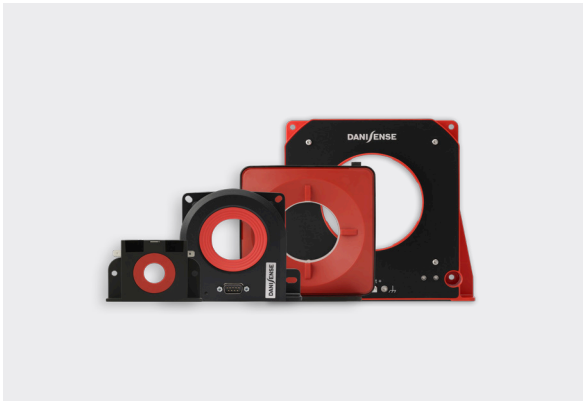
HIGH PRECISION CURRENT TRANSDUCERS

Power & Energy Control









PRODUCT SELECTION GUIDE

Current measurement used to control
and monitor power electronics equipment.

DANISENSE

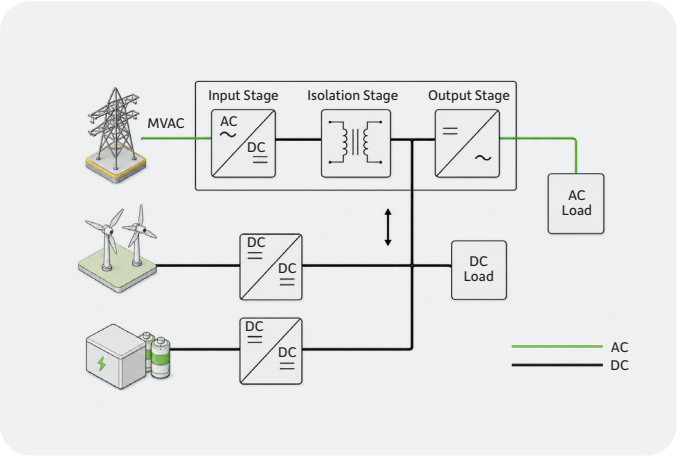
Application Overview

High precision current transducers can be used in a large diversity of applications where precision, stability and robustness make the difference.

Particle Accelerator Electromagnets

High-stability power supplies deliver the precisely regulated currents required by electromagnets to generate the magnetic fields that guide, focus, and steer particle beams in accelerators. The current measurement is a critical part of the power supply control loop, as even very small measurement errors can affect magnetic field stability, beam position and particles trajectory. The challenge is to achieve ppm-level accuracy and long-term stability despite electrical interference.





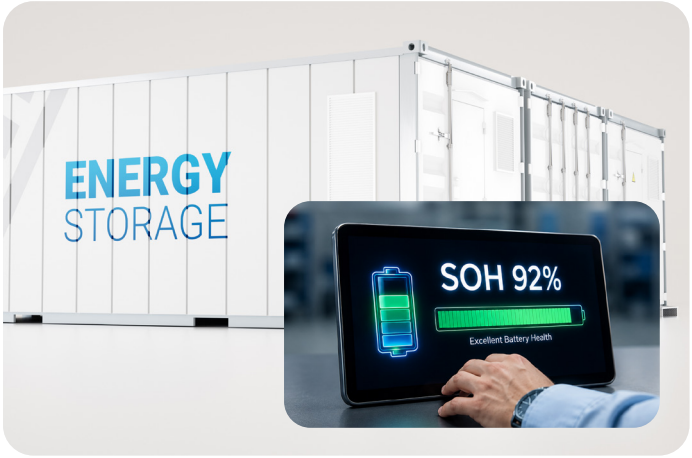
Solid-State Transformers (SST)

Solid-state transformers use power electronic converters to efficiently transfer energy between medium-voltage and low-voltage networks.

Current measurement on the medium-voltage side is essential for control and protection., while The challenge is to combine accurate measurement of small curents with the large diameter of insulated MV cables requiring transducers with large apertures.

State of Health (SoH) Monitoring for Batteries and Supercapacitors

State of Health (SoH) monitoring assesses the condition and aging of batteries and supercapacitors through their charge and discharge behavior. Accurate current measurement is essential to track capacity loss, efficiency, and performance degradation over time. The challenge is to detect small changes over long periods, requiring exceptional accuracy, low drift, and high long-term stability.



