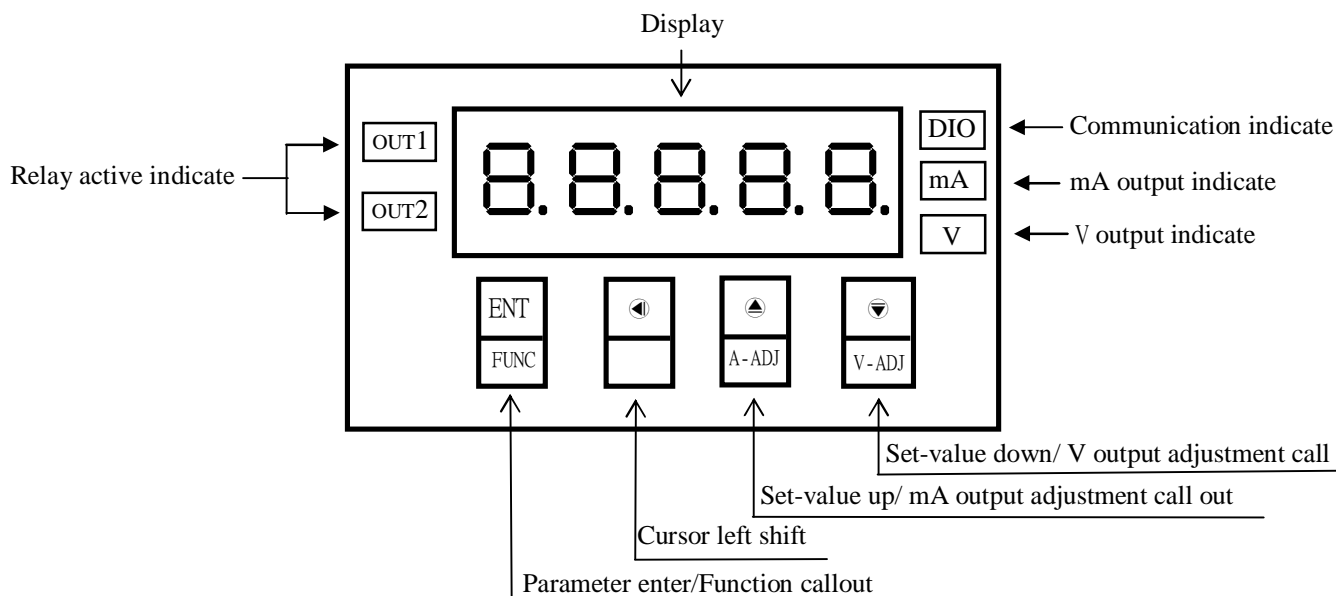


Features

- ⊙ Readout & calibrator analog output for DC 4~20.000mA /0~20.000mA/0~10.000V
- ⊙ Analog output accuracy ±0.05% F.S.
- ⊙ Readout Range from -19999~99999
- ⊙ MODBUS RTU MODE for RS485 Protocol
- ⊙ BAUD RATE : 19200/9600/4800/2400
- ⊙ Two relay output function
- ⊙ 16 bits DAC analog output function
- ⊙ Modified inside parameter must have pass code
- ⊙ EEPROM Saving data safekeeping over 10 years
- ⊙ Wide input range for auxiliary power
- ⊙ Dimension small and high stability

■ Name of Parts



| 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 go to next page |
| ⬅ Key Function | 1. 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 0 mA zero adjustment page(press 5S) 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 0 V zero adjustment page(press 5S) 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 |

| Step | Parameter mark description | Parameter mark | Operation manual |
|------|--|----------------|---|
| 1 | Normal display | 1 2 3 4 5 | Press ⊕/FUNC key into P.COD setting page |
| 1-2 | P.COD(Pass code input page) Default=0 | P.C o d | 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 | |
| 1-3 | DS.SEL(Display select) Default=RS.485 | d S. S E L | 1. Decide display RS.485 or AN.OUT with ▲&▼ key 2. Press ⊕ key enter data and into DP setting page NOTE: while DS.SEL=RS.485, AN.OUT=ANLO(Minimum output Value) AN.OUT=4mA(4-20mA) or 0mA(0-20mA) or 0V(0-10V) |
| | | r S. 4 8 5 | |
| 1-4 | DP(Decimal Point) Default=0 | d P | 1. Decide decimal point position with ▲&▼ key (0 to 4) 2. Press ⊕ key enter data and into ADDR setting page NOTE: Using for DISP RS.485 or Analog output setting. |
| | | 0 | |

