

Current Probe

A very compact, very fast, tightly calibrated 2000A current sensing probe

The Raztec PROBE sensor is a compact, high current, open loop current sensor, capable of operating under high overload and ambient temperature conditions.

It is specifically designed for use in applications where small size is critical, and current is to be measured economically. It mounts through a 6.5mm diameter hole in the current carrying bus bar.

The sensor incorporates two Hall effect magnetic field sensors arranged to give a differential output which greatly improves the sensor's immunity to common mode effects. The signals are summed by an internal amplifier referenced to a half-rail referenced signal.

This particular very high-speed version of the PROBE incorporates hybrid technology to assure excellent speed of response for the fast detection of fault current transients. Electrostatic screening is employed to reduce noise from high voltage switching transients and nearby current carrying conductors.

This version of the sensor is optimized for linearity over the entire current range. There is also negligible hysteresis which makes current sensing over a wide dynamic range practical.

It is rated for common automotive temperature ranges with very stable performance parameters that set a new benchmark for open-loop current sensors.

The PROBE is configurable for a wide range of bus-bar sizes and current ratings.

Maximum Ratings (TA = 25 °C)

Parameter	Symbol	Value	Unit
Operating temperature	T _A	-40 to +100 ¹	°C
Storage temperature	T _{stg}	-65 to +115 ¹	°C
Supply voltage	V _s	6	V
Output sinking current	I _o	10	mA

1. Higher temperature rating available on request



RAZP-2000

Characteristics

($T_A = 25^\circ\text{C}$ unless stated, $V_S = 5\text{V}$)

Parameter	Symbol	Lower Limit	Typical	Upper Limit	Unit
Supply current	I_s		25		mA
Supply voltage	V_s	4.5	5.0	5.5	V
RMS isolation test voltage (1 minute)	V_d	2			kV
Normal operating current range **	I_n	± 2000			A
Null output	V_o	2.49	2.50	2.51	V
Transfer function (25°C 700A)***	$\Delta V/I$	0.99	1.0	1.01	mV/A
Maximum measured current	I_m		± 2200		A
Combined non-linearity and hysteresis error ($\pm 1500\text{A}$, -25°C to $+85^\circ\text{C}$)			0.1	0.25	%
Null drift due to temperature change	$TC \Delta V_o/V_o$		0.04	± 0.15	mV/k
Residual offset voltage	U_{cm}			0.0	%
Gain change due to temperature change	TCG		± 0.003		%/K
Crosstalk due to I_n @ 50mm ****	ϵ_c		0.2		%
Response time (0 to 200A)	t_r		0.1		μs
Frequency response	f-3dB		350		kHz
Output noise (rms)	V_n		1		mV rms
Output resistance	R_o		10		Ω
Recommended output loading	R_L	10			k Ω
Effect of primary dV/dt (Equivalent measured Amperes/(Primary Volts/second) for PWM applications)				4×10^{-8}	AV^{-1}s

*4kV Isolation available when used with optional isolating jacket

**Different current ranges available

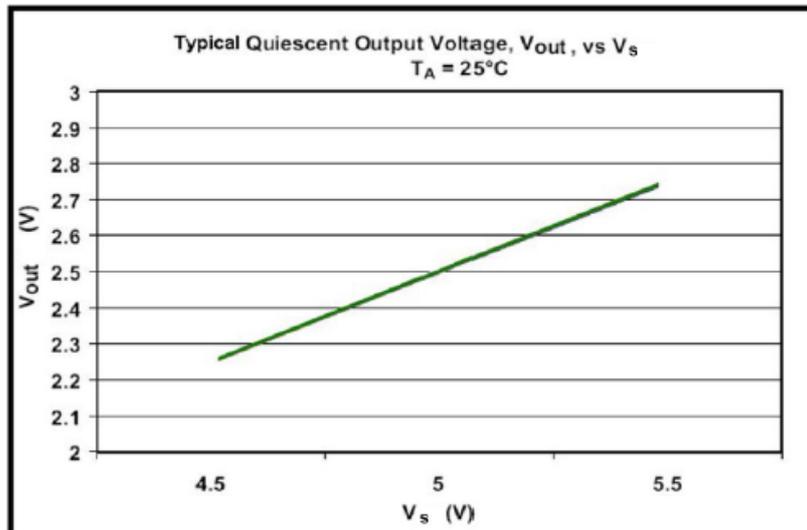
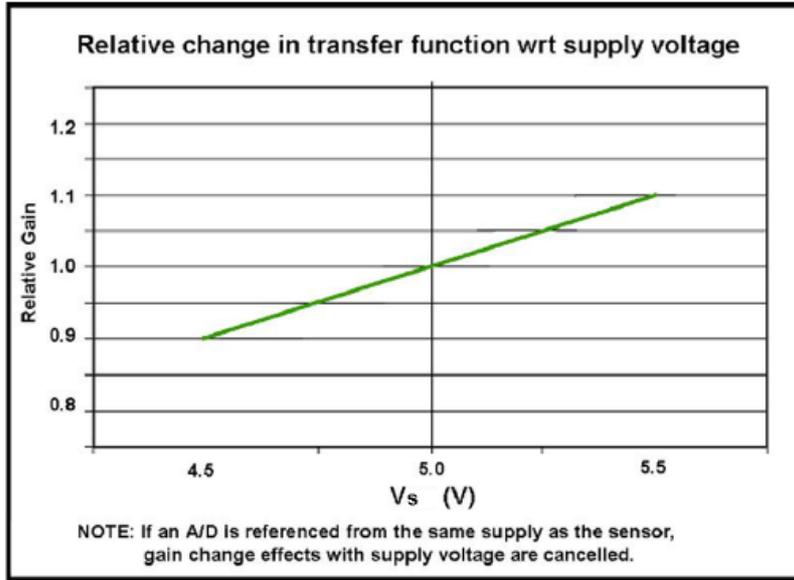
***Calibration for a particular busbar configuration

