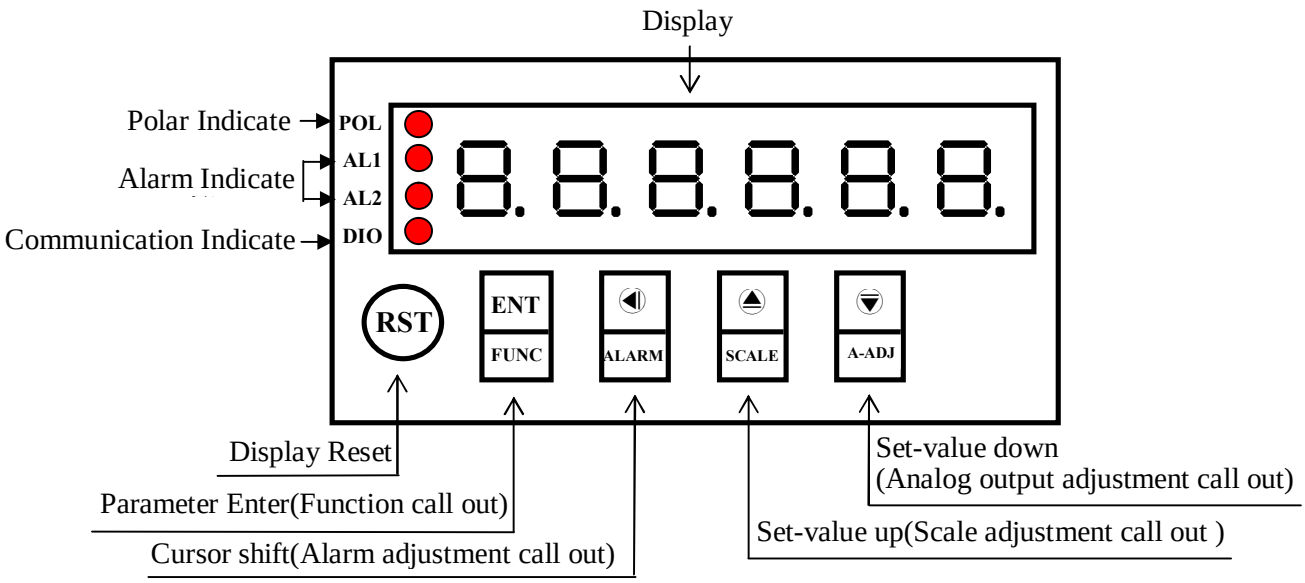
AXE **ULTRA HIGH SPEED MICROPROCESS LENGTH,ANGLE CONTROLLER METER** **MMCH Series**

■FEATURES

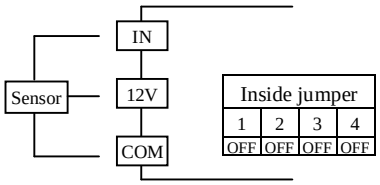
◎ Accept Quadrature encoder(A/B Phase) finish length/Angle control
◎ Accept input rate up to 500KHz
◎ Readout Range from-999999~999999/0~359.999(length/Angle)
◎ Input modes: A/B Phase quadrature-Up/Down decoder
◎ Quadrature sensing up to 4 times resolution
◎ Input scaling multiplied 0.00001 to 9.99999 can be modified
◎ Reset value -999999~999999/0~359.999 can be modified
◎ Decimal Point can be modified
◎ Reset by panel or connect terminal
◎ Power down saving
◎ Normal counting and rotate for 360 degree counting can be modified
◎ 16BIT DAC analog output can be modified,
◎ Two alarm function
◎ RS485 Communication interface,Protocol MODBUS RTU MODE
◎ BAUD RATE:38400/19200/9600/4800/2400
◎ 0.56" 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

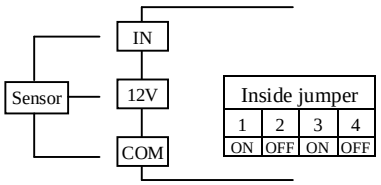


■Connect Diagram

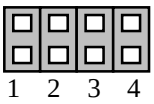
◎Sensor input (PNP 5V/12V)



◎Sensor input (NPN 5V/12V)