| | | | |
|------|---|-----------------|---|
| 1-5 | ADDR(Communication Address)Default=0 | Addr 00000 | 1. Decide address with ◀&▲&▼ key(0~255) 2. Press Ⓜ key enter data and into BAUD setting page |
| 1-6 | 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 |
| 1-7 | PARI(Communication Parity Check)Default=n82 | PARI n.8.2 | 1. Decide parity check with ▲&▼ key(n82,n81,even,odd) 2. Press Ⓜ key enter data and into CRC response setting page |
| 1-8 | CRC(Cyclic Redundancy Check Code Response) Default=NO | CRC n o | 1. Decide CRC check response with ▲&▼ key (NO, YES) 2. Press Ⓜ key enter data and into AN.SEL setting page Note:When CRC=NO, do not check for CRC errors |
| 1-9 | AN.SEL(Analog output select) Default=4-20mA | ANSEL 4-20 | 1. Decide Analog output with ▲&▼ key (4-20mA/0-20mA/0-10V) 2. Press Ⓜ key enter data and into ANLO setting page |
| 1-10 | ANLO(Analog Output Zero-According to AN.OUT) Default=0 | ANLO 00000 | 1.Decide Analog output Zero-According to AN.OUT with◀&▲&▼ key(-19999~99999) 2. Press Ⓜ key enter data and into ANHI setting page |
| 1-11 | ANHI(Analog Output Span-According to AN.OUT) Default=99999 | ANHI 99999 | 1.Decide Analog output Span-According to AN.OUT with◀&▲&▼key(-19999~99999) 2.Press Ⓜ key enter data and into AI.SLP setting page |
| 1-12 | AI.SLP(Current(mA) output slope) Default=128.0mA/S | AI.SLP 128.0 | 1. Decide Current(mA) output slope with ▲&▼ key (0.125mA/S~1024.0mA/S) 2. Press Ⓜ key enter data and into AV.SLP setting page |
| 1-13 | AV.SLP(Voltage(V) output slope) Default=128.0V/S | AV.SLP 128.0 | 1. Decide Voltage(V) output slope with ▲&▼ key (0.0625V/S~512.0V/S) 2. Press Ⓜ key enter data and into R-O-M setting page |
| 1-14 | R-O-M(Relay Output Mode) Default=0.0. | r-o-m 0.0 | 1. Decide Relay output mode with ▲&▼ key(OUTx:2.1=0.0~1.1.) 2. Press Ⓜ key enter data and into 1.ON-T setting page Note: R-O-M=0, ON activation; R-O-M=1, ON-TIME activation |
| 1-15 | 1.ON-T(Relay1 on-time) Default=1.0S | 1on-t 1.0 | 1. Decide Relay1 on-time with ◀&▲&▼ key(0.1~999.9S) 2. Press Ⓜ key enter data and into 2.ON-T setting page |
| 1-16 | 2.ON-T(Relay2 on-time) Default=1.0S | 2on-t 1.0 | 1. Decide Relay2 on-time with ◀&▲&▼ key(0.1~999.9S) 2. Press Ⓜ key enter data and into CODE setting page |
| 1-17 | CODE(Code) Default=0 | CODE 00000 | 1.Decide CODE with ◀&▲&▼ key(0~19999) 2.PressⓂ return normal display |
| Step | Parameter mark description | Parameter mark | Operation manual |
| 2 | Normal display | 12345 | Press ▲/A-ADJ about 5 sec, into AZERO setting page |
| 2-1 | AZERO (0 mA zero adjustment) Default=0 | AZERO 00000 | 1.Adjustment 0mA zero output with ◀&▲&▼ key(-6000~6000) 2.Press Ⓜ key enter data and into ASPAN setting page NOTE:Enter this page and enter the parameter setting procedure, the following parameters will be modified but not saved 1.DS.SEL=AN.OUT, 2.AN.SEL=0-20mA, 3.AN.OUT=ANLO |
| 2-2 | ASPAN (20mA span adjustment) Default=0 | ASPAN 00000 | 1.Adjustment 20mA span output with ◀&▲&▼ key(-6000~6000) 2. Press Ⓜ key return normal display NOTE:Enter this page and enter the parameter setting procedure, the following parameters will be modified but not saved 1.DS.SEL=AN.OUT, 2.AN.SEL=0-20mA, 3.AN.OUT=ANHI |
| Step | Parameter mark description | Parameter mark | Operation manual |
| 3 | Normal display | 12345 | Press ▼/V-ADJ about 5 sec, into VZERO setting page |
| 3-1 | VZERO (0V zero adjustment) Default=0 | VZERO 00000 | 1.Adjustment 0V zero output with ◀&▲&▼ key(-6000~6000) 2.Press Ⓜ key enter data and into VSPAN setting page NOTE:Enter this page and enter the parameter setting procedure, the following parameters will be modified but not saved 1.DS.SEL=AN.OUT, 2.AN.SEL=0-10V, 3.AN.OUT=ANLO |
| 3-2 | VSPAN (10V span adjustment) Default=0 | VSPAN 00000 | 1. Adjustment 10V span output with ◀&▲&▼ key(-6000~6000) 2. Press Ⓜ key return normal display NOTE:Enter this page and enter the parameter setting procedure, the following parameters will be modified but not saved 1.DS.SEL=AN.OUT, 2.AN.SEL=0-10V, 3.AN.OUT=ANHI |