****Application dependant



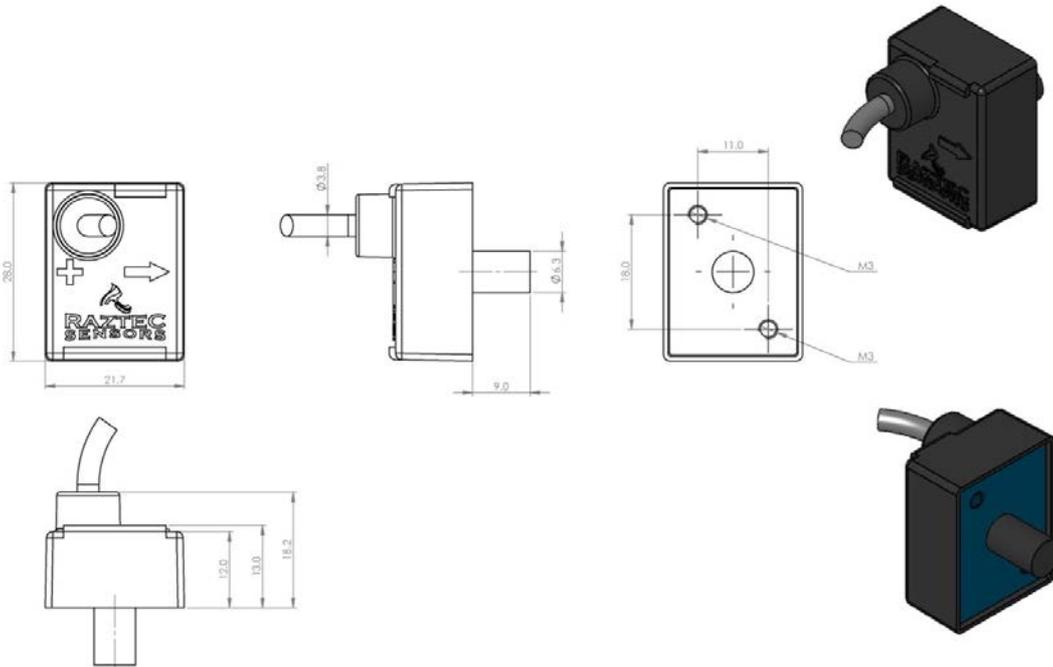
Raztec Sensors
NEW ZEALAND LTD

Characteristics

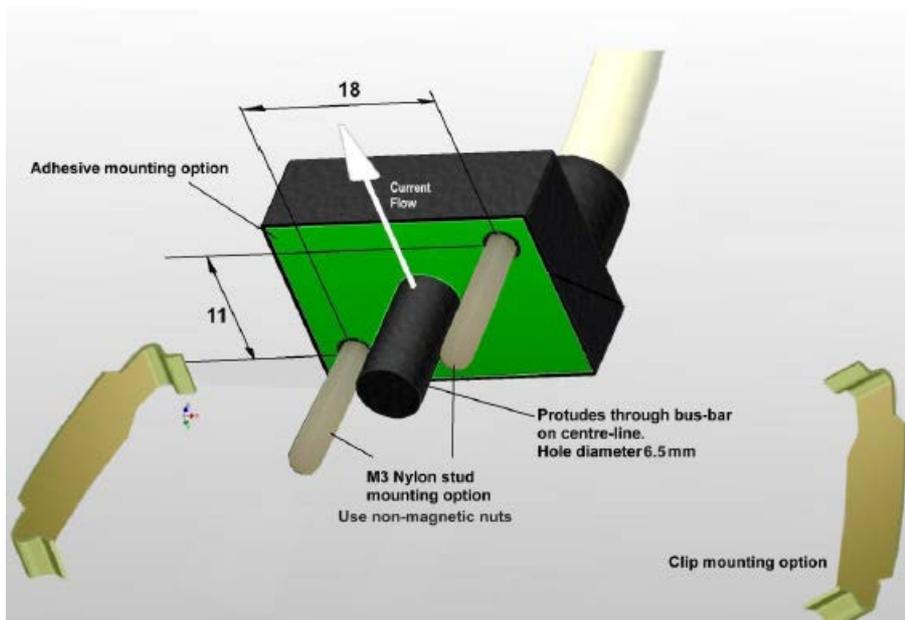


Physical Properties

Dimensions



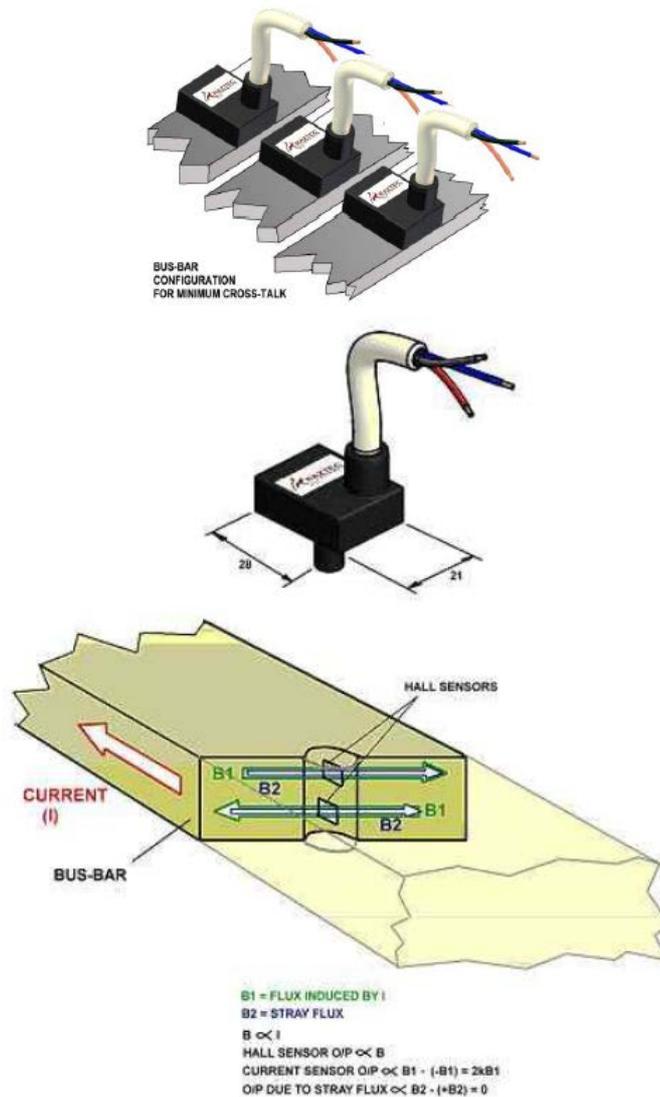
Fixing Options



Connections

Red = +5V White = Output Screen = 0V

Physical Properties



Raztec New Zealand Ltd operates a continuous product improvement program, therefore information contained in our datasheets may not reflect all current features. For clarification please contact sales@raztec.co.nz



About Raztec

Raztec Sensors was formed in 1992 and since then have been designing, manufacturing and supplying Hall Effect current transducers to some of the world's most critical and demanding users.

Over the past twenty-plus years many millions of our current transducers have been designed into failure intolerant applications where Raztec's refusal to accept anything other than the very highest standard of manufacturing excellence (ISO9001:2015 approved) has resulted in a reputation that is the envy of companies significantly larger and perhaps better known.

Who are our customers?

Raztec Sensors are recognized by many of our customers for our ability to provide top-quality performance at a very effective market price. Working with clients such as Dunkermotoren/AMETEK, Siemens, Wrightspeed, Komatsu, Panasonic Electric Works, Marinco, Techna-Tool, Metropolitan Pumps, Dynamic Controls, has provided us the opportunity to engineer solutions that are specific to our clients' application. This has resulted in a current transducer that provides exactly the output required for perfect control of the customer's specific application - at the most competitive price possible.

Need a custom solution?

Raztec are specialists in designing customised Hall Effect current sensors to suit almost any type of application. A large proportion of the products we sell are customised towards our customer's needs. If you have a particular need that an off-the-shelf sensor just can't meet, then contact us about designing a current sensor to meet your requirements.

