

# Servo type DC current sensor

## Zero flux type for high frequency bandwidth and precision measurement

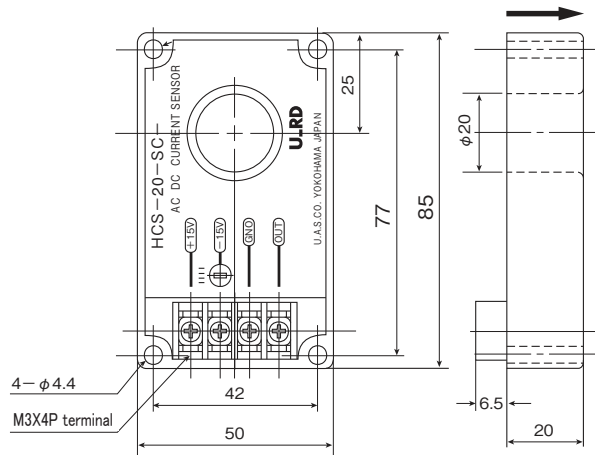


**Model** HCS-20-SC series

**[Features]**

- Zero flux type current sensor composed by core, hall element, and feedback coil
- High reliability with sensor and amplifier integral structure
- Excellent linearity with wide bandwidth DC ~ 500kHz
- High speed response within 1.5  $\mu$  s

**[Outline drawing]**



This product needs  $\pm 15V$  (+15V and -15V DC bi-polar power supply) as control power supply. Even though the case of current detection of only plus direction,  $\pm 15V$  needs. In any case, it is not operated with only +15V.

Dedicated metal part (HLD-20) is prepared as separately selling for vertical mounting.

**[Specification]**

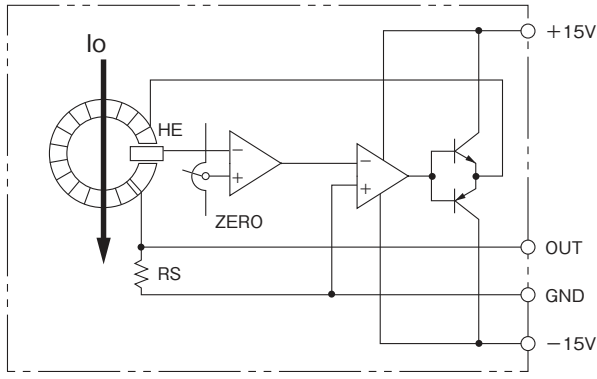
Model	HCS-20-SC-A-2.5	HCS-20-SC-A-5	HCS-20-SC-A-10	HCS-20-SC-A-15	HCS-20-SC-A-25
Rating current (FS)	$\pm 25A_{dc}$ or Aac peak	$\pm 50A_{dc}$ or Aac peak	$\pm 100A_{dc}$ or Aac peak	$\pm 150A_{dc}$ or Aac peak	$\pm 250A_{dc}$ or Aac peak
Maximum current	100A <sub>dc</sub> or Aac peak (1s)	200A <sub>dc</sub> or Aac peak (1s)	400A <sub>dc</sub> or Aac peak (1s)	600A <sub>dc</sub> or Aac peak (1s)	1000A <sub>dc</sub> or Aac peak (1s)
Output voltage	$\pm 5V$ /Rating current				
Residual voltage	Within $\pm 100mV$	Within $\pm 50mV$	Within $\pm 20mV$	Within $\pm 20mV$	Within $\pm 8mV$
Noise level	Less than 50mV <sub>p-p</sub>	Less than 30mV <sub>p-p</sub>	Less than 15mV <sub>p-p</sub>	Less than 10mV <sub>p-p</sub>	Less than 5mV <sub>p-p</sub>
Accuracy	Within $\pm 1\%$ FS				
Linearity	Within $\pm 1\%$ FS ( $I_o=1/10FS \sim FS$ )				
Hysteresis(FS→0)	Within $\pm 10mV$				
Response time	1.5 $\mu$ s 以下 ( $di/dt = 50A/\mu s$ 時)				
Output voltage temperature coefficient	$\pm 0.02\%$ / $^{\circ}C$ typ				
Residual voltage temperature coefficient	$\pm 10mV/^{\circ}C$ typ	$\pm 6mV/^{\circ}C$ typ	$\pm 3mV/^{\circ}C$ typ	$\pm 2mV/^{\circ}C$ typ	$\pm 1mV/^{\circ}C$ typ
Power supply	Voltage	DC $\pm 15V \pm 5\%$			
	Current consumption	$\pm 50mA + (\text{primary current} / 2000)$			
Withstand voltage	AC2000V(50/60Hz), 1min (Aperture-output terminal in a lump)				
Insulation resistance	DC500V, $\geq 500M \Omega$ (Aperture-output terminal in a lump)				
Operating temperature	$-10^{\circ}C \sim +60^{\circ}C$ , $\leq 85\%RH$ , no condensation				
Storage temperature	$-15^{\circ}C \sim +65^{\circ}C$ , $\leq 85\%RH$ , no condensation				
Internal adjustment function	Calibration for zero point with zero load (Calibrated at the time of delivery)				
Screw torque	M4 : 0.7N · m、M3 : 0.3N · m				
Mass	approximately 130g				