| Appendix | Error Mark Description | Error Mark | Analyze & Description |
|----------|-----------------------------------|------------|---|
| 1 | Display overflow detection error | d o F L | Display value exceeds the maximum display range(99999) |
| 2 | Display underflow detection error | - d o F L | Display value below the minimum display range (-19999) |
| 3 | EEPROM error detect | E - 0 0 | 1. External interference when EEPROM read/write 2.EEPROM write About 1 million times (guarantee 10 years) |
| | | n o | Please power reset, if still display E-00, doing following step: 1. E-00 & No alternate display for inquire reset EEPROM |
| | | Y E S | 2. Decide Yes with ▲&▼ key, press Ⓜ key return normal display 3. EEPROM was reset, Please fellow 1-3 step to set again. |

SMRSR 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(for RS.485 display),range 0000~0004 (0~4) 0:10 ⁰ ,1:10 ⁻¹ ,2:10 ⁻² ,3:10 ⁻³ ,4:10 ⁻⁴ | R/W |
| 0001 | ADDR | Communication ADDR, range 0000~00FF(0~255) | R/W |
| 0002 | BAUD | BAUD rate, range 0000~0003 (0~3) 0:19200,1:9600,2:4800,3:2400 | R/W |
| 0003 | PARI | PARI check, range 0000~0003 (0~3) 0:N82,1:N81,2:EVEN,3:ODD | R/W |
| 0004 | CRC | CRC check response, range 0000~0001 (0~1) 0:NO,1: YES | R/W |
| 0005 | CODE | Pass code, range 0000~4E1F(0~19999) | R/W |
| 0006 | DISP | RS.485 display setting, range FFFF1E1~0001869F (-19999~99999) high word ⁽³⁾⁽⁴⁾ | R/W |
| 0007 | (RS.485) | RS.485 display setting, range FFFF1E1~0001869F (-19999~99999) low word ⁽³⁾⁽⁴⁾ | R/W |
| 0008 | OUT1 | Relay1 output mode, range 0000~0001(0~1)(0:OFF,1:ON) ⁽⁴⁾ | R/W |
| 0009 | OUT2 | Relay2 output mode, range 0000~0001(0~1)(0:OFF,1:ON) ⁽⁴⁾ | R/W |
| 000A | DS.SEL | Display select, range 0000~0001(0~1)(0:RS.485,1:AN.OUT) ⁽³⁾ | R/W |
| 000B | AN.SEL | Analog output select, range 0000~002(0~2) (0:4-20mA, 1:0-20mA, 2:0-10V) ⁽²⁾ | R/W |
| 000C | AI.SLP | Current(mA) output slope, range 0000~000D(0~13) ⁽¹⁾ | R/W |
| 000D | AV.SLP | Voltage(V) output slope, range 0000~000D(0~13) ⁽¹⁾ | R/W |
| 000E | R-O-M | Relay output mode, range 0000~0003(0~3) (0:ON activation, 1:ON-TIME activation) (Bit0:OUT1, Bit1:OUT2) | R/W |
| 000F | 1.ON-T | Relay1 ON-TIME, range 0001~270F(1~9999) | R/W |
