# Advancing Power Saving and Automation

## METER RELAY **2103, 2104**

Not CE Marked, Photo shows Model 2103HL

Not CE Marked, Photo shows Model 2104HL

- Ultra sensitive 1 μA, 10 mV DC movement
- Includes a display lamp to illuminate movement at a glance
- Relay action delays circuit closure upon power on
- Both power circuitry and relay built-in

**H-type: Lamp lights up and output relay contact operates at deflection of the needle to the right of the setting needle*

**L-type: Lamp lights up and output relay contact operates at deflection of the needle to the left of the setting needle*

**HL-type: Provides functionality of both H- and L-type models*

| Model No. (Order Code) | | |
|---|---|---|
| | **2103H** | (H type, upper-limit setting) |
| | **2103L** | (L type, lower-limit setting) |
| | **2103HL** | (HL type, upper/lower-limit setting) |
| | **2104H** | (H type, upper-limit setting) |
| | **2104L** | (H type, upper-limit setting) |
| | **2104HL** | (H type, upper-limit setting) |

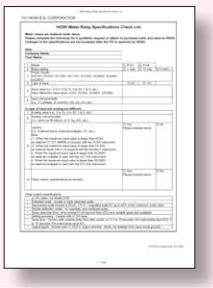
*• 2.5 % class, Panel size: 84 mm (3.31 in): 2103H, 2103L, 2103HL*
*• 1.5 % class, Panel size: 104 mm (4.09 in): 2104H, 2104L, 2104HL*

*Note: These products are built-to-order so please confirm specifications and delivery time with your local HIOKI distributor.*

### When considering the purchase of Meter Relays:

- A Product Guide describing the specifications as well as a Meter Relay Specifications Check List are available.
- Please contact your local Hioki distributor or sales subsidiary for more information.

The Product Guide is also available for download at www.hioki.com

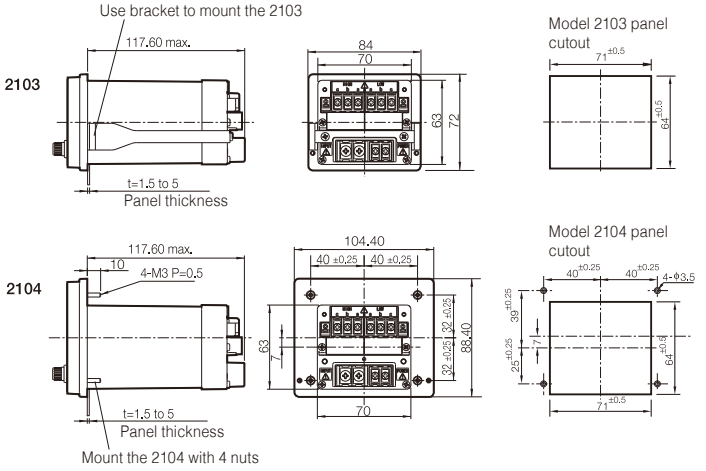
**Special Specifications**

- ±1.5% class: For Model 2103
- Extended scale: Double or triple extended scale
- Segmented scale: Magnified scale for up to 40 % of the maximum scale value, exclusive 4-20 mA scale model, or 1-5 V scale model
- Double deflection meter: For example, zero-centered scale
- Relay response time: Time constant 0.05 second fixed (DC) and variable types also available
- Delay time: Version with variable delay time after power on. 0.1 to 10 seconds: (for instruments input DC), 2 to 12 seconds: (for instruments input AC)
- Output signal: Version with 1 V DC /f.s. output terminal
  *Not isolated from input circuit ground.
- True RMS rectified with AC current meter, or AC voltage meter
- Specify a scale, or a unit

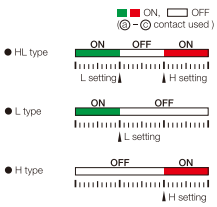
### ■ Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

| | |
|---|---|
| Indicator shape | φ 0.3 mm (0.01 in) pin |
| Accuracy class | [2103H/L/HL]: 2.5 %, [2104H/L/HL]: 1.5 % |
| Setting accuracy | Within 1.5 % of the full scale value (Independent of meter section) |
| Dead-zone width | Within 0.5 % of the scale length |
| Indicator operating range | Within the scale (passing indicator needle system) |
| Setting indicator (shape and color) | Spear shape<br>H indicator (upper-limit side): Red, L indicator (lower-limit side): Green |
| Setting indicator setting range | Within the all range of scale for both H and L |
| Minimum H/L space | Within 3 % of the scale length |
| Delay time from power on | Approx. 2 s |
| Relay contact structure | One transfer for both H and L |
| Relay output response | Approx. 0.5 s (time constant) |
| Max. current of relay contact | 5 A (Under condition of 250 V AC, 30 V DC, resistance load) |
| Power supply | 100 V/200 VAC (to be specified at the time of ordering) 50/60 Hz, 3 VA max. |

