment Address	1
● RESPONSE TIME	0 (Process Time + 10 msec)

3. Communication Wiring

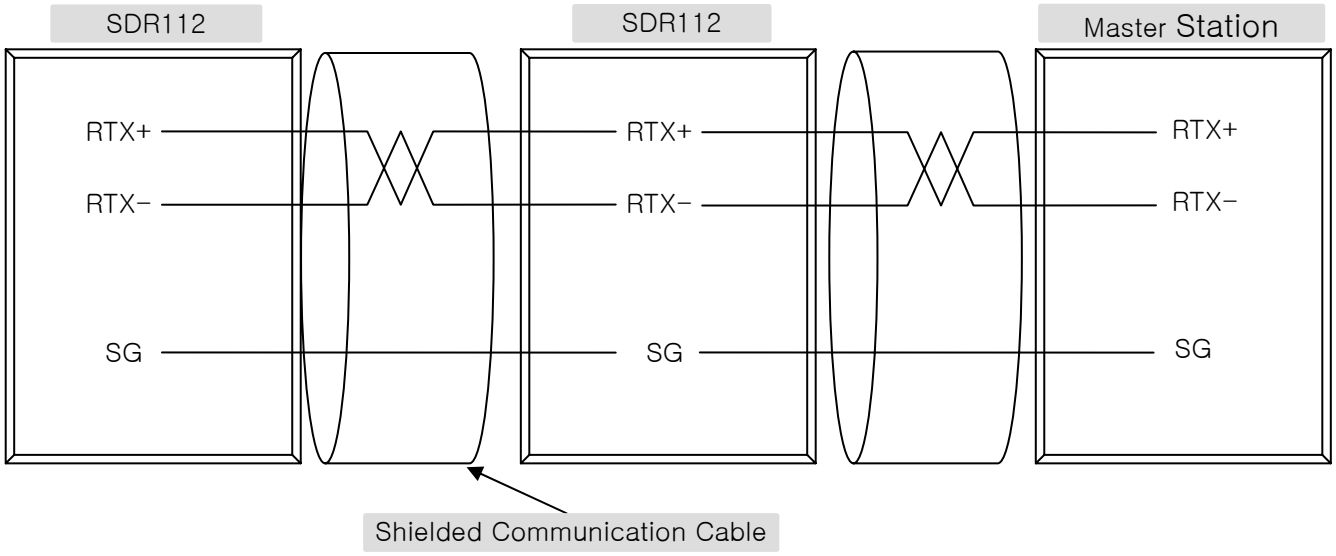
▶ Wiring between SDR112 and upper level communication equipment is different according to communication setup (RS232C/RS485), and it is as follows.



▶ SDR112 6 Pin Connector connection in RS232C Communication



▶ SDR112 Terminal Connection in RS485 Communication



4. Communication Command

4.1 Configuration of Communication Command

▶ Basic format of communication command transferred from upper level communication device to SDR112 is as follows.

①	②	③	④	⑤	⑥	⑦	⑧
STX	SDR112 Address	Command	,	Data according to Command rule	SUM	CR	LF

① Communication Command Start Character

- STX(Start of Text) in ASCII, code value is 0x02, and indicates start of communication command.

② SDR112 Address

- Indicates Unit Address which is SDR112 device number to communicate.

③ Command

- Command to communicate (Refer to Article 4.2 ~ 4.10).

④ Separator

- Comma (‘,’). It separates command and data.

⑤ Data Part

- Specific type characters according to communication command.

⑥ SUM

- Add characters after STX until before SUM in ASCII code, and transform the lower 1 byte (8 bit) into ASCII code 2 digit (Hexadecimal).

⑦ / ⑧ Terminating Character

- ASCII code which indicates the end of command, and is indicated as CR(0x0D), LF(0x0A).

▶ Example of SUM

◈ Example

When reading D-Register from CH1.NPV(D0001) to CH6.NPV(D0006)

- Transmit : [stx]01RSD,06,0001[cr][lf]
- Transmit (Including CheckSum) : [stx]01RSD,06,0001C9[cr][lf]

☞ As shown is following, hexadecimal sum of 01RSD,06,0001 in ASCII is 2C9, and take lower 2 byte C9 and use it as CheckSum.

Character	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 Code

2nd \ 1st	0	1	2	3	4	5	6	7
0	MUL	DLE	SPACE	0	@	P	`	p
1	S0H	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	E0T	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	S0	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

4.2 Communication Command Types

▶ Two types of commands are provided on SDR112. 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 SDR112.

- Reference Command

Command	Description
AMI	Indicate Model Name and Version-Revision of SDR112

- Read/Write Command

Command	Description
RSD	D-Register Sequential Read
RRD	D-Register Random Read
WSD	D-Register Sequential Write
WRD	D-Register Random Write
STD	D-Register Monitoring Set
CLD	D-Register Monitoring Call

☞ Each command can read or write up to 64 D-Register. For STD/CLD, its registered contents are initialized when power is off, and need to re-register when power on.

4.3 Error Code

▶ SDR112 transmit as follows when error occurred during communication.

Number of Byte	1	2	2	2	2	1	1
Contents	STX	SDR112 Address	NG	Error Code	SUM	CR	LF

▪ Description of Error Code

Error Code	Description	Remark
01	Non-existing command assigned	
02	Non-existing D-Register assigned	
03	Quantity setup error	
04	Data setup error	Use character other than effective data (Data use only 0~9, A~F hexadecimal)
08	Wrong Format configuration	▪ Different format from assigned command ▪ Assigned quantity is different from setup
11	CheckSum Error	
12	Monitoring Command Error	There is no assigned Monitoring Command
00	Other Error occurred	

4.4 RSD Command

▶ This command is used to read sequential data in D-Register.

▣ Transmit Format

Number of Byte	1	2	3	1	2	1	4	2	1	1
Contents	STX	SDR112 Address	RSD	,	Quantity	,	D-Reg.	SUM	CR	LF

▣ Receiving Format

Number of Byte	1	2	3	1	2	1	4	1	…
Contents	STX	SDR112 Address	RSD	,	OK	,	Data-1	,	…

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

- Quantity : 1 ~ 64
- DATA : Hexadecimal number without decimal point

◈ Example

When reading D-Register from CH1.NPV(D0001) to CH2.NPV(D0002)

- Transmit : [stx]01RSD,02,0001[cr][lf]
- Transmit (including CheckSum) : [stx]01RSD,02,0001C5[cr][lf]

When received CH1.NPV(D0001) is 50.0, CH2.NPV(D0002) is 30.0:

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

▶ Process to transform received NPV hexadecimal data value to display on the screen.

① Transform to decimal number: 01F4(hexadecimal) → 500(decimal)
② Multiply 0.1 to transformed value. : 500 * 0.1 → 50.0

4.5 RRD Command

▶ This command is used to read random data in D-Register.

▣ Transmit Format

Number of Byte	1	2	3	1	2	1	4	1	···
Contents	STX	SDR112 Address	RRD	,	Quantity	,	D-Reg.-1	,	···

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

▣ Receive Format

Number of Byte	1	2	3	1	2	1	4	1	···
Contents	STX	SDR112 Address	RRD	,	OK	,	Data-1	,	···

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

- Quantity : 1 ~ 64
- DATA : Hexadecimal number without decimal point

◈ Example

When reading D-Register of CH1.NPV(D0001) and CH2.NPV(D0002):

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

When received CH1 (D0001) value is 50.0, CH2 (D0002) value is 30.0:

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

4.6 WSD Command

▶ This command is used sequential data to D-Register.

▣ Transmit Format

Number of Byte	1	2	3	1	2	1	4	1	4
Contents	STX	SDR112 Address	WSD	,	Quantity	,	D-Reg.	,	Data-1

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

▣ Receive Format

Number of Byte	1	2	3	1	2	2	1	1
Contents	STX	SDR112 Address	WSD	,	OK	SUM	CR	LF

- Quantity : 1 ~ 64
- DATA : Hexadecimal number without decimal point

◈ Example

When writing data to First Cycle (D0102) and Second Cycle (D0103) of Recording Cycle.

- First Cycle Set Value : 0 (0.5 Sec)
- Second Cycle Set Value : 1 (1Sec)

- Transmit : [stx]01WSD,02,0102,0000,0001[cr][lf]
- Transmit (including CheckSum) : [stx]01WSD,02,0102,0000,0001A5[cr][lf]

4.7 WRD Command

▶ This command is used to write Random Data to D-Register.

▣ Transmit Format

Number of Byte	1	2	3	1	2	1	4	1	4
Contents	STX	SDR112 Address	WRD	,	Quantity	,	D-Reg.-1	,	Data-1

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

▣ Receive Format

Number of Byte	1	2	3	1	2	2	1	1
Contents	STX	SDR112 Address	WRD	,	OK	SUM	CR	LF

- Quantity : 1 ~ 64
- DATA : Hexadecimal number without decimal point

◈ Example

When writing data to First Cycle (D0102) and Second Cycle (D0103) of Recording Cycle.

- First Cycle Set Value : 0 (0.5 Sec)
- Second Cycle Set Value : 1 (1Sec)

- Transmit : [stx]01WRD,02,0102,0000,0103,0001[cr][lf]
- Transmit (including CheckSum) : [stx]01WRD,02,0102,0000,0103,000194[cr][lf]

4.8 STD Command

▶ This command is used to register required D-Register to SDR112.

▣ Transmit Format

Number of Byte	1	2	3	1	2	1	4	1	4
Contents	STX	SDR112 Address	STD	,	Quantity	,	D-Reg.-1	,	D-Reg.-2

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

▣ Receive Format

Number of Byte	1	2	3	1	2	2	1	1
Contents	STX	SDR112 Address	STD	,	OK	SUM	CR	LF

- Quantity : 1 ~ 64

◈ Example

When register CH1.NPV(D0001), CH2.NPV(D0002), CH5.NPV(D0005), CH6.NPV(D0006).

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

4.9 CLD Command

▶ This command is used to read pre-registered SDR112's D-Register using STD command.

▣ Transmit Format

Number of Byte	1	2	3	2	1	1
Contents	STX	SDR112 Address	CLD	SUM	CR	LF

▣ Receive Format

Number of Byte	1	2	3	1	2	1	4	1	4
Contents	STX	SDR112 Address	CLD	,	OK	,	Data-1	,	Data-2

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

- Data : Hexadecimal number without decimal point

4.10 AMI Command

▶ This command is used to check SDR112 information.

