AXE   MICROPROCESS PANEL CONTROLLER METER(48x48mm)   MA48 Series
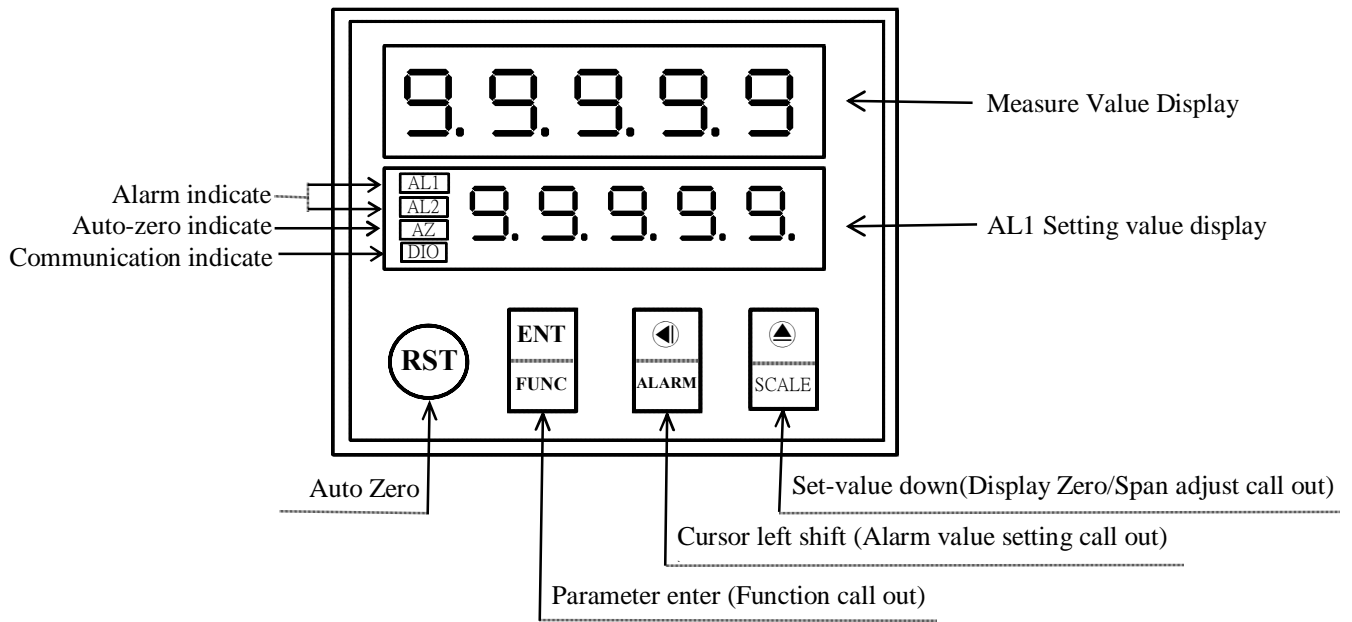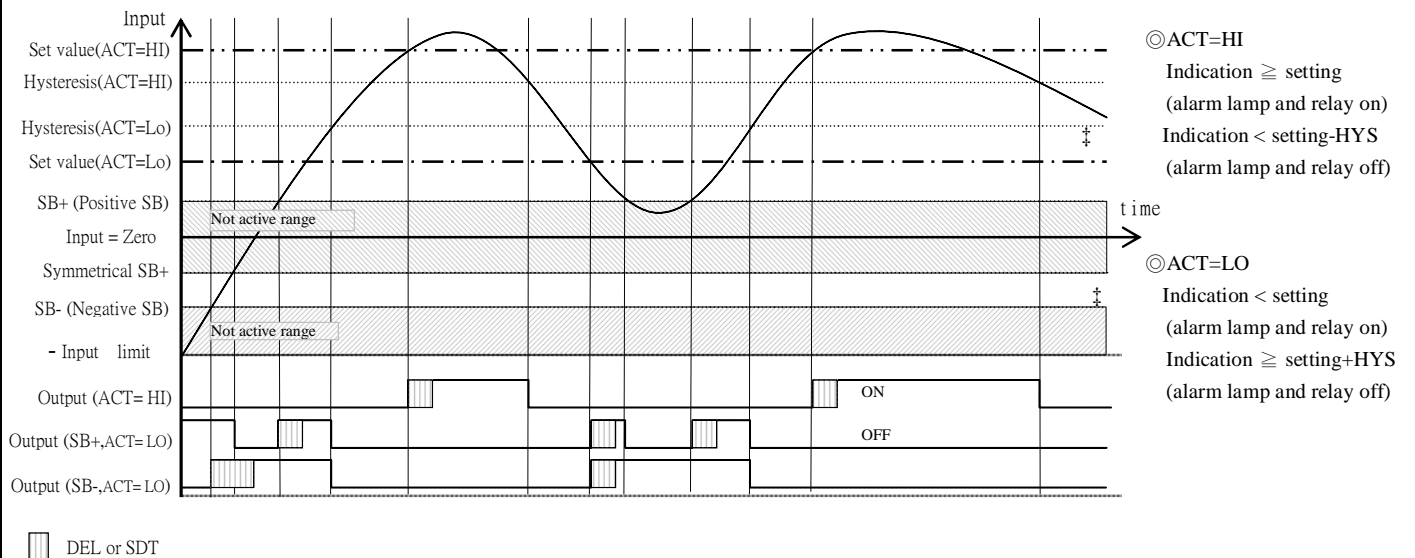
Features

