# ATM-A Series
# 5 DIGIT MICRO PROCESSOR SIGNAL ISOLATED TRANSMITTER

# USER'S MANUAL (V1.1)


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# Correction record

| Version | Record |
|---|---|
| V1.1 | Modify 10. Ordering information |
| | |

# Contents

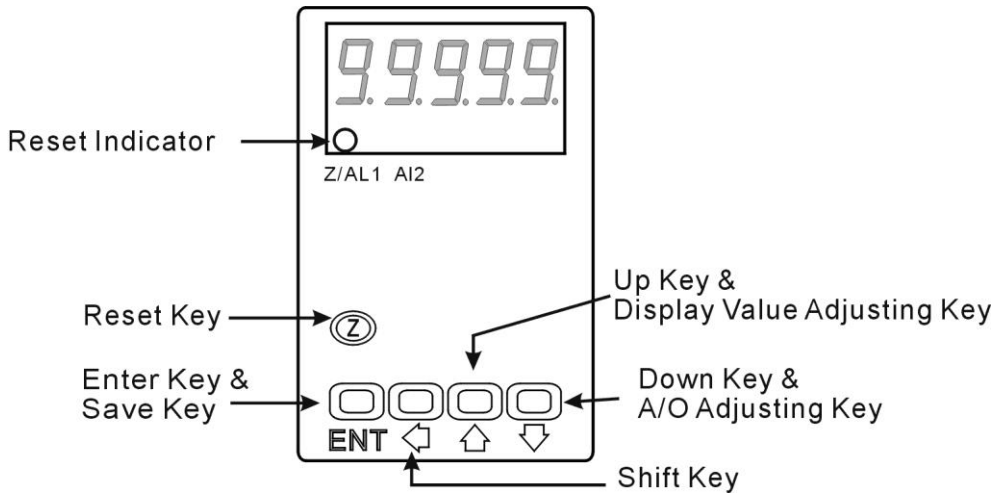
# 1. Features

- Versatile Input selection : DC / AC / PT-100 / Potentiometer / Resistor / Load Cell
- Versatile output selection : 4~20mA , 0~20mA , 0~5V , 0~10V
- Accuracy: ±0.1%  F.S. (Others) ; ±0.2%  F.S. (AC)
- Surge test of AC 2000V/ 1min between input / output / power
- High stability, non-flammable case (PC), high safety

# 2. Specifications

- Input selection : DC / AC / PT-100 / Potentiometer / Resistor / Load Cell
- Output selection : 4~20mA ,0~20mA ,0~5V ,0~10V
- Accuracy :  ±0.1% F.S. (Others)
  ±0.2% F.S. (AC)
- Display Screen : High brightness red LED; 10.16mm(0.4")
- Display Range : -19999~99999
- Zero Adjustment : ±9999 ; Span Adjustment : ±9999
- Parameters Setting : Push buttons
- Back Up Memory : EEPROM
- Over Range Indication : doFL/ioFL or -doFL/-ioFL
- Analog Output Resolution : 15 bit
- Output Ripple :  ≦±0.1% F.S.
- Output Response Time :  ＜250 msec (0~90%)
- Output Capability :  Voltage Output:  ＜20Ma
  Current Output:  ＜10V
- Isolation : Input / Output / Power / Case
- Insulation Resistance :  ＞100MΩ  with 500Vdc
- Surge Test : 2KVac/1min
- Input Impendence : Current:  ≧0.2A at 100mV;  ＜0.2A at 1V
  Voltage:  ＞2V for 20KΩ/V;  ≦2V for  ＞200MΩ
- Temperature Coefficient :100ppm/degree C (0~60 degree C )
- Operating Temperature : 0-60 degree C
- Operating Humidity : 20 to 90% RH (non-condensing)
- Storage Temperature : -10-70 degree C
- Storage Humidity : 20 to 90% RH (non-condensing)
- Power Supply : AC 110, AC 220V
- Installation : Socket / Plug-in