▣ Transmit Format

Number of Byte	1	2	3	2	1	1
Contents	STX	SDR112 Address	AMI	SUM	CR	LF

▣ Receive Format

Number of Byte	1	2	3	1	2	1
Contents	STX	SDR112 Address	AMI	,	OK	,

7	3	8	2	1	1
Model Name	SPACE	Version Revision	SUM	CR	LF

◈ Example

When checking SDR112 information:

- Transmit : [STX]01AMI[CR][LF]
- Transmit(including CheckSum) : [STX]01AMI38[CR][LF]

- Receive : [STX]01AMI , OK, SDR[sp]112[sp][sp][sp]V00[sp]R0.1[cr][lf]
- Receive(including CheckSum): [STX]01AMI, OK, SDR[sp]112[sp][sp][sp]V00[sp]R0.1DE[cr][lf]

5. MODBUS Protocol

5.1 Communication Command Configuration

▣ Data Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Terminating Character	[CR][LF]	none
Data Length	7-bit(fixed)	8-bit(fixed)
Data Format	ASCII	Binary
Error Detection	LRC (Longitudinal Redundancy Check)	CRC-16 (Cyclic Redundancy Check)
Data Timing Difference	Less than 1 sec.	Less than 24-bit time

▣ Frame Configuration

▶ Modbus ASCII

Leading Character	Communication Address	Function Code	Data	LRC Check	Terminating Character
1 Character	2 Character	2 Character	N Character	2 Character	2 Character (CR+LF)

▶ Modbus RTU

Leading Character	Communication Address	Function Code	Data	LRC Check	Terminating Character
None	8-bit	8-bit	N * 8-bit	16-bit	None

- N : Hexadecimal Data Quantity

5.2 Communication Function Code

▶ Modbus Communication Code consists of D-Register Read/Write Function Code and Loop-Back Detection Function Code.

Function Code	Description
03	Sequential Read from D-Register
06	Single Write to D-Register
08	Diagnostics (Loop-Back Test)
16	Sequential Write to D-Register

When using MODBUS protocol, it should apply 1 number less D-Register number than what is defined in D-Register Table since D-Register number starts from 0.

5.3 Function Code - 03

▶ Function Code - 03 can read up to 64 sequential D-Register contents.

▣ Transmit Format

Item	ASCII	RTU
Communication Leading Character	: (콜론)	None
Communication Address	2 Character	8-bit
Function Code - 03	2 Character	8-bit
D-Register High	2 Character	8-bit
D-Register Low	2 Character	8-bit
Read Quantity High	2 Character	8-bit
Read Quantity Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When reading D-Register from CH1.NPV(D0001) to CH2.NPV (D0002):

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

☞ Should apply 1 less number from D-Register Table defined number.

▣ Receive Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Address	2 Character	8-bit
Function Code - 03	2 Character	8-bit
Number of Data Byte	2 Character	8-bit
Data - 1 High	2 Character	8-bit
Data - 1 Low	2 Character	8-bit
...	...	...
Data - n High	2 Character	8-bit
Data - n Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When received CH1.NPV(D0001) value is 49.3, and CH2.NPV(D0002) value is 10.8:

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

5.4 Function Code - 06

▶ Function Code - 06 is used to write single D-Register contents.

▣ Transmit Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Address	2 Character	8-bit
Function Code - 06	2 Character	8-bit
D-Register High	2 Character	8-bit
D-Register Low	2 Character	8-bit
Write Data High	2 Character	8-bit
Write Data Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When set all '1' to recovery from power outage (D0101):

- MODBUS ASCII :01060064000194[cr][lf]
- MODBUS RTU 01060064000109D5

☞ Should apply 1 less number from D-Register Table defined number.

▣ Receive Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Address	2 Character	8-bit
Function Code - 06	2 Character	8-bit
D-Register High	2 Character	8-bit
D-Register Low	2 Character	8-bit
Write Data High	2 Character	8-bit
Write Data Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When it is set correctly, it receives as follows:

- MODBUS ASCII :01060064000194[cr][lf]
- MODBUS RTU 01060064000109D5

5.5 Function Code - 08

▶ Function Code - 08 is used for self diagnosis.

▣ Transmit Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Address	2 Character	8-bit
Function Code - 08	2 Character	8-bit
Diagnose Code High	2 Character	8-bit
Diagnose Code Low	2 Character	8-bit
Data High	2 Character	8-bit
Data Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When transmit following frame for self diagnosis:

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

▣ Receive Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Address	2 Character	8-bit
Function Code - 16	2 Character	8-bit
Diagnose Code High	2 Character	8-bit
Diagnose Code Low	2 Character	8-bit
Data High	2 Character	8-bit
Data Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When it is set correctly, it receives as follows:

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

5.6 Function Code - 16

▶ Function Code - 16 can write up to 64 sequential D-Register data.

▣ Transmit Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Address	2 Character	8-bit
Function Code - 16	2 Character	8-bit
D-Register High	2 Character	8-bit
D-Register Low	2 Character	8-bit
Write Quantity High	2 Character	8-bit
Write Quantity Low	2 Character	8-bit
Number of Data Byte	2 Character	8-bit
Data - 1 High	2 Character	8-bit
Data - 1 Low	2 Character	8-bit
...	...	...
Data - n High	2 Character	8-bit
Data - n Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When set '2(2 sec)' for First Cycle, '4(10 sec)' to Second Cycle:

- MODBUS ASCII :011000650002040002000047E[cr][lf]
- MODBUS RTU 01100065000204002000495BB

▣ Receive Format

Item	ASCII	RTU
Communication Leading Character	: (Colon)	None
Communication Address	2 Character	8-bit
Function Code - 16	2 Character	8-bit
D-Register High	2 Character	8-bit
D-Register Low	2 Character	8-bit
Write Quantity High	2 Character	8-bit
Write Quantity Low	2 Character	8-bit
Error Detection	2 Character	16-bit
Communication Terminating Character	2 Character(CR + LF)	None

◈ Example

When it is set correctly, it receives as follows:

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

6. D-Register Description

▶ D-Register is collection of data provided to check all the status of SDR112 through communication.

- It is basically grouped with 100 registers according to their contents as follows:

D-Register Range	Group Name	Contents	Read	Write
D0001 ~ D0099	PROCESS	Display Basic Record Information	○	◈
D0101 ~ D0199	FUNCTION	Set Record Information	○	○
D0201 ~ D0330	DISPLAY	Set Screen & Message	○	○
D0334 ~ D0358	RESERVATION	Set Clock Reserve Function	○	△
D0401 ~ D0599	INPUT	Set Input	○	○
D0901 ~ D0912	ALARM1	Set Alarm Operation	○	○
D1001 ~ D2156	ALARM2	Set Alarm Signal	○	○
D2201 ~ D2206	DICONFIG	Set DI	○	○
D2301 ~ D2319	COMMUNICATION	Communication related Info	○	◈
D2401 ~ D2403	PICTURE	Set Picture View	○	○
D2501 ~ D2544	INITIAL	Set Initialization	○	○
D2601 ~ D3314	ERROR HISTORY	View Error History	○	◈
D3401 ~ D4114	EVENT HISTORY	View Event History	○	◈

☞ Each D-Register is consisted of 4 hexadecimal digits (2-Byte).

- ○ : Able to read/write for all parameters in applicable range.
- △ : Able to read/write for partial parameters in applicable range.
- ◈ : Unable to write for any parameters in applicable range.

6.1 PROCESS

▶ PROCESS Group stores basic data which occur during SDR112 recording. Among these, there is Bit Map information which indicates various status to a Bit, and they are as follows.

▪ Bit Map Information of SDR112

BIT	NOW.STS	CH1ALM.STS	CH2ALM.STS	CH3ALM.STS	CH4ALM.STS
	D0016	D0020	D0021	D0022	D0023
0	RECORD	ALM1	ALM1	ALM1	ALM1
1	SD.INSERT	ALM2	ALM2	ALM2	ALM2
2	INTERVAL	ALM3	ALM3	ALM3	ALM3
3		ALM4	ALM4	ALM4	ALM4
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

BIT	CH5ALM.STS	CH6ALM.STS	CH7ALM.STS	CH8ALM.STS	CH9ALM.STS
	D0024	D0025	D0026	D0027	D0028
0	ALM1	ALM1	ALM1	ALM1	ALM1
1	ALM2	ALM2	ALM2	ALM2	ALM2
2	ALM3	ALM3	ALM3	ALM3	ALM3
3	ALM4	ALM4	ALM4	ALM4	ALM4
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

BIT	CH10ALM.STS	CH11ALM.STS	CH12ALM.STS	CH1ADERR.STS	CH2ADERR.STS
	D0029	D0030	D0031	D0035	D0036
0	ALM1	ALM1	ALM1	+OVER	+OVER
1	ALM2	ALM2	ALM2	-OVER	-OVER
2	ALM3	ALM3	ALM3	S.OPN	S.OPN
3	ALM4	ALM4	ALM4		
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

BIT	CH3ADERR.STS	CH4ADERR.STS	CH5ADERR.STS	CH6ADERR.STS	CH7ADERR.STS
	D0037	D0038	D0039	D0040	D0041
0	+OVER	+OVER	+OVER	+OVER	+OVER
1	-OVER	-OVER	-OVER	-OVER	-OVER
2	S.OPN	S.OPN	S.OPN	S.OPN	S.OPN
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

BIT	CH8ADERR.STS	CH9ADERR.STS	CH10ADERR.STS	CH11ADERR.STS	CH12ADERR.STS
	D0042	D0043	D0044	D0045	D0046
0	+OVER	+OVER	+OVER	+OVER	+OVER
1	-OVER	-OVER	-OVER	-OVER	-OVER
2	S.OPN	S.OPN	S.OPN	S.OPN	S.OPN
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

BIT	ALARMOUT.STS	REMOTINPUT.STS			
	D0050	D0051			
0	RELAY1	DI1			
1	RELAY2	DI2			
2	RELAY3				
3	RELAY4				
4	RELAY5				
5	RELAY6				
6	RELAY7				
7	RELAY8				
8	RELAY9				
9	RELAY10				
10	RELAY11				
11	RELAY12				
12					
13					
14					
15					

6.2 FUNCTION

▶ FUNCTION Group is consisted of SDR112's equipment operation related D-Register.