◎Measuring DCA/DCV/ACA/ACV/Potentiometer/
  Transmitter/Load Cell/Resistorí .etc
◎Accuracy 0.05% F.S.±1 digit
◎Display range -19999~99999 can be modified
◎Decimal point can be modified
◎Display value can Auto-zero function
◎2 Alarm function
◎Display average can be modified (1~99)

◎16BIT DAC analog output can be modified
◎RS485 communication interface,Protocol MODBUS RTU MODE
◎BAUD RATE:19200/9600/4800/2400
◎0.4öLED 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

Measure Value Display

Alarm indicate — AL1
Auto-zero indicate — AL2
Communication indicate — AZ
DIO

AL1 Setting value display

RST — Auto Zero
ENT / FUNC — Parameter enter (Function call out)
◀ / ALARM — Cursor left shift (Alarm value setting call out)
▲ / SCALE — Set-value down(Display Zero/Span adjust call out)

Alarm Function Diagram

◎ACT=HI
  Indication ≧ setting
  (alarm lamp and relay on)
  Indication < setting-HYS
  (alarm lamp and relay off)

◎ACT=LO
  Indication < setting
  (alarm lamp and relay on)
  Indication ≧ setting+HYS
  (alarm lamp and relay off)

▯ DEL or SDT

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.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), If the setting value have negative,Shift cursor(twinkle express) to the leftest and Press▲ key can positive / negative number alternate display
ⒶⓏKey Function	1.The ⒶⓏ key press first time,Display value will be auto-zero(AZ lampöONö),Press ⒶⓏ key once again, auto-zero function disable ,(AZ lampöOFFö)
◀&▲ 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

Inside parameter operate procedure

Step	Parameter Mark Description	Parameter Mark	Operation Manual
1	Normal display	12345	Press Ⓔ/FUNC key into P.CODE setting page
2	P.CODE(Pass code input page) Default=0	P.CodE	1.Key in 5 digit pass code with ◀&▲key
		00000	2.Press Ⓔkey, If the pass code is correct then into setting group, otherwise return normal display
3	SYS(System Setting Group)	SYS	1.Select setting group with ◀key
	ROP(Alarm output Setting Group)	roP	2.Press Ⓔkey into setting page of selection setting group
	AOP(Analog output Setting Group)	AoP	
	DOP(Communication setting group)	doP	
4	SYS(System setting group)	SYS	1.Press ◀key decide SYS setting group
			2.PressⒺkey into DP setting page
4-1	DP(Decimal Point) Default=0	dP	1.Decide decimal point position with▲ key (0 to 4)
		0	2.Press Ⓔkey enter data and into DSPL setting page
4-2	DSPL(Display Low Scale) Default=0	dSPL	1. Decide display low scale with ◀&▲key (-19999~99999)
		00000	2. Press Ⓔkey enter data and into DSPH setting page
4-3	DSPH(Display High Scale) Default=99999	dSPH	1. Decide display high scale with ◀&▲key (-19999~99999)
		99999	2. Press Ⓔkey enter data and into AVG setting page
4-4	AVG (Average) Default=6	AuG	1. Decide display Average times with ◀&▲key (1~99)
		06	2. Press Ⓔkey enter data and into LCUT setting page
4-5	LCUT (Low Cut) Default=0	LCUt	1. Decide display low cut with ◀&▲key (0~99)
		00	2. Press Ⓔkey enter data and into CODE setting page
4-6	CODE(Pass Code) Default=0	CodE	1. Decide Pass code with ◀&▲key (0~19999)
		00000	2. Press Ⓔkey enter data and into LOCK setting page
4-7	LOCK(Panel Lock) Default=NO	LoCk	1. Decide panel lock with▲key (NO or YES)
		no	2. Press Ⓔkey enter data and return SYS setting group
5	ROP(Alarm setting group)	roP	1.Press ◀key decide ROP setting group
			2.Press Ⓔkey into ACT1 setting page
5-1	ACT1(Alarm 1 Active) Default=HI	ACt1	1. Decide Alarm 1 Active with ▲key(HI or LO)
		Hi	2.PressⒺkey enter data and into ACT2 setting page
5-2	ACT2(Alarm 2 Active) Default=HI	ACt2	1. Decide Alarm 2 Active with ▲key(HI or LO)
		Hi	2.PressⒺkey enter data and into HYS1 setting page
5-3	HYS1(Alarm 1 Hysteresis) Default=0	HYS1	1. Decide HYS1 with ◀&▲key (0~99)
		00	2. Press Ⓔkey enter data and into HYS2 setting page
5-4	HYS2(Alarm 2 Hysteresis) Default=0	HYS2	1. Decide HYS2 with ◀&▲key (0~99)
		00	2. Press Ⓔkey enter data and into DEL1 setting page
5-5	DEL1(Alarm 1 Delay time) Default=0	dEL1	1. Decide DEL1 with ◀&▲key (0~99 sec)
		00	2. Press Ⓔkey enter data and into DEL2 setting page
5-6	DEL2(Alarm 2 Delay time) Default=0	dEL2	1. Decide DEL2 with ◀&▲key (0~99 sec)
		00	2. Press Ⓔkey enter data and into SB setting page

