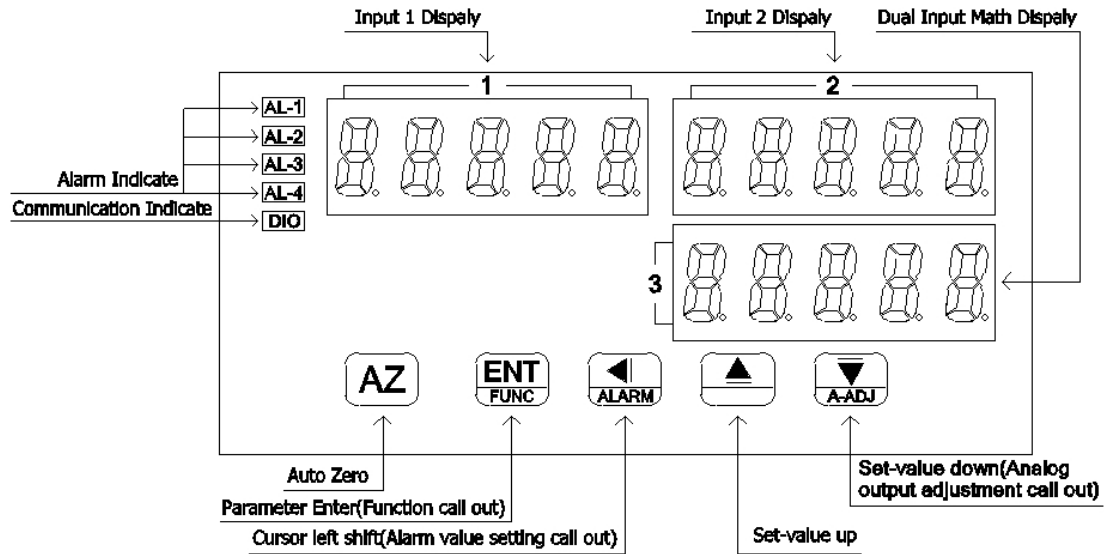


**FEATURES**

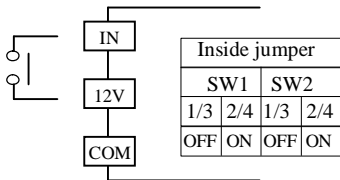
- ⊙ Dual input measuring and display sensor signal
- ⊙ Dual input math function (A+B,A-B,A\*B,A/B)
- ⊙ Readout Range from -9999 to 99999
- ⊙ Three counting modes : Up/Down, direct-Up/Down, Quadrature-Up/Down can be modified
- ⊙ Power down saving
- ⊙ Decimal Point can be modified
- ⊙ Input scaling multiplied 0.0001 to 9.9999 can be modified
- ⊙ Reset by panel or connect terminal
- ⊙ Quadrature sensing up to 4 times resolution
- ⊙ 16BIT DAC analog output can be modified
- ⊙ Four independent alarm with delay and hysteresis function
- ⊙ RS485 Communication interface, Protocol MODBUS RTU MODE
- ⊙ BAUD RATE:38400/19200/9600/4800/2400
- ⊙ 0.4" LED highlight display
- ⊙ Man-machine interface, easy to operate
- ⊙ EEPROM Saving, data safekeeping about 10 years
- ⊙ Modified inside parameter, must have pass code

**Name of Parts**

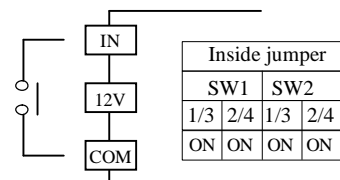


**Connect Diagram**

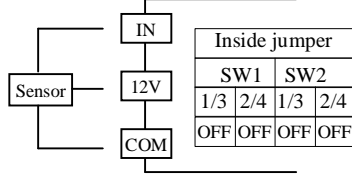
⊙ Contact input (PNP)



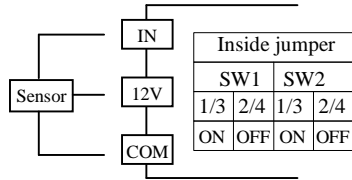
⊙ Contact input (NPN)



