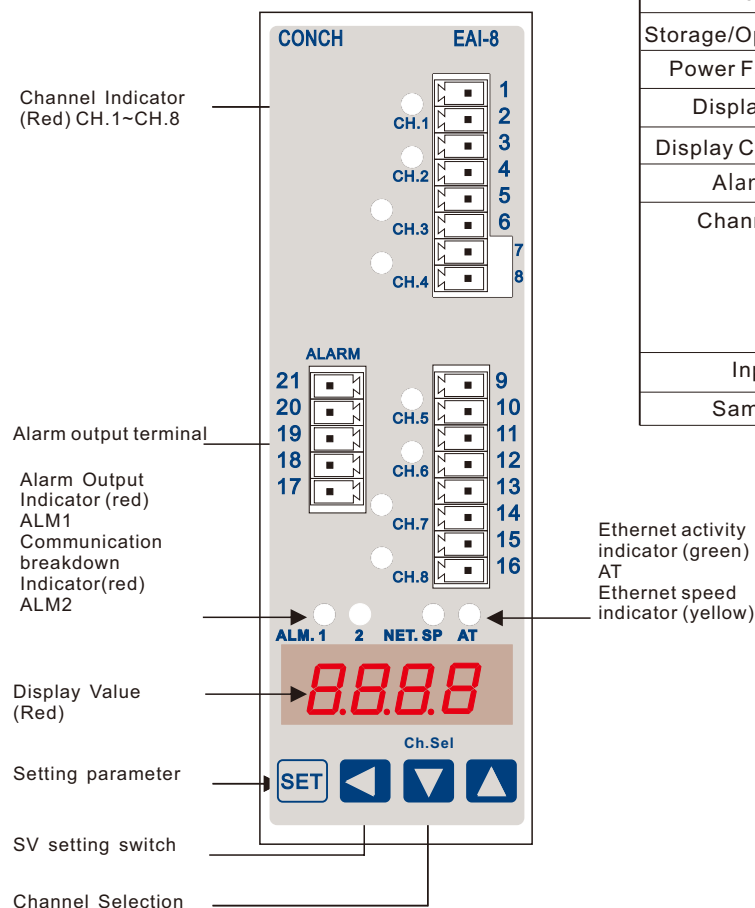


Product Feature Description

1. Eight channels current transformer (CT) 100A/49mAAC analog input module. Present value can be planned channel by channel. Up to eight modules connection in series.
2. Provide 2 sets actual relay output as alarm output, ALM1 output can be assigned to any channel or control by communication. ALM2 is for communication disconnection output. Each relay can be planned as normal open (N.O) or normal close(N.C).
3. Provide 3 sets logic alarm AL1,AL2,AL3 for each channel. The output status of logic alarm can assign to actual relay.
4. Parameter setting can be edited directly on panel without software. Provide parameter anti-write protection mechanism, set up by channel LOCK parameter.
5. Ethernet communication with ModBus TCP protocol . Can continuously read/write 126 pieces data. Dramatically increase communication efficiency.
6. DC24V power. Channels are isolated to each other. Panel display can show PV, error status, alarm output status, communication status etc information. Modify or inquiry parameter value via press keys.
7. All input and output are Euro Style Terminal Blocks, easily for wiring and maintenance.

Panel Description



Product Specification

Power	DC24V+-20%
Power Consumption (≒)	5W@24V
Weight(g)(≒)	220
Storage/Operation Ambient	0~65°C/0~50°C, 20~90%RH
Power Failure Memory	EEPROM, 10 years
Display Precision	0.2%FS± 1Dig
Display Character Height	8mm(red)
Alarm Output	Relay contact point 3A,250VAC
Channel Isolation	Common ground channel by channel
Input Type	0~100mA/AC
Sampling Rate	0.4 second per Channel (Respectively)

Panel Display & Parameter Setting

Indicator lamp indicates the selected channel. Display show the PV of each channel.