5-7	SB(Start band) Default=0	`5b` `000`	1. Decide SB with ◀&▲key (-99~99) 2. Press Ⓝkey enter data and into SDT setting page
5-8	SDT(Start Delay Time) Default=0	`5dt` `00`	1. Decide SDT with ◀&▲key (0~99 sec) 2. Press Ⓝ key enter data and return ROP setting group
6	AOP(Analog output setting group)	`AoP`	1.Press◀key select AOP setting group 2.PressⓃkey into ANLO setting page
6-1	ANLO(Analog Output Zero-According to Display) Default=0	`AnLo` `00000`	1. Decide ANLO with ◀&▲key (-19999~99999) 2. Press Ⓝkey enter data and into ANHI setting page
6-2	ANHI(Analog Output Span-According to Display) Default=99999	`AnHi` `99999`	1. Decide ANHI with ◀&▲key(-19999~99999) 2. Press Ⓝkey enter data and into AZERO setting page
6-3	AZERO(Analog Output Zero Adjustment page) Default=0	`APEro` `00000`	1.Adjustment analog output zero with ◀&▲key(±5999) 2. Press Ⓝkey enter data and into ASPAN adjustment page
6-4	ASPAN(Analog Output Span Adjustment page) Default=0	`ASPAn` `00000`	1. Adjustment analog output span with ◀&▲key (±5999) 2. PressⓃkey return AOP setting group
7	DOP(Communication setting group)	`doP`	1.Press ◀key decide DOP setting group 2.PressⓃkey into ADDR setting page
7-1	ADDR(Communication Address) Default=0	`Addr` `000`	1. Decide ADDR with ◀&▲key (0~255) 2. Press Ⓝkey enter data and into BAUD setting page
7-2	BAUD(Communication Baud Rate) Default=19200	`bAUd` `19200`	1. Decide BAUD with ▲key (19200,9600,4800,2400) 2. Press Ⓝkey enter data and into PARI setting page
7-3	PARI(Communication Parity Check) Default=n.8.2.	`PAri` `n.8.2.`	1. Decide PARI with ▲key(n.8.2,n.8.1,even,odd) 2. Press Ⓝkey enter data and return DOP setting group

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

Step	Parameter mark description	Parameter mark	Operation manual
9	Normal display	`12345`	Press▲/SCALE key about 3 sec, into DZERO adjustment page
9-1	DZERO(Display Zero Adjust) Default=0	`dPEro` `00000`	1. Adjustment display zero with ◀&▲key (◀decrease, ▲increase) 2. Press Ⓝkey enter data and into DSPAN adjustment page
9-2	DSPAN(Display Span Adjust) Default=0	`dSPAn` `00000`	1. Adjustment display span with ◀&▲ key(◀decrease, ▲increase) 2. Press Ⓝkey enter data and return normal display

