Electrical Distribution

Installation

Extract of Catalogue
Low Voltage Energy

MICHAUD export

Michaud Export

The French Group Michaud, has been designing, qualifying, producing and selling electrical equipment and connection systems for over 60 years.

250 staff members

7 establishments Europe, North Africa, Asia

Certified since 1992 2010 1995*

8 to 10% of turnover invested in R&D

1 Accredited Test Laboratory

3 Engineering departments

* Accréditation n° 1-0579 portée disponible sur www.cofrac.fr

From R&D to after-sales service, **Michaud Export**, as a Michaud subsidiary, has full mastery of its value chain, ensuring high-level quality and service worldwide.

MIRELEC

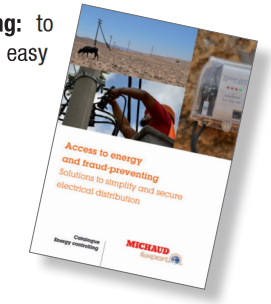
Mirelec is a Michaud brand, dedicated to low voltage electrical distribution equipment.

The brand offers **european quality** products and solutions at **a price matching emerging markets expectations.**

According to the international standards, **Michaud Export** designs and develops energy distribution solutions. The product range is focused on two fields of expertise:

- **Low Voltage Network:** to connect and protect the overhead and underground electrical lines ;

- **Energy Controlling:** to manage and offer easy access to electricity.



Michaud Export in a few words:

Reliability
Support
Adaptability
Quality
Innovation
Expertise
Reactivity
Experience
LISTENING

Creator of innovative solutions

As a **technical expert in low-voltage networks**, Michaud focuses R&D on innovative solutions.

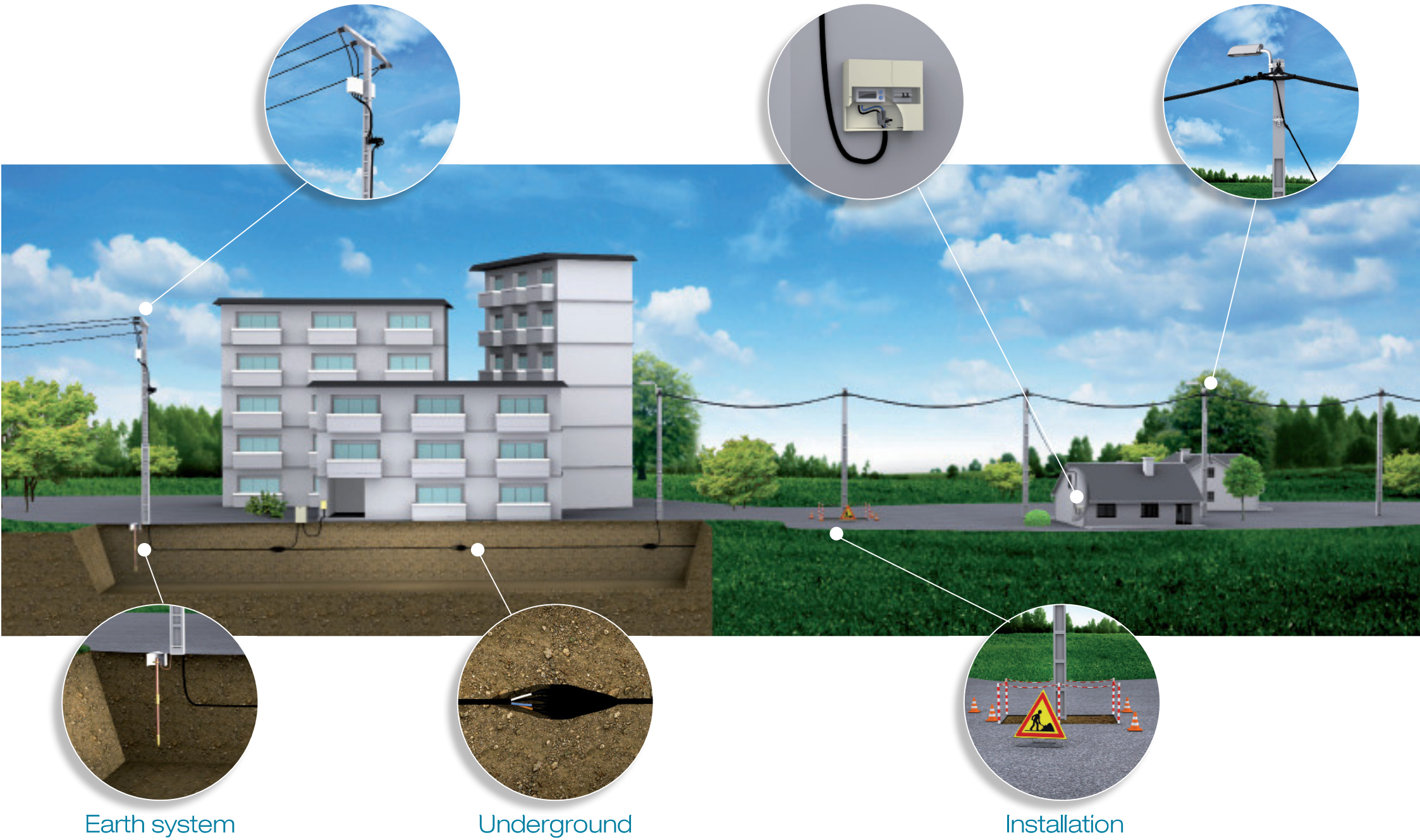
Thanks to an **engineering Department dedicated to international business**, Michaud Export provides support to Power Utilities in their grid expansion projects.

