

# Universal 50 MHz Current Probes for use with oscilloscope, PR 50 and PR 50/SP16



- Bandwidth DC up to 50 MHz
- Nominal current 30 A
- Max. current 50 A, < 10 s
- Automatic zero adjustment and degauss functions
- Overheating and Head Unlocked warning
- Rise time < 7 ns
- External magnetic field rejection rate AC and DC 60 dB
- Rejection rate of fast  $dv/dt$  ( $5kV/\mu s$ ) < 15 mA t
- 2 metres (PR50) or 8 metres (PR50/SP16) cable length available

### Description

Designed for use with all types of oscilloscopes, the PR 50 Current Probe offers an ergonomic, robust and high performing solution for the measurement of DC and AC currents up to 50 MHz and up to 50 A.

### Applications

All current measurements DC, AC and complex waveforms with or without DC components.

- Controllers and Inverters
- Static UPS systems
- Switch-mode power supplies (SMPS)
- Welding equipment, etc.
- Electronic ballast

### Safety - Standards

The probe has been designed to comply with:

EN 61010-1

EN 61010-2-032

Working Voltage : pollution degree 1

300 V DC or RMS, over voltage cat. I

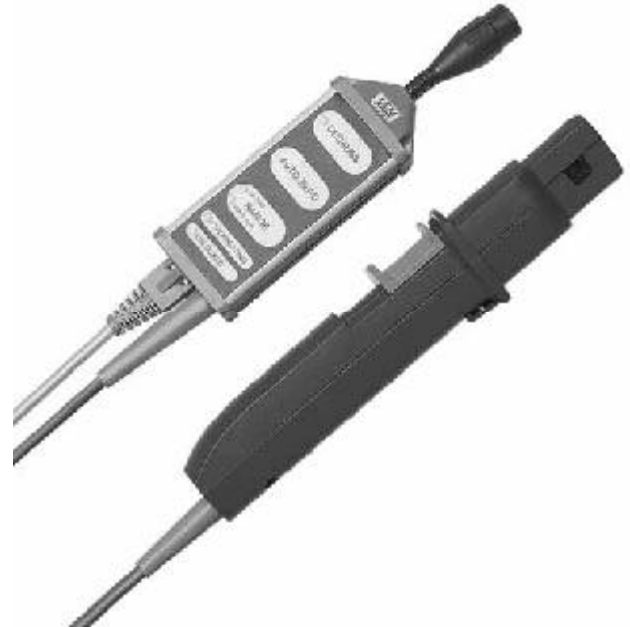
or 150 V DC or RMS, over voltage cat. II

73/23/EEC Low voltage directive

EN 50081-1

EN 50082-1

89/336/EEC EMC directive



### Key Elements

- Standard BNC connector output suitable for use with any oscilloscope.
- Auto zero function is started automatically when the probe is powered. Additionally it should be used whenever the probe is subjected to current overloads or variation of environmental conditions.
- Auto degauss button which is used to degauss the measuring head optimising the use of the probe performance.
- LED indicators for overheating and unlocked probe head, prevent damaging the probe.
- The probe can be powered from a standard  $\pm 12 V / 1.3 A$  power supply as well as a dedicated LEM power supply type LS 50. The power supply is capable of powering two PR 50's and it complies with the EN 50082 EMC standard.

