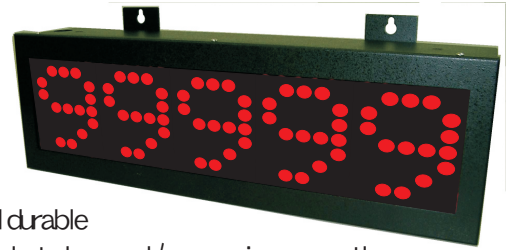


10 cm DOT MATRIX LARGE DISPLAY

GBMC

■ FEATURES

- Max. input frequency: 7KHz (1U2D / 1P2D); 3KHz (1A2B)
- Input pulse for pre-multiplication & pre-division
- Reset / Pause count by external control terminal available
- Parameters setting by infrared remote control
- High stability, integral iron housing with baked enamel finished – Strong and durable
- High brightness, 10cm dot matrix display, exquisite front characters which able to be read / recognize correctly.



■ ORDER INFORMATION: GBMC - Code 1 - Code 2 - Code 3 - Code 4 Code 5 Code 6

CODE1	Digits	CODE2	Input Signal	CODE2	Input Signal	CODE3	Aux. Power	CODE4	Alarm Output	CODE5	Analog Output	CODE6	RS-485
3	3 Digits	N5	NPN(5V)	VC	Pick-up 50mV~1.5V	A	AC/DC 100~240V	N	None	N	None	N	None
4	4 Digits	N2	NPN(12V)	VD	Pick-up 500mV~15V	O	Option	R2	2 Relays	A	4~20mA	Y	Yes
5	5 Digits	P5	PNP(5V)	VE	DC 24Vp			R3	3 Relays	V	0~10V		
O	Option	P2	PNP(12V)	O	Option			R4	4 Relays	O	Option		
		CT	Contact					O2	2 Open Collect				
								O3	3 Open Collect				
								O4	4 Open Collect				

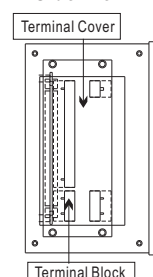
**1: NPN(5V),PNP(5V) offers excitation power DC5V; NPN(12V),PNP(12V) offers excitation power DC12V for sensors using.
2: Please use PNP/NPN(5V/12V) or DC24Vp for DC pulse input.

■ SPECIFICATION

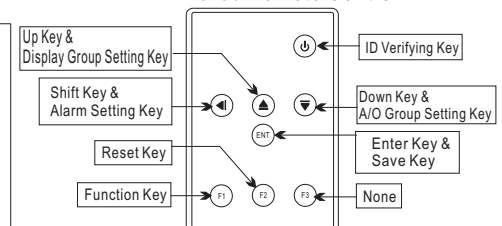
- ◆ Display Screen: High brightness red LED; 14.22mm(0.56")
- ◆ Max. Input Frequency: 7KHz (1U2D / 1P2D)
3KHz (1A2B)
- ◆ Display Range: 9999999
- ◆ Parameters Setting: Infrared Remote Control
- ◆ Back Up Memory: EEPROM
- ◆ Alarm Action: "≥ (Hi) on" or "< (Lo) on"
- ◆ Relay Contact: AC 277V / 7A; DC 30V / 7A
- ◆ Relay Output Mode: N / R / C / SA / CP / OR
- ◆ Alarm Run Time: 1~99 sec
- ◆ Analog Output Resolution: 15 bit
- ◆ Output Response Time: <250 msec (0~90%)
- ◆ Output Capability: Voltage Output: <20mA
Current Output: <10V
- ◆ Communication: RS-485 Modbus RTU mode
- ◆ Baud Rate: 9600 / 4800 / 2400 bps
- ◆ Temperature Coefficient: 100ppm / °C (0~60°C)
- ◆ Operating Temperature: 0~60°C
- ◆ Operating Humidity: 20~90% RH (non-condensing)
- ◆ Storage Temperature: -10~70°C
- ◆ Storage Humidity: 20~90% RH (non-condensing)
- ◆ Power Supply: AC/DC 100~240V
- ◆ Power Consumption: 10VA (all functions output)
- ◆ Surge Test: 1.5KVac / 1min (Input / Power)