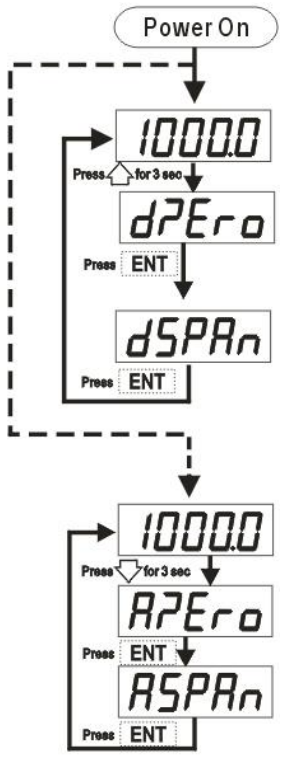
## 3. Front panel & Key functions



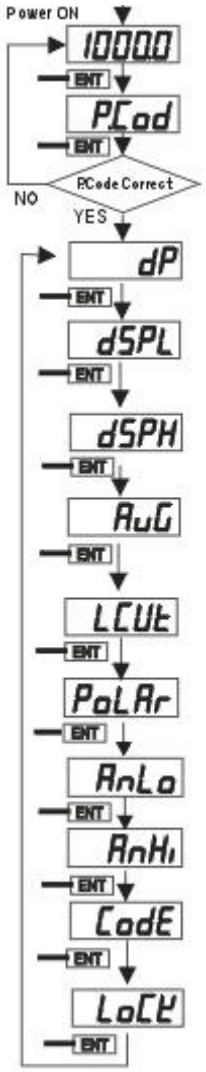

| Key Name | Symbol | Descriptions |
|---|---|---|
| Reset Key | Z | 1. Press this key to enable the reset function & reset indicator (Z) is light; press this key again to disable the reset function & reset indicator (Z) is dark. |
| Enter Key & Save Key | ENT | 1. In the measuring status, press this key can enter to parameter pages.<br>2. In the parameter setting, press this key can save the value & go to next page. |
| Shift Key | ⇦ | 1. In the parameter setting , press this key can move the cursor left. |
| Up Key & Display Value Adjusting Key | ⇧ | 1. In the measuring status, press this key for 3 sec can enter to display adjustment of "ZERO" & "SPAN"<br>2. In the parameter setting, press this key can increase the digits. |
| Down Key & A/O Adjusting Key | ⇩ | 1. In the measuring status, press this key for 3 sec can enter to analog output adjustment.<br>2. In the parameter setting , press this key can decrease the digits. |

1. The following block charts are parameters codes, parameter codes & parameters will alternate flashing if the parameters can be modified.
2. To modify the parameters, please press ⇦ ⇧ ⇩ , and press ENT to save the parameters after the modification.
3. Please don't forget the new pass code after modification.
4. In any pages, pres ⇧ & ⇩ , or don't press any keys for 2 minutes that will back to measuring status.

# 4. General Mode Operating Procedures

| Block Charts | Display | Descriptions | Default |
|---|---|---|---|
|  | | **Display : "ZERO" & "SPAN" Adjustment** | |
| | Measuring Status | Present value for measurement. | |
| | Display (dZEro) Adjustment (dZEro) | Press ⇦ to select adjusting speed rate, press ⇧ ⇩ to modify the zero value.<br>PS: To use this function to adjust the real zero value. | 00000 |
| | Display Span Adjustment (dSPAn) | Press ⇦ to select adjusting speed rate, press ⇧ ⇩ to modify the span value.<br>PS: To use this function to adjust the real span value. | 00000 |
| | | **Analog Output: "ZERO" &"SPAN" Adjustment** | |
| | Measuring Status | Present value for measurement. | |
| | A/O Zero Adjustment (AZEro) | Press ⇦ to select adjusting speed rate, press ⇧ ⇩ to modify the A/O zero.<br>PS: To use this function to adjust the real A/O zero. | 00000 |
| | A/O Span Adjustment (ASPAn) | Press ⇦ to select adjusting speed rate, press ⇧ ⇩ to modify the A/O span.<br>PS: To use this function to adjust the real A/O span. | 00000 |

