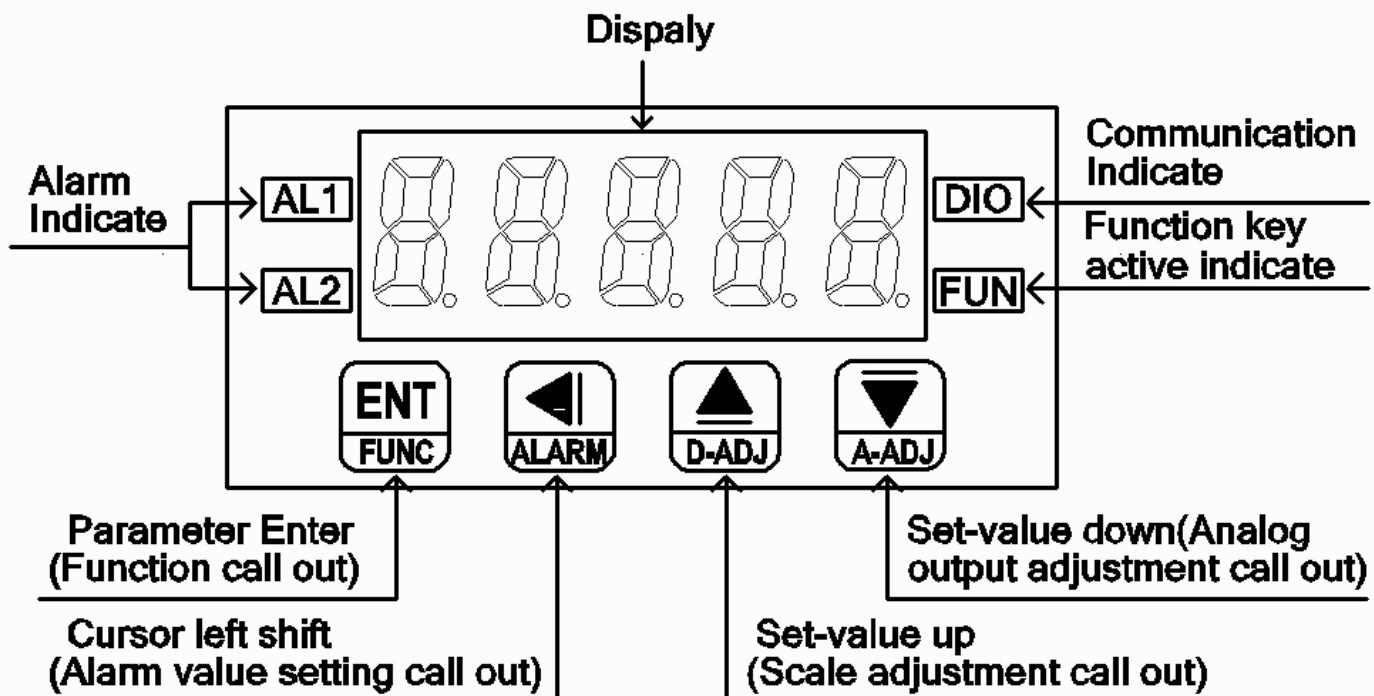# AXE SLIM TYPE ANALOG ISOLATED TRANSMITTER & CONTROLLER METER RELAY SMATR Series
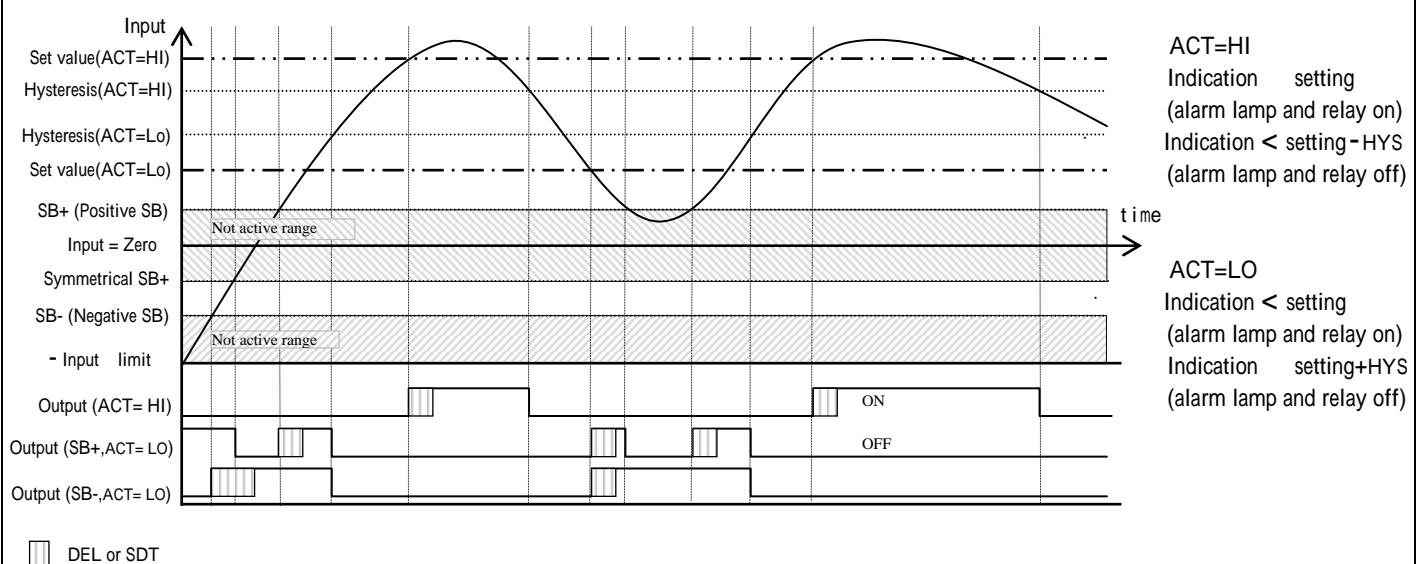
Features

