

# C-80

Portable single and three-phase power analyzer



## Description

- Measurement of the main electrical parameters of a single-phase network, balanced three-phase network and unbalanced three-phase network with neutral
- Measurement of energy
- Measurement of the THD in A and V
- Detects leakage currents and the turning direction of phases
- Internal memory to record parameters automatically
- Display of the maximum and minimum values of electrical parameters
- Reduced size and weight (300g) very robust and easy to use
- Auto-detection of clamp

## Application

- Calculation of the capacity in kvar to compensate the installation
- Display of energies compensated with a determined capacitor bank
- Creation of harmonic distortion alarms to detect resonances

## Features

<b>Power supply circuit</b>	
Voltage	2 x 1,5 V dc (LR6 AA-type batteries)
<b>Measurement circuit</b>	
Nominal voltage	50 ... 500 Vac
Frequency	45 ... 65 Hz
Nominal current	2 V (automatic, depending on the clamp)
Voltage overload	10% (550 V ac)
Current overload	10%
<b>Class/Accuracy</b>	
Voltage	0.5% ± 2 digits
Current	0.5% ± 2 digits
Power rating	1% ± 2 digits
<b>Build features</b>	
Operating autonomy	200 hours
Keyboard	1 on/off + 7 function keys
Display	7 segments, 3 lines x 4 digits, indication icons
Voltage terminals	L1, L2, L3 / N
Current clamp connector	4 wires (ID signal -> automatic detection)
Record	Circular file (between 1 and 90 min)
Dimensions	172 x 100 x 50 mm
Weight	300 g
Accepted clamps	CP 2000/200, CP 1000, CP 500, CP 100, CP 5, CF-5, C-FLEX 200 / 2000 / 20000
<b>Safety</b>	
IEC 61010-6-1	
<b>Standards</b>	
IEC 61000-6-3: 1996, Emissions in residential and commercial environments and light industry CISPR 11:1997 MOD, Radiated (CISPR 22: 1997 MOD-Class A)	
IEC 61000-6-4: 1997, Emissions in industrial environments. CISPR 11: 1997 MOD, Radiated (CISPR 22: 1997 MOD-Class A)	
IEC 61000-6-2:1999, Immunity in industrial environments IEC 61000-4-2:1995, Electrostatic discharge IEC 61000-4-3:2002, Radiated electromagnetic field IEC 61000-4-4:1995, Rapid transient bursts IEC 61000-4-5:1995, Shockwaves IEC 61000-4-6:1996, RF in common mode IEC 61000-4-8:1993, Magnetic field at 50 Hz	
IEC 61000-6-1:1997, Immunity in residential and commercial environments and light industry IEC 61000-4-5:1995, Shockwaves	
IEC 61010-6-1:2001, Electrical security	

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## References

Analyzer	Clamps	Type	Code
C-80	-	<b>C-80, Power analyzer</b>	<b>M80120</b>
<b>Kits</b>			
C-80	CPR-1000	<b>C-80 / 1000</b>	<b>M80121</b>
C-80	CP-2000/200	<b>C-80 / 2000</b>	<b>M80122</b>
C-80	C-FLEX 20k / 2k / 200 A, 45 cm	<b>C-80 / C-FLEX 45</b>	<b>M80123</b>
C-80	C-FLEX 20k / 2k / 200 A, 80 cm	<b>C-80 / C-FLEX 80</b>	<b>M80124</b>
C-80	C-FLEX 20k / 2k / 200 A, 45 cm + CF-5A	<b>C-80 / C-FLEX 45</b>	<b>M80125</b>

