



**ELECTRIC
OPERATING**

CATALOGUE



NETWORK EXPERTISE



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ELECTRIC OPERATING



● JUPITER+ Cable and phase identification system

Pre-identify low and medium-voltage off line cables and feeders



- ✓ Simplified ergonomics : continuity and phases identifying in open circuit mode are realized in a single handling
- ✓ Single sensor for pre-identifying whatever the cable type
- ✓ Enhanced performances on impregnated paper cables identifying
- ✓ Storage of accessories and suitcase volume improved
- ✓ Transmitter battery can be charged when suitcase is closed
- ✓ Embedded self-diagnosis functions

➤ FUNCTIONS

JUPITER+ allows :

- ✓ Pre-identifying of cables
- ✓ Pre-identifying of phases in short-circuit mode and open circuit mode
- ✓ Continuity in short circuit mode and open circuit mode

➤ USE PRINCIPLE

JUPITER+ consists of a transmitter and a Receiver, both can be used on the electric network, off line and earthed. The transmitter must be connected in a substation, on a MV cell or a LV feeder, using the 3 current clamps connected to each phase, excluding the outer sheath. The receiver allows cable pre-identifying, continuity checking and phase identifying in open circuit or short circuit modes.



➤ TECHNICAL CHARACTERISTICS

TRANSMITTER
RECEIVER



- Lead battery 12 V – 7.8 Ah
- Maximum autonomy : 10 h
- Can run on mains supply on 230 VAC
- 490 x 390 x 230 mm
- IP 62



- 2 9 V PP3 batteries
- Maximum autonomy : 2000 measurements
- 380 x 290 x 70 mm
- IP 65

● Test case for pre-identifier

NEW

Control yourself your off line pre-identification devices

The test case for pre-identifier allows you to do the annual control of your voltage-free devices of pre-identification LV/MV yourself. The test suitcase is compatible with any types of voltage-free device of pre-identification (ex : JUPITER, JUPITER +, FC2000, FC2300, FC2310, etc.).

➤ USE PRINCIPLE

The test case simulates a cable insulated with paper as well as a synthetic three-phase cable of 8 km in a situation of pre-identification, to allow you the execution step by step of the usual pre-identification functions, continuity and tracking of colors in open circuit or short circuit.



You will be able to check any functionality of your devices, for periodic control in case of punctual doubt on an operation, or in a pedagogic goal to train new agents to maintain your mastery of these devices.

You will avoid at the same time maintenance costs and inconveniences due to material unavailability, typically met during external periodic controls.

➤ TECHNICAL CHARACTERISTICS

Weight	5,1 kg
Dimensions	360 x 304 x 194 mm
Temperature range	-20 °C to +55 °C
Sealing	IP66 closed ; IP53 opened

● DRN5 : Broken neutral test case

NEW

Locate and fix a broken neutral on a low voltage network

➤ FUNCTIONS

DRN5 is a load accessory for low-voltage network under voltage, aimed at helping operators in their research, localization and fixing of broken neutral.

DRN5 is in the form of an unbalanced load three-phase suitcase 5 kW, secured electrically and thermally.

It can be used on any access point of the low-voltage network under voltage, after disconnection of subscribers, and it allows to quickly highlight the existence of a broken neutral or not.

DRN5 is also used to check after repairing, right before the reconnection of the subscribers.



➤ USE PRINCIPLE

DRN5 connects easily to any access point of the low-voltage network under voltage via its crocodile grips and charges each phase following unbalanced values. The case does automatically the measure of the 3 voltages, which algebraic sum allows to quickly detect a broken neutral if this value is not null.

- ✓ Delayed load cycle, automatic and secured
- ✓ Thermal protections in case of overheating
- ✓ Electrical protections via differential circuit breaker and fuses
- ✓ Connection to the ground not necessary, class 2
- ✓ Detection light of broken neutral
- ✓ Switch for the selection and visualization of measured voltages
- ✓ Possibility to connect an echometer for the localization of the defect

➤ TECHNICAL CHARACTERISTICS

- ✓ 230/400 VAC
- ✓ 474 x 415 x 214 mm
- ✓ 10 kg
- ✓ IP22 – IK07
- ✓ Consumption : 5 kVA
- ✓ Technology with resistors

Live LV cable and core identification

- ✓ Identifies cables and cores
- ✓ Gives phase rotation
- ✓ Live LV
- ✓ Simple to use
- ✓ Visual and audible signal
- ✓ Improves efficiency
- ✓ Enhanced safety

USE PRINCIPLE

It is used to identify a live 115/220/400 V cable on which it is intended to work, and one or more of the cores in it. By correctly identifying LV cables, it reduces the risk of inadvertently opening an HV cable.

