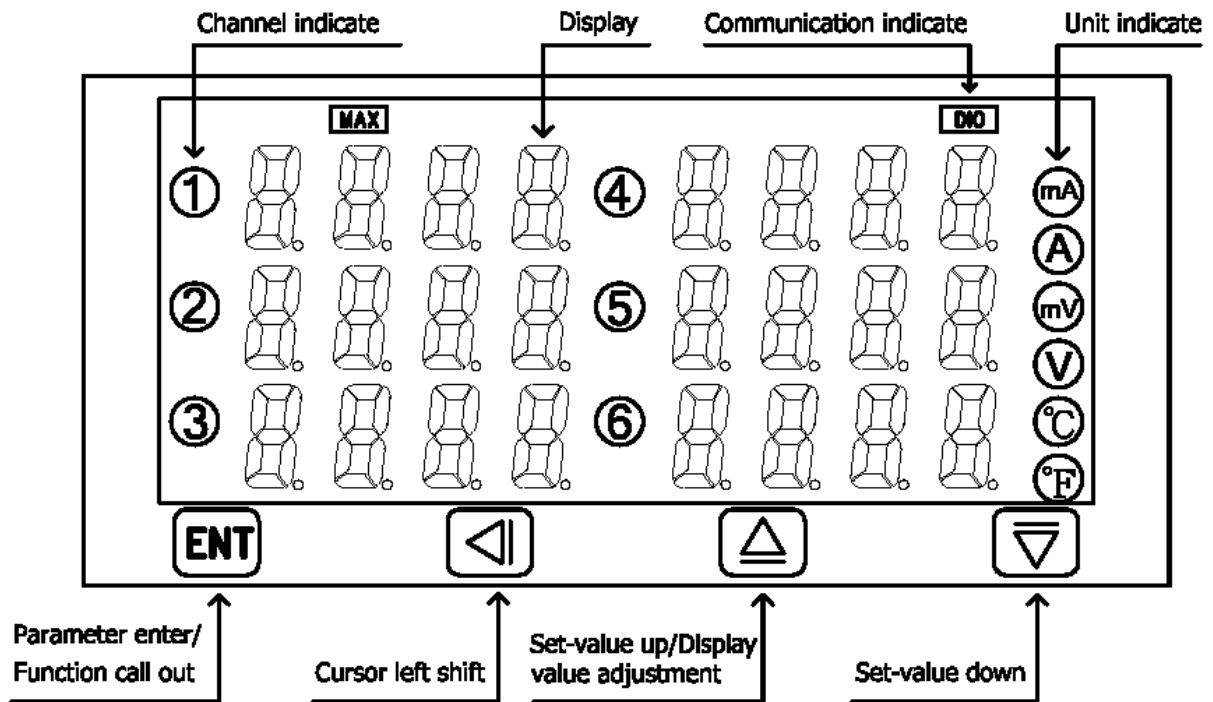


■ FEATURES

- ◎Accuracy 0.05% FS ± 1 digit
- ◎Measuring 6 channel DCA
- ◎Programmable display range -1999~9999 digit
- ◎Input channel number (1~6) can be modified
- ◎Decimal point (0~3) can be modified
- ◎RS485 communication interface,Protocol MODBUS RTU MODE
- ◎BAUD RATE:38400/19200/9600/4800/2400
- ◎Man-machine interface,easy to operate
- ◎Flash/EE saving data safekeeping about 10 years
- ◎Modified inside parameter must have pass code

■ Name of Parts



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. 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. In normal display, The key function is call out adjustment display value (DZERO & DSPAN) 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 parameter data will increment. (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 ▼ 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	1. Press Ⓜ key into P.COD setting page
2	P.COD (Pass Code Input Page) Default=0	P.C o d	1. Key in 4 digit pass code with ◀&▲&▼ key 2. Press Ⓜ key, the pass code is correct into setting group, otherwise, return normal display
		0 0 0 0	

