R&S®EZ-17 CURRENT PROBE

Electromagnetic emission and susceptibility measurements from 20 Hz to 100 MHz (245 MHz)



AT A GLANCE

Wanted and unwanted currents on supply and control lines of equipment and systems can be measured contact-free with current probes clamped onto the conductors. The current probe forms a transformer, where the current-carrying conductor represents the primary winding. A voltage proportional to the primary current is provided at the RF output of the current probe.

Key facts

- ► Frequency range from 20 Hz to 100 MHz (245 MHz)
- ► Maximum load capacity of 300 A for DC or AC currents
- ► Inner diameter of 30 mm
- ► Simple clamping thanks to spring-loaded mechanism
- ► Calibrated in line with CISPR 16-1-2

Fields of application

Current probes are used for EMC measurements especially where other coupling networks, such as line impedance stabilization networks, are either not available or not suitable for practical reasons. Current probes are also used to measure the electromagnetic susceptibility of equipment and systems. Current probes inject sine-wave or pulsed RF current into lines or cable bundles. The shielding effectiveness of RF cables can also be easily measured with current probes.

Two models for diverse applications

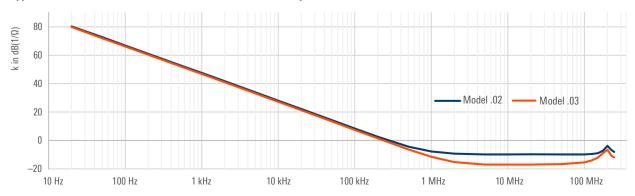
Both models are suitable for the following applications in the frequency range from 20 Hz to 100 MHz (245 MHz):

- ► Model .02 complies with the CISPR 16-1-2 standard. It has a flat frequency response above 1 MHz and an internal impedance of 50 Ω. This makes it ideal for emission measurements in line with CISPR 14-1, CISPR 25, CISPR 32 and MIL-STD-461 as well as for measuring shielding effectiveness.
- ▶ Due to its small transducer factor in the range from 1 MHz to 200 MHz, model .03 is particularly suitable for emission measurements with stringent sensitivity requirements, e.g. VG 95373-20 and RTCA/DO-160. Due to its high load capacity, it is also recommended for EMS measurements.

Use on power lines up to 300 A

Due to their high magnetic overload capacity, the R&S°EZ-17 current probes can be used on power lines with currents up to 300 A without any adverse effects on RF current measurement results. Despite the large inner diameter, the small outer dimensions and the simple clamping mechanism allow the current probes to be used even in tight spaces.

Typical transducer factors k of the R&S®EZ-17 current probes



Fequency range	Specifications in brief		
Page			20 Hz to 100 MHz (245 MHz) 1)
model .03	. , .	model 02	i i
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model 03 20 Hz 02 MHz	Transducer factor radical by 20 dD/decade in	model .05	Z IVITIZ (O 100 IVITIZ
March Marc		model .02	20 Hz to 1 MHz
RF connector model .02	runge	model 03	20 Hz to 2 MHz
Internal impedance	PE connector	model .oo	
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model .03	VSWB		
Insertion impedance model .02 model .03 1 Ω	VOVVII		< Z
Transfer impedance Z	Innertian impedance		- 000
Transfer impedance Z, Annage with constant transducer factor model .02 3.16 Ω model .03 7.1 Ω model .03 0.1 Ω model .03 0.1 Ω model .03 0.1 Ω	insertion impedance		
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model.03		1.1.00	0.10.0
Transducer factor k in range with flat frequency responses model .03 —17 dB (I/Q) model .02 —18 dB Actenuation of currents from conductors next to the probe Load capacity (RF current measurement) model .02, f > 1 MHz — 300 A —300 A —3	Range with constant transducer factor		
Influence due to external magnetic fields	T 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	model .03	/.1 Ω
Influence due to external magnetic fields Attenuation of currents from conductors next to the probe Load capacity (RF current measurement) Maximum DC current or peak AC current model. 02, f > 1 MHz 2 300 A RMS value of RF current model. 03, f > 1 MHz 2 1 A Load capacity (EMS measurement) AC RMS value, f < 1 kHz 6 A Dropping to model. 02, up to 1 MHz 0, 2 A model. 02, up to 1 MHz 0, 2 A model. 02, 1 > 1 MHz 0, 45 A Above model. 02, f > 1 MHz 0, 45 A model. 02, 1 > 1 MHz 0, 45 A model. 03, f > 1 MHz 0, 45 A model. 03, f > 1 MHz 0, 45 A model. 02, up to 1 MHz 0, 45 A Above model. 03, f > 1 MHz 0, 45 A model. 02, up to 1 MHz 0, 45 A model. 02, t > 1 MHz 0, 45 A model. 02, t > 1 MHz 0, 45 A model. 02, t > 1 MHz 0, 45 A model. 02, f > 1 MHz 0, 45 A model. 02, f > 1 MHz 0, 45 A model. 02, t		model .02	$-10 \text{ dB} (1/\Omega)$
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Section Sect	Influence due to external magnetic fields		
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Above model .03, 1 MHz			
Model .02, f > 1 MHz	Dropping to		
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	Extended warranty with accredited calibration	R&S°AW1/2/3/4	

The scope of delivery includes an individual table with the transducer factor from 20 Hz to 245 MHz. The transducer factor k is calculated as k = 20log (1/Z $_{\gamma}$), where Z $_{\gamma}$ is the transfer impedance.

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