

OPERATION MANUAL

MODEL 203

**Universal process indicator for current
and voltage output transmitters**

JENCO ELECTRONICS, LTD.

MANUFACTURER OF PRECISION INSTRUMENTS

General introduction

The model 203 is a high performance, industrial grade, universal digital process indicators for current and voltage output transmitters. Programmable internal dip switches allows the model 203 to accept inputs of 1-5 mA, 4-20, 10-50 mA, 0-20 mA, 1-5 VDC, 0-5VDC, 1-6 VDC, 1-10 VDC, 0-10 VDC and 1-11 VDC. Two independent excitation voltages are available to power most of the commercially available 2-wire current output transmitters and 3-wire voltage output transmitters.

Internal dip switches in conjunction with the front panel ZERO and SPAN controls, decimal point position select, dummy zero select and polarity select allow the model 203 to be scaled to display in any engineering units.

A linearized 1 mV per ESD, least, significant digit, is provided to interface with other devices with analog inputs, such as recorders, printers and computer interfacing peripherals.

INITIAL INSPECTION

Carefully unpack the instrument and accessories. Inspect for damage in shipment. If any damage is found, notify your JENCO REPRESENTATIVE IMMEDIATELY. All packing material should be saved until satisfactory operation is confirmed.

INPUT RANGES FOR THE MODEL 203

Voltage (V)	Current (mA)
1-5	1-5
0-5*	4-20
1-6*	10-50
1-10*	0-20*
0-10*	
1-11*	

* For these non standard inputs, the ZERO and SPAN adjustment ranges will be altered.

POLARITY

The polarity switch changes the polarity of the display without changing it's absolute reading. For absolute polarity, the switch setting is at the ON

position.

Polarity with switch set to OFF	Polarity with switch set to ON
100.0	-100.0
-100.0	100.0

The "+" sign is not displayed.

DECIMAL POINT AND "DUMMY ZERO"

The model 203 is a 3 1/2 digit indicator with a "dummy zero". The following shows the maximum displayed value with and without the dummy zero for different decimal point settings.

Without "dummy zero"	With "dummy zero"
1.999	1.9990
19.99	19.990
199.9	199.90
1999.*	1999.0

* In practice the decimal point is not used. 1999 should be displayed.

MOUNTING PROCEDURE

1. Make a cutout on any panel, with a thickness of 1/16 in. (1.5mm) to 3/8 in. (9.5 mm). Refer to DRAWING 1.
2. Remove the mounting screws and mounting brackets from the panel meter and insert the panel meter into the cutout. Refer to DRAWING 2.

3. Slide the mounting brackets onto the panel meter and fasten the mounting screws to secure the panel meter to the mounting panel. Refer to DRAWING 3.

WIRING SCHEME

1. Connect the AC line to the rear of the instrument. The model 203 can be used with 115 VAC or 230 VAC 50/60 Hz. Refer to DRAWING 4.

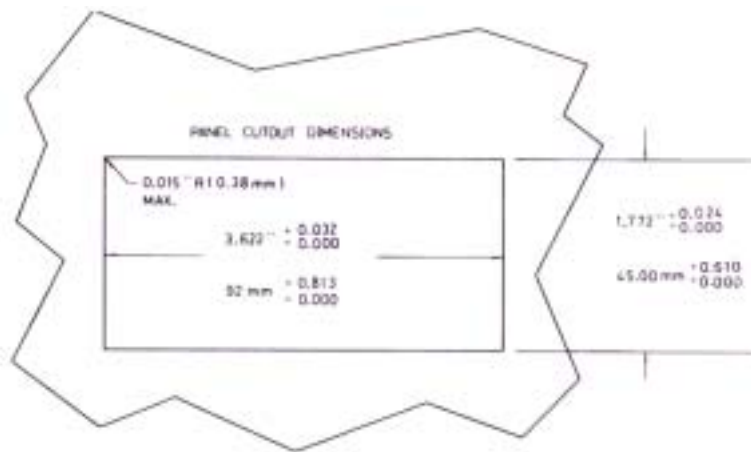
2. Connect the transmitter output leads to the rear of the instruments. Be sure to observe the polarity and excitation voltage value from the instrument.

