AX-C605

1. Safety Information

To ensure the safety operation, the following signs are used only as specified in this operation instruction:
- Warning - A warning shows that if the operation does not comply with the following correct instruction it is possible to bring hazards to the user or cause damage to the instrument in use. The warning also points out how to avoid the accidents.
- Caution - A caution shows that if the operation does not comply with the following correct
instruction, it is possible to cause damage to the instrument in use .The caution also points out how to avoid mal-operation.
- Note - A note serves as a sign to remind the user that is must understand the correct operation of the instrument and its characteristics.

To prevent the user and the Instrument from any electric shock and other hazards, it is necessary to observe the following regulation:

Warning

- It is not allowed to operate the Instrument at the working field where there exists flammable gas or explosive gas or vapor. It is very dangerous to operate the instrument in such a surrounding.
- Never apply more than 30V between any two terminals, or between any terminal and earth ground.

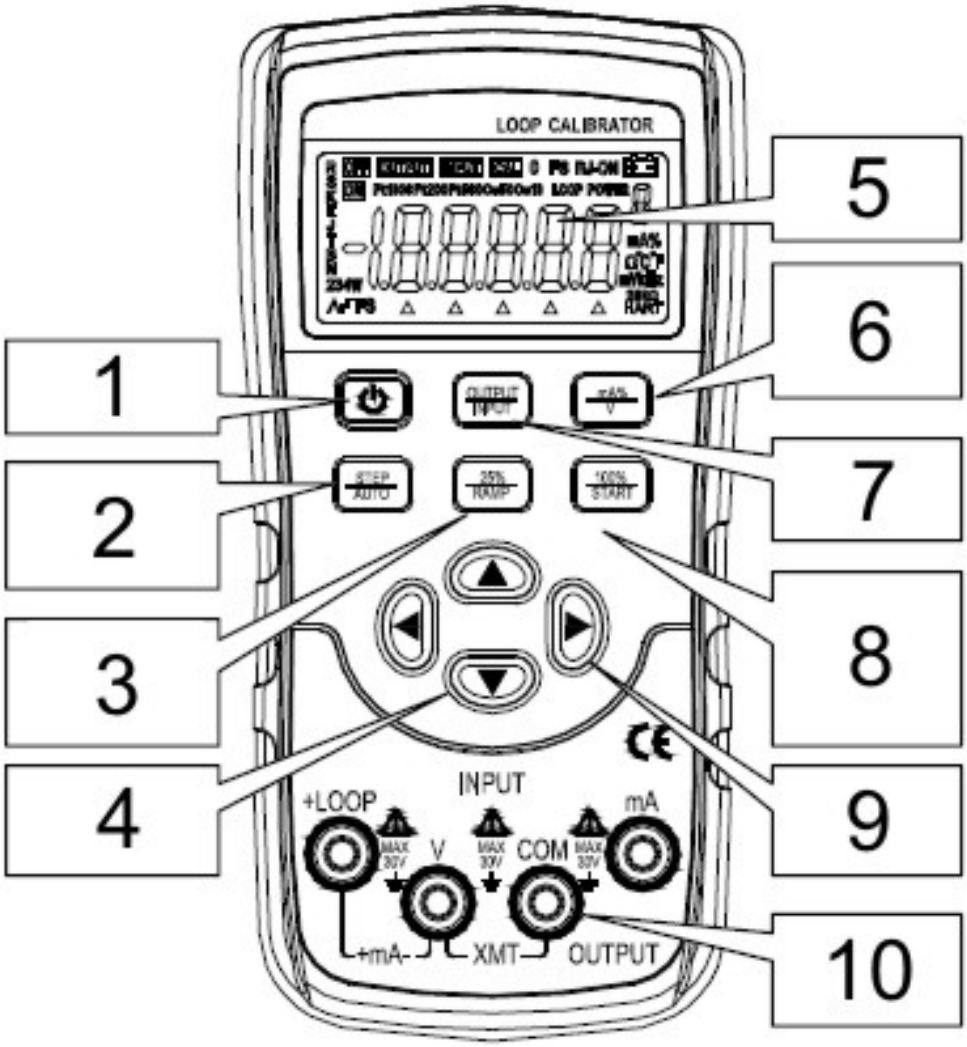
Caution!