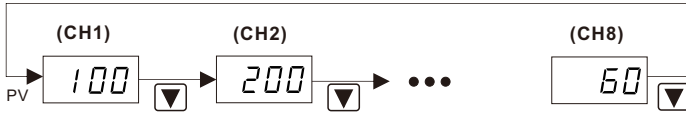
All parameters can be configured by panel keys.
Parameter is divided into 7 levels(0~6).

Using different keys or compound key to enter the different level parameter setting.

Parameter [LOCK] is used to open which levels allow users to set.

Channels Selection

In the general mode, press \blacktriangledown key to select the channel, indicators lamp indicates the current selected channel. Display show the PV of each channel.



Set up the operation rules

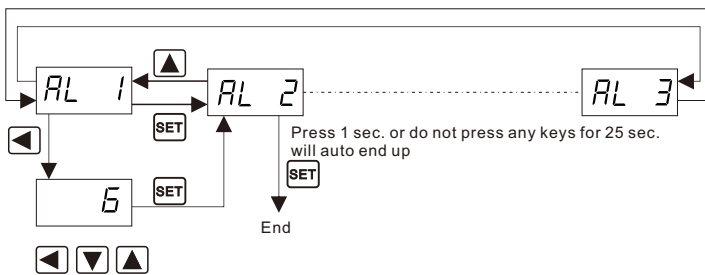
After selecting the channel(s), enter the parameter levels. The display will show the first parameter name of the level. Press SET key to select the next, and so no. if reach to the bottom terminal of the level, return to the first parameter.

Press \blacktriangle key to back to previous parameter if reach to the first parameter of the level, return to the bottom terminal parameter. Press \blacktriangleleft key to display the parameter value. Using \blacktriangleleft \blacktriangledown \blacktriangle to modify the parameter.

Press SET key to complete the setting, and display the next parameter.

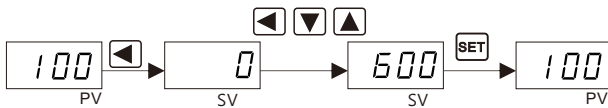
Press SET key for 1 sec. to exit the level, and end up the setting mode.

Note: Each level's parameters will be in accordance with the model. Parameter planning situation to auto masking failure parameters. The actual setting might be different with each levels' contents.



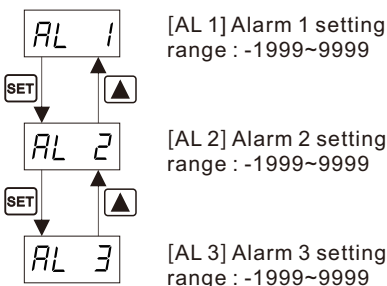
Level 1 Parameter setting

Quick setting levels, directly press \blacktriangleleft key to set up the temperature target value SV, press SET key to end the setting.



