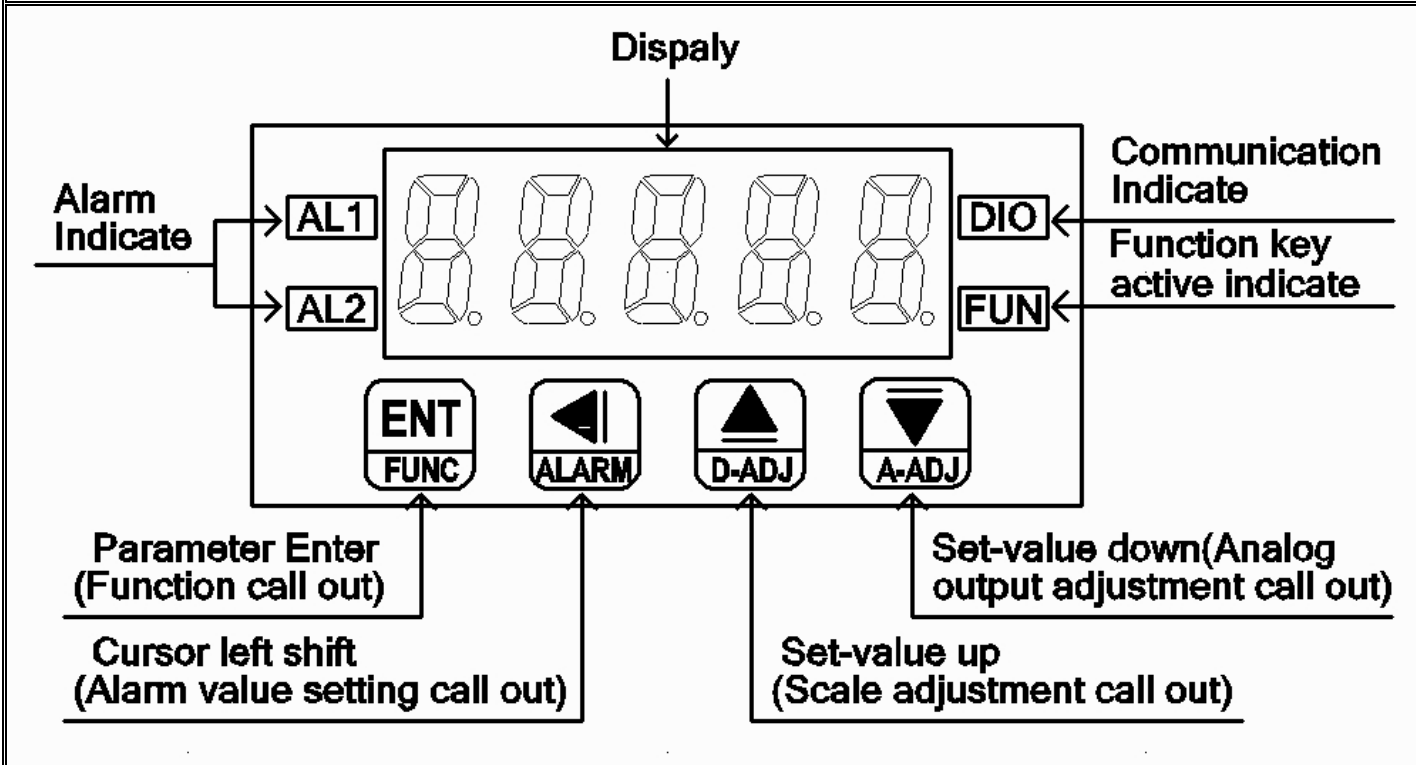


AXE SLIM TYPE MATH FUNCTION ISOLATED TRANSMITTER & CONTROLLER METER RELAY SMMTR Series

Features	
Math function A, A, A+B, A-B, A*B, A/B, A&B HI, A&B LO/etc.....	Two Alarm provide with Active delay and hysteresis function
Accuracy 0.05% FS ± 1 digit	16BIT DAC analog output function
Programmable display range -19999~99999 digit	RS485 communication interface, Protocol MODBUS RTU MODE
Decimal point can be modified	BAUD RATE: 19200/9600/4800/2400
A,B channel display value can be modified	0.268 " LED highlight display
A,B channel display value can be preview	Man-machine interface ,easy to operate
Programmable Display avrage times (1~99)	EEPROM Saving ,data safekeeping about 10 years
	Modified inside parameter must have pass code

