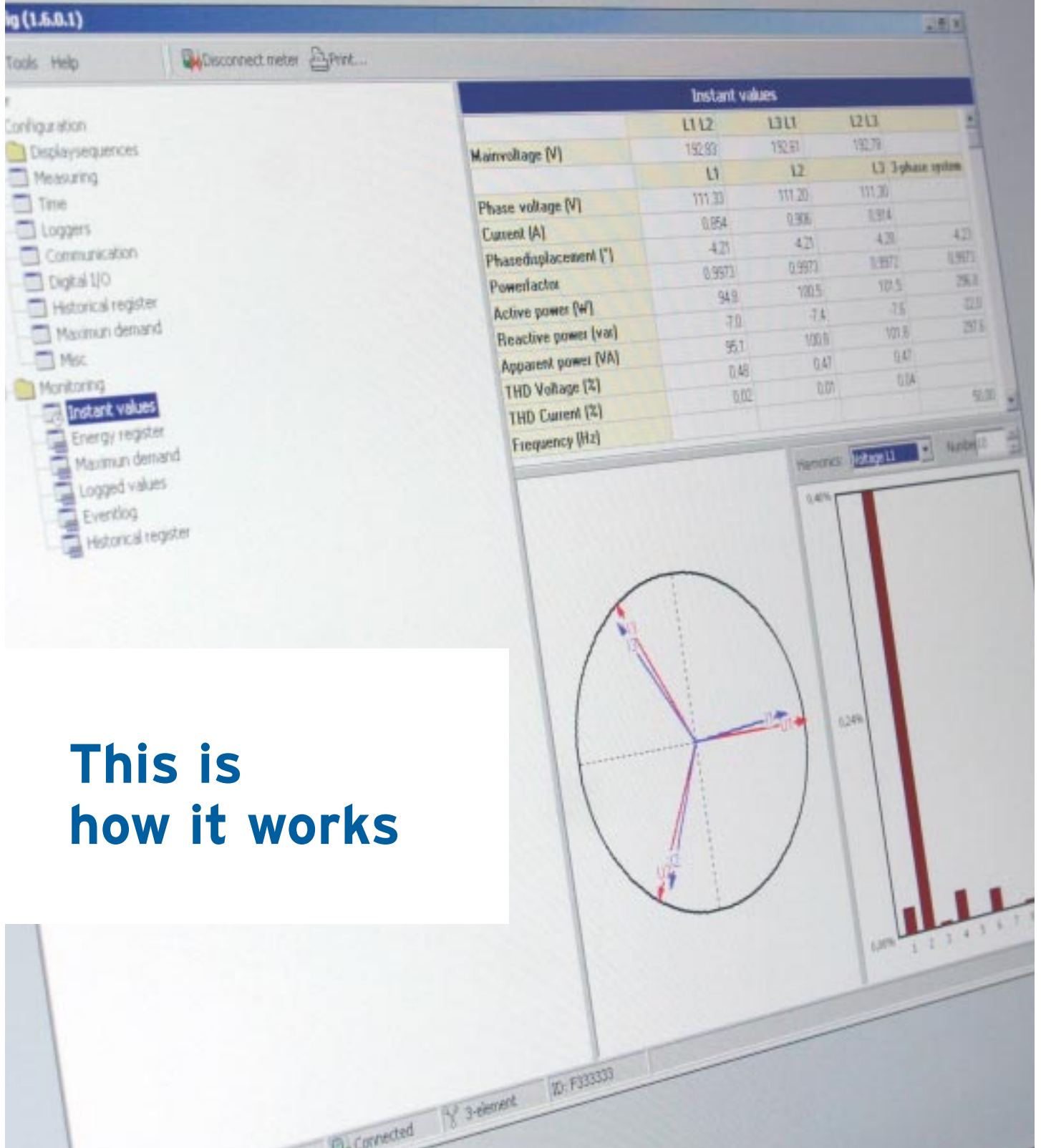
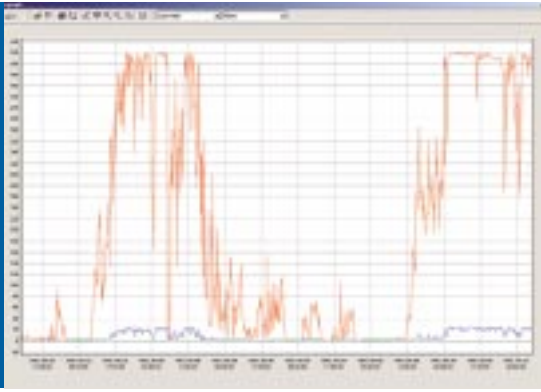


# CewePrometer-R



**This is  
how it works**



# Safe for changes

This could very well be the most flexible High Precision Energy Meter ever.

