

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 μ A, 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) |

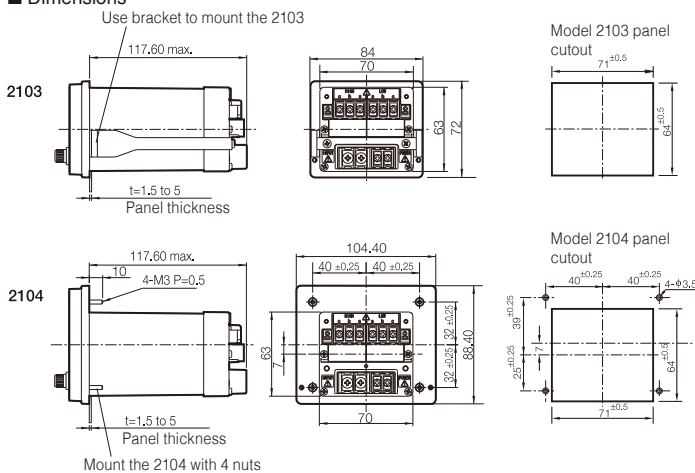
- 2.5 % class, Panel size: 84 mm (3.31 in): 2103H, 2103L, 2103HL
- 1.5 % class, Panel size: 104 mm (4.09 in): 2104H, 2104L, 2104HL

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

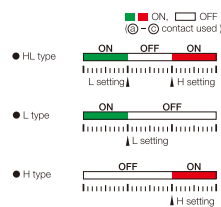
Basic specifications (Accuracy guaranteed for 1 year)

| | |
|-------------------------------------|---|
| 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 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



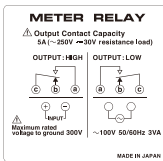
Contact operation



Standard scale graduations

| e.g. for full-scale value | Graduations | Graduation 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 |

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



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
- \pm 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

Standard Full-scale Values

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