

Highly stabilized and precise fluxgate technology based current transducer, re-engineered for cost sensitive, non-intrusive, isolated DC and AC current measurement applications up to 300A



Features

- Linearity error maximum 6 ppm
- Offset maximum 15 ppm
- Fluxgate, closed loop compensated technology with fixed excitation frequency and second harmonic zero flux detection for enhanced accuracy and stability
- Industry standard 6.3 x 0.8mm faston connection
- Cost focused high performance current transducer
- DC and AC current metering with +/-0.1% absolute accuracy up to 5kHz

Applications:

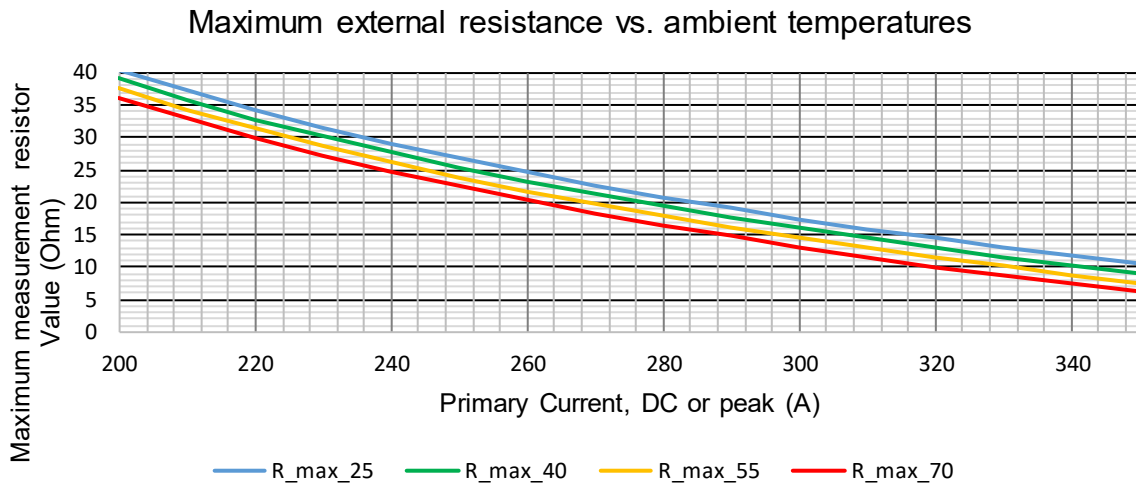
- Gradient amplifiers for MRI devices
- Precision power supplies, drives
- Batteries testing and evaluation systems
- Variable speed motor drives

Specification highlights	Symbol	Unit	Min	Typ.	Max
Nominal primary AC current	IPN AC	Arms			200
Nominal primary DC current	IPN DC	A	-300		300
Measuring range	\hat{I}_{PM}	A	-330		330
Primary / secondary ratio	n1 : n2		1:1000		1:1000
Linearity error	ϵ_L	ppm	-6		6
Offset current (including earth field)	I_{OE}	ppm	-15		15
DC-10Hz Overall accuracy @25°C (= $\epsilon_L + I_{OE}$)	acc ϵ	ppm	-21		21
AC Maximum gain error from 10Hz to 5kHz	ϵ_G	%			±0.1
Operating temperature range	Ta	°C	-40		+85
Power supply voltages	Uc	V	±14.25		±15.75