▪ Common recording related D-Register

D-Reg.	Symbol	Description
D0101	PWR.MODE	Set recovery from power outage(0 : Stop, 1 : Hot)
D0102	1.INTERVAL	Set First Cycle
D0103	2.INTERVAL	Set Second Cycle
D0104	REC.PLACE	Set Record Media
D0105	GRTREND.DIRECT	Set Trend Direction of Graph Record Display (0 : Y-Axis, 1 : X-Axis)
D0106	GRBACK.COLOR	Set Background Color of Graph Record Display (0 : Black, 1 : White)
D0107	GRDRAW.TYPE	Set Drawing Pen Type of Graph Record Display (0 : Dot, 1 : Line)
D0108	GRSCL.DISPLAY	Set SCALE of Graph Record Display (0 : All, 1 : One, 2 : None)
D0109	GRTRIP1.USE	Set Reference Line 1 of Graph Record Display (0 : Unuse, 1 : Use)
D0110	GRTRIP1.THICK	Set Reference Line 1 Thickness of Graph Record Display (0 : 1 Pixel, 1 : 3 Pixel)
D0111	GRTRIP1.POS	Set Reference Line 1 location of Graph Record Display
D0112	GRTRIP2.USE	Set Reference Line 2 of Graph Record Display (0 : Unuse, 1 : Use)
D0113	GRTRIP2.THICK	Set Reference Line 2 Thickness of Graph Record Display (0 : 1 Pixel, 1 : 3 Pixel)
D0114	GRTRIP2.POS	Set Reference Line 2 location of Graph Record Display
D0115	GSTREND.DIRECT	Set Trend Direction of Graph Search Display (0 : Y-Axis, 1 : X-Axis)
D0116	GSBACK.COLOR	Set Background Color of Graph Search Display (0 : Black, 1 : White)
D0117	GSDRAW.TYPE	Set Drawing Pen Type of Graph Search Display (0 : Dot, 1 : Line)
D0118	GSSCL.DISPLAY	Set SCALE of Graph Search Display (0 : All, 1 : One, 2 : None)
D0119	GSTRIP1.USE	Set Reference Line 1 of Graph Search Display (0 : Unuse, 1 : Use)
D0120	GSTRIP1.THICK	Set Reference Line 1 Thickness of Graph Search Display (0 : 1 Pixel, 1 : 3 Pixel)
D0121	GSTRIP1.POS	Set Reference Line 1 location of Graph Search Display
D0122	GSTRIP2.USE	Set Reference Line 2 of Graph Search Display (0 : Unuse, 1 : Use)
D0123	GSTRIP2.THICK	Set Reference Line 2 Thickness of Graph Search Display (0 : 1 Pixel, 1 : 3 Pixel)
D0124	GSTRIP2.POS	Set Reference Line 2 location of Graph Search Display

- Record related D-Register for each Channel

D-Reg.	Symbol	Description
D0128	CH1PEN.USE	Set Pen using state(0 : Unuse, 1 : Use)
D0129	CH1DISPL.HIRH	Set Graph Scale High
D0130	CH1DISPL.LOW	Set Graph Scale Low
D0131	CH1PEN.THICK	Set Pen Thickness(0 : 1 Pixel, 1 : 3 Pixel)
D0132	CH1PV.DISPLAY	Set PV Display Method(0 : Tag, 1 : Bar)
D0133	CH2PEN.USE	Set Pen using state(0 : Unuse, 1 : Use)
D0134	CH2DISPL.HIRH	Set Graph Scale High
D0135	CH2DISPL.LOW	Set Graph Scale Low
D0136	CH2PEN.THICK	Set Pen Thickness(0 : 1 Pixel, 1 : 3 Pixel)
D0137	CH2PV.DISPLAY	Set PV Display Method(0 : Tag, 1 : Bar)
...	...	...
D0178	CH11PEN.USE	Set Pen using state(0 : Unuse, 1 : Use)
D0179	CH11DISPL.HIRH	Set Graph Scale High
D0180	CH11DISPL.LOW	Set Graph Scale Low
D0181	CH11PEN.THICK	Set Pen Thickness(0 : 1 Pixel, 1 : 3 Pixel)
D0182	CH11PV.DISPLAY	Set PV Display Method(0 : Tag, 1 : Bar)
D0183	CH12PEN.USE	Set Pen using state(0 : Unuse, 1 : Use)
D0184	CH12DISPL.HIRH	Set Graph Scale High
D0185	CH12DISPL.LOW	Set Graph Scale Low
D0186	CH12PEN.THICK	Set Pen Thickness(0 : 1 Pixel, 1 : 3 Pixel)
D0187	CH12PV.DISPLAY	Set PV Display Method(0 : Tag, 1 : Bar)

6.3 RESERVATION

▶ RESERVATION Group is consisted of SDR112's Current Time Set and Reserve related D-Register.

- Time related D-Register

D-Reg.	Symbol	Description	Read	Write
D0335	NOW.YEAR	SDR112's Current Time (YEAR)	O	X
D0336	NOW.MONTH	SDR112's Current Time (MONTH)	O	X
D0337	NOW.DAY	SDR112's Current Time (DAY)	O	X
D0338	NOW.AMPM	SDR112's Current Time (AM/PM)	O	X
D0339	NOW.HOUR	SDR112's Current Time (HOUR)	O	X
D0340	NOW.MIN	SDR112's Current Time (MIN)	O	X
D0341	C.YEAR	Set SDR112's Current Time (YEAR)	X	O
D0342	C.MONTH	Set SDR112's Current Time (MONTH)	X	O
D0343	C.DAY	Set SDR112's Current Time (DAY)	X	O
D0344	C.AMPM	Set SDR112's Current Time (AM/PM)	X	O
D0345	C.HOUR	Set SDR112's Current Time (HOUR)	X	O
D0346	C.MIN	Set SDR112's Current Time (MIN)	X	O
D0347	RES.S_YEAR	Set Reserve Start Time (YEAR)	O	O
D0348	RES.S_MONTH	Set Reserve Start Time (MONTH)	O	O
D0349	RES.S_DAY	Set Reserve Start Time (DAY)	O	O
D0350	RES.S_AMPM	Set Reserve Start Time (AM/PM)	O	O
D0351	RES.S_HOUR	Set Reserve Start Time (HOUR)	O	O
D0352	RES.S_MIN	Set Reserve Start Time (MIN)	O	O
D0353	RES.E_YEAR	Set Reserve End Time (YEAR)	O	O
D0354	RES.E_MONTH	Set Reserve End Time (MONTH)	O	O
D0355	RES.E_DAY	Set Reserve End Time (DAY)	O	O
D0356	RES.E_AMPM	Set Reserve End Time (AM/PM)	O	O
D0357	RES.E_HOUR	Set Reserve End Time (HOUR)	O	O
D0358	RES.E_MIN	Set Reserve End Time (MIN)	O	O

- Reserve Operation On/Off

D-Reg.	Symbol	Parameter	Value	Description
D0334	RESERVE.MMODE	OFF	0	Release Reserve
		ON	1	Set Reserve

6.4 ALARM SIGNAL

▶ Set 4 Alarm Signal per each Channel.

D-Reg.	Symbol	Description
D0901 ~ D0912	CH1~12ALM.OP	Select ALARM Signal operating condition.
D1001, D1015 D1029, D1043	CH1AL1~4.TYPE	Set Type of Channel 1 ALARM Signal 1~4
D1002, D1016 D1030, D1044	CH1AL1~4.POINT	Set Point of Channel 1 ALARM Signal 1~4
D1003, D1017 D1031, D1045	CH1AL1~4.H_POINT	Set High Point of Channel 1 ALARM Signal 1~4.
D1004, D1018 D1032, D1046	CH1AL1~4.L_POINT	Set Low Point of Channel 1 ALARM Signal 1~4.
D1005, D1019 D1033, D1047	CH1AL1~4.HYS	Set Hysteresis of Channel 1 ALARM Signal 1~4.
D1006, D1020 D1034, D1048	CH1AL1~4.DYT	Set Delay Time of Channel 1 ALARM Signal 1~4.
D1007, D1021 D1035, D1049	CH1AL1~4.RLY	Set Relay of Channel 1 ALARM Signal 1~4.
D1009, D1023 D1037, D1051	CH1AL1~4.USLP	Set Up Slope of Channel 1 ALARM Signal 1~4.
D1010, D1024 D1038, D1052	CH1AL1~4.DSLP	Set Down Slope of Channel 1 ALARM Signal 1~4.
D10111, D1025 D1039, D1053	CH1AL1~4.SLPSMPL	Set Standard Sample of Channel 1 ALARM Signal 1~4.
D1012, D1026 D1040, D1054	CH1AL1~4.SLPUNIT	Set Standard Operation Time of Channel 1 ALARM Signal 1~4.
D1013, D1027 D1041, D1055	CH1AL1~4.CH	Set Channel of Channel 1 ALARM Signal 1~4.
D1014, D1028 D1042, D1056	CH1AL1~4.CHDEV	Set Channel Deviation of Channel 1 ALARM Signal 1~4.
…	…	…
D2101, D2115 D2129, D2143	CH12AL1~4.TYPE	Set Type of Channel 12 ALARM Signal 1~4
D2102, D2116 D2130, D2144	CH12AL1~4.POINT	Set Point of Channel 12 ALARM Signal 1~4
D2103, D2117 D2131, D2145	CH12AL1~4.H_POINT	Set High Point of Channel 12 ALARM Signal 1~4.
D2104, D2118 D2132, D2146	CH12AL1~4.L_POINT	Set Low Point of Channel 12 ALARM Signal 1~4.
D2105, D2119 D2133, D2147	CH12AL1~4.HYS	Set Hysteresis of Channel 12 ALARM Signal 1~4.
D2106, D2120 D2134, D2148	CH12AL1~4.DYT	Set Delay Time of Channel 12 ALARM Signal 1~4.
D2107, D2121 D2135, D2149	CH12AL1~4.RLY	Set Relay of Channel 12 ALARM Signal 1~4.
D2109, D2123 D2137, D2151	CH12AL1~4.USLP	Set Up Slope of Channel 12 ALARM Signal 1~4.
D2110, D2124 D2138, D2152	CH12AL1~4.DSLP	Set Down Slope of Channel 12 ALARM Signal 1~4.
D2111, D2125 D2139, D2153	CH12AL1~4.SLPSMPL	Set Standard Sample of Channel 12 ALARM Signal 1~4.
D2112, D2126 D2140, D2154	CH12AL1~4.SLPUNIT	Set Standard Operation Time of Channel 12 ALARM Signal 1~4.
D2113, D2127 D2141, D2155	CH12AL1~4.CH	Set Channel of Channel 12 ALARM Signal 1~4.
D2114, D2128 D2142, D2156	CH12AL1~4.CHDEV	Set Channel Deviation of Channel 12 ALARM Signal 1~4.

6.5 COMMUNICATION

▶ Check communication related setup information.

D-Reg.	Symbol	Description
D2301	PROTOCOL	Able to check Communication Protocol.
D2302	BPS	Able to check Baud Rate.
D2303	PARITY	Able to check Parity.
D2304	STOP_BIT	Able to check Stop Bit.
D2305	DATA_LENGTH	Able to check Data Length.
D2306	ADDRESS	Able to check Address.
D2307	RESPONSE	Able to check Response Time.

6.6 INPUT

▶ Set input items.

