

MADE

• network expertise

CATALOGUE

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MADE IN
FRANCE

Field of activity

Electricity distribution maintenance
Underground network locators
Specific telecom equipment
Power line detectors
Personal Protective Equipment
Defence

Manufacturing and sales

Engineering office

Long-time partners

Enedis,
GRDF, DGA,
Naval Group, etc.

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general summary

ELECTRICITY DISTRIBUTION MAINTENANCE

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UNDERGROUND NETWORK DETECTION

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POWER LINE WARNING SYSTEMS

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summary

- Cable and phase identification on de-energized cables **JUPITER X** ▶ p. 3
- Live LV cable and core identification **LCI-400** ▶ p. 4
- MV fuse tester HTA **CF200** ▶ p. 5
- MV/LV transformers tester **TESTTRANSFO 2** ▶ p. 6
- Check the outer sheath of buried low or high voltage cables **TESTECRAN +** ▶ p. 7
- Power cable spiking and cutting tool **PKC95** ▶ p. 8



Cable and phase identification on de-energized cables

JUPITER X

FUNCTIONS

JUPITER X allows :

- Cable identification (low or medium voltage)
- Phase identification in short-circuit mode and open circuit mode
- Continuity in short-circuit mode and open circuit mode

USE PRINCIPLE

JUPITER X consists of a removable transmitter and a receiver, both can be used on the electric network, de-energized and earthed.

The transmitter must be connected in a substation, on a MV cell or a LV feeder, using the 3 current injection clamps connected to each phase, excluding the outer shield. The receiver allows cable identifying, continuity checking and phase identifying in open circuit or short circuit modes.

- Simplified ergonomics : continuity and phases identifying in open circuit mode are realized in a single handling
- Single sensor for identifying whatever the cable type
- Enhanced performances on impregnated paper cables
- Storage of accessories and suitcase volume improved
- Trolley suitcase
- Embedded self-diagnosis functions



TECHNICAL CHARACTERISTICS

Transmitter	Receiver
<ul style="list-style-type: none">• Removable transmitter• Lead battery 12 V - 7.8 Ah• Maximum autonomy : 10 h• Dual power source (battery or 230 V AC)• 280 x 150 x 120 mm• IP 54	<ul style="list-style-type: none">• 2 9 V, PP3 batteries• Maximum autonomy : 2000 measurements• 380 x 290 x 70 mm• IP 54



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Live LV cable and core identification

LCI-400

FUNCTIONS

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

USE PRINCIPLE

The LCI-400 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 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.

Leds indicate the presence of the supply (115 V, 230 V or 400 V), and the phase rotation sense.



TECHNICAL CHARACTERISTICS

Transmitter	Receiver
<ul style="list-style-type: none">• 115/230/400 V AC ~ 2 A ; 50/60 Hz (self setting)• 410 x 340 x 205 mm• IP 2X• IP 54• 8.1 kg	<ul style="list-style-type: none">• 2 6LR61 dry batteries• 225 x 100 x 31 mm• IP 2X• IP 21• 0.45 kg



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MV fuse tester

CF200

FUNCTIONS

CF200 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

USE PRINCIPLE

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 through a USB connection.



TECHNICAL CHARACTERISTICS

Ranges	5 mΩ to 2.5 Ω
Accuracy	0.1 mΩ
Tolérance	12.5 % (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 à +55 °C
Power supply	2 x 9 V batteries 6LR61
Maximum number of measurements without changing the batteries	2200 measurements
Standard	IEC-1010-1, CAT I 3V
Degree of protection	IP 52

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MV/LV transformers tester

TESTTRANSFO 2

FUNCTIONS

TESTTRANSFO 2 is a small, self-powered, hand-held device which is used to check the functionality of a three-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.

USE PRINCIPLE

TESTTRANSFO 2 automatically checks 19 critical points of your transformer to prevent any possible default before installation. These tests include :

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 format.

It is possible to save up to 10 measurement reports in the TESTTRANSFO 2 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

Power supply	2 6LR61 dry batteries
Dimensions of the case	360 x 280 x 600 mm
Dimensions of the testeur	195 x 100 x 70 mm
Total weight	3.3 kg
Weight of the testeur	0.5 kg
Display	Ecran LCD 4 lines + led
Operating temperature	-20 °C à +50 °C
Accuracy	1 %
Degree of protection	IP 52



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Check the outer sheath of buried low or high voltage cables

TESTECRAN+

FUNCTIONS

TESTECRAN+™ is used to check the outer sheath of an underground medium or low voltage cable, by measuring the insulation resistance between the screen and earth. If a faulty condition is found, corrective measures must be taken in order to ensure ongoing good cable function. It is a handheld device supplied in a carrying case with its earth peg and connecting cables.