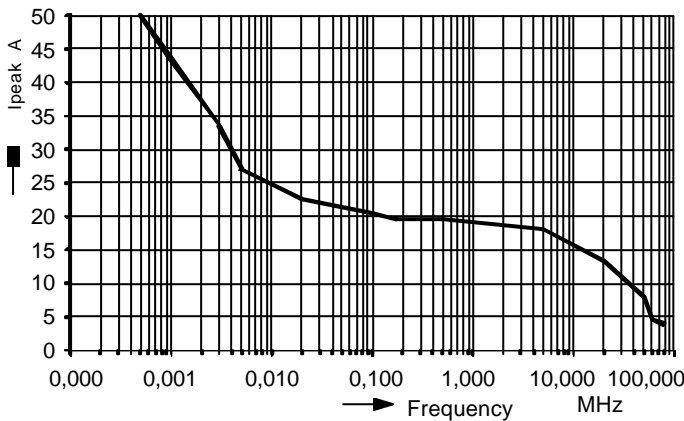


Fig. 1 Frequency Derating

## Electrical data

$I_{PN}$	Nominal current	$\pm 30$	A
$I_P$	Measuring range (max. duration 10 s)	<b>PR 50</b>	$\pm 50$ A
		<b>PR 50/SP16</b>	$\pm 43$ A
$I_C$	Current consumption		
	at nominal current	550	mA
	during degauss of 6 s	1.3	A
$V_{out}$	Output voltage (external load 1 M $\Omega$ )		
	Low range, up to 3 A	1	V/A
	High range, up to 50 A	100	mV/A
f	Bandwidth (-3dB)	DC...50	MHz
X	Overall accuracy (DC to 100 Hz at 25°C)		
	at $I_{PN}$	typ $\pm 0.5$	%
	at $I_P$	max. $\pm 1.5$	%
$t_r$	Rise time	< 7	ns
$t_d$	Delay time	<b>PR 50</b>	< 25 ns
$t_d$	Delay time	<b>PR 50/SP16</b>	< 50 ns
	External magnetic field rejection rate AC and DC	60	dB
	Rejection rate of fast dv/dt at 5 kV/ $\mu$ s	< 15	mAt
	Output noise level, RMS value (measured with 25 MHz filter), typical	1	mAt
	Insertion impedance		
	up to 10 MHz	< 0.1	$\Omega$
	from 10 MHz to 50 MHz	< 0.4	$\Omega$

## General data

Dimensions:			
Probe:	L 191 mm x W 29 mm x H 41 mm		
	Max. conductor size	5 x 5	mm
	Cable length	<b>PR 50</b>	2 m
		<b>PR 50/SP16</b>	8 m
$T_A$	Operating temperature range	0...40	°C
$T_S$	Storage temperature	-10...60	°C
	Maximum relative humidity at 31 °C	80	%
	Maximum primary conductor temp.	60	°C
m	Weight (probe head, cable and terminal box)	<b>PR 50</b>	400 g
		<b>PR 50/SP16</b>	610 g
	Environment	indoor use	
	Maximum altitude	2000	m

## Accessories

The following items are supplied with the PR 50 and with PR 50/SP16:

- Current probe
- Carrying case
- Power supply cable
- Calibration certificate
- Power supply adapter
- Earthing lead
- Operator manual

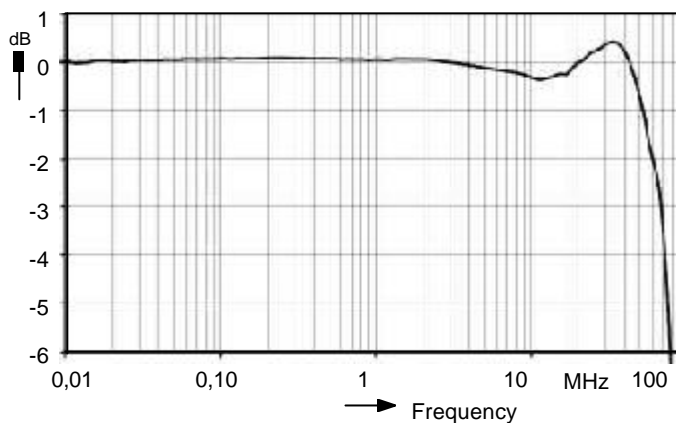


Fig. 2 Frequency response

The probe provides a high quality harmonic response thanks to no pre-shoot and oscillation during the rising edge of a fast current pulse (see fig. 3).

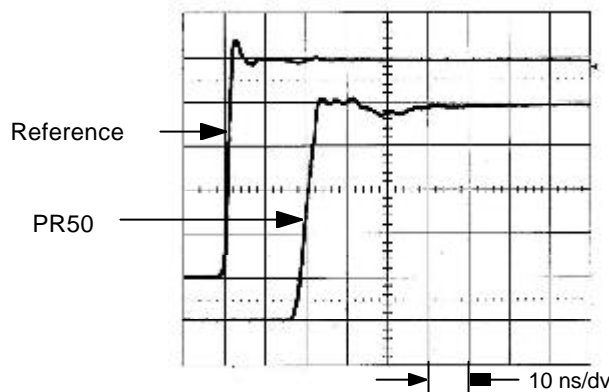


Figure 3 Step response



LS 50 Power supply



Carrying case

