Instruction Manual

Meter Relay Model NRW-80

I-2332-1/2

We thank you for your purchase of our model NRW-80 series meter relay. For safety use of this product, please observe the following caution. For proper operation of it, please also read the instructions to follow before the initial operation.

⚠ CAUTION	
To prevent electric shock, observe the following cautions: **◆ Never make power line connections with active lines.** **◆ Ensure firm and tight connections to the terminals.** **◆ Do not touch the power source terminals while the instrument is powered on.**	**To avoid electric shock, failure or abnormal heat-up of the instrument, do not use the instruments in such places where:** **◆ exposed to rain, water drops or direct sunlight.** **◆ high temperature or humidity, much dust or corrosive gas.** **◆ affected by external noise, radio waves or static electricity.** **◆ where there is constant vibration shock.**

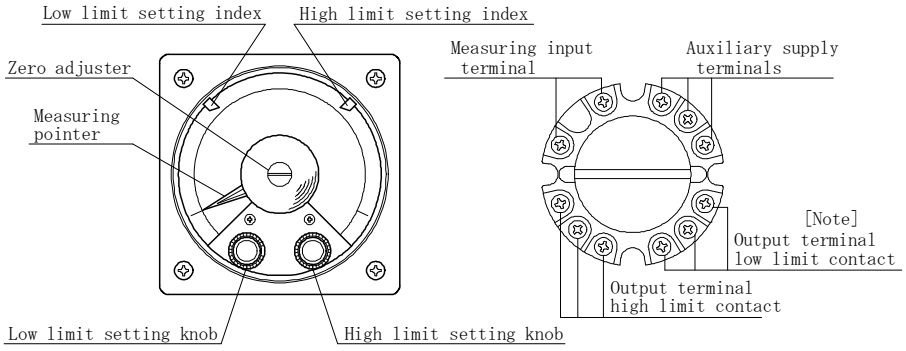
■ Check at Delivery

When the product is delivered to you, please check that its specifications conform to your requirement and that there is no damage in transit. This instrument is carefully inspected before delivery from factory under our strict quality control program, but if you find any defect or inconvenience, please inform us of the model name and serial number of the product, etc.

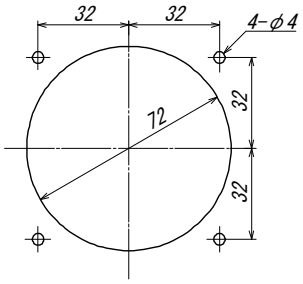
■ Cautions for Use

① This product is a precision instrument, so please take utmost care for transportation, installation or any other handling of it.
② No power on-off switch is provided on this product, so it immediately starts to operate when connected to the power source.
③ In case of fear that the external noise of surge may cause malfunction or breakdown of this instrument, it is necessary to take proper protective solution against noise.
④ In case of fear that this instrument suffers the surge voltage, ground one side of the measuring input terminals.
⑤ Use this product within the range or conditions conforming to its specifications and standard.

■ Name of Parts



■ Panel Cut-Out Dimensions



[Unit: mm]

Note:
In case that the model name is NRW-80H, no low limit setting lever, set point index bar, low limit display or contact output terminal is provided.

■ Installation

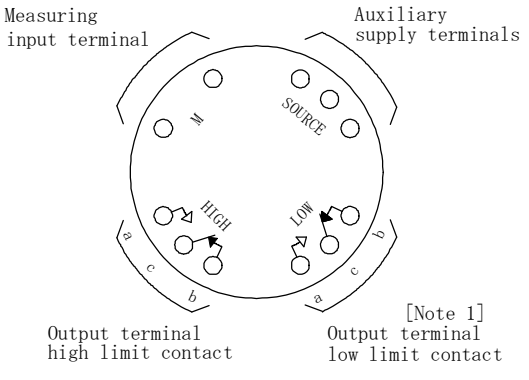
Insert the instrument from the front of the panel to install. And fasten them with the mounting screw to the pane

Optimum fastening torque: 0.36 to 0.48 N･m

■ Connections

Measuring input terminals of the instrument and,
the contact output and auxiliary supply terminals M3.
Make firm and correct connections with crimp type terminal.
Optimum torque of the terminal screws: 0.36 to 0.48 N･m

Note 1: In case that the model name is NRW-80H, no contact output terminals for the low limit is provided.

