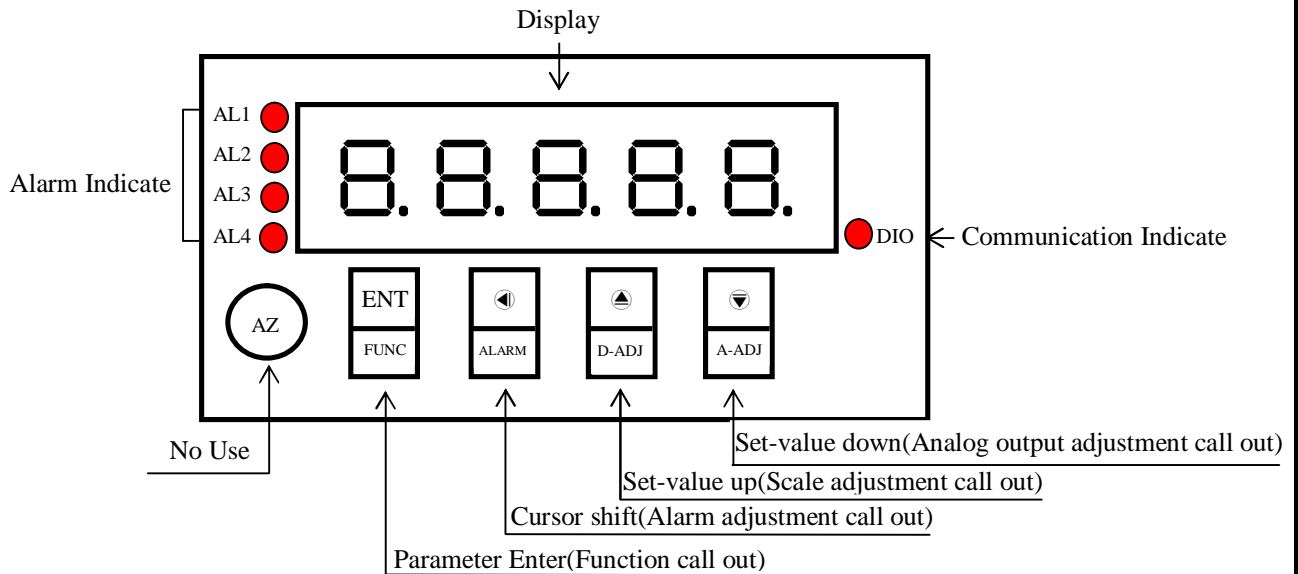


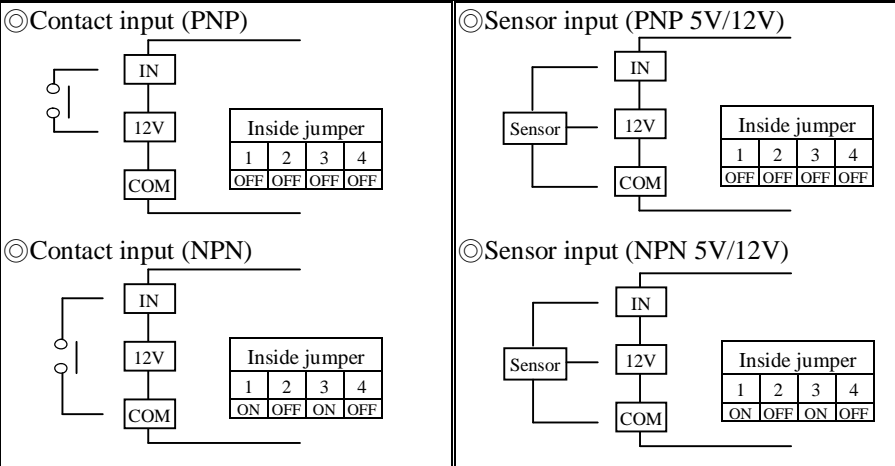
Features

- ⊙ Accept more type sensors (switch, encoder, proximity switch, etc) finish RPM/LINE SPEED transmit
- ⊙ Accuracy 0.03% F.S.
- ⊙ Input range (0~200KHz)
- ⊙ Readout range (-19999~99999)
- ⊙ RPM/LINE or LINE-SPEED unit can be modified
- ⊙ Dual 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)
- ⊙ Diameter (LINE-SPEED)/scale (RPM) can be modified (0.0001~9.9999)
- ⊙ Display average times can be modified (1~99)
- ⊙ 16BIT DAC analog output can be modified,
- ⊙ Four alarm function
- ⊙ 0.8" highlight display
- ⊙ RS485 Communication interface, Protocol MODBUS RTU MODE
- ⊙ BAUD RATE: 38400/19200/9600/4800/2400
- ⊙ 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