The LCI-400 is considerably reduced in size and weight and simpler to use than the NADIR. The system transmitter is connected downstream of the point of interest to draw a complex current signal down the cable, and a hand-held receiver displays the information required to identify the cable and cores upstream by analyzing the signal. The transmitter can be connected to each phase (preferred), phase-to-phase, for example at a link-box, or phase-to-neutral. It automatically configures itself to the connection in use.

The LCI-400 is intended to aid in the rapid location of a live, low voltage cable on which it is intended to work, and the cores/phases in it. It also eliminates the risk of opening a high voltage cable in error. It also shows the phase rotation. The phase to neutral connection option is allows easy connection at a customers premises.

The receiver will run for several days on new batteries.

The transmitter is connected, using the crocodile clips provided, to all three phases, downstream of the point of interest. If this is not possible, it can be connected either between any phase and neutral on the feeder, downstream of the point of interest. A supply cable terminating in a U. K. mains plug is also provided for rapid connection of the transmitter in a house, for example.

The transmitter automatically adjusts to the voltage supplied. Leds indicate the presence of the supply (115 V, 230 V or 400 V), and the phase rotation sense.



TECHNICAL CHARACTERISTICS

RECEIVER TRANSMITTER



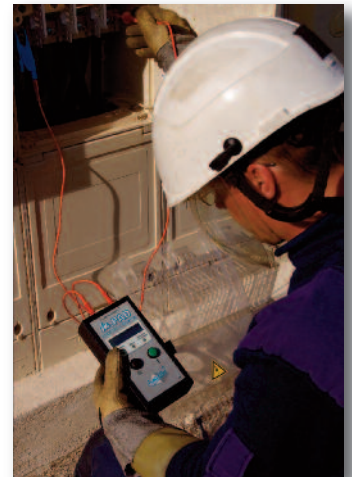
- 115, 230 and 400 V ; 50/60 Hz (self setting)
- 410 x 340 x 205 mm
- IP 2X
- IP 21
- 8,1 kg



- 2 6LR61 dry batteries
- 225 x 100 x 31 mm
- IP 2X
- IP 64
- 0,45 kg

m.PAD

Phase and feeder on line controller



FUNCTIONS

m.PAD is a phase and feeder indicator specifying on which phase and on which feeder a customer is connected on a live low voltage network, downstream of a transformer substation. It is a robust, reliable, and user friendly system.



USE PRINCIPLE

m-PAD is composed of a transmitter and a receiver.
The transmitter is connected at the transformer substation :

- ✓ On the low voltage side to the three phases and neutral.
- ✓ On each feeder with a Made-Flex current coil (including the three phases and excluding the neutral).

The receiver can then be connected between phase and neutral anywhere on the network to indicate the phase and feeder of the customer.

TECHNICAL CHARACTERISTICS

TRANSMITTER		<ul style="list-style-type: none"> - STAR or DELTA configuration - 230/400 VAC (phase to phase) - 115/230 VAC (phase to neutral) - 50 Hz or 60 Hz - 240 x 160 x 120 mm - IP 54 - -15°C / + 55°C 	<ul style="list-style-type: none"> - 9,85 kg
RECEIVER		<ul style="list-style-type: none"> - 100 - 250 VAC + battery 9 V to display results - 50 Hz or 60 Hz - 195 x 100 x 60 mm - IP 64 - -15°C / + 55°C 	<ul style="list-style-type: none"> - Cat IV voltage cords, including HPC 50 kA-1,6 A/1000 V fuses

m.PAD-DS

Phase and feeder on line controller



FUNCTIONS

m.PAD-DS is a phase and feeder indicator specifying on which phase and on which feeder a customer is connected on a live low voltage network, downstream of a transformer substation. It is a robust, reliable, and user friendly system. m.PAD-DS is the evolution of m.PAD : thanks to its new software, it now accommodates various network topologies as STAR, DELTA, 50 Hz or 60 Hz.



USE PRINCIPLE

m-PAD-DS is composed of a transmitter (Central Device) and a receiver (Line Device). The CD is connected at the transformer substation :

- ✓ On the low voltage side to the three phases and neutral
- ✓ On each feeder using current sensor coils

The LD can then be connected between phase and neutral (Y) or phase and phase (D) anywhere on the network to indicate the phase and feeder of the customer.