■ SIDE PANEL & KEY FUNCTIONS

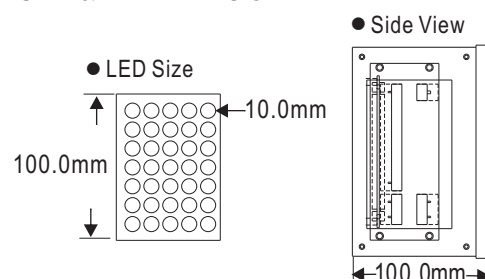
● Side View



● Infrared Remote Control

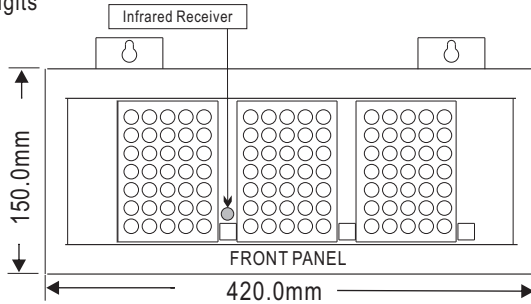


■ SIDE & LED DIMENSION

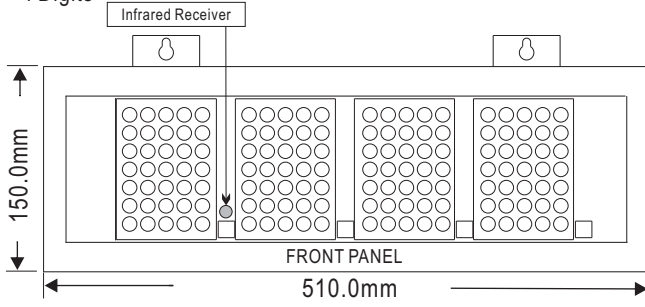


DIMENSIONS

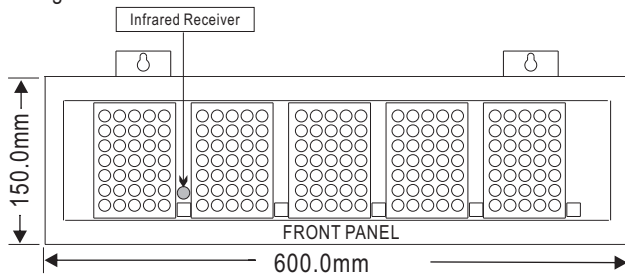
3 Digits



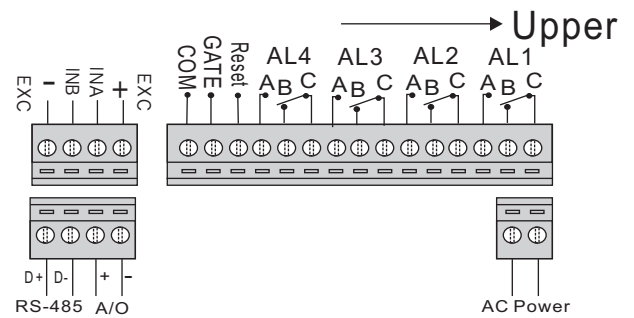
4 Digits



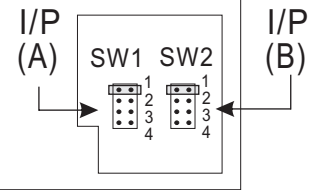
5 Digits



WIRING CONNECTION

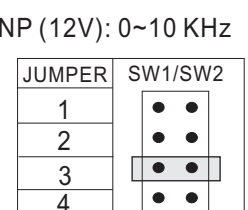
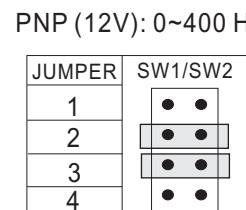
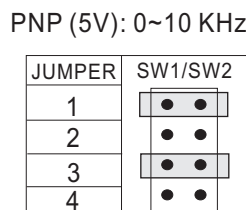
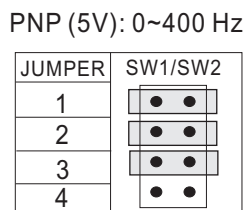
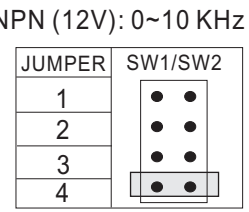
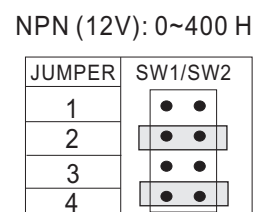