USE PRINCIPLE

The operation of TESTECRAN+™ is completely automatic. Once connected, a push-button starts the measurement procedure : Battery Voltage check
Self Test
Discharge of the cable screen
Indication of the cable screen status : OK or Faulted
Finished. If the cable is operational, a green LED lights up, otherwise a red one flashes and a buzzer sounds.

TESTECRAN+™ is protected against a charged cable, thus there is no need to discharge the cable before connecting. During the charging of the screen a LED flashes every second giving an approximate indication of the length of the cable based on 1 km (0.6 mile) for every 12 seconds, depending on cable and ground conditions.

TECHNICAL CHARACTERISTICS

Power	4 batteries 1.5 V
Dimensions	150 x 80 x 30 mm
Weight	0.6 kg



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Power cable spiking and cutting tool

PKC95

FUNCTIONS

The PKC95 is a remote-controlled portable power tool that allows for spiking and cutting while ensuring the absence of voltage on underground network cables and limiting the spiking of a multipolar cable to a single-phase fault.

- ♦ No hydraulics : limited maintenance
- ♦ Same power for cutting and opening
- ♦ Autonomy : 50 cuts

USE PRINCIPLE

- ♦ Tool for spiking and cutting
- ♦ Autonomous tool : wireless remote use
- ♦ Tool status indications on the remote control
- ♦ Quick blade change in case of live spiking
- ♦ Light and sound signals for end of cut, opening, and fault
- ♦ Indicator light on the tool for control
- ♦ Electronic tool lock if the battery charge is insufficient for a complete cycle
- ♦ Sleep mode for battery protection
- ♦ Power section with greased screw, no maintenance
- ♦ 2 operating channels for multiple tools on the same site
- ♦ Network preservation with spiking function and grounding braid
- ♦ 2 strapping handles



TECHNICAL CHARACTERISTICS

Cutting diameter	Ø 95 mm
Maximum cutting section	3 x 240 mm ² copper NFC33-226
Cutting and opening force	110 kN
Power supply	25.2 V 3 Ah Li-Ion batteries (x 2)
Charging time	15 min
Autonomy	50 cuts
Dimensions (L x W x H)	720 x 120 x 260 mm
Tool weight	17 kg
Patented equipment	
Approved by Enedis	

CONDITIONING

- ♦ 1 PKC95 spiking and cutting tool
- ♦ 1 bidirectional remote control
- ♦ 2 batteries 25.2V 3 Ah Li-Ion
- ♦ 1 rapid battery charger
- ♦ 1 grounding rod
- ♦ 1 grounding braid with clamp
- ♦ 1 insulation mat 0.7 x 1 m approved by Enedis
- ♦ 1 spare blade
- ♦ 2 elastic rings
- ♦ 1 pliers for elastic rings
- ♦ 1 blade cleaning brush
- ♦ 1 hammer for grounding rod
- ♦ 1 fixed and waterproof operating manual
- ♦ 1 wheeled storage case
- ♦ Total weight : 36 kg

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summary

Plastic water pipe locator **AQUA-PL**

▶ p. 10

Plastic gas pipe locator **GAS TRACKER 2**

▶ p. 11



Plastic water pipe locator

AQUA PL



PRESENTATION

Aqua-PL is a dedicated equipment for detecting and pinpointing water pipes. It is particularly aimed at plastic networks (PE, PVC).

Aqua-PL is based on the injection of an acoustic and percussive signature in the network to be detected, alongside a ground sensor used to capture the signal and accurately determine the vertical position of the pipe.

