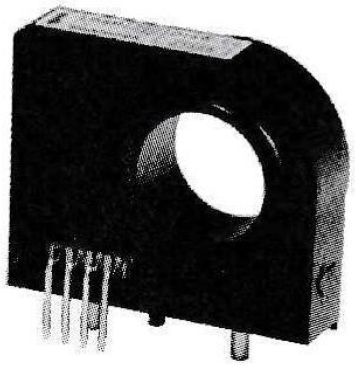
# L08P Series

# Application Manual



## Overview

The L08P series comprises "through-type and onboard" current sensors of the open-loop type.

## Characteristics

· Single ±5V power supply.
· Through-type measured current.
· Open-loop-type circuit configuration.
· Onboard type
· Wide range of rated current, 100A ~ 300A.
· The rated output voltage corresponding to the rated current is high (±4.0V), and high S/N ratio can be achieved.
· The reference point of the output voltage is GND (0V).
· The offset voltage with respect to the rated output voltage is small (±0.75%).

## Uses

· General-purpose inverter
· Motor drive
· DCDC converter
· Generator
· UPS

## Format 1

L08 P 100 D 15 IPV

- IPV: Special symbol　Version symbol
- 15: Power-supply voltage 15: ±15V
- D: Power-supply type D: Dual power supply
- 100: Rated current 100: 100A
- P: Onboard type
- L08: Series name

## Format 2

L08 P 200 D 15 W

- W: Special symbol W: Increased saturation current
- 15: Power-supply voltage 15: ±15V
- D: Power-supply type D: Dual power supply
- 200: Rated current 200: 200A
- P: Onboard type
- L08: Series name

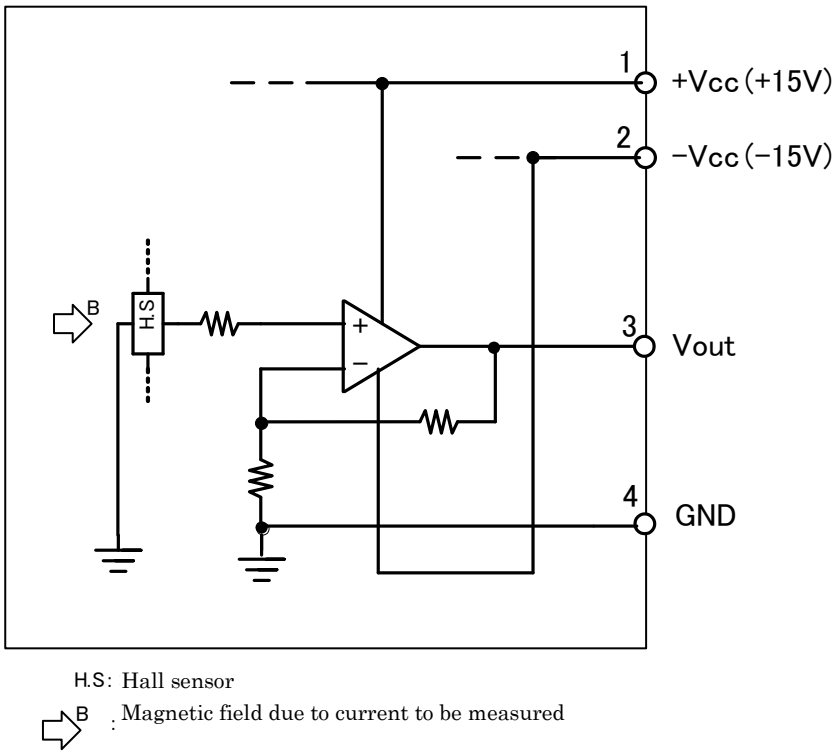
## Format 3

L08 P 300 D 15 IPV W

- W: Special symbol W: Increased saturation current
- IPV: Special symbol　Version symbol
- 15: Power-supply voltage 15: ±15V
- D: Power-supply type D: Dual power supply
- 300: Rated current: 300A
- P: Onboard type
- L08: Series name

