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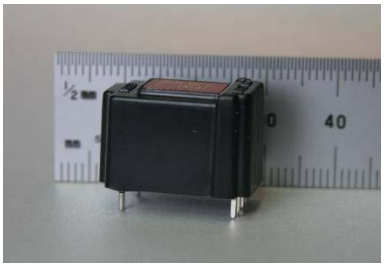
ISO 9001

80 mA current transducer RAZ3-800A range



This new Hall Effect Current Transducer retains the excellent linearity and low hysteresis of our 2nd Generation parts, but adds laser-trimmed calibration accuracy and a convenient machine-insertable package.

RAZ3 parts can replace closed-loop current sensors in many applications.

Features –

- Small-footprint UL94-V0 rated package
- Line voltage isolated
- High measuring circuit dv/dt rejection – suitable for PWM controllers
- Gains compatible with 12 bit ADC (1 lsb = 0.1mA) or Analog (10.0mV/mA)
- Highly accurate null-trimming for current-control applications
- Choice of ±1%, 2% or 5% gain accuracy

Maximum Ratings (T_A = 25˚C)

Parameter	Symbol	Value	Unit
Operating Temperature	TA	-40 to +85	˚C
Storage Temperature	T_{stg}	-65 to +170	˚C
Supply Voltage	V_S	8	V
Maximum measuring-circuit current	Imax	100	mA

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Characteristics (TA = 25˚C, except where stated)

Parameter	Symbol	Lower Limit	Typical	Upper Limit	Unit
Measured current range (-40 to +85 ˚C)	I_P		±80		mA
Measuring Circuit insertion resistance (excluding PCB tracks)	R_p		46		Ω
Measuring Circuit insertion inductance (excluding PCB tracks)	L_p		37.5		mH
Resolution (Gain code *A or* B) with 5.0V (user supplied)12-bit ADC (lsb magnitude)	δI		0.1		mA
Supply Current	I_s		6.6	9	mA
Supply Voltage	V_s	4.5	5.0	5.5	V
Null Output (V_s = 5.00V) Tolerance code F Tolerance code G Tolerance code J	V_o	2.496 2.492 2.484	2.5	2.504 2.508 2.516	V
Transfer Function (V_s = 5.00V, Gain Code *A or* B) Tolerance Code F = 1% Tolerance Code G = 2% Tolerance Code J = 5%	ΔV/I	12.09 11.96 11.60	12.21*	12.33 12.46 12.82	mV/mA
Transfer Function (Vs = 5.00V, Gain Code C or D) *Tolerance Code F = 1%* *Tolerance Code G = 2%* *Tolerance Code J = 5%*	ΔV/I	9.9 9.8 9.5	10.00	10.1 10.2 10.5	mV/mA
Non-linearity (±80mA, -40 to +85 ˚C)			1	1.5	%
Hysteresis (0 to 50mA)	Hys		0.1	0.25	%
Null drift due to temperature change (as equivalent current) Continuous Cal.† Pulsed Calibration	$TC_{\Delta}I/_{\Delta}T$		±0.005 ±0.02	±0.02 ±0.05	mA/K
Gain Change due to temperature change	TC_G		±0.05		%/K
Risetime 0 to 20mA (constant current source)	Tr		15		µs

Standards EN50178 (1997)

* = 5.00V/4096 x 10^4, based on least-significant bit of 12-bit ADC corresponding to 0.1mA measurement.
† Continuously calibrated recommended for most applications, Pulse Calibrated for battery powered applications.

Characteristics (TA = 25˚C) ……. Continued

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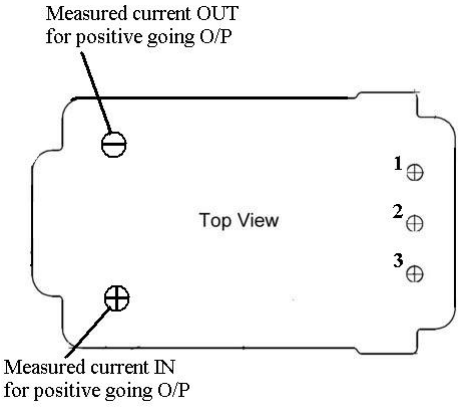
Parameter	Symbol	Lower Limit	Typical	Upper Limit	Unit
Output Resistance – Gain Codes B *or D* (Buffered) Gain Codes *A or C*	R_o	100	150	350 20	Ω
Effect of primary dv/dt (Equivalent measured Ampères/(Primary Volts/second) – for PWM applications) Gain Codes B *or D* (Buffered) Gain Codes *A or C*			10^{-8} 10^{-9}		$mAV^{-1}s$
Noise	E_{nrms}			2.5	mV rms
Creepage/Clearance Distance		14			mm
Mass			6.5		g
Fire Resistance rating			UL94-V0		