Name Of Parts



Alarm Function

ACT = HI

- Display value > setting value + DEL(Delay time) → RELAY ON
- Display value < setting value - HYS(Hysteresis) → RELAY OFF




ACT = LO




- Display value < setting value + DEL(Delay time) → RELAY ON
- Display value > setting value + HYS(Hysteresis) → RELAY OFF

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 & channel A,B preview 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 value (DZERO&DSPAN) 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 be increment. (Key response about 0.2 sec.)
▼ key function	1. In normal display, The key function is call out adjustment analog output (AZERO&ASPAN) 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 be decrement.(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
Inside parameter operate procedure			
Step	Parameter Mark Description	Parameter Mark	Operation Manual
1	Normal display	1 2 3 4 5	1.Press [F]/FUNC key into P.COD setting page
2	P.COD(Pass Code) Default = 0	P.C o d	1.Key in 5 digit pass code with ◀&▲&▼ key 2.Press [ENT] key,If the pass code is correct then 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 [F] key into setting page of selection setting group
	ROP(Alarm output 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 [F] key into DP setting page
4-1	TYPE(Math Type) Default = A	t y P E	1.Decide Math Type with ▲&▼ key(A(SQR.A), A (ABS.A), A+B (ADD.AB), A-B(SUB.AB), A*B(MUL.AB), A/B(DIV.AB), A&B HI (AND.HI), A&B LO(AND.LO)) 2.Press [ENT] key enter data and into DP setting page
		S q r . A	
4-2	DP(Decimal Point) Default = 0	d P	1. Decide decimal point position with ▲&▼ key (0 to 4) 2.Press [ENT] key enter data and into ADSPL setting page
		0.	
4-3	ADSPL(Channel A Display Lo Scale)Default = 0	A d S P L	1.Decide Channel A display low scale with ◀&▲&▼ key (-19999~99999) 2.Press [ENT] key enter data and into ADSPH setting page
		0 0 0 0 0	
4-4	ADSPH(Channel A Display Hi Scale)Default = 99999	A d S P H	1.Decide Channel A display high scale with ◀&▲&▼ key (-19999~99999) 2.Press [ENT] key enter data and into BDSPL setting page
		9 9 9 9 9	
4-5	BDSPL(Channel B Display Lo Scale)Default = 0	b d S P L	1.Decide Channel B display low scale with ◀&▲&▼ key (-19999~99999) 2.Press [ENT] key enter data and into BDSPH setting page
		0 0 0 0 0	
4-6	BDSPH(Channel B Display Hi Scale)Default = 99999	b d S P H	1.Decide Channel B display high scale with ◀&▲&▼ key (-19999~99999) 2.Press [ENT] key enter data and into AVG setting page
		9 9 9 9 9	
4-7	AVG(Average) Default = 8	A v G	1.Decide display Average times with ◀&▲&▼ key (1~99) 2.Press [ENT] key enter data and into LCUT setting page
		0 0 0 0 8	
4-8	LCUT(Channel A,B Low Cut) Default = 0	L C U T	1.Decide Channel A,B display low cut with ◀&▲&▼ key (0~99) 2.Press [ENT] key enter data and into CODE setting page Note:If display less then the setting,will be show 0,LCUT=0 function disable
		0 0 0 0 0	
4-9	CODE(Pass Code) Default = 0	C o d e	1.Decide Pass code with ◀&▲&▼ key (0~99999) 2.Press [ENT] key enter data and into LOCK setting page
		0 0 0 0 0	
4-10	LOCK(Panel Lock) Default = NO	L o C k	1.Decide panel lock with ▲&▼ key (NO or YES) 2.Press [ENT] key enter data and return SYS setting group
		n o	
5	ROP(Alarm Output setting group)	r o P	1.Press ◀ key decide ROP setting group 2.Press [F] key into ACT1 setting page
5-1	ACT1(Alarm 1 Active) Default = HI	A C T 1	1.Decide active 1 with ▲&▼ key (HI or LO) 2.Press [ENT] key enter data and into ACT2 setting page
		H I	
5-2	ACT2((Alarm 2 Active) Default = HI	A C T 2	1.Decide active 2 with ▲&▼ key (HI or LO) 2.Press [ENT] key enter data and into HYS1 setting page
		H I	
5-3	HYS1((Alarm 1 Hysteresis) Default = 0	H Y S 1	1.Decide HYS1 with ◀&▲&▼ key (0~999) 2.Press [ENT] key enter data and into HYS2 setting page
		0 0 0 0 0	
5-4	HYS2((Alarm 2 Hysteresis) Default = 0	H Y S 2	1.Decide HYS2 with ◀&▲&▼ key (0~999) 2.Press [ENT] key enter data and into DEL1 setting page
		0 0 0 0 0	