## Block diagram

L08P100D15IPV
L08P200D15W
L08P300D15IPVW




H.S: Hall sensor
B : Magnetic field due to current to be measured

Fig. 1: Internal block diagram

Table 1: Description of terminals

| Terminal number | Terminal name | Description | Remarks |
|---|---|---|---|
| 1 | +Vcc | Plus power-supply terminal (+15V) | |
| 2 | −Vcc | Minus power-supply terminal (–15V) | |
| 3 | Vout | Output terminal<br>When the rated current If flows through the through hole, the output voltage is 4.0V.<br>Standard load resistance: 10 kΩ. | |
| 4 | GND | GND terminal | |

## ■ Example of circuit

Standard circuit

L08P100D15IPV
L08P200D15W
L08P300D15IPVW

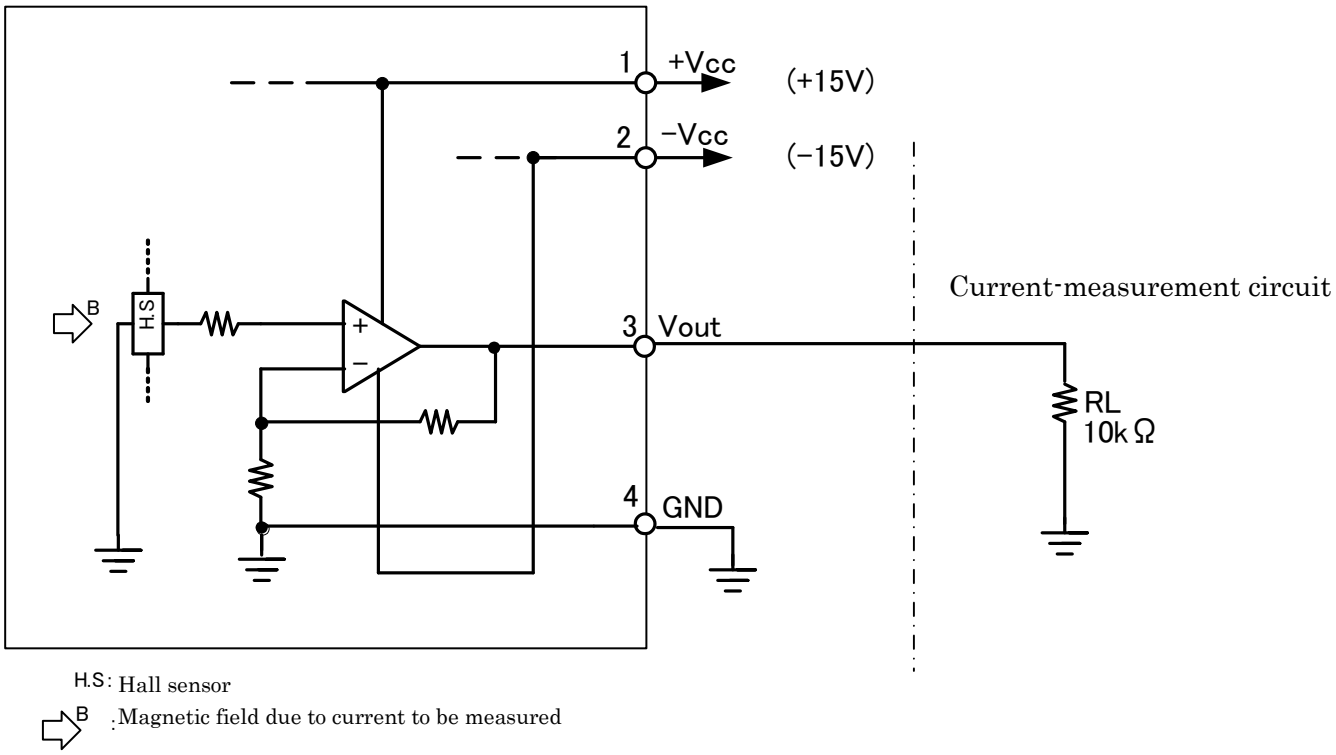



Fig. 2: Standard circuit

☐Description of Fig. 2

This current sensor converts a measured current into a voltage. The output voltage Vout (3) in Fig. 2 is output on the basis of the GND voltage (Vref).

