DEWESoft®

PRODUCT/SOLUTIONS SUB-ARE

CURRENT MEASUREMENT TRANSDUCER DC-CT®

PRODUCT DATASHEET

Precise current measurement - all the benefits of a zero-flux current transducer with lower power consumption and in a smaller form factor

V26-1

7 YEAR WARRANTY

DEWESoft®

THE END OF THE MEASUREMENT COMPROMISE

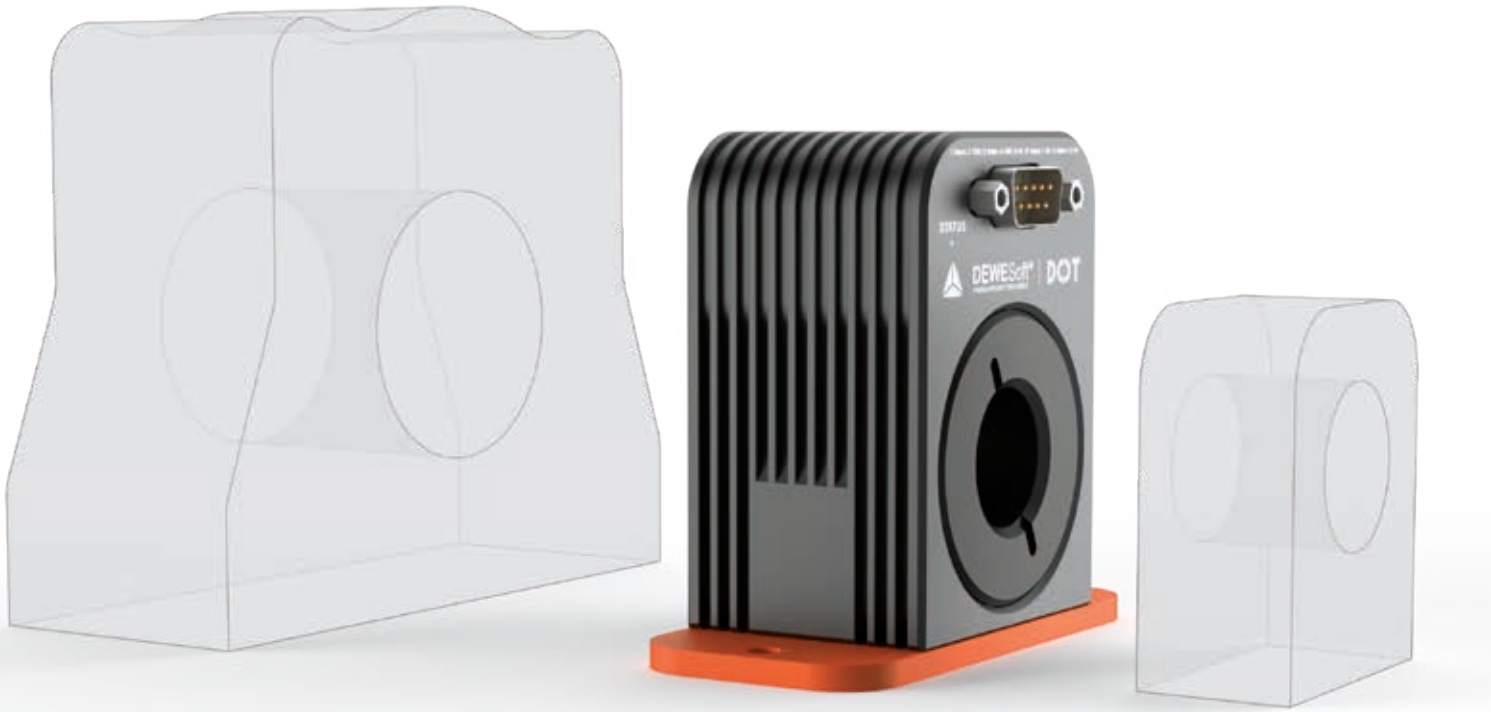
BRIDGING THE GAP BETWEEN HALL EFFECT COMPACTNESS AND ZERO-FLUX PRECISION

For decades, test engineers have been forced to choose between size and performance.