Measuring DCA/DCV/ACA/ACV/Potentiometer/Transmitter/	16BIT DAC analog output function
Pt-100/Load Cell/Resistor/etc......	RS485 communication interface,Protocol MODBUS RTU MODE
Accuracy 0.05% FS ± 1 digit	BALD RATE: 19200/9600/4800/2400
Programmable display range -19999-99999 digit	0.268" LED highlight display
Programmable Display value/correspond output Decimal point	Man-machine interface ,easy to operate
Programmable Display avrage times (1~99)	EEPROM Saving ,data safekeeping about 10 years
Two Alarm output provide with Start delay,Active delay and hyst er esi s function	Modified inside parameter must have pass code

Name Of Parts

Dispaly

Alarm Indicate → AL1 AL2

Communication Indicate DIO

Function key active indicate FUN

ENT / FUNC

◀ / ALARM

▲ / D-ADJ

▼ / A-ADJ

Parameter Enter (Function call out)

Cursor left shift (Alarm value setting call out)

Set-value down(Analog output adjustment call out)

Set-value up (Scale adjustment call out)

Alarm Function Diagram

Input

Set value(ACT=HI)
Hysteresis(ACT=HI)
Hysteresis(ACT=Lo)
Set value(ACT=Lo)
SB+ (Positive SB)
Input = Zero
Symmetrical SB+
SB- (Negative SB)
- Input limit

Not active range

Not active range

time

Output (ACT= HI) ON
Output (SB+,ACT= LO) OFF
Output (SB-,ACT= LO)

ACT=HI
Indication setting
(alarm lamp and relay on)
Indication < setting- HYS
(alarm lamp and relay off)

ACT=LO
Indication < setting
(alarm lamp and relay on)
Indication setting+HYS
(alarm lamp and relay off)

