PORTABLE 1-PHASE POWER TEST SIMULATOR

MKR15

- **1-phase current simulator for testing of generator guards and protection units**
- **LED display for easy reading of current measurement**
- **For testing of current, current differential, overcurrent and short circuit, active (kW) and reactive (VAr) power, etc.**
- **The current output is galvanically isolated from the mains supply**
- **Built into a solid Pelicase suitcase with handle for easy carriage and safe transport handling**
- **Storage space for working tools, wires, etc.**

Specifications

Input AC Voltage	100-120V, 200-240V, 380-420V, 440-480V or 660-690VAC, 30- 70Hz
Output AC Current	0-3A, 5VA / 0-15A, 80VA
Power Factor	App. 0,85
Fuses	2 of 5x20MM, 0.63A, 250VAC
Dimension (LxWxD)	36,1 x 29 x 16,5 cm
Weight	App. 9,5kg
Certifications	IP64

Description

MKR15 is a 1-phase current simulator in the Megacon range of transportable test equipment. It is built into a solid Pelicase suitcase iM2011 with integrated handle for easy carriage and safe transport handling.

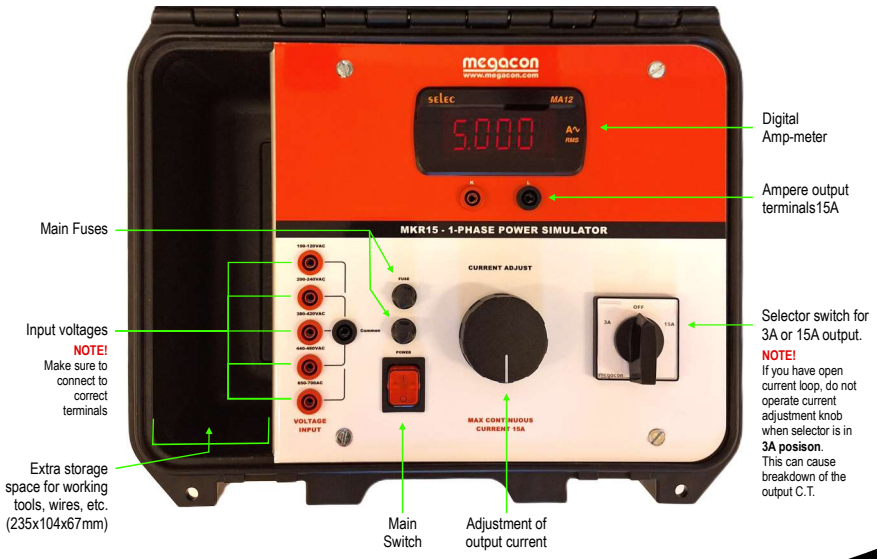
This unit is designed for general testing of Megacon's or other brands range of protective guards and controllers for generator and power plant automation systems (current, current differential, overcurrent and short circuit, active (kW) and reactive (VAr) power, etc.).

MKR15 has multiple input supply voltage range from 100VAC and up to 690VAC and current output 0-15A.

Variable Current Output

The maximum current to be drawn from output largely depends on the ohmic resistance of the external current loop. The current terminals are rated 20A, and 4mm plugs may be flipped into the center of the terminal. Use large size wires for high current levels to reduce ohmic losses. (recommended wire is minimum 2.5mm²). The current outputs are individually adjustable 0-3A or 0-15A. (selectable on selector switch) Be sure to connect the input voltage to the correct input terminals. The output current is directly related to the input phase.

The adjustable level of current output is read on the digital meters. Maximum continuous output current is 6A, up to 15A for max 5 minutes. Current levels **must not exceed** 15A for more than 15 seconds. The current output is isolated from the mains supply, and can be grounded or connected to any system voltage up to 690VAC.



GENERAL

Basically **MKR15** is an adjustable single phase current source, but objects can also be tested and calibrated by supplying single phase supply voltage with correct phase sequence and defined relative phase reference (R/S/T) three-phase to **MKR15.**

MKR15 has a mains switch. A red signal lamp is lit when mains input is on. It is protected by 2 fuses, accessible from front.