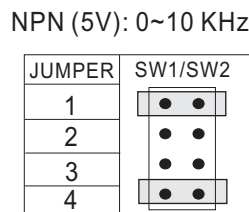
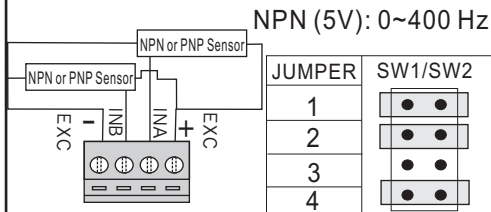


(Vertical View)

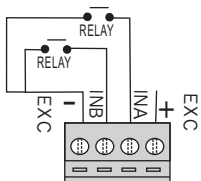


**To Select the pin to modify the input signal for different sensors.
PS: In dual input type, excitation power must be the same.

SW1/SW2	JUMPER	DEFINITION
• •	1	Open: 12V; Close: 5V
• •	2	Open: 10KHz; Close: 400Hz
• •	3	Open: NPN; Close: PNP
• •	4	Open: PNP; Close: NPN



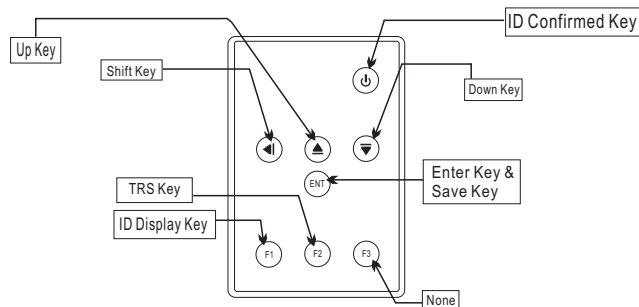
Relay Contact: NPN 0~400 Hz



**For relay input type, please select NPN 0~ 400 Hz.

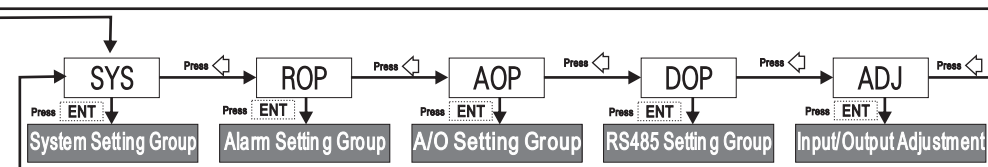
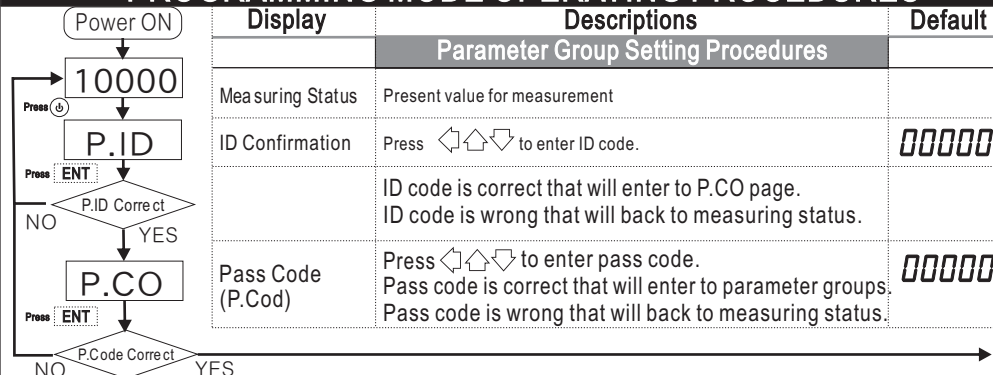
* Please understand key indicators & functions at the first operation.

