LFR SPECIFICATION

The LFR is a dual range ac current probe with a flexible, clip-around coil. It can be powered either by a single 9V battery or an external dc supply.

The LFR has market leading low frequency performance, optimised to give minimal phase measurement error from 45Hz up to 20kHz and the lowest possible noise floor. It also has a good high frequency performance e.g. 1.0MHz bandwidth for a 300mm coil.

Option external power adaptor

Option BNC to banana plug

The LFR has a 10:1 switch selectable current rating to give a wide measurement range in a single probe.

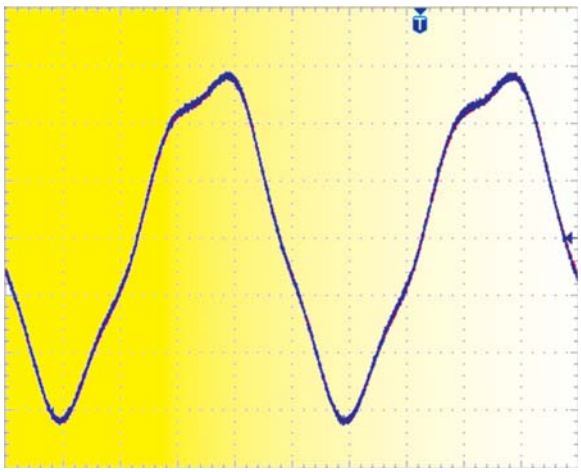
It is available in ratings from 60A up to 60.0kA and with coil lengths from 300 to 1000mm. Longer coils can be supplied on request.

The LFR is ideal for current monitoring in power measuring applications, of leakage currents, and for power quality measurements.

The LFR is a Rogowski current probe with all the benefits: easy to insert in confined spaces (8.5mm max coil thickness), not affected by dc current, is undamaged by current overloads and is non-intrusive.

The LFR can be used with oscilloscopes, power analysers and meters, acquisition cards and dataloggers.

The LFR is CE marked and complies with safety standard EN61010.



90A peak current / 50Hz with 3rd harmonic distortion
Timebase: 4.0ms per division
Channel 1: Class 0.2 current transformer
Channel 2: LFR03/3, 100mV/A, Phase error <0.85° at 50Hz

POWER ELECTRONIC MEASUREMENTS Ltd.,
Nottingham, UK

PERFORMANCE CHARACTERISTICS

Type	Sensitivity (mV/A)		Peak current (A)		Noise typ. *1 (mV rms)		Phase error at 50Hz max. (deg.)	LF (-3dB) bandwidth typ. (Hz) f_L	Phase error at 20kHz *2 typ. (deg) Coil Length		Peak di/dt *3 (kA/µs)	
	x10	x1	x10	x1	x10	x1			300mm	700mm	x10	x1
LFR 03/3	100.0	10.0	60.0	600.0	3.0	1.0	<0.85°	0.45	1.8°	3.0°	0.015	0.25
LFR 06/6	50.0	5.0	120.0	1.2k	3.0	1.0	<0.50°	0.23	1.8°	3.0°	0.03	0.5
LFR 1/15	20.0	2.0	300.0	3.0k	2.0	1.0	<0.35°	0.15	1.8°	3.0°	0.1	1.2
LFR 3/30	10.0	1.0	600.0	6.0k	2.0	1.0	<0.25°	0.10	1.8°	3.0°	0.2	2.5
LFR 6/60	5.0	0.5	1.2k	12.0k	2.0	1.0	<0.20°	0.08	1.8°	3.0°	0.4	5.0
LFR 15/150	2.0	0.2	3.0k	30.0k	1.0	0.5	<0.18°	0.07	1.8°	3.0°	0.9	6.0
LFR 30/300	1.0	0.1	6.0k	60.0k	1.0	0.5	<0.18°	0.07	1.8°	3.0°	1.8	6.0

*1 Distributed around the f_L (-3dB) bandwidth. The peak to peak magnitude of the noise = 6.1 *Noise typ. (rms)
*2 The high frequency bandwidth is in part dependent on coil length. Contact PEM for values of f_H for other coil lengths.
*3 Slew rate limitation

HIGH FREQ. (-3dB) bandwidth typ f_H *2
1.0 MHz (for coil length 300mm)
600.0 kHz (for coil length 700mm)

TYPICAL ACCURACY
Calibrated to ±0.3% with conductor central in the Rogowski loop. Calibration certificate supplied.
Variation with conductor position in the coil loop typically ±1%

TYPICAL LINEARITY
±0.05% (full scale)

DC OFFSET max @ 65°C
±2.5mV

ABSOLUTE MAXIMUM VALUES ***of di / dt (kA / µs)***
(values must not be exceeded)
PEAK 6.0
RMS 0.3 @ 70°C (further information available on request)

COIL AND CABLE

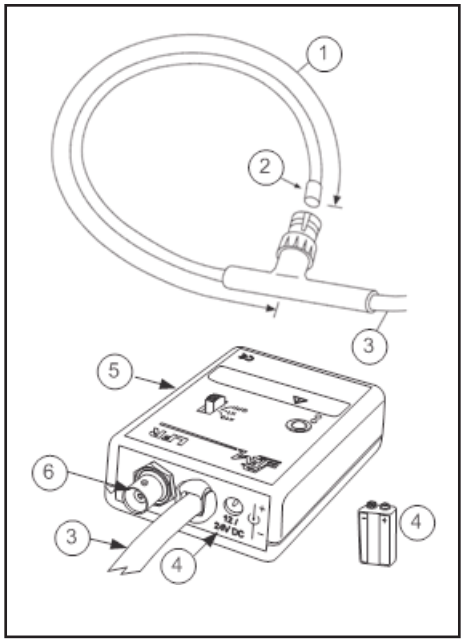
① **COIL CIRCUMFERENCE** 300, 500, 700 or 1000mm

② **COIL CROSS SECTION** (max) 8.5mm (14mm with sleeve)

PEAK COIL VOLTAGE ISOLATION 2kV
Safe peak working voltage to earth. The coils are flash tested at 4kVrms for 60 seconds. The coil is supplied with a removable silicone sleeve for additional mechanical protection. Information about continuous use of the coils at high voltage can be obtained from PEM.

TEMPERATURE RANGE -20°C to 70°C
For de-rating due to temperature cycling please consult PEM

③ **CABLE LENGTH** (from box to coil) 2.5m



INTEGRATOR

④ **POWER SUPPLY**
Single 9V PP3 battery - battery life typically 50 hours
-plus-
2.1/2.5mm socket for 12V to 24Vdc (±10%) DC supply - (Quiescent current 10mA)
Optional power supply available from PEM.
Battery inoperative with DC supply present

⑤ **INTEGRATOR BOX DIMENSIONS** H = 28mm, W = 65mm, D = 90mm

⑥ **OUTPUT SOCKET**
BNC (output impedance 50Ω - unit supplied with 0.5m BNC - BNC coaxial cable)
Optional 0.5m BNC to banana plug cable available from PEM

MIN. OUTPUT LOADING
100kΩ (for rated accuracy)

TEMPERATURE RANGE
-10°C to 55°C

ORDERING

	Type	/	Coil Circumference (mm)
e.g. order code	**LFR 06/6**	/	**700**

If you have any queries regarding the **LFR** or require specifications outside our standard ranges please do not hesitate to contact us.