Standards EN50178 (1997)

Connections –



Footprint looking onto mounting surface
Secondary Pins -

1	+5V supply
2	0V common
3	Output

Options

- Fast settling versions for pulsed 5V supply (e.g. Battery supplied applications)
- 1%, 2%, 5% Tolerance versions – see parts number system

Mechanical

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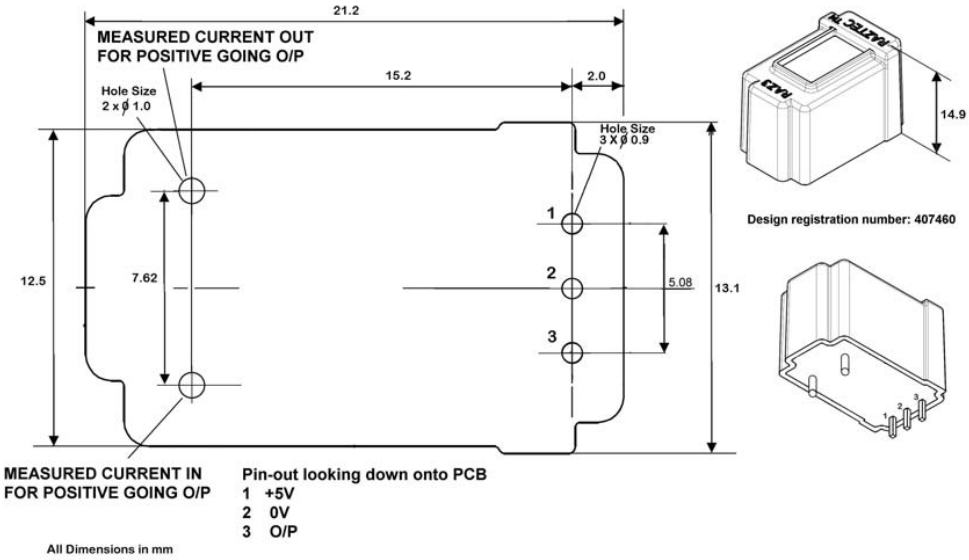

Footprint looking onto mounting surface – dimensions in mm

Part Numbering System

R A Z 3 – 8 0 3 A B E C - G

Current (mA)

The first two digits are significant figures; the third digit is the number of zeros.

For example: 503 is a 50 Amp Current Transducer because 503 equates to 50000 mA, which is 50 Amps.

Analog/ Digital

A = Analog

I^2C Sensor Details

I^2C Read Address (hex code)

G = 99h — Enquire

H = 9Bh — Standard Unit

I = 9Dh — Enquire

J = 9Fh — Enquire

* N.B Gain Code always **B** for I^2C

Gain Codes

A = 12.21mV (Binary Buffered)

B = 12.21mV (Binary Not Buffered)*

C = 10.0mV (Decimal Buffered)

D = 10.0mV (Decimal Not Buffered)

