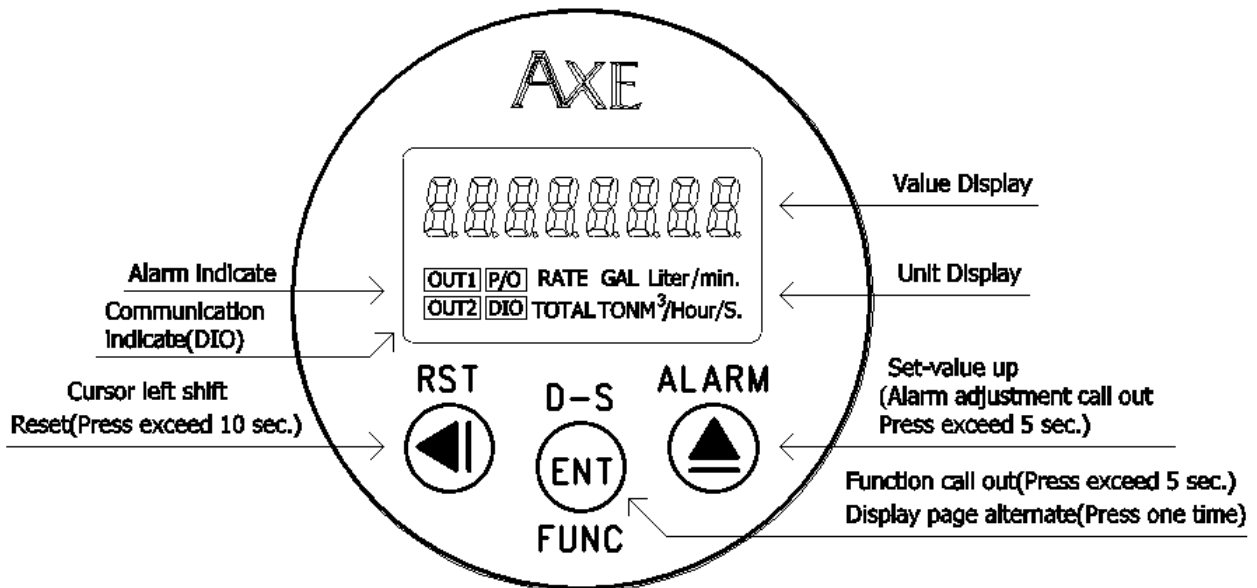


Features

Auto change red/green display,when alarm status change  
 Accuracy  $\pm 0.75\%$  F.S.  
 Measuring pipe size range DIN 15 to DIN 600(0.5 to 24 inch)  
 Measuring flow rate range 0.15 to 8 M/s(0.5 to 25 ft/s)  
 Field-rangable supply voltage from DC 14 to 28 V  
 Display flow unit Liter, Gal, M<sup>3</sup>, TON can be modified  
 Dual alarm function(optional)  
 16bit DAC analog output function(optional)  
 Digital RS-485 interface function(optional)  
 Protection class NEMA4/IP65

Name Of Parts



Rate Alarm Active Mode

When ACT=HI,DEL= 0 :

Display value > Setting value(AL) + Hysteresis (HYS) → (Relay on)

Display value < Setting value(AL) - Hysteresis (HYS) → (Relay off)

When ACT=HI,DEL= 1 ~ 99 sec.:

Display value > Setting value(AL) + Hysteresis (HYS) + Delay time(DEL) → (Relay on)

Display value < Setting value(AL) - Hysteresis (HYS) → (Relay off)

When ACT=HI,DEL= -1 ~ -99 sec.:

Display value > Setting value(AL) + Hysteresis (HYS) → (Relay one shoot(DEL) and then off)

Display value < Setting value(AL) - Hysteresis (HYS) → (Relay restore normal after the procedure)

When ACT=LO,DEL= 0 :

Display value > Setting value(AL) + Hysteresis (HYS) → (Relay off)

Display value < Setting value(AL) - Hysteresis (HYS) → (Relay on)

When ACT=LO,DEL= 1 ~ 99 sec.:

Display value > Setting value(AL) + Hysteresis (HYS) → (Relay off)

Display value < Setting value(AL) - Hysteresis (HYS) + Delay time(DEL) → (Relay on)

When ACT=LO,DEL= -1 ~ -99 sec.:

Display value > Setting value(AL) + Hysteresis (HYS) → (Relay restore normal after the procedure)

Display value < Setting value(AL) - Hysteresis (HYS) → (Relay one shoot(DEL) and then off)

Key Introduce	Operation Manual
Ⓜ Key Function	1. In normal display, The key first function is alternate Rate display and totalizer display, (Press Ⓜ key one time) 2. In normal display, The key second function is call out setting page (Press Ⓜ key exceed 5 sec.) 3. In parameter setting page, The key function is data Enter, and go to next page
◀ Key Function	1. In normal display, The key function is reset totalizer value ( Press ◀ key exceed 10 sec.) 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 alarm value setting page (Press ▲ key exceed 5 sec.) 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 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