BENEFITS

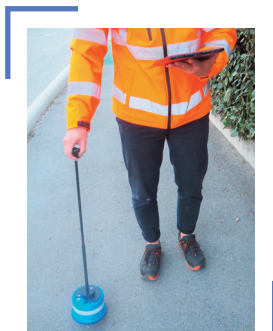
Aqua-PL stands out from alternative technologies (GPR, electromagnetic, acoustic...) on the following points :

- ♦ No intrusion in the network (no insertion of push rod)
- ♦ No water outage among subscribers
- ♦ Discrimination (definitely locates the desired network)
- ♦ Detection over a long range (up to 400 meters)
- ♦ Detection of main pipe and service pipe
- ♦ Automated, ergonomic, rapid diagnostic interpretation and usable by non expert users
- ♦ Fast implementation of the injection system
- ♦ Long range coverage guaranteed thanks to direct access to water columns or fire hydrants

TECHNICAL FEATURES

Transmitter		Receiver	
Transmitter <ul style="list-style-type: none"> • Rechargeable batteries • Autonomy : 6 h • Weight : 2.1 kg • IP 54 	Injection accessories : <ul style="list-style-type: none"> • Weight : 1.4 kg • IP 65 	Ground sensor <ul style="list-style-type: none"> • Rechargeable batteries • Autonomy : 6 h • Weight : 1.14 kg 	<ul style="list-style-type: none"> • IP 54 • Android software • Results in real time
Transmitter bag		Receiver bag	
L x W x H : 530 x 270 x 230		L x W x H : 530 x 270 x 230	
Weight : 6.94 kg		Weight : 5.84 kg	

Warranty : 12 months



Ground sensor



Water column injection



Fire hydrant injection



Bags

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Plastic gas pipe locator

GAZ TRACKER 2

PRESENTATION

GAS TRACKER 2 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 TRACKER 2 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



TECHNICAL FEATURES

Transmitter	Receiver	Ground sensor
<ul style="list-style-type: none">• Battery : Pb 2 x 7.6 Ah 12 V• Battery autonomy 4 h• Automotive battery charger input 12 V• External power supply (PSU) input 220 V• IP 63	<ul style="list-style-type: none">• Tablet : Android, Bluetooth connection• Battery : Li-Ion rechargeable 9.6 Ah• Battery autonomy 8 h• IP 66	<ul style="list-style-type: none">• Battery : Powered by NiMH• Battery autonomy 10 h• IP 63• Removable stick
<ul style="list-style-type: none">• Transport case : 472 x 347 x 194 mm• Weight : 13.5 kg• Temperature conditions : -20 °C to +60 °C, 90 % relative humidity	<ul style="list-style-type: none">• Transport case : 560 x 347 x 239 mm• Weight : 15.9 kg	



VIDEO



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summary

- Overhead power line warning systems ▶ **p. 13**
- Power line detector with wire sensors **DETECT LINE NG, SKY NG NACELLE** ▶ **p. 14**
- Power line detector with wireless sensors **SKY RADIO 3** ▶ **p. 15**
- Product range summary ▶ **p. 16**



Overhead power line warning systems

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

SIX GOOD REASONS TO USE OUR DETECTORS

- ♦ Because overhead lines are of long standing, field operators no longer notice them.
- ♦ 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 and vehicles.
- ♦ Experience of 20 years in the cement market, aerial bucket market...
- ♦ 60 % of the concrete pump trucks use MADE systems in France.
- ♦ Customer references : Inter Service Pompe, Holcim, Theam, Orange, and fire brigade.

REMINDER



Electrocution can occur without touching the line !

OUR SOLUTIONS

Detect Line NG, SKY NG NACELLE and SKY RADIO 3 are overhead electric detectors for the prevention of electrical accidents. They are intended for any type of vehicle likely to accidentally come into contact with a high voltage electrical line. When the moving part of a work at height vehicle approaches the line, the device detects the presence of the line and triggers an audible and visual alarm while blocking the movement of the moving part (optional). The blocking and alarms can be deactivated once the line has been located and under the responsibility of the operator.

The sensitivity of the device is calibrated by default for the detection of 20 kV medium voltage lines, but can be adapted for higher voltages.

MEAN OF PREVENTION

Our solution, by detecting the proximity of overhead lines, is a means of preventing accidents but does not exempt operators from following the safety rules in force.



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Power line detector with wire sensors

DETECT LINE NG - SKY NG NACELLE

Detect line is a prevention system with a single antenna fixed on the roof of a vehicle. It warns of the presence of overhead power lines around the vehicle to be protected.