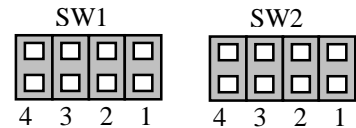
⊙ Sensor input (PNP 5V/12V)



⊙ Sensor input (NPN 5V/12V)



**Input function jumper table**



- ⊙ Position 1/3 ON :IN1/2(A/B) -> (NPN)
- ⊙ Position 1/3 OFF:IN1/2(A/B) -> (PNP)
- ⊙ Position 2/4 ON :IN1/2(A/B) -> (0~50HZ)
- ⊙ Position 2/4 OFF:IN1/2(A/B) -> (0~10KHZ)

**Alarm Function description**

- ⊙ When ACT=HI,DEL= 0 :  
 Display value > Setting value(AL) + Hysteresis (HYS) → (Relay on)  
 Display value <= Setting value(AL) - Hysteresis (HYS) → (Relay off)
- ⊙ When ACT=LO,DEL= 0 :  
 Display value >= Setting value(AL) + Hysteresis (HYS) → (Relay off)  
 Display value < Setting value(AL) - Hysteresis (HYS) → (Relay on)
- ⊙ When ACT=HI,DEL= 1 ~ 99 sec.:  
 Display value > Setting value(AL) + Hysteresis (HYS) + Delay time(DEL) → (Relay on)  
 Display value <= Setting value(AL) - Hysteresis (HYS) → (Relay off)
- ⊙ When ACT=LO,DEL= 1 ~ 99 sec.:  
 Display value >= Setting value(AL) + Hysteresis (HYS) → (Relay off)  
 Display value < Setting value(AL) - Hysteresis (HYS) + Delay time(DEL) → (Relay on)
- ⊙ When ACT=HI,DEL= -1 ~ -99 sec.:  
 Display value > Setting value(AL) + Hysteresis (HYS) → (Relay one shoot(DEL) and then off)  
 Display value <= Setting value(AL) - Hysteresis (HYS) → (Relay restore normal after the procedure)
- ⊙ When ACT=LO,DEL= -1 ~ -99 sec.:  
 Display value >= Setting value(AL) + Hysteresis (HYS) → (Relay restore normal after the procedure)  
 Display value < Setting value(AL) - Hysteresis (HYS) → (Relay one shoot(DEL) and then off)

Key Introduce	Operation Manual
☺ Key Function	1.In normal display,The key function is call out setting group 2.In parameter setting page,The key function is data Enter , and goto next page
◀ Key Function	1.In normal display,The key function is call out alarm value setting page 2.Into parameter setting page,the parameter mark&data is alternate display,If need modify data can press ◀ key into setting procedure,The display is lock parameter data,this time must let off key about 0.2 sec,press again,the cursor(twinkle express)is cycle moving left. (Key Response about 0.2 sec)
▲ Key Function	1.Into parameter setting page,the parameter mark&data is alternate display,If need modify data can press up key into setting procedure,The display is lock parameter data,this time must let off key about 0.2 sec,press again,the parameter data will increment. (Key Response about 0.2 sec)
▼ Key Function	1.In normal display,The key function is call out adjustment analog output AZERO&ASPAN page 2.Into parameter setting page,the parameter mark&data is alternate display,If need modify data can press down key into setting procedure,The display is lock parameter data,this time must let off key about 0.2 sec,press again the parameter data will decrement. (Key Response about 0.2 sec)
▲&▼ Key Function	1.In setting group or setting page press ▲&▼ key return normal display, but if in setting page the modify data will be lost
No Key in anything	1.In setting group or setting page no key in anything about 2 minutes, return normal display, but if in Setting page the modify data will be lost

