

Electricity Equipments Portfolio

Feb 2020



Rack



IPS family
3050/4050



BM 7050



Elektra
S/P1000



Qualytest
Sph or Tph

P [VA]

- **Power Generation:**
 - > Digital Signal Generator SGQ600
 - > Voltage/Current Power amplifiers AQD1000, AQMF2500
 - > Reference Standard Meter RD-30/31
 - > Harmonic generation module (optional)

- **Meter Test Rack:**
 - > Adjustable single/multi position test rack
 - > Quick Connectors.
 - > Auto-adjustable Scanning heads SCH30A.
 - > Error Calculation System CI3000
 - > MSVT/ICT
 - > Auxiliary energy pulses input (relay contacts, High Frequency TTL, SO interface from meters).
 - > Serial interface for individual meter communication

- **SW&HW**
 - > Controller, PC computer, HHU
 - > Software CALWIN Elec

Portfolio: Phantom load generation.



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Elektra S1000 or P1000



Qualytest Sph or Tph



Portfolio: Phantom load generation.



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	Elektra P1000/S1000	Qualytest Tph/Sph
U range	0 – 320 V (p-n)	0 – 320 V (p-n)
Output power (U)	3 x 600 VA	3 x 2500 VA
Harmonic U (Odd and even)	1 to 20 (10% max)	1 to 20 (10% max)
I range	1 mA to 120 A	1 mA to 200 A
Output power (I)	3 x 1200 VA	3 x 2500 VA (4000 VA under demand)
Harmonic I (Odd and even)	1 to 7 (40% max) 7 to 11 (30% max)	1 to 7 (40% max) 7 to 11 (30% max)
Typical Accuracy	0.01%	0.01%
Phase shift resolution	0.01 °	0.01 °
Stability	Better than 0.05%/8h	Better than 0.05%/8h
Distortion factor	< 0.5% linear and non-linear load	< 0.5% linear and non-linear load
Frequency	45 to 65 Hz	45 to 65 Hz

REFERENCE STANDARD METER: IFS6050

IFS6050 Fix ref standard meter

Standard meter to be placed in the fix Test Benches with:

Class 0.02 – 0,03% for active power

Class 0.05% for reactive power

Three and single phase capability

Full compatibility with BM, Elektra and Qualytest test benches



IFS6050 main features

Input Voltage Range:	30 - 320 VAC, 30 - 640 VAC (optional)
Input Current Range:	0.02 - 120 A, 0.02 - 200 A (optional)
Power Factor	1.0 to -1.0

Serial communication with PC

Programmable Energy Pulses value

Calibration capability

Optional Display

3 in 1 (calibration of multiple single phase using a 3 phase TB)

19" test rack mount

REFERENCE STANDARD METER: RD30

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Autoranging: 30 to 600 V (p-n)
0.02 to 120 A (or 200 A)

Typical accuracy: 0.01 % (RD30)
0.005 % (50 ppm) (RD31)

Thermal drift +/- 5 ppm/ °C

Programmable pulses constant

All metric parameters - excluding harmonic related- are available in the RD-3x at the same precision in any value of the normal range of operation. Errors associated with these functions are expressed in % from the readings and influences are also included, such as: stability, temperature, power factor, **uncertainty of traceability** and calculation errors.

- Individual Error calculation CI3000 modules.
- Universal Quick Connector compatible with different pitch sizes and pin diameters IEC standards.
- Modular design for easy maintenance.
- Compatible for Ferraris and static meters.
- IEC, BS or ANSI meters versions.
- Beacon and Emergency Stop buttons.
- DIN 43864 SO pulse terminals input in each position.



Trolleys and gantries:

- Highest productivity achieved. Overlapping of processes.
- Robust design for manufacturing environment.
- Movable.
- Optimized for Emech meters. Accuracy Test performance and other tests available (Creep, Starting, preheating, register test, auxiliary circuits).
- Automatic stop system to position the disk on the mark.



Portfolio: Test racks.



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- Ready for Socket Market, for Central and North America influence areas.
- Special I range 1 mA-200A



- Security barrier (option)
- Voltage to current switches for each position.
- Single-phase meter test with closed link (option).
- Three-phase meter test with closed link (option).
- Scanning heads capable to read both the electromechanical meters' marks and the LED, LCD and infrared-light pulses of electronic static meters.