The current output is galvanically isolated from mains input, and can be connected to any network for system voltage up to 690VAC.

Simulation of Current

- Terminals of **MKR15**'s mains plug are marked **VOLTAGE INPUT** and **COMMON**
- Connect the current loop to terminals **CURRENT OUTPUT**
- Turn knob **CURRENT ADJUST** to adjust the output current level
- The digital amp-meter reads the loop current

The maximum current obtainable will depend on the ohmic resistance of the external loop. It is therefore important at high current levels that losses (ohmic resistance) in the external wiring are kept to a minimum.

The wire-ends should preferably be connected under tight pressure to give additional torque when clamping the wires. At low current levels standard 4mm dia plugs can be used.

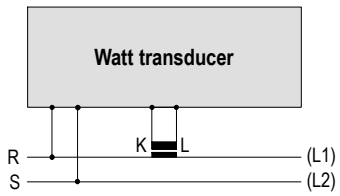
Simulation of Active Power (Watt)

- Connect supply voltage to **MKR15** as shown in column MKR15
- Connect supply voltage to watt-transducer as shown in column **Transducer**
- Inject current output (terminals **K/L**) in the phase shown in column **Current loop**
- For correct test or calibration, the watt-transducer **must** be connected with correct phase sequence
- The circuit configurations below shows how these terminals are connected to supply line voltages for measurement of the different active power (W) configurations.

Configuration for 1 element, single phase, 2 wire (1W2):

For test and calibration of a 1-element watt-transducer (1W2) for single-phase system.

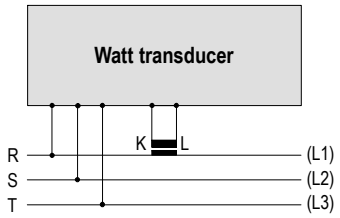
Transducer	MKR15	Current loop
R	Phase	**R**
S	Common	



Configuration for 1 element, three phase, 3 wire (1W3):

For test and calibration of a 1-element watt-transducer (1W3) for 3-wire supply in a **balanced load system**, the current output must be injected in phase "**R**" only.

Transducer	MKR15	Current loop
R	Phase	**R**
S	Common	
T		



GENERAL

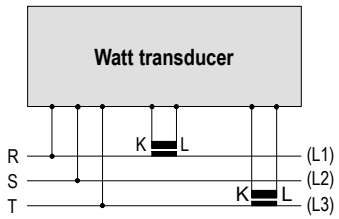
Configuration for 2 element, three phase, 3 wire (2W3):

Test and calibration of 3-wire three phase transducers for active (W) or reactive (VAr) power in a **unbalanced load system** must be carried out in two steps.

The results of all measurements must finally be added to determine the total power level.

	Transducer	MKR15	Current loop
Step 1	R	Phase	**R**
	S	Common	
	T		

	Transducer	MKR15	Current loop
Step 2	R		
	S	Common	
	T	Phase	**T**



Note that direction of current flow in the current loop must be as shown. Interchange connections to input terminals to simulate flow of **reverse power**.

Configuration for 3 element, three-phase, 4 wire (3W4):

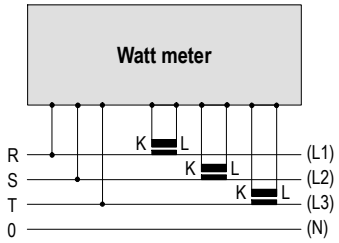
Test and calibration of 4-wire three phase transducers for active (W) or reactive (VAr) power in **unbalanced load system** must be carried out in three steps.

The results of all measurements must finally be added to determine the total power level.

	Transducer	MKR15	Current loop
Step 1	R	Phase	**R**
	S	Common	
	T		

	Transducer	MKR15	Current loop
Step 2	R		
	S	Phase	**S**
	T	Common	

	Transducer	MKR15	Current loop
Step3	R	Common	
	S		
	T	Phase	**T**



Note that direction of current flow in the current loop must be as shown. Interchange connections to input terminals to simulate flow of **reverse power**.