▦ DEL or SDT

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 ◀ 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	12345	1.Press ⒠/FUNC key into P.COD setting page
2	P.COD(Pass Code) Default = 0	P.Cod 00000	1.Key in 5 digit pass code with ◀ & ▲ & ▼ key 2.Press ⒠ key, If the pass code is correct then into setting group, otherwise, return normal display
3	SYS(System Setting Group) ROP(Alarm output Setting Group) AOP(Analog output Setting Group) DOP(Communication setting group)	SYS roP AoP doP	1.Select setting group with ◀ key 2.Press ⒠ key into setting page of selection setting group
4	SYS(System setting group)	SYS	1.Press ◀ key decide SYS setting group 2.Press ⒠ key into DP setting page
4-1	DP(Decimal Point) Default = 0	dP 0.	1. Decide decimal point position with ▲ & ▼ key (0 to 4) 2.Press ⒠ key enter data and into DSPL setting page
4-2	DSPL(Display Lo Scale) Default = 0	dSPL 00000	1.Decide display low scale with ◀ & ▲ & ▼ key (-19999-99999) 2.Press ⒠ key enter data and into DSPH setting page
4-3	DSPH(Display Hi Scale) Default = 99999	dSPH 99999	1.Decide display high scale with ◀ & ▲ & ▼ key (-19999-99999) 2.Press ⒠ key enter data and into AVG setting page
4-4	AVG(Average) Default = 8	AuG 00008	1.Decide display Average times with ◀ & ▲ & ▼ key (1~99) 2.Press ⒠ key enter data and into LCUT setting page
4-5	LCUT(Low Cut) Default = 0	LCUt 00000	1.Decide display low cut with ◀ & ▲ & ▼ key (0-99) 2.Press ⒠ key enter data and into CODE setting page Note:If display less then the setting will be show 0.LCUT=0 function disable
4-6	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
4-7	LOCK(Panel Lock) Default = NO	LoCh no	1.Decide panel lock with ▲ & ▼ key (NO or YES) 2.Press ⒠ key enter data and return SYS setting group
5	ROP(Alarm Output setting group)	roP	1.Press ◀ key decide ROP setting group 2.Press ⒠ key into ACT1 setting page
5-1	ACT1(Alarm 1 Active) 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 2 Active) 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 1 Hysteresis) Default = 0	HYS1 00000	1.Decide HYS1 with ◀ & ▲ & ▼ key (0-999) 2.Press ⒠ key enter data and into HYS2 setting page
5-4	HYS2((Alarm 2 Hysteresis) Default = 0	HYS2 00000	1.Decide HYS2 with ◀ & ▲ & ▼ key (0-999) 2.Press ⒠ key enter data and into DEL1 setting page
5-5	DEL1((Alarm 1 Delay time) Default = 0	dEL1 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	⊓EL 2 00000	1.Decide DEL2 with ◀ &▲ &▼ key (0-99 sec) 2.Press ⒺⓃ key enter data and into SB setting page
5-7	SB(Start band) Default = 0	5 b 00000	1.Decide SB with ◀ &▲ &▼ key (-99-99) 2.Press ⒺⓃ key enter data and into SDT setting page Note:Input over the SB and reach SDT,Alarm will be restore compare&active
5-8	SDT(Start Delay Time) Default = 0	5 ⊓t 00000	1.Decide SDT with ◀ &▲ &▼ key (0-99 sec) 2.Press ⒺⓃ key enter data and return ROP setting group Note:Input over the SB and reach SDT,Alarm will be restore compare&active

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	�A ⊓L o 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	�A ⊓ H i 99999	1.Decide ANHI with ◀ &▲ &▼ key (-19999-99999) 2.Press ⒺⓃ key return AOP setting group

7	DOP(Communication setting group)	⊓ o P	1.Press ◀ key decide DOP setting group 2.Press ⒺⓃ key into ADDR setting page
7-1	ADDR(Communication Address) Default = 0	A ⊓ ⊓ r 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	b A U ⊓ 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	P A r i 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	A L 1 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	A L 2 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 DZERO adjustment page
9-1	DZERO(Display Zero Adjust) Default = 0	⊓ P E r o 00000	1.Adjust Display Zero with ▲ &▼ key 2.Press ⒺⓃ key enter data and into DSPAN adjustment page
9-2	DSPAN(Display Span Adjust) Default = 0	⊓ 5 P A ⊓ 99999	1.Adjust 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	A P E r o 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	A 5 P A ⊓ 00000	1.Adjust analog output span with ◀ &▲ &▼ key (±6000) 2.Press ⒺⓃ key enter data and return normal display

Appendix	Error Mark Description	Error Mark	Analyze & Description
1	Input over error detect	i o F L	1.Input signal over range

