

The ISB series of contactless current sensors is a custom ASIC based hall effect device designed to operate without the need for the core and winding commonly used in current sensors. The current sensors can be applied in a wide range of bus bar applications with currents ranging from 38 A up to over 678 A. The devices feature low insertion loss, high isolation, fast response, wide bandwidth (0-90 kHz), small size and easy assembly. Programmable features include output type, output filters, customizable current range and end of line calibration.

The simplified design consists of a custom ASIC/ Hall Effect device, PCB assembly, shield and a mechanical package to integrate the component parts. The packaging features 8 mm creepage and a method for consistent and accurate buss bar mounting that is important to overall accuracy. The hall effect device utilizes an integrated magnetic concentrator that enables the use of a much smaller shield than typical. The shield provides EMI immunity and acts as a core to create a homogenous flux field at the magnetic concentrator. This simplified design reduces overall costs while offering a host of software changeable options for the design engineer.

The design enables a lower cost than traditional current sensors while offering performance between open loop and closed loop designs. Performance features include an 8 μ Sec response time, up to a 90 kHz bandwidth and high accuracy with end of line calibration.

The design utilizes the power of the custom ASIC to enable many software controllable options. The design engineer has the choice of a fast analog, PWM or digital (on/off) output. The current range is programmable at the factory. There are programmable filters available in addition to other options.

Two option series are available. The 601 series features a 2.5 V reference output helpful when using an op-amp on the output. The 800 series features a 3 μ Sec response time good for a 300 kHz bandwidth operation.

General Specifications

Primary Current Range:	38A - 678 A
Supply Voltage:	5 V
Secondary Output Voltage:	Ratiometric
Output at Max Current:	4.5 V
Output at Min Current:	0.5 V
Output at 0 Current:	2.5 V
Output Current:	+/- 2 mA
Response Time:	8 μ Sec

Accuracy

Accuracy @ 25°C w/ DC Offset:	<= 1 %
Accuracy @ 25°C w/o DC Offset:	<= 0.5 %
Linearity Error:	<= 0.1 %

General Data

Ambient Operating Temp.:	-40 to +85 °C
Ambient Storage Temp.:	-40 to +90 °C
AC Isolation Voltage:	4.3 kV rms
Creepage Distance:	8.5 mm