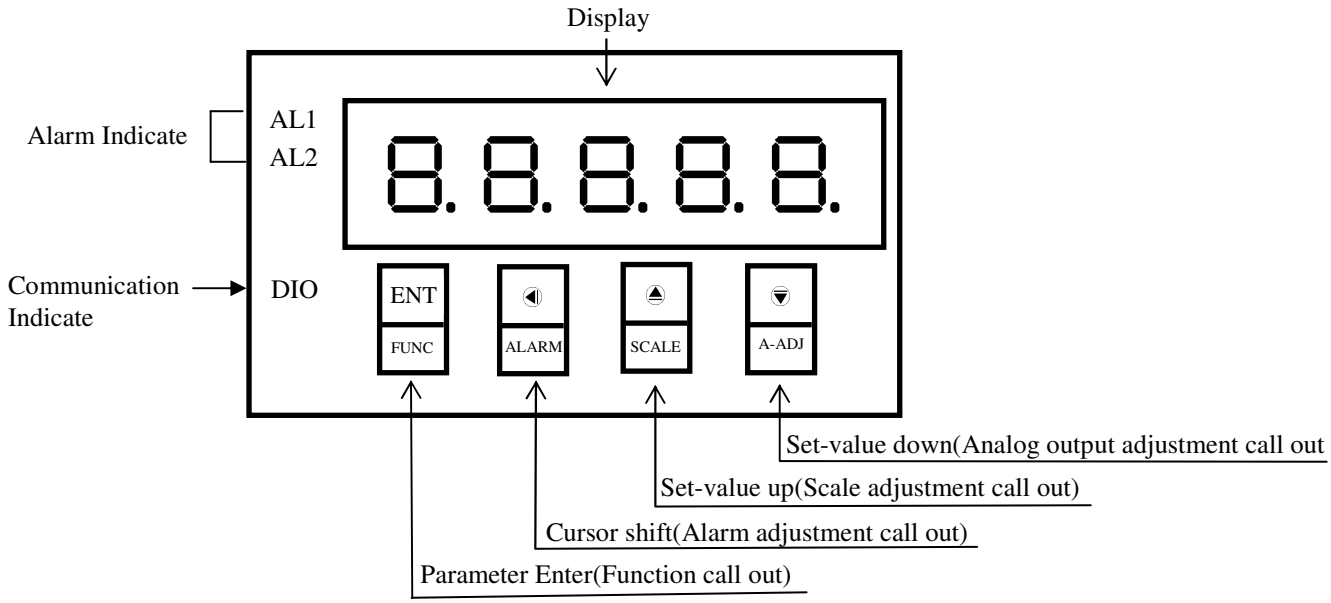
AXE MICROPROCESS DUAL RPM&LINE-SPEED MATHS CONTROLLER METER MRS-S Series

■ Features

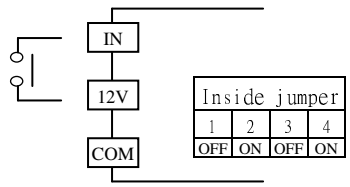
◎Accept more type sensors(switch,encoder,proximity switch,...etc)finish RPM/LINE SPEED control
◎Accuracy 0.03% F.S.
◎Input range(0~50KHz)
◎Readout range(-19999~99999)
◎RPM or LINE-SPEED unit can be modified
◎Two channel can be operation difference, ratio, consistency
◎Input pulse of revolution can be modified(1~99999)
◎Diameter(LINE-SPEED)/scale(RPM) can be modified (0.0001~9.9999)
◎Display avrage times can be modified(1~99)
◎16 BIT DAC analog output can be modified
◎Two alarm function
◎RS485 Communication interface,Protocol MODBUS RTU MODE
◎BAUD RATE:19200/9600/4800/2400
◎0.4" highlight display
◎Decimal point can be modified
◎Man-machine interface,easy to operate
◎EEPROM Saving,data safekeeping about 10 years
◎Modified inside parameter,must have pass code

■ Name of Parts

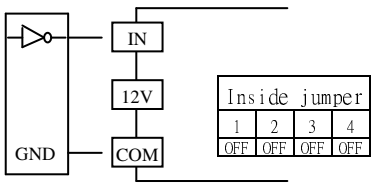


■ Connect Diagram

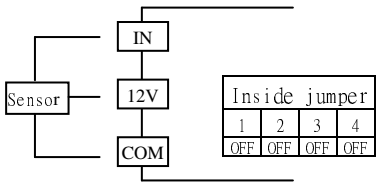
◎Contact input (PNP)



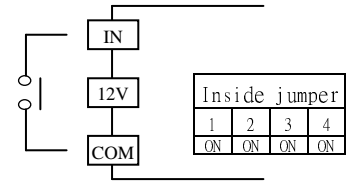
◎CMOS input (12V或15V)



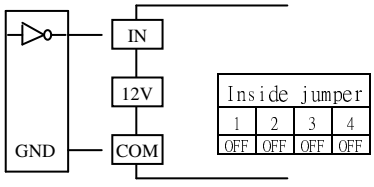
◎Sensor input (PNP 12V)