5-5	DEL1((Alarm 1 Delay time) Default = 0	DEL 1 00000	1.Decide DEL1 with ◀&▲&▼ key (0~99 sec) 2.Press Ⓜ key enter data and into DEL2 setting page
5-6	DEL2((Alarm 2 Delay time) Default = 0	DEL 2 00000	1.Decide DEL2 with ◀&▲&▼ key (0~99 sec) 2.Press Ⓜ key enter data and return ROP setting group
6	AOP(Analog Output setting group)	A O P	1.Press ◀ key select AOP setting group, 2.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 return AOP setting group
7	DOP(Communication setting group)	D O P	1.Press ◀ key decide DOP setting group 2.Press Ⓜ key into ADDR setting page
7-1	ADDR(Communication Address) Default = 0	ADDR 00000	1. Decide address with ◀&▲&▼ key (0~255) 2. Press Ⓜ key enter data and into BAUD setting page
7-2	BAUD(Communication Baud Rate) Default = 19200	BAUD 19200	1. Decide baud rate with ▲&▼ key (19200,9600,4800,2400) 2. Press Ⓜ key enter data and into PARI setting page
7-3	PARI(Communication Parity Check) Default = n.8.2.	PARI n.8.2	1. Decide parity check with ▲&▼ key(n.8.2,n.8.1,even,odd) 2. Press Ⓜ key enter data and return DOP setting group
Step	Parameter Mark Description	Parameter Mark	Operation Manual
8	Normal display	12345	1.Press ◀/ALARM about 3 sec, into AL1 setting page
8-1	AL1 (Alarm 1) Default = 0	AL1 00000	1.Decide alarm 1 value with ◀&▲&▼ key (-19999~99999) 2.Press Ⓜ key enter data and into AL2 setting page
8-2	AL2 (Alarm 2) Default = 0	AL2 00000	1.Decide alarm 2 value with ◀&▲&▼ key (-19999~99999) 2.Press Ⓜ key enter data and return normal display
Step	Parameter Mark Description	Parameter Mark	Operation Manual
9	Normal display	12345	1.Press ▲/D-ADJ key about 3 sec,into CHA.DZ adjustment page
9-1	CHA.DZ(A Channel Display Zero Adjust)Default = 0	CHADZ 00000	1.Adjust A Channel Display Zero with ▲&▼ key 2.Press Ⓜ key enter data and into CHA.DS adjustment page
9-2	CHA.DS(A Channel Display Span Adjust)Default = 0	CHADS 99999	1.Adjust A Channel Display Span with ▲&▼ key 2.Press Ⓜ key enter data and into CHB.DZ adjustment page
9-3	CHB.DZ(B Channel Display Zero Adjust)Default = 0	CHBDZ 00000	1.Adjust B Channel Display Zero with ▲&▼ key 2.Press Ⓜ key enter data and into CHB.DS adjustment page
9-4	CHB.DS(B Channel Display Span Adjust)Default = 0	CHBDS 99999	1.Adjust B Channel Display Span with ▲&▼ key 2.Press Ⓜ key enter data and return normal display
Step	Parameter Mark Description	Parameter Mark	Operation Manual
10	Normal display	12345	1.Press ▼/A-ADJ key about 3 sec, into AZERO adjustment page
10-1	AZERO(Analog Output Zero Adjust) Default = 0	AZERO 00000	1.Adjust analog output zero with ◀&▲&▼ key (±6000) 2.Press Ⓜ key enter data and into ASPAN adjustment page
10-2	ASPAN(Analog Output Span Adjust) Default = 0	ASPAN 00000	1.Adjust analog output span with ◀&▲&▼ key (±6000) 2.Press Ⓜ key enter data and return normal display
Step	Parameter Mark Description	Parameter Mark	Operation Manual

11	Normal display	1 2 3 4 5	1.Press  /ALARM key about 10 sec, into A CH. display page
11-1	A CH.(A Channel Preview)	A C H	1.Diaplay A Channel preview value
		1 2 3 4 5	2.Press  key into B CH. display page
11-2	B CH.(B Channel Preview)	b C H	1.Diaplay B Channel preview value
		1 2 3 4 5	2.Press  key return normal display