Step	Parameter Mark Description	Parameter Mark	Operation Manual
1	Normal display	0 1 2 3 4	1. Press Ⓜ/Func key exceed 5 sec. into P.CODE setting page
2	P-CODE (Pass Code) Default=0	P - C o d E	1. Key in 5 digit pass code with ◀&▲ key 2. Press Ⓜ 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 Ⓜ 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	1. Press ◀ key decide SYS setting group 2. Press Ⓜ key into UNIT setting page
4-1	UNIT (Display Unit) Default=Liter	U n i t	1. Decide Display Unit with ▲ key (Liter/M <sup>3</sup> /TON/GAL) 2. Press Ⓜ key enter data and into IDC-T setting page
		L I T E R	
4-2	IDC-T (Indication Time) Default=1.0 sec.	i d c - t	1. Decide Indication Time with ▲ key (0.5/1.0/2.5/5.0 sec.) 2. Press Ⓜ key enter data and into DPR setting page
		1.0	
4-3	DPR (Decimal Point Rate) Default=0	d P r	1. Decide Decimal Point Rate with ▲ key (0-4) 2. Press Ⓜ key enter data and into DPT setting page
		0	
4-4	DPT (Decimal Point Totalizer) Default=0	d P t	1. Decide Decimal Point Totalizer with ▲ key (0-4) 2. Press Ⓜ key enter data and into T-UNIT setting page
		0	
4-5	T-UNIT (Time base Unit) Default=/MIN	t - U n i t	1. Decide Time base Unit with ▲ key (/S., /MIN., /Hour) 2. Press Ⓜ key enter data and into K-Factor setting page
		r a n	
4-6	K-Factor (K-Factor) Default=100.000	k - F	1. Decide K-Factor with ◀&▲ key (0.100~999.999) 2. Press Ⓜ key enter data and into CODE setting page
		100.000	
4-7	CODE (Pass Code) Default=00000	C o d E	1. Decide Pass Code with ◀&▲ key (00000~99999) 2. Press Ⓜ key enter data and into LOCK setting page
		0 0 0 0 0	
4-8	LOCK (Panel Lock) Default=NO	L o c k	1. Decide Panel Lock with ▲ key (NO/YES) 2. Press Ⓜ key enter data and return SYS setting group
		n o	