D-Reg.	Symbol	Description
D0401	CH1.SENGP	Set Input Sensor Group of Channel 1.
D0402	CH1.SENTP	Set Input Sensor Type of Channel 1.
D0403	CH1.UNIT	Set Display Unit of Channel 1.
D0404	CH1.DP	Set Dot Position of Channel 1.
D0405	CH1.TCSEL	Set T/C Select of Channel 1.
D0406	CH1.INRH	Set Range High of Channel 1.
D0407	CH1.INRL	Set Range Low of Channel 1.
D0408	CH1.INSH	Set Scale High of Channel 1.
D0409	CH1.INSL	Set Scale Low of Channel 1.
D0410 ~ D0413	CH1.TAGNAME	Set Tag Name of Channel 1.
D0414	CH1.SOPNSEL	Set PV when Sensor Open at Channel 1.
D0415	CH1.MES	Set Measure Method of Channel 1.
D0416	CH1.MESTM	Set Measure Time for the Measure Method at Channel 1.
…	…	…
D0481	CH6.SENGP	Set Input Sensor Group of Channel 6.
D0482	CH6.SENTP	Set Input Sensor Type of Channel 6.
D0483	CH6.UNIT	Set Display Unit of Channel 6.
D0484	CH6.DP	Set Dot Position of Channel 6.
D0485	CH6.TCSEL	Set T/C Select of Channel 6.
D0486	CH6.INRH	Set Range High of Channel6.
D0487	CH6.INRL	Set Range Low of Channel 6.
D0488	CH6.INSH	Set Scale High of Channel 6.
D0489	CH6.INSL	Set Scale Low of Channel 6.
D0490 ~ D0493	CH6.TAGNAME	Set Tag Name of Channel 6.
D0494	CH6.SOPNSEL	Set PV when Sensor Open at Channel 6.
D0495	CH6.MES	Set Measure Method of Channel 6.
D0496	CH6.MESTM	Set Measure Time for the Measure Method at Channel 6.

D-Reg.	Symbol	Description
D0501	CH7.SENGP	Set Input Sensor Group of Channel 7.
D0502	CH7.SENTP	Set Input Sensor Type of Channel 7.
D0503	CH7.UNIT	Set Display Unit of Channel 7.
D0504	CH7.DP	Set Dot Position of Channel 7.
D0505	CH7.TCSEL	Set T/C Select of Channel 7.
D0506	CH7.INRH	Set Range High of Channel 7.
D0507	CH7.INRL	Set Range Low of Channel 7.
D0508	CH7.INSH	Set Scale High of Channel 7.
D0509	CH7.INSL	Set Scale Low of Channel 7.
D0510 ~ D0513	CH7.TAGNAME	Set Tag Name of Channel 7.
D0514	CH7.SOPNSEL	Set PV when Sensor Open at Channel 7.
D0515	CH7.MES	Set Measure Method of Channel 7.
D0516	CH7.MESTM	Set Measure Time for the Measure Method at Channel 7.
...	...	...
D0581	CH12.SENGP	Set Input Sensor Group of Channel 12.
D0582	CH12.SENTP	Set Input Sensor Type of Channel 12.
D0583	CH12.UNIT	Set Display Unit of Channel 12.
D0584	CH12.DP	Set Dot Position of Channel 12.
D0585	CH12.TCSEL	Set T/C Select of Channel 12.
D0586	CH12.INRH	Set Range High of Channel 12.
D0587	CH12.INRL	Set Range Low of Channel 12.
D0588	CH12.INSH	Set Scale High of Channel 12.
D0589	CH12.INSL	Set Scale Low of Channel 12.
D0590 ~ D0593	CH12.TAGNAME	Set Tag Name of Channel 12.
D0594	CH12.SOPNSEL	Set PV when Sensor Open at Channel 12.
D0595	CH12.MES	Set Measure Method of Channel 12.
D0596	CH12.MESTM	Set Measure Time for the Measure Method at Channel 12.

6.7 DI CONFIG

▶ Set DI related items and Error Name.

D-Reg.	Symbol	Description
D2201	BUZ.TIME	Set Buzzer Time when DI occurs.
D2202	DIDET.TIME	Work as DI mode after set time when DI is detected. (DI Detection Time)
D2203	DI1.OPMODE	Set Operation Mode when DI1 occurs.
D2204	DI2.OPMODE	Set Operation Mode when DI2 occurs.
D2205	DI1.RLY	Set Relay when DI1 occurs.
D2206	DI2.RLY	Set Relay when DI2 occurs.

6.8 PICTURE

▶ Set Picture View Operation and Rotation Time.

D-Reg.	Symbol	Description
D2401	VIEW.ROTATE	Select the use of Customer BMP file.
D2402	R.ST_TIME	START TIME by no key input to activate User Screen Viewer.
D2403	R.INT_TIME	Rotate stored Customer BMP after specified interval time.

6.9 INITIAL

▶ Set Initial Display related initial value.

D-Reg.	Symbol	Description
D2501	LANGUAGE	Select Language.
D2502	DISP.MODE	Select Display Mode of initial display screen.
D2506 ~ D2518	INFORM1.NAME1 ~ INFORM1.NAME13	Set Information 1 Name of initial display screen.
...	...	...
D2532 ~ D2544	INFORM3.NAME1 ~ INFORM3.NAME13	Set Information 3 Name of initial display screen.

D-Register 0000 ~ 0599

: Read Only

D-Reg.	PROCESS	FUNCTION	DISPLAY1	DISPLAY2	INPUT1	INPUT2
	0	100	200	300	400	500
0						
1	CH1.NPV	PWR.MODE	CANMSG1.NAME1	CANMSG9.NAME1	CH1.SENGP	CH7.SENGP
2	CH2.NPV	1.INTERVAL	CANMSG1.NAME2	CANMSG9.NAME2	CH1.SENTP	CH7.SENTP
3	CH3.NPV	2.INTERVAL	CANMSG1.NAME3	CANMSG9.NAME3	CH1.UNIT	CH7.UNIT
4	CH4.NPV	REC.PLACE	CANMSG1.NAME4	CANMSG9.NAME4	CH1.DP	CH7.DP
5	CH5.NPV	GRTREND.DIRECT	CANMSG1.NAME5	CANMSG9.NAME5	CH1.TCSEL	CH7.TCSEL
6	CH6.NPV	GRBACK.COLOR	CANMSG1.NAME6	CANMSG9.NAME6	CH1.INRH	CH7.INRH
7	CH7.NPV	GRDRAW.TYPE	CANMSG1.NAME7	CANMSG9.NAME7	CH1.INRL	CH7.INRL
8	CH8.NPV	GRSCL.DISPLAY	CANMSG1.NAME8	CANMSG9.NAME8	CH1.INSH	CH7.INSH
9	CH9.NPV	GRTRIP1.USE	CANMSG1.NAME9	CANMSG9.NAME9	CH1.INSH	CH7.INSH
10	CH10.NPV	GRTRIP1.THICK	CANMSG1.NAME10	CANMSG9.NAME10	CH1.TAGNAME1	CH7.TAGNAME1
11	CH11.NPV	GRTRP1.POS	CANMSG1.NAME11	CANMSG9.NAME11	CH1.TAGNAME2	CH7.TAGNAME2
12	CH12.NPV	GRTRIP2.USE	CANMSG1.NAME12	CANMSG9.NAME12	CH1.TAGNAME3	CH7.TAGNAME3
13		GRTRIP2.THICK	CANMSG2.NAME1	CANMSG10.NAME1	CH1.TAGNAME4	CH7.TAGNAME4
14		GRTRP2.POS	CANMSG2.NAME2	CANMSG10.NAME2	CH1.SOPNSEL	CH7.SOPNSEL
15		GSTREND.DIRECT	CANMSG2.NAME3	CANMSG10.NAME3	CH1.MES	CH7.MES
16	NOW.STATUS	GSBACK.COLOR	CANMSG2.NAME4	CANMSG10.NAME4	CH1.MESTM	CH7.MESTM
17		GSDRAW.TYPE	CANMSG2.NAME5	CANMSG10.NAME5	CH2.SENGP	CH8.SENGP
18		GSSCL.DISPLAY	CANMSG2.NAME6	CANMSG10.NAME6	CH2.SENTP	CH8.SENTP
19		GSTRIP1.USE	CANMSG2.NAME7	CANMSG10.NAME7	CH2.UNIT	CH8.UNIT
20	CH1ALM.STS	GSTRIP1.THICK	CANMSG2.NAME8	CANMSG10.NAME8	CH2.DP	CH8.DP
21	CH2ALM.STS	GSTRP1.POS	CANMSG2.NAME9	CANMSG10.NAME9	CH2.TCSEL	CH8.TCSEL
22	CH3ALM.STS	GSTRIP2.USE	CANMSG2.NAME10	CANMSG10.NAME10	CH2.INRH	CH8.INRH
23	CH4ALM.STS	GSTRIP2.THICK	CANMSG2.NAME11	CANMSG10.NAME11	CH2.INRL	CH8.INRL
24	CH5ALM.STS	GSTRP2.POS	CANMSG2.NAME12	CANMSG10.NAME12	CH2.INSH	CH8.INSH
25	CH6ALM.STS		CANMSG3.NAME1		CH2.INSH	CH8.INSH
26	CH7ALM.STS		CANMSG3.NAME2		CH2.TAGNAME1	CH8.TAGNAME1
27	CH8ALM.STS		CANMSG3.NAME3		CH2.TAGNAME2	CH8.TAGNAME2
28	CH9ALM.STS	CH1PEN.USE	CANMSG3.NAME4	BUZ.ONOFF	CH2.TAGNAME3	CH8.TAGNAME3
29	CH10ALM.STS	CH1DISPL.HIGH	CANMSG3.NAME5	LIGHT.OFFTM	CH2.TAGNAME4	CH8.TAGNAME4
30	CH11ALM.STS	CH1DISPL.LOW	CANMSG3.NAME6	GRAPH.ROT_TIME	CH2.SOPNSEL	CH8.SOPNSEL
31	CH12ALM.STS	CH1PEN.THICK	CANMSG3.NAME7		CH2.MES	CH8.MES
32		CH1PV.DISPLAY	CANMSG3.NAME8		CH2.MESTM	CH8.MESTM
33		CH2PEN.USE	CANMSG3.NAME9		CH3.SENGP	CH9.SENGP
34		CH2DISPL.HIGH	CANMSG3.NAME10	RESERVE.MODE	CH3.SENTP	CH9.SENTP
35	CH1ADERR.STS	CH2DISPL.LOW	CANMSG3.NAME11	NOW.YEAR	CH3.UNIT	CH9.UNIT
36	CH2ADERR.STS	CH2PEN.THICK	CANMSG3.NAME12	NOW.MONTH	CH3.DP	CH9.DP
37	CH3ADERR.STS	CH2PV.DISPLAY	CANMSG4.NAME1	NOW.DAY	CH3.TCSEL	CH9.TCSEL
38	CH4ADERR.STS	CH3PEN.USE	CANMSG4.NAME2	NOW.AMPM	CH3.INRH	CH9.INRH
39	CH5ADERR.STS	CH3DISPL.HIGH	CANMSG4.NAME3	NOW.HOUR	CH3.INRL	CH9.INRL
40	CH6ADERR.STS	CH3DISPL.LOW	CANMSG4.NAME4	NOW.MIN	CH3.INSH	CH9.INSH
41	CH7ADERR.STS	CH3PEN.THICK	CANMSG4.NAME5	C.YEAR	CH3.INSH	CH9.INSH
42	CH8ADERR.STS	CH3PV.DISPLAY	CANMSG4.NAME6	C.MONTH	CH3.TAGNAME1	CH9.TAGNAME1
43	CH9ADERR.STS	CH4PEN.USE	CANMSG4.NAME7	C.DAY	CH3.TAGNAME2	CH9.TAGNAME2
44	CH10ADERR.STS	CH4DISPL.HIGH	CANMSG4.NAME8	C.AMPM	CH3.TAGNAME3	CH9.TAGNAME3
45	CH11ADERR.STS	CH4DISPL.LOW	CANMSG4.NAME9	C.HOUR	CH3.TAGNAME4	CH9.TAGNAME4
46	CH12ADERR.STS	CH4PEN.THICK	CANMSG4.NAME10	C.MIN	CH3.SOPNSEL	CH9.SOPNSEL
47		CH4PV.DISPLAY	CANMSG4.NAME11	RES.S_YEAR	CH3.MES	CH9.MES
48		CH5PEN.USE	CANMSG4.NAME12	RES.S_MONTH	CH3.MESTM	CH9.MESTM
49		CH5DISPL.HIGH	CANMSG5.NAME1	RES.S_DAY	CH4.SENGP	CH10.SENGP