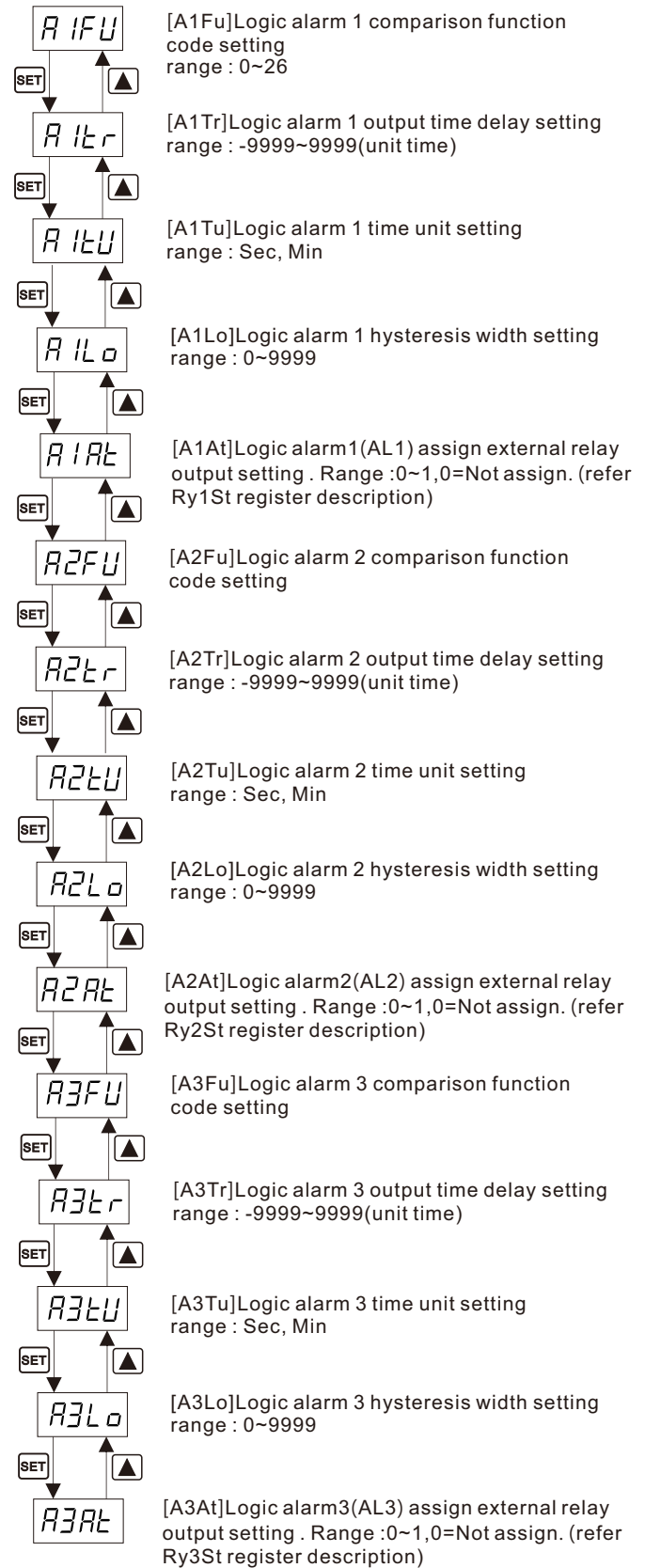
Level 2 Parameter setting

Alarm parameter. Press SET key to enter.



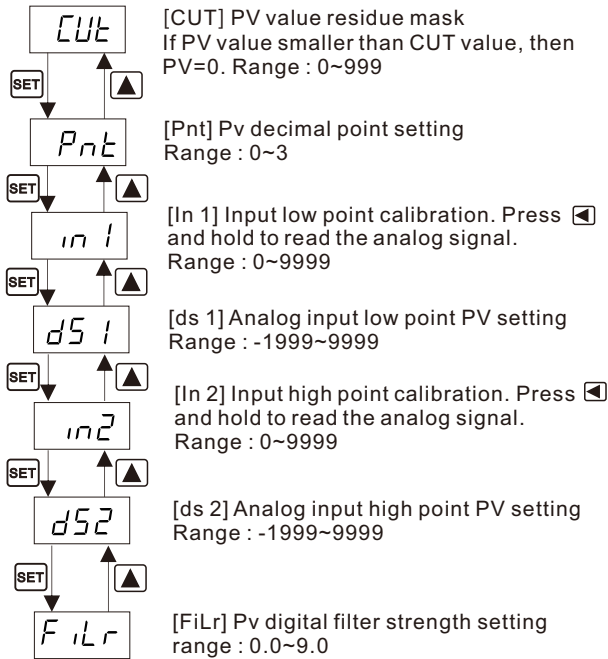
Level 3 parameter setting

Relevant to comparison alarm function setting. Press SET key 1.5 sec. to enter.



