



## **PROFLINE 2130**

# **30 KVA 3-PHASE HARMONICS AND FLICKER MEASURING SYSTEM**



- **Complete test system**
- **IEC 61000-3-2, -3-3, -3-11 and -3-12**
- **Three phase system up to 43 Amps per phase**
- **Power source suitable for testing to many immunity standards**

### **System**

ProfLine 2130 is an accurate and flexible 3-phase system designed to measure harmonics and flicker in accordance with IEC 61000-3-2 and IEC 61000-3-3. This system can also be used to test to IEC 61000-3-11 and IEC 61000-3-12 on products consuming up to 37 Amps per phase @230Vac. The system is supplied complete with a stable, accurate, programmable 10 kVA per phase power source. The ProfLine 2130 system is therefore ready to measure and record any harmonics and flicker created by the EUT. A wide range of different AC source systems are available from Teseq, please see ProfLine 2103, 2105, 2115, 2145 datasheets for suitable systems at other powers or for single phase operation.

The system is delivered as a stand alone power supply unit and a suitable 19" rack housing the ancillary and measuring equipment, the system is ready to use with the supplied PC which has pre-installed software and calibration files.

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 per phase 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 each line and  $0.16 \Omega + j0.1 \Omega$  in the neutral). A suitable impedance unit INA 2153 is supplied as part of the system.

### **Power quality measurement**

The power source (NSG 1007-30) supplied as part of the ProfLine 2130 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), IEC 61000-4-28 (variation of power frequency) and IEC 61000-4-34 (voltage dips, interrupts and variation on AC supply > 16 Amps). 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	<b>ProfLine 2130-208</b>	<b>ProfLine 2130-400</b>
System contents	NSG 1007-30-208 Power source CCN 1000-3 3-phase coupling unit DAQ card Interface cable WIN 2100 H&F test software WIN 2106 H&F test software >16 A WIN 2145 PQT test software Pre-configured PC USB cable	NSG 1007-30-400 Power source CCN 1000-3 3-phase coupling unit DAQ card Interface cable WIN 2100 H&F test software WIN 2106 H&F test software >16 A WIN 2145 PQT test software Pre-configured PC USB cable
<b>Power source</b> (for full specification see separate datasheet)		
Power output (AC mode)	3 x 10,000 VA	3 x 10,000 VA
Voltage AC, two ranges	0-150 V and 0-300 V	0-150 V and 0-300 V
Rated current @150 V (low range)	66.6 Amps/phase 240 Amp peak repetitive	66.6 Amps/phase 240 Amp peak repetitive
Maximum current @120 V	85 Amps/phase 300 Amps peak repetitive	85 Amps/phase 300 Amps peak repetitive
[See constant power graph below]		
Rated current @300 V (high range)	33.3 Amps/phase 120 Amp peak repetitive	33.3 Amps/phase 120 Amp peak repetitive
Maximum current @230 V	43 Amps/phase 150 Amps peak repetitive	43 Amps/phase 150 Amps peak repetitive
[See constant power graph below]		
Frequency range (AC mode)	16 Hz – 819 Hz	16 Hz – 819 Hz
Power output (DC mode)	6,667 watts/phase	6,667 watts/phase
Voltage DC, two ranges	0-200 V and 0-400 V	0-200 V and 0-400 V
Maximum current (low range)	33.3 Amps	33.3 Amps
Maximum current (high range)	16.6 Amps	16.6 Amps
Supply	3-Phase 208 Vac L-L 50/60 Hz	3-Phase 400 Vac L-L 50/60 Hz
Dimensions (per chassis)	1270 x 731 x 876 mm (HxWxD)	1270 x 731 x 876 mm (HxWxD)
Weight	522 kg	522 kg
<b>Coupling unit</b>		
Number of phases	3	3
Measurement channels	12	12
EUT connector: Rear panel	Terminal block	Terminal block

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## **Technical information**

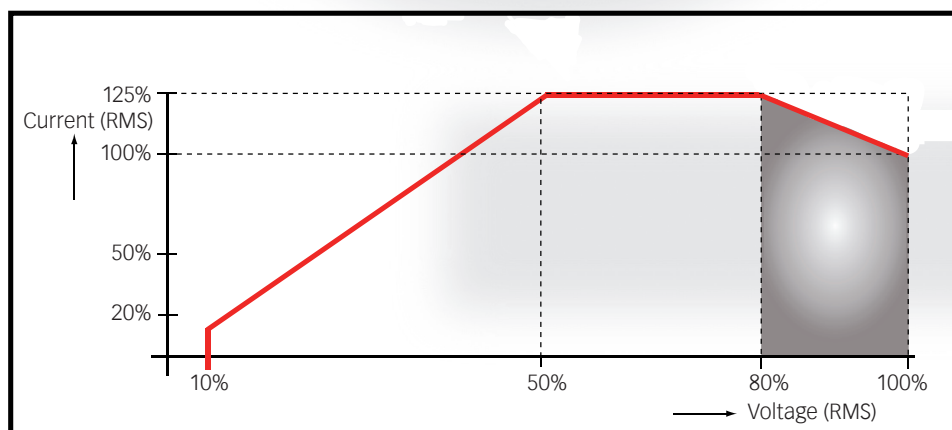
Maximum voltage	300 Vac	300 Vac
Maximum current	74 Arms (200 A Pk for 10 ms)	74 Arms (200 A Pk for 10 ms)
Supply power: Voltage	115/230 Vac +/- 10%	115/230 Vac +/- 10%
Supply power: Current	<0.5 A	<0.5 A
Supply power: Frequency	50/60 Hz	50/60 Hz
Dimensions	89 x 427 x 560 mm (HxWxD)	89 x 427 x 560 mm (HxWxD)
Weight	5 kg	5 kg
<b>Reference impedance</b>		
Number of phases	3	3
Maximum current per phase (Flicker mode)	37 Amps	37 Amps
Maximum current per phase (ByPass mode)	75 Amps	75 Amps
<b>DAQ card and cable</b>		
Interface	PCI	PCI
Size	Standard height	Standard height
Resolution	16 bit	16 bit
Speed	1.25 MSamples/s	1.25 MSamples/s
Cable length PC to CCN	2 m	2 m
<b>PC</b>	Supplied with DAQ card, card software, WIN 2100, WIN 2106 and WIN 2145. System calibration files installed.	
<b>Minimum specifications</b>		
Processor	Pentium 2 GHz	Pentium 2 GHz
RAM	2 GB	2 GB
Hard disk	80 GB	80 GB
Operating system	Windows XP or Vista	Windows XP or Vista

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### **Options**

- INA 2196, IEC 61000-3-11, 75 Amps per phase reference impedance
- Option 8, 1 m magnetic loop antenna 100 A/m continuous and 300 A/m for 3 seconds
- Option 11-3, 3-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 details specification please see separate datasheet.
- Avionics immunity & emissions test capability for DO-160, Airbus and Boeing

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