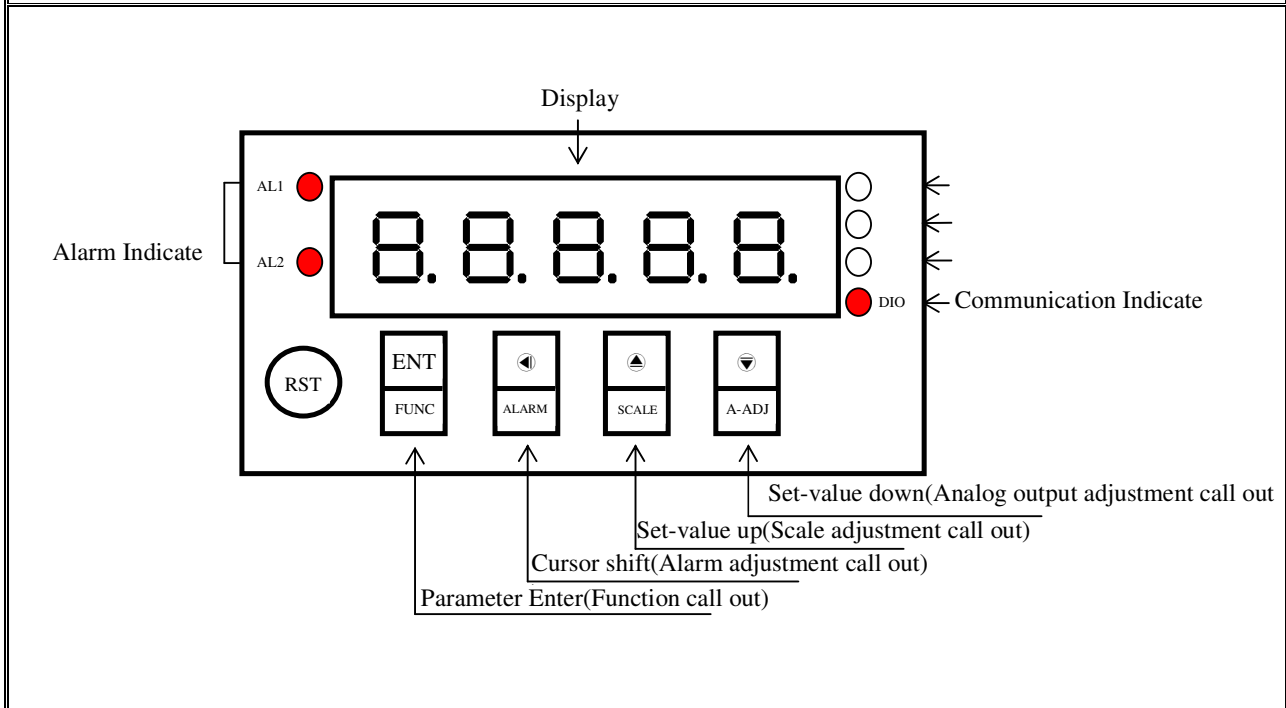


**Features**

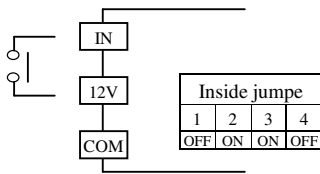
- ⊙ Accept more type sensors(switch,encoder,proximity switch,...etc)finish RPM/LINE SPEED transmit
- ⊙ Accuracy 0.03% F.S.
- ⊙ MAX.con rates(0~50KHz)
- ⊙ Readout range(-19999~99999)
- ⊙ PRM or LINE-SPEED unit can be modified
- ⊙ Daul input math function  
B-A,B/A,(B/A)-1,1-(B/A),B/(A+B)
- ⊙ Input pulse of revolution can be modified (1~99999)
- ⊙ Decimal point can be modified
- ⊙ Display avrage times can be modified (1~99)
- ⊙ RS485 Communication interface, Protocol MODBUS RTU MODE
- ⊙ Two alarm function
- ⊙ 15BIT DAC analog output can be modified
- ⊙ BAUD RATE:19200/9600/4800/2400
- ⊙ 0.56" highlight display
- ⊙ Diameter(LINE-SPEED)/scale(RPM) can be modified (0.0001~9.9999)
- ⊙ Man-machine interface,easy to operate
- ⊙ EEPROM Saving,data safekeeping about 10 years
- ⊙ Modified inside parameter,must have pass code