MRI Gradient Amplifiers

MRI gradient amplifiers drive gradient coils with fast-changing bipolar currents that generate the magnetic field gradients required for image formation. Current measurement must accurately track these dynamic waveforms while providing excellent linearity, low offset drift, and wide bandwidth. Ultra-low noise is particularly critical, as current measurement noise can directly translate into magnetic field noise and negatively impact image quality and system performance.



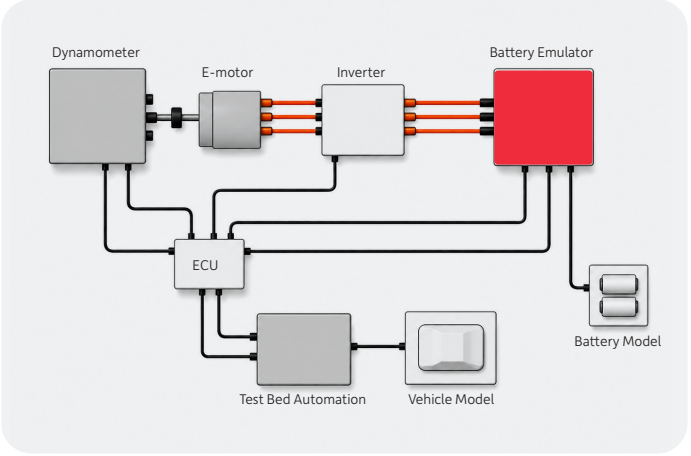


DC Metering

DC metering systems measure energy flows in applications such as high power charging infrastructure, battery energy storage, and DC distribution networks. Accurate current measurement is essential to ensure precise energy billing and regulatory compliance. The challenge is to maintain high accuracy and long-term stability over wide current ranges and varying operating conditions.

Battery Emulator Power Supplies

Battery emulators reproduce battery behavior during the development and validation of electric vehicles, energy storage, and power electronic converters. Accurate current measurement is required to verify efficiency, characterize system performance, and ensure realistic charging and discharging conditions. The challenge is to maintain high accuracy across a wide current range while capturing both steady-state DC currents and fast transient load



Current Transducer Range Overview

Output Type	Family Name	Primary Current (A rms)												
		12	50	100	200	300	400	600	1000	1200	2000	4000	5000	10000
	DP Series	■	■											
Current	DT Series		■	■	■									
	DS Series		■		■	■	■	■						
	DX Series				■									
	DC Series				■									
	DQ Series							■						
	DN Series								■					
	DM Series									■				
	DL Series										■			
	MBC Series											■		
	DR Series												■	■

Current Transducer Range

		DP12IP	DP50IP-B	DT50ID
				
Measuring range	IPM	18A	18/36/72A	75 A
Nominal AC current	IPN_AC	12 A rms	12.5/25/50 A rms	50 A rms
Nominal DC current	IPN_DC	12 A	50 A	
Overload capacity (non measured, 100ms)	IOL/0.1s		25/50/100 A	250 A
Nominal secondary current	ISN		50 mA	100 mA
Primary/ secondary ratio	(n1 :n2)	1/250	12.5 A/25 A/50 A	1:500
Linearity error	ƐL	10 ppm		1.5 ppm
Initial Electric offset	IOE (ƐC)		100 ppm	
DC Total Accuracy	accƐ	90 ppm	110 ppm	102 ppm
Offset temperature coefficient	TCIOE	1 ppm/°C		0.8 ppm/°C
Offset stability with time	IOE/time	1 ppm/month		0.1 ppm/month
Bandwidth (-3dB)	f(.3dB)	1 MHz		2 MHz
Operating temp. range	Ta	0°C to +55°C		-40°C to +85°C
Power supplies (positive/ negative current consumpt. excluding Is)	UC	±15 V±5% (+42 mA / -28 mA)		±15 V±5% (+40 mA / -35 mA)
Diameter of aperture	Φ	NR		20.7 mm
External dimensions (approximate)	WxHxD	65 x 32 x 60 mm		76 x 64.5 x 35 mm
Connection		16 pin PCB	(2x8 pins)	DSUB 9-pin
Calibration (Test) winding		None		
Weight (approximate)	M	250 g		150 g

Data are for informative purposes only, please consult individual datasheets on Danisense.com for most up-to-date values
(**) reinforced insulation, OV Cat III, pollution degree 2

