



**ELECTRIC  
OPERATING**



**NETWORKS  
LOCATING**



**POWER LINE  
DETECTOR**

# CATALOGUE



**NETWORK EXPERTISE**

Dear customers,

MADE S.A. is a French company founded in 1991 ; the Headquarter is based near Toulon in the south east of France.

We are specializing in the design, development, manufacture, and maintenance of innovative solutions for professional electronics tools.

We have a particular know-how in analog and digital electronics, Signal Processing, and electronics devices with a mechanical integration (CAD).

Our skills associated with our research and development department have allowed us to win national and international projects, in cooperation with R&D centers such as the power & gas utilities in France, regarding the development of electric operating tools and buried plastic pipes locators.

Today MADE's expertise is based on three business activities :

- Electrical operating tools,
- Buried cables and pipes locators,
- Power lines detector.

With more than 10 engineers in our engineering and design department, we devote 15 % of our turnover each year to Research and Development. This choice allows us to remain at the forefront of innovation, so as to offer the best tools and ensure the safety and the productivity of field operators.

On the strength of this strategy, Made is gaining market share in the Electricity and gas market. In France, 80 % of our activity is realized with the key power, gas and telecom utilities, contractors, and military projects.

For the rest of the world, we are working with more than 30 distributors involved in the same business activity.

Listening and serving our partners, we constantly research the best solutions that meet your expectations. We are pleased to present the first English catalogue.

Thank you all for your loyalty, very good reading.

Marc Rivasseau et Alain Daidone Managing Directors





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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

<b>Weight</b>	5,1 kg
<b>Dimensions</b>	360 x 304 x 194 mm
<b>Temperature range</b>	-20 °C to +55 °C
<b>Sealing</b>	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**

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

**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**

<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>TRANSMITTER</b></p> 	<ul style="list-style-type: none"> <li>- STAR or DELTA configuration</li> <li>- 230/400 VAC (phase to phase)</li> <li>- 115/230 VAC (phase to neutral)</li> <li>- 50 Hz or 60 Hz</li> <li>- 240 x 160 x 120 mm</li> <li>- IP 54</li> <li>- -15 °C / + 55 °C</li> </ul>	<ul style="list-style-type: none"> <li>- 9,85 kg</li> </ul>
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# 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"> <li>- Accu NiCd 1,1 Ah</li> <li>- IP 65</li> </ul>	<ul style="list-style-type: none"> <li>- 540 x 390 x 240 mm</li> <li>- 10,65 kg</li> <li>- Measurement accuracy : Rms voltage : 1 % Rms current : 2 % Power factor : 5 %</li> <li>- De -20 °C to +70 °C, 90 % relative humidity without condensation</li> </ul>
TRANSMITTER		<ul style="list-style-type: none"> <li>- 230 V/400 V ~</li> <li>- IP 22</li> </ul>	

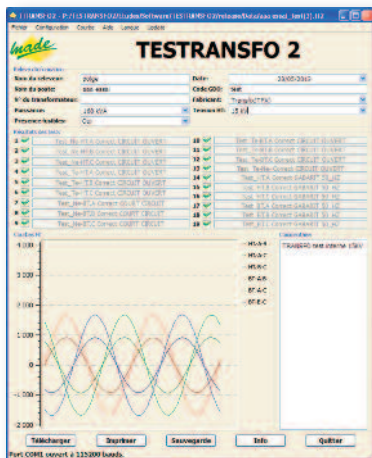
## TESTTRANSFO2

### 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

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

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





- **GAS TRACKER2** PP. 16, 17 and 18
- **Cable Avoidance Tools :  
DD120** P. 19
- **MRT-700** PP. 20 and 21

# NETWORKS LOCATING



## GAS TRACKER2

### *Plastic gas pipe locator*

Gas Tracker2 is an instrument for locating and identifying buried plastic gas pipes. It is able to locate the position and direction of a buried plastic pipe from the surface. Generally out-dated maps are used to locate existing gas lines. The Gas Tracker2 was developed to provide an easier, more efficient means to locate pipes resulting in a saving of time and money.

Manufactured in France and validated almost one decade ago by the French gas company, it is now used on all continents. This unique signal injection method is internationally patented.



### ➔ USE PRINCIPLE

The transmitter, thanks to a resonator tank, is connected to a standard meter box. It sends the signal through the gas, vibrating it, which in turn makes vibrations in the surrounding ground.

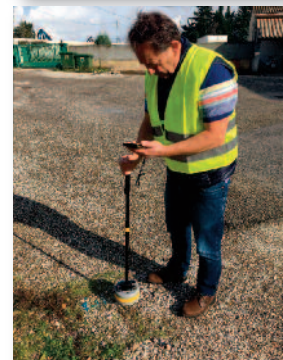
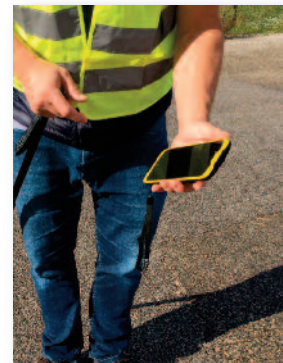
The transmitter is easy to use with only two options : ON and OFF.

The Gas Tracker 2 receiver, using a listening device placed on the ground and connected to a hand-held receiver, displays the results.

The receiver has two modes : Prelocate, to quickly identify the area where the pipe is buried ; and Pin-point, to accurately locate where the pipe is and which direction it takes. The Gas Tracker 2 is fully operational in urban environments even with the associated ambient noise.