**[Remark]** (1) After overcurrent more than rating current, offset drift occur by proportional to that current, with hysteresis of core.  
 (2) Over current capacity is based on DC current without high speed ON-OFF. Please ask separately in the case of current waveform with high speed change

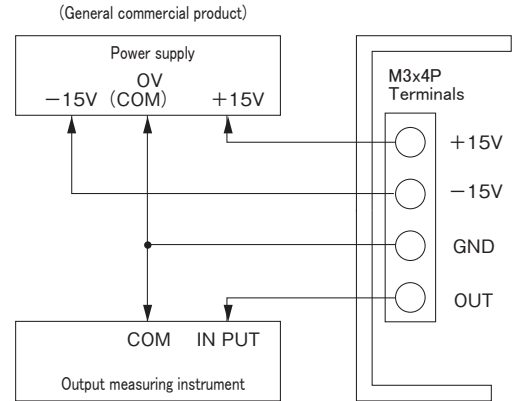
Ta=25°C

HCS-20-SC series typical characteristic (HCS-20-SC-A-2.5)

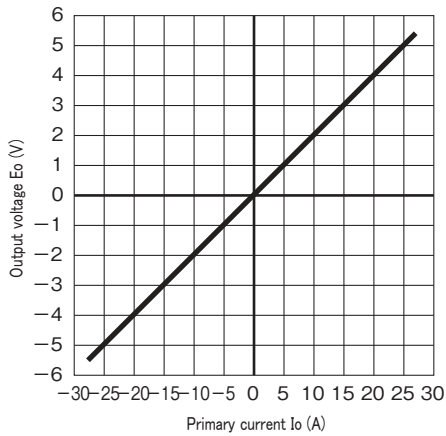
[Circuit diagram]



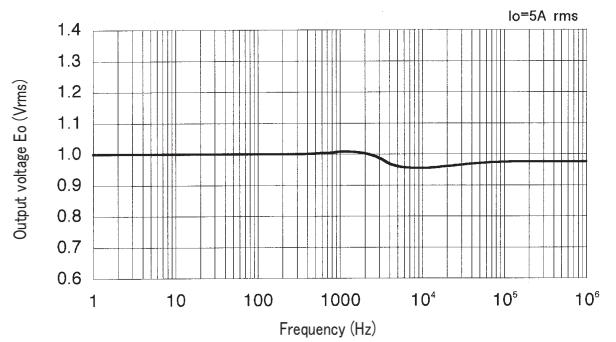
[Connection]



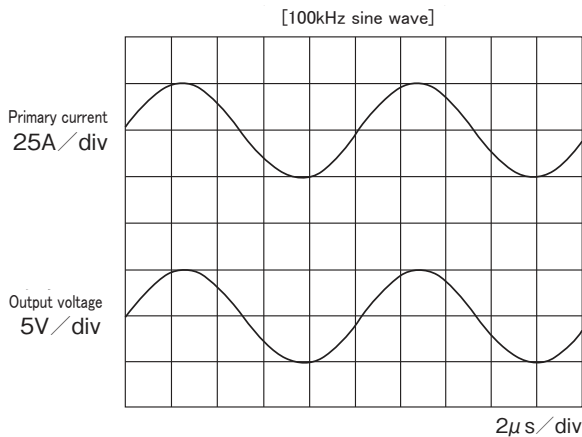
[Output voltage characteristic]



[Frequency characteristic]



[Output waveform] -1



[Output waveform] -2