- No one is allowed to remove the split case of the Instrument except professionals.
- Periodically wipe the case with a damp cloth and detergent; do not use any corrosive solvents.

Note

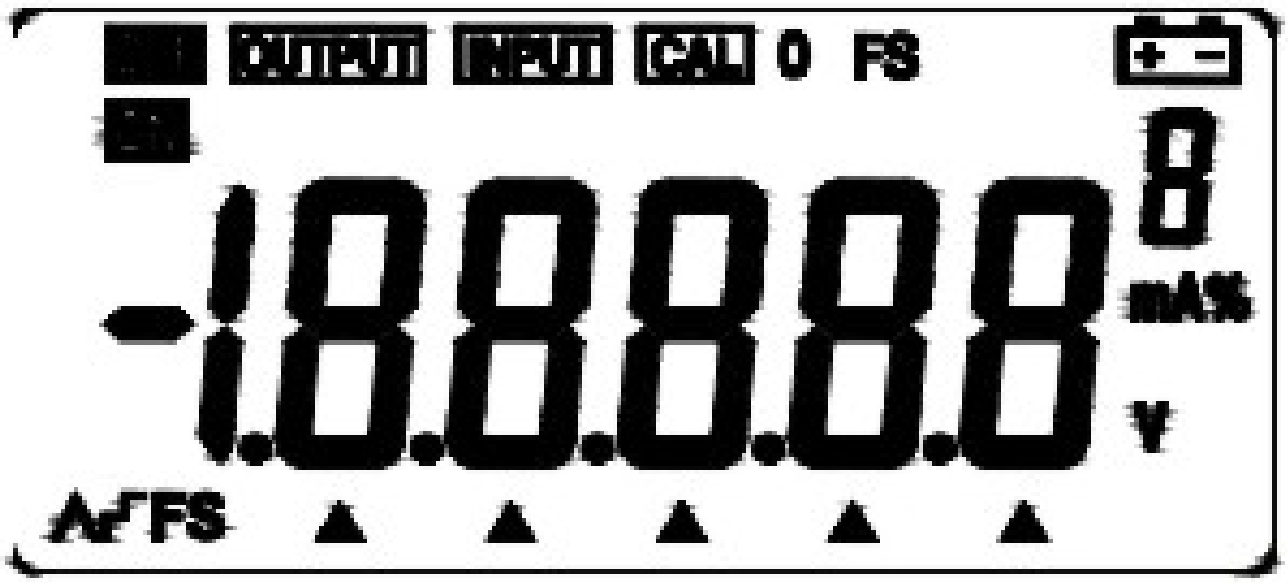
- To keep the Instrument in a designed accuracy, it needs warming up 5 minutes before it is put into operation.
- If any user requires a higher accuracy of the calibrator, he or she is requested to make contact with the manufacturer or our product distributors.

2. Instrument Panel Layout and Functions



1 - Power switch key
2 - Single-step / auto switch key
3 - 25% single step setting / auto-ramp
4 - <UP> <DOWN> Output value setting key
5 - LCD Display area

6 - mA% / unit select key
7 - Output / Input switch
8 - 0% & 100% of setting / setting/auto-ramp start key
9 - <LEFT> <RIGHT> Input digit select key
10 - input/output terminal



OUTPUT :Press the key OUTPUT / IN / SW when the symbol OUTPUT appears. It denotes that the Instrument is in a state of output.
INPUT : Press the key OUTPUT / IN / SW when the symbol INPUT appears. It denotes that the Instrument is in a state of input.
CAL : When the symbol CAL appears, it denotes that the Instrument is in a state of calibration.
0 FS : When the symbol ‘O’ or ‘FS’ appears during the calibration, it denotes that the zero point or the full scale point is being calibrated.
: When this symbol appears, it denotes that the battery is nearly used up and needs replacing.
<UP> : When this symbol appears, it denotes that the output digits need setting.
V mA % : These symbols denote the units of both present input and output values.
ON OFF : These symbols denote the turn-on or turn-off of any input / output signals.
A/FS:These symbols denote the high and low-speed auto-ramp, auto-step ramp.