FRONT PANEL & KEY FUNCTIONS



Key Name	Symbol	Descriptions
ID Confirmed Key		1. In the measuring status, press this key can enter to ID confirmed page. 2. In the parameter setting, press this key can back to the measuring page.
Enter Key & Save Key	ENT	1. In the measuring status, press this key can enter to parameter pages. 2. In the parameter setting, press this key can save the value & go to next parameter.
Shift Key		1. In the parameter setting, press this key can move the cursor left.
Up Key		1. In the parameter setting, press this key can increase the digits.
Down Key		1. In the parameter setting, press this key can decrease the digits.

PROGRAMMING MODE OPERATING PROCEDURES



Display	Descriptions	Default
SYSTEM (SYS) SETTING GROUP PROCEDURE		
1A2B Accuracy Setting (ACCU)	1. Press to enter the parameter setting, the digit will be flashed. 2. Press or can select 1A2B Accuracy. Range: X1, X4	X1
Function Key Setting (FKEY)	1. Press to enter the parameter setting, the digit will be flashed. 2. Press or can select Function Key. Range: rESEt (Reset), oriGin (Origin) 3. Press ENT to save the value and go to the next parameter.	RST
Recover Decimal Point Setting (C.dP)	1. Press to enter the parameter setting, the digit will be flashed. 2. Press or can select Recover Decimal Point Function. Range: YES (Recover), no (Do Not Recover) 3. Press ENT to save the value and go to the next parameter.	YES
Input Filter Setting (FiLter)	1. Press to enter the parameter setting, the digit will be flashed. 2. Press or can select Input Filter. Range: 4000, 400, 40, 4, OFF (Hz) 3. Press ENT to save the value and go to the next parameter.	OFF
Pass Code Setting (P.Cod)	1. Press to enter the parameter setting, the digit will be flashed. 2. Press or can modify Pass Code. Range: 0~19999 (Please do remember new Pass Code) 3. Press ENT to save the value and go to the next parameter.	00000
Key Lock Setting (LoCK)	1. Press to enter the parameter setting, the digit will be flashed. 2. Press or can close Key Lock. Range: no (Do Not Close), YES (Close) 3. Press ENT to save the value and back to System Setting Group.	NO
Identification Setting (id)	1. Press to modify identification (00~99). PS: If the ID is 00; Meter can received any Infrared Control.	00000

Display	Descriptions	Default
Alarm Setting Group Procedures		
ROP Press ENT	Alarm Setting Page (roP) The following steps are only available for alarm output.	
AL1 Press ENT	Alarm 1 Setpoint (AL1) Press $\triangleleft$ $\triangle$ $\triangleright$ to modify alarm 1 setpoint.	00000
AL2 Press ENT	Alarm 2 Setpoint (AL2) Press $\triangleleft$ $\triangle$ $\triangleright$ to modify alarm 2 setpoint.	00000
AL3 Press ENT	Alarm 3 Setpoint (AL3) Press $\triangleleft$ $\triangle$ $\triangleright$ to modify alarm 3 setpoint.	00000
AL4 Press ENT	Alarm 4 Setpoint (AL4) Press $\triangleleft$ $\triangle$ $\triangleright$ to modify alarm 4 setpoint.	00000
AC1	AL1 Action	HI
AC2	AL2 Action	
AC3	AL3 Action	HI
AC4	AL4 Action	HI
OPM Press ENT	AL Output Mode Setting (oPMoDE) 1. Press $\triangleleft$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can select Alarm Output Mode. Range: n (Manual) / r (Return) / C (Continue) / SA (Semi-Automatic) / CP (Compare) / or (Origin) 3. Press ENT to save the value and go to the next parameter.	n
OP1	AL1 Output Time	00000
OP2	AL2 Output Time	
OP3	AL3 Output Time	
OP4	AL4 Output Time	
A/O (AoP) SETTING GROUP PROCEDURE		
AOP Press ENT	A/O Setting Page (AoP) The following steps are only available for analog output.	
POL Press ENT	A/O Polarity Setting (PoLAr) 1. Press $\triangleleft$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can select A/O Polarity. Range: no (Positive Pole O/P: 0~10 Vdc), YES (Positive & Negative Pole O/P: -10~+10 Vdc) 3. Press ENT to save the value and back to A/O Setting Group.	NO
ANL Press ENT	A/O Low Scale Setting (AnLo) 1. Press $\triangleleft$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can modify A/O Low Scale. Range: -199999~999999 If this value is 0, while display is 0, output signal will be 4 mAdc. 3. Press ENT to save the value and go to the next parameter.	00000
ANH Press ENT	A/O Hi Scale Setting (AnHi) 1. Press $\triangleleft$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can modify A/O Hi Scale. Range: -199999~999999 If this value is 100, while display is 100, output signal will be 20 mAdc. 3. Press ENT to save the value and back to A/O Setting.	99999