Compares 2 different pulse train. One coming from scan heads from meters and other from ref standard meter.

- Compatible with different meter pulses or scan heads
- Useful for Starting and no-load test.
- Visual indication system for error tolerance thresholds.
- Visual messages alphanumeric BCD-7 segments.
- High precision and +/- 000.000%
- Filter and eliminates transients pulses. Control homogeneity of pulses.
- Count up or down of pulses.
- Max frequency for SO pulses up to 10 kHz.
- Max frequency Ref standard: 50 kHz

PRECISION

- High **calculation precision** and **numerical presentation** up to the third decimal ($\pm 000.000\%$).
- All inputs are provided with **digital filters** which eliminate the possibility to count transient states instead of true pulses. The **homogeneity** and **regularity** of these pulses is also verified. Hence, a higher metrological **acquisition of the scanning head pulses** is guaranteed.



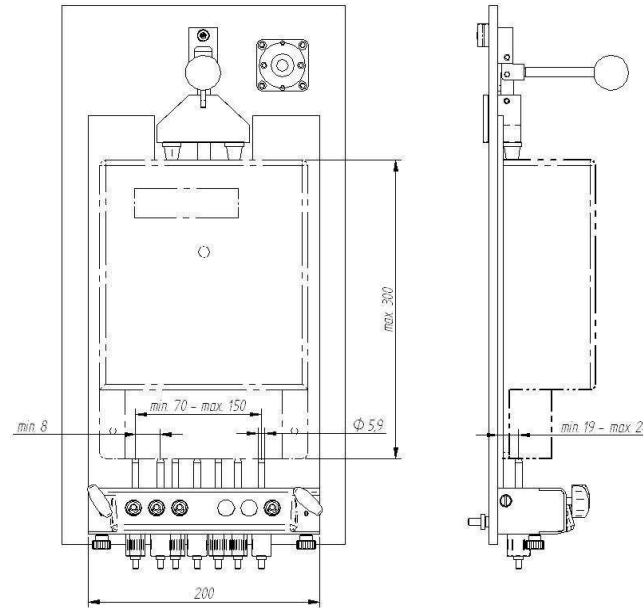
CONVENIENCE

- The **mark-stop test** for disk positioning allows to save time when performing low disk speed tests (such as starting or low load test) placing quickly the disk mark in front of light beam.
- **Up/down counter** pulse indicator.
- Further **messages** can be shown on the display **to facilitate calibration procedures**.

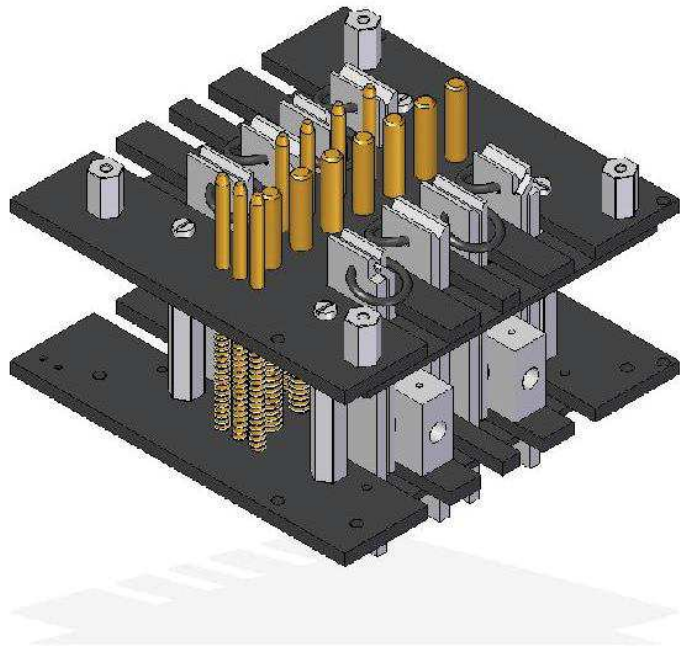
Auxiliary inputs



Working/secondary standard meters



- Fast pin distance regulation, with blocking system.
- Fast pin depth regulation, with blocking system.
- Fast height regulation system, with blocking system.
- Upper fast closing clamp.
- Universal design for IEC and BS meters.



