

Ultra-stable, high precision (ppm class) fluxgate technology DP Series current transducer for isolated DC and AC current measurement on PCB up to 72A



Features

- Linearity error maximum 10 ppm
- Measurement resistor up to 100Ω at full scale
- Fluxgate, closed loop compensated technology with fixed excitation frequency and second harmonic zero flux detection for best in class accuracy and stability
- PCB mount
- Height 32mm - Suitable for 1U power supplies
- Programmable for 12.5A, 25A, or 50A via PCB layout
- 250g weight and compact size - ideal for PCB-mounted applications with space constraints

Applications:

- MPS for particles accelerators
- Stable power supplies
- Precision drives
- Batteries testing and evaluation systems
- Power measurement and power analysis

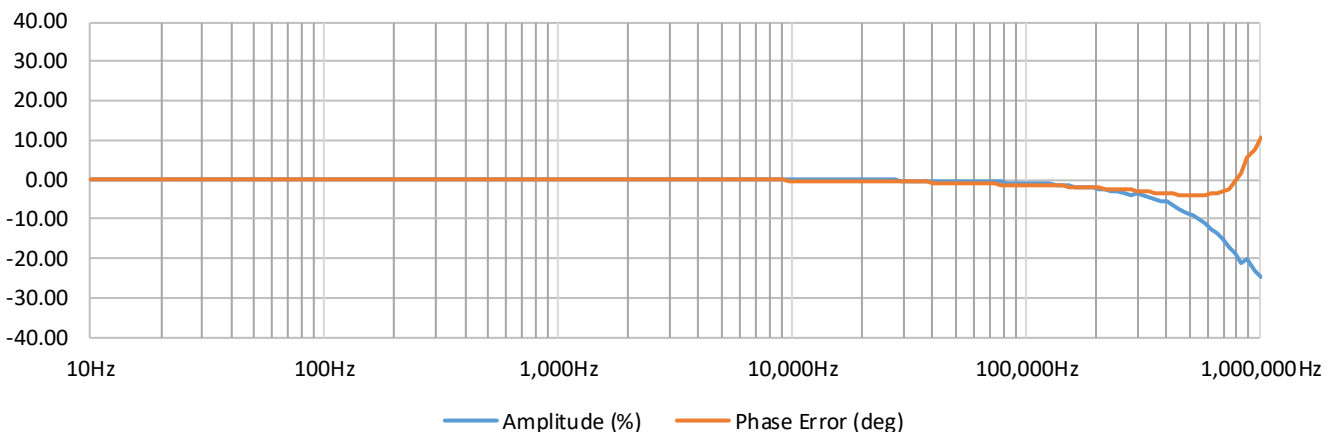
Specification highlights	Symbol	Unit	Min	Typ	Max
Linearity error	ϵ_L	ppm	-10		10
Bandwidth	BW(-0.1dB) BW(-1dB) BW(-3dB)	kHz	50 300 1000		
Ambient operating temperature range	T_a	°C	0		55
Offset current (including earth field)	I_{OE}	ppm			50
Power supply voltages	U_C	V	±14.25		±15.75

Transducer programming options		Unit	4 turns	2 turns	1 turn
Ratio			1:250	1:500	1:1000
Nominal primary AC current	$I_{PN AC}$	Arms	12.5	25	50
Nominal primary DC current	$I_{PN DC}$	±A	12.5	25	50
Measuring range (100ms)	\hat{I}_{PM}	±A	18	36	72

