

Analog Meter Relays

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

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	(L type, lower-limit setting)
	2104HL	(HL type, upper/lower-limit setting)

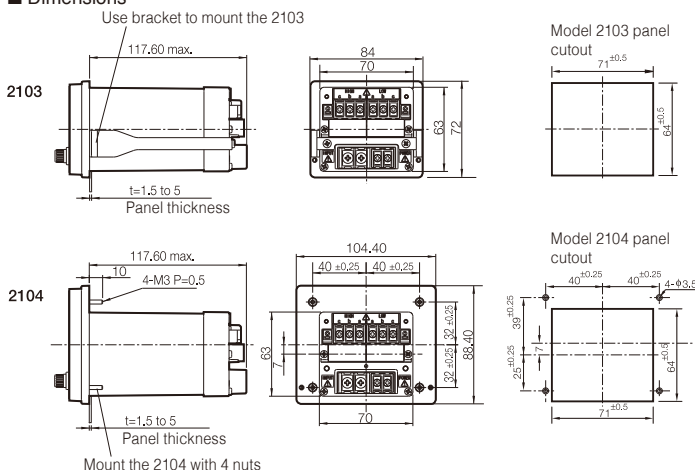
- 2.5 % class, Panel size: 84 mm (3.31 in): 2103H, 2103L, 2103HL
- 1.5 % class, Panel size: 104 mm (4.09 in): 2104H, 2104L, 2104HL

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

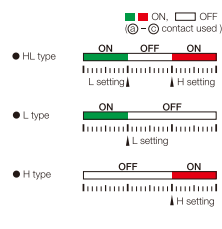
Basic specifications (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

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 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 (time constant)
Relay contact structure	One transfer for both H and L
Relay output response	Approx. 0.5 s
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.

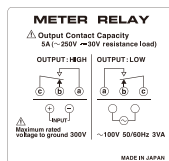
Dimensions



Contact operation



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



Standard scale graduations

e.g. for full-scale value	Graduations	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

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	50 mV	3 V	10 k Ω /V	500 mA	5 A*2	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							
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.