The receiver features :

- A strong design, made for the field
- A military connection
- A long-life battery pack
- A high visibility screen
- A very simple user-friendly interface
- 3 functions : 3 buttons

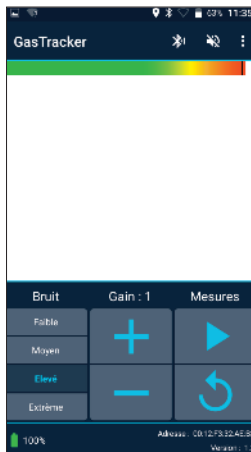


# GAS TRACKER2

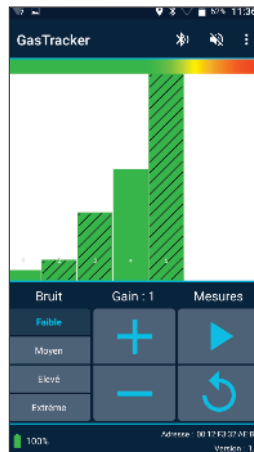
## TECHNICAL SPECIFICATIONS

TRANSMITTER	RECEIVER	GROUND SENSOR
 <ul style="list-style-type: none"> <li>Battery : Pb 2 x 7,6 Ah 12 V, Battery autonomy 4 h</li> <li>Automotive battery charger input 12 V</li> <li>External power supply (PSU) input 220 V</li> <li>IP 63</li> </ul>	 <ul style="list-style-type: none"> <li>Tablet : Android, Bluetooth connection, Li-Ion rechargeable battery 9.6 Ah, autonomy 8 h, IP66</li> <li>PDA : Windows CE, Bluetooth connectivity, Li-Ion rechargeable battery 2,4 Ah, autonomy 8 h, IP63</li> </ul>	 <ul style="list-style-type: none"> <li>Powered by NiMH rechargeable battery</li> <li>Battery autonomy 10 h</li> <li>IP 63</li> <li>Removable stick</li> </ul>
Transport case dimensions : 472 x 347 x 194 mm	Transport case dimensions : 560 x 347 x 239 mm	
Temperature conditions : -20°C à +60°C, 90 % relative humidity		
Weight (approx.) : 13,5 kg	Weight (approx.) : 15,9 kg	

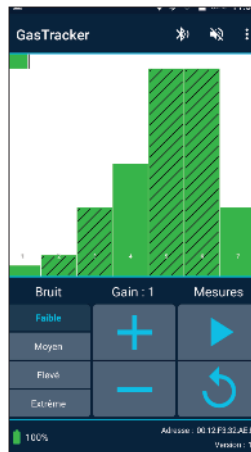
## GAS TRACKER 2 SOFTWARE



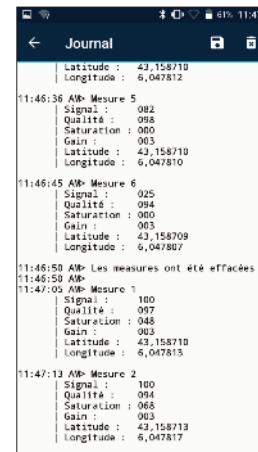
Pre locating



Pinpointing



Precision measuring



Log File

**Warranty : One year**

Ask us for more technicals informations

**Ask for a free demonstration**



## GAS TRACKER2

### Frequently Asked Questions about the Gas Tracker 2

**How accurate is it ? Can we dig on it ?**

Yes. When you are in Pin-Pointing mode, you are going to focus on the highest level of signal on the ground. By doing this at several points, you will trace an 'average line', that will be the closest to your pipe (not to say just above).

**Is the Gas Tracker 2 the only tool I need to locate gas pipes ?**

No. The Gas Tracker 2 is one tool in your tool box, but this is the only one you will need to find plastic gas pipes. For instance, it is very complementary with radar technologies that will work with difficulties on clay but will be a perfect condition for the Gas Tracker 2.

**Does it work on sheath pipes ?**

No. You need a compact soil to transmit your signal to the surface. If your service is in a conduit, you will lose it quickly. But you will be able to trace it from the main for a short distance (at least you will know where the connection main/service is). It will not trace metal pipe.

**Are there any possible safety issues working with the transmitter close to the gas meter box ?**

No. Our Transmitter has been designed to work safely near a meter box.

**Do you need to disconnect the customer's meter ?**

Yes, the Resonator attaches to the service at the meter connection. But a location & pinpointing campaign can be really quick.



**Is it weatherproof ?**

Yes, the Gas Tracker 2 is IP63, it can be used in rainy conditions.

**How far can I locate from the Resonator ?**

Depending on soil compaction, you can locate up-wards to 500 meters (1,500 feet) in both directions.

**May the signal be propagated to another pipe ?**

No. We use an acoustic wave that vibrates just the gas connected to the Resonator.

**What is the maximum gas pressure to use it ?**

It works at normal pressure range of plastic gas pipe networks, so up to approximately 7 bars (100psi). Field tests were done at higher pressure but results are not guaranteed. We recommend to not use it above 11 bars (165 psi).



## ● Cable Avoidance Tools : DD120

### *Reveal the utilities below your feet*

The DD120 cable locators feature advanced automatic controls making the DD120 easy-to-use, requiring minimal user experience. Avoiding underground cables and pipes is a major concern on construction sites. Therefore, detecting the position of buried cables and pipes before excavation work can help prevent operator injury, asset damage risks and any subsequent costs. Use the DD120 cable locators in conjunction with a DA220 signal transmitter and/or the Digisystem accessories to achieve improved accuracy and application scope.