- Combined ANSI and IEC special hybrid QC with ANSI to IEC adapters.
- Pneumatic clamping system. Improved system with High pressure for good contact until 200 A.

Optical Scanning Head: SCH30A



- Toggle switch, for either marks on emech disks or to scan LED and infrared-light from electronic meters, with fine, precise, and fast detection.
- Coarse and fine directional adjustment of the whole scanning head mechanism in the horizontal, vertical, forward, and backwards directions for adjusting the scanning head to any position.
- It keeps the same adjusted focal point still after loading and unloading the meters from the test bench.
- Optical indicator for pulses or revolutions counting.
- **Automatic** gain adjustment and no influence of environmental light changes on the measurement of error.
- Adjustment controlled from the computer application for all the positions and also possibility to manual adjustment of any individual position.

ICT's

Three-phase meter test with closed link

Isolated Current Transformers. Integrated into TB in individual modules of 3 phases.

Electronically compensated transformers.

New features:

- Current range in the primary: from 10 mA to 120 A.
- Current range in the secondary: from 10 mA to 120 A
- Frequency range: from 45 to 65 Hz.
- Load range: from 0 to 70 VA.
- Accuracy (from 250 mA to 120 A): $\pm 0.02\%$ typical when PF=1.
- Accuracy (from 10 mA to 250 mA): $\pm 0.05\%$ typical when PF=1.



Example of ICTs in a test bench under construction



34 secondary multisecondary voltage transformer (terminal cover removed)

Advantages:

- High precision in all its dynamics.
- Regulated output power and high dynamic load.
- Constant precision even with different loads in the secondary.
- Easy to connect, repair, and maintain.
- Protection alarm against opened & overload output circuits.

MSVT: Isolation for Sph meters with I-V closed link

- Rating 20 VA at PF1.
- Accuracy between two secondary windings 0.03 % ratio error and +/- 1 min phase angle. With equal load burden.
- Max test voltage between secondary windings: 500 VDC.

IMCT4-120 Individual Modules Upgrades



Features:

- Increased accuracy and dynamics thanks to its control PCB and new design core material.
- Remote control via serial communication.
- Protection and monitoring against open circuit and overload.
- Hot connection of meters during running test.
- Easy maintenance.
- Ideal for renewal of existing Test benches, so that they can be able to test meters with the voltage current link closed.

IMCT4 Specs

Specs	
Current ranges Primary/secondary	10 mA to 120 A (special versión up to 240 A)
Max output Power	70 VA @ 120 A
Max output voltage	0.8 V
Max Load Resistance (burden)	4 mΩ at 120 A
Operating load	2 mΩ at 50 VA
Operating frequency	45 – 65 Hz
Ratio error	+/- 0.03 %
Phase displacement error	+/- 1 min
Energy error	± 0.02% (50 mA to 120 A) ± 0.1% (10 mA to 50 mA) (linearly from 0.02 to 0.1%)
Communication	RS-485
Protection	Overload, Open Circuit
Size (L x H x D)	183 x 360 x 313 mm
Weight	21 Kg

BM7050: Complete Test bench
for 1 meter.

Digital Generation: SGQ 600

Amplifier: GP3050/3

Ref Standard meter: RD-30

Software: CalwinElec

Additional: QC, SCH30 +
Support



Portfolio: BM 7050 Modular version



Typical accuracy: 0.01%

I range: 10 mA to 100 A

V range: 0 to 320 V

Power output V circuit: 20 VA

Power output I circuit: 50 VA

Main unit dimension: 770 x 610 x 350 mm (H x W x D).

Max height: 1550 mm



NEW product: BM8050

Calwin Elec: Fully Automatic Testing Process & Data Management

- Customizable software.
- Windows 10.
- Easy-to-use.
- Multilingual.
- Configurable access levels.
- Scalable

The screenshot displays the Calwin Elec software interface. The main window shows a test sequence table with columns for test steps (1-10) and rows for different test parameters. A pop-up window titled 'Radian (SerialNo.) firmware' is open, showing a table of electrical parameters and their values for R, S, T, and RST phases. The table includes parameters such as Voltage (V), Current (A), Power (W), Power Factor (PF), and various VAR and Delta values. A phasor diagram is also visible in the pop-up window.