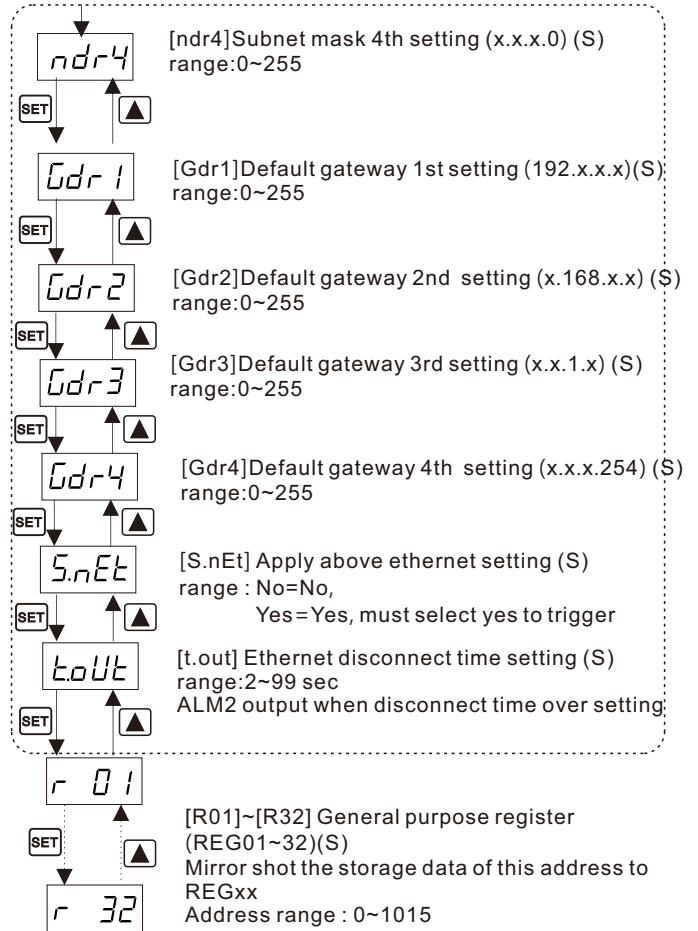
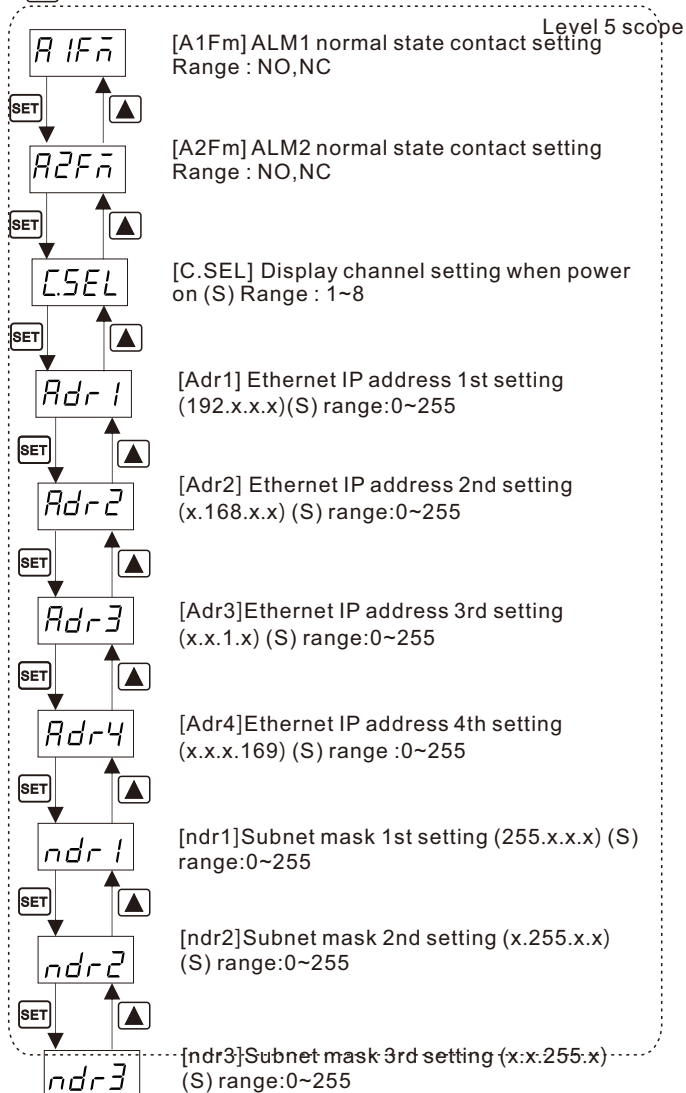
● Level 4 Parameter setting