# 5. Programming Mode Operating Procedures

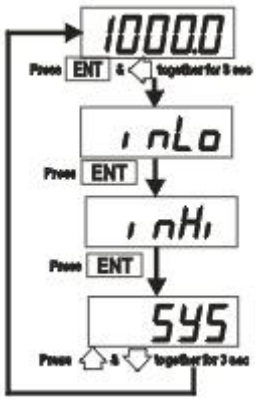
| Block Charts | Display | Descriptions | Default |
|---|---|---|---|
|  | Measuring Status | Present value for measurement. | |
| | Pass Code (P.Cod) | Press⇦ ⇧ ⇩ to enter pass code. | 00000 |
| | | Pass code is correct that will enter to parameter groups.<br>Pass code is wrong that will back to measuring status. | |
| | Decimal Point Setting (dP) | Pass ⇧ ⇩ to select decimal point (0, 1, 2, 3, 4).<br>EX: if the value shows "0.00" that means the decimal point is 2 digits. | |
| | Display Low Scale Setting (dSPL) | Pass ⇦ ⇧ ⇩ to modify display low scale for the input signal zero value.<br>EX: If the input signal is 4~20mA; 4mA is shown display 0.00, this parameter must be set for 000.00. | Customers specify |
| | Display Hi Scale Setting (dSPH) | Pass ⇦ ⇧ ⇩ to modify display high scale for the input signal span value.<br>EX: If the input signal is 4~20mA; 20mA is shown display 100.00, this parameter must be set for 100.00. | Customers specify |
| | Display Average Setting (AvG) | Pass ⇦ ⇧ ⇩ to modify display average (1~99).<br>PS: Please use this function for stable display value when input signal is unstable. | 00005 |
| | Display Low Cut Setting (LCUt) | Pass ⇦ ⇧ ⇩ to modify display low cut to 0 (0~99). | 00000 |
| | A/O Polarity Setting (PoLAr) | Pass ⇦ ⇧ ⇩ to modify output is positive pole or negative pole.<br>PS : Voltage output ,NO: positive pole output (0~+10V)<br>YES: positive & negative pole output (-10~+10V) | no |
| | A/O Low Scale Setting (AnLo) | Pass ⇦ ⇧ ⇩ to adjust A/O low scale to correspond to the display value.<br>EX : A/O is 0~10V, the display is 10.0 to output 0V, this value must be set for 10.0. | 00000 |
| | A/O Hi Scale Setting (AnHi) | Pass ⇦ ⇧ ⇩ to adjust A/O hi scale to correspond to the display value.<br>EX : A/O is 0~10V, the display is 90.0 to output1 0V, this value must be set for 90.0. | 99999 |
| | Pass Code Setting (CodE) | Pass ⇦ ⇧ ⇩ to modify pass code (0~19999).<br>PS: Please don't forget the new pass code after modification. | 00000 |
| | Key Lock Setting (LoCK) | Pass ⇧ ⇩ to lock the keys, using key lock function only can view the parameters, but cannot modify any values.<br>PS: no (unlock) ,YES ("ENT" unlock , others lock). | no |

## 6. Error Code of Self-Diagnosis

| Display | Descriptions |
|---|---|
|  | Input signal is over 120% of input range. |
|  | Input signal is under -20% of input range. |
|  | Input signal is over 180% of input range or meter error. |
|  | Input signal is over display range (99999). |
|  | Input signal is under display range (-19999). |
|  | EEPROM reading/writing suffers the interference (about 1 million times). |

※Please check the wiring connection is correct first, if the problem still exist, please return the meter to the factory.

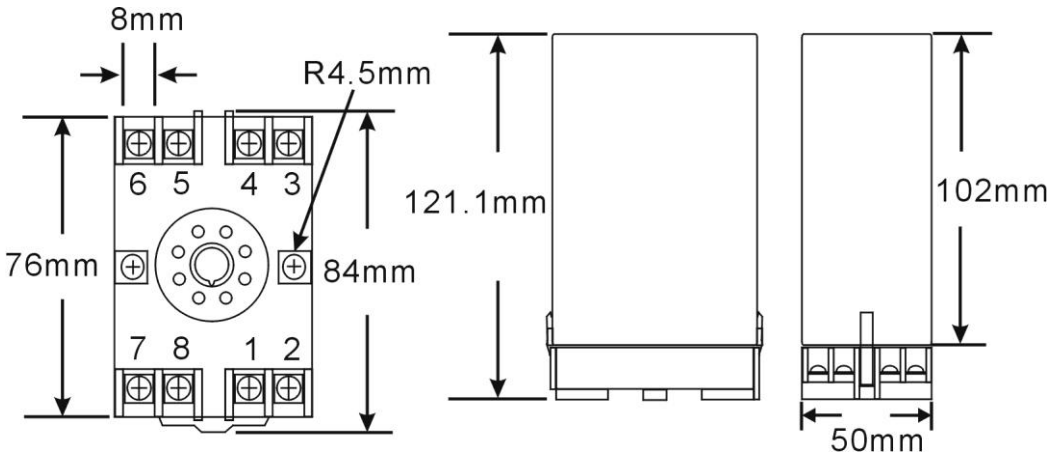
## 7. Calibration Operating Procedures




| Display | Descriptions | Default |
|---|---|---|
| Measuring Status | Present value for measurement<br>Press ENT & ⇦ together for 3 sec will enter to calibration operating procedures. | |
| Input Low Scale Calibration (inLo) | 1. Input standard low scale signal.<br>2. Press⇦ ⇧ ⇩ to calibrate input low scale. | |
| Input Hi Scale Calibration (inHi) | 1. Input standard hi scale signal.<br>2. Press⇦ ⇧ ⇩ to calibrate input hi scale | |
| System Setting Page (SYS) | 1. Finish calibration operating procedures will enter to system setting group.<br>2. Press ⇧ & ⇩ together to back to measuring status. | |

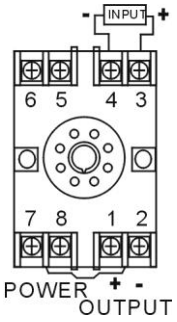
Warning: Calibration of this meter requires a standard signal with 0.01% accuracy or better and an external meter with 0.005% accuracy or better.