D-Reg.	PROCESS	FUNCTION	DISPLAY1	DISPLAY2	INPUT1	INPUT2
	0	100	200	300	400	500
50	DO_STATUS	CH5DISPL.LOW	CANMSG5.NAME2	RES.S_AMPM	CH4.SENTP	CH10.SENTP
51	DI_DATA	CH5PEN.THICK	CANMSG5.NAME3	RES.S_HOUR	CH4.UNIT	CH10.UNIT
52		CH5PV.DISPLAY	CANMSG5.NAME4	RES.S_MIN	CH4.DP	CH10.DP
53		CH6PEN.USE	CANMSG5.NAME5	RES.E_YEAR	CH4.TCSEL	CH10.TCSEL
54		CH6DISPL.HIGH	CANMSG5.NAME6	RES.E_MONTH	CH4.INRH	CH10.INRH
55		CH6DISPL.LOW	CANMSG5.NAME7	RES.E_DAY	CH4.INRL	CH10.INRL
56		CH6PEN.THICK	CANMSG5.NAME8	RES.E_AMPM	CH4.INSH	CH10.INSH
57		CH6PV.DISPLAY	CANMSG5.NAME9	RES.E_HOUR	CH4.INSH	CH10.INSH
58		CH7PEN.USE	CANMSG5.NAME10	RES.E_MIN	CH4.TAGNAME1	CH10.TAGNAME1
59		CH7DISPL.HIGH	CANMSG5.NAME11		CH4.TAGNAME2	CH10.TAGNAME2
60		CH7DISPL.LOW	CANMSG5.NAME12		CH4.TAGNAME3	CH10.TAGNAME3
61		CH7PEN.THICK	CANMSG6.NAME1		CH4.TAGNAME4	CH10.TAGNAME4
62		CH7PV.DISPLAY	CANMSG6.NAME2		CH4.SOPNSEL	CH10.SOPNSEL
63		CH8PEN.USE	CANMSG6.NAME3		CH4.MES	CH10.MES
64		CH8DISPL.HIGH	CANMSG6.NAME4		CH4.MESTM	CH10.MESTM
65		CH8DISPL.LOW	CANMSG6.NAME5		CH5.SENGP	CH11.SENGP
66		CH8PEN.THICK	CANMSG6.NAME6		CH5.SENTP	CH11.SENTP
67		CH8PV.DISPLAY	CANMSG6.NAME7		CH5.UNIT	CH11.UNIT
68		CH9PEN.USE	CANMSG6.NAME8		CH5.DP	CH11.DP
69		CH9DISPL.HIGH	CANMSG6.NAME9		CH5.TCSEL	CH11.TCSEL
70		CH9DISPL.LOW	CANMSG6.NAME10		CH5.INRH	CH11.INRH
71		CH9PEN.THICK	CANMSG6.NAME11		CH5.INRL	CH11.INRL
72		CH9PV.DISPLAY	CANMSG6.NAME12		CH5.INSH	CH11.INSH
73		CH10PEN.USE	CANMSG7.NAME1		CH5.INSH	CH11.INSH
74		CH10DISPL.HIGH	CANMSG7.NAME2		CH5.TAGNAME1	CH11.TAGNAME1
75		CH10DISPL.LOW	CANMSG7.NAME3		CH5.TAGNAME2	CH11.TAGNAME2
76		CH10PEN.THICK	CANMSG7.NAME4		CH5.TAGNAME3	CH11.TAGNAME3
77		CH10PV.DISPLAY	CANMSG7.NAME5		CH5.TAGNAME4	CH11.TAGNAME4
78		CH11PEN.USE	CANMSG7.NAME6		CH5.SOPNSEL	CH11.SOPNSEL
79		CH11DISPL.HIGH	CANMSG7.NAME7		CH5.MES	CH11.MES
80		CH11DISPL.LOW	CANMSG7.NAME8		CH5.MESTM	CH11.MESTM
81		CH11PEN.THICK	CANMSG7.NAME9		CH6.SENGP	CH12.SENGP
82		CH11PV.DISPLAY	CANMSG7.NAME10		CH6.SENTP	CH12.SENTP
83		CH12PEN.USE	CANMSG7.NAME11		CH6.UNIT	CH12.UNIT
84		CH12DISPL.HIGH	CANMSG7.NAME12		CH6.DP	CH12.DP
85		CH12DISPL.LOW	CANMSG8.NAME1		CH6.TCSEL	CH12.TCSEL
86		CH12PEN.THICK	CANMSG8.NAME2		CH6.INRH	CH12.INRH
87		CH12PV.DISPLAY	CANMSG8.NAME3		CH6.INRL	CH12.INRL
88			CANMSG8.NAME4		CH6.INSH	CH12.INSH
89			CANMSG8.NAME5		CH6.INSH	CH12.INSH
90			CANMSG8.NAME6		CH6.TAGNAME1	CH12.TAGNAME1
91			CANMSG8.NAME7		CH6.TAGNAME2	CH12.TAGNAME2
92			CANMSG8.NAME8		CH6.TAGNAME3	CH12.TAGNAME3
93			CANMSG8.NAME9		CH6.TAGNAME4	CH12.TAGNAME4
94			CANMSG8.NAME10		CH6.SOPNSEL	CH12.SOPNSEL
95			CANMSG8.NAME11		CH6.MES	CH12.MES
96			CANMSG8.NAME12		CH6.MESTM	CH12.MESTM
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D-Register 0600 ~ 1199

D-Reg.	INPUT3	INPUT4	INPUT5	ALARM1	ALARM2	ALARM3
	600	700	800	900	1000	1100
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1				CH1ALM.OP	CH1AL1.TYPE	CH2AL1.TYPE
2				CH2ALM.OP	CH1AL1.POINT	CH2AL1.POINT
3				CH3ALM.OP	CH1AL1.H_POINT	CH2AL1.H_POINT
4				CH4ALM.OP	CH1AL1.L_POINT	CH2AL1.L_POINT
5				CH5ALM.OP	CH1AL1.HYS	CH2AL1.HYS
6				CH6ALM.OP	CH1AL1.DYT	CH2AL1.DYT
7				CH7ALM.OP	CH1AL1.RLY	CH2AL1.RLY
8				CH8ALM.OP	CH1AL1.ACT	CH2AL1.ACT
9				CH9ALM.OP	CH1AL1.USLP	CH2AL1.USLP
10				CH10ALM.OP	CH1AL1.DSLP	CH2AL1.DSLP
11				CH11ALM.OP	CH1AL1.SLPSMPL	CH2AL1.SLPSMPL
12				CH12ALM.OP	CH1AL1.SLPUNIT	CH2AL1.SLPUNIT
13					CH1AL1.CH	CH2AL1.CH
14					CH1AL1.CHDEV	CH2AL1.CHDEV
15					CH1AL2.TYPE	CH2AL2.TYPE
16					CH1AL2.POINT	CH2AL2.POINT
17					CH1AL2.H_POINT	CH2AL2.H_POINT
18					CH1AL2.L_POINT	CH2AL2.L_POINT
19					CH1AL2.HYS	CH2AL2.HYS
20					CH1AL2.DYT	CH2AL2.DYT
21					CH1AL2.RLY	CH2AL2.RLY
22					CH1AL2.ACT	CH2AL2.ACT
23					CH1AL2.USLP	CH2AL2.USLP
24					CH1AL2.DSLP	CH2AL2.DSLP
25					CH1AL2.SLPSMPL	CH2AL2.SLPSMPL
26					CH1AL2.SLPUNIT	CH2AL2.SLPUNIT
27					CH1AL2.CH	CH2AL2.CH
28					CH1AL2.CHDEV	CH2AL2.CHDEV
29					CH1AL3.TYPE	CH2AL3.TYPE
30					CH1AL3.POINT	CH2AL3.POINT
31					CH1AL3.H_POINT	CH2AL3.H_POINT
32					CH1AL3.L_POINT	CH2AL3.L_POINT
33					CH1AL3.HYS	CH2AL3.HYS
34					CH1AL3.DYT	CH2AL3.DYT
35					CH1AL3.RLY	CH2AL3.RLY
36					CH1AL3.ACT	CH2AL3.ACT
37					CH1AL3.USLP	CH2AL3.USLP
38					CH1AL3.DSLP	CH2AL3.DSLP
39					CH1AL3.SLPSMPL	CH2AL3.SLPSMPL
40					CH1AL3.SLPUNIT	CH2AL3.SLPUNIT
41					CH1AL3.CH	CH2AL3.CH
42					CH1AL3.CHDEV	CH2AL3.CHDEV
43					CH1AL4.TYPE	CH2AL4.TYPE
44					CH1AL4.POINT	CH2AL4.POINT
45					CH1AL4.H_POINT	CH2AL4.H_POINT
46					CH1AL4.L_POINT	CH2AL4.L_POINT
47					CH1AL4.HYS	CH2AL4.HYS
48					CH1AL4.DYT	CH2AL4.DYT
49					CH1AL4.RLY	CH2AL4.RLY