The relationship between Vout (3) and the current to be measured for each model number is shown in graphs 1 to 3 at the end of this document. Graphs 1 to 3 represent the standard values, and the effects of offset voltage, hysteresis errors, etc., are not included. The plus direction of the current to be measured is indicated by → on the chassis (case or nameplate).

10 kΩ in Fig. 2 is the equivalent resistance of the receiving circuit of the current sensor output Vout (3). The load resistance between the Vout terminal (3) and the GND potential (0V) is used the standard value of 10 kΩ.

## Circuit for setting the reference voltage to 2.5V

L08P100D15IPV
L08P200D15W
L08P300D15IPVW

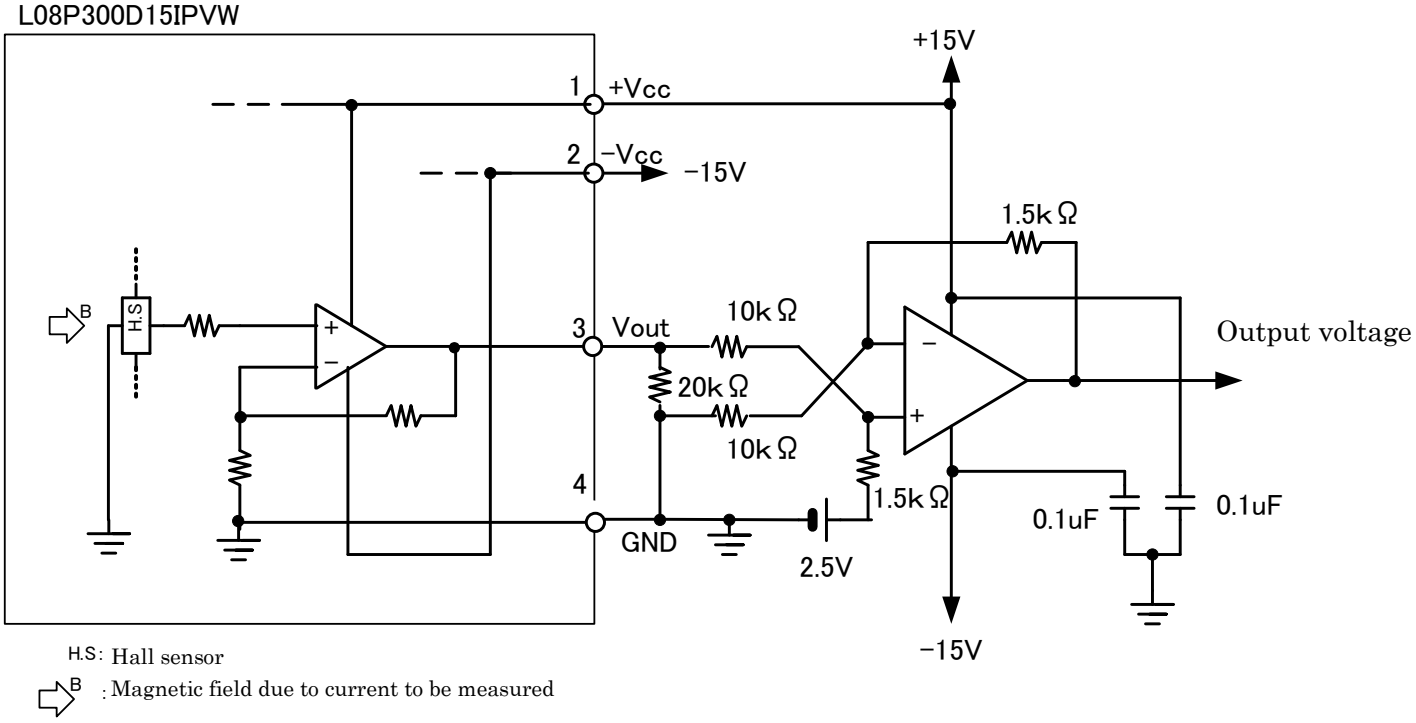


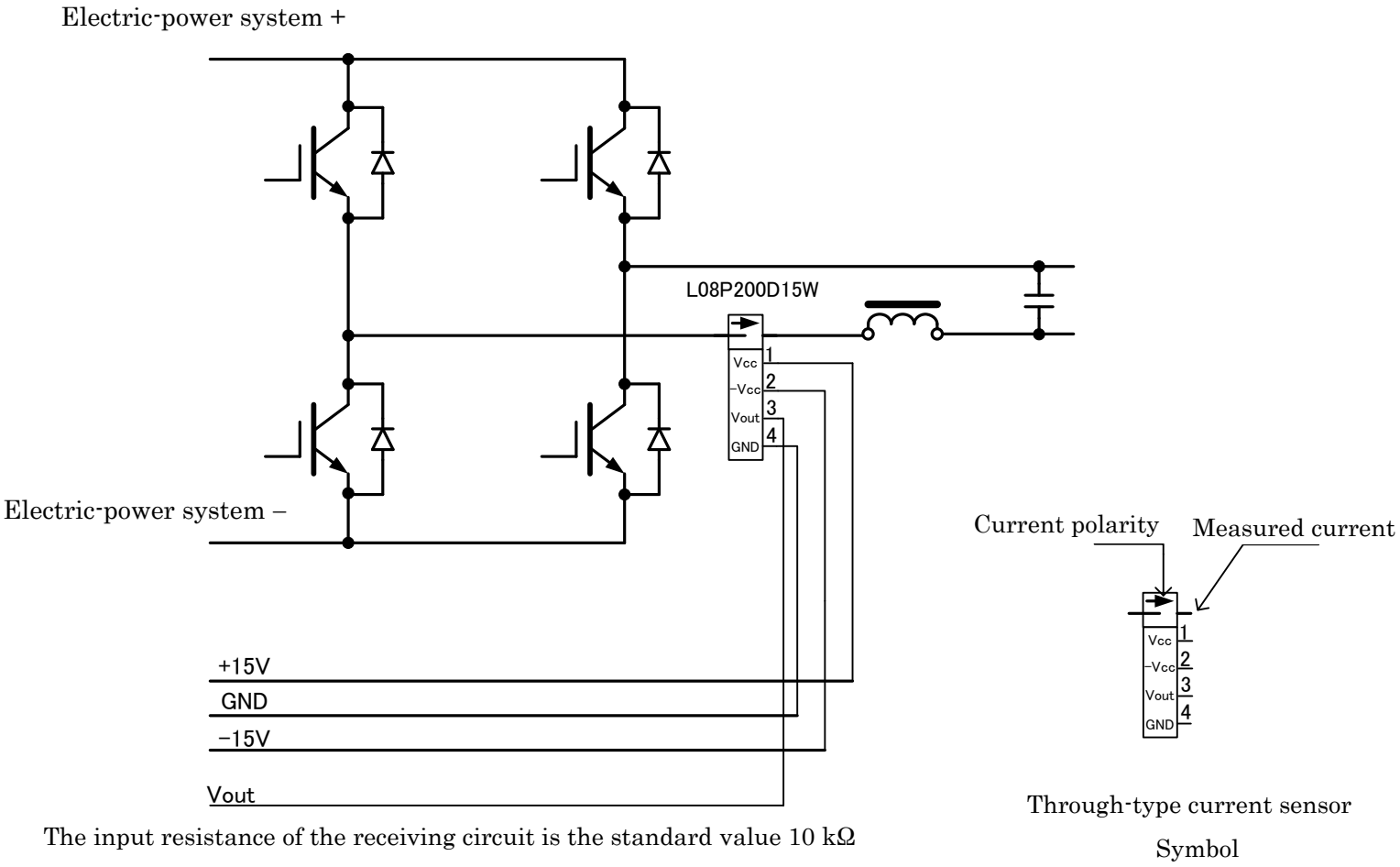

Fig. 3: Circuit for setting the reference voltage to 2.5V

□ Description of Fig. 3

In this example, the reference value of the output voltage of the current sensor is converted from GND (0V) to the "+2.5V reference". This circuit is to be used for converting the reference voltage of the receiving circuit of the current detection signal to +2.5V from GND. When the current to be measured is 0A, the output voltage is 2.5V. When the rated current is detected, the output voltage is 0.6V + 2.5V = 3.1V. On the other hand, if the rated current is detected in the minus direction, the output voltage becomes –0.6V + 2.5V = 1.9V.

