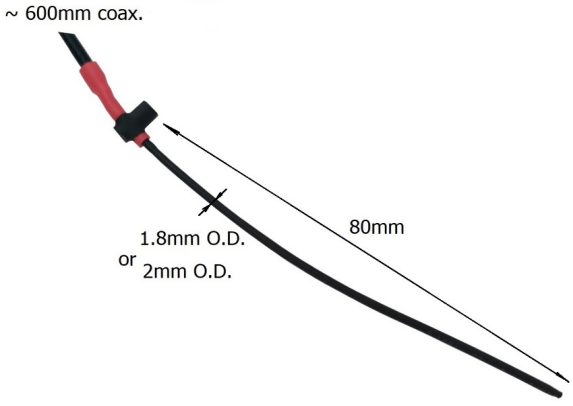
RP8025 Rogowski coil current probe Datasheet

RP8025 Rogowski Coil-based Current Probe, engineered to provide precise measurements of high-frequency AC currents in tight spaces without breaking the bank. This innovative probe boasts a compact sensing coil, perfectly suited for slipping between the leads of a TO-220 transistor or wrapping around the leads of various through-hole power components. The RP8025 includes both the Rogowski Coil and an integrator/amplifier, expertly engineered to condition the signal from the coil and produce an output voltage reflecting the current flow within a conductor encircled by the Rogowski Coil. Particularly useful for investigating Switching Mode Power Supplies (SMPS), unlock exceptional accuracy and versatility with our cost-effective Rogowski Coil-based Current Probe.

Two Rogowski coils with different sensitivity can be used. For measuring up to +/- 60A and for measuring up to +/- 120A. RP8025 supports them both.

Miniature Rogowski Coil, boasting a sleek design with a compact ~30mm diameter for seamless non-intrusive current measurements.

- 80mm long Rogowski coil
- 1.8mm/2mm outer diameter
- 600mm coax cable to the instrument



Crafted with a sturdy aluminum enclosure, featuring a convenient BNC connector for direct attachment to your oscilloscope.

Effortlessly powered via the oscilloscope's USB connector, utilizing a dependable USB-C connection on the instrument side.

Fine-tune both the sensitivity and impulse slope compensation, ensuring most accurate representation of what you are measuring.

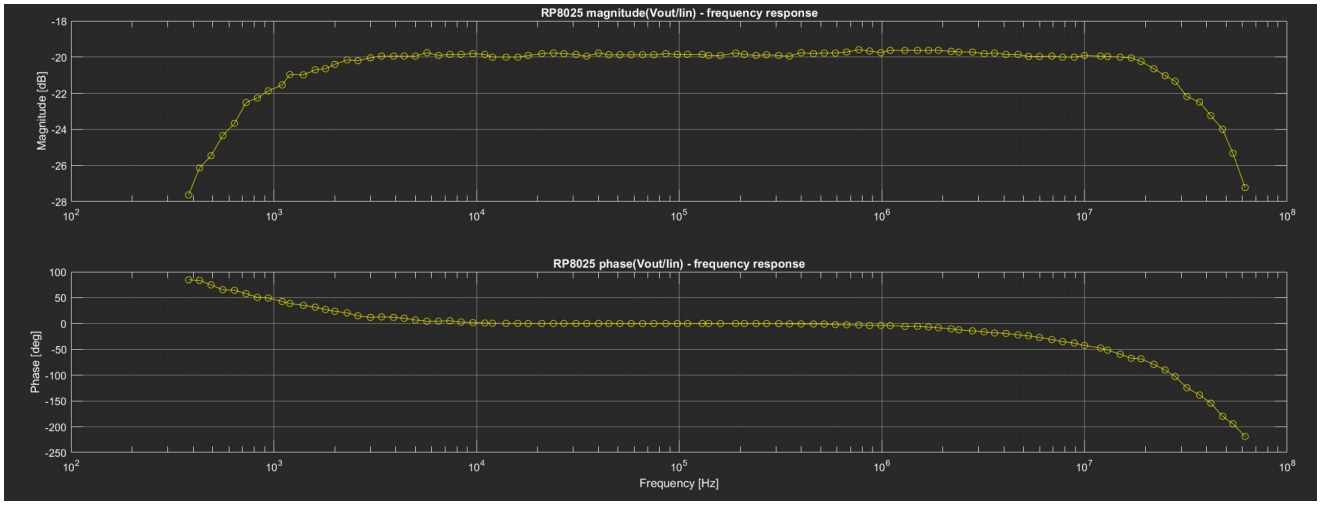
Specification

Parameter		Value	Unit
Electrical			
Bandwidth		0.8 - 25000	kHz
Sensitivity	“+/- 60A coil”	0.1	V/A
	“+/- 120A coil”	0.05	V/A
Current Range	“+/- 60A coil”	+/- 60	A
	“+/- 120A coil”	+/- 120	A
Noise	“+/- 60A coil”	6	mArms
	“+/- 120A coil”	10	mArms
Slew Rate		1	A/ns
Voltage range at the output BNC	On 1MΩ oscilloscope input	+/- 7	V
	On 50Ω oscilloscope input if mistakenly set	+/- 3.6	V
Mechanical			
Coil length		80	mm
Coil outer diameter	“+/- 60A coil”	1.8	mm
	“+/- 120A coil”	2	mm
Coax cable length		600	mm
Enclosure dimensions		25 x 25 x 53	mm
Environment			
Working temperature of the enclosure		0 - +55	°C
Working temperature of the coil		-10 - +100	°C
Storage temperature		-20 - +70	°C