Be it Modbus, TCP-IP or additional I/O-functions - each meter can be adjusted to meet whatever demands the deregulated market will pose. The whole system is modular in both hardware and software and can be made compatible with most other systems for surveillance, reading and measuring. Plug-and-play cards make it easy. Upgrading can be made over the Internet.

And be it radio, GSM, fibre optics, ISDN, PTSN - each meter can communicate independently and simultaneously. This opens fantastic possibilities: let someone at a station check the event logg on the meter's display. Then let someone at the office calculate transformer and line losses, using logged values from the same meter. And let someone in the control-room use their

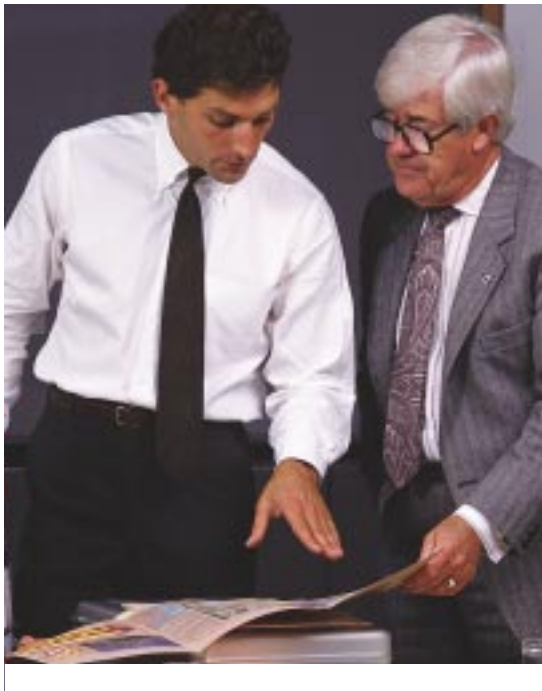
SCADA-system to locate the exact time and place of a certain fault - which the very same meter just alarmed. **All this could happen at the same time!**

And thanks to measurement with unprecedented accuracy, revealing Power Quality pictures never seen before, any power company can now - by charging correctly and minimising losses - increase their profitability substantially.



# The communication

- The meter has three separate communication ports
- All three ports can be used simultaneously
- Two of them can individually be equipped for any type of communication: radio, GSM, fibre optics, ISDN, PSTN etc.
- This enables the meter to give real-time information on several parameters of electricity to a local system - simultaneously with giving a power company data for invoicing and analysis





# The modules

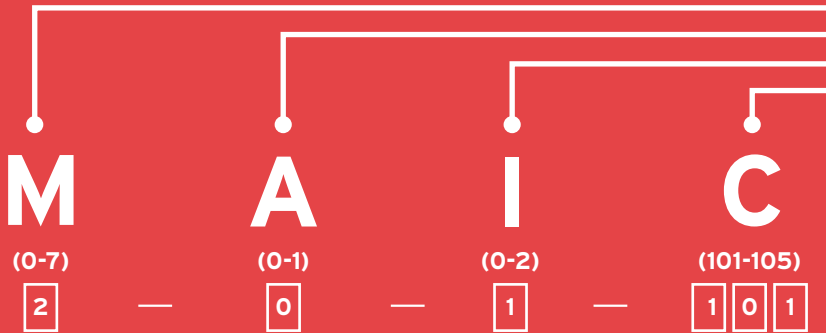
- Every meter accepts a number of "plug-in" cards
- Cards for measurement, I/O-functions, and communications are available in a number of versions today
- Several new versions and new types of cards are already planned
- Every card has its own "software"
- Upgrading of the software can be downloaded to the meter just like a patch can be downloaded to a PC
- Completely new functions can also be downloaded
- These functions can be made-to-order for a single customer