Current Transducer Range

		DS50ID	DT100ID	DT200ID
				
Measuring range	IPM	150 A	150 A	285 A
Nominal AC current	IPN_AC	50 A rms	100 A rms	200 A rms
Nominal DC current	IPN_DC	75 A	100 A	200 A
Overload capacity (non measured, 100ms)	IOL/0.1s	1500 A	500 A	1000 A
Nominal secondary current	ISN	150 mA	100 mA	200 mA
Primary/ secondary ratio	(n1 :n2)	1:500	1:1000	
Linearity error	ℰL	1 ppm		
Initial Electric offset	IOE (ℰC)	60 ppm	50 ppm	25 ppm
DC Total Accuracy	accℰ	61 ppm	51 ppm	26 ppm
Offset temperature coefficient	TCIOE	0.4 ppm/°C	0.3 ppm/°C	0.2 ppm/°C
Offset stability with time	IOE/time	0.4 ppm/month	0.1 ppm/month	
Bandwidth (-3dB)	f(.3dB)	1 MHz	2 MHz	
Operating temp. range	Ta	-40°C to +85°C		
Power supplies (positive/ negative current consumpt. excluding Is)	UC	±15 V±5% (+40 mA / -35 mA)		±15 V±5% (+104 mA/ -96 mA)
Diameter of aperture	Φ	27.6 mm		20.7 mm
External dimensions (approximate)	WxHxD	121.4 x 107.5 x 44.5 mm	76 x 64.5 x 35 mm	
Connection		DSUB 9-pin		
Calibration (Test) winding		Optional	None	
Weight (approximate)	M	600 g	150 g	

Data are for informative purposes only, please consult individual datasheets on Danisense.com for most up-to-date values
(*) rating configurable by PCB pattern layout for DP model and by DSUB21 connector for DQ model
(**) reinforced insulation, OV Cat III, pollution degree 2

DX200IH-CP01	DS200ID	DC200IF	DS300ID	DS400ID
				
220 A	370 A	330 A	500 A	600 A
140 A rms	200A rms		300 A rms	400 A rms
200 A	300 A	300 A	450 A	600 A
1000 A	1500 A	1000 A	1500 A	3000 A
200 mA	600 mA	300 mA	450 mA	300 mA
1:1000	1:500	1:1000		1:2000
6 ppm	1 ppm	6 ppm	1 ppm	
40 ppm	15 ppm		14 ppm	9 ppm
46 ppm	16 ppm	21 ppm	15 ppm	10 ppm
1 ppm/°C	0.1 ppm/°C	2 ppm/°C	0.1 ppm/°C	
0.1 ppm/month	0.1 ppm/month	10 ppm/month	0.1 ppm/month	
300 MHz	1 MHz	200 kHz	650 kHz	300 kHz
-40°C to +60°C	-40°C to +85°C			
±15 V±5% (+104 mA/ -96 mA)		±15 V±5% (+35 mA/-35 mA)	±15 V±5% (+104 mA/-96 mA)	
24.2 mm	27.6 mm	19.65 mm	27.6 mm	
NR	121.4 x 107.5 x 44.5 mm	93.5 x 61.5 x 40 mm	121.4 x 107.5 x 44.5 mm	
Samtec SSW-107-01-G-S	DSUB 9-pin	6.3 x 0.8 mm fastons	DSUB 9-pin	
Optional		None	Optional	
600 g		250 g	600 g	