	1	2	3	4	5	6	7	8	9	10
1 RST PF1 0,5A	-0,03	-0,08	-0,09	-0,12	-0,12	-0,03	0,13	-0,11	-0,14	-0,02
2 RST PF1 10A	-0,02	0,12	-0,08	0,08	-0,05	-0,03	0,03	0,14	0,04	0,08
3 RST PF0,5 10A Lag										
4 Starting										
5 No load test										
6 Register 5,01 kWh										

	R	S	T	RST
V	220.275	220.678	220.055	0.000
A	9,637	9,457	10,071	0,000
W	0,000	0,000	0,000	12,000
VA	0,000	0,000	0,000	0,000
VAR	0,000	0,000	0,000	12,000
Hz	50,000	50,000	50,000	0,000
oP	-58,871	-59,398	-60,176	0,000
PF	0,000	0,000	0,000	0,000
doP	0,000	-119,272	120,544	0,000
V Delta	0,000	0,000	0,000	0,000
W Delta	0,000	0,000	0,000	12,000
VA Delta	0,000	0,000	0,000	0,000
VAR Delta	0,000	0,000	0,000	12,000
VARxWYE	0,000	0,000	0,000	12,000
VARxDelta	0,000	0,000	0,000	12,000

Accumulated	
Wh	0,000
VARh	0,000
VAh	0,000
Delta VARh	0,000
Delta Wh	0,000
VARh x WYE	0,000
VARh x	0,000
Wh/imp	2,29E-5

Level: Master mode Performing the test ... Total time: 353: 0:47

Meter characteristics

General OK Cancel

Connection
 Single-Phase 2-Wire
 Single-Phase 3-Wire
 Three-Phase 3-Wire
 Three-Phase 4-Wire
 Others

Type
 Electromechanic
 Electronic

Energy
 Active
 Reactive
 Both

Reactive
 Type:
 Class: 1

Current circuit
 Manual

Voltage: 3x220/380
 Current: 10(60)
 Frequency (Hz): 50
 Class: 0,2
 Last significant digit (kWh): 0,01
 Allow open circuit

Standard: IEC ANSI
 Maximum demand Synchronic
 Integration time: 15 minutes
 Full scale: 12 kW (kVA)

Meter 1...40 (1) Serial number:

Constant: 55
 Unit
 Rev./kWh Wh/Rev.
 Reference
 High Low

Transformer relation:
 Voltage: 1 / 1
 Current: 1 / 1

Input
 Scann. 1 Marks/Rev.
 DIN
 Aux LF

Meter type	
Manufacturer	
Year of manufact.	
Last approval	
Contract	
Certification	
Year of certification	
Client	
Client no.	
Temp. min. C°	
Temp. max. C°	
Humidity min. %	
Humidity max. %	

Meter parameters form:

- Connection type and phases.
- Class,
- Constant and its Unit.
- Standard IEC or ANSI.
- Customizable fields.

Test properties

Test 1

Description: Type of test: Precision

Voltage: 220 V 100,00 % No neutral

Current: 10,000 A 100,00 % Nom 16,67 % Max

P. F.: 1 Capacitive

Tolerance: Minimum: -0,20 % Maximum: 0,20 %

Energy: Active Reactive

Frequency: 50 Hz Nominal Net synchro.