2.1 For current output transmitters, refer to DRAWING 5.

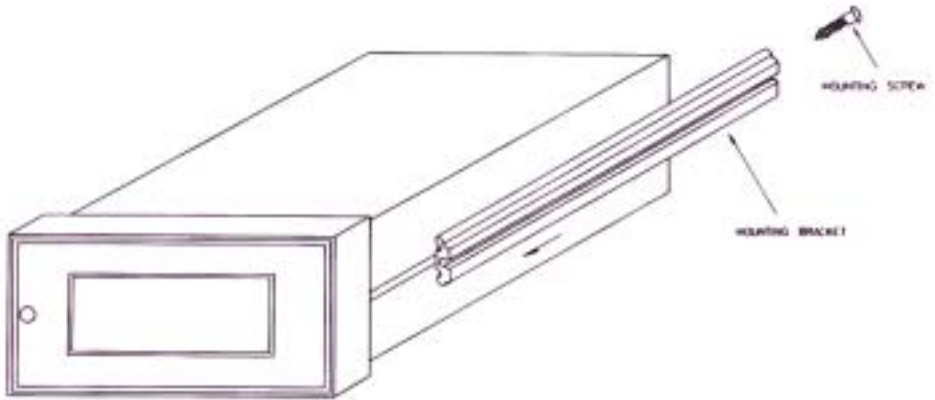
2.2 For voltage output transmitters, refer to DRAWING 6.

EARTH GROUND

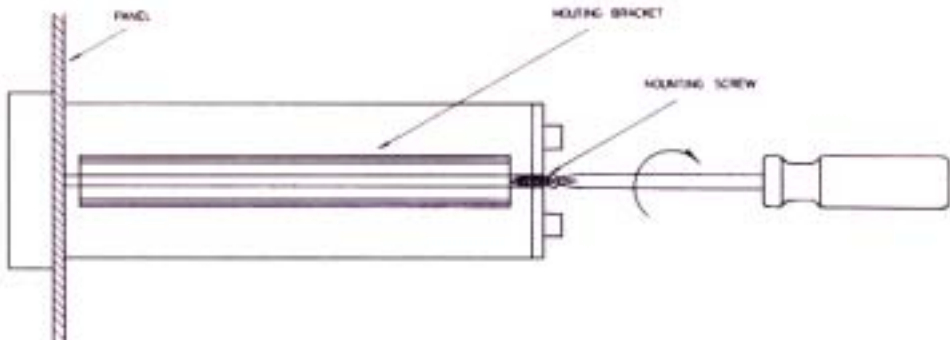
1. The EARTH terminal on the rear of the instrument **MUST** be connected to earth ground via the third lead of the power line. Refer to DRAWING 4.
2. If the third lead is not available, use a separate lead to connect the EARTH terminal to earth ground.
3. This safety procedure must be followed, to avoid possible human injury and the damage to other devices connected or in contact with the instrument, in the event of instrument failure.