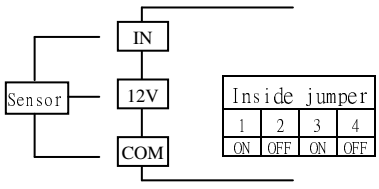
◎Contact input (NPN)



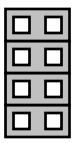
◎TTL input (5V)



◎Sensor input (NPN 12V)



■Input function jumper table



4 Position 4 ON: B channel 0~50Hz OFF:0~50KHz
3 Position 3 ON: B channel NPN
2 Position 2 ON: A channel 0~50Hz OFF:0~50KHz
1 Position 1 ON: A channel NPN

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 scale 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.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 ▼ 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

Step	Parameter Mark Description	Parameter Mark	Operation Manual
1	Normal display	12345	Press ⓔⓝ/FUNC key into P.COD setting page
2	P.COD(Pass code input page) Default=0	P.Cod 00000	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
3	SYS(System setting group)	SYS	1.Select setting group with ◀ key 2.Press ⓔⓝ 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 ⓔⓝ key into Dp setting page
4-1	DP(Decimal Point setting page) Default=0	dP 0	1.Decide decimal point position with ▲ or ▼ key (0 to 4) 2.Press ⓔⓝ key enter data and into TYPE setting page
4-2	TYPE(Display Type) Default=RPM	tYPE rPn	1.Decide display type with ▲ or ▼ key(RPM/LINE) 2.Press ⓔⓝ key enter data,If select LINE into step 4-3 UNIT setting page, otherwise into step 4-4 PPR setting page
4-3	UNIT(Line Speed Unit) Default=METER	Unit nEtEr	1.Decide line speed unit with ▲ or ▼ key(METER/FOOT/YARD) 2.Press ⓔⓝ key enter data and into PPR setting page
4-4	PPR(Pulse Per Revolution) Default=1	PPr 0001	1.Decide pulse per revolution with ◀&▲&▼ key(1~99999) 2.Press ⓔⓝ key enter data and into MODE setting page
4-5	MODE(Display Mode) Default=A	nodE A	1. Decide display mode with ▲ or ▼ key： A A channel B B channel B-A B & A channel difference (B/A)x100 B & A channel ratio (Unit %) (B/A-1)x100 B & A channel error ratio (Unit %) (B/(A+B))x100 B channel consistency ratio (Unit %) (1-B/A)x100 B & A channel error ratio (Unit %) 2. Press ⓔⓝ key enter data and into TBASE setting page

4-6	TBASE (Sampling Time Base) Default=0.1	tbASE 0000.1	1.Decide sampling time base with ◀&▲&▼ key(0.1~99.9 sec.) 2.Press MD key enter data and into AVG setting page
4-7	AVG (Display Average times) Default=5	AuG 00005	1.Decide display average times with ◀&▲&▼ key(1~99) 2.Press MD key enter data and into CODE setting page
4-8	CODE(Pass Code) Default=0	CodE 00000	1.Decide pass code with ◀&▲&▼ key(0~99999) 2.Press MD key enter data and into LOCK setting page
4-9	LOCK(Panel Lock) Default=NO	LoCK no	1.Decide panel lock with ▲&▼ key(NO or YES) 2.Press MD key enter data and return SYS setting group
5	ROP(Alarm setting group)	roP	Press ◀ key decide ROP setting group,press MD key into ACT1 setting page
5-1	ACT1(Alarm 1 Active setting page) Default =HI	ACt1 Hi	1.Decide active 1 with ▲ or ▼ key(HI or LO) 2.Press MD key enter data and into ACT2 setting page
5-2	ACT2(Alarm 2 Active setting page) Default =HI	ACt2 Hi	1.Decide active 2 with ▲ or ▼ key(HI or LO) 2.Press MD key enter data and into HYS1 setting page
5-3	HYS1(Alarm 1 Hysteresis setting page) Default =0	HYS1 00000	1.Decide Hysteresis 1 with ◀ or ▲ or ▼ key(0~999) 2.Press MD key enter data and into HYS2 setting page
5-4	HYS2(Alarm 2 Hysteresis setting page) Default =0	HYS2 00000	1.Decide Hysteresis 2 with ◀ or ▲ or ▼ key(0~999) 2.Press MD key enter data and into DEL1 setting page
5-5	DEL1(Alarm 1 Delay time setting page) Default =0	dEL1 0000.0	1.Decide delay 1 with ◀ or ▲ or ▼ key(0~99.9 sec) 2.Press MD key enter data and into DEL2 setting page
5-6	DEL2(Alarm 2 Delay time setting page) Default =0	dEL2 0000.0	1.Decide delay 2 with ◀ or ▲ or ▼ key(0~99.9sec) 2.Press MD key enter data and return ROP setting group
6	AOP(Analog output setting group)	AoP	Press ◀ key decide AOP setting group , press MD key into ANLO setting page
6-1	ANLO(Analog output Zero According to Display setting page) Default =0	AnLo 00000	1.Decide ANLO with ◀ or ▲ or ▼ key(0~99999) 2.Press MD key enter data and into ANHI setting page
6-2	ANHI(Analog output Span According to Display setting page) Default =99999	AnHi 99999	1.Decide ANHI with ◀ or ▲ or ▼ key(0~99999) 2.Press MD key enter data and return AOP setting group
7	DOP(Communication setting group)	doP	press ◀ key decide DOP setting group,press MD key into ADDR setting page
7-1	ADDR(Communication-Address setting page) Default =0	Addr 00000	1.Decide Communication-address with ◀ or ▲ or ▼ key (0~255) 2.Press MD 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(19200,9600,4800,2400) 2.Press MD 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 MD key enter data and return DOP setting group
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 value setting page) Default =0	AL 1 00000	1.Decide alarm 1 value with ◀ or ▲ or ▼ key(0~99999) 2.Press ENT key enter data and into AL2 setting page
8-2	AL2 (Alarm 2 value setting page) Default =0	AL 2 00000	1.Decide alarm 2 value with ◀ or ▲ or ▼ key(0~99999) 2.Press ENT key enter data and return normal display