D-Reg.	INPUT3	INPUT4	INPUT5	ALARM1	ALARM2	ALARM3
	600	700	800	900	1000	1100
50					CH1AL4.ACT	CH2AL4.ACT
51					CH1AL4.USLP	CH2AL4.USLP
52					CH1AL4.DSLP	CH2AL4.DSLP
53					CH1AL4.SLPSMPL	CH2AL4.SLPSMPL
54					CH1AL4.SLPUNIT	CH2AL4.SLPUNIT
55					CH1AL4.CH	CH2AL4.CH
56					CH1AL4.CHDEV	CH2AL4.CHDEV
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D-Register 1200 ~ 1799

D-Reg.	ALARM4	ALARM5	ALARM6	ALARM7	ALARM8	ALARM9
	1200	1300	1400	1500	1600	1700
0						
1	CH3AL1.TYPE	CH4AL1.TYPE	CH5AL1.TYPE	CH6AL1.TYPE	CH7AL1.TYPE	CH8AL1.TYPE
2	CH3AL1.POINT	CH4AL1.POINT	CH5AL1.POINT	CH6AL1.POINT	CH7AL1.POINT	CH8AL1.POINT
3	CH3AL1.H_POINT	CH4AL1.H_POINT	CH5AL1.H_POINT	CH6AL1.H_POINT	CH7AL1.H_POINT	CH8AL1.H_POINT
4	CH3AL1.L_POINT	CH4AL1.L_POINT	CH5AL1.L_POINT	CH6AL1.L_POINT	CH7AL1.L_POINT	CH8AL1.L_POINT
5	CH3AL1.HYS	CH4AL1.HYS	CH5AL1.HYS	CH6AL1.HYS	CH7AL1.HYS	CH8AL1.HYS
6	CH3AL1.DYT	CH4AL1.DYT	CH5AL1.DYT	CH6AL1.DYT	CH7AL1.DYT	CH8AL1.DYT
7	CH3AL1.RLY	CH4AL1.RLY	CH5AL1.RLY	CH6AL1.RLY	CH7AL1.RLY	CH8AL1.RLY
8						
9	CH3AL1.USLP	CH4AL1.USLP	CH5AL1.USLP	CH6AL1.USLP	CH7AL1.USLP	CH8AL1.USLP
10	CH3AL1.DSLP	CH4AL1.DSLP	CH5AL1.DSLP	CH6AL1.DSLP	CH7AL1.DSLP	CH8AL1.DSLP
11	CH3AL1.SLPSMPL	CH4AL1.SLPSMPL	CH5AL1.SLPSMPL	CH6AL1.SLPSMPL	CH7AL1.SLPSMPL	CH8AL1.SLPSMPL
12	CH3AL1.SLPUNIT	CH4AL1.SLPUNIT	CH5AL1.SLPUNIT	CH6AL1.SLPUNIT	CH7AL1.SLPUNIT	CH8AL1.SLPUNIT
13	CH3AL1.CH	CH4AL1.CH	CH5AL1.CH	CH6AL1.CH	CH7AL1.CH	CH8AL1.CH
14	CH3AL1.CHDEV	CH4AL1.CHDEV	CH5AL1.CHDEV	CH6AL1.CHDEV	CH7AL1.CHDEV	CH8AL1.CHDEV
15	CH3AL2.TYPE	CH4AL2.TYPE	CH5AL2.TYPE	CH6AL2.TYPE	CH7AL2.TYPE	CH8AL2.TYPE
16	CH3AL2.POINT	CH4AL2.POINT	CH5AL2.POINT	CH6AL2.POINT	CH7AL2.POINT	CH8AL2.POINT
17	CH3AL2.H_POINT	CH4AL2.H_POINT	CH5AL2.H_POINT	CH6AL2.H_POINT	CH7AL2.H_POINT	CH8AL2.H_POINT
18	CH3AL2.L_POINT	CH4AL2.L_POINT	CH5AL2.L_POINT	CH6AL2.L_POINT	CH7AL2.L_POINT	CH8AL2.L_POINT
19	CH3AL2.HYS	CH4AL2.HYS	CH5AL2.HYS	CH6AL2.HYS	CH7AL2.HYS	CH8AL2.HYS
20	CH3AL2.DYT	CH4AL2.DYT	CH5AL2.DYT	CH6AL2.DYT	CH7AL2.DYT	CH8AL2.DYT
21	CH3AL2.RLY	CH4AL2.RLY	CH5AL2.RLY	CH6AL2.RLY	CH7AL2.RLY	CH8AL2.RLY
22						
23	CH3AL2.USLP	CH4AL2.USLP	CH5AL2.USLP	CH6AL2.USLP	CH7AL2.USLP	CH8AL2.USLP
24	CH3AL2.DSLP	CH4AL2.DSLP	CH5AL2.DSLP	CH6AL2.DSLP	CH7AL2.DSLP	CH8AL2.DSLP
25	CH3AL2.SLPSMPL	CH4AL2.SLPSMPL	CH5AL2.SLPSMPL	CH6AL2.SLPSMPL	CH7AL2.SLPSMPL	CH8AL2.SLPSMPL
26	CH3AL2.SLPUNIT	CH4AL2.SLPUNIT	CH5AL2.SLPUNIT	CH6AL2.SLPUNIT	CH7AL2.SLPUNIT	CH8AL2.SLPUNIT
27	CH3AL2.CH	CH4AL2.CH	CH5AL2.CH	CH6AL2.CH	CH7AL2.CH	CH8AL2.CH
28	CH3AL2.CHDEV	CH4AL2.CHDEV	CH5AL2.CHDEV	CH6AL2.CHDEV	CH7AL2.CHDEV	CH8AL2.CHDEV
29	CH3AL3.TYPE	CH4AL3.TYPE	CH5AL3.TYPE	CH6AL3.TYPE	CH7AL3.TYPE	CH8AL3.TYPE
30	CH3AL3.POINT	CH4AL3.POINT	CH5AL3.POINT	CH6AL3.POINT	CH7AL3.POINT	CH8AL3.POINT
31	CH3AL3.H_POINT	CH4AL3.H_POINT	CH5AL3.H_POINT	CH6AL3.H_POINT	CH7AL3.H_POINT	CH8AL3.H_POINT
32	CH3AL3.L_POINT	CH4AL3.L_POINT	CH5AL3.L_POINT	CH6AL3.L_POINT	CH7AL3.L_POINT	CH8AL3.L_POINT
33	CH3AL3.HYS	CH4AL3.HYS	CH5AL3.HYS	CH6AL3.HYS	CH7AL3.HYS	CH8AL3.HYS
34	CH3AL3.DYT	CH4AL3.DYT	CH5AL3.DYT	CH6AL3.DYT	CH7AL3.DYT	CH8AL3.DYT
35	CH3AL3.RLY	CH4AL3.RLY	CH5AL3.RLY	CH6AL3.RLY	CH7AL3.RLY	CH8AL3.RLY
36						
37	CH3AL3.USLP	CH4AL3.USLP	CH5AL3.USLP	CH6AL3.USLP	CH7AL3.USLP	CH8AL3.USLP
38	CH3AL3.DSLP	CH4AL3.DSLP	CH5AL3.DSLP	CH6AL3.DSLP	CH7AL3.DSLP	CH8AL3.DSLP
39	CH3AL3.SLPSMPL	CH4AL3.SLPSMPL	CH5AL3.SLPSMPL	CH6AL3.SLPSMPL	CH7AL3.SLPSMPL	CH8AL3.SLPSMPL
40	CH3AL3.SLPUNIT	CH4AL3.SLPUNIT	CH5AL3.SLPUNIT	CH6AL3.SLPUNIT	CH7AL3.SLPUNIT	CH8AL3.SLPUNIT
41	CH3AL3.CH	CH4AL3.CH	CH5AL3.CH	CH6AL3.CH	CH7AL3.CH	CH8AL3.CH
42	CH3AL3.CHDEV	CH4AL3.CHDEV	CH5AL3.CHDEV	CH6AL3.CHDEV	CH7AL3.CHDEV	CH8AL3.CHDEV
43	CH3AL4.TYPE	CH4AL4.TYPE	CH5AL4.TYPE	CH6AL4.TYPE	CH7AL4.TYPE	CH8AL4.TYPE
44	CH3AL4.POINT	CH4AL4.POINT	CH5AL4.POINT	CH6AL4.POINT	CH7AL4.POINT	CH8AL4.POINT
45	CH3AL4.H_POINT	CH4AL4.H_POINT	CH5AL4.H_POINT	CH6AL4.H_POINT	CH7AL4.H_POINT	CH8AL4.H_POINT
46	CH3AL4.L_POINT	CH4AL4.L_POINT	CH5AL4.L_POINT	CH6AL4.L_POINT	CH7AL4.L_POINT	CH8AL4.L_POINT
47	CH3AL4.HYS	CH4AL4.HYS	CH5AL4.HYS	CH6AL4.HYS	CH7AL4.HYS	CH8AL4.HYS
48	CH3AL4.DYT	CH4AL4.DYT	CH5AL4.DYT	CH6AL4.DYT	CH7AL4.DYT	CH8AL4.DYT
49	CH3AL4.RLY	CH4AL4.RLY	CH5AL4.RLY	CH6AL4.RLY	CH7AL4.RLY	CH8AL4.RLY

D-Reg.	ALARM4	ALARM5	ALARM6	ALARM7	ALARM8	ALARM9
	1200	1300	1400	1500	1600	1700
50						
51	CH3AL4.USLP	CH4AL4.USLP	CH5AL4.USLP	CH6AL4.USLP	CH7AL4.USLP	CH8AL4.USLP
52	CH3AL4.DSLP	CH4AL4.DSLP	CH5AL4.DSLP	CH6AL4.DSLP	CH7AL4.DSLP	CH8AL4.DSLP
53	CH3AL4.SLPSMPL	CH4AL4.SLPSMPL	CH5AL4.SLPSMPL	CH6AL4.SLPSMPL	CH7AL4.SLPSMPL	CH8AL4.SLPSMPL
54	CH3AL4.SLPUNIT	CH4AL4.SLPUNIT	CH5AL4.SLPUNIT	CH6AL4.SLPUNIT	CH7AL4.SLPUNIT	CH8AL4.SLPUNIT
55	CH3AL4.CH	CH4AL4.CH	CH5AL4.CH	CH6AL4.CH	CH7AL4.CH	CH8AL4.CH
56	CH3AL4.CHDEV	CH4AL4.CHDEV	CH5AL4.CHDEV	CH6AL4.CHDEV	CH7AL4.CHDEV	CH8AL4.CHDEV
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D-Register 1800 ~ 2399