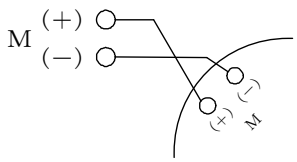


● **Measuring Input Terminals**

Arrange a cabling of measuring input line and power source line as distant as possible from each other. Close and parallel wiring of these two lines may cause unstable reading of the instrument.

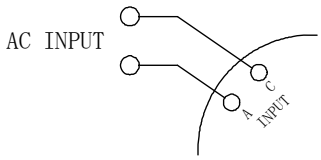
① DC Volt Meter , DC Current Meter , Receiving Meter

Connect the measuring input with correct polarity.
Use the particular accessory when it is designated.



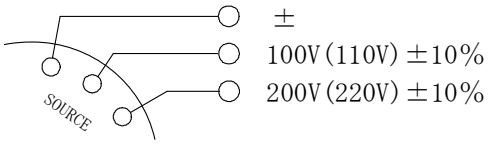
② AC Volt Meter , AC Current Meter

Connect the measuring input.
Use the particular accessory when it is designated.

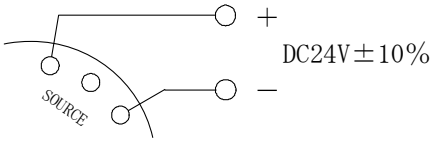


● **Auxiliary supply Terminals (SOURCE)**

① AC power source model
Connect the AC voltage to the respective terminals of auxiliary supply terminals (SOURCE).
AC100V power source voltage: Terminals ± and 100/110V
AC200V power source voltage: Terminals ± and 200/220V



② DC power source model
Connect the DV24V to the auxiliary supply terminals (SOURCE) with correct polarity.



● **High Limit (HIGH) and Low Limit (LOW) Contact Output Terminals**

The contact capacity of high and low limit contact output is, with resistive load: AC 250V 3A, or DC 30V 3A.
Make the connections with the cable conforming to these capacities. In case that the relay control with the capacity higher than these, provide the auxiliary relay externally.

■ Operation

① Prior to the operation of instrument, check that the input rate, auxiliary supply voltage and connections are correct.
② Before starting the measurement, check if the measuring pointer is accurately at zero (which is the point when the DC4mA or DC1V generated by a standard voltage/current generator is input to the input terminals, respectively when the rated input is DC4~20mA or DC1~5V). If there is a discrepancy at zero, adjust the pointer to indicate zero with the adjuster provided on the front of the instrument.
③ Turning the high (or low) limit setting knob, set the setting index at a desired point where the relay acts.
The setting index stops at slightly beyond the scaled range. If the setting knob is forcedly turned more, it causes a breakage, so take care with it.
④ While the instrument is powered on and when the measuring pointer exceeds the setting index (set point), the relay is actuated and, a-c turns ON (close) and c-b turns OFF (open).

■ Calibration

When the variable resistor for span adjustment is provided, calibrate the instrument at an interval of about one year in order to maintain a long-term accuracy. The calibration can be done with the zero-adjuster provided on the panel front and the variable resistor for span adjustment on the rear of the instrument. Make the calibration with the ambient condition of 23°C±5°C and 75%RH or less.

Contact Information

Name : Tsuruga Electric Corporation
Address : 1-3-23 Minami-Sumiyoshi, Sumiyoshi-ku, Osaka-shi 558-0041 Japan
Email : ft.info@tsuruga.co.jp

Instruction Manual

Meter Relay Model NRW-110

I-01427-1/3

We thank you for your purchase of our model NRW-110 series meter relay. For safety use of this product, please observe the following caution. For proper operation of it, please also read the instructions to follow before the initial operation.

