# AXE 6 Digit Microprocess Counter ((Pushwhell Switch))   MCP-6 series

■Features

◎Accept more type sensors(switch, encoder, proximity switch, …etc)finish length/flow control
◎Readout Range from -199999~999999,compare range (0~999999)
◎Four counting modes Up, Down, Up/Down, Quadrature
◎Power down saving
◎Decimal point can be modified
◎Input scaling multiplied 0.00001~9.99999 can be modified
◎Reset by panel or connect terminal

◎Quadrature sensing up to 4 times resolution
◎16BIT DAC analog output can be modified
◎N,R,C alarm control mode
◎RS485 Communication interface, Protocol MODBUS RTU MODE
◎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

Count value display

Alarm indicate → AL1●
AL2●
Communication Indicate → DIO●
Count value Reset →   RST
Parameter Enter (Function call out) →   ENT FUNC

Set-value up (Alarm ON Time setting page call out)   ← timer

AL-M

AL2 pre-warn set-value (2 digital)

AL1 set-value (6 digital)

Cursor shift (Alarm Mode setting page call out)
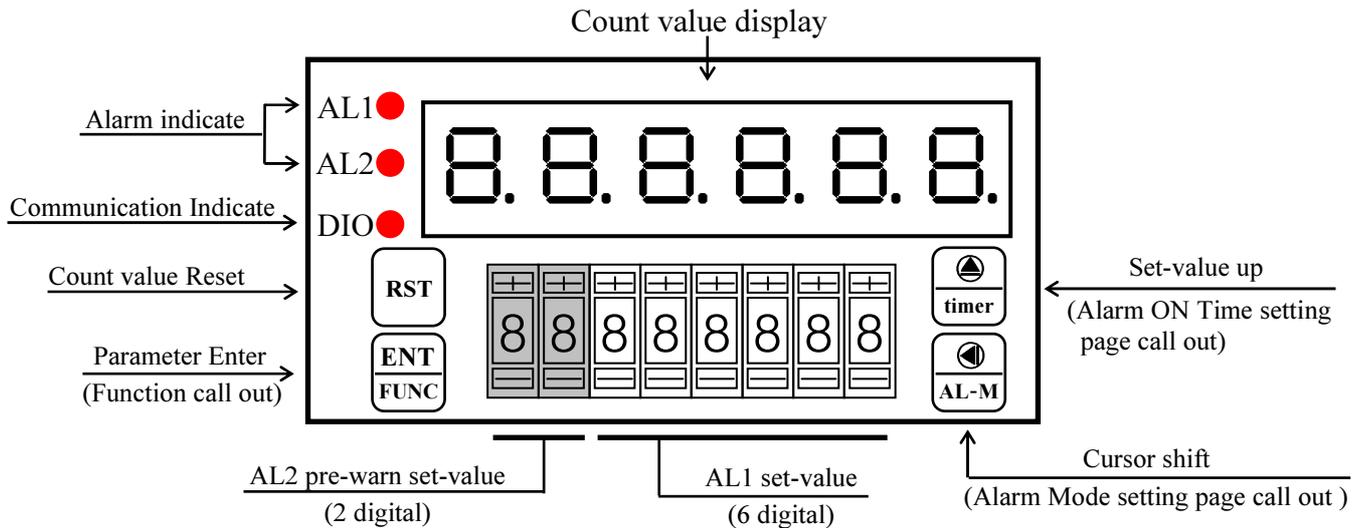
■Connect Diagram (TB)

◎ Contact input (PNP 5V/12V)

IN
12V

Inside jumper			
1	2	3	4
OFF	ON	OFF	ON

◎Contact input (NPN 5V/12V)

IN
12V
COM

Inside jumper			
1	2	3	4
ON	ON	ON	ON

◎Sensor input (PNP 5V/12V)

IN
12V
Sensor
COM

Inside jumper			
1	2	3	4
OFF	OFF	OFF	OFF

◎Sensor input (NPN 5V/12V)

IN
12V
Sensor
COM

Inside jumper			
1	2	3	4
ON	OFF	ON	OFF
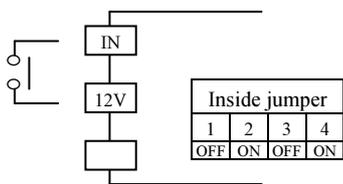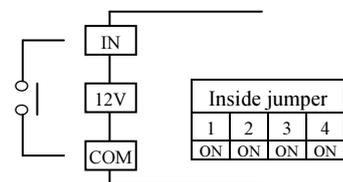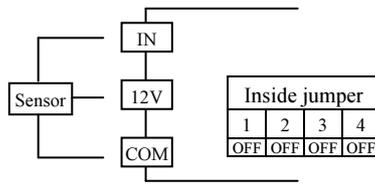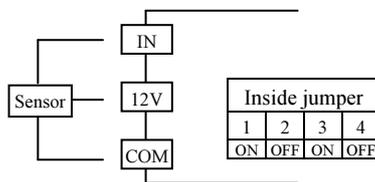
■Connect Diagram
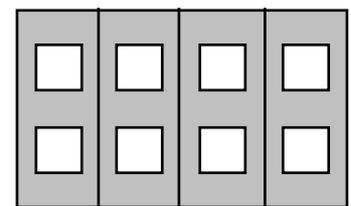
4   3   2   1