Display value (PV) calibration setting. Press **SET** + **▲** 1.5 sec. to enter.



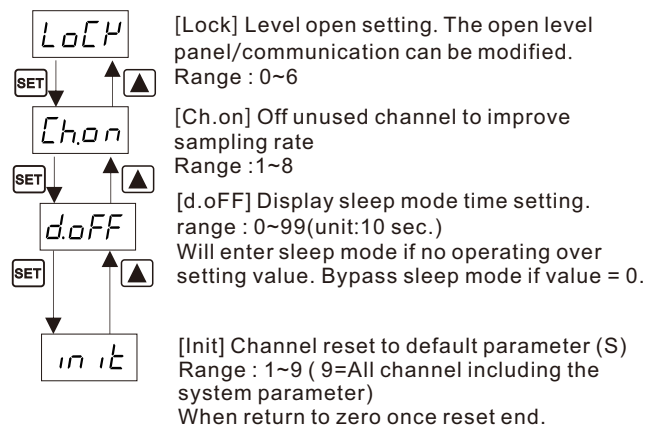
● Level 5,6 Parameter setting

Peripheral hardware engineering parameter setting. Press **SET** + **▲** 1.5 sec to enter.



● Level 0, system parameter (S) setting

Level management, communication, default value. Press **▲** 3 sec. to enter.



■ PV Deviation Compensation

Parameter in1,in2,ds1,ds2 can be used to compensate PV deviation

Equation:

$$PV = (ds2 - ds1) / (in2 - in1)$$

For example : (MTD-8AA model)

If input signal as 0~49mA wants to show as 0.0 ~ 100.0(A) Below

0.5A shows 0:

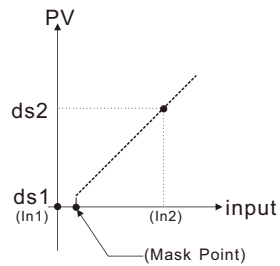
Cut=005, Pnt=1

In1=0.000(Press [] key to read input signal 0A)

ds1=000.0,In2=49.00(Press [] key to read input signal 49mA)

ds2=100.0

If PV value equal or smaller than 0.5(A) PV shows=0.



■ Alarm output function

26 types of alarm output. 00=Disable temperature alarm function. Odd numbers represents that the first alarm output is disable after start up.

No.	Relative Deviation Comparison		Relative Deviation Comparison		Relative Deviation Comparison
01 02	ON: SV- ALx , SV, SV+ ALx OFF: (Diagram showing alarm ON/OFF logic)	11 12	ON: ALx OFF: (Diagram showing alarm ON/OFF logic)	21 22	ON: ALx OFF: AxLo, PV (Diagram showing alarm ON/OFF logic)
03 04	ON: SV, SV+ALx OFF: (Diagram showing alarm ON/OFF logic) ALx<0	13 14	ON: ALx OFF: (Diagram showing alarm ON/OFF logic)	23 24	ON: AxLo, PV OFF: (Diagram showing alarm ON/OFF logic)
05 06	ON: SV- ALx , SV, SV+ ALx OFF: (Diagram showing alarm ON/OFF logic)	15 16	ON: SV- ALx , SV+ ALx OFF: (Diagram showing alarm ON/OFF logic)	25 26	ON: Any abnormal OFF: (Diagram showing alarm ON/OFF logic)
07 08	ON: SV-ALx, SV, SV-ALx OFF: (Diagram showing alarm ON/OFF logic) ALx<0	17 18	ON: AxLo, SV-ALx, SV, SV-ALx OFF: (Diagram showing alarm ON/OFF logic) ALx<0		
09 10	ON: SV- ALx , SV, SV+ ALx OFF: (Diagram showing alarm ON/OFF logic)	19 20	ON: AxLo, SV, SV+ALx OFF: (Diagram showing alarm ON/OFF logic) ALx<0		