From protection to connections, many **innovative solutions** are already used in major Power Utilities around the world.

Supplier of electrical equipment

From MV/LV transformer substation to the end customer, Michaud Export offers all **electrical equipment for the construction & maintenance** of overhead and underground lines.

In addition to low-voltage networks, Michaud Export also offers **solutions for residential electrical distribution and smart metering.**


Protection
Housing
Overhead
Earth system
Underground
Installation

Installation

Installation

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Installation

In order to offer global service to customers, MICHAUD proposes a range of equipment and tools to facilitate and to secure products installation.

In the low voltage field, **fitters' safety and protection** are essential themes. With a range of personal protective equipment, MICHAUD ensures an installation on safe environments.

To realise an installation in the best conditions, MICHAUD offers a **range of tools and equipment** to support low voltage lines and accessories.

In order to support the fitter the best way, MICHAUD supplies its products with **didactic solutions** assuring the right installation and to guarantee fitters' safety.

Protection against the electrical risk

During the installation of electrical equipment, the protection of the fitters from risks of direct or indirect contacts is a necessity. The risk is real when a part of the human body is in contact with an active part of the installation.

Several conditions must be respected to guarantee protection:
- Installation of products with **no load**, except for specific indications
- Respect of the current **regulation**
- **Trained** and skilled **staff**
- Use of **personal protective equipment**

Classification of maximum used voltages of insulated gloves:

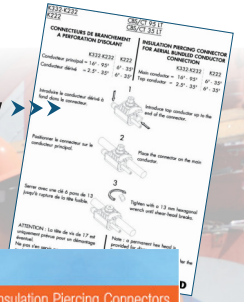
Class	Working voltage (V)	Tested voltage (V)
00	500	2 500
0	1 000	5 000
1	7 500	10 000
2	17 000	20 000
3	26 500	30 000
4	36 000	40 000

A support for your installations

MICHAUD uses its expertise to guide at best the fitters.

➤ **Installation instructions**

\+ Products supplied with detailed instructions for the assembly ➤➤➤



➤ **Installation videos**

\+ Supporting videos for some products ➤➤➤

See videos on
Michaud Export Youtube Channel

➤ **Training**

\+ Fitters' guidance on the field ➤➤➤

Personal protective equipment

Hands protection

Application

These equipment aim to protect hands during installation works.

PROTECTIVE NITRILE GLOVES

U833-1

These gloves are in nitrile on hands palm. They offer an important perforation resistance.

PROTECTIVE LEATHER GLOVES

U833-2

These leather gloves are made of red leather. They offer an important perforation and cutting up resistance.

HANDLING LEATHER GLOVES

F081

The handling leather gloves protect insulating gloves against sharp and cutting objects. A scratch band holds the handling gloves around the wrists.