Pulsed/Continuous Calibration

AP = Pulsed

CC = Continuous

Tolerance Codes

F = ± 1 %

G = ± 2 %

J = ± 5 %

Options – enquire with factory prior to order

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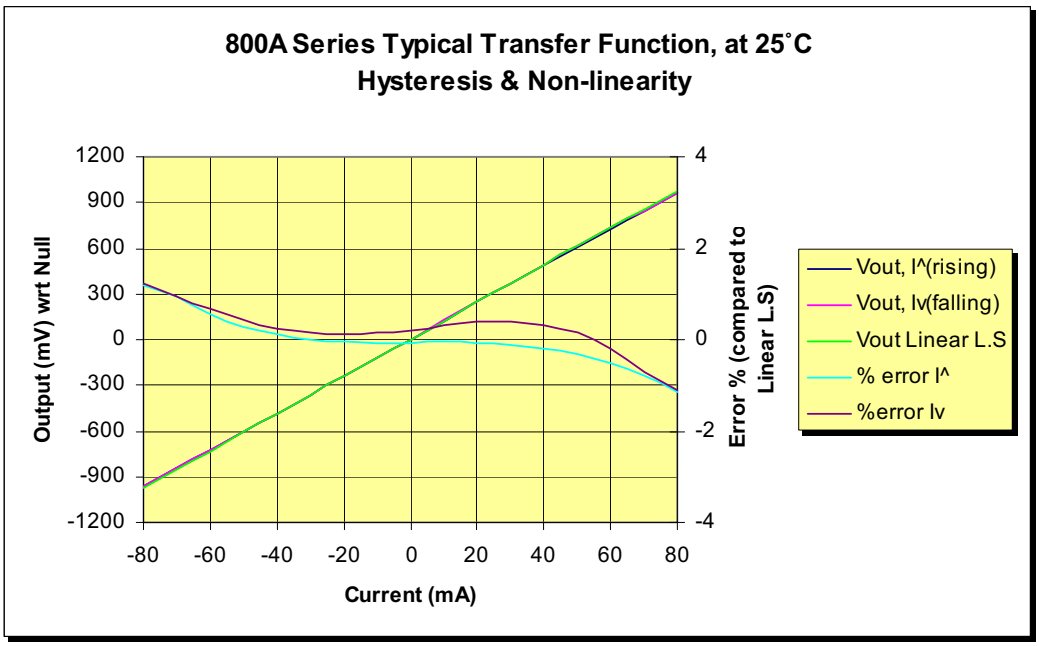
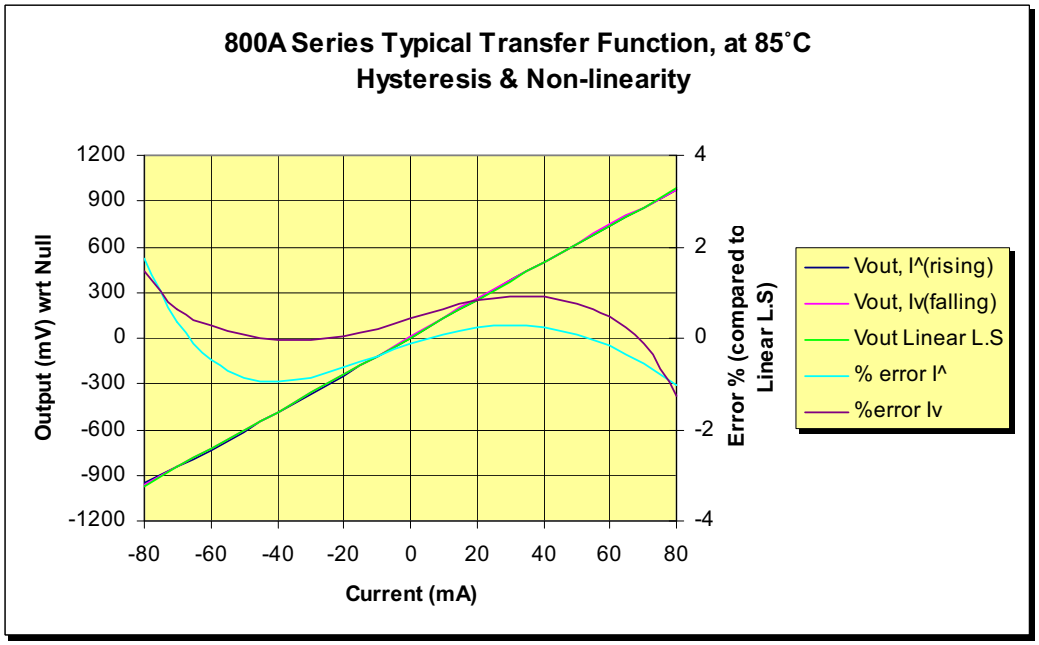
Performance characteristics





Raztec (NZ) Ltd operate 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

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