R S T Circuit: phase N Reverse order

Stabilization (ms):

Error in: 00:00:10 Time 1 Rev. Test time: 00:00:18

Repetitions: 1 Number of repetitions 0 Delay (s.) Current down Results: Mean Range Split bench

Kh Factor: 1,0

Unbalanced phases

Voltage			Current			Phase shift V - V			Phase shift I - V		
R	S	T	R	S	T	R	S	T	R	S	T
100,00	100,00	100,00	100,00	100,00	100,00	0	-120	120	0,0	0,0	0,0
<input type="radio"/> V	<input checked="" type="radio"/> %		<input type="radio"/> A	<input checked="" type="radio"/> % Nom	<input type="radio"/> % Max						

Waveforms: Scanning head control

Test parameters form:

- Load point values.
- Test types:
 - No load
 - Starting/Creeping
 - Register/dial
 - Accuracy
 - Maximum Demand
 - Preheating
 - Scanning head positioning
 - Subharmonic, odd
 - DC/ even harmonic
 - Voltage cuts/interruptions.
- Number of repetitions
- Tolerance definition
- Unbalance of phases.

- Customizable reports: XLS, PDF, CSV, HTML.
- Data exportation: Microsoft SQL Server, Oracle ...
- Handheld terminal.



Portfolio: IPS family 3050/4050.

PORTABLE ref meter.

The IPS 3050 is a portable standard to verify active and reactive three phase meters (3 or 4 wires) and single phase meters (2 or 3 wires). It's designed to work in the field or in the laboratory.



- URANGE: 2 - 600V. Accuracy 0.02%
- IRANGE in direct connection: 2 mA - 20A. Accuracy 0.02%
- Connection with current clamps: Range 0.01 A - 100A. Accuracy: 0.15%. Other Current clamps as an option: 200A, 500A and 2000A.

Power supply:

- AC voltage auxiliary supply (85V to 265V, 50/60 Hz, 5-20 VA).
- DC voltage supply Li ion battery with 8h continuously working.
- Supply from the measuring circuit itself.

Portfolio: IPS family 3050/4050. PORTABLE ref meter.



Electricity



Accesorios, equipo portátil de prueba IPS 3050/4050

- Tres transformadores de corriente tipo pinza, de 100 o 200 o 500 o 2000 Amperes.
- Cables de tensión con abrazaderas y adaptadores.
- Lector de pulsos / revoluciones, compatible con medidores mecánicos y electrónicos.
- Switch para pruebas manuales.

Equipo portátil de prueba IPS 3050/3040

Patrón estándar portátil para verificar energía activa y reactiva en medidores monofásicos, bifásicos y trifásicos, diseñado para utilizarse en el campo o en el laboratorio.

- Tensión: 6 - 600V. Precisión de 0.02%.
- Corriente en conexión directa: 2 mA - 20A. Precisión de 0.02%.
- Corriente con transformadores (pinzas): 0.01 A - 300 A. Precisión: 0.05%.
- Tensión auxiliar de alimentación (85V a 265V, 50/60 Hz, 0A, 210 VA).
- Versión CD (Batería de iones de litio) con 8 horas de trabajo continuo.
- Precisión en conexión directa:
Energía activa: mejor que 0.05%
Energía reactiva: mejor que el 0.1%.
- Precisión con pinzas de corriente:
Energía activa: mejor que 0.25%
Energía reactiva: mejor que 0.4%.
- Ángulo de fase: 0 a 359.999°. Precisión: 0.005°.
- Factor de potencia: 0 - +/- 0.9999. Precisión: +/- 0.01.
- Influencia de la temperatura: inferior a 10 ppm / °C.
- Peso: 1.9 / 9.5 Kg (con accesorios).
- Tamaño: 220x138x61 / 460 x 370 x 220 (mm L x W x H) con la bolsa de transporte.

Equipo portátil de prueba IPS 3050/4050

Software de Análisis y Medición del equipo portátil de prueba IPS 3050 / 4050

- Accuracy in direct connection:
Active energy: better than 0,05%,
Reactive energy: better than 0,1%
- Accuracy with current clamps:
Active energy: better than 0.2%,;
Reactive energy: better than 0,4%,
- Phase angle: 0 to 359.999 °. Accuracy: 0.005°
- Power factor: 0-+/-0.9999. Accuracy: +/- 0.01
- Temperature influence: lower than 10 ppm/°C

- Weight: 1.9 / 9.5 Kg (with accessories)
- Size: 220x138x61 / 460 x 370 x 220 (mm, L x W x H) with the carry case.

Portfolio: IPS family 3050/4050.