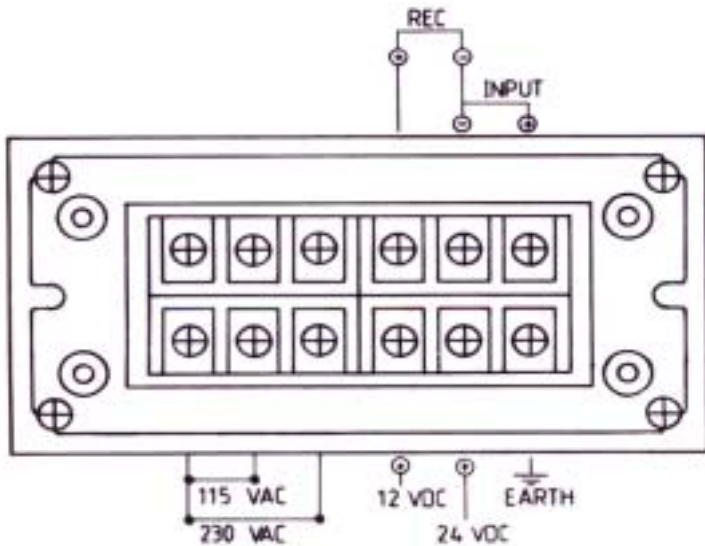
**Panel cutout
Drawing 1**



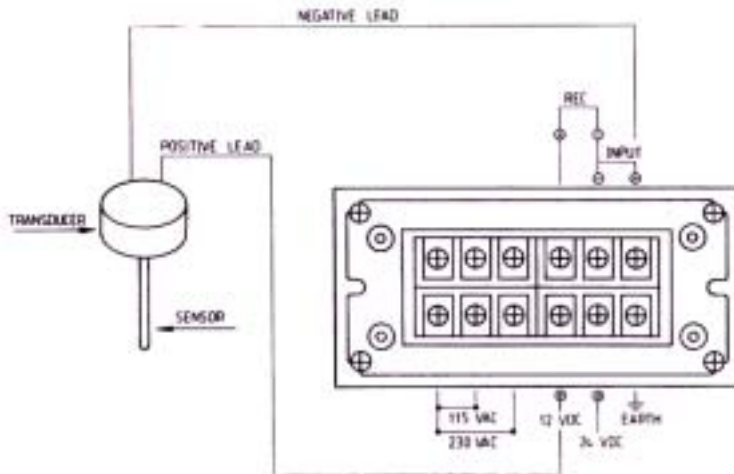
**Panel meter mounting bracket and screw
Drawing 2**



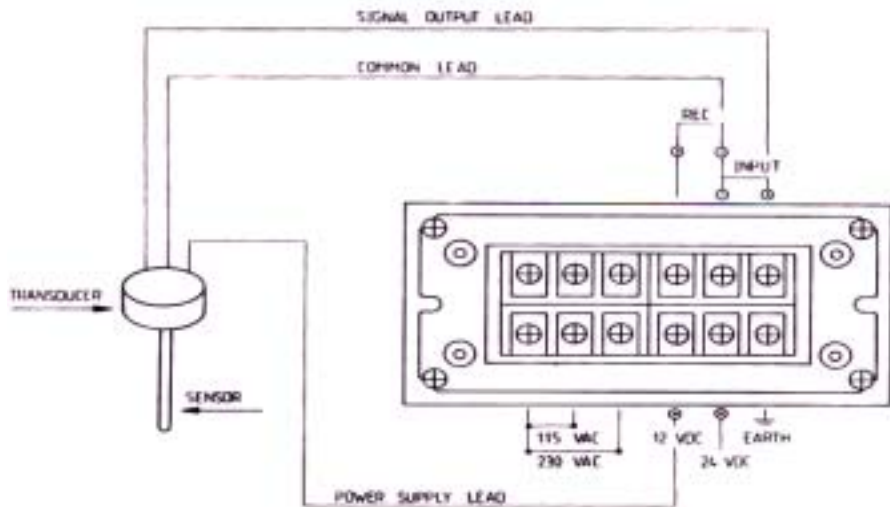
**Mounting method
Drawing 3**



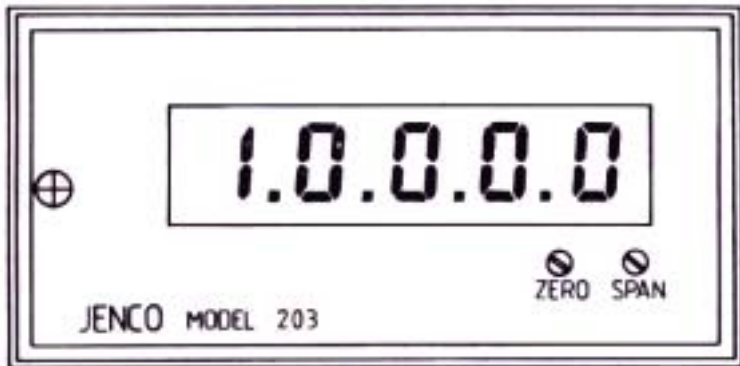
Rear panel output terminals Drawing 4



**Wiring scheme for current output transmitters
Drawing 5**



**Wiring scheme for voltage output transmitters
Drawing 6**



**Front panel diagram
Drawing 7**

SETTING UP THE INSTRUMENT

Refer to DIP switch DRAWING 8.

Loosen the screw on the front panel and the EARTH terminal on the rear panel. Remove the metal case to access the DIP switches.

1. Connect the transmitter output leads to the rear of the instrument. Refer to DRAWING 5 and DRAWING 6. Be sure to observe the polarity of the output leads.
2. Set one of the DIP switches SWA.1, SWA.2, SWA.3 to the ON position for the appropriate input. When all three switches are OFF the instrument is set. for DC voltage operations.
3. Set one of the ZERO DIP switches SWB.1 to SWB.6 to the ON position for the desired zero range. For none standard inputs, the DIP switches may

not match the DIP switch format as shown in DRAWING 8.

4. Set one of the SPAN DIP switches SWA.4, SWA.5, SWA.6, SWA.7 to the ON position for the desired SPAN range. For none standard inputs, the DIP switches may not match the DIP switch format as shown in DRAWING 8.