TECHNICAL CHARACTERISTICS

TRANSMITTER		<ul style="list-style-type: none"> - STAR or DELTA configuration - 230/400 VAC (phase to phase) - 115/230 VAC (phase to neutral) - 50 Hz or 60 Hz - 240 x 160 x 120 mm - IP 54 - -15 °C / + 55 °C 	<ul style="list-style-type: none"> - 9,85 kg
RECEIVER		<ul style="list-style-type: none"> - 100 - 250 VAC + battery 9 V to display results - 50 Hz or 60 Hz - 195 x 100 x 60 mm - IP 64 - -15 °C / + 55 °C 	<ul style="list-style-type: none"> - Cat IV voltage cords, including HPC 50 kA-1,6 A/1000 V fuses



TRIPHASOR

Identify phases, balance and optimize the electrical network

FUNCTIONS

TRIPHASOR is an instrument for optimizing the operation of electrical distribution networks. It measure the electric grid characteristics in real time, and enable the identification of each phase on a phased network. TRIPHASOR is used on live low tension networks, under load.



USE PRINCIPLE

Triphasor consists of a transmitter and a receiver, both can be used on a live LV electric network. The transmitter must be connected in a substation using the voltage LV cords and the current Rogowski clamps. The receiver allows phase identifying wherever it is connected between phase and neutral, anywhere on the live network.

TRIPHASOR measures :

- ✓ Voltages, currents, $\cos \varphi$ in the substation
- ✓ Voltages, currents, $\cos \varphi$ at the measurement location on the network
- ✓ Voltage drops, unbalancing rates between phases, and current percentage in each phase

TECHNICAL CHARACTERISTICS

RECEIVER		<ul style="list-style-type: none"> - 230 V/400 V ~ - IP 22 	<ul style="list-style-type: none"> - 540 x 390 x 240 mm - 10,65 kg
		<ul style="list-style-type: none"> - Accu NiCd 1,1 Ah - IP 65 	<ul style="list-style-type: none"> - Measurement accuracy : Rms voltage : 1 % Rms current : 2 % Power factor : 5 % - De -20 °C to +70 °C, 90 % relative humidity without condensation

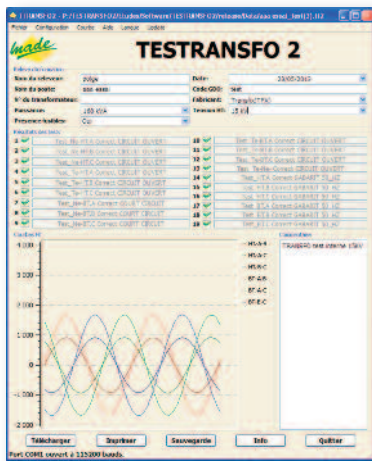
TESTTRANSFO2

Test your MV/LV transformers



APPLICATION

TESTTRANSFO2 is a small, self-powered, hand-held device which is used to check the functionality of a tri-phased transformer disconnected from the network. Usable on all distribution transformers, it automatically performs a sequence of tests taking only two minutes to confirm whether the transformer is functional or not.



OPERATING PRINCIPLE

TESTTRANSFO2 automatically checks 19 critical points of your transformer to prevent any possible default before installation.

These tests include :

- ✓ Wiring continuity (open-circuit, short-circuit)
- ✓ Transformation ratio of the three phases
- ✓ Waveform coherency on HV/LV sides

The software allows the user to display a one page report, or to save it in pdf.

New ! It is now possible to save up to 10 measurement reports in the TESTTRANSFO2 memory.

TECHNICAL CHARACTERISTICS

Detectable defects :

- ✓ Integrated protections when triggered
- ✓ Broken windings
- ✓ Short-circuit between phases
- ✓ Short-circuit between phases and neutral
- ✓ Short-circuit between neutral and ground
- ✓ Transformation ratio

- 2 battery 9 V, type LR61
- 193 x 100 x 72 mm
- ABS box
- 3,3 kg
- IP 52



CF200

MV fuse tester

➤ BASIC OPERATION

The MADE fuse tester performs a measurement of the fuse resistance. This measurement is based on the 4 wire measurement method with automatic compensation of the temperature effect on the result.

The fuse tester consists of a rigid case, including :

- ✓ An operating panel
- ✓ Two measuring clamps
- ✓ A self-test system
- ✓ A temperature sensor

The fuse test is performed in 4 steps :

- ✓ Power on (with automatic self-test)
- ✓ Connection of the 2 measuring clamps to the fuse
- ✓ Selection of the fuse type from a selection menu
- ✓ Measurement of the fuse resistance and immediate display of the result

The type of fuse to be tested is selected from the on-board data base holding the following parameters :

- ✓ Voltage
- ✓ Amperage
- ✓ Trade Mark
- ✓ Identifier

The database is generated using a management PC software which can be updated by the user and transferred to the tester via an USB connection.