Position 1&2 → IN(A)
Position 3&4 → IN(B)

■ Alarm output control mode description (AL-MODE)

◎ N(MANUAL): When count value equal setting value the relay ON & continue count until reset by panel or connect terminal then relay OFF & count value return to RST setting value

◎ R(RETURN): When count value equal setting value the relay ON & continue count until relay action time out then relay OFF & count value return to RST setting value

◎ C(CONTINUE): When count value equal setting value the relay ON & count value return to RST setting value then continue count & relay action time out the relay OFF

◎ N/R/C control mode is according to AL1 setting value

◎ Pre-warm: When count to (AL1 value − AL2 value) RELAY 2 ON , count to AL1 value RELAY 1 ON and executing alarm mode(N/R/C)

■ INPUT TYPE

◎ 1U2D:IN(A) pulse in, display count value increment (while IN(B)=OFF)
　　　　 IN(B) pulse in, display count value decrement (while IN(A)=OFF)

◎ 1P2D:IN(A) pulse in, display count value increment (while IN(B)=OFF)/
　　　　　　　　 display count value decrement (while IN(B)=ON)

◎ 1A2B: Quadrature encoder Up/Down
　　　 While IN(A) lead ON and IN(B) lag 90 degree ON, display count value increment
　　　 While IN(B) lead ON and IN(A) lag 90 degree ON, display count value decrement

Key Introduce	Operation Manual
ⓝ/FUNC 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 go to next page
◀/AL-M Key Function	1. In normal display, The key function is call out alarm mode 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)
▲/timer Key Function	1. In normal display, The key function is call out Alarm ON Time setting 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 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, but if in Setting page the modify data will be lost

Step	Parameter mark description	Parameter mark	Operation manual
1	Normal display	123456	Press ⓝ/FUNC into P.COD setting page
2	P.COD(Pass code input page)	P.Cod 00000	1. Key in 5 digit pass code with ◀ 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
	AOP(Analog output setting group)	AoP	
	DOP(Communication setting group)	doP	
4	SYS(System setting group)	SYS	1. 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 with ▲ key(0~5) 2. Press ⓝ key enter data and into TYPE setting page
4-2	TYPE(Input Type setting page) Default=1U2D	type 1U2d	1. Decide input type with ▲ key (1U2D/1P2D/1A2B) 2. Press ⓝ key enter data and into RST setting page
4-3	RST(Reset Value) Default=0	rSt 000000	1. Decide reset value with ◀ & ▲ key(0~999999) 2. Press ⓝ key enter data and into SCALE setting page
4-4	SCALE(Display Scale) Default=1	SCALE 1.00000	1. Decide display scale with ◀ & ▲ key(0.00001~9.99999) 2. Press ⓝ key enter data and into CODE setting page

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4-5	CODE(Pass Code) Default=010	$\Box$ o d E $\Box\Box\Box\Box\Box$	1. Decide pass code with◀&▲key (0~99999) 2. Press⊛key enter data and into LOCK setting page
4-6	LOCK(Panel Lock) Default=NO	L o C E n o	1.Decide panel lock with▲key(NO or YES) 2. Press⊛key enter data and return SYS setting group
5	AOP(Analog output setting group)	R o P	Press ◀ key decide AOP setting group , press ⊛ key into ANLO setting page
5-1	ANLO(Analog Output Zero-According to Display) Default = 0	R n L o $\Box\Box\Box\Box\Box\Box$	1. Decide ANLO with◀key(-199999~999999) 2. Press⊛key enter data and into ANHI setting page
5-2	ANHI(Analog Output Span-According to Display) Default = 99999	R n H i 9 9 9 9 9 9	1. Decide ANHI with◀key (-199999~999999) 2. Press⊛key enter data and into AZERO setting page
5-3	AZERO(Analog Output Zero Adjustment page) Default=0	R P E r o $\Box\Box\Box\Box$	1. Decide AZERO with◀&▲key(±5999) 2. Press⊛key enter data and into ASPAN setting page
5-4	ASPAN(Analog Output Span Adjustment page) Default=0	R S P R n $\Box\Box\Box\Box$	1. Decide ASPAN with◀&▲key (±5999) 2. Press⊛key enter data and return AOP setting group
6	DOP(Communication setting group)	d o P	Press ◀ key decide DOP setting group, press ⊛ key into ADDR setting page
6-1	ADDR(Communication Address) Default = 0	R d d r $\Box\Box\Box$	1. Decide address with◀&▲key (0~255) 2. Press⊛key enter data and into BAUD setting page
6-2	BAUD(Communication Baud Rate) Default = 19200	b R U d 1 9 2 0 0	1. Decide baud rate with▲key (19200,9600,4800,2400) 2. Press⊛key enter data and into PARI setting page
6-3	PARI(Communication Parity Check) Default = n.8.2.	P R r i n. 8. 2.	1. Decide parity check with▲key (n82,n81,even,odd) 2. Press⊛key enter data and return DOP setting group