#### ➤ TECHNICAL CHARACTERISTICS

- ✓ Automatic pinpointing
- ✓ Power, radio, auto modes
- ✓ Transmitter, 33 kHz, 8 kHz
- ✓ Depth detection up to 3 m
- ✓ Good-to-Go™ health check and start up test
- ✓ IP54 rating



**Warranty : 1 year**

**Ask for a free demonstration**

## MRT-700

***MRT-700 underground cable and pipe locator maps quickly, easily and accurately energized and de-energized MV and LV distribution networks***



- ✓ 7 sensors
- ✓ Excellent locating precision
- ✓ High accuracy and definition
- ✓ 2D LCD display
- ✓ Automatic current direction
- ✓ Easy drive (intuitive performance)

### ➔ TECHNICAL CHARACTERISTICS

RECEIVER MRT-700



- 4 active tracing frequencies
- Frequencies : 2 sondes 8 and 33 kHz
- Passives frequencies
- Readind depth (cm) and current (mA) at the same time
- 50 Hz presence of electric network
- Automatic or manual gain level
- Compass
- Differents detection modes
- Signal power
- Bluetooth connection
- Actual depth display (5 % of precision at 3 m)
- Autonomy : 10 h
- Performance : 10 km
- IP54
- Temperature range : -20°C + 55°C
- Weight : 1,5 kg

## ● MRT-700

GENERATOR 10 W MRT-700



- Power : 10 W
- Power : rechargeable battery Li-Ion
- Autonomy : > 10 h max power
- Weight : 3,1 kg
- Connection type : induction, direct connection, clamp
- Current display
- Available frequencies : current direction, 640 Hz, 8 kHz, 32 kHz

**MRT-700 was in harmony with the standards IEC61000-6-2/61000-6-4/61010-1 CATIV**

### ➔ OPTIONS

- Tracking cable
- Fault finding
- KLM export (Android and Apple application)
- Accessories on request

**Warranty : 2 years**

**NETWORKS  
LOCATING**



CANTIERI  
222 MECBO

223 MECBO

MECBO  
www.mecbo.it

MECBO



- **Overhead lines detection** P. 24
- **Reminder on MV & HV lines** P. 25
- **Detectors for conveyor belt, concrete pump, etc.** PP. 26 and 27
- **Detectors for basket** PP. 28 and 29
- **Detectors for loading crane** PP. 30 and 31
- **Detectors for telescopic forklift** PP. 32 and 33
- **Detectors for excavator** PP. 34 and 35
- **Detector for agricultural machinery, dumpster, etc.** P. 36
- **Detector for food tanker** P. 37
- **Detector for dumpster** P. 38
- **Aerial equipment** PP. 39, 40 and 41
- **Summary of the detection range** P. 42
- **Sensors tester HV** P. 43



# POWER LINE DETECTOR



## ● Overhead lines detection

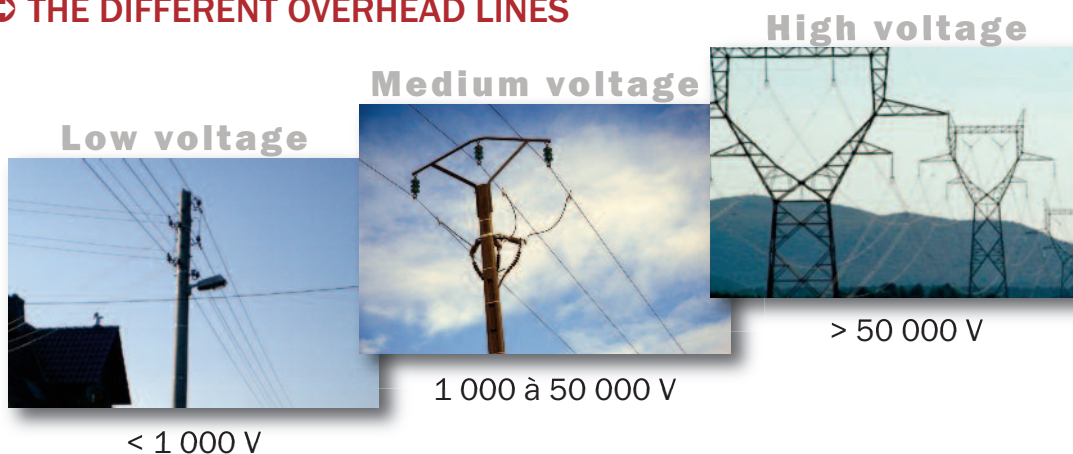
*The overhead MV and HT lines are each year a source of work accidents...*

- ✓ Because overhead lines are of long standing, field operators will not notice them anymore.
- ✓ Because the height of mechanical excavators, cradles, tractors continue to increase, the number of electrocution accidents is growing each year.
- ✓ Because each day the operators take lot of risks at work near electrical overhead lines...
- ✓ Protect your people an vehicles.
- ✓ Experience of 15 years on the cement market.
- ✓ 60 % of the cement pump use MADE systems.
- ✓ Customer references : Inter Service Pompe, Cemex, Theam, Orange, Cuma and fire brigade SDIS, etc.

Used as a driving aid, our detectors warn users of the proximity of an overhead MV-HV power line, but do not exempt them from following local applicable regulations  
In all circumstances, the operator must maintain control of his vehicle.

## ● Reminder on MV & HV lines

### ➔ THE DIFFERENT OVERHEAD LINES



### ➔ SAFETY DISTANCES

Until 50 000 volts : 3 m



More than 50 000 volts : 5 m



### ➔ RAPPEL



Electrocution can occur without touching the line !

● **DETECT LINE NG for conveyor belt, concrete pump, etc.** —

***Detection of High Voltage overhead electric lines***

DETECT LINE NG is a system dedicated to the prevention of accidents due to overhead power lines.

It consists of a control and processing module, connected to a sensor, which detects the proximity of a medium or high voltage overhead line around a vehicle.

➔ **PRESENTATION**

DETECT LINE NG is composed of a central processing unit connected to an antenna. The processing unit is usually installed with in the cabin. The sensor antenna must be placed on the roof of the cabin. Two boxes of visualization and acknowledgment are installed inside and outside the cabin.