All ppm (or %) values refer to nominal current

Parameter	Symbol	Unit	Min	Typ.	Max	Comment
Measuring resistance	R_M	Ω	0		100	
Linearity error	ϵ_L	ppm	-10		10	ppm refers to nominal current
Offset current (including earth field)	I_{OE}	ppm	-100		100	ppm refers to nominal current μA refers to secondary current
DC-10Hz Overall accuracy @25°C (= $\epsilon_L + I_{OE}$)	acc ϵ	ppm	-110		110	ppm refers to nominal DC current
Offset temperature coefficient	TC_{IOE}	ppm/K	-1		1	ppm refers to nominal current μA refers to secondary current
Amplitude error	f_e	%			0.01	% refers to nominal current
DC-1kHz 1kHz-300kHz					12	
Phase shift	θ	°			0.02°	
DC-1kHz 1kHz-300kHz					6.0°	
Response time to a step current I_{PN}	tr @ 90%	μs		1		di/dt = 100A/ μs
Noise	0 - 100Hz 0 - 1kHz 0 - 100kHz	noise	ppm peak- peak		4	Measured on secondary current
					8	
					100	
Noise	0 - 100Hz 0 - 1kHz 0 - 100kHz	noise	ppm rms		0.50	Measured on secondary current
					7	
					50	
dV/dt influence	dv/dt	ppm			10	@230V and 50/60Hz
Positive current consumption	I_{ps}	mA			42	Add I_s (if I_s is positive)
Negative current consumption	I_{ns}	mA			28	Add I_s (if I_s is negative)
Operating temperature range	T_a	°C	0		55	
Stability						
Offset stability over time		ppm / 24h	-0.1		0.1	ppm refers to nominal current
Offset stability over time		ppm / month	-1		1	ppm refers to nominal current
Offset stability over time		ppm / year	-2		2	ppm refers to nominal current

Typical Amplitude / Phase



Isolation specifications

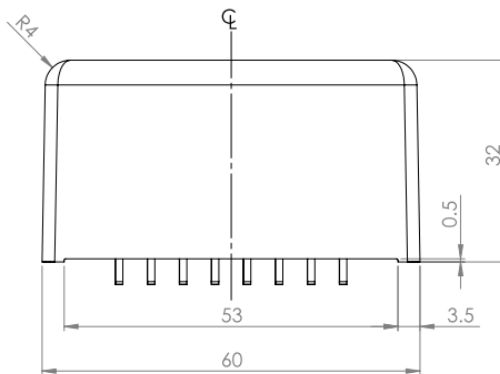
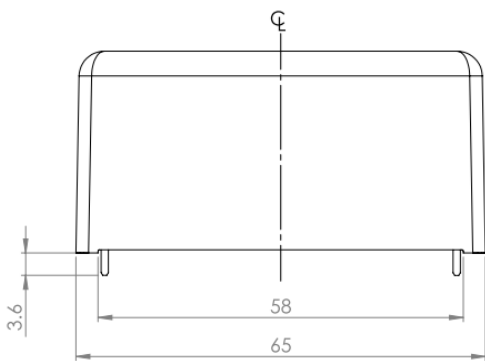
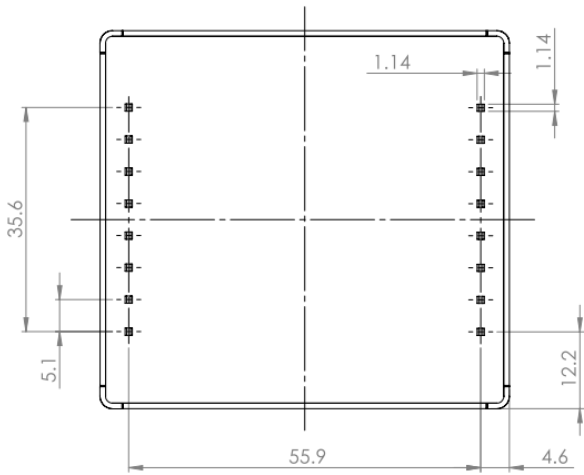
Parameter	Unit	Value
Clearance	mm	3.3
Creepage distance	mm	4.7
CTI		600
Rms voltage for AC isolation test, 50/60 Hz, 1 min - Between primary and (secondary and shield)	kV	2.4
Impulse withstand voltage (1.2/50µs)	kV	4.4
Rated rms isolation voltage reinforced isolation, overvoltage category II, Pollution degree 2 according to IEC61010-1	V	300

Absolute maximum ratings

Parameter	Unit	Max	Comment
Primary	A	200%	Programmed nominal DC. Maximum 100ms
Power supply	V	±16.5	

Environmental and mechanical characteristics

Parameter	Unit	Min	Typ	Max	Comment
Altitude	m			2000	
Usage					Designed for indoor use
Polution Degree				2	
Ambient operating temperature range	°C	0		55	
Storage temperature range	°C	0		85	
Relative humidity	%	20		80	Non-condensing
Mass	kg		0.250		
Connections	16 pin PCB mount				
Standards	IEC61010-2-30 IEC61326-1 EMC IEC61010-1:2010 3rd Edition				



(general tolerance 0.2mm unless otherwise stated)

Pinout and programming

Top view