3. Instrument Maintenance

3.1.

This section provides some basic maintenance procedures. Repair, calibration, and servicing not covered in this manual must be performed by qualified personnel. For maintenance procedures not described in this manual, contact a Service Center.

3.2. General Maintenance

Periodically wipe the case with a damp cloth and detergent; do not use abrasives or solvents.

- Take out the batteries if the Instrument will not be used for a long time.
- Dirt or moisture in the terminals can affect readings. Clean the terminals as follows:
  1) Turn the Instrument off and remove all test leads.
  2) Shake out any dirt that may be in terminals.
  3) Soak a new swab with alcohol. Clean each terminal with the swab.

3.3. Replacing the Batteries

This Instrument is powered by two AA batteries (IEC LR6).

Warning

To avoid electrical shock or personal injury:

- Remove Test Leads from the Instrument before opening the battery door.
- Close and latch the Battery Cover before using the meter.

Note

- The new and old Batteries cannot be mixed.
- Make sure the battery's odes are in accordance with the marks illustrated in battery pool when replacing them.
- Take out the batteries if the meter will not be used for a long time.
- Dispose the old batteries in accordance with the local law.

Replace the batteries as follows:

- Turn off the Instrument and remove all Test Leads from the Terminals
- Take off the protector of the Instrument; remove the battery cover by using a standard-blade screwdriver to turn the battery door fasteners, and then take of the battery case
- Replace with two new batteries
- Reinstall the battery case and tighten screws

3.4. Replacing Fuse

Warning

To avoid personnel injury or damage to the meter, use only the specified fuse. The specification is 63mA 250V fast-melt.

Replace the fuse as follows:

- Remove the test leads from the meter and turn the meter OFF
- Take off the protector of the meter, remove the four screws by using a standard-blade screwdriver, and then take off the cover
- Replace the blown fuse(s)
- Reinstall the cover
- Reinstall the meter's protector

4. Power-on/off of Instrument

4.1. Power on/off

Press the power key to turn on the power supply of the Instrument. Then repress it to hold it in one second and the power will be off. When the power is turned on, the Instrument starts to
make self-diagnosis internally and the full screen is in display. After this, appropriate operation should be carried out.
Note
To ensure correct operation of the Instrument, it is recommended to turn off the power pausing 5 seconds and then restart the Instrument.

4.2. Automatic Power-off

The factory default setting is that the Instrument will cut off the power automatically if no operation applied to the Instrument within 15 minutes. Users can decide whether they want to use this function or not.

5. Output from Instrument

5.1.

The Instrument produces the DC current from its appropriate output terminal (OUTPUT) set by the user or simulating a transmitter.
Caution!
Do not apply voltage to the output terminal during the operation. If any improper voltage is applied to the output terminal, it will cause damage to the internal circuit.

5.2. Current Output

- Insert one end of the test leads to the + mA – output jack (OUTPUT) of the Instrument and connect the other end with the input of the user's Instrument
- Press the key OUTPUT/IN , and the OUTPUT appears in the display. It denotes that the Instrument is in an output state
- Press the key mA%/V , to select the output to be set in 'mA'or %, and then the unit mA or mA% appears, in which 0% denotes 4mA; 100% denotes 20mA
- Press the key <LEFT>/<RIGHT> to select the set digits of the output
- Press the key <UP>/<DOWN> to change the value of the set digits. The value can do carry or number decrement automatically. Hold the pressed key in one second and the numerical value will keep varying.