The relationship between detected current and output voltage for each model number is shown in Graphs 4 to 6 at the end of this document.

## Application circuit




The input resistance of the receiving circuit is the standard value 10 kΩ

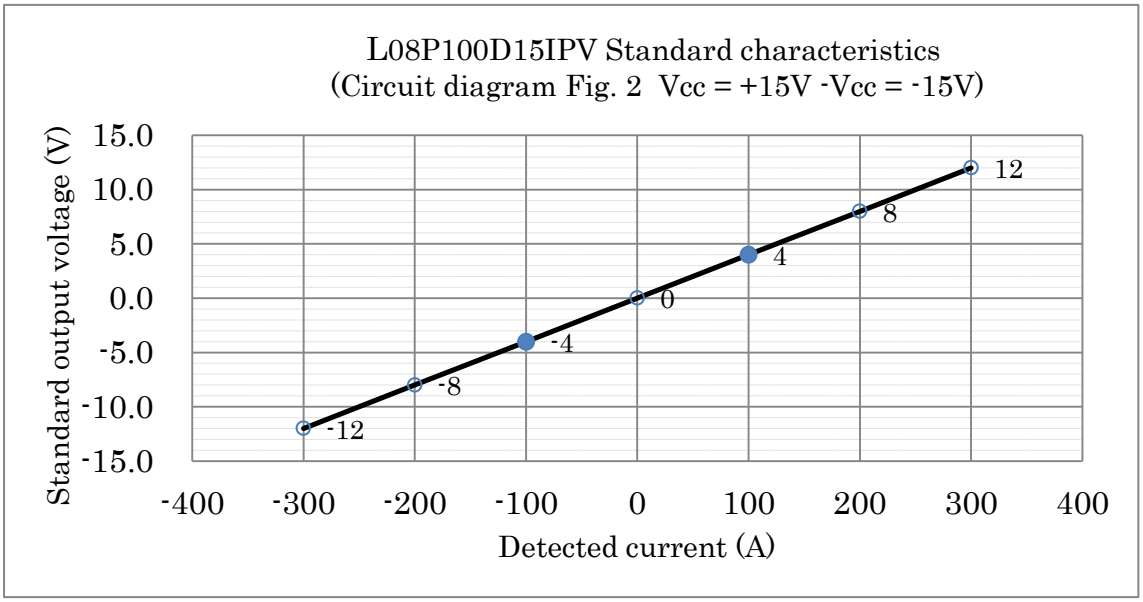
Fig. 4: Application to inverter circuits