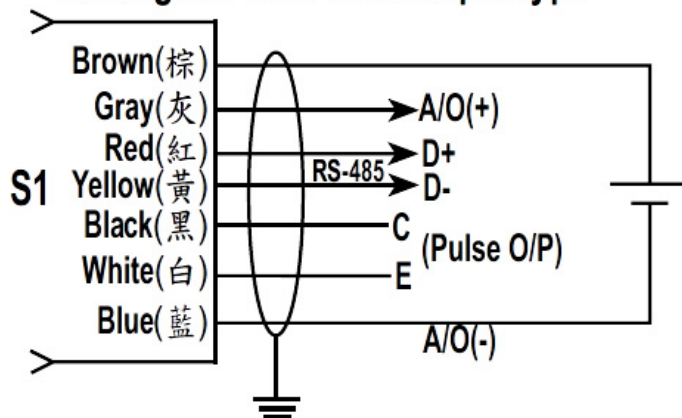
5	ROP(Alarm Output setting group)	ROP	1.Press ◀ key decide ROP setting group 2.Press Ⓜ key into AL1.S setting page
5-1	AL1.S(Alarm 1 Select) Default=RATE	AL1S	1.Decide Alarm 1 Select with ▲ key(RATE or TOTAL) 2.Press Ⓜ key enter data and into AL2.S setting page
		RATE	
5-2	AL2.S(Alarm 2 Select) Default=TOTAL	AL2S	1.Decide Alarm 2 Select with ▲ key(RATE or TOTAL) 2.Press Ⓜ key enter data and into ACT1 setting page
		TOTAL	
5-3	ACT1(Active 1 Direction) Default=HI	ACT-1	1.Decide Active 1 Direction with ▲ key(HI or LO) 2. Press Ⓜ key enter data and into ACT2 setting page
		HI	
5-4	ACT2(Active 2 Direction) Default=HI	ACT-2	1.Decide Active 2 Direction with ▲ key(Hi or LO) 2.Press Ⓜ key enter data and into HYS1 setting page
		HI	
5-5	HYS1(Hysteresis 1) Default=0	HYS1	1.Decide Hysteresis 1 with ◀&▲ key(0~999) 2.Press Ⓜ key enter data and into HYS2 setting page Note:AL1.S = TOTAL,HYS1 function disable
		000	
5-6	HYS2(Hysteresis 2) Default=0	HYS2	1.Decide Hysteresis 2 with ◀&▲ key(0~999) 2.Press Ⓜ key enter data and into DEL1 setting page Note:AL2.S = TOTAL,HYS2 function disable
		000	
5-7	DEL1(Delay 1) Default=0	DEL1	1.Decide Delay 1 with ◀&▲ key(-99.9~99.9 sec.) 2.Press Ⓜ key enter data and into DEL2 setting page Note:AL1.S = TOTAL,DEL1=0 ~ 999 sec.
		00.0	
5-8	DEL2(Delay 2) Default=0	DEL2	1.Decide Delay 2 with ◀&▲ key(-99.9~99.9 sec.) 2.Press Ⓜ key enter data and into SDT setting page Note:AL2.S = TOTAL,DEL2=0 ~ 999 sec.
		00.0	
5-9	SDT(Start Delay Time) Default=0	SDT	1.Decide Start Delay Time with ◀&▲ key (0~99.9 sec.) 2.Press Ⓜ key enter data and return ROP setting group Note:Exceed Start Delay Time,Alarm restore normal operate
		00.0	
6	AOP(Analog Output setting group )	AOP	1.Press ◀ key decide AOP setting group 2.Press Ⓜ key into AO.SEL setting page
6-1	AO.SEL(Analog output Select) Default=RATE	AOSEL	1.Decide Analog output Select with ▲ key(RATE or TOTAL) 2.Press Ⓜ key enter data and into ANLO setting page
		RATE	
6-2	ANLO(Analog Output Zero-According to Display) Default=0	ANLO	1.Decide Analog Output Zero-According to Display with ◀&▲ key(RATE=0~99999,TOTAL=0~99999999) 2.Press Ⓜ key enter data and into ANHI setting page
		00000	
6-3	ANHI(Analog Output Span-According to Display) Default=19999	ANHI	1.Decide Analog Output Span-According to Display with ◀&▲ key(RATE=0~99999,TOTAL=0~99999999) 2.Press Ⓜ key enter data and into A-ZERO setting page
		19999	
6-4	A-ZERO(Analog Output Zero Adjust) Default=0	A-ZERO	1.Decide Analog Output Zero Adjust with ◀&▲ key(±5999) 2.Press Ⓜ key enter data and into A-SPAN setting page
		0000	
6-5	A-SPAN(Analog Output Span Adjust) Default=0	A-SPAN	1.Decide Analog Output Span Adjust with ◀&▲ key(±5999) 2.Press Ⓜ key enter data and return AOP setting group
		0000	
7	DOP(Communication setting group)	dop	1.Press ◀ key decide DOP setting group 2.Press Ⓜ key into ADDR setting page
7-1	ADDR(Communication Address) Default=0	Addr	1.Decide Communication Address with ◀&▲ key(0~255) 2.Press Ⓜ key enter data and into BAUD setting page
		00000	
7-2	BAUD(Communication Baud Rate) Default=19200	BAUD	1.Decide Communication Baud Rate with ▲ key (19200/9600/4800/2400) 2.Press Ⓜ key enter data and into PARI setting page
		19200	
7-3	PARI(Communication Parity Check) Default=n.8.2.	PARI	1.Decide Communication Parity Check with ▲ key (n.8.2/n.8.1/even/odd) 2.Press Ⓜ key enter data and return DOP setting group
		n.8.2	

8	Normal display	0 1234	1.Press $\blacktriangle$ key exceed 5 sec. then into AL1 setting page
8-1	AL1(Alarm 1) Default=0	AL 1	1.Decide Alarm 1 with $\blacktriangle$ & $\blacktriangle$ key (RATE=0~99999,TOTAL=0~99999999)
		00000	2.Press $\oplus$ key enter data and into AL2 setting page
8-2	AL2(Alarm 2) Default=0	AL 2	1.Decide Alarm 2 with $\blacktriangle$ & $\blacktriangle$ key (RATE=0~99999,TOTAL=0~99999999)
		00000	2.Press $\oplus$ key enter data and return Normal display

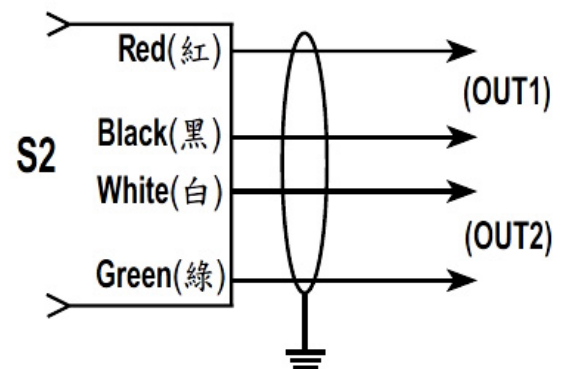
Appendix	Error Mark Description	Error Mark	Analyze & Description
1	Input over error detect	. 0FL	1.Input signal over measurable range(10KHz)
2	Display over error detect	d 0FL	1.Input signal over display range(RATE=0~99999, TOTAL=0~99999999)
3	EEPROM error detect	E-00	1.External interference when EEPROM read/write 2.EEPROM write over 1,000,000 cycles(guarantee 10 years)
		no	Please power reset, if still display E-00,doing below step: a.E-00 & No alternate display for inquire reset EEPROM
		YES	b.Decide Yes with $\blacktriangle$ key,press $\oplus$ key return normal display c.EEPROM was reset,Please follow step 1-8 setting again