Alarm Output Time Setting

Parameter A1Tr~A3Tr control the alarm output duration separately. When output condition is established, start time delay. Positive and negative time, different function in output.

1. Set negative value, example -9, represent when "ON" condition established, the alarm action after delay 9 sec.
2. Set 0 sec., represent "ON" condition established, the alarm action immediate.
3. Set positive value, example 10, represent when "OFF" condition established, the alarm change from "On" to "Off" after 10 sec.

■Parameter Register Communication Address List

Field Description:

Address	Level	Display Name	Property	Description	Setting Range	R/W	Default
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C: Channel parameter, address adjacent.
 e.g. SV address 0000~0007 and so on.
 S: System parameter

R:Readable
 W:Writeable

After INIT
 Default Value

0-6: According LOCK setting, the parameter whether an set up or write. If it's blank, it won't be control by LOCK, and panel cannot

Display typeface/Parameter character

Register address (Decimal)

Note: When panel enter the setting mode, communication cannot change any parameters. ModBus address must add 40001.

Address	Level	Display Name	Property	Description	Setting Range	R/W	Default
0000 0007	1	Sv	C	Target Value Setting.	SvL~SvH	R/W	
0008 0015	2	AL 1	C	AL 1 Value Setting.	-1999~9999	R/W	0
0016 0023	2	AL 2	C	AL 2 Value Setting.	-1999~9999	R/W	0
0024 0031	2	AL 3	C	AL 3 Value Setting.	-1999~9999	R/W	0
0032 0039	3	A1Fu	C	Logic ALM1 (AL1) comparison output function code setting. Refer to ALM function description.	0~26	R/W	2
0040 0047	3	A1Tr	C	Logic ALM1(AL1) output time delay setting. Refer to ALM function description.	-1999~9999 Unit time	R/W	0
0048 0055	3	A1Tu	C	Logic ALM1(AL1) output time unit setting. 0=second, 1=minute	0~1	R/W	0
0056 0063	3	A1Lo	C	Logic ALM1(AL1) hysteresis width setting. Refer to ALM function description.	00~9999	R/W	0
0064 0071	3	A2Fu	C	Logic ALM2 (AL2) comparison output function code setting. Refer to ALM function description.	0~26	R/W	2
0072 0079	3	A2Tr	C	Logic ALM2(AL2) output time delay setting. Refer to ALM function description.	-1999~9999 Unit time	R/W	0
0080 0087	3	A2Tu	C	Logic ALM2(AL2) output time unit setting. 0=second, 1=minute	0~1	R/W	0
0088 0095	3	A2Lo	C	Logic ALM2(AL2) hysteresis width setting. Refer to ALM function description.	00~9999	R/W	0