| 0010 | 2.ON-T | Relay2 ON-TIME, range 0001~270F(1~9999) | R/W |
| 0011 | AZERO | (0mA) zero adjustment, range E890~ 1770 (-6000~6000) | R/W |
| 0012 | ASPAN | (20mA) span adjustment, range E890~ 1770 (-6000~6000) | R/W |
| 0013 | VZERO | (0V) zero adjustment, range E890~ 1770 (-6000~6000) | R/W |
| 0014 | VSPAN | (10V) span adjustment, range E890~ 1770 (-6000~6000) | R/W |
| 0015 | ANLO | Analog output Zero-According to AN.OUT,range FFFF1E1~0001869F(-19999~99999) high word ⁽²⁾ | R/W |
| 0016 | | Analog output Zero-According to AN.OUT,range FFFF1E1~0001869F(-19999~99999) low word ⁽²⁾ | R/W |
| 0017 | ANHI | Analog output Span-According to AN.OUT,range FFFF1E1~0001869F(-19999~99999) high word ⁽²⁾ | R/W |
| 0018 | | Analog output Span-According to AN.OUT,range FFFF1E1~0001869F(-19999~99999) low word ⁽²⁾ | R/W |
| 0019 | AN.OUT | Analog output display value , range FFFF1E1~0001869F(-19999~99999) high word ⁽²⁾⁽³⁾⁽⁴⁾ | R/W |
| 001A | | Analog output display value , range FFFF1E1~0001869F(-19999~99999) low word ⁽²⁾⁽³⁾⁽⁴⁾ | R/W |

| NOTE 1 | | | NOTE 2 | NOTE 3. | NOTE 4. |
|--------|-----------|----------|--|---|--|
| | mA/Second | V/Second | 1. While AN.SEL=4~20mA, AN.OUT value corresponds to ANLO/ANHI Range output 4~20mA Example : ANLO=0.0 ,ANHI=100.0 AN.OUT=0.0 output 4mA AN.OUT=50.0 output 12mA AN.OUT=100.0 output 20mA 2. While AN.SEL=0~20mA, AN.OUT value corresponds to ANLO/ANHI Range output 0~20mA 3. While AN.SEL=0~10V, AN.OUT value corresponds to ANLO/ANHI Range output 0~10V 4. Power on Default AN.OUT=ANLO (minimum output value) | 1. While DS.SEL=RS.485, DISP(RS.485) value is display,AN.OUT=ANLO (minimum output value) 2. While DS.SEL=AN.OUT AN.OUT value is reflected to the display and analog output | It's will not saving value to EEPROM while Writing to 1. OUTx 2. AN.OUT 3. DISP(RS.485) |
| 0000 | 0.125 | 0.0625 | | | |
| 0001 | 0.25 | 0.125 | | | |
| 0002 | 0.5 | 0.25 | | | |
| 0003 | 1.0 | 0.5 | | | |
| 0004 | 2.0 | 1.0 | | | |
| 0005 | 4.0 | 2.0 | | | |
| 0006 | 8.0 | 4.0 | | | |
| 0007 | 16.0 | 8.0 | | | |
| 0008 | 32.0 | 16.0 | | | |
| 0009 | 64.0 | 32.0 | | | |
| 000A | 128.0 | 64.0 | | | |
| 000B | 256.0 | 128.0 | | | |
| 000C | 512.0 | 256.0 | | | |
| 000D | 1024.0 | 512.0 | | | |