

Single-Phase Measurements with HAR1000



In one box: amplifier, measurement, soft- and hardware LIN, analysis and verification

Measurements:

V_{rms} , I_{rms} , Pf, P, f, fluctuated harmonics in real time, dual harmonics analysers for voltage and current, Pst, Plt, dmax., dc, dt

Range:

up to 50 A and 250V PH-N

Software:

for Windows 95/98, NT, 2000, XP

Dimensions: 19", 4 UH only 26 kg

Power rating:

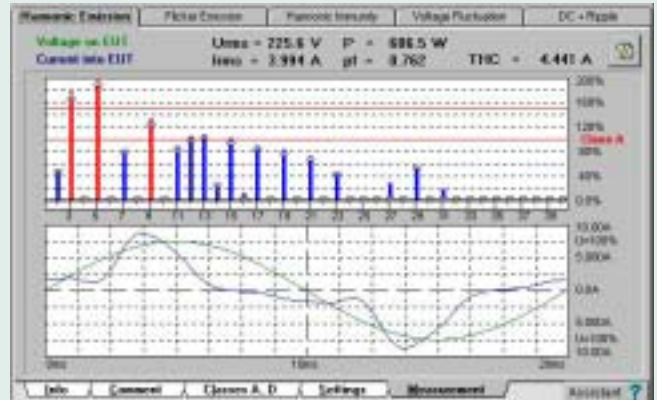
16 A, 4000 VA, 50/60 Hz

Features of HAR1000



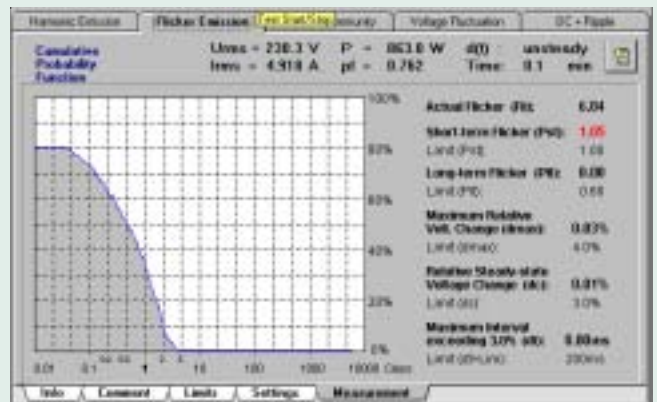
IEC 61000-3-2
Amd. 1 (2001),
EN 6100-3-2
Amd. 14 (2001),
IEC 61000-4-7
(1993)

**Measurement
"Harmonics"**



IEC 61000-3-3
Amd.1 (2002),
EN 61000-3-3
(2002),
IEC 61000-4-15
(1997)

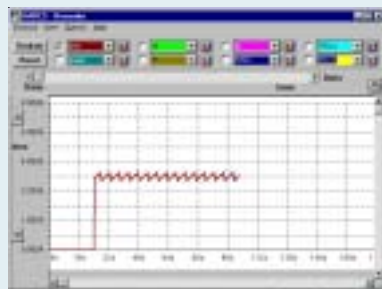
**Measurement
"Flicker"**



Harmonics and Flicker Emission Measurements with HARCS Software



The assistant guides the user through all practical harmonics measurements.
Assistant



All measured parameters are recorded and can be analysed after the test.
Recorder



One protocol includes: graphics, tables, recorders, limits, definitions and notes.
Protocol



A lot of examples and application notes help to understand the measurements.
Examples, Application Notes



When clicking on a bar the data of the Harmonics are shown automatically.
Inspector "Harmonics"



For Harmonics and Flicker an automatic verification is included.
Verification

Three-Phase Measurements with HAR1000 plus HAR-EXT1000



The HARMONICS-1000 for a single phase can easily be extended to a harmonics measurement system for three phases by adding HAR-EXT1000.

For each phase:

Amplifier, Measurement, Soft- and Hardware LIN, Analysis and Verification

Measurements:

V_{rms} , I_{rms} , Pf, P, f, fluctuated harmonics in real time, dual harmonics analysers for voltage and current, Pst, Plt, dmax., dc, dt for 50/60 Hz

i, v-Range: up to 50 A and 250V L-N

Software: for Windows 95/98, NT, 2000, XP

Dimensions: 19", 8 UH, only 66 kg

Power rating: 16 A, 4000 VA, 50/60 Hz

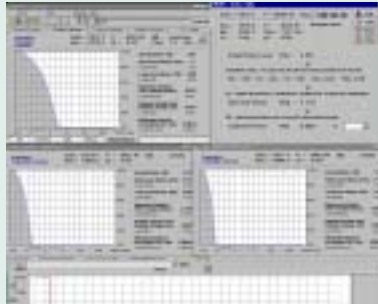
Features of HAR-EXT1000



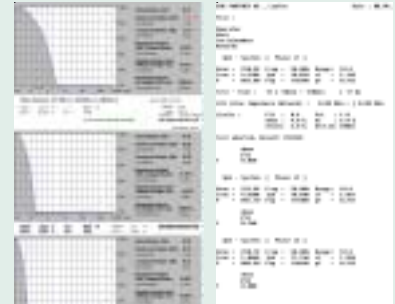
Protocol "Harmonics"



Measurement "Harmonics"

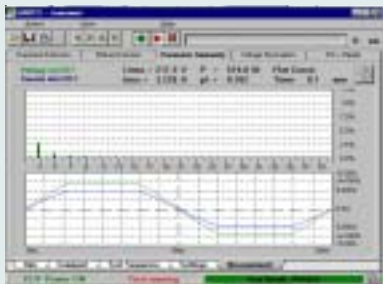


Measurement "Flicker"



Protocol "Flicker"

Accessories: HARCS-Immunity (complies with IEC 61000-4-13, -4-14 and -4-17)



Flat-Curves, Overswing and sweep test possibilities from 15 Hz up to 2000 Hz
Application "Harmonics"



Power line voltage 50/60 Hz, $U_n \pm 10\%$ plus dynamic $U_{test} \pm 15\%$ from U_n
Application "Variation"



Supply d.c. $U_n \pm 15\%$, int. source up to 60 V, ext. source up to 200 V
Application "Ripple"

Accessories: ANASIM



Circuit evaluation on measurement, countermeasure and simulation
Simulation "Harmonics"



Draw current I_{rms} versus time, measure dt and Pst, countermeasures
Simulation "Flicker"



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The Headquarters:



EMC PARTNER AG
Baselstrasse 160
CH- 4242 Laufen
Switzerland

Phone: ++ 41 61 763 01 11
Fax: ++ 41 61 763 01 15
Email: sales@emc-partner.ch

Web-Site:
www.emc-partner.com

North America:



HV Technologies, Inc.
P.O. Box 1630
Manassas, VA 20110
USA

Phone: ++1 703 365 2330
Fax: ++1 703 365 2331
Email:

Web-Site:
www.hvtechnologies.com emcsales@hvtechnologies.com

Asia Pacific:



Precision International Corp.
7F, No. 82-8, Kuang Fu Road, Section 1
Sanchung City 241, Taipei
Taiwan

Phone: ++886 2 8512 4888
Fax: ++886 2 8512 4900
Email: pic@pic.com.tw

Web-Site:
www.pic.com.tw