➔ **OPERATION**

DETECT LINE NG senses the electric field around a high voltage power line. DETECT LINE NG alerts the user with an audible signal and a warning light when the vehicle enters a danger area (20 to 30 meters configurable distance from a high voltage power line).

After the system has detected an electric line, it can be acknowledged on the central unit, using one of the two visualization and acknowledgment boxes, and set in “vigilance” mode.

A sound alert will then be emitted at regular intervals to indicate the danger. This mode will maintain the operator’s vigilance as long as the vehicle stays in the danger area.

➔ **TECHNICAL CHARACTERISTICS**

- ✓ Factory adjustable detection thresholds of a high voltage line from 20 m to 40 m
- ✓ Measurement accuracy : +/- 4 m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions : 85 x 100 mm (sensor), 160 x 130 x 60 mm (CU), 145 x 85 x 90 mm (inside box of visualization) and 120 x 80 x70 mm (outside box of visualization)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ Sensitivity limits of the system do not allow the detection of 230 V - 380 V line
- ✓ The system does not detect the presence of direct current voltage

Our systems are available for all types of vehicles subjected to a risk to work near electrical MV and HV overhead lines (mechanical excavators, cradles, tractors...)



## ● SKY NG RADIO for conveyor belt, concrete pump, etc. —

### ***Protect persons and property thanks to High Voltage overhead electric lines detector !***

SKY NG RADIO is a high voltage line detector : medium voltage (< 50 kV) and high voltage (> 50 kV). SKY NG RADIO operates on a proximity detection principle using several sensors, depending on the number of arms on the machine. It warns the operator by an audible signal and a warning light when the high lift equipment enters a high risk zone, with a warning distance that can be configured between 3 to 6 meters (10 to 17 feet) from a high voltage line. SKY NG RADIO is designed for concrete belts, pumps, mixer-pumps, auxiliary cranes, etc.



Central unit



Cabin control monitor (option)



Cabin control monitor outside

### ➤ OPERATION

SKY NG RADIO activates when the power take-off is engaged. The electrical field detection activates the audible alarms and visual alarms and can cause the stop of the motion (with effective cabling). The driver can turn off the audible alarm and the motion stopping (if effective) features for an hour by pushing the button “call-back mode”. The buzzers and the flashing lights remain active. After an hour, the system resets.

### ➤ TECHNICAL CHARACTERISTICS

- ✓ For a multi-sensors configuration, the configurable detection threshold upon installation varies from 3 to 6 meters (10 to 17 feet) from a high voltage line
- ✓ Measurement precision :  $\pm 1$  meter (3 feet) while moving, with a speed of 1 m/s (3.3 feet/s)
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions : 160 x 85 x 45 mm (sensor), 160 x 130 x 60 mm (CU), 145 x 85 x 90 mm (inside box of visualization) and 120 x 80 x 70 mm (outside box of visualization)
- ✓ Waterproof standard : IP65
- ✓ Temperature range :  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 280 V power lines
- ✓ The system does not detect the presence of direct current voltage

Our systems are available for all types of vehicles subjected to a risk to work near electrical MV and HV overhead lines (mechanical excavators, cradles, tractors...)

## ● SKY NG NACELLE for basket < 16 m

### *Detectors of High Voltage electric line for basket < 16 m*



SKY NG NACELLE is a detector of high voltage lines : MV (< 50 kV) and HV (> 50 kV). SKY NG NACELLE warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 3 and 6 m of a high voltage line.

#### ⇒ PRESENTATION

SKY NG NACELLE works on the principle of proximity detection with several sensors (3 or 4), for the baskets < 16 m which communicate permanently with the central unit placed in the basket. The communication between the CU and the sensors is wired. A box of visualization and acknowledgment of the signal is placed in the basket. The temporary blockade of the movements can also be proposed (dry contact available).

#### ⇒ OPERATION

SKY NG NACELLE starts when the basket starts.

The detection of the electric field turns on the acoustic and visual alarm and provokes the blockade of the movement (with effective cabling).

The driver can turn off the acoustic alarm and the movement blockade (if effective) for a duration of 20 minutes by pushing the button "call-back mode". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. After 20 minutes, the system resets.

#### ⇒ TECHNICAL CHARACTERISTICS

- ✓ For a multi-sensors configuration, the configurable detection threshold upon installation varies from 3 to 6 m (10 to 17 feet) from a high voltage line
- ✓ Measurement precision :  $\pm 1$  m (3 feet) while moving, with a speed of 1 m/s (3.3 feet/s)
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions : 112 x 60 x 30 mm (cabled sensor), 145 x 85 x 90 mm (CU) and 120 x 80 x 70 mm (outside box of visualization)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines

## ● SKY NG RADIO for basket > 16 m

### *Detectors of High Voltage electric line for basket > 16 m*

SKY NG RADIO is a detector of high voltage lines : MV (< 50 kV) and HV (> 50 kV). SKY NG RADIO warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 3 and 6 m of a high voltage line.

#### ➤ PRESENTATION

SKY NG RADIO works on the principle of proximity detection with several sensors, depending on the number of arms of the machine which communicate permanently with the central unit placed in the basket. The communication between the CU and the sensors is by radio. A box of visualization and acknowledgment of the signal is placed in the basket. The temporary blockade of the movements can also be proposed (dry contact available).