Address	Level	Display Name	Property	Description	Setting Range	R/W	Default
0096 0103	3	A3Fu	C	Logic ALM3 (AL3) compare output function code setting. Refer to ALM function description.	0~26	R/W	2
0104 0111	3	A3Tr	C	Logic ALM3(AL3) output time delay setting. Refer to ALM function description.	-1999~9999 Unit time	R/W	0
0112 0119	3	A3Tu	C	Logic ALM3(AL3) output time unit setting. 0=second,1=minute	0~1	R/W	0
0120 0127	3	A3Lo	C	Logic ALM3(AL3) hysteresis width setting. Refer to ALM function description.	0~9999	R/W	0
0128 0131	4	Cut	C	PV value residue mask	0~999	R/W	0
0136 0143	4	In1	C	Input signal low point calibration.	0~9999	R/W	0
0144 0151	4	ds1	C	Analog input low point PV setting.	-1999~9999	R/W	0
0152 0159	4	ds1	C	Input signal high point calibration.	0~9999	R/W	1000
0160 0167	4	PvRat	C	Analog input high point PV setting.	-1999~9999	R/W	1000
0168 0175	4	FiLr	C	Digital filter magnitude. The larger filter value, the more stable, but response slowly.	0~9.0	R/W	0.2
0176	5	A1Fm	S	Actual alarm 1(ALM1)normal state contact setting. 0=N.O, 1=N.C.	0~1	R/W	0
0177	5	A2Fm	S	Actual alarm 2(ALM2)normal state contact setting. 0=N.O, 1=N.C.	0~1	R/W	0
0178	5	A3Fm	S	Actual alarm 3(ALM3)normal state contact setting. 0=N.O, 1=N.C.	0~1	R/W	0
0179	5	A4Fm	S	Actual alarm 4(ALM4)normal state contact setting. 0=N.O, 1=N.C.	0~1	R/W	0

Address	Level	Display Name	Property	Description	Setting Range	R/W	Default
0183	5	CSEL C.Sel	S	Display channel setting when power on.	1~8	R/W	1
0184	5	t.out t.out	S	Communication disconnection time value setting. ALM4 will not output within setting value.	2~99 second	R/W	5 second
0185 0216	0	r 01 r 32 r01~r32	S	General Purpose Register (REG01~32) Define the parameter address. Will copy r01~r32 data into REG01~REG32	0~1015	R/W	0
0217 0220	4	Pnt Pnt	C	Pv value decimal point setting	0~3	R/W	1
0225 0232	0	Lock Lock	C	Parameter level protect setting. When level lower than the setting value, the parameter group level is read only. Cannot write.	0~6	R/W	6
0233 0240	3	A1At A1At	C	Assigned logic AL1 to actual relay for output Not assigned when equal to 0(Refer Ry1St register) ^{Note}	0~1	R/W	0
0241 0248	3	A2At A2At	C	Assigned logic AL2 to actual relay for output Not assigned when equal to 0(Refer Ry2St register) ^{Note}	0~1	R/W	0
0249 0256	3	A3At A3At	C	Assigned logic AL3 to actual relay for output Not assigned when equal to 0(Refer Ry3St register) ^{Note}	0~1	R/W	0

Note : A1At~A3At parameter for each channel can repeatedly assign to actual relay. (For example, A1At on channel 1 and A3At on channel 5 can assign to actual Relay 1 at the same time.) Relay will off only when all logic alarms status are 0. Please pay attention.