On one side, Hall Effect sensors offered a compact, low-cost solution ideal for tight spaces, but they suffered from temperature drift, noise, and poor linearity.

On the other, Zero-Flux (Fluxgate) transducers provided the gold standard in accuracy but came with significant penalties: they were bulky, power-hungry, complex to install, and expensive

By employing the ISOTEL technology based on the patented Platise Flux Sensor (PFS), we have eliminated the trade-off. The DC-CT® series offers the linearity and bandwidth of a high-end zero-flux transducer packed into a form factor smaller than many standard current probes.



NO COMPROMISE

Experience uncompromised lab-grade measurement accuracy housed within a remarkably rugged and compact chassis. It is engineered to deliver flawless, reliable performance even in the most demanding and harsh environments.

LOW POWER

Thanks to its innovative design, the DC-CT® consumes up to ten times less energy than traditional zero-flux units, enabling direct DAQ connections, simplified wiring, and significantly reduced heat dissipation.

UNIVERSAL

Designed for ultimate versatility, this sensor seamlessly transitions from demanding High-Voltage EV powertrain testing in the field to highly precise laboratory measurements and advanced power analysis.

POWERED BY ISOTEL DC-CT® TECHNOLOGY

THE BEST OF BOTH WORLDS

At the heart of the DC-CT®'s performance lies the patented Platiše Flux Sensor (PFS) technology, a fundamentally different approach to DC current measurement. Unlike conventional fluxgate sensors that rely on two or even three magnetic cores to achieve accurate detection, the PFS is built around ISOLTEL proprietary single-core design. This simplification is not just elegant in theory, it directly translates into practical advantages such as reduced energy consumption, lower noise, and a more compact form factor. The result is a sensor that delivers high precision while remaining cost-effective and easy to integrate. Current DC-CT® solutions cover a wide measurement range, with a bandwidth of -0.5 dB at 1 MHz and target accuracy reaching from 0.1% down to 0.01%. Beyond standard applications, the technology also opens the door to advanced use cases such as DC and AC residual current sensing compliant with class B+ requirements.

Technology	Type	Isolated	Current range	AC Bandwidth	Linearity	Accuracy
DC-CT	DC/AC	Yes	High	Excellent	Excellent	Very High
Flux-Gate	DC/AC	Yes	High	High	Excellent	Excellent
Hall	DC/AC	Yes	High	Medium	Medium	Medium
Shunt	DC/AC	No	Medium	Medium	Good	High
Rogowsky	AC	Yes	High	Excellent	Good	Medium
CT	AC	Yes	High	Medium	Medium	Medium

THERMAL STABILITY

Lower power consumption means less self-heating, resulting in exceptional temperature stability.

COMPACT ARCHITECTURE

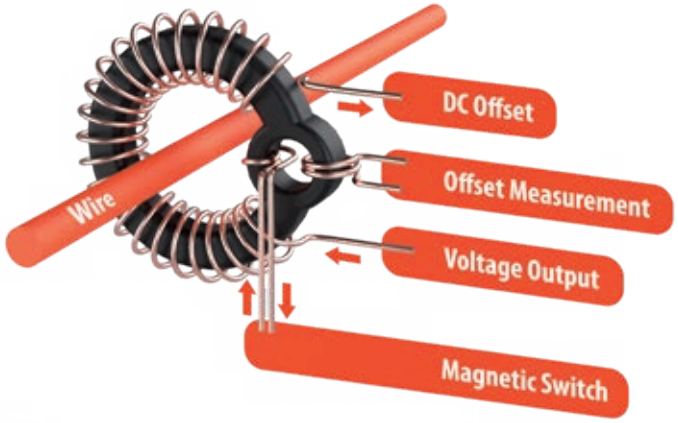
By reducing the core count, we drastically reduce the physical footprint.

HIGH BANDWIDTH

The gapless core design ensures a flat frequency response from DC up to 1 MHz at 0.5 dB, making it ideal for capturing high-frequency switching noise in inverters.