Step	Parameter mark description	Parameter mark	Operation manual
1	Normal display	1 2 3 4 5 6	Press◀/AL-M key about 5 sec into AL_M setting page
2	AL-M(Alarm Mode) Default=N	R L - n n	1.Decide alarm mode with▲key(N,R,C) 2. Press⊛key enter data and return normal display

Step	Parameter mark description	Parameter mark	Operation manual
1	Normal display	1 2 3 4 5 6	Press▲/timer key about 5 sec into ON_T setting page
2	ON-T(Alarm ON Time) Default=1.0	o n - t 0 0 1.0	1.Decide alarm on time with◀&▲key (0.1~999.9S) 2. Press⊛key enter data and return normal display

Appendix	Error Mark description	Error Mark	Analyze & Description
1	EEPROM error detect	E - 0 0	1 External interference when EEPROM read/write 2.EEPROM write over 100000 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 ▲key, press⊛return normal display 3.EEPROM was reset, Please follow step 1~8 setting again

■ MCP-6 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)(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 Range 0000~0002(0~2)(0:1U2D,2:1P2D,3:1A2B)	R/W
0003	LOCK	Panel Lock, Input Range 0000~0001(0~1)(NO/YES)	R/W
0004	AL-M	Alarm Mode, Input Range 0000~0002(0~2)(0:N,1:R,2:C)	R/W
0005	ADDR	Communication Address, Input Range 0000~00FF(0~255)	R/W
0006	BAUD	Communication Baud Rate, Input Range 0000~0003 (0~3)(0:19200,1:9600,2:4800,3:2400)	R/W
0007	PARI	Communication Parity Check, Input Range 0000~0003(0~3)(0:N82,1:N81,2:EVEN,3:ODD)	R/W
0008	A_ZERO	Analog Output Zero Adjust, Input Range E891~176F(-5999~5999)	R/W
0009	A_SPAN	Analog Output Span Adjust, Input Range E891~176F(-5999~5999)	R/W
000A	ON-T	Alarm On Time, Input Range 0001~270F(0.1~999.9)	R/W
000B	RST	Reset value, Input Range 00000000~000F423F(0.00000~9.99999)high word	R/W
000C		Reset value, Input Range 00000000~000F423F(0.00000~9.99999)low word	R/W
000D	CODE	Pass Code, Input Range 00000000~0001869F(0~99999) high word	R/W
000E		Pass Code, Input Range 00000000~0001869F(0~99999) low word	R/W
000F	SCALE	Display Scale Input Range 00000001~000F423F(0.00001~9.99999) high word	R/W
0010		Display Scale Input Range 00000001~000F423F(0.00001~9.99999) low word	R/W
0011	ANLO	Analog Output Zero According to Display, Input Range FFFCF2C1~000F423F(-199999~999999)	R/W
0012		Analog Output Zero According to Display, Input Range FFFCF2C1~000F423F(-199999~999999)	R/W
0013	ANHI	Analog Output Span According to Display, Input Range FFFCF2C1~000F423F(-199999~999999)	R/W
0014		Analog Output Span According to Display, Input Range FFFCF2C1~000F423F(-199999~999999)	R/W
0015	AL1	Alarm 1,Input Range 00000000~000F423F(0~999999) high word	R
0016		Alarm 1,Input Range 00000000~000F423F(0~999999) low word	R
0017	AL2	Alarm 2,Input Range 00000000~000F423F (0~999999) high word	R
0018		Alarm 2,Input Range 00000000~000F423F (0~999999) low word	R
0019	DISP	Display Value, Display Range FFFCF2C1~000F423F (-199999~999999) high word	R
001A		Display Value, Display Range FFFCF2C1~000F423F (-199999~999999) low word	R
001B	STATUS	Status,Display Range 0000~0003(0~3)Bit0:AL1,Bit1:AL2(0:OFF,1:ON)	R
001C	Display	Write = 0001(Function 06), Count value reset	W