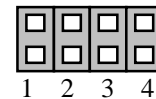
Name of Parts



Connect Diagram



Input function jumper table



Position 1 ON : IN(B) NPN

Position 3 ON : IN(A) 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,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 5	Press [FUNC]/FUNC key into P.COD setting page
2	P.COD(Pass code input page)	P.C o d	1.Key in 5 digit pass code with [▲] or [▼] key 2.Press [FUNC] key,the pass code is right into setting group , otherwise return normal display
		0 0 0 0 0	
3	SYS(System setting group)	S Y S	1.Select setting group with [▲] key 2.Press [FUNC] 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 [FUNC] key into Dp setting page
4-1	DP(Decimal Point setting page) Default = 0	d P	1.Decide decimal point position with [▲] or [▼] key (0 to 4) 2.Press [FUNC] key enter data and into CNTS setting page
		0	
4-2	CNTS(Count Rates Select) Default = 200KHZ	C n t s	1.Decide Count Rates Select with [▲] or [▼] key (50HZ,500HZ,200KHZ) 2. Press [FUNC] key enter data and into TYPE setting page
		2 0 0 K H	
4-3	TYPE(Display Type) Default = RPM	t y p e	1.Decide display type with [▲] or [▼] key(RPM/LINE) 2.Press [FUNC] key enter data,If select LINE into UNIT setting page, otherwise into PPR-A setting page
		r P n	
4-4	UNIT(Line Speed Unit) Default = METER	U n i t	1.Decide line speed unit with [▲] or [▼] key(METER/FOOT/YARD) 2.Press [FUNC] key enter data and into PPR-A setting page
		n E t e r	
4-5	PPR-A(Pulse Per Revolution of input A) Default = 1	P P r - A	1.Decide pulse per revolution of input A with [▲]&[▼]&[▼] key(1~99999) 2.Press [FUNC] key enter data and into PPR-B setting page
		0 0 0 0 1	
4-6	PPR-B(Pulse Per Revolution of input B) Default = 1	P P r - b	1.Decide pulseper revolution of input B with [▲]&[▼]&[▼] key(1~99999) 2.Press [FUNC] key enter data and into MODE setting page
		0 0 0 0 1	
4-7	MODE(Mode) Default = A	n o d e	1.Decide display mode with [▲] or [▼] key A (Display value of input A) B (Display value of input B) B-A (Display value of B-A) (B/A)x100 (display value of (B/A)*100) (B/A-1)x100 [display value of ((B/A)-1)*100] (B/(A+B))x100 [display value of (B/(A+B))x100] (1-B/A)x100 [display value of (1-(B/A))*100] 1A2B (Display value of input +A)(A lead B)(Max.25KHz) (Display value of input -A)(B lead A)(Max.25KHz) 2.Press [FUNC] key enter data and into TBASE setting page
		A	
4-8	TBASE (Sampling Time Base) Default t = 0.1	t b a s e	1.Decide sampling time base with [▲]&[▼]&[▼] key(0.1~99.9sec) 2.Press [FUNC] key enter data and into AVG setting page
		0 0 0 0 . 1	
4-9	AVG (Display Average times) Default = 1	A v g	1.Decide display average times with [▲]&[▼]&[▼] key(1~99) 2.Press [FUNC] key enter data and into CODE setting page
		0 0 0 0 1	
4-10	CODE(Pass Code) Default = 0	C o d e	1.Decide pass code with [▲]&[▼]&[▼] key(0~99999) 2.Press [FUNC] key enter data and into LOCK setting page
		0 0 0 0 0	