HOW IT WORKS

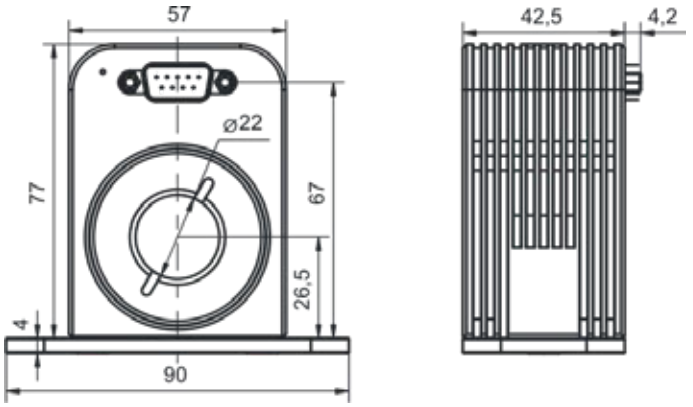
The Platise Flux Sensor (PFS) operates on a principle of flux-redirection, utilizing a small magnetic variable reluctance component within its core to read out the DC signal. The PFS is temperature independent. Combined with a zero-flux compensation winding, it offers excellent wideband AC characteristics along with high DC accuracy.



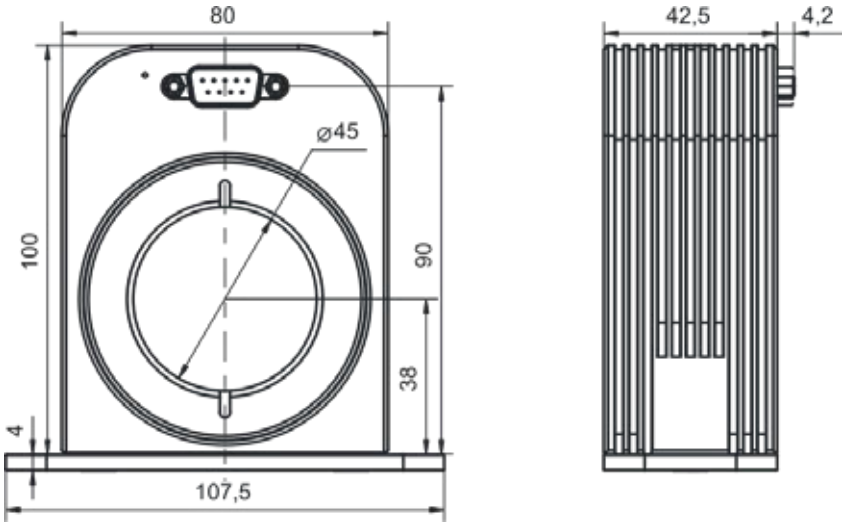
SPECS

DC-CT®					
	DC-CT 1000A				Unit
Rated/Nominal Measuring Current DC	1000				A
Rated/Nominal Measuring Current AC RMS	700				A
Transformer Ratio	1680				turns
Nominal Secondary Current at IP (@1000A)	~595.2				mA
Frequency Bandwidth @ -0.5 dB, IP = 0.7 ARMS	1				MHz
Inner diameter	**22**		**45**		mm
Weight	500		650		g
Dimentsions	77 x 57 x 46.7		100 x 80 x 46.3		mm
DC Accuracy @ Ta = 23◦ C	**Typ µ**	**Max 5σ**	**Typ µ**	**Max 5σ**	
Gain Error, BFSL over Ip	22	< 163	46	< 246	ppm
Integral Non-Linearity including Hysteresis	22	< 62	52	< 114	ppm/Apeak
Startup, Finder, Degauss, Offset RTI @ Ip = 0 A	1.3	< 10	4.1	< 25	mA
Gain Off-Center Error Up/Down	50	< 100	150	< 250	ppm
... Left/Right	20	< 50	50	< 100	ppm
Long Term Stability at IP = 500 A including self-heating		< 10		< 15	mA
AC Accuracy @ Ta = 23°C	**Typ µ**	**Max 5σ**	**Typ µ**	**Max 5σ**	
AC Flatness < 100 kHz	< 0.1		< 0.1		dB
... < 1 MHz	< 0.5		< 1		dB
Phase Shift < 100 kHz	< 1°		< 2°		deg
... < 1 MHz	< 2°		< 5°		deg
Typical RMS Noise at 10 kHz and entire TA	0.6	~ 1.3	0.7	~ 1.4	mA
... 100 kHz and entire TA	1.2	~ 2.0	1.0	~ 1.8	mA
... 1 MHz and entire TA	5.5	~ 6.5	7.7	~ 8.2	mA
Power Supply	**Min**	**Typ**		**Max**	
Bipolar Supply voltage	±12	±15		±17.5	V
Unipolar Supply voltage	24	30		35	V
Power Consumption	0.56 W (max. 0.7W) @Idle mode 6.6 W (max. 8W) @ IP = 1000A & Burden 1 Ω 7.6 W (max. 9 W) @ IP = 1000A & Burden 3 Ω				W
Isolation CAT II / CAT III non-insulated wire	1000 / 600				V
Isolation CAT II / CAT III insulated wire	1000				V
Storage and Operating Temperature	–40 - 85				°C