3	SYS (System Setting Group)	SYS	1.Select setting group with  key
	DSP (Display Value Adjust)	dSP	2.Press  key into setting page of selection setting group
	DOP (Communication Setting)	dOP	
4	SYS (System Setting Group)	SYS	1.Press  key decide SYS setting group 2.press  key into CH-S setting page
4-1	CH-S (Input Channel Number Select) Default = 6	CH-S	1.Decide input channel number with  &  key(1 to 6) 2.Press  key enter data and into LCUT setting page
		0006	
4-2	LCUT (Low Cut) Default = 0	LCUT	1.Decide low cut with  &  &  key(0~99) 2.Press  key enter data and into CODE setting page
		0000	
4-3	CODE (Pass Code) Default = 0	CODE	1.Decide pass code with  &  &  key(0~9999) 2.Press  key enter data and into LOCK setting page
		0000	
4-4	LOCK (Parameter Lock) Default = NO	LOCK	1.Decide parameter lock with  &  key(NO or YES) 2.Press  key enter data and return SYS setting group
		no	
4-5	SYS (System Setting Group)	SYS	1.Select setting group with  key 2.Press  key into setting page of selection group
5	DSP (Display Value Adjust group)	dSP	1.Press  key decide DSP setting group 2.Press  key into DP-1 setting page
5-1	DP-1 (Decimal Point-Channel 1) Default = 2	DP-1	1.Decide channel 1 decimal point with  &  key(0~3) 2.Press  key enter data and into DL-1 setting page
		0002	
5-2	DL-1 (Display Low-Channel 1) Default = 00.00	DL-1	1.Decide channel 1 display low with  &  &  key (-1999~9999) 2.Press  key enter data and into DH-1 setting page
		00.00	
5-3	DH-1 (Display High-Channel 1) Default = 10.00	DH-1	1.Decide channel 1 display high with  &  &  key (-1999~9999) 2.Press  key enter data and into DP-2 setting page
		10.00	
5-4	DP-2 (Decimal Point-Channel 2) Default = 2	DP-2	1.Decide channel 2 decimal point with  &  key(0~3) 2.Press  key enter data and into DL-2 setting page
		0002	
5-5	DL-2 (Display Low-Channel 2) Default = 00.00	DL-2	1.Decide channel 2 display low with  &  &  key (-1999~9999) 2.Press  key enter data and into DH-2 setting page
		00.00	
5-6	DH-2 (Display High-Channel 2) Default = 10.00	DH-2	1.Decide channel 2 display high with  &  &  key (-1999~9999) 2.Press  key enter data and into DP-3 setting page
		10.00	
5-7	DP-3 (Decimal Point-Channel 3) Default = 2	DP-3	1.Decide channel 3 decimal point with  &  key(0~3) 2.Press  key enter data and into DL-3 setting page
		0002	
5-8	DL-3 (Display Low-Channel 3) Default = 00.00	DL-3	1.Decide channel 3 display low with  &  &  key (-1999~9999) 2.Press  key enter data and into DH-3 setting page
		00.00	
5-9	DH-3 (Display High-Channel 3) Default = 10.00	DH-3	1.Decide channel 3 display high with  &  &  key (-1999~9999) 2.Press  key enter data and into DP-4 setting page
		10.00	
5-10	DP-4 (Decimal Point-Channel 4) Default = 2	DP-4	1.Decide channel 4 decimal point with  &  key(0~3) 2.Press  key enter data and into DL-4 setting page
		0002	
5-11	DL-4 (Display Low-Channel 4) Default = 00.00	DL-4	1.Decide channel 4 display low with  &  &  key (-1999~9999) 2.Press  key enter data and into DH-4 setting page
		00.00	
5-12	DH-4 (Display High-Channel 4) Default = 10.00	DH-4	1.Decide channel 4 display high with  &  &  key (-1999~9999) 2.Press  key enter data and into DP-5 setting page
		10.00	
5-13	DP-5 (Decimal Point-Channel 5) Default = 2	DP-5	1.Decide channel 5 decimal point with  &  key(0~3) 2.Press  key enter data and into DL-5 setting page
		0002	

5-14	DL-5 (Display Low-Channel 5) Default = 00.00	DL-5	1.Decide channel 5 display low with ◀&▲&▼ key (-1999~9999) 2.Press Ⓜ key enter data and into DH-5 setting page
		00.00	
5-15	DH-5 (Display High-Channel 5) Default = 10.00	DH-5	1.Decide channel 5 display high with ◀&▲&▼ key (-1999~9999) 2.Press Ⓜ key enter data and into DP-6 setting page
		10.00	
5-16	DP-6 (Decimal Point-Channel 6) Default = 2	DP-6	1.Decide channel 6 decimal point with ▲&▼ key(0~3) 2.Press Ⓜ key enter data and into DL-6 setting page
		0002	
5-17	DL-6 (Display Low-Channel 6) Default = 00.00	DL-6	1.Decide channel 6 display low with ◀&▲&▼ key (-1999~9999) 2.Press Ⓜ key enter data and into DH-6 setting page
		00.00	
5-18	DH-6 (Display High-Channel 6) Default = 10.00	DH-6	1.Decide channel 6 display high with ◀&▲&▼ key (-1999~9999) 2.Press Ⓜ key enter data and return DSP setting group
		10.00	
5-19	DSP (Display Value Adjust group)	dSP	1.Select setting group with ◀ key 2.Press Ⓜ key into setting page of selection group