APPLICATION

- ▶ Concrete pump
- ▶ Aerial bucket
- ▶ Conveyor belt
- ▶ Food tanker
- ▶ Auxiliary cranes
- ▶ Agricultural machinery
- ▶ Hydraulic excavators
- ▶ Fire-fighting vehicles

OPERATION

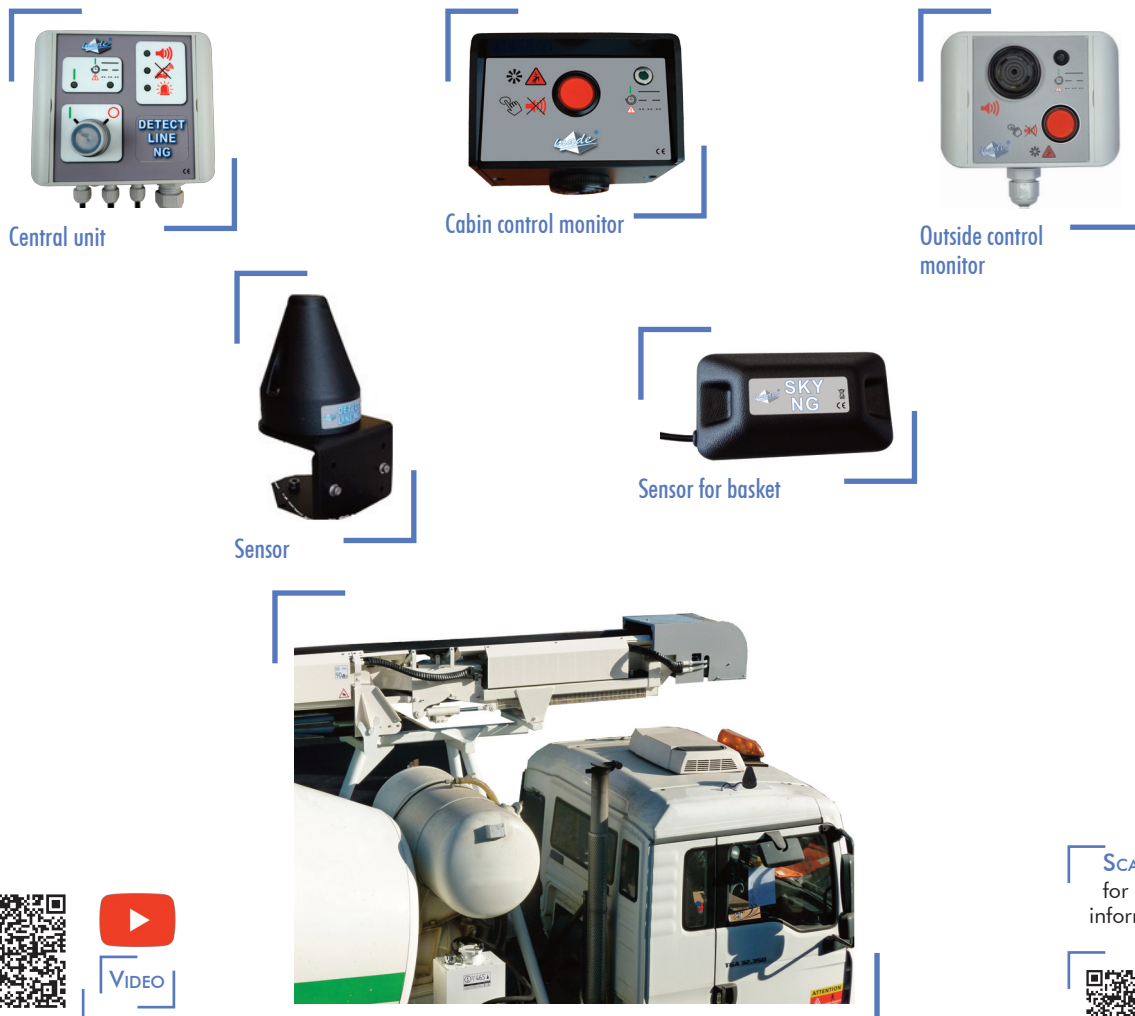
DETECT LINE NG senses the electric field around a high voltage power line.

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 control monitors, 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.

- ▶ 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 DC voltage



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Power line detector with wireless sensors

SKY RADIO 3

SKY RADIO 3 is a prevention system which operates according to a principle of proximity detection based on several sensors, depending on the number of arms of the crane/aerial bucket/machine to be equipped.

It warns the operator by an audible signal and a visual alarm when the moving parts of work at height of the vehicle are approaching the risk zone.

The detection distance can be configured between 3 and 6 meters (10 to 17 feet) from the high voltage line.