Step	Parameter Mark Description	Parameter Mark	Operation Manual
1	Normal display	1 2 3 4 5	Press ☺/FUNC key into P.CODE setting page
2	P.CODE(Pass code input page)	P.C o d e	1.Key in 5 digit pass code with ◀ or ▲ or ▼ key 2.Press ☺ key,the pass code is right into setting group , otherwise return normal display
		0 0 0 0 0	
3	SYS(System setting group)	S Y S	1. Select setting group with ◀ key 2. Press ☺ key into setting page of selection setting group
	ROP(Alarm setting group)	r o P	
	DOP(Communication setting group)	d o P	
	AOP(Analog output setting group)	A o P	
4	SYS(System setting group)	S Y S	Press ◀ key decide SYS setting group , press ☺ key into DP1 setting page
4-1	DP1(Decimal Point IN-1) Default = 0	d P 1	1. Decide Decimal Point IN-1 with ▲ or ▼ key (0 to 4) 2. Press ☺ key enter data and into DP2 setting page
		0.	
4-2	DP2(Decimal Point IN-2) Default = 0	d P 2	3. Decide Decimal Point IN-2 with ▲ or ▼ key (0 to 4) 4. Press ☺ key enter data and into TYPE setting page
		0.	
4-3	TYPE(Input Type) Default = 1U2D	t Y P E	1. Decide Input type with ▲ or ▼ key (1U2D,1P2D,1A2B) 2. Press ☺ key enter data and into SCL-A setting page
		1 U 2 d	
4-4	SCL-A (Scale-A) Default = 1.0000	S C L - A	1. Decide Scale-A with ◀ or ▲ or ▼ key (0.0001~9.9999) 2. Press☺key enter data and into SCL-B setting page
		1.0000	
4-5	SCL-B (Scale-B) Default = 1.0000	S C L - b	1. Decide Scale-B with ◀ or ▲ or ▼ key (0.0001~9.9999) 2. Press☺key enter data and into MATH setting page
		1.0000	
4-6	MATH(Math) Default = 1ADD2	m A T H	1. Decide Math with ▲ or ▼ key(1ADD2,1SUB2,1MUL2,1DIV2) 2. Press ☺ key enter data and into DP3 setting page
		1 A d d 2	
4-7	DP3 (Decimal Point 3) Default = 0	d P 3	1. Decide Decimal Point 3 with ▲ or ▼ key(0~4) 2. Press ☺ key enter data and into CODE setting page
		0.	
4-8	CODE(Pass Code) Default = 0	C o d e	1. Decide Pass code with ◀ or ▲ or ▼ key(0~99999) 2. Press ☺ key enter data and into LOCK setting page
		0 0 0 0 0	
4-9	LOCK(Panel Lock)	L o C k	1. Decide panel lock with ▲ or ▼ key(NO or YES)