Current Transducer Range

		DS600ID	DQ640ID-B	DN1000ID
			 configurable (*)	
Measuring range	IPM	1000 A	640 A	1500 A
Nominal AC current	IPN_AC	600 A rms	28 A to 452 A rms (step 14 A rms)	1000 A rms
Nominal DC current	IPN_DC	900 A	40 A to 640 A (step 20 A)	1000 A
Overload capacity (non measured, 100ms)	IOL/0.1s	4500 A		5000 A
Nominal secondary current	ISN	600 mA	1000 mA	667 mA
Primary/ secondary ratio	(n1 :n2)	1:1500	40 A to 640 A step 20 1:40 to 1:640	1:1500
Linearity error	ℰL	1 ppm	3 ppm	1 ppm
Initial Electric offset	IOE (ℰC)	7 ppm	10 ppm	5 ppm
DC Total Accuracy	accℰ	9 ppm	13 ppm	7 ppm
Offset temperature coefficient	TCIOE	0.1 ppm/°C		
Offset stability with time	IOE/time	0.1 ppm/month		
Bandwidth (-3dB)	f(.3dB)	450 kHz	300 kHz	400 kHz
Operating temp. range	Ta	-40°C to +85°C	0°C to +55°C	-40°C to +85°C
Power supplies (positive/ negative current consumpt. excluding Is)	UC	±15 V±5% (+104 mA/-96 mA)	±15 V±5% (+105 mA/-96 mA)	±15 V±5% (+/-81 mA)
Diameter of aperture	Φ	27.6 mm	28.1 mm	41 .2 mm
External dimensions (approximate)	WxHxD	121.4 x 107.5 x 44.5 mm	104 x 106 x 49 mm	132 x 112 x 44 mm
Connection		DSUB 9-pin		
Calibration (Test) winding		Optional	100 turns/0.1 A	Optional
Weight (approximate)	M	600 g		800 g

Data are for informative purposes only, please consult individual datasheets on Danisense website for most up-to-date values
(*) rating configurable by PCB pattern layout for DP model and by DSUB21 connector for DQ model
(**) reinforced insulation, OV Cat III, pollution degree 2

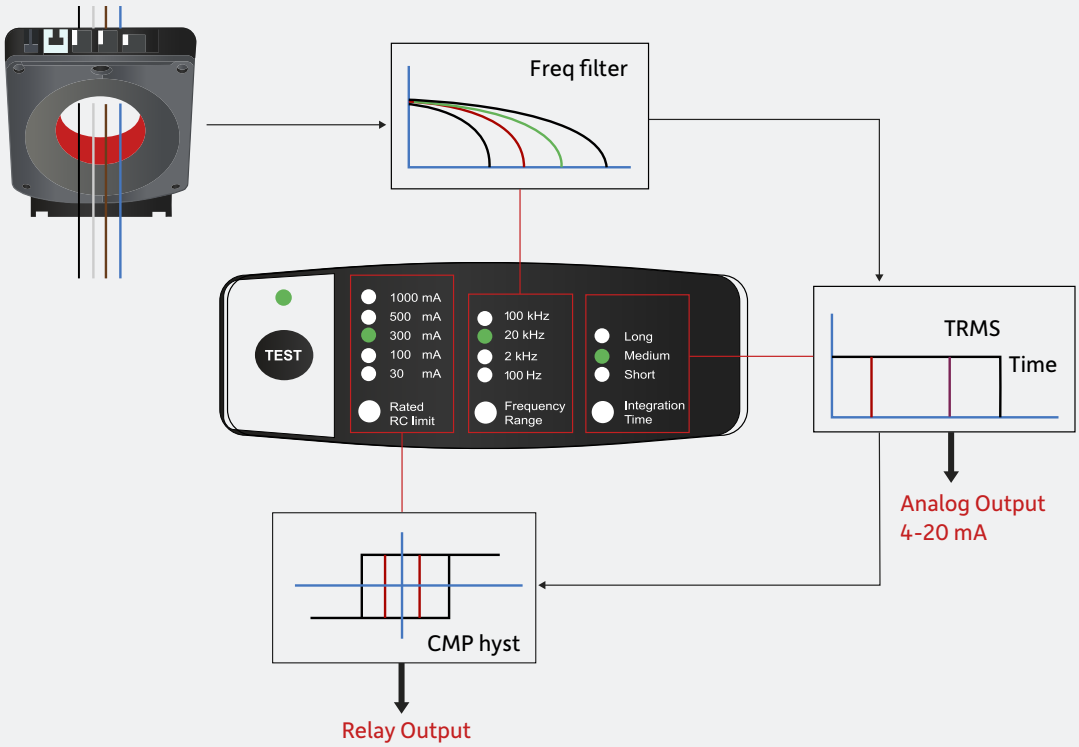
DM1200ID	DL2000ID	MBC4000I	DR5000IM	DR10000IM
				
