



PROFLINE 2103

3 KVA 1-PHASE HARMONICS AND FLICKER MEASURING SYSTEM



- **Low cost system for small DUTs**
- **Complete test system including clean power source**
- **Simulated flicker impedance, no need for expensive physical impedance**

System

ProfLine 2103 is an accurate and flexible single phase system designed to measure harmonics and flicker in accordance with IEC 61000-3-2 and IEC 61000-3-3, supporting testing on products consuming up to 11 Amps rms and 92 Amp peak @230 Vac. The system is supplied complete with a stable, accurate, programmable 3 kVA power source. The ProfLine 2103 system is therefore ready to measure and record any harmonics and flicker created by the EUT. A wide range of higher power AC source systems are available from Teseq, please see ProfLine 2105, 2115, 2130, 2145 datasheets for suitable systems at higher power or for 3-phase operation.

Measurements are made using precision, no burden, active hall-effect current transformers connected via a dedicated cable to a multichannel fast Data Acquisition Card (DAQ) fitted inside a PC. One voltage and three current measuring channels are used to make simultaneous measurement of both current and voltage. Calculations are made using dedicated Teseq software (WIN 2100) to determine harmonics (classes A-D), inter-harmonics, flicker, dc, dt, dmax, Pst, Plt, inrush current and 24 x dmax.

Impedance

Measurement of flicker requires a fixed, stable source impedance as specified in IEC 61000-3-3 ($0.24 \Omega + j0.15 \Omega$ in the line and $0.16 \Omega + j0.1 \Omega$ in the neutral). The precision power source (NSG 1007-3) supplied as part of the system is able to accurately simulate this impedance by careful control of the relationship between voltage and current. This eliminates the need for a costly physical impedance. However, hardware lumped impedances are available from Teseq, see options list.

Power quality measurement

The power source (NSG 1007-3) supplied as part of the ProfLine 2103 system is able to perform tests in conformance to a number of immunity standards. IEC 61000-4-13 (immunity to harmonics and interharmonics), IEC 61000-4-14 (voltage fluctuations), IEC 61000-4-17 (ripple on DC) and IEC 61000-4-28 (variation of power frequency). Additionally it can also perform pre-compliance testing to IEC 61000-4-29 (voltage dips, interrupts and variations on DC supply) and IEC 61000-4-11. With the addition of further options IEC 61000-4-8 (power frequency magnetics) and fully compliant IEC 61000-4-11 (voltage dips, interrupts and variation on AC supply) can be implemented.

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Technical information

Mains supply options	ProfLine 2103-240
System contents	NSG 1007-3-240 Power source CCN 1000-1 1-phase coupling unit DAQ card Interface cable WIN 2100 H&F test software WIN 2110 PQT test software Pre-configured PC USB cable
Power source (for full specification see separate datasheet)	
Power output (AC mode)	3,000 VA
Voltage AC, two ranges	0-150 V and 0-300 V
Maximum current (low range)	22.2 Amps, 110 Amps peak repetitive
Maximum current (high range)	11.1 Amps, 96 Amps peak repetitive
Frequency range (AC mode)	16 Hz – 1000 Hz
Power output (DC mode)	2,100 watts
Voltage DC, two ranges	0-200 V and 0-400 V
Maximum current (low range)	15.6 Amps
Maximum current (high range)	7.8 Amps
Supply	1-phase, 240 Vac L-N, 50/60 Hz
Dimensions (HxWxD)	178 x 483 x 610 mm
Weight	28 kg
Coupling unit	
Number of phases	1
Measurement channels	4
EUT connector: Front panel	CEE 77
EUT connector: Rear panel	Terminal block
Maximum voltage: Front panel	240 Vac
Maximum current: Front panel	16 Arms
Maximum voltage: Rear panel	300 Vac
Maximum current: Rear panel	40 Arms (200 A Pk for 10 ms)
Supply power: Voltage	115/230 Vac +/- 10%
Supply power: Current	<0.5 A
Supply power: Frequency	50/60 Hz
Dimensions (HxWxD)	89 x 427 x 560 mm
Weight	5 kg

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Technical information

DAQ card and cable	
Interface	PCI
Size	Standard height
Resolution	16 bit
Speed	250 kSamples/s
Cable length PC to CCN	2 m
PC	
Minimum specification	
Processor	Pentium 2 GHz
RAM	2 GB
Hard disk	80 GB
Operating system	Windows XP or Vista

Options

- INA 2151, 1-phase IEC 61000-3-3 16 Amp reference impedance
- CCN 1000-1L, 1-phase coupling unit with integrated IEC 61000-3-3 16 Amp impedance
- INA 2188, Rack mounting kit for CCN 1000-1
- INA 2189, Rack mounting kit for NSG 1007-3
- Option 8, 1 m magnetic loop antenna 100 A/m continuous
- Option 11-1, 1-phase AC switch used to switch power between the source (set to the lower required voltage) and the mains supply in a time between 1-5 us. For detailed specification please see separate datasheet.
- Avionics immunity & emissions test capability for DO-160, Airbus and Boeing