	Default = NO	no	2.Press  key enter data and return SYS setting group
5	ROP(Alarm setting group)	rop	Press  key decide ROP setting group,press  key into AL1-S setting page
5-1	AL1-S(Alarm 1 Select) Default = DISP1	AL1-S disp1	1.Decide Alarm 1 Select with  or  key(DISP1,DISP2,DISP3) 2.Press  key enter data and into ACT1 setting page
5-2	ACT1(Alarm Active 1) Default = HI	ACT1 HI	1.Decide Alarm Active 1 with  or  key(HI or LO) 2.Press  key enter data and into HYS1 setting page
5-3	HYS1(Alarm Hysteresis 1) Default = 0	HYS1 00000	1.Decide Alarm Hysteresis 1 with  or  or  key(0~999) 2.Press  key enter data and into DEL1 setting page
5-4	DEL1(Alarm Delay 1) Default = 0	DEL1 00000	1.Decide Alarm Delay 1 with  or  or  key(-99~99 sec) 2.Press  key enter data and into AL2-S setting page Note: -1 ~ -99 sec = Alarm active time 1 ~ 99 sec = Alarm delay time
5-5	AL2-S(Alarm 2 Select) Default = DISP2	AL2-S disp2	1.Decide Alarm 2 Select with  or  key(DISP1,DISP2,DISP3) 2.Press  key enter data and into ACT2 setting page
5-6	ACT2(Alarm Active 2) Default = HI	ACT2 HI	1.Decide Alarm Active 2 with  or  key(HI or LO) 2.Press  key enter data and into HYS2 setting page
5-7	HYS2(Alarm Hysteresis 2) Default = 0	HYS2 00000	1.Decide Alarm Hysteresis 2 with  or  or  key(0~999) 2.Press  key enter data and into DEL2 setting page
5-8	DEL2(Alarm Delay 2) Default = 0	DEL2 00000	1.Decide Alarm Delay 2 with  or  or  key(-99~99 sec) 2.Press  key enter data and into AL3-S setting page Note: -1 ~ -99 sec = Alarm active time 1 ~ 99 sec = Alarm delay time
5-9	AL3-S(Alarm 3 Select) Default = DISP3	AL3-S disp3	1.Decide Alarm 3 Select with  or  key(DISP1,DISP2,DISP3) 2.Press  key enter data and into ACT3 setting page
5-10	ACT3(Alarm Active 3) Default = HI	ACT3 HI	1.Decide Alarm Active 3 with  or  key(HI or LO) 2.Press  key enter data and into HYS3 setting page
5-11	HYS3(Alarm Hysteresis 3) Default = 0	HYS3 00000	1.Decide Alarm Hysteresis 3 with  or  or  key(0~999) 2.Press  key enter data and into DEL3 setting page
5-12	DEL3(Alarm Delay 3) Default = 0	DEL3 00000	1.Decide Alarm Delay 3 with  or  or  key(-99~99 sec) 2.Press  key enter data and into AL4-S setting page Note: -1 ~ -99 sec = Alarm active time 1 ~ 99 sec = Alarm delay time
5-13	AL4-S(Alarm 4 Select) Default = DISP1	AL4-S disp1	1.Decide Alarm 4 Select with  or  key(DISP1,DISP2,DISP3) 2.Press  key enter data and into ACT4 setting page
5-14	ACT4(Alarm Active 4) Default = HI	ACT4 HI	1.Decide Alarm Active 4 with  or  key(HI or LO) 2.Press  key enter data and into HYS4 setting page
5-15	HYS4(Alarm Hysteresis 4) Default = 0	HYS4 00000	1.Decide Alarm Hysteresis 4 with  or  or  key(0~999) 2.Press  key enter data and into DEL4 setting page
5-16	DEL4(Alarm Delay 4) Default = 0	DEL4 00000	1.Decide Alarm Delay 4 with  or  or  key(-99~99 sec) 2.Press  key enter data and return ROP setting group Note: -1 ~ -99 sec = Alarm active time 1 ~ 99 sec = Alarm delay time
6	DOP(Communication setting group)	dop	press  key decide DOP setting group,press  key into ADDR setting page

6-1	ADDR(Communication Address) Default = 0	ADDR	1.Decide address with ◀ or ▲ or ▼ key(0~255) 2.Press Ⓜ key enter data and into BAUD setting page
		00000	
6-2	BAUD(Communication Baud Rate) Default = 19200	BAUD	1.Decide baud rate with ▲ or ▼ key(38400,19200,9600,4800,2400) 2.Press Ⓜ key enter data and into PARI setting page
		19200	
6-3	PARI(Communication Parity Check) Default = n82	PARI	1.Decide parity check with ▲ or ▼ key(n82,n81,even,odd) 2.Press Ⓜ key enter data and return DOP setting group
		n.8.2.	
7	AOP(Analog output setting group)	AOP	Press ◀ key decide AOP setting group , press Ⓜ key into AO.SEL setting page
7-1	AO.SEL(Analog Output Select) Default = DISP3	AO.SEL	1.Decide Analog Output Select with ▲ or ▼ key(DISP1,DISP2,DISP3) 2.Press Ⓜ key enter data and into ANLO setting page
		DISP3	
7-2	ANLO(Analog Output Zero-According to Display) Default = 0	ANLO	1.Decide Analog Output Zero-According to Display with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into ANHI setting page
		00000	
7-3	ANHI(Analog Output Span-According to Display) Default = 10000	ANHI	1.Decide Analog Output Span-According to Display with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and return AOP setting group
		10000	