Step	Parameter mark description	Parameter mark	Operation manual
9	Normal display	12345	Press ▲/SCALE key about 3 sec,into SCALE setting page
9-1	SCALE (Display Scale setting page) Default =1	SCALE 1.0000	1.Decide scale with ◀ or ▲ or ▼ key(0.0001~9.9999) 2.Press ENT key enter data and return normal display RPM(scale = 0.0001~9.9999), LINE-SPEED(rotation diameter = 0.0001~9.9999M)

Step	Parameter mark description	Parameter mark	Operation manual
10	Normal display	12345	Press ▼/A-ADJ key about 3 sec,into AZERO adjustment page
10-1	AZERO(Analog Output Zero Adjustment page) Default=0	AZEro 00000	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 00000	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	Input over range error detect	inFL	Input signal over range(0~50KHz)
2	Display over range error detect	doFL	Input signal over display range(over 99999 or under -19999)
	EEPROM error detect	E-00	1.External interference when EEPROM read/write 2.EEPROM write over one million times(guarantee 10 years)
		no	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
		YES	

MRS-S 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	PARI	Bit 0,1 Communication Parity Check ,input 00:N82,01:N81,10:EVEN,11:ODD	R/W
	BAUD	Bit 2,3 Communication Baud Rate ,input 00:19200,01:9600,10:4800,11:2400	R/W
	TYPE	Bit 4 Display Type ,input 0:RPM,1:LINE	R/W
	UNIT	Bit 5,6 Line Speed Unit ,input 00:METER,01:FOOT,10:YARD	R/W
	ACT1	Bit 7 Alarm 1 Active ,input 0:HI,1:LO	R/W
0001	DP	Bit 0,1,2 Decimal Point ,input 000:10^{0},001:10^{-1},010:10^{-2},011:10^{-3},100:10^{-4}	R/W
	LOCK	Bit 3 Panel Lock ,input 0:NO,1:YES	R/W
	MODE	Bit 4,5,6 Display Mode ,input 000:A , 001:B , 010:B-A , 011:B/A , 100:B/A-1, 101:B/(A+B) ,110:1-B/A	R/W
	ACT2	Bit 7 Alarm 2 Active ,input 0:HI,1:LO	R/W
0002	AVG	AVG, input range 0001~0063(0~99)	R/W
0004	ADDR	Communication Address, input range 0000~00FF(0~255)	R/W
0006	TBASE	Sampling Time Base, input range 0001~03E7(1~999)	R/W
0008	HYS1	Alarm 1 Hysteresis, input range 0000~03E7(0~999)	R/W
000A	HYS2	Alarm 2 Hysteresis, input range 0000~03E7(0~999)	R/W
000C	DEL1	Alarm 1 Delay time, input range 0000~03E7(0~999)	R/W
000E	DEL2	Alarm 2 Delay time, input range 0000~03E7(0~999)	R/W
0010	AZERO	Analog Output Zero Adjustment ,input range E890~1770(-6000~6000)	R/W
0012	ASPAN	Analog Output Span Adjustment ,input range E890~1770(-6000~6000)	R/W
0014	PPR	Pulse Per Revolution ,input range 00000001~0001869F(1~99999)	R/W
0018	CODE	Pass Code ,input range 00000000~0001869F(0~99999)	R/W
001C	SCALE	Display Scale ,input range 00000001~0001869F(1~99999)	R/W
0020	AL1	Alarm 1 value ,input range FFFFB1E1~0001869F(-19999~99999)	R/W
0024	AL2	Alarm 2 value ,input range FFFFB1E1~0001869F(-19999~99999)	R/W
0028	ANLO	Analog output Zero According, input range FFFFB1E1~0001869F(-19999~99999)	R/W
002C	ANHI	Analog output Span According, input range FFFFB1E1~0001869F(-19999~99999)	R/W
0030	DISPLAY	Display value ,range FFFFB1E1~0001869F(-19999~99999)	R