DATA SHEET DS-FLEX-3000-35

For more information, please visit: www.dewesoft.com

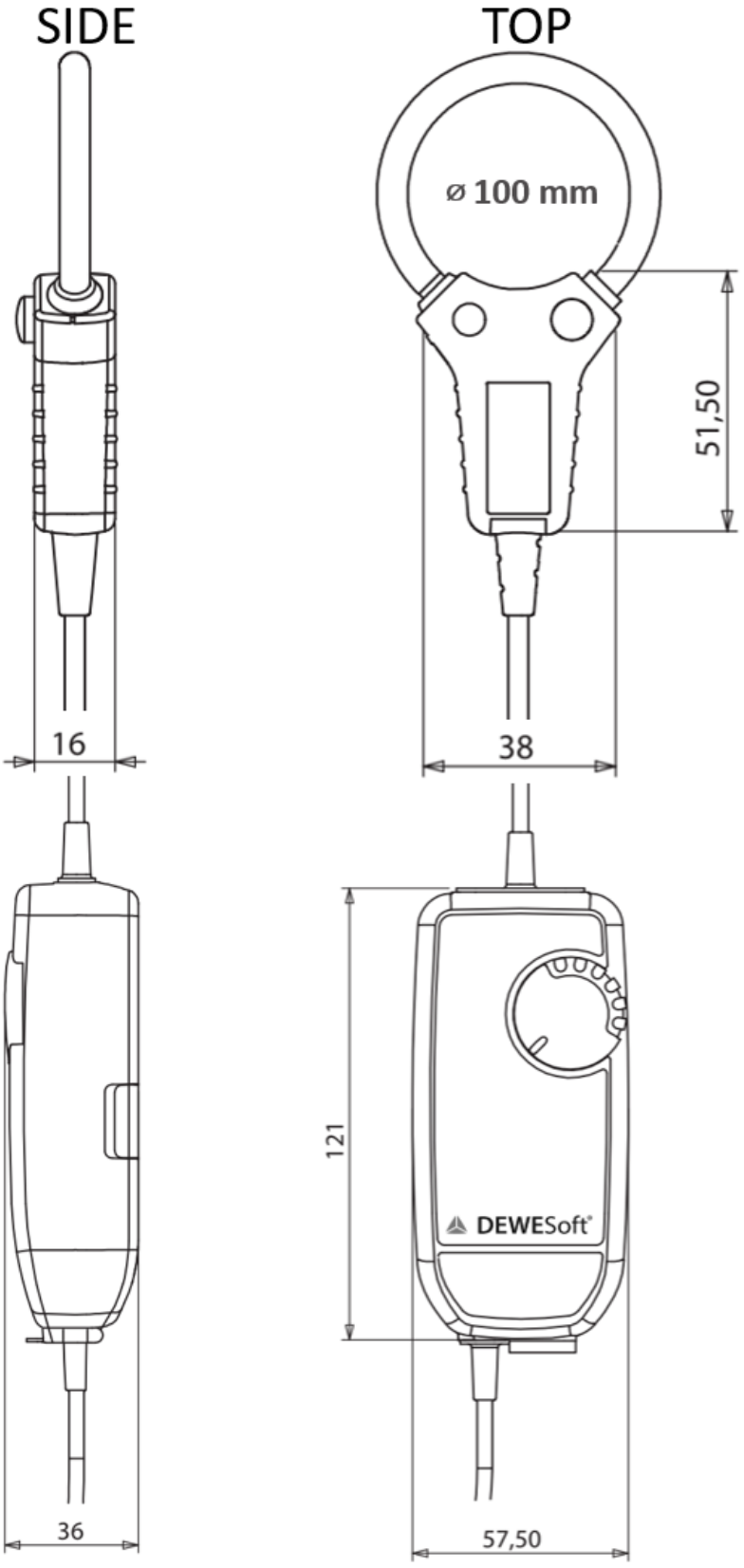
Product Overview

A Rogowski coil is a simple measurement device which allows an AC current measurement without splitting the conductor. It consists of a helical coil of wire with the lead from one end returning through the center of the coil to the other end so that both terminals are at the same end of the coil. This coil must be wrapped around the conductor where the current measurement will take place. This allows for a measurement to be done without cutting, disconnecting or stripping the wire. The alternating current in the conductor will cause a voltage induction in the coil.