## 8. Dimensions

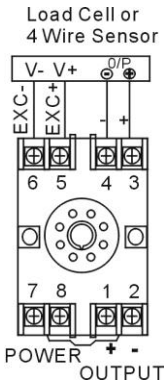


# 9. Wiring Connection

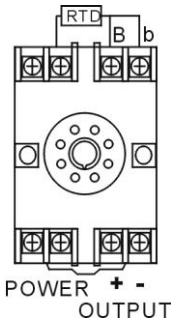
- Voltage (V), Current (A)(AC, DC)



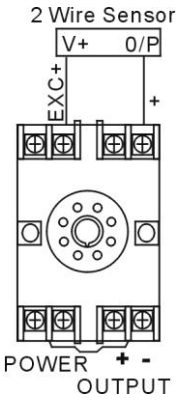

- 4 Wire Sensor or Load cell



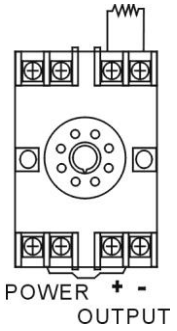

- Temperature (RTD)



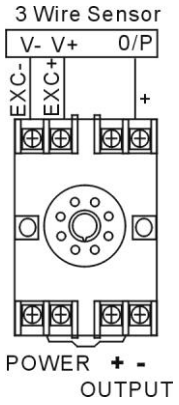

- 2 Wire Sensor



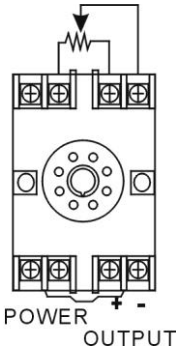

- 2 Wire Resistor




- 3 Wire Sensor




- 3 Wire Potentiometer



# 10. Ordering information

ATM-A - Code 1 Code 2 - Code 3 - Code 4

| Code 1 | Input Type |
|---|---|
| D | DC |
| A | AC AVG |
| M | AC TRMS |
| P | 3 Wire Potentiometer |
| I | 2 Wire Resistor |
| T | RTD (PT-100) |
| L | Load Cell |
| 2 | 2,3 Wire Sensor |
| 4 | 4 Wire Sensor |

| Code 2 | Type | Range |
|---|---|---|
| V1 | Voltage | 0~50mV |
| V2 | | 0~5V |
| V3 | | 1~5V |
| V4 | | 0~10V |
| V5 | | 0~36V |
| V6 | | 0~300V |
| V7 | | 0~600V |
| VO | | Option |
| A1 | Current | 0~20μA |
| A2 | | 0~200μA |
| A3 | | 0~2mA |
| A4 | | 0~20mA |
| A5 | | 0~200mA |
| A6 | | 4~20mA |
| AO | | Option |
| P1 | Potentiometer | 500Ω~10KΩ |
| P2 | | 10KΩ~100KΩ |
| P3 | | 100KΩ~1MΩ |
| PO | | Option |
| I1 | Resistor | 0~10Ω |
| I2 | | 0~100Ω |
| I3 | | 0~1KΩ |
| I4 | | 0~10KΩ |
| I5 | | 0~100KΩ |
| IO | | Option |
| T1 | RTD (PT-100) | -50~50℃ |
| T2 | | 0~50℃ |
| T3 | | 0~100℃ |
| T4 | | 0~200℃ |
| T5 | | 0~400℃ |
| T6 | | 0~600℃ |
| TO | | Option |

| Code 2 | Load Cell |
|---|---|
| L1 | 1mV/V EX.5V |
| L2 | 2mV/V EX.5V |
| L3 | 3mV/V EX.5V |
| L4 | 1mV/V EX.10V |
| L5 | 2mV/V EX.10V |
| L6 | 3mV/V EX.10V |
| LO | Option |

| Code 3 | Aux. Power |
|---|---|
| A | AC/DC 100~240V |
| D | AC/DC 22~60V |
| O | Option |

| Code 4 | Analog Output |
|---|---|
| 1 | 4~20mA |
| 2 | 0~20mA |
| 3 | 0~5V |
| 4 | 0~10V |
| O | Option |

- 1 : 2 wire type offers excitation power DC24V for 2 wire (Loop Power) pressure, temperature, humidity sensors using.
- 2 : 3.4 wire type offers excitation power DC24V for 3, 4 wire (Loop Power) pressure, temperature, humidity sensors using.