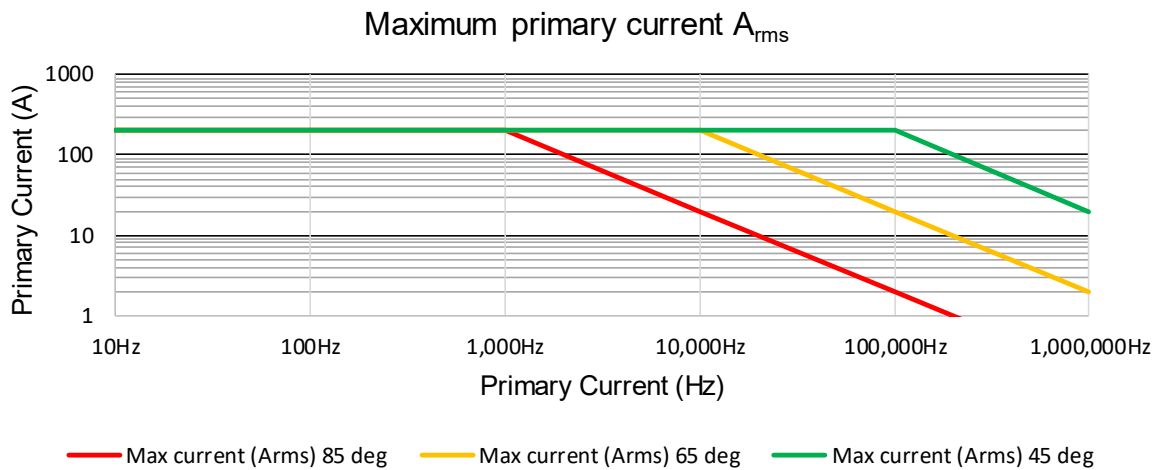
Electrical specifications at Ta=23°C, supply voltage = ± 15V unless otherwise stated

Parameter	Symbol	Unit	Min	Typ.	Max	Comment	
Nominal primary AC current	$I_{PN AC}$	A _{rms}			200	Refer to fig. 1 & 2 for derating	
Nominal primary DC current	$I_{PN DC}$	A	-300		300	Refer to fig. 1 for derating	
Measuring range	I_{PM}	A	-330		330	Refer to fig. 1 & 2 for derating	
Overload capacity	\hat{I}_{OL}	A			1000	Non-measured, 100ms	
Nominal secondary current	I_{SN}	mA	-300		300	At nominal primary DC current	
Primary / secondary ratio			1:1000		1:1000		
Measuring resistance	R_M	Ω	0		12	Refer to fig. 1 for details	
Linearity error	ϵ_L	ppm μA	-6 -1.8		6 1.8	ppm refers to nominal current μA refers to secondary current	
Offset current (including earth field)	I_{OE}	ppm μA	-15 -4.5		15 4.5	ppm refers to nominal current μA refers to secondary current	
DC-10Hz Overall accuracy @25°C (= $\epsilon_L + I_{OE}$)	acc ϵ	ppm	-21		21	ppm refers to nominal DC current	
Offset temperature coefficient	$T_{C_{IOE}}$	ppm/K μA/K	-2 -0.6		2 0.6	ppm refers to nominal current μA refers to secondary current	
Bandwidth	f(-3dB)	kHz	200			Small signal, graphs figure 3	
Amplitude error	ϵ_G	%			10Hz –5kHz	0.10%	% refers to nominal current
5kHz -100kHz					2.00%		
100kHz - 200kHz					10.0%		
Phase shift	θ	°			10Hz –5kHz	0.1°	
5kHz -100kHz					0.5°		
100kHz - 1000kHz					2.0°		
Response time to a step current I_{PN}	$t_r @ 90\%$	μs		1		di/dt = 100A/μs	
Noise	noise	ppm rms			0 - 100Hz	0.3	Measured on secondary current
0 - 1kHz					1.0		
0 - 10kHz					5.0		
0 - 100kHz					20.0		
Fluxgate excitation frequency	f_{Exc}	kHz		15.6			
Induced rms voltage on primary conductor		μV rms			5		
Power supply voltages	U_c	V	±14.25		±15.75		
Positive current consumption	I_{ps}	mA			35	Add I_s (if I_s is positive)	
Negative current consumption	I_{ns}	mA			35	Add I_s (if I_s is negative)	
Operating temperature range	T_a	°C	-40		85		
Stability							
Offset stability over time		ppm / month	-10 -3		10 3	ppm refers to nominal current μA refers to secondary current	
Impact of external magnetic field		ppm / mT	-15 -4.5		15 4.5	ppm refers to nominal current μA refers to secondary current	