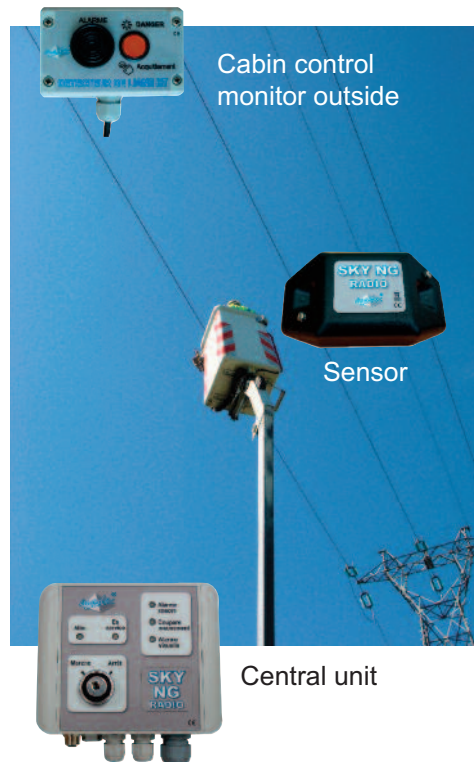
#### ➤ OPERATION

SKY NG RADIO starts when the basket starts. The detection of the electric field turns on the acoustic and visual alarm and provokes the blockade of the movement (with effective cabling).

The driver can turn off the acoustic alarm and the movement blockade (if effective) for a duration of 20 minutes by pushing the button "call-back mode". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. After 20 minutes, the system resets.

#### ➤ TECHNICAL CHARACTERISTICS

- ✓ For a multi-sensors configuration, the configurable detection threshold upon installation varies from 3 to 6 m (10 to 17 feet) from a high voltage line
- ✓ Measurement precision :  $\pm 1$  m (3 feet) while moving, with a speed of 1m/s (3.3 feet/s)
- ✓ Alimentation : 24 VDC or 12 VDC
- ✓ Dimensions : 160 x 85 X 45 mm (radio sensor), 145 x 85 x 90 mm (CU) and 120 x 80 x 70 mm (outside box of visualization)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines



## ● DETECT LINE NG for auxiliary loading crane

### *Detect the aerial lines of Medium and High Voltage*



DETECT LINE NG is a detector of high voltage lines : MV (< 50 kV) and HV (> 50 kV).  
DETECT LINE NG warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 10 and 40 m of a high voltage line.

#### ➔ PRESENTATION

DETECT LINE NG is composed of a sensor placed on the second arm of the crane which communicates permanently with the central unit. An exterior box of visualization and acknowledgment of the alarms is placed close to the crane cockpit. The temporary blockade of the movements can also be proposed (dry contact available).

#### ➔ OPERATION

The DETECT LINE NG starts when the machine starts. A self-test is done. The detection of an electric field turns on the acoustic alarms (buzzer) and visual alarms (danger light) of the outside box of visualization and the blockade of the movement (if effective cabling) in order to warn the user of the potential danger.

The driver can turn off the acoustic alarm and the movement blockade (if effective) for a duration of 20 minutes by pushing the button "call-back mode". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. If the machine leaves the electric field area, the system resets.

#### ➔ TECHNICAL CHARACTERISTICS

- ✓ Detection threshold around the sensor adjustable during installation from 10 to 40 m of a high voltage line
- ✓ Measurement accuracy :  $\pm 2$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Compact design : 85 x 100 mm (sensor), 160 x 130 x 60 mm (CU) and 120 x 80 x 70 mm (outside box of visualization)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage



## ● SKY NG RADIO for auxiliary and mobile loading crane

### *Protect the people and the properties thanks to the detector of the aerial lines of Medium and High Voltage*

SKY NG RADIO is a detector of high voltage lines : MT (< 50 kV) and HV (> 50 kV). SKY NG RADIO warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 3 and 10 m of a high voltage line. SKY NG RADIO works on the principle of proximity detection with several sensors, depending on the number of arms of the machine which communicate permanently with the central unit. An outside box of visualization (placed next to the cockpit of the crane) completes this equipment. The temporary blockade of the movements can also be proposed.

#### ➤ OPERATION

SKY NG RADIO starts when the machine starts.

The detection of the electric field turns on the acoustic and visual alarm of the exterior box of visualization.

The driver can turn off the acoustic alarm for 20 minutes by pushing the button "acknowledgment". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. After 20 minutes, the system resets.

#### ➤ TECHNICAL CHARACTERISTICS

- ✓ For a multi-sensors configuration, the configurable detection threshold upon installation varies from 3 to 10 m from a high voltage line
- ✓ Measurement precision :  $\pm 1$  m while moving, with a speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions : 160 x 85 x 45 mm (radio sensor), 160 x 130 x 60 mm (CU) and 120 x 80 x 70 mm (box of visualization)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage



## ● DETECT LINE NG for telescopic forklift

### *Detect the aerial lines of Medium and High Voltage*

DETECT LINE NG is a detector of high voltage lines : MT (< 50 kV) and HV (> 50 kV).

DETECT LINE NG warns the user with an acoustic and visual signal when the lifting device enters a danger zone.

#### ➔ PRESENTATION

DETECT LINE NG is composed of a sensor placed on the roof of the vehicle which communicates permanently with the central unit, placed in the cabin. A box of visualization and acknowledgment of the alarms is placed in the vehicle. As an option, an outside box of visualization and acknowledgment of the alarms is proposed.

#### ➔ OPERATION

The DETECT LINE NG starts when the machine starts. If the sensor detects its entrance in the danger zone, an uninterrupted acoustic and visual alarm warns the user of the potential danger. The driver can turn off the acoustic alarm for 20 minutes by pushing the button "acknowledgment". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. If the machine leaves the electric field area, the system resets.

#### ➔ TECHNICAL CHARACTERISTICS

- ✓ Detection threshold around the sensor adjustable during installation from 10 to 40 m of a high voltage line
- ✓ Measurement accuracy :  $\pm 4$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions :  $\varnothing 85$  mm x 100 mm (sensor), 160 x 130 x 60 mm (CU), 145 x 85 x 90 mm (inside visualization box) and 120 x 80 x 70 mm (outside box of visualization, in option)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage



## ● SKY NG RADIO for telescopic forklift

### *Protect the people and the properties thanks to the detector of the aerial lines of Medium and High Voltage*

SKY NG RADIO is a detector of high voltage lines : MT (<50 kV) and HV (>50 kV). SKY NG RADIO warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 3 and 6 m of a high voltage line.