Measuring:	M
83-239V / 1A-50Hz	0
83-239V / 1A-60Hz	1
83-239V / 5A-50Hz	2
83-239V / 5A-60Hz	3
167-478V /1A-50Hz	4
167-478V /1A-60Hz	5
167-478V /5A-50Hz	6
167-478V /5A-60Hz	7

Aux. Supply:	A
30-100VAC/30-130VDC	0
85-265VAC/100-300VDC	1

I/O:	I
No I/O	0
6 outputs, 4 inputs	1
12 outputs, 8 inputs	2

Communication:	C
No Serial communication	100
RS 485 + RS 232	101
RS 485 + RS 485	102
RS 232 + RS 232	103
RS 485	104
RS 232	105



**Example Article number: 360-201-101**  
 M 2 CewePrometer-R 83-239V, 5A, 50 Hz,  
 A 0 AUX 30-100VAC/30-130VDC,  
 I 1 6 outputs, 4 inputs,  
 C 101 RS 485 and RS 232  
 "360" in the article number stands for product group (36) and accuracy class (0).

# The functions

- This new, full 4-quadrant meter is excellent for revenue metering
- It provides a number of previously unseen Power Quality graphs, charts and tables - among them Harmonics and THD
- All parameters of electricity are logged
- The logging, down to minute-based values, enables real-time following of the powernet's behaviour
- Several types of alarm, for instance theft-alarm, are included
- 14 periodical readings can be stored, and read by a PC program or directly on the display
- Transformer corrections are included

# Specification

## Measuring current ( $I_N$ )

Measuring current	1 or 5 A
Measuring range	1 - 200% of $I_N$
Frequency	45 - 55 Hz or 55 - 65 Hz
Burden	<0.4 VA/phase
Overload	2 x $I_N$ continuously, 10 x $I_N$ during 10 s, 40 x $I_N$ during 1 s
Starting current	<0.1% (IEC687) of $I_N$

## Measuring voltage ( $U_N$ )

3-wire system	54 - 138 V or 108 - 276 V
4-wire system	94/ $\sqrt{3}$ - 239/ $\sqrt{3}$ V or 187/ $\sqrt{3}$ - 478/ $\sqrt{3}$ V
Frequency	45 - 55 Hz or 55 - 65 Hz
Burden	<0.1 VA/phase
Max overload voltage	1.3 x $U_N$ continuously, 2 x $U_N$ 0.5 s

## Auxiliary supply

Auxiliary supply range	40 - 130 VDC/35 - 100 VAC or 100 - 300 VDC/85 - 265 VAC
Max overload voltage	10 VA

## Instantaneous measurements

V, A, W, var, VA, Phase angle, frequency, Power factor, THD voltage, THD current, 30 harmonics, vector diagram

## Temperature range

Working temperature range	-20 °C - +55 °C
Storage temperature range	-40 °C - +80 °C

## Safety

Protective earth in rack and connection between rack and meter.

## EMC

Inputs	4 kV, 50 Hz, 1 min
Radio frequency interference	According to IEC 801-3, 10 V/m, 27 - 500 MHz
Transients	According to IEC 801-4, 2 kV, 15 ms/300 ms
Electrostatic discharge	According to IEC 801-2, 15 kV
Radio frequency emission	According to CISPR 14.6, 0.15 - 300 MHz, CISPR 14.7, 30 - 300 MHz
Surge voltage test	According to IEC 255-4, 6 kV 1.2 $\mu$ s/50 $\mu$ s

CewePrometer-R meets all European Union CE-marking requirements and additionally passes the EN50082-2 HF immunity, 150 kHz - 80 MHz, 10 V injected into the connection wires.

## Relay outputs

Type	Solid state relay (MosFET, bi-directional)
Relay output rating	0.2 A 110 VAC/DC

## Pulse outputs

Puls length	40 ms - 1 s with accuracy better than 5 ms
Max pulse frequency	Depending of pulse width, with 50% duty cycle

## Opto isolated inputs

Type	Opto coupler
Voltage (AC or DC)	48 - 230 V
Burden	Input resistance 20 k $\Omega$

## Display

128 x 64 points graphical display  
Extended operating temperature range, -20 - +70 °C

## IEC 1107 optical communications port

Hardware	IEC 1107 (9603 second edition) optical communications port
Communications protocol	IEC 1107 (9603 second edition)
Baudrate	300 - 9600 baud

## Serial communications port

Hardware	RS-232 or RS-485/422 serial communications port
Connector	RS-232 9-pin D-SUB/RS- 485/422 screw terminal block
Communications protocol	IEC 1107 (9603 second edition)
Handshaking	Not supported
Baudrate port 1	300 - 19200 baud
Baudrate port 2	1200 - 19200 baud

## Real time clock

Accuracy	<7 s/month, crystal controlled
Backup	Supercap gives 22 days backup. A lithium- battery can be added for longer backup of the clock, >1.5 years.