DC-CT-1000I-S22DA



DC-CT-1000I-S45DA



SPECS

MODEL NAME	RANGE (DC)	APERTURE	CONNECTOR	DESCRIPTION
DC-CT-1000I-S22DA	1000 A	22 mm	DSUB-9	The standard for compact precision.
DC-CT-1000I-S22LA	1000 A	22 mm	LEMO	Lemo connector version for industrial ruggedness.
DC-CT-1000I-S45DA	1000 A	45 mm	DSUB-9	Larger aperture for thicker cables/busbars.
DC-CT-1000I-S45LA	1000 A	45 mm	LEMO	Larger aperture with Lemo connector.

A PERFECT FIT FOR EVERY APPLICATION

No matter the demands of your measurement environment, there is a DC-CT® sensor specifically configured for your setup. The Dewesoft DC-CT® series is designed with complete flexibility in mind, allowing you to select the ideal combination of current range, aperture size, and connectivity.

A options to cover everything from compact precision testing to heavy-duty EV applications. Our two aperture sizes - 22 mm and 45 mm - ensure a seamless fit whether you are routing standard test cables or thick, high-voltage busbars. Finally, match the sensor to your environment: choose the industry-standard DSUB-9 for typical laboratory work, or opt for the rugged LEMO connector for enhanced durability and secure locking in harsh industrial conditions.

SEAMLESS INTEGRATION

EFFORTLESS INTEGRATION

Revolutionize your DAQ setup with the DC-CT® direct connection. Thanks to the sensor's low power consumption, bulky external power supplies are completely eliminated. This innovative, single-cable solution provides direct unit power and an integrated shunt, dramatically simplifying your wiring while unlocking much higher channel density. Enjoy unparalleled plug-and-play convenience and a streamlined, highly efficient measurement system without the traditional hardware clutter.

ULTIMATE PERFORMANCE

For demanding applications where every detail matters, the classical setup with the SIRIUS XHS and MCTS unit delivers industry-leading accuracy and maximum bandwidth. Just like traditional high-end current sensors, this uncompromised configuration guarantees pristine signal integrity for your most critical measurements. Experience the absolute highest sample rates and flawless precision, ensuring you capture every dynamic nuance of your data without limitation.