Display	Descriptions	Default
RS-485 (doP) SETTING GROUP PROCEDURE		
RS485 Setting Page (doP)	The following steps are only available for RS-485.	
Address Setting (Addr)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can modify Address. Range: 0~255 3. Press ENT to save the value and go to the next parameter.	00000
Baud Rate Setting (bAUd)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can select Baud Rate. Range: 9600, 4800 (bps) 3. Press ENT to save the value and go to the next parameter.	96
Parity Check Setting (PARi)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can select Parity Check. Range: n.8.2, n.8.1, Even, odd 3. Press ENT to save the value and go to the next parameter.	n.8.2.
Frame Setting (FrAME)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can select Frame. Range: no (Hi to Lo), YES (Lo to Hi) 3. Press ENT to save the value and back to RS-485 Setting Group.	NO
Input / Output Adjustment Procedures		
Input Scale Setting (SCALE)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can modify Input Scale. Range: 0.00001~9.99999 3. Press ENT to save the value and go to the next parameter.	01.000
Input Pre-Division Setting (div)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can modify Input Pre-Division. Range: 1~999999 3. Press ENT to save the value and go to the next parameter.	00001
Decimal Point Setting (dp)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can select Decimal Point. Range: 0, 1, 2, 3, 4, 5 (DP) 3. Press ENT to save the value and go to the next parameter.	0
Input Type Setting (TYPE)	1. Press $\diamond$ to enter the parameter setting, the digit will be flashed. 2. Press $\triangle$ or $\triangleright$ can select Input Type. Range: 1U2d, 1P2d, 1A2b 3. Press ENT to save the value and back to Display Setting..	1U2
A/O Offset Setting (AoF)	Press $\diamond\triangle\triangleright$ to analog output offset value (-1999~9999).	00000
A/O Gain Setting (AGA)	Press $\diamond\triangle\triangleright$ to analog output gain value (-1999~9999).	00000

ERROR CODE OF SELF-DIAGNOSIS	
Display	Descriptions
E00	EEPROM reading / writing suffers the interference (about 1 million times).
** Please check the wiring connection is correct first, if the problem still exist, please return the meter to the factory.	

Modbus RTU Mode Protocol Address Map

* Data form: 16 / 32 bit, +/-8000~7FFF(-32768~32767), 800000007FFFFFFF(-2147483648~2147483647)