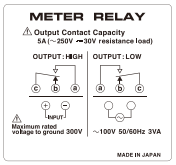
### ■ Dimensions




### ■ Contact operation




2103, 2104 (Rear view)
Terminal arrangement
(When power is OFF)




### ■ Standard scale graduations

| e.g. for full-scale value | Graduations | Guraduation illustration |
|---|---|---|
| 1, 10, 100 | 50 | 0 2 4 6 8 10 |
| 1.5, 15, 150 | 30 | 0 5 10 15 |
| 2, 20, 200 | 40 | 0 5 10 15 20 |
| 2.5, 25, 250 | 50 | 0 5 10 15 20 25 |
| 3, 30, 300 | 30 | 0 1 2 3 |
| 4, 8, 40 | 40 | 0 1 2 3 4 |
| 5, 50, 500 | 50 | 0 1 2 3 4 5 |
| 6, 60, 600 | 30 | 0 2 4 6 |
| 7.5, 75, 750 | 37.5 | 0 2 4 6 7.5 |

### ■ Standard Full-scale Values

| DC Ammeter | | DC Voltmeter | |
|---|---|---|---|
| Standard full-scale value | Meter sensitivity spec. | Standard full-scale value | Meter sensitivity spec. |
| 1 μA | | 10 mV | 100 kΩ/V |
| 10 μA | | 15 mV | 100 kΩ/V |
| 20 μA | | 30 mV | 100 kΩ/V |
| 50 μA | | 50 mV*1 | 100 kΩ/V |
| 100 μA | | 100 mV | 100 kΩ/V |
| 200 μA | | 150 mV | 100 kΩ/V |
| 500 μA | | 300 mV | 100 kΩ/V |
| 1 mA | | 500 mV | 10 kΩ/V |
| 2 mA | | 1 V | 10 kΩ/V |
| 5 mA | | 1.5 V | 10 kΩ/V |
| 10 mA | 50 mV | 3 V | 10 kΩ/V |
| 20 mA | | 5 V | 10 kΩ/V |
| 50 mA | | 10 V | 10 kΩ/V |
| 100 mA | | 15 V | 10 kΩ/V |
| 200 mA | | 30 V | 10 kΩ/V |
| 500 mA | | 50 V | 10 kΩ/V |
| 1 A | | 100 V | 10 kΩ/V |
| 2 A | | 150 V | 10 kΩ/V |
| 5 A | | 300 V | 10 kΩ/V |
| 10 A | | | |
| 20 A | | | |
| Full-scale: 4 - 20 mA | 50 mV | Full-scale: 1 - 5 V | 10 kΩ/V |

| Rectifying AC ammeter | | Rectifying AC voltmeter | |
|---|---|---|---|
| Standard full-scale value | Meter sensitivity spec. | Standard full-scale value | Meter sensitivity spec. |
| 200 μA | | 50 mV | 10 kΩ/V |
| 500 μA | | 100 mV | 10 kΩ/V |
| 1 mA | | 150 mV | 10 kΩ/V |
| 2 mA | | 300 mV | 10 kΩ/V |
| 5 mA | | 500 mV | 1 kΩ/V |
| 10 mA | | 1 V | 1 kΩ/V |
| 20 mA | | 1.5 V | 1 kΩ/V |
| 50 mA | 50 mV | 3 V | 1 kΩ/V |
| 100 mA | | 5 V | 1 kΩ/V |
| 200 mA | | 10 V | 1 kΩ/V |
| 500 mA | | 15 V | 1 kΩ/V |
| 1 A | | 30 V | 1 kΩ/V |
| 2 A | | 50 V | 1 kΩ/V |
| 3 A | | 100 V | 1 kΩ/V |
| 5 A*2 | | 150 V | 1 kΩ/V |
| | | 300 V | 1 kΩ/V |

*1. When the full-scale value is larger than 20 A DC, an external shunt device is used with the 50 mV instrument denoted by.
*2. When the full-scale value is larger than 5 A AC, an external CT is used with the 5 A instrument denoted by.