■Input function jumper table



Position 1 ON：IN(B) NPN
Position 3 ON：IN(A) NPN

Key Introduce	Operation Manual
ENT 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 shift 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 scale page 2.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 ZERO&SPAN 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	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	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	123456	Press ENT/FUNC key into P.COD setting page
2	P.CODE(Pass code input page)	P.CodE 000000	1.Key in 6 digit pass code with ◀ or ▲ or ▼ key 2.Press ENT key,the pass code is right into setting group , otherwise return normal display
3	SYS(System setting group)	SYS	1. Select setting group with ◀ key 2. Press ENT key into setting page of selection setting group
	ROP(Alarm setting group)	roP	
	AOP(Analog output setting group)	AoP	
	DOP(Communication setting group)	doP	
4	SYS(System setting group)	SYS	Press ◀ key decide SYS setting group , press ENT key into TYPE setting page
4-1	TYPE(Input Type setting page) Default = Normal	tYPE norMAL	1.Decide input type with ▲ or ▼ key (Normal(Normal counting) ,Rotate(360 degree counting)) 2.Press ENT key enter data and into DP setting page
4-2	DP(Decimal Point setting page) Default = 0	dP 0.	1. Decide decimal point position with ▲ or ▼ key 0~5(Normal-type) or 0~3 (Rotate-type)) 2. Press ENT key enter data and into RST setting page
4-3	RST(Reset Value) Default = 0	rSt 000000	1.Decide Reset Value with◀ or▲ or▼key(-999999~999999(Normal-type) or 0~359/3599/35999/359999 (Rotate-type,DP=0/1/2/3)) 2.Press ENT key enter data and into CODE setting page
4-4	CODE(Pass Code setting page) Default = 0	CodE 000000	1.Decide pass code with ◀ or ▲ or ▼ key(0~999999) 2.Press ENT key enter data and into LOCK setting page
4-5	LOCK(Panel Lock setting page) Default = NO	LoCK no	1.Decide panel lock with ▲ or ▼ key(NO or YES) 2.Press ENT key enter data and return SYS setting group
5	ROP(Alarm setting group)	roP	Press ◀ key decide ROP setting group,press ENT key into ACT1 setting page
5-1	ACT1(Alarm Active 1 setting page) Default = HI	ACt 1 HI	1.Decide active 1 with ▲ or ▼ key(HI or LO) 2.Press ENT key enter data and into ACT2 setting page
5-2	ACT2(Alarm Active 2 setting page) Default = HI	ACt2 HI	1.Decide active 2 with ▲ or ▼ key(HI or LO) 2.Press ENT key enter data and into HYS1 setting page
5-3	HYS1(Alarm Hysteresis 1 setting page) Default = 0	HYS 1 0000	1.Decide Hysteresis 1 with ◀ or ▲ or ▼ key(0~9999) 2.Press ENT key enter data and into HYS2 setting page
5-4	HYS2(Alarm Hysteresis 2 setting page) Default = 0	HYS2 0000	1.Decide Hysteresis 2 with ◀ or ▲ or ▼ key(0~9999) 2.Press ENT key enter data and into DEL1 setting page
5-5	DEL1(Alarm Delay 1 setting page) Default = 0	dEL 1 00.0	1.Decide delay 1with ◀ or ▲ or ▼ key(-99.9~99.9 sec) 2.Press ENT key enter data and into DEL2 setting page Note:-0.1 ~ -99.9 sec = Alarm active time 0.1 ~ 99.9 sec = Alarm delay time
5-6	DEL2(Alarm Delay 2 setting page) Default = 0	dEL2 00.0	1.Decide delay 2with ◀ or ▲ or ▼ key(-99.9~99.9 sec) 2.Press ENT key enter data and return ROP setting group Note:-0.1 ~ -99.9 sec = Alarm active time 0.1 ~ 99.9 sec = Alarm delay time

6	AOP(Analog output setting group)	AoP	Press ◀ key decide AOP setting group , press ENT key into ANLO setting page
6-1	ANLO(A/O Zero According to Display setting page) Default = 0	AnLo 000000	1.Decide ANLO with ◀ or ▲ or ▼ key(-999999~999999) 2.Press ENT key enter data and into ANHI setting page
6-2	ANHI(A/ O Span According to Display setting page) Default = 999999	AnHi 999999	1.Decide ANHI with ◀ or ▲ or ▼ key(-999999~999999) 2.Press ENT key enter data and return AOP setting group
7	DOP(Communication setting group)	doP	press ◀ key decide DOP setting group,press ENT key into ADDR setting page
7-1	ADDR(Communication Address setting page) Default = 0	Addr 000	1.Decide address with ◀ or ▲ or ▼ key(0~255) 2.Press ENT key enter data and into BAUD setting page
7-2	BAUD(Communication Baud Rate setting page) Default = 19200	bAUd 19200	1.Decide baud rate with ▲ or ▼ key(38400,19200,9600,4800,2400) 2.Press ENT key enter data and into PARI setting page
7-3	PARI(Communication Parity Check setting page) Default = n82	PArI n.8.2.	1.Decide parity check with ▲ or ▼ key(n82,n81,even,odd) 2.Press ENT key enter data and return DOP setting group
Step	Parameter mark description	Parameter mark	Operation manual
8	Normal display	123456	Press ◀/ALARM key about 3 sec,into AL1 setting page
8-1	AL1 (Alarm value 1 setting page) Default = 0	AL 1 000000	1.Decide alarm value 1 with ◀ or ▲ or ▼ key(-999999~999999) 2.Press ENT key enter data and into AL2 setting page
8-2	AL2 (Alarm value 2 setting page) Default = 0	AL2 000000	1.Decide alarm value 2 with ◀ or ▲ or ▼ key(-999999~999999) 2.Press ENT key enter data and return normal display
Step	Parameter mark description	Parameter mark	Operation manual
9	Normal display	123456	Press ▲/SCALE key about 3 sec,into SCALE setting page
9-1	SCALE (Display Scale setting page) Default = 1.00000	SCALE 1.00000	1.Decide scale with ◀ or ▲ or ▼ key(0.00001~9.99999) 2.Press ENT key enter data and return normal display
Step	Parameter mark description	Parameter mark	Operation manual
10	Normal display	12345	Press ▼/A-ADJkey about 3 sec,into AZERO adjustment page
10-1	AZERO(Analog Output Zero Adjustment page) Default = 0	AZEro 0000	1.Adjustment analog output zero with ◀ or ▲ or ▼ key(±6000) 2.Press ENT key enter data and into ASPAN adjustment page
10-2	ASPAN(Analog Output Span Adjustment page) Default = 0	ASPAn 0000	1.Adjustment analog output span with ◀ or ▲ or ▼ key(±6000) 2.Press ENT key enter data and return normal display
Appendix	Error Mark description	Error Mark	Analyze & Description
1	Display positive over error detect	doFL	Input signal over display range(999999)
2	Display negative over error detect	-doFL	Input signal under display range(-999999)
3	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: 1. E-00 & No alternate display for inquire reset EEPROM 2. Decide Yes with▲or▼key,press ENT key return normal display 3. EEPROM was reset,Please follow step 1~10 set again