4-11	LOCK(Panel Lock) Default = NO	L O C K	1.Decide panel lock with ▲&▼ key(NO or YES) 2.Press Ⓜ key enter data and return SYS setting group
		NO	
5	ROP(Alarm setting group)	RO P	Press ◀ key decide ROP setting group,press Ⓜ key into ACT1 setting page
5-1	ACT1(Alarm Active 1 setting page) Default = HI	A C T 1	1.Decide active 1 with ▲ or ▼ key(HI or LO) 2.Press Ⓜ key enter data and into ACT2 setting page
		H I	
5-2	ACT2(Alarm Active 2 setting page) Default = HI	A C T 2	1.Decide active 2 with ▲ or ▼ key(HI or LO) 2.Press Ⓜ key enter data and into ACT3 setting page
		H I	
5-3	ACT3(Alarm Active 3 setting page) Default = HI	A C T 3	1.Decide active 3 with ▲ or ▼ key(HI or LO) 2.Press Ⓜ key enter data and into ACT4 setting page
		H I	
5-4	ACT4(Alarm Active 4 setting page) Default = HI	A C T 4	1.Decide active 4 with ▲ or ▼ key(HI or LO) 2.Press Ⓜ key enter data and into HYS1 setting page
		H I	
5-5	HYS1(Alarm Hysteresis 1 setting page) Default = 0	H Y S 1	1.Decide Hysteresis 1 with ◀ or ▲ or ▼ key(0~999) 2.Press Ⓜ key enter data and into HYS2 setting page
		0 0 0 0 0	
5-6	HYS2(Alarm Hysteresis 2 setting page) Default = 0	H Y S 2	1.Decide Hysteresis 2 with ◀ or ▲ or ▼ key(0~999) 2.Press Ⓜ key enter data and into HYS3 setting page
		0 0 0 0 0	
5-7	HYS3(Alarm Hysteresis 3 setting page) Default = 0	H Y S 3	1.Decide Hysteresis 3 with ◀ or ▲ or ▼ key(0~999) 2.Press Ⓜ key enter data and into HYS4 setting page
		0 0 0 0 0	
5-8	HYS4(Alarm Hysteresis 4 setting page) Default = 0	H Y S 4	1.Decide Hysteresis 4 with ◀ or ▲ or ▼ key(0~999) 2.Press Ⓜ key enter data and into DEL1 setting page
		0 0 0 0 0	
5-9	DEL1(Alarm Delay 1 setting page) Default = 0	d E L 1	1.Decide delay 1 with ◀ or ▲ or ▼ key(-99.9~99.9 sec) 2.Press Ⓜ 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
		0 0 0 0 . 0	
5-10	DEL2(Alarm Delay 2 setting page) Default = 0	d E L 2	1.Decide delay 2 with ◀ or ▲ or ▼ key(-99.9~99.9 sec) 2.Press Ⓜ key enter data and into DEL3 setting page Note:-0.1 ~ -99.9 sec = Alarm active time 0.1 ~ 99.9 sec = Alarm delay time
		0 0 0 0 . 0	
5-11	DEL3(Alarm Delay 3 setting page) Default = 0	d E L 3	1.Decide delay 3 with ◀ or ▲ or ▼ key(-99.9~99.9 sec) 2.Press Ⓜ key enter data and into DEL4 setting page Note:-0.1 ~ -99.9 sec = Alarm active time 0.1 ~ 99.9 sec = Alarm delay time
		0 0 0 0 . 0	
5-12	DEL4(Alarm Delay 4 setting page) Default = 0	d E L 4	1.Decide delay 4 with ◀ or ▲ or ▼ key(-99.9~99.9 sec) 2.Press Ⓜ 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
		0 0 0 0 . 0	
6	AOP(Analog output setting group)	A O P	Press ◀ key decide AOP setting group , press Ⓜ key into ANLO setting page
6-1	ANLO(A/O Zero According to Display setting page) Default = 0	A n L O	1.Decide ANLO with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into ANHI setting page
		0 0 0 0 0	
6-2	ANHI(A/ O Span According to Display setting page) Default = 99999	A n H I	1.Decide ANHI with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and return AOP setting group
		9 9 9 9 9	
7	DOP(Communication setting group)	D O P	press ◀ key decide DOP setting group,press Ⓜ key into ADDR setting page

7-1	ADDR(Communication Address setting page) Default = 0	ADDR	1.Decide address with ◀ or ▲ or ▼ key(0~255) 2.Press Ⓜ key enter data and into BAUD setting page
		00000	
7-2	BAUD(Communication Baud Rate setting page) Default = 19200	BAUD	1.Decide baud rate with ▲ or ▼ key(38400,19200,9600,4800,2400) 2.Press Ⓜ key enter data and into PARI setting page
		19200	
7-3	PARI(Communication Parity Check setting page) Default = n82	PARI	1.Decide parity check with ▲ or ▼ key(n82,n81,even,odd) 2.Press Ⓜ key enter data and return DOP setting group
		n.8.2.	