BUILT FOR DEMANDING APPLICATIONS

E-MOBILITY & POWERTRAIN TESTING

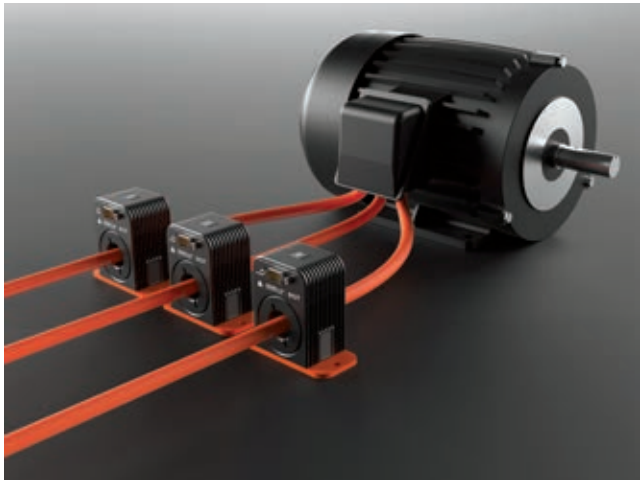
E-mobility and powertrain testing environments demand precise measurements under challenging conditions, including high currents, fast PWM switching frequencies, and confined installation spaces. DC-CT® sensors offer the wide bandwidth necessary to accurately capture rapid inverter switching behavior, alongside a compact design for seamless vehicle integration. Crucially, unlike traditional zero-flux alternatives, the DC-CT® will not be destroyed if high current flows while the unit is unpowered. This fail-safe advantage means you can permanently install sensors throughout your entire test fleet, leaving them safely in-line and simply powering them up only when you need to measure.

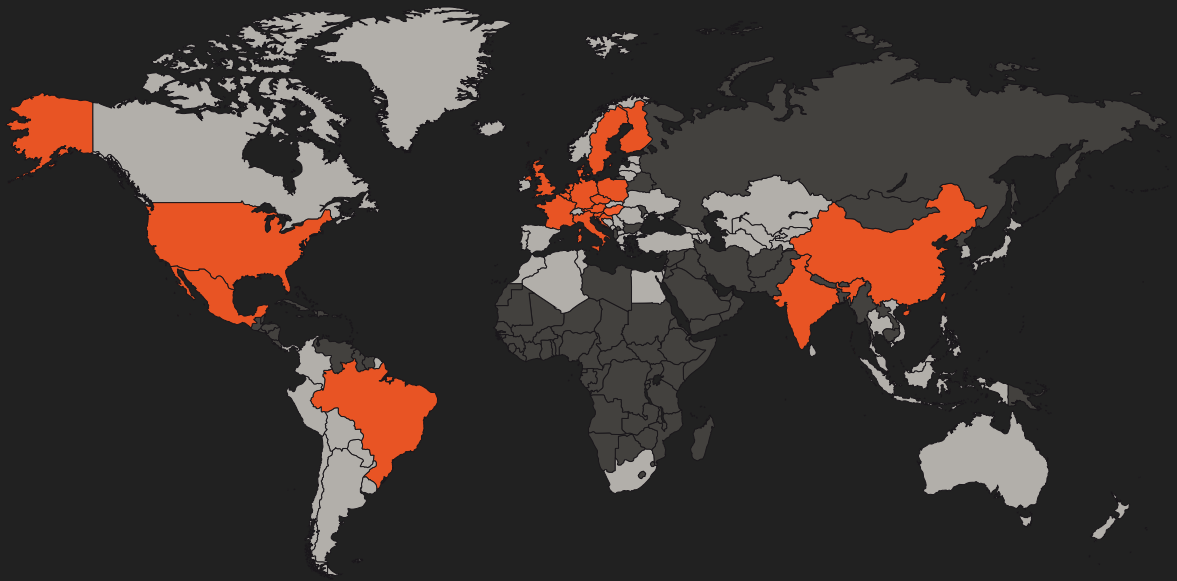
GRID ANALYSIS

Grid analysis requires highly accurate measurement of both DC input and AC output power to reliably determine system efficiency. DC-CT® sensors provide the precision needed for this task, with a flat phase response that ensures accurate calculation of active, reactive, and apparent power. Furthermore, they easily combine with other Dewesoft DAQ systems to deliver best-in-class power analysis, enabling confident performance evaluation across modern power networks.

BATTERY TESTING

Battery testing demands stable and highly accurate measurements throughout charge and discharge cycles, often under varying temperature conditions. DC-CT® sensors are designed for this challenge, offering exceptionally low temperature drift below 1 ppm/K, which ensures consistent accuracy during long-duration tests and supports reliable evaluation of battery performance over time.





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