**Name of Parts**

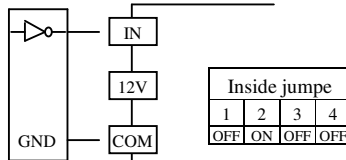


**Connect Diagram**

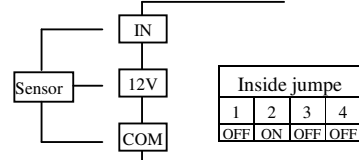
⊙ Contact input(PNP)



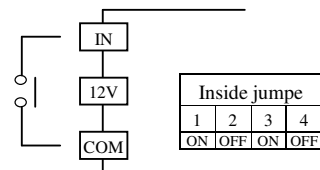
⊙ CMOS input(12V or 15V)



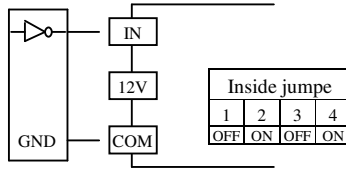
⊙ Sensor input(PNP 12V)



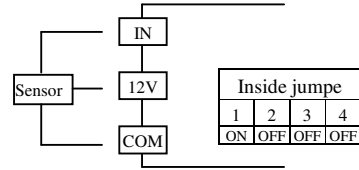
⊙ Contact input(NPN)



⊙ TTL input(5V)



⊙ Sensor input(NPN 12V)



**Input function jumper table**

	4	Position 4	ON: TTL	OFF:CMOS
	3	Position 3	ON: 0~50Hz	OFF:0~50KHz
	2	Position 2	ON: PNP	
	1	Position 1	ON: 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 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

Step	Parameter Mark Description	Parameter Mark	Operation Manual
1	Normal display	1 2 3 4 5	Press /FUNC key into P.COD setting page
2	P.COD(Pass code input page) Default=0	P.C o d 0 0 0 0 0	1. Key in 5 digit pass code with  &  &  key 2.Press  key, the pass code is right into setting group , otherwise return normal display
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	
	AOP(Analog output setting group)	A o P	
	DOP(Communication setting group)	d o P	
4	SYS(System setting group)	S Y S	Press  key decide SYS setting group , press  key into DP setting page
4-1	DP(Decimal Point setting page)Default=0	d P 0	1. Decide decimal point position with  &  key (0 to 4) 2. Press  key enter data and into TYPE setting page
4-2	TYPE(Display Type) Default=RPM	t Y P E r P ā	1. Decide display type with  or  key(RPM/LINE) 2.Press  key enter data, If select LINE into UNIT setting page, otherwise into PPR setting page
4-3	UNIT(Line Speed Unit) Default=METER	U n i t ā ē ē ē r	1 Decide line speed unit with  &  key(METER/FOOT/YARD) 2.Press  key enter data and into PPR-1 setting page
4-4	PPR-1(Pulse Per Revolution-1)Default=1	P P r - 1 0 0 0 0 1	1. Decide pulse per revolution with  &  &  key (1~99999) 2.Press  key into PPR-2 setting page