## TERMINAL CONNECTION

### ●Analog/RS-485/Pulse output type



### ●Relay output type



●Power=DC14~28V

## SL2 Modbus RTU Mode Protocol Address Map

Data format 16Bit/32Bit with sign bit 8000~7FFF(-32768~32767)/80000000~7FFFFFFF(-2147483648~2147483647)

Address	Name	Description	Accept
0000	UNIT	Display Unit, Input Range 0000~0003(0~3), 0:Liter, 1:M <sup>3</sup> , 2:TON, 3:GAL	R/W
0001	IDC-T	Indication Time, Input Range 0000~0003(0~3) 0:0.5 sec., 1:1.0 sec., 2:2.5 sec., 3:5.0 sec.	R/W
0002	DPR	Decimal Point Rate, Input Range 0000~0004(0~4)	R/W
0003	DPT	Decimal Point Totalizer, Input Range 0000~0004(0~4)	R/W
0004	T-UNIT	Time base Unit, Input Range 0000~0002(0~2) 0:/S., 1:/min., 2:/Hour	R/W
0005	LOCK	Panel Lock, Input Range 0000~0001(0~1) 0:NO, 1:YES	R/W
0006	ACT_1	Active 1 Direction, Input Range 0000~0001(0~1) 0:HI, 1:LO	R/W
0007	ACT_2	Active 2 Direction, Input Range 0000~0001(0~1) 0:HI, 1:LO	R/W
0008	AL1.S	Alarm 1 Select, Input Range 0000~0001(0~1) 0:RATE, 1:TOTAL	R/W
0009	AL2.S	Alarm 2 Select, Input Range 0000~0001(0~1) 0:RATE, 1:TOTAL	R/W
000a	AO.SEL	Analog output Select, Input Range 0000~0001(0~1) 0:RATE, 1:TOTAL	R/W
000b	ADDR	Communication Address, Input Range 0000~00FF(0~255)	R/W
000c	BAUD	Communication Baud Rate, Input Range 0000~0003(0~3) 0:19200, 1:9600, 2:4800, 3:2400	R/W
000d	PARI	Communication Parity Check, Input Range 0000~0003(0~3) 0:N82, 1:N81, 2:EVEN, 3:ODD	R/W
000e	HYS1	Hysteresis 1, Input Range 0000~03E7(0~999) Note:AL1.S=TOTAL, HYS1 功能失效	R/W
000f	HYS2	Hysteresis 2, Input Range 0000~03E7(0~999) Note:AL2.S=TOTAL, HYS2 功能失效	R/W
0010	SDT	Start Delay Time, Input Range 0000~03E7(0~99.9 秒)	R/W
0011	DEL1	Delay 1, Input Range FC19~03E7(-99.9~99.9) Note:AL1.S=TOTAL, DEL1=0~999 sec.	R/W
0012	DEL2	Delay 2, Input Range FC19~03E7(-99.9~99.9) Note:AL2.S=TOTAL, DEL2=0~999 sec.	R/W
0013	A_ZERO	Analog Output Zero Adjust, Input Range E891~176F(-5999~5999)	R/W
0014	A_SPAN	Analog Output Span Adjust, Input Range E891~176F(-5999~5999)	R/W
0015	CODE	Pass Code, Input Range 00000000~0001869F(0~99999)	R/W
0017	K-F	K-Factor, Input Range 00000064~000F423F(0.100~999.999)	R/W
0019	ANLO	Analog Output Zero-According to Display, Input Range RATE=00000000~0001869F(0~99999), TOTAL=00000000~05F5E0FF(0~99999999)	R/W
001b	ANHI	Analog Output Span-According to Display, Input Range RATE=00000000~0001869F(0~99999), TOTAL=00000000~05F5E0FF(0~99999999)	R/W
001d	AL1	Alarm 1, Input Range	R/W
001f	AL2	Alarm 2, Input Range	R/W
0021	DISPLAY	Rate or totalizer display, Display Range RATE=00000000~0001869F(0~99999), TOTAL=00000000~05F5E0FF(0~99999999)	R
0023	RST	Write = 0x01(Function 06), Totalizer value will be reset	W