## ■Implementation

Example of pattern design

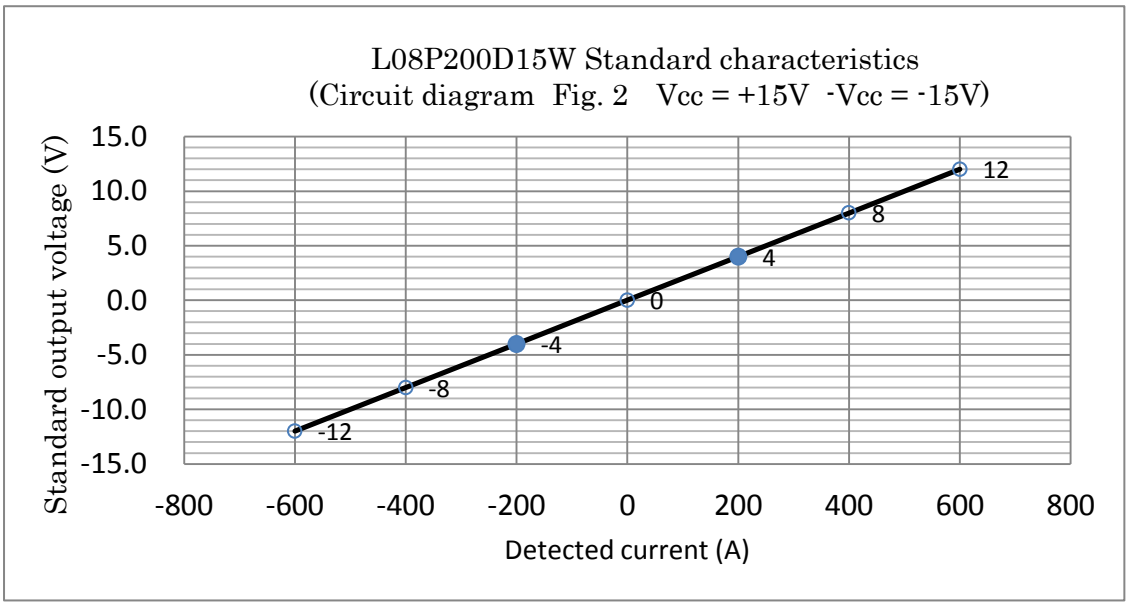
Example of bus bar design

Graph 1



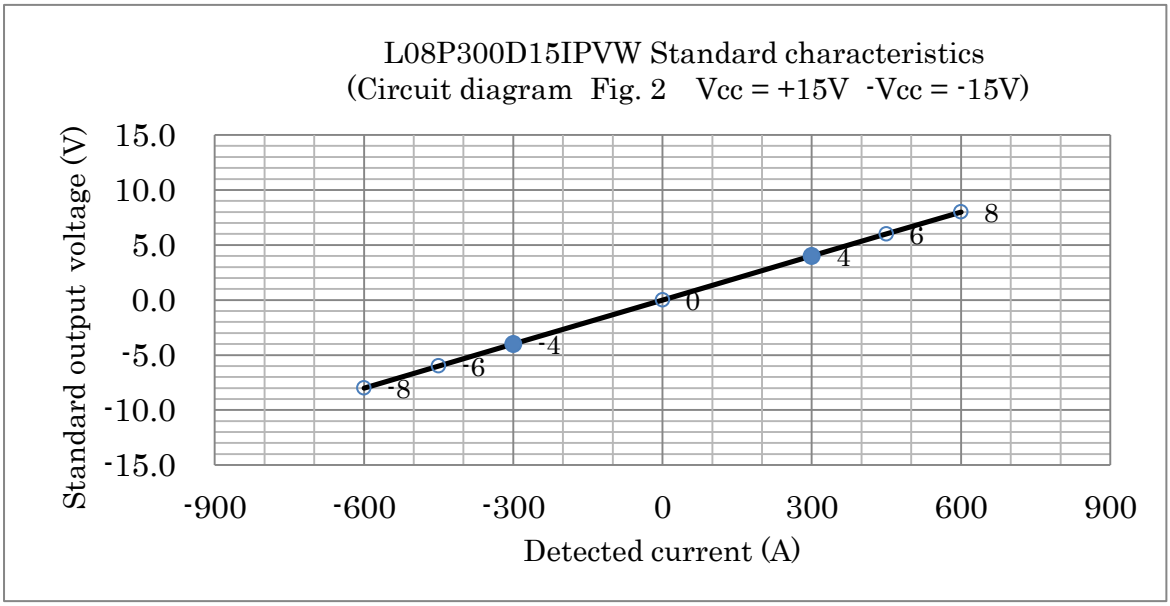

* ●: The standard output voltage of the sensor versus the rated current.