Code	Designation	Size	Weight (kg)	Sales unit
U833-1	PROTECTIVE NITRILE GLOVES	S - M - L - XL	0.200	1
U833-2	PROTECTIVE LEATHER GLOVES	33cm	0.220	1
F081	HANDLING LEATHER GLOVES	10	0.160	1

INSULATING GLOVES

Application

These insulating gloves are designed to protect against electrical shocks during powered works. According to the work nature to perform, the gloves range goes from class 00 to class 4.

U82x

Class	Nominal network alternative voltage (V)	Tested voltage (V)
00	500	2 500
0	1 000	5 000
1	7 500	10 000
2	17 000	20 000
3	26 500	30 000
4	36 000	40 000

Code	Designation	Available size	Weight (kg)	Sales unit
U820	INSULATING GLOVES CLASS 00 (500V)	7 - 8 - 9 - 10 - 11 - 12	0.530	1
U821	INSULATING GLOVES CLASS 0 (1 000V)	7 - 8 - 9 - 10 - 11 - 12	0.550	1
U822	INSULATING GLOVES CLASS 1 (7 500V)	7 - 8 - 9 - 10 - 11 - 12	0.575	1
U823	INSULATING GLOVES CLASS 2 (17 000V)	7 - 8 - 9 - 10 - 11 - 12	0.600	1
U824	INSULATING GLOVES CLASS 3 (26 500V)	9 - 10 - 11 - 12	0.650	1
U825	INSULATING GLOVES CLASS 4 (36 000V)	9 - 10 - 11 - 12	0.700	1

Required size :

Add the required size after the reference.
Example with the class 00 model, size 10 : **U820-10**

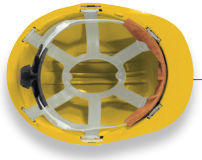
Personal protective equipment

Application

These equipment aim to protect the head and the face during installation works.

Head protection

U830-1



U830-2

U830-4

U830-3

Breathing protection

U832-1

The half mask without valve is FFP1.
It offers 75% of dust absorption.

U832-2

The half mask with valve is FFP2
It offers 95% of dust absorption.

Code	Designation	Weight (kg)	Sales unit
U830-1	BASIC HELMET	0.300	1
U830-2	HELMET WITH TOOTH WHEEL	0.300	1
U830-3	CHIN STRAP WITHOUT CHIN REST	0.050	1
U830-4	CHIN STRAP WITH CHIN REST	0.030	1
U832-1	FILTERING HALF MASK WITHOUT VALVE - FFP1	0.040	1
U832-2	FILTERING HALF MASK WITH VALVE - FFP2	0.070	1

Eyes protection

U831-1

U831-2

These tinted protection glasses have a UV filter.

U831-3

U831-4

The flexible vinyl frame gets an anti-fog treatment.

U831-5

U831-6

This face shield guarantees an electric arc protection.

Code	Designation	Weight (kg)	Sales unit
U831-1	PROTECTION GLASSES	0.030	1
U831-2	PROTECTION GLASSES TINTED - UV FILTER	0.030	1
U831-3	PROTECTION OVER GLASSES	0.035	1
U831-4	PROTECTION MASK	0.070	1
U831-5	FACE SHIELD - IMPACT PROTECTION	0.300	1
U831-6	FACE SHIELD - ELECTRIC ARC PROTECTION	0.500	1

Personal protective equipment

Dielectric and mechanical protection

U826 - high shoes

U827 - short shoes

Application

These safety shoes ensure protection against electrical shocks. They also offer a mechanical protection.
Two models are available :
- high shoes
- short shoes

Description

- These shoes are made of bovine black leather. They comprise a polyamide anti-allergic lining, a polyurethane antistatic sole and a non-metallic end.
  The antistatic property of the sole does not protect against electrical shocks.
- The models are tested in compliance with ANSI Z41 and ASTM F2413-05 standards. When 14 000 and 18 000V currents are applied during 1 minute with a 60Hz frequency, the passage of current intensity is inferior to 1mA (according to conditions described in the standards).
- Available sizes go from 39 up to 46.
- The shoes offer an impact resistance of 200J and a compression resistance of 15kN. The sole is resistant to hydrocarbons.
- The resistance to perforation is about 1100N.
- The energy absorption in the heel is superior to 20J for both models.
- Shoes are waterproof.
- They provide an insulation against cold and heat coming from the ground. The resistance to heat contact from the ground is 300°C.
- The soles are nonskid.