All kits include 3 voltage cables + case

## Parameters measured

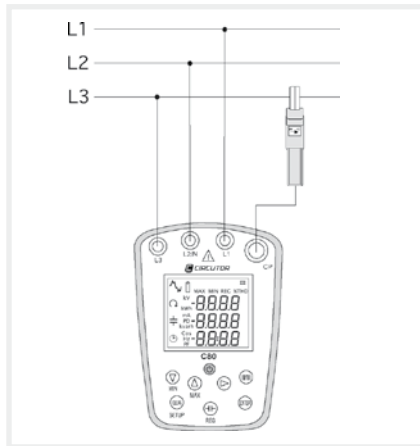
Parameter	Symbol (unit)	Balanced Three-phase / Single-phase system		
		Instantaneous	Maximum	Minimum
Voltage	V	•	•	•
Current	A	•	•	-
Frequency	Hz	•	•	•
Active power	W	•	•	-
Reactive power (L and C)	var	•	•	-
Apparent power	V · A	•	•	-
Power factor	PF	•	•	-
Cos $\varphi$	cos $\varphi$	•	•	-
Active energy	W · h	•	-	-
Power factor (L)	var · h L	•	-	-
Power factor (C)	var · h C	•	-	-
THD (%) U, I	% THD	•	•	-
MD (Max demand)	PD	•	•	-

## Accessories

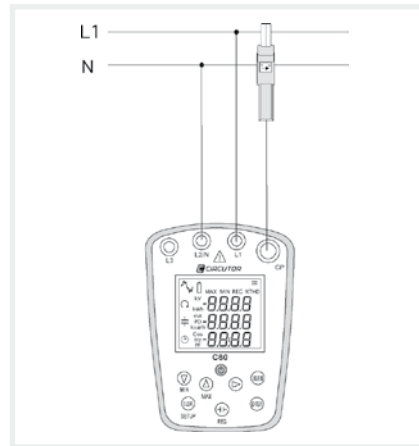
See page M.8-44

## Connections

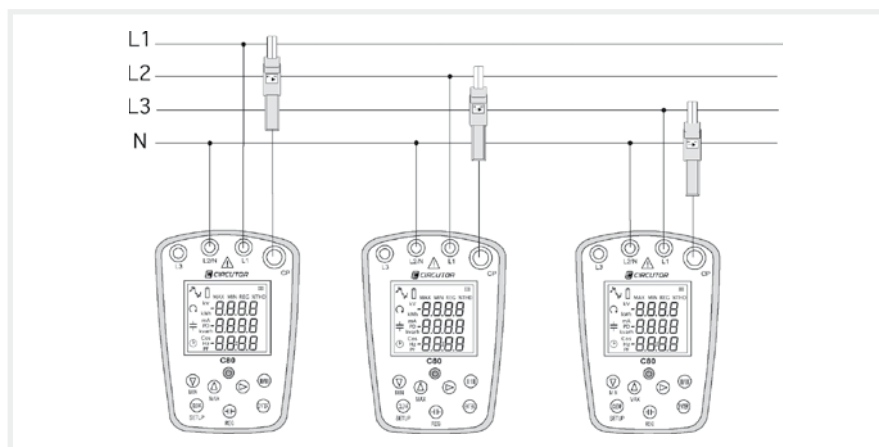
### Balanced Three-phase System



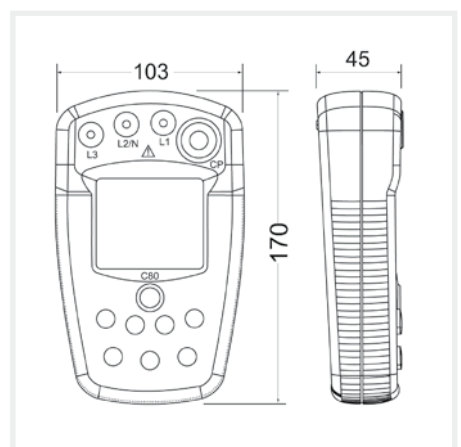
### Balanced single-phase system



### Unbalanced Three-phase System with neutral



## Dimensions



**Clamps**

**C-80**

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**Clamps CP-100**



Measurement range	1...1 00 A ac
Nominal frequency	48...65 Hz
Output voltage	2 V ac
Dielectric rigidity	5200 V, 50 Hz, 1 min
Scale base error	0,5 %
Maximum conductor diameter	20 mm
Maximum busbar	20 x 5 mm

Type	Code
CPR-100	M81032

**Clamps CPR-1000**



Measurement range	1...1000 A ac
Nominal frequency	48...65 Hz
Output voltage	2 V ac
Dielectric rigidity	5200 V, 50 Hz, 1 min
Scale base error	0,7 %
Maximum conductor diameter	52 mm
Maximum busbar	1 - 50 x 5 mm or 4 - 30 x 5 mm