Modbus	HEX	Name	Descriptions	Act
40001	0000	ID	Model number identification; GBMC is 3AH	R
40002	0001	STATUS	Current alarm output & external control input status, range: 0000~00FE(0~0254) Bit7:AL4 , Bit6:AL3 , Bit5:AL2 , Bit4:AL1	R
40003	0002	LOCK	Key lock setting, range: 0000~0001 (0~1); 0:No, 1:YES	R/W
40004	0003	FILTER	Input filter setting, range: 0000~0004 (0~4); 0:4000, 1:400, 2:40, 3:4, 4:0FF	R/W
40005	0004	ACCU	1A2B accuracy setting, range: 0000~0001 (0~1); 0:X1, 1:X4	R/W
40006	0005	TRS	Function key setting, range: 0000~0001 (0~1); 0:rESEt, 1:oriGin	R/W
40007	0006	POLAR	Polar setting, range: 0000~0001 (0~1); 0:No, 1:YES	R/W
40008	0007	ACT1	Alarm 1 action setting, range: 0001~0002 (1~2); 1:Hi, 2:Lo	R/W
40009	0008	ACT2	Alarm 2 action setting, range: 0000~0002 (0~2); 0:WArM, 1:Hi, 2:Lo	R/W
40010	0009	ACT3	Alarm 3 action setting, range: 0000~0001 (0~3); 0:WArM, 1:Hi, 2:Lo, 3:Go	R/W
40011	000A	ACT4	Alarm 4 action setting, range: 0000~0001 (0~2); 0:WArM, 1:Hi, 2:Lo	R/W
40012	000B	OPMODE	Alarm output mode setting, range: 0000~0005 (0~5); 0:n, 1:r, 2:C, 3:SA, 4:CP, 5:or	R/W
40013	000C	PARI	Parity check setting, range: 0000~0003 (0~3); 0:n.8.2., 1:n.8.1., 2:EvEn, 3:odd	R/W
40014	000D	BAUD	Baud Rate setting, range: 0000~0003 (0~3); 1:19200, 2:9600, 3:4800	R/W
40015	000E	FRAME	Frame setting, range: 0000~0001 (0~1); 0:No, 1:YES	R/W
40016	000F	TYPE	Input type setting, range: 0000~0002 (0~2); 0:1U2d, 1:1P2d, 2:1A2b	R/W
40017	0010	CDP	Recover decimal point setting, range: 0000~0001 (0~1); 0:YES, 1:no	R/W
40018	0011	DP	Decimal point setting, range: 0000~0005 (0~5);0:10, 1:10, 2:10, 3:10, 4:10, 5:10	R/W
40019	0012	DIG	Display digit, range: D8F1~27QF(-9999~9999)	R/W
40020	0013	IDNO	Identification Setting , range: 0000~0063(0~99)	R/W
40021	0014	ADDR	Address setting, range: 0000~00FF (0~255)	R/W
40022	0015	OPTIME1	Alarm 1 output time setting, range: 0001~0063 (1~99)	R/W
40023	0016	OPTIME2	Alarm 2 output time setting, range: 0001~0063 (1~99)	R/W
40024	0017	OPTIME3	Alarm 3 output time setting, range: 0001~0063 (1~99)	R/W
40025	0018	OPTIME4	Alarm 4 output time setting, range: 0001~0063 (1~99)	R/W
40026	0019	CODE	Pass code setting, range: 0000~4E1F (0~19999)	R/W
40027	001A	AOFST	A/O offset setting, range: D8F1~270F (-9999~9999)	R/W
40028	001B	AGAIN	A/O gain setting, range: D8F1~270F (-9999~9999)	R/W
40029	001C	DIV	Input Pre-Divisioning, range: 00000001~000F423F (1~999999) Hi Bit	R/W
40030	001D		Input Pre-Divisioning, range: 00000001~000F423F (1~999999) Lo Bit	R/W
40031	001E	SCALE	Input scale setting, range: 00000001~000F423F (1~999999) Hi Bit	R/W
40032	001F		Input scale setting, range: 00000001~000F423F (1~999999) Lo Bit	R/W
40033	0020	ANLO	A/O low scale setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R/W
40034	0021		A/O low scale setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit	R/W

Modbus	HEX	Name	Descriptions	Act
40035	0022	ANHI	A/O hi scale setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R/W
40036	0023		A/O hi scale setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit	R/W
40037	0024	AL1	Alarm 1 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R/W
40038	0025		Alarm 1 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit	R/W
40039	0026	AL2	Alarm 2 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R/W
40040	0027		Alarm 2 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit	R/W
40041	0028	AL3	Alarm 3 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R/W
40042	0029		Alarm 3 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit	R/W
40043	002A	AL4	Alarm 4 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R/W
40044	002B		Alarm 4 setpoint setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit	R/W
40045	002C	RATE	Current display value, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R
40046	002D		Current display value, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit	R