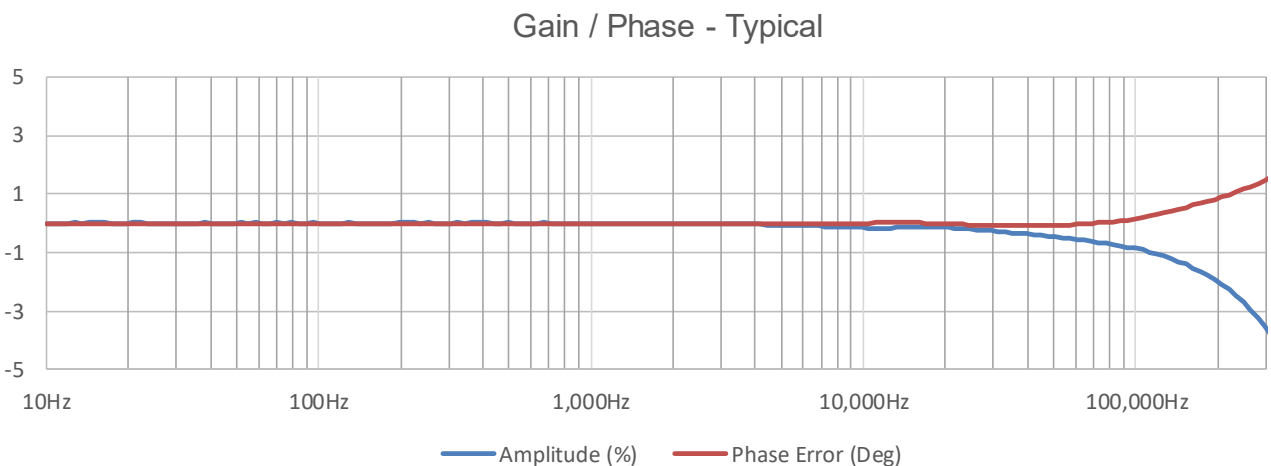
Measurement resistor R_M and ambient temperature derating (Fig. 1)



Frequency and ambient temperature derating (Fig. 2)



Frequency characteristics (Fig. 3)



Isolation specifications

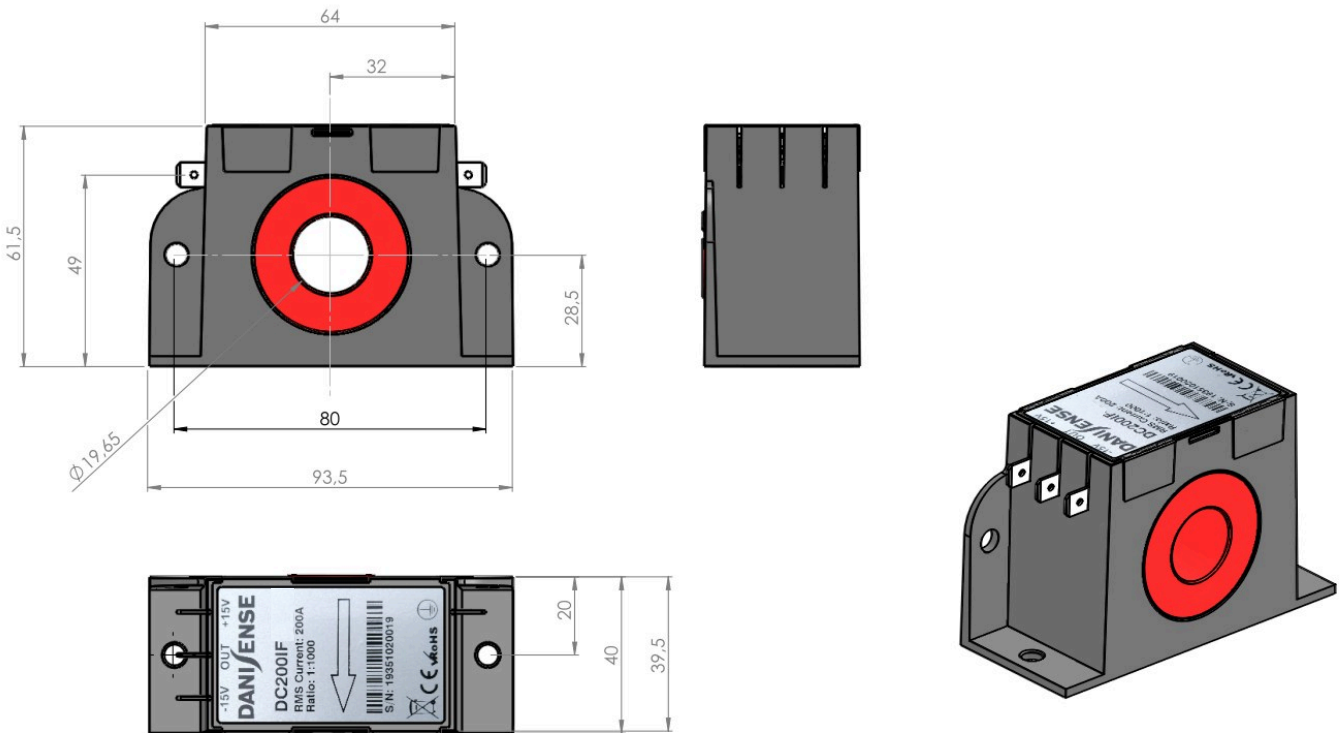
Parameter	Unit	Value
Clearance	mm	9
Creepage distance	mm	10
Comparative tracking index (CTI)	V	> 600
Rms voltage for AC isolation test, 50/60 Hz, 1 min - Between primary and (secondary and shield (GND))	kV	5.7
Impulse withstand voltage (1.2/50µs)	kV	10.4
Rated rms isolation voltage reinforced isolation, overvoltage category III, Pollution degree 2 according to IEC 61010-1 and EN50780	V	300 600