Graph 2



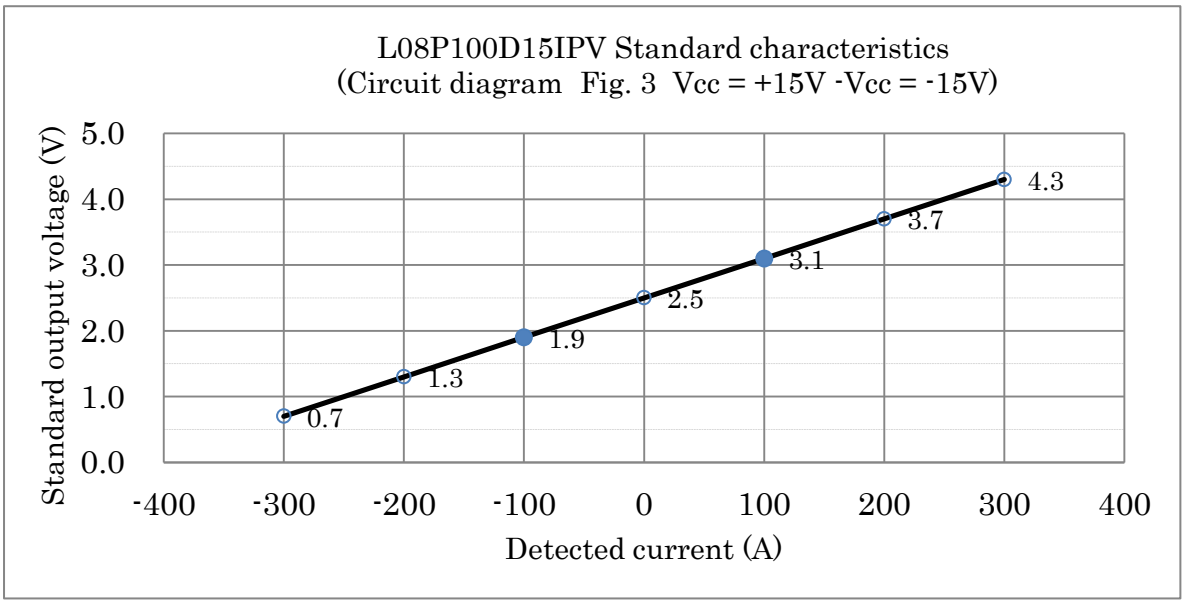

* ●: The standard output voltage of the sensor versus the rated current.

Graph 3



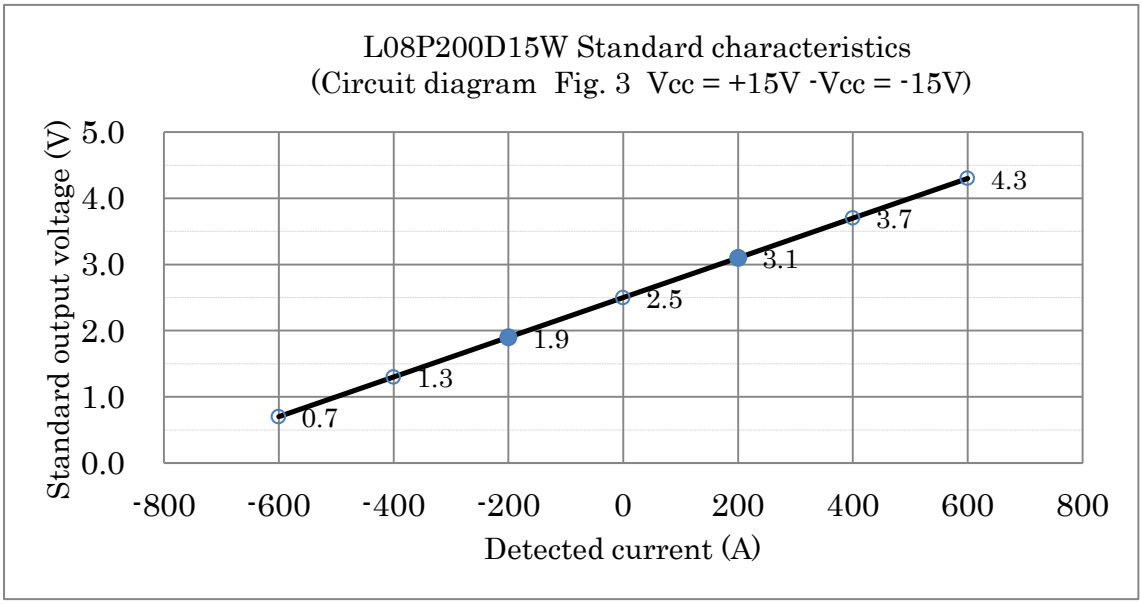

* ●: The standard output voltage of the sensor versus the rated current.

Graph 4




* ●: The standard output voltage of the sensor versus the rated current.

Graph 5




* ●: The standard output voltage of the sensor versus the rated current.

Graph 6