4.1 SPAN is defined as the absolute value of the maximum displayed value less the minimum displayed value. Decimal point and "dummy zero " is to be ignored.

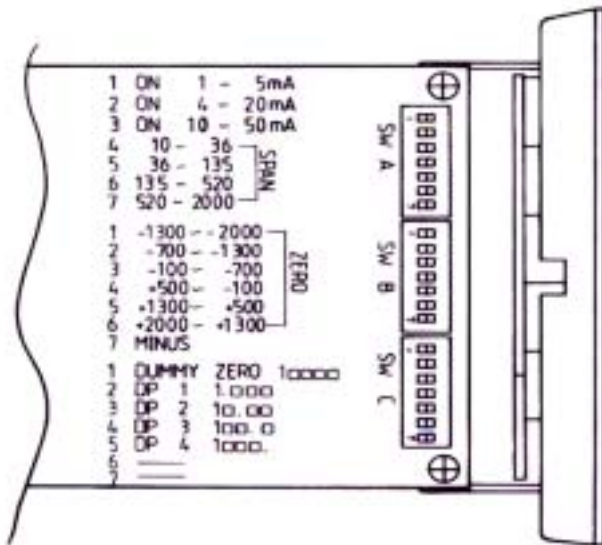
4.2 Example :

Desired displayed value for 4 mA input is -10.0X.

Desired displayed value for 20 mA input is 100.0X.

The SPAN is 1100.

The SPAN DIP switch SWA.7 is Lo be set to the ON position.



DIP switch format Drawing 8

5. Set one of the DIP switches SWC.2, SWC.3, SWC.4, SWC.5 to the ON position for the proper decimal point location.
6. Set DIP switch SWB.7 for the polarity of the display. Refer to page 2.
7. Set DIP switch SWC.1 to the ON position for the "dummy zero" to be ON.
8. Connect AC power to the instrument. Make sure to observe the AC line voltage. Refer to DRAWING 4.
9. The EARTH terminal, on the rear panel, must be connected to earth ground. Refer to page 4.

CALIBRATION PROCEDURES FOR DIFFERENT DISPLAY VALUES

1. Input a stable voltage or current source to simulate the minimum, ZERO, transmitter output.
2. Adjust the front panel ZERO control for the desired value. Refer to DRAWING 7.
3. Input a stable voltage or current source to simulate the maximum transmitter output.
4. Adjust the front panel SPAN control for the desired value.
5. Repeat 1 to 4 until both desired readings are obtained.
6. Check the values of the input signals and the DIP switch settings, if the desired readings can not be obtained.

ANALOG VOLTAGE OUTPUT

The analog voltage output can be used to interface with other devices such as recorders, printers, computer peripherals, etc.

Output voltage

1. 1 mV per LSD (Least significant digit). Ignore the decimal point and the "dummy zero".
2. Example :

The following is only correct when the polarity switch SWB.7 is in the OFF position. SWB.7 will change the polarity of the display but not the polarity of analog output voltage.

2.1 0 mV output for 0.000 displayed.

2.2 900 mV output for 90.OX displayed. X is the "dummy zero".

2.3 -1200 mV output for -120.0 displayed.

The following rules must be observed in order to avoid reading inaccuracies and possible damage to the instrument.

1. If any one of the transmitter leads is grounded, the interface device's circuit common must not be connected to earth ground.
2. The input impedance of the interface device must be greater than 1 K Ohm.
3. Make sure that the AC line voltage is never accidentally connected to the

analog output.

WARRANTY

Jenco Instruments, Ltd. Warrants this product to be free from significant deviations in material and workmanship for a period of 1 year from date of purchase. If repair or adjustment is necessary and has not been the result of abuse or misuse, within the year period, please return-freight-prepaid and the correction of the defect will be made without charge. If you purchased the item from our Jenco distributors and it is under warranty, please contact them to notify us of the situation. Jenco Service Department alone will determine if the product problem is due to deviations or customer misuse.

Out-of –warranty products will be repaired on a charge basis.

RETURN OF ITEMS

Authorization must be obtained from one of our representatives before returning items for any reason. When applying for authorization, please have the model and serial number handy, including data regarding the reason for return. For your protection, items must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Jenco will not be responsible for damage resulting from careless or insufficient packing. A fee will be charged on all unauthorized returns.

NOTE: Jenco Instruments, Inc reserves the right to make improvements in design, construction, and appearance of our products without notice.

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