6	DOP (Communication setting group)	dOP	1.Press ◀ key decide DOP setting group 2.Press Ⓜ key into ADDR setting page
6-1	ADDR (Communication Address setting page) Default =0	ADDR	1.Decide Communication address with ◀&▲&▼ key(0~255) 2.Press Ⓜ key enter data and into BAUD setting page
		0000	
6-2	BAUD (Communication Baud Rate setting page) Default = 19K2	BAUD	1.Decide baud rate with ▲&▼ key(38K4/19K2/9600/4800/2400) 2.Press Ⓜ key enter data and into PARI setting page
		1922	
6-3	PARI(Communication Parity Check setting page) Default = n.8.2.	PARI	1.Decide parity check with ▲&▼ key(n82,n81,even,odd) 2.Press Ⓜ key enter data and return DOP setting group
		n.8.2	
6-4	DOP (Communication setting group)	dOP	1.Select setting group with ◀ key 2.Press Ⓜ key into setting page of selection group

Step	Parameter Mark Description	Parameter Mark	Operation Manual
7	Normal display	1234	Press ▲ key about 3 sec,into DZ-1 setting page
7-1	DZ-1 (Display Zero Adjust -Channel 1)	DZ-1	1.Adjustment channel 1 display zero with ▲&▼key 2.Press Ⓜkey enter data and into DS-1 setting page Note:Adjust DZ-1 value while minimum display value error
		00.00	
7-2	DS-1 (Display Span Adjust -Channel 1)	DS-1	1.Adjustment channel 1 display span with ▲&▼key 2.Press Ⓜkey enter data and into DZ-2 setting page Note:Adjust DS-1 value while maximum display value error
		10.00	
7-3	DZ-2 (Display Zero Adjust -Channel 2)	DZ-2	1.Adjustment channel 2 display zero with ▲&▼key 2.Press Ⓜkey enter data and into DS-2 setting page Note:Adjust DZ-2 value while minimum display value error
		00.00	
7-4	DS-2 (Display Span Adjust -Channel 2)	DS-2	1.Adjustment channel 2 display span with ▲&▼key 2.Press Ⓜkey enter data and into DZ-3 setting page Note:Adjust DS-2 value while maximum display value error
		10.00	
7-5	DZ-3 (Display Zero Adjust -Channel 3)	DZ-3	1.Adjustment channel 3 display zero with ▲&▼key 2.Press Ⓜkey enter data and into DS-3 setting page Note:Adjust DZ-3 value while minimum display value error
		00.00	
7-6	DS-3 (Display Span Adjust -Channel 3)	DS-3	1.Adjustment channel 3 display span with ▲&▼key 2.Press Ⓜkey enter data and into DZ-4 setting page Note:Adjust DS-3 value while maximum display value error
		10.00	
7-7	DZ-4 (Display Zero Adjust -Channel 4)	DZ-4	1.Adjustment channel 4 display zero with ▲&▼key 2.Press Ⓜkey enter data and into DS-4 setting page Note:Adjust DZ-4 value while minimum display value error
		00.00	
7-8	DS-4 (Display Span Adjust -Channel 4)	DS-4	1.Adjustment channel 4 display span with ▲&▼key 2.Press Ⓜkey enter data and into DZ-5 setting page Note:Adjust DS-4 value while maximum display value error
		10.00	

7-9	DZ-5 (Display Zero Adjust-Channel 5)	DZ-5	1.Adjustment channel 5 display zero with ▲&▼key 2.Press Ⓜkey enter data and into DS-5 setting page Note:Adjust DZ-5 value while minimum display value error
		00.00	
7-10	DS-5 (Display Span Adjust-Channel 5)	DS-5	1.Adjustment channel 5 display span with ▲&▼key 2.Press Ⓜkey enter data and into DZ-6 setting page Note:Adjust DS-5 value while maximum display value error
		10.00	
7-11	DZ-6 (Display Zero Adjust-Channel 6)	DZ-6	1.Adjustment channel 6 display zero with ▲&▼key 2.Press Ⓜkey enter data and into DS-6 setting page Note:Adjust DZ-6 value while minimum display value error
		00.00	
7-12	DS-6 (Display Span Adjust-Channel 6)	DS-6	1.Adjustment channel 6 display span with ▲&▼key 2.Press Ⓜkey enter data and return normal display Note:Adjust DS-6 value while maximum display value error
		10.00	

Appendix	Error Mark description	Error Mark	Analyze & Description
1	A/D Converter error detect	AdEr	1.Input signal over range( <b>approx. rated 120%</b> ) 2. Inside ADC circuit damage
2	Display over range error detect	doFL	1.Input signal over display range(9999)
3	Display under range error detect	-doF	1.Input signal under display range(-1999)
4	EEPROM error detect	E-00	1.External interference when EEPROM read/write 2. EEPROM write over 100,000 cycles(guarantee 10 years) Please power reset,if still display E-00,doing <b>below</b> step: 1.E-00 & No alternate display for inquire reset EEPROM 2. Decide Yes with ▲&▼ key,press Ⓜ key return normal display 3. EEPROM was reset,Please follow step 1~7 setting again
		no	
		YES	

