

Description



GENERAL FEATURES

The **CL3121** Three-phase Electricity Reference Standard has been designed in order to verify the precision of the single and three phase active and reactive electrical energy meters on the field and is therefore directed to metering laboratories, national metrology institutes, watt-hour meter testing companies, research and quality departments etc.

The meter provides four quadrant three phase simultaneous measurements for active, reactive and apparent energy and power with forward and reverse energy flow also measured. It can also measure per phase voltage, current, frequency and power factor and it can provide harmonic and vector analysis. It can recognize a wrong connection in 3 and 4 wires networks having an embedded function which can distinguish between several connections no matter if the meter is directly connected or connected with clamp-on transformers. Finally, the CL3121B can display the automatic calculation of the error of the device under test.

MAIN CHARACTERISTICS

- Up to two different meters (or active and reactive measurement functions of a single meter) can be tested at the same time.
- Simultaneous view of the results of last three tests and average value
- Wide 16 colors 640x480 pixels LCD display
- The Lithium battery allows more than 5 hours of continuous working without power supply
- High rejection of influence quantities
- Real time analysis of the current and the voltage vectors diagram
- Real time visualization of signals' waveforms
- Detailed harmonic analysis through the 63rd harmonic. Parameters include phase and amplitude of each harmonic and total harmonic distortion
- The meter can be directly connected or it can be used with clamp-on current transformers (4 set of clamps are available from DPEE: 5A, 100A, 500A, 1000A)
- The high capacity FLASH ROM allows to store up to 10000 metering data
- The meter has a serial communications port which allows direct connection to the RS-232 serial port of a personal computer
- The meter come with transportation bag, optical pickup for taking the light impulses coming from the device under test and software and cables for the connection to a PC.
- Self-calibration via software.

Technical data

Accuracy:	0.05
Voltage range:	0~465V
Voltage range switch:	automatic
Frequency measurement	
Range:	45~65Hz
Accuracy:	0.01Hz
Resolution:	0.001Hz
Phase measurement	
Range:	0°~359.99°
Impulse output	
Constant:	can be set in the range 1~999999999 imp/kWh
Max frequency:	72kHz
Impulse inputs	
DUT constant:	can be set in the range 1~999999999 imp/kWh
Max frequency:	50kHz
Impulses count for the test :	can be set in the range 1~(65535x65535)
Auxiliary power supply:	90~120V _{AC} /50Hz e 200~240V _{AC} /50Hz, totally autoranging
Rechargeable battery supply:	85~265V _{AC} , 20W
Operating temperature:	-20°C ÷ 55°C
Humidity:	≤85%
Dimensions:	275mmx176mmx67mm
Weight:	<3kg

			Accuracy data
QUANTITY	RANGE		ACCURACY
VOLTAGE	30-465V		0.05%RD, 0.05°
CURRENT	Direct connection	0.1~12A	0.05%RD, 0.05°
		0.05~0.1A	0.1%RD, 0.1°
		0.02~2.4A	0.05%RD, 0.05°
		0.01~0.02A	0.1%RD, 0.1°
	Connection with clamp-on transformers	10%In~120%In	0.2%RD, 0.2°
		5%In~10%In	0.3%RD, 0.3°
ACTIVE POWER / ENERGY	Direct connection	30-465V, 0.1~12A, $\cos\varphi\geq 0.5$	0.05%RD
		30-465V, 0.05~0.1A, $\cos\varphi=1$	0.1%RD
		30-465V, 0.02~2.4A, $\cos\varphi\geq 0.5$	0.05%RD
		30-465V, 0.01~0.02A, $\cos\varphi=1$	0.1%RD
	Connection with clamp-on transformers	30-465V, 10%In~120%In, $\cos\varphi\geq 0.5$	0.2%RD
		30-465V, 5%In~10%In, $\cos\varphi\geq 0.5$	0.3%RD
REACTIVE POWER / ENERGY	Direct connection	30-465V, 0.1~12A, $\cos\varphi\geq 0.5$	0.1%RD
		30-465V, 0.05~0.1A, $\cos\varphi=1$	0.2%RD
		30-465V, 0.02~2.4A, $\cos\varphi\geq 0.5$	0.1%RD
		30-465V, 0.01~0.02A, $\cos\varphi=1$	0.2%RD
	Connection with clamp-on transformers	30-465V, 10%In~120%In, $\cos\varphi\geq 0.5$	0.5%RD
		30-465V, 5%In~10%In, $\cos\varphi\geq 0.5$	0.75%RD
PHASE	Direct connection	30-465V, 0.1~12A	0.05°
		30-465V, 0.05~0.1A	0.1°
		30-465V, 0.02~2.4A	0.05°
		30-465V, 0.01~0.02A	0.1°
	Connection with clamp-on transformers	30-465V, 10%In~120%In	0.2°
		30-465V, 5%In~10%In	0.3°
POWER FACTOR	Direct connection	30-465V, 0.1~12A	0.0005
	Connection with clamp-on transformers	30-465V, 10%In~120%In	0.002