Appendix	Error Mark Description	Error Mark	Analyze & Description
1	Input over error detect	1 o F L	1.Channel A,B Input signal over range
2	Display over error detect	d o F L	1.Calculating result over display range (99999)
3	Display under error detect	- d o F L	1.Calculation result under display range (-19999)
4	A channel display over range	A o F L	1.A Channel display over range (99999)
5	A channel display under range	- A o F L	1.A Channel display under range (-19999)
6	B channel display over range	b o F L	1.B Channel display over range (99999)
7	B channel display under range	- b o F L	1.B Channel display under range (-19999)
8	EEPROM error detect	E - 0 0	1.External interference when EEPROM read/write 2.EEPROM write over 1 million times(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  or  key,press  key return normal display c.EEPROM was reset,Please follow step 1~10 set again

SMMTR 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	TYPE	Math Type, Input Range 0000~0007(0~7)(0: A(SQR.A),1: A (ABS.A),2:A+B(ADD.AB),3:A-B(SUB.AB),4:A*B(MUL.AB),5:A/B(DIV.AB),6:A&BHI(AND.HI),7:A&BLO(AND.LO))	R/W
0001	ACT1	Active 1,Input Range 0000~0001(0~1)(0:HI,1:LO)	R/W
0002	ACT2	Active 2,Input Range 0000~0001(0~1)(0:HI,1:LO)	R/W
0003	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
0004	LOCK	Panel Lock,Input Range 0000~0001(0~1)0:NO,1:YES	R/W
0005	BAUD	Communication Baud Rate,Input Range 0000~0003(0~3)0:19200,1:9600,2:4800,3:2400	R/W
0006	PARI	Communication Parity Check,Input Range 0000~0003(0~3)0:N.8.2.,1:N.8.1.,2:EVEN,3:ODD	R/W
0007	AVG	Average,Input Range 0001~0063(1~99)	R/W
0008	LCUT	Low Cut,Input Range 0000~0063(0~99)	R/W
0009	ADDR	Communication Address,Input Range 0000~00FF(0~255)	R/W
000A	DEL1	Delay 1,Input Range 0000~0063(0~99)	R/W
000B	DEL2	Delay 2,Input Range 0000~0063(0~99)	R/W
000C	HYS1	Hysteresis 1,Input Range 0000~03E7(0~999)	R/W
000D	HYS2	Hysteresis 2,Input Range 0000~03E7(0~999)	R/W
000E	AZERO	Analog Output Zero Adjust,Input Range E890~1770(-6000~6000)	R/W
000F	ASPAN	Analog Output Span Adjust,Input Range E890~1770(-6000~6000)	R/W
0010	CODE	Pass Code,Input Range 00000000~0001869F(0~99999)high word	R/W
0011		Pass Code,Input Range 00000000~0001869F(0~99999)low word	R/W
0012	ADSPL	Channel A Display Lo Scale,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
0013		Channel A Display Lo Scale,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
0014	ADSPH	Channel A Display Hi Scale,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
0015		Channel A Display Hi Scale,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
0016	BDSPL	Channel B Display Lo Scale,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
0017		Channel B Display Lo Scale,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
0018	BDSPH	Channel B Display Hi Scale,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
0019		Channel B Display Hi Scale,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
001A	AL1	Alarm 1,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
001B		Alarm 1,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
001C	AL2	Alarm 2,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
001D		Alarm 2,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
001E	ANLO	Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
001F		Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
0020	ANHI	Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)high word	R/W
0021		Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999~99999)low word	R/W
0022	DISPLAY	Display Value,Display Range, FFFFB1E1~0001869F(-19999~99999)high word	R
0023		Display Value,Display Range, FFFFB1E1~0001869F(-19999~99999)low word	R
0024	A_DISPLAY	Channel A Display value,Display Range FFFFB1E1~0001869F(-19999~99999)high word	R
0025		Channel A Display value,Display Range FFFFB1E1~0001869F(-19999~99999)low word	R
0026	B_DISPLAY	Channel B Display value,Display Range FFFFB1E1~0001869F(-19999~99999)high word	R
0027		Channel B Display value,Display Range FFFFB1E1~0001869F(-19999~99999)low word	R
0028	STATUS	Alarm status, Display Range 0000~03FF(0~1023) Bit 0:Channel B IOFL, Bit 1:Channel A IOFL, Bit 2:DOFL, Bit 3:-DOFL, Bit 4:A0FL, Bit 5:-A0FL, Bit 6:BOFL, Bit 7:-BOFL, Bit 8:Alarm 1, Bit 9:Alarm 2	R