D-Reg.	ALARM10	ALARM11	ALARM12	ALARM13	DICONFIG	COMMUNICATION
	1800	1900	2000	2100	2200	2300
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1	CH9AL1.TYPE	CH10AL1.TYPE	CH11AL1.TYPE	CH12AL1.TYPE	BUZ.TIME	PROTOCOL
2	CH9AL1.POINT	CH10AL1.POINT	CH11AL1.POINT	CH12AL1.POINT	DIDET.TIME	BPS
3	CH9AL1.H_POINT	CH10AL1.H_POINT	CH11AL1.H_POINT	CH12AL1.H_POINT	DI1.OPMODE	PARITY
4	CH9AL1.L_POINT	CH10AL1.L_POINT	CH11AL1.L_POINT	CH12AL1.L_POINT	DI2.OPMODE	STOP_BIT
5	CH9AL1.HYS	CH10AL1.HYS	CH11AL1.HYS	CH12AL1.HYS	DI1.RLY	DATA_LENGTH
6	CH9AL1.DYT	CH10AL1.DYT	CH11AL1.DYT	CH12AL1.DYT	DI2.RLY	ADDRESS
7	CH9AL1.RLY	CH10AL1.RLY	CH11AL1.RLY	CH12AL1.RLY		RESPONSE
8						
9	CH9AL1.USLP	CH10AL1.USLP	CH11AL1.USLP	CH12AL1.USLP		
10	CH9AL1.DSLP	CH10AL1.DSLP	CH11AL1.DSLP	CH12AL1.DSLP		
11	CH9AL1.SLPSMPL	CH10AL1.SLPSMPL	CH11AL1.SLPSMPL	CH12AL1.SLPSMPL		
12	CH9AL1.SLPUNIT	CH10AL1.SLPUNIT	CH11AL1.SLPUNIT	CH12AL1.SLPUNIT		
13	CH9AL1.CH	CH10AL1.CH	CH11AL1.CH	CH12AL1.CH		
14	CH9AL1.CHDEV	CH10AL1.CHDEV	CH11AL1.CHDEV	CH12AL1.CHDEV		
15	CH9AL2.TYPE	CH10AL2.TYPE	CH11AL2.TYPE	CH12AL2.TYPE		
16	CH9AL2.POINT	CH10AL2.POINT	CH11AL2.POINT	CH12AL2.POINT		
17	CH9AL2.H_POINT	CH10AL2.H_POINT	CH11AL2.H_POINT	CH12AL2.H_POINT		
18	CH9AL2.L_POINT	CH10AL2.L_POINT	CH11AL2.L_POINT	CH12AL2.L_POINT		
19	CH9AL2.HYS	CH10AL2.HYS	CH11AL2.HYS	CH12AL2.HYS		
20	CH9AL2.DYT	CH10AL2.DYT	CH11AL2.DYT	CH12AL2.DYT		
21	CH9AL2.RLY	CH10AL2.RLY	CH11AL2.RLY	CH12AL2.RLY		
22						
23	CH9AL2.USLP	CH10AL2.USLP	CH11AL2.USLP	CH12AL2.USLP		
24	CH9AL2.DSLP	CH10AL2.DSLP	CH11AL2.DSLP	CH12AL2.DSLP		
25	CH9AL2.SLPSMPL	CH10AL2.SLPSMPL	CH11AL2.SLPSMPL	CH12AL2.SLPSMPL		
26	CH9AL2.SLPUNIT	CH10AL2.SLPUNIT	CH11AL2.SLPUNIT	CH12AL2.SLPUNIT		
27	CH9AL2.CH	CH10AL2.CH	CH11AL2.CH	CH12AL2.CH		
28	CH9AL2.CHDEV	CH10AL2.CHDEV	CH11AL2.CHDEV	CH12AL2.CHDEV		
29	CH9AL3.TYPE	CH10AL3.TYPE	CH11AL3.TYPE	CH12AL3.TYPE		
30	CH9AL3.POINT	CH10AL3.POINT	CH11AL3.POINT	CH12AL3.POINT		
31	CH9AL3.H_POINT	CH10AL3.H_POINT	CH11AL3.H_POINT	CH12AL3.H_POINT		
32	CH9AL3.L_POINT	CH10AL3.L_POINT	CH11AL3.L_POINT	CH12AL3.L_POINT		
33	CH9AL3.HYS	CH10AL3.HYS	CH11AL3.HYS	CH12AL3.HYS		
34	CH9AL3.DYT	CH10AL3.DYT	CH11AL3.DYT	CH12AL3.DYT		
35	CH9AL3.RLY	CH10AL3.RLY	CH11AL3.RLY	CH12AL3.RLY		
36						
37	CH9AL3.USLP	CH10AL3.USLP	CH11AL3.USLP	CH12AL3.USLP		
38	CH9AL3.DSLP	CH10AL3.DSLP	CH11AL3.DSLP	CH12AL3.DSLP		
39	CH9AL3.SLPSMPL	CH10AL3.SLPSMPL	CH11AL3.SLPSMPL	CH12AL3.SLPSMPL		
40	CH9AL3.SLPUNIT	CH10AL3.SLPUNIT	CH11AL3.SLPUNIT	CH12AL3.SLPUNIT		
41	CH9AL3.CH	CH10AL3.CH	CH11AL3.CH	CH12AL3.CH		
42	CH9AL3.CHDEV	CH10AL3.CHDEV	CH11AL3.CHDEV	CH12AL3.CHDEV		
43	CH9AL4.TYPE	CH10AL4.TYPE	CH11AL4.TYPE	CH12AL4.TYPE		
44	CH9AL4.POINT	CH10AL4.POINT	CH11AL4.POINT	CH12AL4.POINT		
45	CH9AL4.H_POINT	CH10AL4.H_POINT	CH11AL4.H_POINT	CH12AL4.H_POINT		
46	CH9AL4.L_POINT	CH10AL4.L_POINT	CH11AL4.L_POINT	CH12AL4.L_POINT		
47	CH9AL4.HYS	CH10AL4.HYS	CH11AL4.HYS	CH12AL4.HYS		
48	CH9AL4.DYT	CH10AL4.DYT	CH11AL4.DYT	CH12AL4.DYT		
49	CH9AL4.RLY	CH10AL4.RLY	CH11AL4.RLY	CH12AL4.RLY		

D-Reg.	ALARM10	ALARM11	ALARM12	ALARM13	DICONFIG	COMMUNICATION
	1800	1900	2000	2100	2200	2300
50						
51	CH9AL4.USLP	CH10AL4.USLP	CH11AL4.USLP	CH12AL4.USLP		
52	CH9AL4.DSLP	CH10AL4.DSLP	CH11AL4.DSLP	CH12AL4.DSLP		
53	CH9AL4.SLPSMPL	CH10AL4.SLPSMPL	CH11AL4.SLPSMPL	CH12AL4.SLPSMPL		
54	CH9AL4.SLPUNIT	CH10AL4.SLPUNIT	CH11AL4.SLPUNIT	CH12AL4.SLPUNIT		
55	CH9AL4.CH	CH10AL4.CH	CH11AL4.CH	CH12AL4.CH		
56	CH9AL4.CHDEV	CH10AL4.CHDEV	CH11AL4.CHDEV	CH12AL4.CHDEV		
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D-Register 2400 ~ 2999

D-Reg.	PICTURE	INITIAL	ERROR HISTORY1	ERROR HISTORY2	ERROR HISTORY3	ERROR HISTORY4
	2400	2500	2600	2700	2800	2900
0						
1	VIEW.ROTATE	LANGUAGE	ERRTM1.YEAR			
2	R.ST_TIME	DISP.MODE	ERRTM1.MONTH			
3	R.INT_TIME		ERRTM1.DAY			
4			ERRTM1.HOUR	ERROR 15	ERROR 29	ERROR 43
5			ERRTM1.MIN			
6		INFORM1.NAME1	ERRTM1.SEC			
7		INFORM1.NAME2	ERROR1.CODE			
8		INFORM1.NAME3	ERRTM2.YEAR			
9		INFORM1.NAME4	ERRTM2.MONTH			
10		INFORM1.NAME5	ERRTM2.DAY			
11		INFORM1.NAME6	ERRTM2.HOUR	ERROR 16	ERROR 30	ERROR 44
12		INFORM1.NAME7	ERRTM2.MIN			
13		INFORM1.NAME8	ERRTM2.SEC			
14		INFORM1.NAME9	ERROR2.CODE			
15		INFORM1.NAME10	ERRTM3.YEAR			
16		INFORM1.NAME11	ERRTM3.MONTH			
17		INFORM1.NAME12	ERRTM3.DAY			
18		INFORM1.NAME13	ERRTM3.HOUR	ERROR 17	ERROR 31	ERROR 45
19		INFORM2.NAME1	ERRTM3.MIN			
20		INFORM2.NAME2	ERRTM3.SEC			
21		INFORM2.NAME3	ERROR3.CODE			
22		INFORM2.NAME4	ERRTM4.YEAR			
23		INFORM2.NAME5	ERRTM4.MONTH			
24		INFORM2.NAME6	ERRTM4.DAY			
25		INFORM2.NAME7	ERRTM4.HOUR	ERROR 18	ERROR 32	ERROR 46
26		INFORM2.NAME8	ERRTM4.MIN			
27		INFORM2.NAME9	ERRTM4.SEC			
28		INFORM2.NAME10	ERROR4.CODE			
29		INFORM2.NAME11	ERRTM5.YEAR			
30		INFORM2.NAME12	ERRTM5.MONTH			
31		INFORM2.NAME13	ERRTM5.DAY			
32		INFORM3.NAME1	ERRTM5.HOUR	ERROR 19	ERROR 33	ERROR 47
33		INFORM3.NAME2	ERRTM5.MIN			
34		INFORM3.NAME3	ERRTM5.SEC			
35		INFORM3.NAME4	ERROR5.CODE			
36		INFORM3.NAME5	ERRTM6.YEAR			
37		INFORM3.NAME6	ERRTM6.MONTH			
38		INFORM3.NAME7	ERRTM6.DAY			
39		INFORM3.NAME8	ERRTM6.HOUR	ERROR 20	ERROR 34	ERROR 48
40		INFORM3.NAME9	ERRTM6.MIN			
41		INFORM3.NAME10	ERRTM6.SEC			
42		INFORM3.NAME11	ERROR6.CODE			
43		INFORM3.NAME12	ERRTM7.YEAR			
44		INFORM3.NAME13	ERRTM7.MONTH			
45			ERRTM7.DAY			
46			ERRTM7.HOUR	ERROR 21	ERROR 35	ERROR 49
47			ERRTM7.MIN			
48			ERRTM7.SEC			
49			ERROR7.CODE			