Memory capacity in days	Number of log channels used									
	1	2	3	4	5	6	7	8	9	10
Once every minute	19	13	10	8	7	6	5	4	4	3
Every 5:th minute	96	67	51	41	34	30	26	23	21	19
Every 15:th minute	290	201	153	124	104	90	79	70	63	58
Every 30:th minute	580	401	307	248	209	180	158	141	127	116
Once every hour	1611	803	614	497	418	360	316	282	254	232

### Memory for configuration register and data

Dataflash for logging and configuration	1 Mb
FRAM for energy register	8 kb
RAM	128 kb

### Memory capacity when logging data

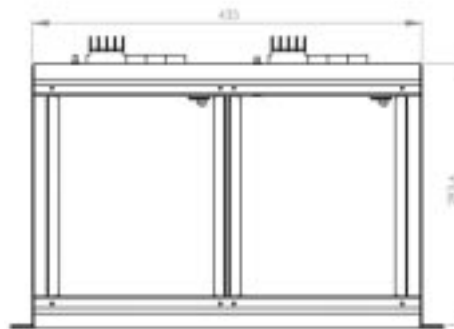
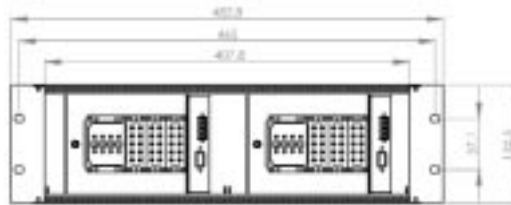
The meter has two individual data logs, each having 10 logging channels. The number of channels used and how often data is collected determines the memory capacity.

### 19" rack

Dimensions and connections according to DIN 43862  
Metal case connected to protective earth

### Current connections, Plug-in connections DIN 43862 Type Essailec

Current connections	Screw terminal connections
Voltage connections	Female Push-on connection (4.8 x 0.8 mm)
Pulse input	Female Push-on connection (4.8 x 0.8 mm)
Pulse output	Female Push-on connection (4.8 x 0.8 mm)
Serial port RS-232	9-pin D-sub
Serial port RS-485/422	Screw terminal block
Protective earth	Ring terminal connection (4 mm)

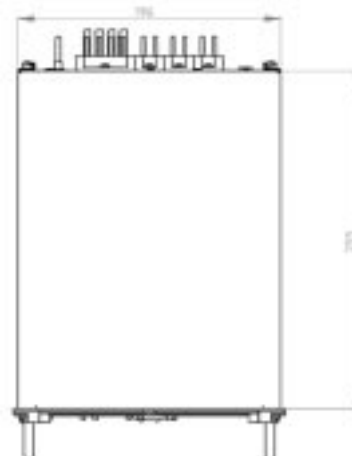
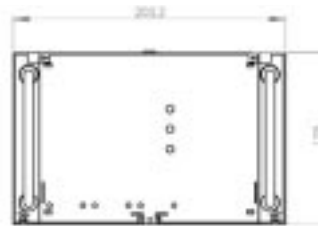


### Weight

Weight meter	app. 3.8 kg
Weight rack	app. 2.8 kg

### Accuracy

Class 0.2 S	Active energy according to IEC 687-92
	Reactive energy according to IEC 1268



Cewe Instrument is a family-held company that was founded in 1919. Today we are one of the world's leading suppliers of precision instruments for electricity measurement. We achieved this position by developing and manufacturing high-quality instruments according to customer demands - consistently by ourselves. This philosophy still guides us today as we increasingly supply our customers with computerised solutions. Our own line of products for measurement, calculation, communication and presentation provides practically unlimited possibilities to create unique systems for each customer.



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Cewe Instrument AB  
Box 1006 | S-611 29 Nyköping  
Sweden  
Phone: +46 155 775 00  
Fax: +46 155 775 97  
info@ceweinstrument.se  
www.ceweinstrument.se