2	Display over error detect	$\boxed{\text{d o F L}}$	1.Display over range(99999)
3	Display under error detect	$\boxed{\text{- d o F L}}$	1.Display over range (-19999)
4	EEPROM error detect	$\boxed{\text{E - 0 0}}$	1.External interference when EEPROM read/write 2.EEPROM write over 1 million times(guarantee 10 years)
		$\boxed{\text{n o}}$	Please power reset,if still display E-00, doing below step: a.E-00 & No alternate display for inquire reset EEPROM
		$\boxed{\text{Y E S}}$	b.Decide Yes with ▲ or ▼ key,press ⒺⓃⒹ key return normal display c.EEPROM was reset,Please follow step 1~10 set again

SMAIR 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	ACT1	Active 1,Input Range 0000-0001(0-1)(0:HI,1:LO)	R/W
0001	ACT2	Active 2,Input Range 0000-0001(0-1)(0:HI,1:LO)	R/W
0002	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
0003	LOCK	Panel Lock,Input Range 0000-0001(0-1),0:NO,1:YES	R/W
0004	BAUD	Communication Baud Rate,Input Range 0000-0003(0-3),0:19200,1:9600,2:4800,3:2400	R/W
0005	PARI	Communication Parity Check,Input Range 0000-0003(0-3),0:N.8.2.,1:N.8.1.,2:EVEN,3:ODD	R/W
0006	AVG	Average,Input Range 0001~0063(1~99)	R/W
0007	LCUT	Low Cut,Input Range 0000-0063(0-99)	R/W
0008	ADDR	Communication Address,Input Range 0000-00FF(0-255)	R/W
0009	HYS1	Hysteresis 1,Input Range 0000-03E7(0-999)	R/W
000A	HYS2	Hysteresis 2,Input Range 0000-03E7(0-999)	R/W
000B	DEL1	Delay 1,Input Range 0000-0063(0-99)	R/W
000C	DEL2	Delay 2,Input Range 0000-0063(0-99)	R/W
000D	SB	Start band,Input Range FF9D~0063(-99-99)	R/W
000E	SDT	Start Delay Time,Input Range 0000-0063(0-99)	R/W
000F	AZERO	Analog Output Zero Adjust,Input Range E890-1770(-6000-6000)	R/W
0010	ASPAN	Analog Output Span Adjust,Input Range E890-1770(-6000-6000)	R/W
0011	CODE	Pass Code,Input Range 00000000-0001869F(0-99999)high word	R/W
0012		Pass Code,Input Range 00000000-0001869F(0-99999)low word	R/W
0013	DSPL	Display Lo Scale,Input Range FFFFB1E1~0001869F(-19999-99999)high word	R/W
0014		Display Lo Scale,Input Range FFFFB1E1~0001869F(-19999-99999)low word	R/W
0015	DSPH	Display Hi Scale,Input Range FFFFB1E1~0001869F(-19999-99999)high word	R/W
0016		Display Hi Scale,Input Range FFFFB1E1~0001869F(-19999-99999)low word	R/W
0017	AL1	Alarm 1,Input Range FFFFB1E1~0001869F(-19999-99999)high word	R/W
0018		Alarm 1,Input Range FFFFB1E1~0001869F(-19999-99999)low word	R/W
0019	AL2	Alarm 2,Input Range FFFFB1E1~0001869F(-19999-99999)high word	R/W
001A		Alarm 2,Input Range FFFFB1E1~0001869F(-19999-99999)low word	R/W
001B	ANLO	Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999-99999)high word	R/W
001C		Analog Output Zero According to Display,Input Range FFFFB1E1~0001869F(-19999-99999)low word	R/W
001D	ANHI	Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999-99999)high word	R/W
001E		Analog Output Span According to Display,Input Range FFFFB1E1~0001869F(-19999-99999)low word	R/W
001F	DISPLAY	Display Value, Display Range, FFFFB1E1~0001869F(-19999-99999)high word	R
0020		Display Value, Display Range, FFFFB1E1~0001869F(-19999-99999)low word	R
0021	STATUS	Alarm Display Status,display range 0000-03FF(0-1023),Bit 0:Alarm 1,Bit 1:Alarm 2,Bit 2:DOFL ,Bit 3:-DOFL,Bit 4:IOFL	R