The i50s current probe has been designed for use with oscilloscopes for accurate, non-intrusive measurement of ac, dc and complex waveform currents. Using advanced Hall effect technology the i50s can accurately measure current over a frequency range of dc to 50 MHz.

With exceptional immunity to high common mode voltages (\(dv/dt= 5 \text{ kV/µS}\)) the i50s is ideal for use by electronic design engineers in development and diagnosis of switch mode power supplies, UPS systems, and motor control systems.

**Electrical specifications**

**Nominal current \((In)\):** 3A and 30A dc or ac rms

**Measuring range (duration <10 sec):** I max

\[\pm 50 \text{ A pk}\]

**Output sensitivity:**

- Low range: \(1 \text{ V/A (1 MΩ)}\)
- High range: \(100 \text{ mV/A (1 MΩ)}\)

**Overall accuracy (dc to 100 Hz at 25 °C):**

\[\pm 0.5 \% \text{ at } In \text{ typical}\]

\[\pm 1.5 \% \text{ at } I \text{ max}\]

**Gain variation (max):** \(\pm 0.04 \% \text{ of rdg/°C}\)

**Step response:** See Figure 1

**Frequency response:** See Figure 2

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**Figure 1.** Step response.

**Figure 2.** Frequency response.
**Insertion impedance (ZI):** See Figure 3
- < 0.1 \( \Omega \) up to 10 MHz
- < 0.4 \( \Omega \) 10 MHz to 50 MHz

**External magnetic field rejection rate:** 60 dB (ac and dc)

**Rejection rate of fast \( \text{d}V/\text{d}t \) at 5 kV/\( \mu \text{s} \):** < 15 mA

**Output noise level (RMS) (measured with a filter at 25 MHz):** 1 mA

**Output noise level (pk to pk) (measured with a filter at 25 MHz):** 9 mA

**Dynamic specifications**

**Bandwidth:** DC to 50 MHz (-3 dB)

**Frequency derating (see Figure 4):** 10 A at 10 MHz

**Rise time (10% to 90%):** \( \text{tr} < 7 \text{ns} \)

**Delay time:** \( \text{td} < 25 \text{ ns} \)

**Overshoot:** < 5% of reading

**General specifications**

**Aperture dimensions:** 5 mm x 5 mm (0.2 in x 0.2 in)

**Max primary conductor temp:** 60 \( ^\circ \text{C} \) (140 \( ^\circ \text{F} \))

**Dielectric withstand:** 1350 V rms/50 Hz/1 min

**Working voltage:**
- 300 V rms or dc (CAT I)
- 150 V rms or dc (CAT II)

**Operating temperature:**
- 0 \( ^\circ \text{C} \) to + 40 \( ^\circ \text{C} \) (32 \( ^\circ \text{F} \) to 104 \( ^\circ \text{F} \))

**Storage temperature:** -10 \( ^\circ \text{C} \) to + 60 \( ^\circ \text{C} \) (14 \( ^\circ \text{F} \) to 140 \( ^\circ \text{F} \))

**Maximum altitude:** 2000 m (6600 ft)

**Maximum relative humidity:** 80%, 31 \( ^\circ \text{C} \) (87 \( ^\circ \text{F} \))

**Environment:** indoor use only

**External power supply:** ± 12 V ± 0.5 V

**Current consumption at nominal:** 30 A 550 mA

**Current consumption during demagnetization:** 1.3 A (for 6 sec)

**Output cable length:** 2 m (6.6 ft)

**Dimensions [LxWxH]:** 191.1 mm x 28.9 mm x 40.5 mm (7.53 in x 1.14 in x 1.59 in)

**Weight:** 400 g (0.88 lb)

**Safety standards**

- EN 61010-1: 2001
- EN 61010-2-032: 2002
- EN 61010-031: 2002

300 V rms, Category I, Pollution Degree 1

Use of the probe on uninsulated conductors is limited to 300 V ac rms or dc and frequencies below 1 kHz.

**EMC standards**

- EN 61326: 1998 +A1, A2 and A3

Optional Bench Power supply PSi50s

**Universal Bench Power Supply**

**Operating voltage:** 115 V/230 V ac

44 Hz to 66 Hz with manual selector

**Dual outputs:** Supply two i50s current probes ± 12 V dc, 550 mA nominal per channel

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**Ordering information**

- i50s Current Probe
- PSi50s Bench Power Supply for i50s

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Printed in U.S.A. 5/2007 3039145 D-EN-N Rev A