Step	Parameter mark description	Parameter mark	Operation manual
8	Normal display	12345	Press ◀/ALARM key about 3 sec,into AL1 setting page
8-1	AL1 (Alarm 1) Default = 0	AL1	1.Decide Alarm 1 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into AL2 setting page
		00000	
8-2	AL2 (Alarm 2) Default = 0	AL2	1.Decide Alarm 2 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into AL3 setting page
		00000	
8-3	AL3 (Alarm 3) Default = 0	AL3	1.Decide Alarm 3 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into AL4 setting page
		00000	
8-4	AL4 (Alarm 4) Default = 0	AL4	1.Decide Alarm 4 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and return normal display
		00000	

Step	Parameter mark description	Parameter mark	Operation manual
9	Normal display	12345	Press ▼/A-ADJ key about 3 sec, into AZERO adjustment page
9-1	AZERO(Analog Output Zero Adjustment page) Default = 0	AZERO	1.Adjustment analog output zero with ◀ or ▲ or ▼ key(±6000) 2.Press Ⓜ key enter data and into ASPAN adjustment page
		00000	
9-2	ASPAN(Analog Output Span Adjustment page) Default = 0	ASPAN	1.Adjustment analog output span with ◀ or ▲ or ▼ key(±6000) 2.Press Ⓜ key enter data and return normal display
		00000	

Appendix	Error Mark description	Error Mark	Analyze & Description
1	Display over range error detect	DOFL	Input signal over the maximum display range(99999)
2	Display under range error detect	-DOFL	Input signal under the minimum display range(-19999)
3	EEPROM error detect	E-00	1.External interference during EEPROM read/write 2.EEPROM write over 1 million times(guarantee 10 years)
		n0	Please power reset, if still display E-00,doing following step: 1.E-00 & No alternate display for inquire reset EEPROM
		YES	Decide Yes with ▲ or ▼ key, press Ⓜ key to return normal display,EEPROM was reset, Please follow steps 1~9 set again

## MMCD-M Modbus RTU Mode Protocol Address Map

Data format 16Bit/32Bit, sign bit 8000~7FFF(-32768~32767),80000000~7FFFFFFF(-2147483648~2147483647)