■Channel State Register Address Table

Address	Level	Display Name	Property	Description	Setting Range	R/W	Default																																	
0512	None	WrPro	S	Parameter change thru communication whether power-off memory. 0:none memory,1:memory (Parameter change on Panel will be remember when power off)	0~1	R/W	1																																	
0513	None	PnLock	S	Panel parameter setting protection. 0: can setup, 1: cannot setup. But can change to see parameter for each channel.	0~1	R/W	0																																	
0514 0515 0516	None	Ry1St Ry2St Ry3St	S	Actual alarm current state1,2,3 (relay)current status: Output assigned by AxAT channel parameter Bit 0~7 represent channel1~8 error output state, 0=none, 1=Alarm assigned. Bit 8 can change by communication. When write 0,BIT 8=0, write 1,BIT8=1(other BIT do not change) When register value>0, Alarm output. Equal to 0,alarm not output. <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 2px;">0</td><td style="padding: 2px;">0</td><td style="padding: 2px;">0</td><td style="padding: 2px;">0</td><td style="padding: 2px;">0</td><td style="padding: 2px;">0</td><td style="padding: 2px;">0</td><td style="padding: 2px;">0</td><td style="padding: 2px;">Com</td><td style="padding: 2px;">Ch8</td><td style="padding: 2px;">Ch7</td><td style="padding: 2px;">Ch6</td><td style="padding: 2px;">Ch5</td><td style="padding: 2px;">Ch4</td><td style="padding: 2px;">Ch3</td><td style="padding: 2px;">Ch2</td><td style="padding: 2px;">Ch1</td> </tr> <tr> <td colspan="8" style="text-align: center; font-size: 8px;">Bit15</td> <td colspan="8" style="text-align: center; font-size: 8px;">Bit0</td> </tr> </table>	0	0	0	0	0	0	0	0	Com	Ch8	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Bit15								Bit0								0~01FF/0,1 (Hexadecimal)	R/W	—
0	0	0	0	0	0	0	0	Com	Ch8	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1																								
Bit15								Bit0																																
0520 0527	None	AL1St	C	Logic AL1 current status; 0:Off, 1:On.	0~1	R	—																																	
0528 0535	None	AL2St	C	Logic AL2 current status; 0:Off, 1:On.	0~1	R	—																																	
0536 0543	None	AL3St	C	Logic AL3 current status; 0:Off, 1:On.	0~1	R	—																																	
0544-- 0551	None	A1TrLeft	C	Logic alarm 1 output delay time countdown. (Unit: second or minute)	-1999~9999	R	—																																	
0552-- 0559	None	A2TrLeft	C	Logic alarm 2 output delay time countdown. (Unit: second or minute)	-1999~9999	R	—																																	
0560-- 0567	None	A3TrLeft	C	Logic alarm 3 output delay time countdown. (Unit: second or minute)	-1999~9999	R	—																																	
0568 0571	None	ErrCode	C	Channel abnormal code. Abnormal state defined by bit position : <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 2px;">2^{15}</td><td style="padding: 2px;">2^{14}</td><td style="padding: 2px;">2^{13}</td><td style="padding: 2px;">2^{12}</td><td style="padding: 2px;">2^{11}</td><td style="padding: 2px;">2^{10}</td><td style="padding: 2px;">2^9</td><td style="padding: 2px;">2^8</td><td style="padding: 2px;">2^7</td><td style="padding: 2px;">2^6</td><td style="padding: 2px;">2^5</td><td style="padding: 2px;">2^4</td><td style="padding: 2px;">2^3</td><td style="padding: 2px;">2^2</td><td style="padding: 2px;">2^1</td><td style="padding: 2px;">2^0</td> </tr> </table> 2^0 [AdEr] : A/D circuit breakdown 2^2 [Or] : Input signal exceed positive value 2^4 [-OL] : Display value exceed negative value 2^5 [OL] : Display value exceed positive value	2^{15}	2^{14}	2^{13}	2^{12}	2^{11}	2^{10}	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	---	R	—																	
2^{15}	2^{14}	2^{13}	2^{12}	2^{11}	2^{10}	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0																									
0576 0579	None	Pv	C	Present value. (Unit and Precision configure by Unit,PvPnt)	---	R	—																																	
0584	None	InAdc	C	Input signal A/D converter value	-32768~32767	R	—																																	
0600 0631	None	REG01 REG32	S	General purpose register area By parameter R01~R32 appoint address value save into the general purpose register area	---	R	—																																	
0671	None		S	Ethernet MAC Address: 4th number Refer to 14:D7:6E:XX:—:—	00~FF	R	—																																	
0672	None		S	Ethernet MAC Address: 5th number Refer to 14:D7:6E:—:XX:—	00~FF	R	—																																	
0673	None		S	Ethernet MAC Address: 6th number Refer to 14:D7:6E:—:—:XX	00~FF	R	—																																	