⚠ CAUTION	
To prevent electric shock, observe the following cautions: **◆ Never make power line connections with active lines.** **◆ Ensure firm and tight connections to the terminals.** **◆ Do not touch the power source terminals while the instrument is powered on.**	**To avoid electric shock, failure or abnormal heat-up of the instrument, do not use the instruments in such places where:** **◆ exposed to rain, water drops or direct sunlight.** **◆ high temperature or humidity, much dust or corrosive gas.** **◆ affected by external noise, radio waves or static electricity.** **◆ where there is constant vibration shock.**

■ Check at Delivery

When the product is delivered to you, please check that its specifications conform to your requirement and that there is no damage in transit. This instrument is carefully inspected before delivery from factory under our strict quality control program, but if you find any defect or inconvenience, please inform us of the model name and serial number of the product, etc.

■ Cautions for Use

① This product is a precision instrument, so please take utmost care for transportation, installation or any other handling of it.

② No power on-off switch is provided on this product, so it immediately starts to operate when connected to the power source.

③ In order to retain relay output, a latching relay is used, so pleased pay attention to the following points.

Ⅰ. Apply the power source simultaneously at the time, or before, when a measuring input signal is applied. If the power source is applied after applied the measuring input signal, it may cause faulty operation.

Ⅱ. When turning off the power supply, do it after disconnecting the measuring input signal. If the power source voltage is turned off and then turned on again during the time when the relay output is remained, the relay output is retained wherever the measuring pointer locates.

Ⅲ. Even in case that the power supply is temporarily turned off due to black-out and so on, it may cause faulty operation mentioned at Ⅰ and Ⅱ above.

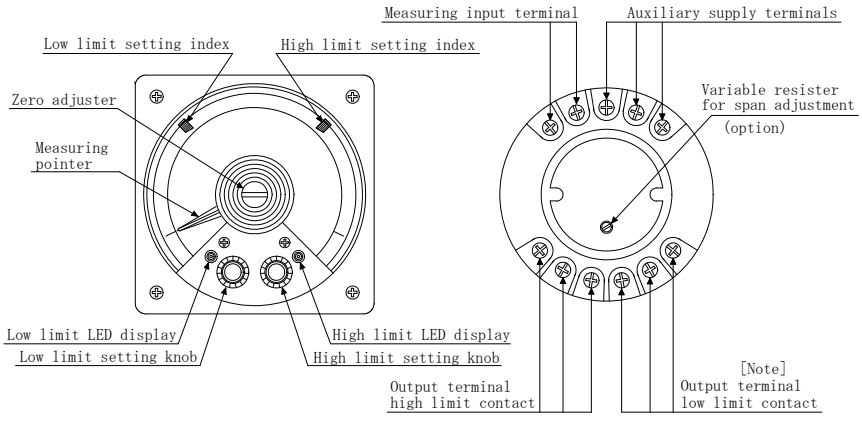
Ⅳ. In case of faulty operation, it can be solved by getting the setting index to cross the measuring pointer, turning the setting knob.

④ In case of fear that the external noise of surge may cause malfunction or breakdown of this instrument, it is necessary to take proper protective solution against noise.

⑤ In case of fear that this instrument suffers the surge voltage, ground one side of the measuring input terminals.

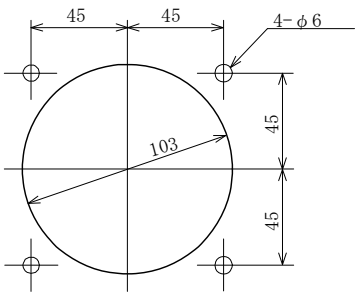
⑥ Use this product within the range or conditions conforming to its specifications and standard.

■ Name of Parts



Note:
In case that the model name is NRW-110H, no low limit setting lever, set point index bar ,low limit display or contact output terminal is provided.