Step	Parameter mark description	Parameter mark	Operation manual
8	Normal display	12345	Press ◀/ALARM key about 3 sec,into AL1 1 setting page
8-1	AL1 (Alarm value 1 setting page) Default = 0	AL1	1.Decide alarm value 1 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into AL2 setting page
		00000	
8-2	AL2 (Alarm value 2 setting page) Default = 0	AL2	1.Decide alarm value 2 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into AL3 setting page
		00000	
8-3	AL3 (Alarm value 3 setting page) Default = 0	AL3	1.Decide alarm value 3 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and into AL4 setting page
		00000	
8-4	AL4 (Alarm value 4 setting page) Default = 0	AL4	1.Decide alarm value 4 with ◀ or ▲ or ▼ key(-19999~99999) 2.Press Ⓜ key enter data and return normal display
		00000	

Step	Parameter mark description	Parameter mark	Operation manual
9	Normal display	12345	Press ▲/D-ADJ key about 3 sec,into SCL-A setting page
9-1	SCL-A (Display Scale A setting page) Default = 1	SCL-A	1.Decide scale A with ◀ or ▲ or ▼ key(0.0001~9.9999) 2. Press Ⓜ key enter data and into SCL-B setting page
		1.0000	
9-2	SCL-B (Display Scale B setting page) Default = 1	SCL-B	1.Decide scale B with ◀ or ▲ or ▼ key(0.0001~9.9999) 2.Press Ⓜ key enter data and return normal display
		1.0000	

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	1.Adjustment analog output zero with ◀ or ▲ or ▼ key(±6000) 2.Press Ⓜ key enter data and into ASPAN adjustment page
		00000	
10-2	ASPAN(Analog Output Span Adjustment page) Default = 0	ASPAN	1.Adjustment analog output span with ◀ or ▲ or ▼ key(±6000) 2.Press Ⓜ key enter data and return normal display
		00000	

Appendix	Error Mark description	Error Mark	Analyze & Description
1	Input over range error detect	oFL	Input signal over range(0~200KHz)
2	Display over range error detect	d oFL	Display over range(99999)
3	Display under range error detect	- d oFL	Display under range (-19999)
4	EEPROM error detect	E-00	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 Ⓜ key return normal display 3.EEPROM was reset,Please follow step 1~10 set again
		n o	
		YES	