Absolute maximum ratings

Parameter	Unit	Max	Comment
Primary	kA	1.0	Maximum 100ms
Power supply	V	±16.5	

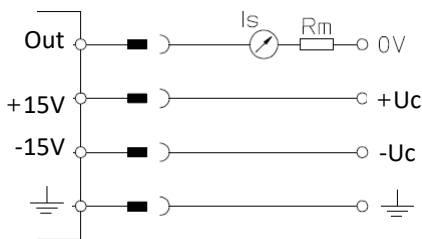
Environmental and mechanical characteristics

Parameter	Unit	Min	Typ	Max	Comment
Operating temperature range	°C	-40		85	
Storage temperature range	°C	-40		85	
Relative humidity	%	20		80	Non-condensing
Mass	kg		0.250		
Connections	4 Industrial fastons 6.3 x 0.8mm				
Standards	EN 61326-1 EMC				



(general tolerance 0.3mm unless otherwise stated)

DC200IF connection



CAUTIONS:

- PLEASE IMPERATIVELY RESPECT CONNECTION POLARITIES TO PREVENT DESTRUCTION OF THE TRANSDUCER
- PLEASE ENSURE ADEQUATE CURRENT AND VOLTAGE RATING OF POWER SUPPLIES TO AVOID SATURATION

Positive current direction

Is identified by an arrow on the transducer label

Mounting instructions

- Base plate mounting 2 holes Ø5.5
- Side mounting 2 holes Ø5.5

Declaration of Conformity

Danisense A/S
Malervej 10
DK-2630 Taastrup
Denmark

Declares that under our sole responsibility the products listed in Appendix A are in conformity with the provisions of the following EC Directives, including all amendments, and with national legislation implementing these

directives:

Directive 2014/30/EU

Directive 2014/35/EU

And that the following harmonized standards have been applied

EN 61010-1 (Third Edition):2010, EN 61010-1:2010

EN 61010-2-030:2010

EN 61326-1:2013

All DANISENSE products are manufactured in accordance with RoHS directive 2011/65/EU. Annex II of the RoHS directive was amended by directive 2015/863 in force since 2015, expanding the list of 6 restricted substances (Lead, Hexavalent Chromium, PBB, PBDE and Cadmium)

Danisense follows the provision in EN 63000:2018

Appendix A describes the products covered by this Declaration of Conformity.

Place

Taastrup, Denmark



Henrik Elbæk

Date

2021-03-09