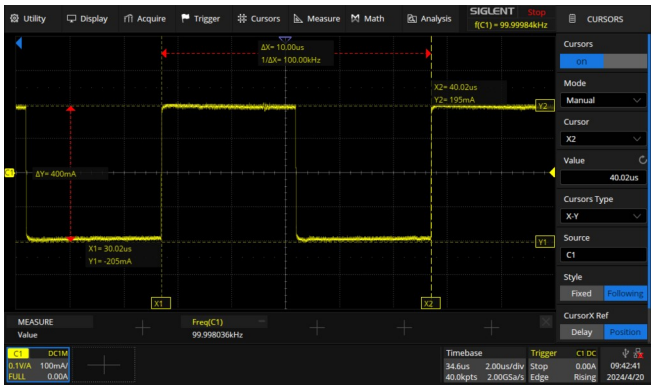
Operation

- Set the oscilloscope input to high impedance (1MΩ).
- Connect the RP8025 to the oscilloscope's BNC connector.
- Power the RP8025 using the provided USB cable. Connect it to the USB-A connector on your oscilloscope. Verify that the RP8025 power LED illuminates.
- Set the oscilloscope unit to Amperes.
- Adjust the oscilloscope sensitivity to 0.1V/A (10:1) if you are using the “+/- 60A coil” or 0.05V/A (20:1) if you are using the “+/- 120A coil”.
- Clip the coil around the wire/pin carrying the current of interest.

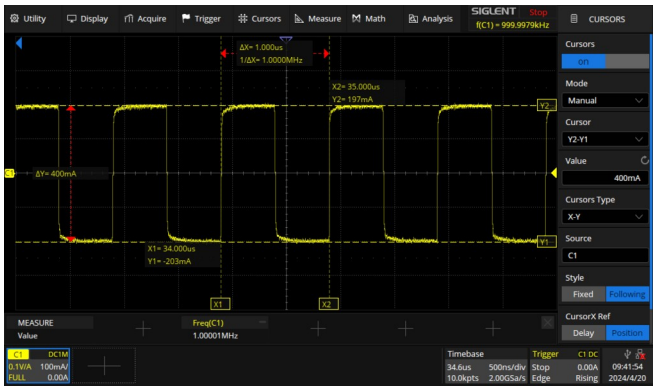
Some measurements (using “+/- 60A coil”)



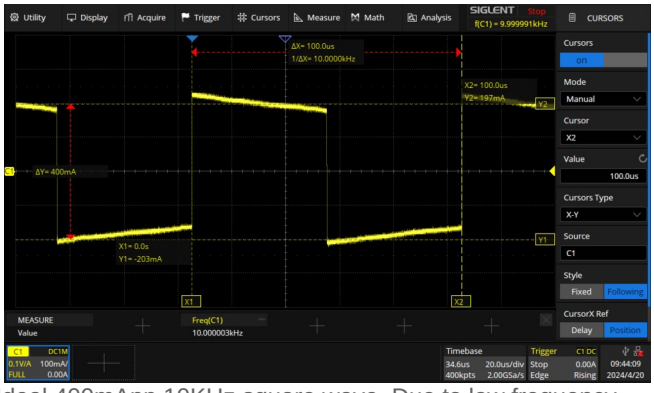
RP8025 – Measured frequency response



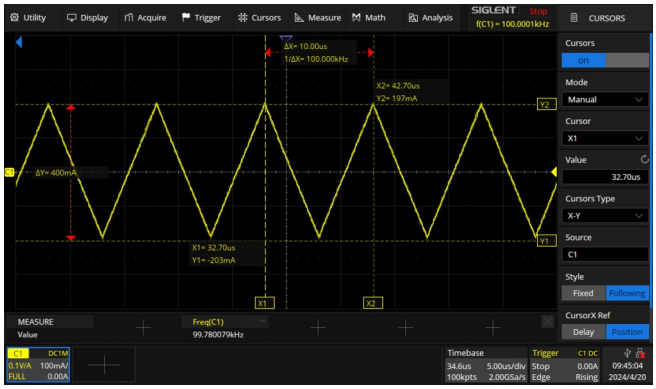
Ideal 400mApp 100KHz square wave current measurement



Ideal 400mApp 1MHz square wave current measurement



Ideal 400mApp 10KHz square wave. Due to low frequency cut-off the tops and bottoms are tilt.



400mApp ideal 100KHz triangle wave current measurement