4-5	PPR-2(Pulse Per Revolution-2) Default=1	PPR-2 00001	1. Decide pulse per revolution with ◀ & ▲ & ▼ key (1~99999) 2. Press Ⓜ key into MODE setting page
4-6	MODE(Mode) Default=A	mode A	1. Decide display mode with ▲ & ▼ : A (Display input A), B (Display frequency of B) B-A (Display frequency of A-B) (B/A)x100 (display input (B/A)*100) (B/A-1)x100 [display input ((B/A)-1)*100] (B/(A+B))x100 [display input (B/(A+B))x100] 2. Press Ⓜ key enter data and into TBASE setting page
4-7	TBASE (Sampling Time Base)Default=0.1	tbase 00001	1. Decide sampling time base with ◀ & ▲ & ▼ key(0.1~99.9 sec.) 2. Press Ⓜ key enter data and into AVG setting page
4-8	AVG (Display Average times)Default=1	avg 00005	1. Decide display average times with ◀ & ▲ & ▼ key(1~99) 2. Press Ⓜ key enter data and into CODE setting page
4-9	CODE(Pass Code) Default=0	code 00000	1. Decide pass code with ◀ & ▲ & ▼ key(0~99999) 2. Press Ⓜ key enter data and into LOCK setting page
4-10	LOCK(Panel Lock) Default=NO	lock no	1. Decide panel lock with ▲ & ▼ key(NO or YES) 2. Press Ⓜ key enter data and return SYS setting group
4-11	SYS(system setting group)	sys	Select setting group with ◀, Press Ⓜ key Into parameter setting page
5	ROP(Alarm setting group)	rop	Press ◀ key decide ROP setting group , press Ⓜ key into ACT1 setting page
5-1	ACT1(Alarm Active 1 setting page ) Default =HI	act1 HI	1. Decide active 1 with ▲ & ▼ key(HI or LO) 2. Press Ⓜ 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 ▲ & ▼ key(HI or LO) 2. Press Ⓜ key enter data and into HYS1 setting page
5-3	HYS1(Alarm Hysteresis 1 setting page) Default =0	hys1 00000	1. Decide Hysteresis 1 with ◀ & ▲ & ▼ key(0~999) 2. Press Ⓜ key enter data and into HYS2 setting page
5-4	HYS2(Alarm Hysteresis 2 setting page) Default =0	hys2 00000	1. Decide Hysteresis 1 with ◀ & ▲ & ▼ key(0~999) 2. Press Ⓜ key enter data and into DEL1 setting page
5-5	DEL1(Alarm Delay 1 setting page) Default =0	del1 00000	1. Decide delay 1 with ◀ & ▲ & ▼ key(0~99.9 sec) 2. Press Ⓜ key enter data and into DEL2 setting page
5-6	DEL2(Alarm Delay 2 setting page) Default =0	del2 00000	Decide delay 2 with ◀ & ▲ & ▼ key(0~99.9sec) 2. Press Ⓜ key enter data and return ROP setting group
5-7	ROP (Alarm setting group)	rop	Select setting group with ◀, Press Ⓜ key return parameter setting page
6	AOP(Analog output setting group)	aop	Press ◀ key decide AOP setting group , 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 return AOP setting group
6-3	AOP(Analog output setting group)	aop	Select setting group with ◀, Press Ⓜ key return parameter setting page

7	DOP(Communication setting group)	d o P	press $\leftarrow$ key decide DOP setting group, press $\rightarrow$ key into ADDR setting page
7-1	ADDR(Communication –Address ) Default=0	A d d r	1. Decide address with $\leftarrow$ & $\uparrow$ & $\downarrow$ key(0~255) 2. Press $\rightarrow$ key enter data and into BAUD setting page
		0 0 0 0	
7-2	BAUD(Communication Baud Rate setting page) Default =19200	b A U D	1. Decide baud rate with $\uparrow$ & $\downarrow$ key(19200,9600,4800,2400) 2.Press $\rightarrow$ key enter data and into PARI setting page
		1 9 2 0 0	
7-3	PARI(Communication Parity Check setting page) Default =n82	P A R I	1. Decide parity check with $\uparrow$ or $\downarrow$ key(n82,n81,even,odd) 2.Press $\rightarrow$ key enter data and return DOP setting group
		n . 8 . 2	
7-4	DOP(Communication setting group)	d o P	Select setting group with $\leftarrow$ key, Press $\rightarrow$ key Into parameter setting page
<b>Step</b>			
8	Normal display	1 2 3 4 5	Press $\leftarrow$ /ALARM key about 3 sec, into AL1 Isetting page
8-1	AL1 (Alarm value 1 setting page) Default =0	A L 1	1. Decide alarm value 1 with $\leftarrow$ & $\uparrow$ & $\downarrow$ key (-19999~99999) 2. Press $\rightarrow$ key enter data and into AL2 setting page
		0 0 0 0 0	
8-2	AL2 (Alarm value 2 setting page) Default =0	A L 2	1. Decide alarm value 2 with $\leftarrow$ & $\uparrow$ & $\downarrow$ key (-19999~99999) 2. Press $\rightarrow$ key enter data and return normal display
		0 0 0 0 0	
<b>Step</b>			
9	Normal display	1 2 3 4 5	Press $\uparrow$ /SCALE key about 3 sec, into SCALE setting page
9-1	SCALE (Display Scale setting page) Default =1	S C A L E	1. Decide scale with $\leftarrow$ & $\uparrow$ & $\downarrow$ key(0.0001~9.9999) 2.Press $\rightarrow$ key enter data and return normal display
		1 . 0 0 0 0	
<b>Step</b>			
10	Normal display	1 2 3 4 5	Press $\downarrow$ /A-ADJ key about 3 sec, into AZERO adjustment page
10-1	AZERO(Analog Output Zero Adjustment page) Default =0	A Z E R O	1. Adjustment analog output zero with $\leftarrow$ & $\uparrow$ & $\downarrow$ key( $\pm$ 9999) 2. Press $\rightarrow$ key enter data and into ASPAN adjustment page * Minimum output error, Adjust with ASPAN, like digital VR function
		0 0 0 0 0	
10-2	ASPAN(Analog Output Span Adjustment page) Default =0	A S P A N	1. Adjustment analog output span with $\leftarrow$ & $\uparrow$ & $\downarrow$ key( $\pm$ 9999) 2. Press $\rightarrow$ key enter data and return normal display * Maximum output error, Adjust with ASPAN, like digital VR function
		0 0 0 0 0	
Appendix	Error Mark description	Error Mark	Analyze & Description
1	Input over range error detect	o F L	Input signal over range (0~50KHz)
2	Display over range error detect	d o F L	Input signal over display range (over 99999 or under -19999)
3	EEPROM error detect	E - 0 0	1. External interference when EEPROM read/write 2.EEPROM write over 100 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 $\uparrow$ & $\downarrow$ key, press $\rightarrow$ key return normal display 3.EEPROM was reset,Please follow step 1~10 set again
		n o	
		Y E S	