There are also some disadvantages. Because the principle of measurement with the Rogowski coil is the measurement of the induced voltage caused by the current flowing inside of the coil, which is proportional to the derivation of the current, an integrator circuit must be used on the output side to make the output voltage proportional to the current flowing through the conductor. Therefore, an external power supply is necessary. It's not possible to measure DC currents (exception: special types of Rogowski coils are able to measure DC currents). The biggest disadvantage of the Rogowski coil is the phase shift. The phase shift also depends heavily on the positioning of the coil (vertical and horizontal). This positioning error of the coil cannot be compensated using the Dewesoft sensor editor. But the phase and amplitude error due to frequency behavior can be compensated using the sensor editor.

Measurement with the Rogowski coil has several advantages. Rogowski coils are available for measuring very small currents (≈ 100 mA) up to very high currents (> 100 kA). The coil itself is flexible, thin, light and robust. Since there are no magnetic materials, the Rogowski coils cannot saturate and, therefore, has a high overload withstand capability. They are very linear and immune to DC currents which allow for measuring small AC currents with the presence of a large DC component. The bandwidth of the Rogowski coils depends on the type and price and can go up to several MHz.

Dimensions

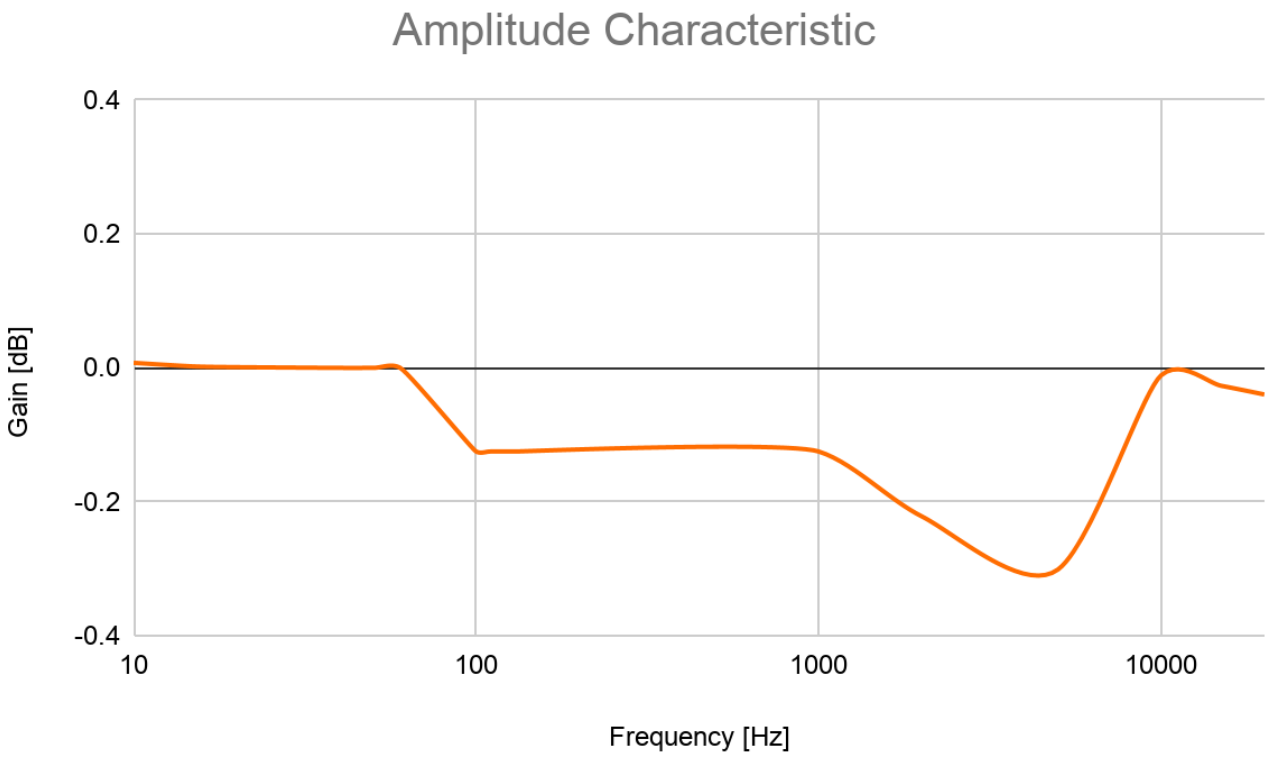


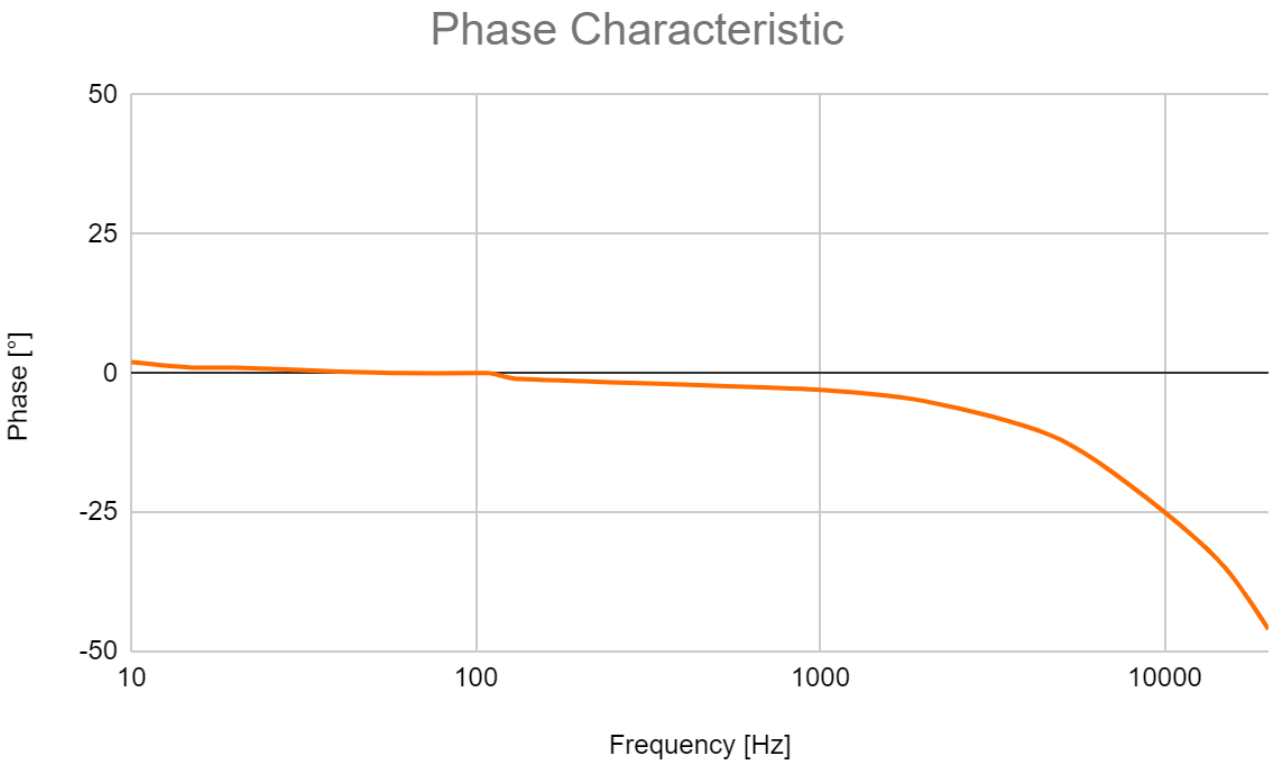
All dimensions in [mm]

Specifications

DS-FLEX-3000-35			
Type	Rogowski coil	**Coil Diameter**	100 mm
Current Range	3 A, 30 A, 300 A, 3000 A AC RMS	**Power Supply**	+5 V
Sensitivity	1000 mV/A, 100 mV/A, 10 mV/A, 1 mV/A	**Operating Temperature**	- 10 °C to + 55 °C
Accuracy (+25 °C)	≤ 1.5 %	**Operating Humidity**	up to 90 % (not condensing)
Phase Error	≤ 1.0 deg	**Safety Standards**	EN60529 EN61010-2 EN61010-2-032:2012
Bandwidth	3 A: 10 Hz to 10 kHz Others: 10 Hz to 20 kHz	**Safety**	CAT IV 600V
TEDS	Not supported	**EMC Standards**	EN61326-1:2013
Noise	≤ 0.04 Arms	**PWR-MCTS2 needed**	No
Temperature Coefficient	≤ 0.5 % / 10 °C	**Compatible Amplifiers**	SIRIUS LV / HS-LV / XHS-LV SIRIUS STG / HS-STG SIRIUS STGM DEWE 43
Casing Dimensions [mm]	120 x 58 x 36	**Cable length**	2.5 m (Extendable to 10 m upon request)
Coil Length	350 mm		

Amplitude and Phase Characteristics





Measurement range used: 30 A

Document version history

Revision Number: 2
Last modified: 28 October 2021

Version	Date [yyyy.mm]	Notes
V21-1	2021-08	Initial document creation
V21-2	2021-10	Updated Dimensions