Appendix	Error Mark Description	Error Mark	Analyze & Description
1	Input over error detect	`ioFL`	Input signal over range
2	Input under error detect	`-ioFL`	Input signal under range
3	Display over error detect	`doFL`	Display over range(99999)
4	Display under error detect	`-doFL`	Display under range (-19999)

5	EEPROM error detect	`E-00`
		`no`
		`YES`
			1. External interference when EEPROM read/write
			2.EEPROM write over 1 million times(guarantee 10 years)
			Please power reset, if still display E-00,doing following step:
			 a.E-00 & No alternate display for inquire reset EEPROM
			 b.Decide Yes with ▲key,press Ⓝ key return normal display
			 c.EEPROM was reset,Please follow step 1~9 set again

MA48 Modbus RTU Mode Protocol Address Map
Data format 16Bit/32Bit, sign bit 8000~7FFF(–32768~32767),80000000~7FFFFFFF(-2147483648~2147483647)

Address	Name	Description	Acce-pt
0000	ID	Type code judge , MA48 = 00	R
0001	STATUS	Alarm output and Display status,Display Range 0000~00FF(0~255)(0:OFF,1:ON)(Bit0:AL1,Bit1:AL2, Bit4:DOFL,Bit5:-DOFL,Bit6:IOFL,Bit7:-IOFL)	R
0002	FUNC	Terminal function,Input Range 0000~0001(0~1)(0:AZ OFF,1:AZ ON)	R/W
0003	ACT1	Alarm 1 Active,Input Range 0000~0001(0~1)(0:HI,1:LO)	R/W
0004	ACT2	Alarm 2 Active,Input Range 0000~0001(0~1)(0:HI,1:LO)	R/W
0005	DP	Decimal Point,Input Range 0000~0004(0~4)0:10^0,1:10^{-1},2:10^{-2},3:10^{-3},4:10^{-4}	R/W
0006	LOCK	Panel Lock,Input Range 0000~0001(0~1)0:NO,1:YES	R/W
0007	BAUD	Communication Baud Rate,Input Range 0000~0003(0~3)0:19200,1:9600,2:4800,3:2400	R/W
0008	PARI	Communication Parity Check,Input Range 0000~0003(0~3)0:N.8.2.,1:N.8.1.,2:EVEN,3:ODD	R/W
0009	AVG	Average,Input Range 0001~0063(1~99)	R/W
000A	LCUT	Low Cut,Input Range 0000~0063(0~99)	R/W
000B	ADDR	Communication Address,Input Range 0000~00FF(0~255)	R/W
000C	HYS1	Hysteresis 1,Input Range 0000~0063(0~99)	R/W
000D	HYS2	Hysteresis 2,Input Range 0000~0063(0~99)	R/W
000E	DEL1	Alarm 1 Delay time,Input Range 0000~0063(0~99)	R/W
000F	DEL2	Alarm 2 Delay time,Input Range 0000~0063(0~99)	R/W
0010	SB	Start band,Input Range FF9D~0063(-99~99)	R/W
0011	SDT	Start Delay Time,Input Range 0000~0063(0~99)	R/W
0012	CODE	Pass Code,Input Range 0000~4E1F(0~19999)	R/W
0013	AZERO	Analog Output Zero Adjust,Input Range E891~176F(-5999~5999)	R/W
0014	ASPAN	Analog Output Span Adjust,Input Range E891~176F(-5999~5999)	R/W
0015	DSPL	Display Low Scale,Input RangeFFFFB1E1~0001869F(-19999~99999)high word	R/W
0016		Display Low Scale,Input RangeFFFFB1E1~0001869F(-19999~99999)low word	R/W
0017	DSPH	Display High Scale,Input RangeFFFFB1E1~0001869F(-19999~99999)high word	R/W
0018		Display High Scale,Input RangeFFFFB1E1~0001869F(-19999~99999)low word	R/W
0019	AL1	Alarm 1,Input RangeFFFFB1E1~0001869F(-19999~99999)high word	R/W
001A		Alarm 1,Input RangeFFFFB1E1~0001869F(-19999~99999)low word	R/W
001B	AL2	Alarm 2,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
001C		Alarm 2,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
001D	ANLO	Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
001E		Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
001F	ANHI	Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
0020		Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
0021	AZ	Display Auto zero, Display Range FFFFB1E1~0001869F(-19999~99999)high word	R
0022		Display Auto zero, Display Range FFFFB1E1~0001869F(-19999~99999)low word	R
0023	DISPLAY	Display Value, Display Range FFFFB1E1~0001869F(-19999~99999)high word	R
0024		Display Value, Display Range FFFFB1E1~0001869F(-19999~99999)low word	R