# MMX-R 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 and 1, Communication Parity , input 00:N82,01:N81,10:EVEN,11:ODD	R/W
	BAUD	Bit 2 and 3, Communication baud rate, input 01:19200,01:9600,10:4800,11:2400	R/W
	TYPE	Bit 4 Display Type, input 0:RPM,1:LINE	R/W
	UNIT	Bit 5 and 6 Unit of LINE, input 00:METER,01:FOOT,10:YARD	R/W
	ACT1	Bit 7 Alarm Active 1,Input 0:HI,1:LO	R/W
0001	DP	Bit 0 ,1, 2 Decimal Point, input 000:10 <sup>0</sup> ,001:10 <sup>-1</sup> ,010:10 <sup>-2</sup> ,011:10 <sup>-3</sup> ,100:10 <sup>-4</sup>	R/W
	LOCK	Bit 3 Panel LOCK ,input0: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)	R/W
	ACT2	Bit 7 Alarm Active 2, input 0:HI,1:LO	R/W
0002	AVG	AVG, input range 0001~0063(0~99)	R/W
0004	ADDR	ADDR, input range 0000~00FF(0~255)	R/W
0006	TBASE	TBASE, input range 0001~03E7(1~999)	R/W
0008	HYS1	HYS1, input range 0000~03E7(0~999)	R/W
000A	HYS2	HYS2, input range 0000~03E7(0~999)	R/W
000C	DEL1	DEL1, input range 0000~03E7(0~999)	R/W
000E	DEL2	DEL2, input range 0000~03E7(0~999)	R/W
0010	AZERO	AZERO, input range D8F1~270F(-9999~9999)	R/W
0012	ASPAN	ASPAN, input range D8F1~270F(-9999~9999)	R/W
0014	PPR	PPR, input range 00000001~0001869F(1~99999)	R/W
0018	CODE	CODE, input range 00000000~0001869F(0~99999)	R/W
001C	SCALE	SCALE, input range 00000001~0001869F(1~99999)	R/W
0020	ANLO	ANLO, input range FFFFB1E1~0001869F(-19999~99999)	R/W
0024	ANHI	ANHI, input range FFFFB1E1~0001869F(-19999~99999)	R/W
0028	AL1	AL1, input range FFFFB1E1~0001869F(-19999~99999)	R/W
002C	AL2	AL2, input range FFFFB1E1~0001869F(-19999~99999)	R/W
0030	DISPLA	Display Value, Display rang FFFFB1E1~0001869F(-19999~99999)	R