■MCHH 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	DP	Decimal Point,Input Range 0000~0005(0~5)(Normal type),0000~0003(0~3)(Rotate type) ($0:10^{0}$,$1:10^{-1}$,$2:10^{-2}$,$3:10^{-3}$,$4:10^{-4}$,$5:10^{-5}$)	R/W
0001	TYPE	Input Type,Input Range0000~0001(0~1)(0: Normal type,1: Rotate type)	R/W
0002	LOCK	Panel Lock,Input Range0000~0001(0~1)(0:NO,1:YES)	R/W
0003	ACT1	Alarm Active 1,Input Range0000~0001(0~1)(0:HI,1:LO)	R/W
0004	ACT2	Alarm Active 2,Input Range 0000~0001(0~1)(0:HI,1:LO),	R/W
0005	HYS1	Alarm hysteresis 1,Input Range 0000~270F(0~9999)	R/W
0006	HYS2	Alarm hysteresis 2,Input Range 0000~270F(0~9999)	R/W
0007	DEL1	Alarm Delay 1,Input Range FC19~03E7(-99.9~99.9)	R/W
0008	DEL2	Alarm Delay 2,Input Range FC19~03E7(-99.9~99.9)	R/W
0009	ADDR	Communication Address, Input Range 0000~00FF(0~255)	R/W
000A	BAUD	Communication Baud Rate, Input Range 0000~0004(0~4)(0:38400,1:19200,2:9600,3:4800,4:2400)	R/W
000B	PARI	Communication Parity Check,Input Range 0000~0003(0~3)(0:N82,1:N81,2:EVEN,3:ODD)	R/W
000C	A_ZERO	Analog Output Zero Adjust,Input Range E890~1770(-6000~6000)	R/W
000D	A_SPAN	Analog Output Span,Input Range E890~1770(-6000~6000)	R/W
000E	CODE	Pass Code,Input Range 00000000~000F423F(0~999999)high word	R/W
000F		Pass Code,Input Range 00000000~000F423F(0~999999)low word	R/W
0010	SCALE	Scale,Input Range 00000001~000F423F(0.00001~9.99999)high word	R/W
0011		Scale,Input Range 00000001~000F423F(0.00001~9.99999)low word	R/W
0012	RST	Reset Value,Input Range FFF0BDC1~000F423F (-999999~999999(Normal type),00000000~00057E3F (0~359999) (Rotate type,DP=3)high word	R/W
0013		Reset Value,Input Range FFF0BDC1~000F423F (-999999~999999(Normal type),00000000~00057E3F (0~359999) (Rotate type,DP=3)low word	R/W
0014	ANLO	A/O Zero According to Display,Input Range FFF0BDC1~000F423F (-999999~999999)high word	R/W
0015		A/O Zero According to Display,Input Range FFF0BDC1~000F423F (-999999~999999)low word	R/W
0016	ANHI	A/O Span According to Display,Input Range FFF0BDC1~000F423F (-999999~999999)high word	R/W
0017		A/O Span According to Display,Input Range FFF0BDC1~000F423F (-999999~999999)low word	R/W
0018	AL1	Alarm 1,Input Range FFF0BDC1~000F423F (-999999~999999)high word	R/W
0019		Alarm 1,Input Range FFF0BDC1~000F423F (-999999~999999)low word	R/W
001A	AL2	Alarm 2,Input Range FFF0BDC1~000F423F (-999999~999999)high word	R/W
001B		Alarm 2,Input Range FFF0BDC1~000F423F (-999999~999999)low word	R/W
001C	DISP	Display Value, Display Range FFF0BDC1~000F423F (-999999~999999)high word	R
001D		Display Value, Display Range FFF0BDC1~000F423F (-999999~999999)low word	R
001E	STATUS	Alarm & Display Status,Display Range 0000~000F(0~15)Bit0:AL1,Bit1:AL2,Bit2:DOFL,Bit3:-DOFL	R
001F	FUNC	Write = 0001(Function 06),Count Value Reset	W