MMRH 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 0000~0004 (0~4)(0:10 ⁰ ,1:10 ⁻¹ ,2:10 ⁻² ,3:10 ⁻³ ,4:10 ⁻⁴)	R/W
0001	TYPE	Display Type,Input Range 0000~0001 (0~1) (0:RPM,1:LINE)	R/W
0002	LOCK	Panel Lock,Input Range 0000~0001 (0~1)(NO/YES)	R/W
0003	CNTS	Count Rates Select,Input Range 0000~0002 (0~2) (0:50HZ,1:500HZ,2:200KHZ)	R/W
0004	UNIT	Line Speed Unit,Input Range 0000~0002 (0~2) (0:METER,1:FOOT,2:YARD)	R/W
0005	MODE	Mode,Input Range 0000~0007 (0~7)(0:A,1:B,2:B-A,3: (B/A)x100,4: (B/A-1)x100,5: (B/(A+B))x100, 6:(1-B/A)x100), 7:1A2B	R/W
0006	TBASE	Sampling Time Base,Input Range 0001~03E7 (0.1~99.9 sec.)	R/W
0007	AVG	Display Average times,Input Range 0001~0063 (1~99)	R/W
0008	ACT1	Alarm Active 1,Input Range 0000~0001(0~1) (0:HI,1:LO)	R/W
0009	ACT2	Alarm Active 2,Input Range 0000~0001(0~1) (0:HI,1:LO),	R/W
000A	ACT3	Alarm Active 3,Input Range 0000~0001(0~1) (0:HI,1:LO)	R/W
000B	ACT4	Alarm Active 4,Input Range 0000~0001(0~1) (0:HI,1:LO)	R/W
000C	HYS1	Alarm hysteresis 1,Input Range 0000~03E7 (0~999)	R/W
000D	HYS2	Alarm hysteresis 2,Input Range 0000~03E7 (0~999)	R/W
000E	HYS3	Alarm hysteresis 3,Input Range 0000~03E7 (0~999)	R/W
000F	HYS4	Alarm hysteresis 4,Input Range 0000~03E7 (0~999)	R/W
0010	DEL1	Alarm Delay 1,Input Range FC19~03E7 (-99.9~99.9)	R/W
0011	DEL2	Alarm Delay 2,Input Range FC19~03E7 (-99.9~99.9)	R/W
0012	DEL3	Alarm Delay 3,Input Range FC19~03E7 (-99.9~99.9)	R/W
0013	DEL4	Alarm Delay 4,Input Range FC19~03E7 (-99.9~99.9)	R/W
0014	ADDR	Communication Address,Input Range 0000~00FF (0~255)	R/W
0015	BAUD	Communication Baud Rate,Input Range 0000~0004 (0~4)(0:38400,1:19200,2:9600,3:4800,4:2400)	R/W
0016	PARI	Communication Parity Check,Input Range 0000~0003 (0~3)(0:N82,1:N81,2:EVEN,3:ODD)	R/W
0017	A_ZERO	Analog Output Zero Adjust,Input Range E890~1770 (-6000~6000)	R/W
0018	A_SPAN	Analog Output Span Adjust,Input Range E890~1770 (-6000~6000)	R/W
0019	CODE	Pass Code,Input Range 00000000~0001869F (0~99999)high word	R/W
001A		Pass Code,Input Range 00000000~0001869F (0~99999)low word	R/W
001B	PPR-A	Pulse Per Revolution of input A,Input Range 00000001~0001869F (1~99999)high word	R/W
001C		Pulse Per Revolution of input A,Input Range 00000001~0001869F (1~99999)low word	R/W
001D	PPR-B	Pulse Per Revolution of input B,Input Range 00000001~0001869F (1~99999)high word	R/W
001E		Pulse Per Revolution of input B,Input Range 00000001~0001869F (1~99999)low word	R/W
001F	SCL-A	Display Scale A,Input Range 00000001~0001869F (0.0001~9.9999)high word	R/W
0020		Display Scale A,Input Range 00000001~0001869F (0.0001~9.9999)low word	R/W
0021	SCL-B	Display Scale B,Input Range 00000001~0001869F (0.0001~9.9999)high word	R/W
0022		Display Scale B,Input Range 00000001~0001869F (0.0001~9.9999)low word	R/W
0023	ANLO	Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F (-19999~99999)high word	R/W
0024		Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F (-19999~99999)low word	R/W
0025	ANHI	Analog Output Span According to Display,Input Range FFFFB1E1~0001869F (-19999~99999)high word	R/W
0026		Analog Output Span According to Display,Input Range FFFFB1E1~0001869F (-19999~99999)low word	R/W
0027	AL1	Alarm 1,Input Range FFFFB1E1~0001869F (-19999~99999)high word	R/W
0028		Alarm 1,Input Range FFFFB1E1~0001869F (-19999~99999)low word	R/W
0029	AL2	Alarm 2,Input Range FFFFB1E1~0001869F (-19999~99999)high word	R/W
002A		Alarm 2,Input Range FFFFB1E1~0001869F (-19999~99999)low word	R/W
002B	AL3	Alarm 3,Input Range FFFFB1E1~0001869F (-19999~99999)high word	R/W
002C		Alarm 3,Input Range FFFFB1E1~0001869F (-19999~99999)low word	R/W
002D	AL4	Alarm 4,Input Range FFFFB1E1~0001869F (-19999~99999)high word	R/W
002E		Alarm 4,Input Range FFFFB1E1~0001869F (-19999~99999)low word	R/W
002F	DISP	Display Value, Display Range FFFFB1E1~0001869F (-19999~99999)high word	R
0030		Display Value, Display Range FFFFB1E1~0001869F (-19999~99999)low word	R
0031	STATUS	Status,Display Range 0000~007F(0~127)Bit0:AL1,Bit1:AL2,Bit2:AL3,Bit3:AL4,Bit4:DOFL,Bit5:-DOFL,Bit6:IOFL 0000~007F(0~127)Bit0:AL1,Bit1:AL2,Bit2:AL3,Bit3:AL4,Bit4:DOFL,Bit5:-DOFL,Bit6:IOFL	R