Address	Name	Description	Accept
0000	DP1	Decimal Point IN-1,Input Range 0000~0004(0~4)(0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup> ,4:10 <sup>-4</sup> )	R/W
0001	DP2	Decimal Point IN-2,Input Range 0000~0004(0~4)(0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup> ,4:10 <sup>-4</sup> )	R/W
0002	DP3	Decimal Point 3,Input Range 0000~0004(0~4)(0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup> ,4:10 <sup>-4</sup> )	R/W
0003	TYPE	Input Type,Input Range 0000~0002(0~2)(0:1U2D,1:1P2D,2:1A2B)	R/W
0004	MATH	Math,Input Range 0000~0003 (0~3)(0:1ADD2,1:1SUB2,2:1MUL2,3:1DIV2)	R/W
0005	LOCK	Panel Lock,Input Range 0000~0001(0~1)(0:NO,1:YES)	R/W
0006	AL1_S	Alarm 1 Select,Input Range 0000~0002 (0~2) (0:DISP1,1:DISP2,2:DISP3)	R/W
0007	AL2_S	Alarm 2 Select,Input Range 0000~0002 (0~2) (0:DISP1,1:DISP2,2:DISP3)	R/W
0008	AL3_S	Alarm 3 Select,Input Range 0000~0002 (0~2) (0:DISP1,1:DISP2,2:DISP3)	R/W
0009	AL4_S	Alarm 4 Select,Input Range 0000~0002 (0~2) (0:DISP1,1:DISP2,2:DISP3)	R/W
000A	ACT1	Alarm Active 1,Input Range 0000~0001(0~1) (0:HI,1:LO)	R/W
000B	ACT2	Alarm Active 2,Input Range 0000~0001(0~1) (0:HI,1:LO),	R/W
000C	ACT3	Alarm Active 3,Input Range 0000~0001(0~1) (0:HI,1:LO)	R/W
000D	ACT4	Alarm Active 4,Input Range 0000~0001(0~1) (0:HI,1:LO)	R/W
000E	HYS1	Alarm Hysteresis 1,Input Range 0000~03E7 (0~999)	R/W
000F	HYS2	Alarm Hysteresis 2,Input Range 0000~03E7 (0~999)	R/W
0010	HYS3	Alarm Hysteresis 3,Input Range 0000~03E7 (0~999)	R/W
0011	HYS4	Alarm Hysteresis 4,Input Range 0000~03E7 (0~999)	R/W
0012	DEL1	Alarm Delay 1,Input Range FF9D~0063 (-99~99)	R/W
0013	DEL2	Alarm Delay 2,Input Range FF9D~0063 (-99~99)	R/W
0014	DEL3	Alarm Delay 3,Input Range FF9D~0063 (-99~99)	R/W
0015	DEL4	Alarm Delay 4,Input Range FF9D~0063 (-99~99)	R/W
0016	ADDR	Communication Address,Input Range 0000~00FF(0~255)	R/W
0017	BAUD	Communication Baud Rate,Input Range 0000~0004(0~4)(0:38400,1:19200,2:9600,3:4800,4:2400)	R/W
0018	PARI	Communication Parity Check,Input Range 0000~0003(0~3)(0:N82,1:N81,2:EVEN,3:ODD)	R/W
0019	AO.SEL	Analog Output Select,Input Range 0000~0002(0~2) (0:DISP1,1:DISP2,2:DISP3)	R/W
001A	A_ZERO	Analog Output Zero Adjust,Input Range E890~1770(-6000~6000)	R/W
001B	A_SPAN	Analog Output Span Adjust,Input Range E890~1770(-6000~6000)	R/W
001C	CODE	Pass Code,Input Range 00000000~0001869F(0~99999)High word	R/W
001D		Pass Code,Input Range 00000000~0001869F(0~99999)Low word	R/W
001E	SCL-A	Scale-A,Input Range 00000001~0001869F(1~99999)High word	R/W
001F		Scale-A,Input Range 00000001~0001869F(1~99999)Low word	R/W
0020	SCL-B	Scale-B,Input Range 00000001~0001869F(1~99999)High word	R/W
0021		Scale-B,Input Range 00000001~0001869F(1~99999)Low word	R/W
0022	AL1	Alarm 1,Input Range FFFFB1E1~0001869F (-19999~99999)High word	R/W
0023		Alarm 1,Input Range FFFFB1E1~0001869F (-19999~99999)Low word	R/W
0024	AL2	Alarm 2,Input Range FFFFB1E1~0001869F (-19999~99999)High word	R/W
0025		Alarm 2,Input Range FFFFB1E1~0001869F (-19999~99999)Low word	R/W
0026	AL3	Alarm 3,Input Range FFFFB1E1~0001869F (-19999~99999)High word	R/W
0027		Alarm 3,Input Range FFFFB1E1~0001869F (-19999~99999)Low word	R/W
0028	AL4	Alarm 4,Input Range FFFFB1E1~0001869F (-19999~99999)High word	R/W
0029		Alarm 4,Input Range FFFFB1E1~0001869F (-19999~99999)Low word	R/W
002A	ANLO	Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)High word	R/W
002B		Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)Low word	R/W
002C	ANHI	Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)High word	R/W
002D		Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)Low word	R/W
002E	DISP1	IN1 Display Value, Display Range FFFFB1E1~0001869F(-19999~99999)High word	R
002F		IN1 Display Value, Display Range FFFFB1E1~0001869F(-19999~99999)Low word	R
0030	DISP2	IN2 Display Value, Display Range FFFFB1E1~0001869F(-19999~99999)High word	R
0031		IN2 Display Value, Display Range FFFFB1E1~0001869F(-19999~99999)Low word	R
0032	DISP3	Display Value 3, Display Range FFFFB1E1~0001869F(-19999~99999)High word	R
0033		Display Value 3, Display Range FFFFB1E1~0001869F(-19999~99999)Low word	R
0034	STATUS	Display & Alarm Status,Display Range 0000~03FF(0~1023)Bit0:AL1,Bit1:AL2,Bit2:AL3, Bit3:AL4, Bit4:DISP1 DOFL,Bit5:DISP1 -DOFL,Bit6:DISP2 DOFL,Bit7:DISP2 -DOFL,Bit8:DISP3 DOFL,Bit9:DISP3 -DOFL	R
0035	RST	Write = 0001(Function 06) The displayed value will be reset	W