D-Reg.	PICTURE	INITIAL	ERROR HISTORY1	ERROR HISTORY2	ERROR HISTORY3	ERROR HISTORY4
	2400	2500	2600	2700	2800	2900
50			ERRTM8.YEAR	ERROR 22	ERROR 36	ERROR 50
51			ERRTM8.MONTH			
52			ERRTM8.DAY			
53			ERRTM8.HOUR			
54			ERRTM8.MIN			
55			ERRTM8.SEC			
56			ERROR8.CODE			
57			ERRTM9.YEAR	ERROR 23	ERROR 37	ERROR 51
58			ERRTM9.MONTH			
59			ERRTM9.DAY			
60			ERRTM9.HOUR			
61			ERRTM9.MIN			
62			ERRTM9.SEC			
63			ERROR9.CODE			
64			ERRTM10.YEAR	ERROR 24	ERROR 38	ERROR 52
65			ERRTM10.MONTH			
66			ERRTM10.DAY			
67			ERRTM10.HOUR			
68			ERRTM10.MIN			
69			ERRTM10.SEC			
70			ERROR10.CODE			
71			ERRTM11.YEAR	ERROR 25	ERROR 39	ERROR 53
72			ERRTM11.MONTH			
73			ERRTM11.DAY			
74			ERRTM11.HOUR			
75			ERRTM11.MIN			
76			ERRTM11.SEC			
77			ERROR11.CODE			
78			ERRTM12.YEAR	ERROR 26	ERROR 40	ERROR 54
79			ERRTM12.MONTH			
80			ERRTM12.DAY			
81			ERRTM12.HOUR			
82			ERRTM12.MIN			
83			ERRTM12.SEC			
84			ERROR12.CODE			
85			ERRTM13.YEAR	ERROR 27	ERROR 41	ERROR 55
86			ERRTM13.MONTH			
87			ERRTM13.DAY			
88			ERRTM13.HOUR			
89			ERRTM13.MIN			
90			ERRTM13.SEC			
91			ERROR13.CODE			
92			ERRTM14.YEAR	ERROR 28	ERROR 42	ERROR 56
93			ERRTM14.MONTH			
94			ERRTM14.DAY			
95			ERRTM14.HOUR			
96			ERRTM14.MIN			
97			ERRTM14.SEC			
98			ERROR14.CODE			
99						

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D-Reg.	ERROR HISTORY5	ERROR HISTORY6	ERROR HISTORY7	ERROR HISTORY8	EVENT HISTORY1	EVENT HISTORY2
	3000	3100	3200	3300	3400	3500
0						
1				ERRTM99.YEAR	EVTTM1.YEAR	
2				ERRTM99.MONTH	EVTTM1.MONTH	
3				ERRTM99.DAY	EVTTM1.DAY	
4	ERROR 57	ERROR 71	ERROR 85	ERRTM99.HOUR	EVTTM1.HOUR	EVENT 15
5				ERRTM99.MIN	EVTTM1.MIN	
6				ERRTM99.SEC	EVTTM1.SEC	
7				ERROR99.CODE	EVENT1.CODE	
8				ERRTM100.YEAR	EVTTM2.YEAR	
9				ERRTM100.MONTH	EVTTM2.MONTH	
10				ERRTM100.DAY	EVTTM2.DAY	
11	ERROR 58	ERROR 72	ERROR 86	ERRTM100.HOUR	EVTTM2.HOUR	EVENT 16
12				ERRTM100.MIN	EVTTM2.MIN	
13				ERRTM100.SEC	EVTTM2.SEC	
14				ERROR100.CODE	EVENT2.CODE	
15					EVTTM3.YEAR	
16					EVTTM3.MONTH	
17					EVTTM3.DAY	
18	ERROR 59	ERROR 73	ERROR 87		EVTTM3.HOUR	EVENT 17
19					EVTTM3.MIN	
20					EVTTM3.SEC	
21					EVENT3.CODE	
22					EVTTM4.YEAR	
23					EVTTM4.MONTH	
24					EVTTM4.DAY	
25	ERROR 60	ERROR 74	ERROR 88		EVTTM4.HOUR	EVENT 18
26					EVTTM4.MIN	
27					EVTTM4.SEC	
28					EVENT4.CODE	
29					EVTTM5.YEAR	
30					EVTTM5.MONTH	
31					EVTTM5.DAY	
32	ERROR 61	ERROR 75	ERROR 89		EVTTM5.HOUR	EVENT 19
33					EVTTM5.MIN	
34					EVTTM5.SEC	
35					EVENT5.CODE	
36					EVTTM6.YEAR	
37					EVTTM6.MONTH	
38					EVTTM6.DAY	
39	ERROR 62	ERROR 76	ERROR 90		EVTTM6.HOUR	EVENT 20
40					EVTTM6.MIN	
41					EVTTM6.SEC	
42					EVENT6.CODE	
43					EVTTM7.YEAR	
44					EVTTM7.MONTH	
45					EVTTM7.DAY	
46	ERROR 63	ERROR 77	ERROR 91		EVTTM7.HOUR	EVENT 21
47					EVTTM7.MIN	
48					EVTTM7.SEC	
49					EVENT7.CODE	

D-Reg.	ERROR HISTORY5	ERROR HISTORY6	ERROR HISTORY7	ERROR HISTORY8	EVENT HISTORY1	EVENT HISTORY2
	3000	3100	3200	3300	3400	3500
50	ERROR 64	ERROR 78	ERROR 92		EVTTM8.YEAR	EVENT 22
51					EVTTM8.MONTH	
52					EVTTM8.DAY	
53					EVTTM8.HOUR	
54					EVTTM8.MIN	
55					EVTTM8.SEC	
56					EVENT8.CODE	
57	ERROR 65	ERROR 79	ERROR 93		EVTTM9.YEAR	EVENT 23
58					EVTTM9.MONTH	
59					EVTTM9.DAY	
60					EVTTM9.HOUR	
61					EVTTM9.MIN	
62					EVTTM9.SEC	
63					EVENT9.CODE	
64	ERROR 66	ERROR 80	ERROR 94		EVTTM10.YEAR	EVENT 24
65					EVTTM10.MONTH	
66					EVTTM10.DAY	
67					EVTTM10.HOUR	
68					EVTTM10.MIN	
69					EVTTM10.SEC	
70					EVENT10.CODE	
71	ERROR 67	ERROR 81	ERROR 95		EVTTM11.YEAR	EVENT 25
72					EVTTM11.MONTH	
73					EVTTM11.DAY	
74					EVTTM11.HOUR	
75					EVTTM11.MIN	
76					EVTTM11.SEC	
77					EVENT11.CODE	
78	ERROR 68	ERROR 82	ERROR 96		EVTTM12.YEAR	EVENT 26
79					EVTTM12.MONTH	
80					EVTTM12.DAY	
81					EVTTM12.HOUR	
82					EVTTM12.MIN	
83					EVTTM12.SEC	
84					EVENT12.CODE	
85	ERROR 69	ERROR 83	ERROR 97		EVTTM13.YEAR	EVENT 27
86					EVTTM13.MONTH	
87					EVTTM13.DAY	
88					EVTTM13.HOUR	
89					EVTTM13.MIN	
90					EVTTM13.SEC	
91					EVENT13.CODE	
92	ERROR 70	ERROR 84	ERROR 98		EVTTM14.YEAR	EVENT 28
93					EVTTM14.MONTH	
94					EVTTM14.DAY	
95					EVTTM14.HOUR	
96					EVTTM14.MIN	
97					EVTTM14.SEC	
98					EVENT14.CODE	
99						

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D-Reg.	EVENT HISTORY3	EVENT HISTORY4	EVENT HISTORY5	EVENT HISTORY6	EVENT HISTORY7	EVENT HISTORY8
	3600	3700	3800	3900	4000	4100
0						
1	EVENT 29	EVENT 43	EVENT 57	EVENT 71	EVENT 85	EVTTM99.YEAR
2						EVTTM99.MONTH
3						EVTTM99.DAY
4						EVTTM99.HOUR
5						EVTTM99.MIN
6						EVTTM99.SEC
7						EVENT99.CODE
8	EVENT 30	EVENT 44	EVENT 58	EVENT 72	EVENT 86	EVTTM100.YEAR
9						EVTTM100.MONTH
10						EVTTM100.DAY
11						EVTTM100.HOUR
12						EVTTM100.MIN
13						EVTTM100.SEC
14						EVENT100.CODE
15	EVENT 31	EVENT 45	EVENT 59	EVENT 73	EVENT 87	
16						
17						
18						
19						
20						
21						
22	EVENT 32	EVENT 46	EVENT 60	EVENT 74	EVENT 88	
23						
24						
25						
26						
27						
28						
29	EVENT 33	EVENT 47	EVENT 61	EVENT 75	EVENT 89	
30						
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32						
33						
34						
35						
36	EVENT 34	EVENT 48	EVENT 62	EVENT 76	EVENT 90	
37						
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39						
40						
41						
42						
43	EVENT 35	EVENT 49	EVENT 63	EVENT 77	EVENT 91	
44						
45						
46						
47						
48						
49						

D-Reg.	EVENT HISTORY3	EVENT HISTORY4	EVENT HISTORY5	EVENT HISTORY6	EVENT HISTORY7	EVENT HISTORY8
	3600	3700	3800	3900	4000	4100
50	EVENT 36	EVENT 50	EVENT 64	EVENT 78	EVENT 92	
51						
52						
53						
54						
55						
56						
57	EVENT 37	EVENT 51	EVENT 65	EVENT 79	EVENT 93	
58						
59						
60						
61						
62						
63						
64	EVENT 38	EVENT 52	EVENT 66	EVENT 80	EVENT 94	
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67						
68						
69						
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71	EVENT 39	EVENT 53	EVENT 67	EVENT 81	EVENT 95	
72						
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77						
78	EVENT 40	EVENT 54	EVENT 68	EVENT 82	EVENT 96	
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81						
82						
83						
84						
85	EVENT 41	EVENT 55	EVENT 69	EVENT 83	EVENT 97	
86						
87						
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91						
92	EVENT 42	EVENT 56	EVENT 70	EVENT 84	EVENT 98	
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SAMWONTECH CO.,LTD.
192, Yakdae-dong, Wonmi-gu, Bucheon City,Gyeonggi-do
202-703, Bucheon TechnoPark
TEL : 032-326-9120
FAX : 032-326-9119
http://www.samwontech.com
E-mail:webmaster@samwontech.com

Please contact our Sales Department for Product Inquiry and Technical Consultant.
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