#### ➤ PRESENTATION

SKY NG RADIO is composed of several sensors, depending on the length of the arms which communicate permanently with the central unit. A box of visualization and acknowledgment of the alarms placed in the visual field of the driver completes this equipment. As an option, an outside box of visualization and acknowledgment of the alarms is proposed, in order to avoid to the driver to go up in the cabin.

#### ➤ OPERATION

The SKY NG RADIO starts when the machine starts.

The detection of the electric field turns on the acoustic alarms (buzzer) and visual alarms of the boxes of visualization (inside and outside, if option chosen).

The driver can turn off the acoustic alarm for 20 minutes by pushing the button "acknowledgment". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. After 20 minutes, the system resets.

#### ➤ TECHNICAL CHARACTERISTICS

- ✓ For a multi-sensors configuration, the configurable detection threshold upon installation varies from 3 to 6 m from a high voltage line
- ✓ Measurement accuracy :  $\pm 1$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions : 160 x 85 X 45 mm (sensor), 160 x 130 x 60 mm (CU), 145 x 85 x 90 mm (inside visualization box) and 120 x 75 x 60 mm (outside box of visualization, in option)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage



## ● DETECT LINE NG for excavator

### *Detect the aerial lines of Medium and High Voltage*



DETECT LINE NG is a detector of high voltage lines : MT (< 50 kV) and HV (> 50 kV).  
DETECT LINE NG warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 10 and 40 m of a high voltage line.

#### ➤ PRESENTATION

DETECT LINE NG is composed of a sensor placed on the actuator which communicates permanently with the central unit, placed in the cabin. A box of visualization and acknowledgment of the alarms is placed in the visual field of the driver in the vehicle.

#### ➤ OPERATION

The DETECT LINE NG starts at the interlock of the power grip. A self-test is made. The detection of an electric field provokes the activation of the acoustic alarms (buzzer) and the visual alarms (danger light) in order to warn the user of the potential danger. The driver can turn off the acoustic alarm for a duration of 20 minutes by pushing the button "acknowledgment". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. If the machine leaves the electric field area, the system resets.

#### ➤ TECHNICAL CHARACTERISTICS

- ✓ Detection threshold around the sensor adjustable during installation from 10 to 40 m of a high voltage line
- ✓ Measurement accuracy :  $\pm 2$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Compact design : 85 x 100 mm (sensor), 160 x 130 x 60 mm (CU), 145 x 85 x 70 mm (inside visualization box)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage

## ● SKY NG RADIO for excavator

### *Protect the people and the properties thanks to the detector of the aerial lines of Medium and High Voltage*

SKY NG RADIO is a detector of high voltage lines : MT (<50 kV) and HV (>50 kV).

SKY NG RADIO warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 3 and 6 m of a high voltage line.

#### ➤ PRESENTATION

SKY NG RADIO is composed of 2 or 3 sensors (depending on the height of the excavator), placed on top of the arm, which communicate permanently with the central unit placed in the cabin. A box of visualization and acknowledgment of the alarms completes this equipment.

#### ➤ OPERATION

The SKY NG RADIO starts when the machine starts. A self-test is made.

The detection of the electric field turns on the acoustic alarms (buzzer) and visual alarms of the box of visualization.

The driver can turn off the acoustic alarm for a duration of 20 minutes by pushing the button "acknowledgment". The light remains active.

A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. If the machine leaves the electric field area, the system resets.

#### ➤ TECHNICAL CHARACTERISTICS

- ✓ For a multi-sensors configuration, the configurable detection threshold upon installation varies from 3 to 6 m from a high voltage line
- ✓ Measurement accuracy :  $\pm 1$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions : 160 x 85 x 45 mm (sensor), 160 x 130 x 60 mm (CU), 145 x 85 x 90 mm (visualization box)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage



Central unit

Cabin control monitor

**POWER LINE  
DETECTOR**

## ● DETECT LINE NG for agricultural machinery, dumpster, etc. —

### *Detect the aerial lines of Medium and High Voltage*



DETECT LINE NG is a detector of high voltage lines : MT (< 50 kV) and HV (> 50 kV).  
DETECT LINE NG warns the user with an acoustic and visual signal when the lifting device enters a danger zone.

#### ⇒ PRESENTATION

DETECT LINE NG is composed of a sensor placed on the roof of the vehicle which communicates permanently with the central unit (CU), placed in the cabin. A deported box of visualization completes this equipment.

#### ⇒ OPERATION

The DETECT LINE NG starts at the lifting of the chute. If the sensor detects its entrance in the danger zone, an acoustic and visual alarm continued, warn the user of the potential danger.

The driver can turn off the acoustic alarm by pushing the button "acknowledgment". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger.

If the machine leaves the electric field area, the system resets.

#### ⇒ TECHNICAL CHARACTERISTICS

- ✓ Detection threshold around the sensor adjustable during installation from 20 to 40 m of a high voltage line
- ✓ Measurement accuracy :  $\pm 4$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Compact design : 85 x 100 mm (sensor), 160 x 130 x 60 mm (CU)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C to +60 °C
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage

## ● SKY NG RADIO for food tanker

### *Protect the people and the properties thanks to the detector of the aerial lines of Medium and High Voltage*

SKY NG RADIO is a detector of high voltage lines : MT (< 50 kV) and HV (> 50 kV).

SKY NG RADIO warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 3 and 6 m of a high voltage line.

#### ➤ OPERATION

The SKY NG RADIO starts when the machine starts. A self-test is made.