■ Panel Cut-Out Dimensions



■ Installation

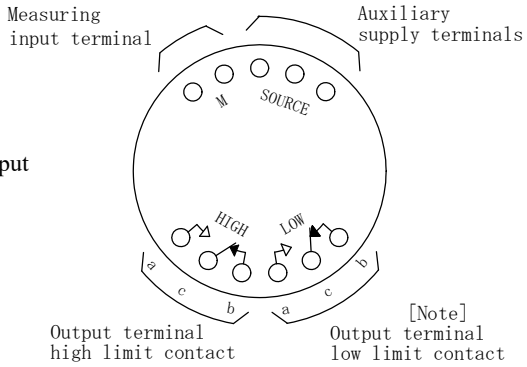
Insert the instrument from the front of the panel to install.And fasten them with the mounting screw to the pane

Optimum fastening torque : 1.59~2.16N・m

■ Connections

Measuring input terminals of the instrument and,
the contact output and auxiliary supply terminals M4.
Make firm and correct connections with crimp type terminal.
Optimum torque of the terminal screws: 0.74~0.88N・m

Note : In case that the model name is NRW-110H, no contact output terminals for the low limit is provided.

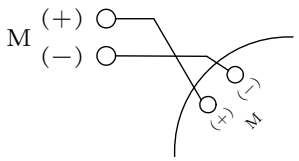


● Measuring Input Terminals

Arrange a cabling of measuring input line and power source line as distant as possible from each other. Close and parallel wiring of these two lines may cause unstable reading of the instrument.

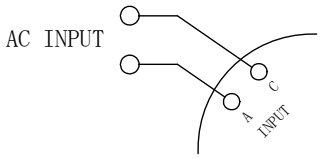
① DC Volt Meter , DC Current Meter , Receiving Meter

Connect the measuring input with correct polarity.
Use the particular accessory when it is designated.



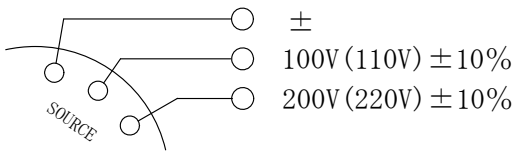
② AC Volt Meter , AC Current Meter

Connect the measuring input.
Use the particular accessory when it is designated.

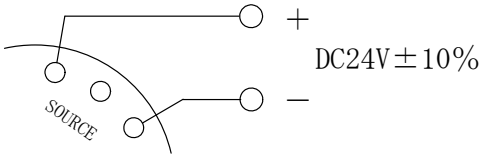


● Auxiliary supply Terminals

① AC power source model
Connect the AC voltage to the respective terminals of auxiliary supply terminals (SOURCE).
AC100V power source voltage: Terminals ± and 100/110V
AC200V power source voltage: Terminals ± and 200/220V



② DC power source model
Connect the DV24V to the auxiliary supply terminals (SOURCE) with correct polarity.



● High Limit (HIGH) and Low Limit (LOW) Contact Output Terminals

The contact capacity of high and low limit contact output is, with resistive load: AC250V, 3A or DC30V, 3A
Make the connections with the cable conforming to these capacities. In case that the relay control with the capacity higher than these, provide the auxiliary relay externally.

■ Operation

① Prior to the operation of instrument, check that the input rate, auxiliary supply voltage and connections are correct.

② Before starting the measurement, check if the measuring pointer is accurately at zero (which is the point when the DC4mA or DC1V generated by a standard voltage/current generator is input to the input terminals, respectively when the rated input is DC4~20mA or DC1~5V). If there is a discrepancy at zero, adjust the pointer to indicate zero with the adjuster provided on the front of the instrument.

③ Turning the high(or low) limit setting knob, set the setting index at a desired point where the relay acts.
The setting index stops at slightly beyond the scaled range. If the setting knob is forcedly turned more, it causes a breakage, so take care with it.
Note)
When the input impedance at the input rating DC1 ~ 5V with the specification more than 1 MΩ is inserted the auxiliary power with opened condition of input terminal, the measuring pointer indicates more than the upper limit of the scale.

④ While the instrument is powered on and when the measuring pointer exceeds the setting index (set point), the relay is actuated and, a-c turns ON (close) and c-b turns OFF (open).

■ Calibration

When the variable resistor for span adjustment is provided, calibrate the instrument at an interval of about one year in order to maintain a long term accuracy. The calibration can be done with the zero adjuster provided on the panel front and the variable resistor for span adjustment on the rear of the instrument. Make the calibration with the ambient condition of 23ºC±5ºC and 75%RH or less.

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