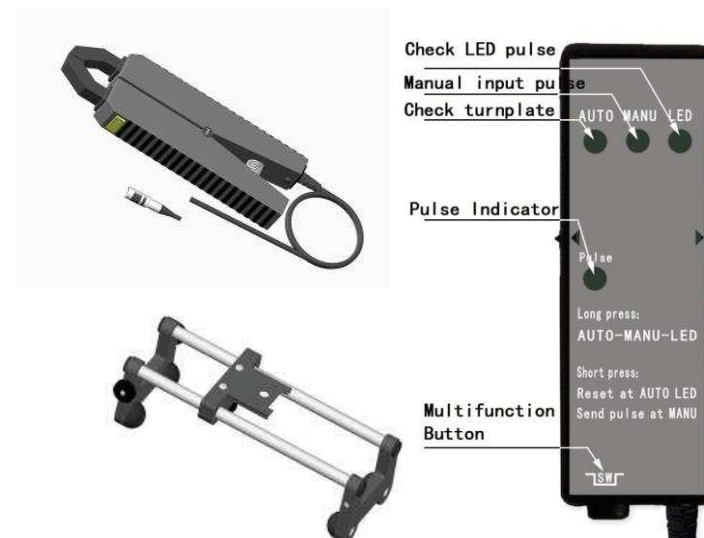
PORTABLE ref meter.



Electricity

The IPS3050 has a 640x480 High Res LCD screen with lighted background. It incorporates a 19 keys keyboard with which is very easy to access to the following main functions:

- *Measuring mode*
- *Vector diagram*
- *Wave form*
- *Meters test*
- *Transformers module ratio/phase*
- *Harmonics*



<i>Service type</i>	<i>Description</i>	<i>Benefits/Value</i>	<i>Cost</i>
<i>Qualified/Remote Assistance</i>	Flat rate tariff for a year period	<ul style="list-style-type: none"> ▪ Discounts in corrective actions. Both spare parts and qualified labor 	Flat tariff for one year
<i>Preventive Maintenance Contract</i>	One visit a Year for maintenance, test bench validation	<ul style="list-style-type: none"> ▪ Includes the Qualified/Remote Assistance ▪ Prevents surprising failures or stop equipment. ▪ At long term reduce maintenance invoicing/stop times with an estimated budget ▪ Priority assistance. 	Depends on the equipment
<i>Calibration/Certification</i>	Manufacturer certification	<ul style="list-style-type: none"> ▪ Internal/external auditory with traceability to international metrological bodies. ▪ Transfer/sensor custody and avoids calibration/certification stop time. 	<ul style="list-style-type: none"> ▪ Manufacturer certification ▪ CEM certification, MAP

Recent Relevant and Reference Projects



INTERNATIONAL THIRD PARTY PROJECTS



Customer: ENSA (Panamá)
Products: Elektra P1000 TR10m with Socket
March 2012

INTERNATIONAL THIRD PARTY PROJECTS



Customers: BLPC
Products: 1 Qalytest Tph TR20m
July 2012

INTERNATIONAL THIRD PARTY PROJECTS

Electricity



Customers: Omni and LG KOREA
Products: 2 Qualytest Tph TR10m +1 IPS3050
2011

INTERNATIONAL THIRD PARTY PROJECTS



Customer: EDENORTE. Dominicana
Products: Qualitytest Tph TR20m, 20 Sph and 5 Tph
January 2016

INTERNATIONAL THIRD PARTY PROJECTS

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Customer: EDEMSA , Mali
Products: Qualitytest Tph TR48m
May 2016