➤ CHARACTERISTICS

Ranges	2,5 Ω à 5 m Ω
Accuracy	0.1 m Ω
Tolerance	12,5 % (i. e. detection of 1 cut wire out of 8)
Maximum number of fuses in memory (database)	Up to 3000
Test current	200 mA
Weight	2,6 kg
Dimensions	304 x 270 x 144 mm
Operating temperature	-20 °C to +55 °C
Power supply	2x9 V battery 6LR61 type (alkaline or lithium)
Maximum number of measurements without changing the batteries	2200 measurements
Standard	IEC-1010-1, CAT I 3V
Sealing	IP66 closed, IP52 open
Mechanical protection	IK07 closed, IK103 open

MULTI-Flex+

Multimeter



FUNCTIONS

MULTI-Flex+ is a digital multimeter, equipped with a flexible Rogowski coil current transducer (MADE-Flex™) for measuring the voltage and current and for checking the continuity on the low voltage network. The combination of these two inputs enables the calculation of the instantaneous active power and Cos Phi on the electric network. MULTI-Flex+, is provided in a carryind case, including two voltage cables, equipped with IP2X insulated plugs.

TECHNICAL CHARACTERISTICS

Current Input	MADE-Flex - 2000 Amp AC - Bandwidth 10 Hz-10 kHz
Voltage Input	Protected banana plugs and 2 IP2X leads (Mechanical Protection)
Range of current measurement	4 ranges : 50, 200, 400, 2000 A AC RMS
Range of voltage measurement	2 ranges : 100 - 480 V AC RMS
Range of power measurement	1 range : 0 - 100kW
Range of cos (Φ) measurement	1 range : 0,00 to +1,00
Continuity test	1 sound alarm starting at 200 Ω 0 to 2 kΩ
Peak factor	2,5 at nominal intensity
Maximum current	10 kA (MADE-Flex dielectric features)
Number of channels	2 measurement ways (current and voltage)
Resolution	Unit of the last displayed digit
Sampling	RMS values : 600 ms integration
Accuracy	0,3 % (max value in a range) < P < 5 % (low value in a range) ; with respect to a signal frequency between 45 and 65 Hz
Influence of the sensor shape	1 % for an oblong form
Influence of an adjacent conductor	1 %
Influence of the conductor position	1 %
Temperature range	Operation : -20 °C to 50 °C ; Storage : -20 °C to 70 °C
Power Supply	9 V Type E-BLOCK 6 LR 61. PP3
Battery Life	Approx. 8 h on battery – uninterrupted
Display	4 digit display
IP Standard	IP 55
Dimensions	330 x 280 x 75 mm
Weight	1,1 kg



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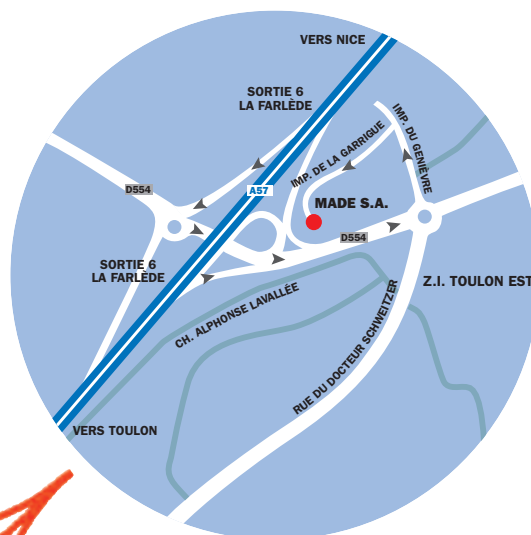
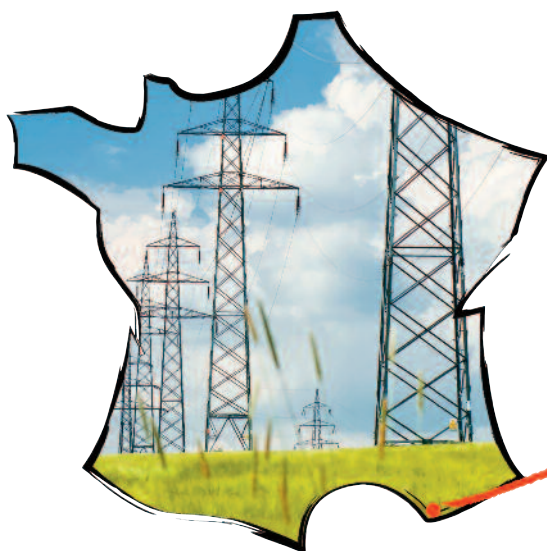
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