5.3. 25% Step Current Output

- Insert one end of the test leads to the + mA – output jack (OUTPUT) of the Instrument and connect the other end with the input of the user's Instrument
- When the key OUTPUT/IN is pressed, the OUTPUT appears in the LCD, it denotes the Instrument is in an output state
- Press the key 25%/RAMP and the symbols '⩓' and <UP> will appear
- Press the key mA%/ V to select the output to be set in mA or %, and then the unit 'mA'or'mA % appears
- Press the key <UP>/<DOWN> to change the output in a value of 25%, in which 0% denotes 4mA and 100% denotes 20mA
- Repress the key 25%/RAMP so as to exit the step current output

5.4. Current Output Set for Zero Point & Full Scale

- Insert one end of the test leads to the + mA – output jack (OUTPUT) of the Instrument and connect the other end with the input of the user's Instrument
- When the OUTPUT/IN key is pressed, the OUTPUT appears in the LCD, it denotes the Instrument is in an output state
- Press the key 100%/START and the symbols '⩓' <UP> '0' 'FS' will appear in the display
- Press the key <UP> to be set to 100% and the current output will be 20mA. Press the key <DOWN> to be set to 0% and the current output will be 4mA
- Repress the key 100%/START so as to exit the step current output

5.5. Auto-ramp Output

- Insert one end of the test leads to the + mA – output jack (OUTPUT) of the Instrument and connect the other end with the input of the user's Instrument

- When the key OUTPUT/IN is pressed, the OUTPUT appears in the LCD, it denotes the Instrument is in an output state
- When the key STEP/AUTO is pressed, the symbols 'OUTPUT', 'OFF', '^S' appear in the LCD. If so, it denotes that the Instrument is getting into the mode of RAMP
- Repress the key 25%/RAMP again so as to change the type of the output ramp, which finds itself in the lower left of the LCD. The type appears with '^S','^F' in proper order. These symbols denote a low speed ramp and a high speed ramp respectively. The former is set to a cycle up to 60S and the latter is up to 30S, while the auto-stair step ramp pauses 5 seconds at each step
- Press the key 100%/START to start the output of the set waveform when the symbol 'ON' appears. Now repress the key 100%/START again and the output will pause on a current value and the symbol 'OFF' will appear. Then press the same key again and the output will continue to do the set steps from the pause value. When the symbol 'OFF' appears, press any one of the keys LEFT , RIGHT , UP , DOWN so as to bring the output back to the 0%. Then the value of 4mA appears in the display.

5.6. Simulating Transmitter Output (XMT)

- Insert one end of the test lead to the 'XMT' output jack of the Instrument and connect the other end with the input terminal of the user's device
- The key-operation is the same as that of the current output.

Note

- Range of power supply: 5 to 25VDC.
- Usage: during the operation of the current output, use the external 24VDC power supply in a mode of connecting a transmitter, thus being able to prolong the working life of the battery.

6. Instrument Measurement

6.1.

Warning

During the operation, never apply more than 30V between any two terminals, or between any terminal and earth ground. Any voltage more than 30V will not only do damage to the Instrument, but also lead to possible personal injury.

Caution!

- During the operation, do not apply a voltage or current exceeding the measuring range to the input terminal, which will cause possible damage to the Instrument.
- When connecting to the Instrument, the power supply of the device under test should be cut off. Otherwise, any connection with a device without cutting off its power supply will cause possible damage to the Instrument.