ITRON FACTORIES AND DIRECT PROJECTS

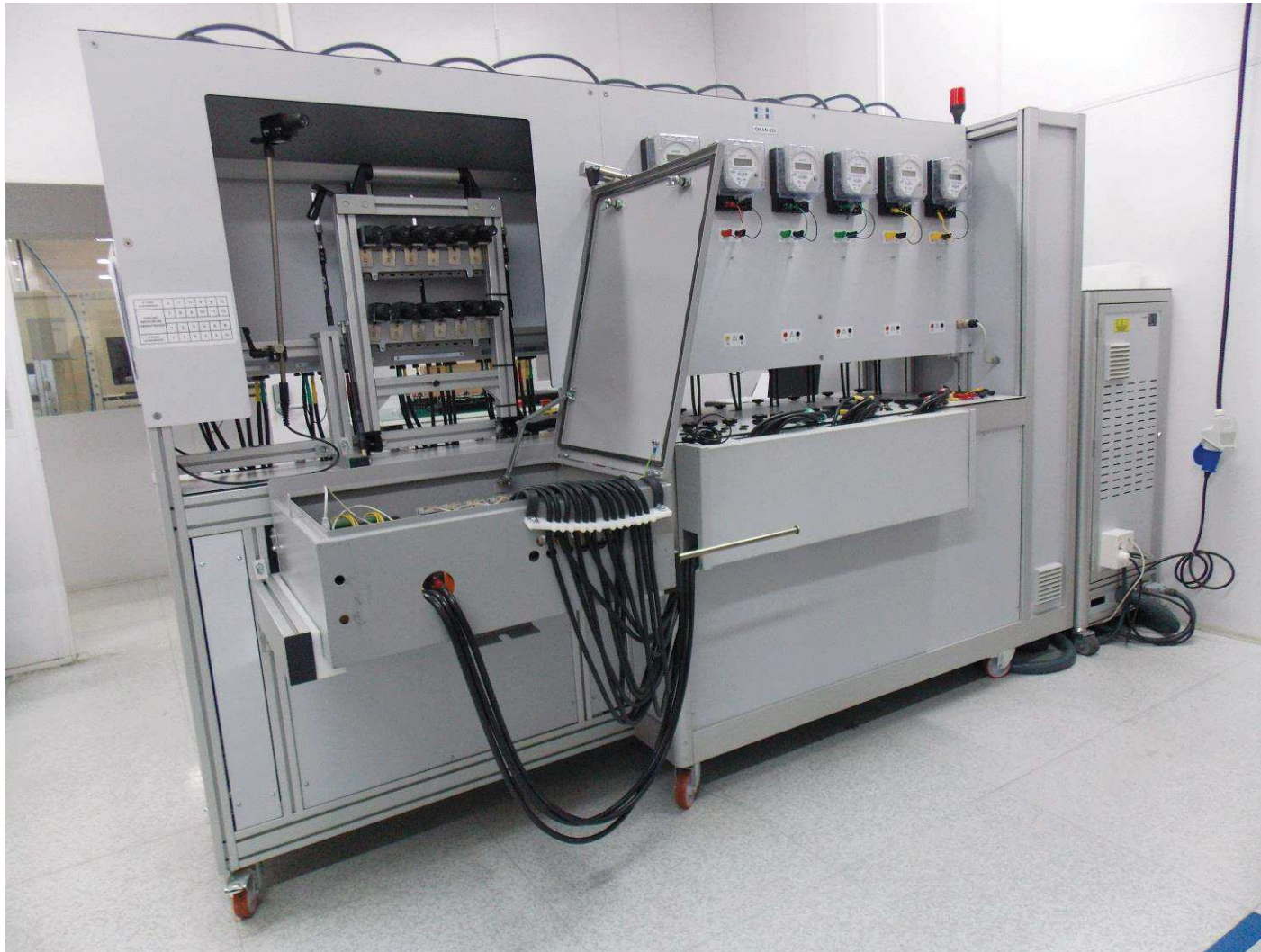
Electricity



Factory: Itron Sumare
Products: Elektra P1000 TR12m. **Marconi Project.** Test/Calibration
12 Sph of ACE9000 (SSP DIN-R) or 4 Tph meters.
July 2012

ITRON FACTORIES AND DIRECT PROJECTS

Electricity



Factory: Itron Sumare
Products: Elektra P1000 TR12m. **Marconi Project**. Test/Calibration for ACE9000 (SSP DIN-R) virtual poliphase inside SC (secondary concentrator) with split MCU (meter control unit) and CIU (customer interface unit)
July 2012

ITRON FACTORIES AND DIRECT PROJECTS

Electricity



Customer: CTM (Centro Tecnológico del Metal)
Products: Elektra P1000 TR10m
July 2011

Customer: GASELEC
Products: Elektra P1000 TR5m
Feb 2011