APPLICATION

- ◆ Concrete pump
- ◆ Conveyer belt
- ◆ Auxiliary cranes
- ◆ Hydraulic excavators
- ◆ Aerial Bucket
- ◆ Food tanker
- ◆ Agricultural machinery
- ◆ Fire-fighting vehicles

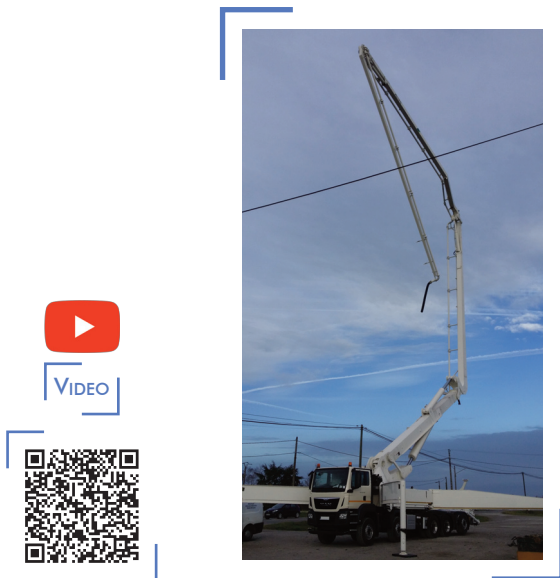
OPERATION

SKY RADIO 3 is activated when the Power Take-Off of the vehicle (PTO) is engaged.

When the device detects the presence of the line, it triggers an audible and visual alarm while blocking the movement of the moving part at risk (optional). The blocking and alarms can be remotely deactivated under the responsibility of the operator, from the cabin control monitor or the external control monitor.

Acknowledgment by the operator deactivates the blocking of movement and the audible alarm for a configurable time, before returning to nominal operation. However the visual alarm remains active as long as a danger is present.

- ◆ 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 DC voltage



Product range summary

Products	Volumetric detection from 20 to 40 m configurable		Proximity detection from 3 to 6 m configurable			
	DETECT LINE with outside control monitor	DETECT LINE with cabin control monitor	SKY RADIO 3 (Wireless) with outside control monitor	SKY RADIO 3 (Wireless) with cabin control monitor	SKY NG NACELLE	SKY NG NACELLE RADIO (Wireless)
Conveyor belt	√ 1 sensor		√ 4 sensors			
Concrete Pump 3 arms	√ 1 sensor		√ 5 sensors			
Concrete Pump 4 arms	√ 1 sensor		√ 7 sensors			
Concrete Pump 5 arms	√ 1 sensor		√ 9 sensors			
Basket ≤ 16 m					√ 4 sensors	
Basket from 16 to 22 m						√ 4 sensors
Basket from 22 to 30 m						√ 6 sensors
Auxiliary cranes ≤ 16 m	√ 1 sensor		√ 2 sensors			
Auxiliary cranes from 16 to 22 m			√ 4 sensors			
Auxiliary cranes from 22 to 30 m			√ 6 sensors			
Hydraulic excavators		√ 1 sensor		√ 2 sensors		
Food tanker		√ 1 sensor		√ 1 sensors		
Agricultural machinery		√ 1 sensor				
Fire-Fighting vehicles		√ 2 sensors			√ 4 sensors	



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POWER LINE DETECTOR Specific telecom equipment
DEFENCE ELECTRICITY DISTRIBUTION MAINTENANCE

UNDERGROUND NETWORK LOCATOR

electricity distribution maintenance DEFENCE power
line detector **PERSONAL PROTECTIVE EQUIPEMENT** under-
ground network locator specific telecom equip-
ment **ELECTRICITY DISTRIBUTION MAIN-**

TENANCE POWER LINE DETECTOR Specific telecom
equipment DEFENCE **UNDERGROUND NETWORK LOCATOR** elec-
tricity distribution maintenance power line detector

SPECIFIC TELECOM EQUIPMENT PERSONAL
PROTECTIVE EQUIPEMENT underground network locator
ELECTRICITY DISTRIBUTION MAINTENANCE **POWER LINE**

DETECTOR SPECIFIC TELECOM EQUIPMENT DE-
FENCE power line detector **UNDERGROUND NETWORK**
EQUIPMENT power line detector **PERSONAL**

PROTECTIVE EQUIPMENT electricity distri-
bution maintenance specific telecom equip-
ment **DEFENCE** power line detector **PERSONAL PRO-**

TECTIVE EQUIPMENT underground network locator DEFENCE

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