Type	Code
CPR-1000	M81034

**Clamps CPR-500**



Measurement range	1...500 A ac
Nominal frequency	48...65 Hz
Output voltage	2 V ac
Dielectric rigidity	5200 V, 50 Hz, 1 min
Scale base error	0,7 %
Maximum conductor diameter	52 mm
Maximum busbar	1 - 50 x 5 mm or 4 - 30 x 5 mm

Type	Code
CPR-500	M81033

**Clamps CP-2000/200**



Measurement range	1...200 A ac 10...2000 A ac
Nominal frequency	48...65 Hz
Output voltage	2 V ac
Dielectric rigidity	5200 V, 50 Hz, 1 min
Scale base error	Scale 200: 0.5 % (+70 mA) Scale 2000: 0.5% (+100 mA)
Maximum conductor diameter	64 mm
Maximum busbar	5 - 125 x 5 mm or 3 - 100 x 10 mm

Type	Code
CP-2000 / 200	M81035

**Clamps CP-5**



Measurement range	0,05...5 A ac
Nominal frequency	48...65 Hz
Output voltage	2 V ac
Dielectric rigidity	5200 V, 50 Hz, 1 min
Scale base error	1 %
Maximum conductor diameter	20 mm
Maximum busbar	20 x 5 mm

Type	Code
CP-5	M81031

**Clamps**
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**C-FLEX Clamps 20000 / 2000 / 200 A-120**

Longitude sensor	120 cm
Scales	200 A / 2000 A / 20000 A or 100 A / 1000 A / 10000 A
Sensitivity in mV	Scale 200 or 100: 10 mV / A Scale 2000 or 1000: 1 mV / A AScale 20k or 10k: 0.1 mV / A
Measurement amplitude	5 A...20 kA
Bandwidth	10...20 kHz
Accuracy	1 %
Electrical safety	Double insulation IEC 1010 - 100 V - Cat III - Degree of contamination 2
Admissible output overvoltage	600 V (peak factor 1.5)
Ambient conditions	
Temperature	-10...+55 °C
Humidity	90 % HR (at 50 °C)

Scales	Type	Code
20 kA / 2000 A / 200 A	C-FLEX 20000/2000/200 A-120	M81153
10 kA / 1000 A / 100 A	C-FLEX 10000/1000/100 A-120	M81653

\* Codes for 1 clamp

**C-FLEX Clamps 20000 / 2000 / 200 A-80**

Longitude sensor	80 cm
Scales	200 A / 2000 A / 20000 A or 100 A / 1000 A / 10000 A
Sensitivity in mV	Scale 200 or 100: 10 mV / A Scale 2000 or 1000: 1 mV / A AScale 20k or 10k: 0.1 mV / A
Measurement amplitude	5 A...20 kA
Bandwidth	10...20 kHz
Accuracy	1 %
Electrical safety	Double insulation IEC 1010 - 100 V - Cat III - Degree of contamination 2
Admissible output overvoltage	600 V (peak factor 1.5)
Ambient conditions	
Temperature	-10...+55 °C
Humidity	90 % HR (at 50 °C)

Scales	Type	Code
20 kA / 2000 A / 200 A	C-FLEX 20000/2000/200 A-80	M81152
10 kA / 1000 A / 100 A	C-FLEX 10000/1000/100 A-80	M81652

\* Codes for 1 clamp

**C-FLEX Clamps 20000 / 2000 / 200 A-45**

Longitude sensor	45 cm
Scales	200 A / 2000 A / 20000 A or 100 A / 1000 A / 10000 A
Sensitivity in mV	Scale 200 or 100: 10 mV / A Scale 2000 or 1000: 1 mV / A AScale 20k or 10k: 0.1 mV / A
Measurement amplitude	5 A...20 kA
Bandwidth	10...20 kHz
Accuracy	1 %
Electrical safety	Double insulation IEC 1010 - 100 V - Cat III - Degree of contamination 2
Admissible output overvoltage	600 V (peak factor 1.5)
Ambient conditions	
Temperature	-10...+55 °C
Humidity	90 % HR (at 50 °C)

Scales	Type	Code
20 kA / 2000 A / 200 A	C-FLEX 20000/2000/200 A-45	M81151
10 kA / 1000 A / 100 A	C-FLEX 10000/1000/100 A-45	M81651

\* Codes for 1 clamp