The detection of the electric field turns on the acoustic alarms (buzzer) and visual alarms of the inside box of visualization.

The driver can turn off the acoustic alarm for 20 minutes by pushing the button “acknowledgment”.

The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger.

If the machine leaves the electric field area, the system resets.

#### ➤ TECHNICAL CHARACTERISTICS

- ✓ For a multi-sensors configuration, the configurable detection threshold upon installation varies from 3 to 6 m from a high voltage line
- ✓ Measurement accuracy :  $\pm 1$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Dimensions : 160 x 85 x 45 mm (sensor), 160 x 130 x 60 mm (CU) and 145 x 85 x 90 mm (visualization box)
- ✓ Waterproof standard : IP65
- ✓ Temperature range :  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage

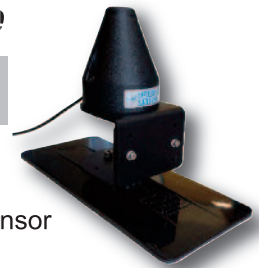


## ● DETECT LINE NG Compact for dumpster

*Detect the aerial lines of Medium and High Voltage*



**NEW**



Sensor



Central unit

DETECT LINE Compact is a detector of high voltage lines : MT (< 50 kV) and HV (> 50 kV). DETECT LINE Compact warns the user with an acoustic and visual signal when the lifting device enters a danger zone at a distance between 10 and 40 m of a high voltage line.

### ➔ PRESENTATION

DETECT LINE Compact is composed of a sensor placed on the roof of the vehicle which communicates permanently with the central unit (CU). The central unit is placed in the visual field of the driver in the vehicle cabin. It allows the visualization and the acknowledgment of the alarms.

### ➔ OPERATION

The DETECT LINE Compact starts at the interlock of the power grip. A self-test is made. The detection of the electric field provokes an activation of the acoustic and visual alarms (danger light) in order to warn the user of the potential danger. A dry contact is also available to realize a blockade of the movement during the activation of the alarm. The driver can turn off the acoustic alarm for 20 minutes by pushing the button "acknowledgment". The light remains active. A sound alert will then be emitted regularly (every 30 seconds) to indicate the danger. If the machine leaves the electric field area, the system resets.

### ➔ TECHNICAL CHARACTERISTICS

- ✓ Detection threshold around the sensor adjustable during installation from 10 to 40 m of a high voltage line
- ✓ Measurement accuracy :  $\pm 2$  m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Compact design : 189 x 98 x 38 mm (CU) and 109 x 90 x 196 mm (sensor)
- ✓ Waterproof standard : IP41 (CU) and IP68 (sensor)
- ✓ Temperature range :  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$
- ✓ Self-test system at each power-on
- ✓ The sensibility limits of the device does not allow to detect 230 V to 380 V power lines
- ✓ The system does not detect the presence of direct current voltage



## ● DETECT LINE POMPIER



### *Detection of High Voltage overhead electric lines*



#### ➔ APPLICATION

DETECT LINE NG is a system dedicated to the prevention of accidents due to overhead power lines. It consists of a control and processing module, connected to a sensor, which detects the proximity of a medium or high voltage electricity line around a vehicle.

#### ➔ PRESENTATION

DETECT LINE NG is composed of a central processing unit connected to an antenna. The processing unit is usually installed inside the cabin. Two sensors antenna must be placed on both sides of the ladder. One box of visualization and acknowledgment allows to report the information on the instrument cluster, in front of the operator.

#### ➔ OPERATION

DETECT LINE NG detects the electric field around medium and high voltage overhead power lines.

The buzzer and a warning light alert the operator when the fire engine enters in a danger area (40 meters distance from a high voltage power line).

#### ➔ TECHNICAL CHARACTERISTICS

- ✓ Factory adjustable detection thresholds of a high voltage line from 40 m
- ✓ Measurement accuracy : +/- 4 m for a moving speed of 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Compact design : 85 x 100 mm (sensor) and 160 x 130 x 60 mm (CU)
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20 °C à +60 °C
- ✓ Self-test system at each power-on

## ● SKY NACELLE POMPIER

### *Detection of High Voltage overhead electric lines*



#### ⇒ APPLICATION

SKY NACELLE is a system dedicated to the prevention of accidents due to overhead power lines.

SKY NACELLE is used as a driving aid in complement with of our product DETECT LINE to protect the cradle.

#### ⇒ PRESENTATION

SKY NACELLE is composed of 3 sensors for detection of medium and high voltage overhead electric lines.

The sensors are installed around the cradle. The central processing unit is installed inside the cradle.

The accuracy of locating is between 10 and 15 m ( $\pm 1$  m) for medium voltage.

#### ⇒ OPERATION

SKY NACELLE detects the electric field around a medium and high voltage overhead power lines.

The buzzer and a warning light alert the operator when the fire engine enters a danger area between 10 meters and 15 meters.

#### ⇒ TECHNICAL CHARACTERISTICS

- ✓ Limit detection : MV > 20 kV : 10 m < limit detection < 15 m
- ✓ Measurement accuracy :  $\pm 1$  m dynamic, speed 1 m/s
- ✓ Power supply : 24 VDC or 12 VDC
- ✓ Sensors Power : rechargeable battery
- ✓ Compact design : sensor 96 x 80 x 45 mm and unit processing 160 x 130 x 60 mm
- ✓ Waterproof standard : IP65
- ✓ Temperature range : -20°C à +60°C
- ✓ Self-test system at each power-on

## ● The optional external radio report

### *Detection of High Voltage overhead electric lines*









#### ➤ PRESENTATION

The optional external radio report unit is installed on the rear of the fire engine. It reports and shows the operator the same alerts information than the SKY NACELLE and DETECT LINE.