**MM8A-B Modbus RTU Mode Protocol Address Map**  
**Data format 16Bit, sign bit, 8000~7FFF(-32768~32767)**

Address	Name	Description	Accept
0000	LOCK	Panel Lock,Input Range 0000~0001(0~1) 0:NO,1:YES	R/W
0001	CH_S	Input Channel Number Select,Input Range 0001~0006(1~6)	R/W
0002	ADDR	Communication Address,Input Range 0000~00FF(0~255)	R/W
0003	BAUD	Baud Rate,Input Range 0000~0004(0~4) 0:38K4,1:19K2,2:9600,3:4800,4:2400	R/W
0004	PARI	Parity Check,Input Range 0000~0003(0~3) 0:N.8.2,1:N.8.1,2:EVEN,3:ODD	R/W
0005	LCUT	Low Cut,Input Range FF9D~0063(-99~99)	R/W
0006	DP_1	Channel 1 Decimal Point,Input Range 0000~0003(0~3) 0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup>	R/W
0007	DP_2	Channel 2 Decimal Point,Input Range 0000~0003(0~3) 0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup>	R/W
0008	DP_3	Channel 3 Decimal Point,Input Range 0000~0003(0~3) 0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup>	R/W
0009	DP_4	Channel 4 Decimal Point,Input Range 0000~0003(0~3) 0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup>	R/W
000a	DP_5	Channel 5 Decimal Point,Input Range 0000~0003(0~3) 0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup>	R/W
000b	DP_6	Channel 6 Decimal Point,Input Range 0000~0003(0~3) 0:10 <sup>0</sup> ,1:10 <sup>-1</sup> ,2:10 <sup>-2</sup> ,3:10 <sup>-3</sup>	R/W
000c	DL_1	Channel 1 Display Low , Input Range F831~270F(-1999~9999)	R/W
000d	DL_2	Channel 2 Display Low , Input Range F831~270F(-1999~9999)	R/W
000e	DL_3	Channel 3 Display Low , Input Range F831~270F(-1999~9999)	R/W
000f	DL_4	Channel 4 Display Low , Input Range F831~270F(-1999~9999)	R/W
0010	DL_5	Channel 5 Display Low , Input Range F831~270F(-1999~9999)	R/W
0011	DL_6	Channel 6 Display Low , Input Range F831~270F(-1999~9999)	R/W
0012	DH_1	Channel 1 Display High, Input Range F831~270F(-1999~9999)	R/W
0013	DH_2	Channel 2 Display High, Input Range F831~270F(-1999~9999)	R/W
0014	DH_3	Channel 3 Display High, Input Range F831~270F(-1999~9999)	R/W
0015	DH_4	Channel 4 Display High, Input Range F831~270F(-1999~9999)	R/W
0016	DH_5	Channel 5 Display High, Input Range F831~270F(-1999~9999)	R/W
0017	DH_6	Channel 6 Display High, Input Range F831~270F(-1999~9999)	R/W
0018	CODE	Pass Code,Input Range 0000~270F(0~9999)	R/W
0019	INLO_1	Channel 1 Input Low Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
001a	INLO_2	Channel 2 Input Low Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
001b	INLO_3	Channel 3 Input Low Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
001c	INLO_4	Channel 4 Input Low Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
001d	INLO_5	Channel 5 Input Low Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
001e	INLO_6	Channel 6 Input Low Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
001f	INHI_1	Channel 1 Input High Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
0020	INHI_2	Channel 2 Input High Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
0021	INHI_3	Channel 3 Input High Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
0022	INHI_4	Channel 4 Input High Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
0023	INHI_5	Channel 5 Input High Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
0024	INHI_6	Channel 6 Input High Calibrate Value,Input Range 8000~7FFF(-32768~32767)	R/W
0025	DISPLAY1	Channel 1 Normal Display Value,Display Range F831~270F(-1999~9999)	R
0026	DISPLAY2	Channel 2 Normal Display Value,Display Range F831~270F(-1999~9999)	R
0027	DISPLAY3	Channel 3 Normal Display Value,Display Range F831~270F(-1999~9999)	R
0028	DISPLAY4	Channel 4 Normal Display Value,Display Range F831~270F(-1999~9999)	R
0029	DISPLAY5	Channel 5 Normal Display Value,Display Range F831~270F(-1999~9999)	R
002a	DISPLAY6	Channel 6 Normal Display Value,Display Range F831~270F(-1999~9999)	R