1800 A	3000 A	7000 A	8000 A	11000 A
1200 A rms	2000 A rms	4000 A rms	5000 A rms	7000 A rms
1500 A	3000 A	4000 A	8000 A	10000 A
5000 A	10000 A		20000 A	
1000 mA	2000 mA	6000 mA	3200 mA	4000 mA
1:1500			1:2500	
1 ppm		100 ppm	1 ppm	
5 ppm	6 ppm		3 ppm	
6 ppm	7 ppm		4 ppm	
0.1 ppm/°C		10 ppm	0.1 ppm/°C	
0.1 ppm/month				
400 kHz	300 kHz	100 kHz	80 kHz	
-40°C to +85°C	-40°C to +65°C	-40°C to +85°C +/-15 V+/-5%	head: 0 to + 70°C / controller: 0 to +45°C	
±15 V±5% (+145 mA/-135 mA)	±15 V±5% (+185 mA/-170 mA)		AC 100 ~ 240 V - 50/60 Hz or DC 127 V ~ 417 V	
45.0 mm	68.0 mm	121 mm	150.0 mm	140.0 mm
179 x 17 4 x 58 mm	240 x 230 x 87 mm	255 x 238 x 89 mm	head: 420 x 325 x 122 mm controller: 483 x 88.1 x 241 mm	
DSUB 9-pin		3 pin JST S3P-VH	Banana plugs	
Optional				
1.8 kg	5.7 kg	4.1 kg	head: 17 kg (DR10000/ 19 kg) ; controller: 6 kg	

Residual Current Monitoring

Residual Current Monitors (RCMs) are used for monitoring of the residual currents in electrical power systems without the need for fast system shutdown.

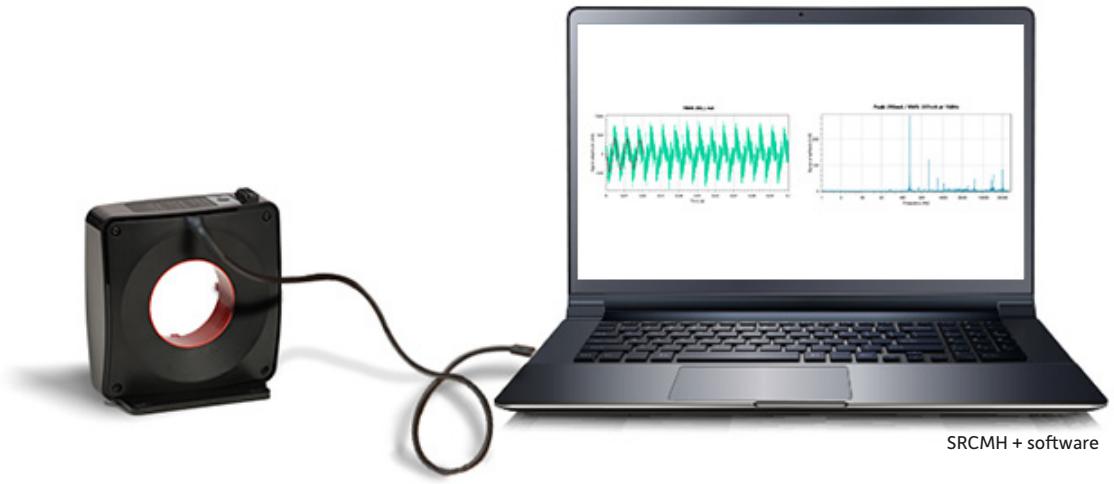
The RCM of Type B/B+ can measure DC and AC residual currents at frequencies of up to 100kHz, which makes it compatible to multitude of industrial applications, loads and generation sources.





Residual Current Transducer Range

	RCM	SRCM
		
	RCMH070IB+	SRCMH0701B+
Measuring range 0-2 A	Yes	
TRMS value as a 4-20 mA DCoutput	Yes	
The auto setup will propose an appropriate frequency range and integration time	Yes	
TRMS in frequency ranges	Yes	
Scope for residual current	No	Yes
Residual current FFT	No	Yes
Remote setting of rated RC limit, frequency range and integration time	No	Yes
TRMS log / Relay status log / Data export	No	Yes
Diameter of aperture	70 mm	



SRCMH + software



DANISENSE

Danisense A/S
Malervej 10
2630 Taastrup
Denmark

+45 3510 2373
info@danisense.com
danisense.com

Sales (North America)

GMW Associates

gmw.com | sales@gmw.com | +1-650-802-8292

Calibration & Service (North America)

GMW Associates
CALIBRATION

gmwcalibration.com | rma@gmw.com | +1-650-282-2334