#### ➤ REMEMBER

- ✓ Sensitivity limits of the system do not allow the detection of 230 V - 380 V overhead power lines
- ✓ The system does not detect DC voltage
- ✓ In all circumstances, the operator must maintain control of his vehicle

## Summary of the Detection range

	VOLUMETRIC DETECTION		PROXIMITY DETECTION			
	DETECT LINE NG Outside box	DETECT LINE NG Cabin box	SKY NG RADIO Outside box	SKY NG RADIO Cabin box	SKY NG NACELLE Cabled	SKY NG NACELLE Radio
						
<b>Detection threshold by default</b>	40 m	40 m	6 m	6 m	4 m	6 m
<b>Detection threshold in function of the vehicle</b>	from 10 to 40 m configurable	from 10 to 40 m configurable	from 3 to 6 m configurable	from 3 to 6 m configurable	from 3 to 6 m configurable	from 3 to 6 m configurable
<b>Truck</b>	yes		yes 4 sensors			
<b>Concret pump</b>	yes		yes 5 sensors			
<b>Pump 4 arms</b>	yes		yes 7 sensors			
<b>Pump 5 arms</b>	yes		yes 9 sensors			
<b>Basket &lt; 16 m</b>					yes 3 sensors	
<b>Basket from 16 to 22 m</b>						yes 4 sensors
<b>Basket from 22 to 30 m</b>						yes 6 sensors
<b>Agricultural machinery</b>		yes				
<b>Food tanker</b>			yes 1 sensor			
<b>Auxiliary loading crane &lt; 16 m</b>	yes		yes 2 sensors			
<b>Auxiliary loading crane from 16 to 22 m</b>	yes		yes 4 sensors			
<b>Auxiliary loading crane from 22 to 30 m</b>	yes		yes 6 sensors			
<b>Moving crane</b>			yes 6 sensors	yes 6 sensors		
<b>Excavator</b>		yes		yes 2 sensors		
<b>Telescopic forklift</b>		yes	yes 4 sensors	yes 4 sensors		
<b>Aerial equipment</b>		yes 2 sensors			yes 3 sensors	

## ● TC-HT Sensors tester HV

***Test the sensors of the DETECT LINE, SKY RADIO, SKY NACELLE, ...***

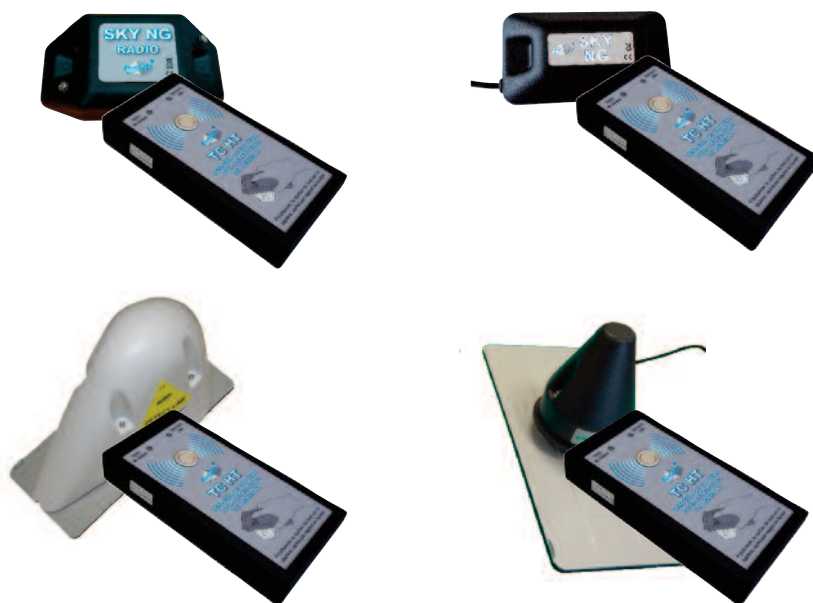
TC-HT is an instrument allowing to test any kind of sensor of our range of products DETECTION OF HIGH VOLTAGE AERIAL LINES : DETECT LINE, SKY RADIO, SKY NACELLE, ...

Easy to use, it will allow you to test the good operation of your systems and to avoid using an extension cord !

### ➔ OPERATION

In order to test the complete system of DETECTION OF HV AERIAL LINES settled on your vehicle (operation of the sensor and transmission of information to the central unit), the TC-HT generates an electric field simulating the presence of an electric line.

You just have to center the box TC-HT on the sensor and to push the button in front of the product. If the system of DETECTION OF HV LINES generates an alarm, it means it is operational.



### ➔ TECHNICAL CHARACTERISTICS

- ✓ Dimensions : 195 x 101 x 44 mm (tester) and 230 x 220 x 80 mm (suitcase)
- ✓ Works with 2 batteries of 9 V

**POWER LINE  
DETECTOR**



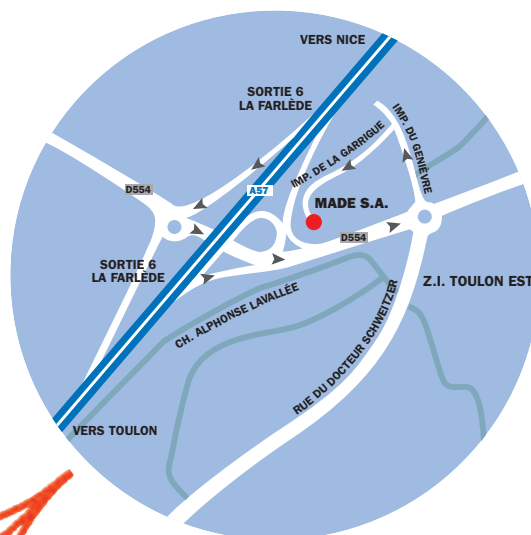
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