6.2. Input Operation Procedure

1	2	3	4
DCI 20 mA ↕ ↕ DCV 28 V	20 mA ↕ %	00.000 mA -25.00 mA % 0.000 V	-1.000～22.000 mA -31.25～112.50 mA % -0.2000～28.000 V

1 - Function Operation
2 - %Operation
3 - Display
4 - Measurement Range

6.3. Measuring DC Current

- Insert one end of the test lead into the mA jack of the Instrument (INPUT)terminal and connect the other end to the output of the user's device
- Press the key OUTPUT / IN , the LCD displays 'INPUT', and it denotes that the Instrument is in an input state
- Press the key mA%/V to select the input to be set in 'mA' or 'mA %', and the LCD displays unit 'mA' or 'mA %', in which the value of 0 % denotes 4mA and the value of 100% denotes 20mA.
- The Instrument starts measurement, and the LCD displays 'ON', and the measured result simultaneously
- The refreshing rate of measurement result is twice every second. And the LCD displays 'OL' if the measured value exceeds the measuring range.

6.4. Measuring DC Voltage

- Insert one end of the test lead into the V jack of the Instrument (INPUT)terminal and connect the other end to the output of the user's device
- Press the key OUTPUT / IN , the LCD displays 'INPUT', and it denotes that the Instrument is in an input state
- Press the key mA%/V to select V function, and the LCD displays unit 'V'
- The Instrument starts measurement, and the LCD displays 'ON', and the measured result simultaneously
- The refreshing rate of measurement result is twice every second. And the LCD displays 'OL' if the measured value exceeds the measuring range.

6.5. Providing 24V Power Supply for Measuring Loop

Insert the test lead into the +LOOP and mA input jacks of the input terminal (INPUT) of the Instrument. The key operation is the same as that of measuring the DC current.

7. Setting Function

Fulfilling of the following operation will change the auto-power-off function of the Instrument:
In power-off state, press the keys mA%/V and power simultaneously to power on, and release the mA%/V key only after the LCD displays all the contents. The Instrument enters into the calibration mode, and the symbols 'AP -XX 'appear in the LCD;
Press the key UP / DOWN , and when the LCD displays 'AP- OF ', the Instrument removes auto-power-off function; And when the LCD displays 'AP- ON ', the Instrument recovers the auto-power-off function.
Press the key 100%/START to store the selection;
Cut off the power again to exit from the maintenance function.

8. Performance Index

8.1.

Output Performance Index (applicable to temperature range from 18°C to 28°C, within one year after calibration)
Output - Range - Output Range - Resolution - Accuracy - Remark
DCA - 20mA - 0.000~22.000mA - 0.001mA - ±0.05% set value±4uA - Max. load 1Kat 20mA.
Simu-transmitter (absorption current) - -20mA 0.000~-22.000mA - 0.001mA - ±0.05% set value±4uA - Max. load 1Kat 20mA. Note: power supply range: 5~25VDC
Loop Power Supply - 24V - - - ±10% - Max. output current up to 25mA.
Input Performance Index(applicable to temperature range from 18°C to 28°C, within one year after calibration)

Input - Range - Output Range - Resolution - Accuracy - Remark
Voltage - 28V - -0.200~28.000V - 1mV - ±0.02% reading±2mV - Input resistance about 1M
Current - 20mA -1.000~22.000mA - 0.001mA - ±0.02% reading±4uA - resistance about 20
Loop Current - 20mA - 0.000~22.000mA - 0.001mA - ±0.02% reading±4uA - providing 24V loop power

8.2. General Specifications

Power supply : 2 1.5V alkaline batteries(LR6)
Battery life : about 400mA /3V under the condition of 10mA with 1k load
Max. permitted voltage : 30V(between any two terminals or between any terminal and earth ground)
Operating temperature : 0°C to 50°C
Operating relative humidity : ≤80% RH
Storage temperature : ≤-10°C to 50°C
Relative humidity for storage : ≤90% RH
Temperature co-efficiency : 0.1×(designated accuracy)%/°C(5°C~18°C 28°C~40°C)
Size : 180(L)×90(W)×47(D)mm (with holster)
Weight : 500g(with holster)
Accessories : operation instruction, a set of CF-36 industrial test lead(with alligator clips attached to probes)
Safety : certified as compliant to IEC1010 provisions(Safety standard issued by International Electrotechnical Commission)