- Dielectric safety shoes are not a substitute to obligatory PPE but an element of secondary protection.

These shoes meet the criteria of **EN ISO 20345** standard.

Code	Designation	Available sizes	Protection classes	Weight (kg)	Sales unit
U826	HIGH SAFETY SHOES - DIELECTRIC AND MECHANICAL PROTECTION	39 up to 46	SB+P+E+CI+HI+WRU+HRO+SRC+FO	0.900	1
U827	SHORT SAFETY SHOES - DIELECTRIC AND MECHANICAL PROTECTION	39 up to 46	SB+P+E+CI+HI+WRU+HRO+SRC+FO	0.700	1

Required size :

Add the required size to the reference.
Example with the high shoes model, size 42 : **U826-42**

Mechanical protection

U828 - high shoes

U829 - short shoes

Application

These safety shoes ensure a mechanical protection.
Two models are available :
- high shoes
- short shoes

Description

- These shoes are made of bovine black leather. They comprise a polyamide anti-allergic lining, a polyurethane antistatic sole and a non-metallic end.
  The antistatic property of the sole does not protect against electrical shocks.
- Available sizes go from 39 up to 46.
- The shoes offer an impact resistance of 200J and a compression resistance of 15kN.
- They disperse electrostatic charges.
- The energy absorption in the heel is superior to 20J for the short shoes and 25J for the high ones.
- Shoes are waterproof.
- They provide an insulation against cold coming from the ground. The high shoes also provide a resistance to heat contact from the ground of 300°C (U828).
- The soles are nonskid.

These shoes meet the criteria of **EN ISO 20345** standard.

Code	Designation	Available sizes	Protection classes	Weight (kg)	Sales unit
U828	HIGH SAFETY SHOES - MECHANICAL PROTECTION	39 up to 46	S2+CI+HRO+SRC	0.900	1
U829	SHORT SAFETY SHOES - MECHANICAL PROTECTION	39 up to 46	S2+CI+SRC	0.700	1

Required size :

Add the required size to the reference.
Example with the high shoes model, size 42 : **U828-42**

Personal protective equipment

Fall protection

Application

These equipment aim to protect the fitter from falls during installation works at height.

HARNESS

U834-2

U834-3

U834-4

U834-5

Option : Kit

- 1 harness
- 1 tether
- 2 carabiners
- 1 bag

U834-1

U834-6

BELT

U835-1

Option : Kit

- 1 belt
- 1 rope
- 1 carabiner

U835-2

Code	Designation	Weight (kg)	Sales unit
U834-2	HARNESS 1 ANCHORING POINT	0.750	1
U834-3	HARNESS 2 ANCHORING POINT	0.800	1
U834-4	HARNESS 4 ANCHORING POINT	0.950	1
U834-5	HARNESS 2 ANCHORING POINT - DIELECTRIC	0.900	1
U834-1	BASIC HARNESS KIT (HARNESS + TETHER + 2 CARABINERS + BAG)	1.300	1
U834-6	WAIST HARNESS	0.500	1
U835-1	WORK POSITIONNING BELT	0.300	1
U835-2	WORK POSITIONNING BELT (BELT + ROPE + CARABINER)	0.580	1

ROPE AND TETHER

U836-1 U836-2

U837- 3

U837-1

U837-2

U837-4

U837-5

U837-6

U837-7

ACCESSORIES

U836-3

U836-4

U838-2

U838-3

U838-4

Code	Designation	Weight (kg)	Sales unit
U836-1	POLYAMIDE ROPE - 10 METERS	3.00	1
U836-2	POLYAMIDE ROPE - 20 METERS	6.00	1
U837-1	Y TETHER WITH CARABINERS AND ENERGY ABSORBER	0.700	1
U837-2	SIMPLE TETHER WITH CARABINERS AND ENERGY ABSORBER	0.600	1
U837-3	SIMPLE TETHER WITH CARABINERS AND ENERGY ABSORBER - DIELECRIC	0.800	1
U837-4	Y TETHER WITH CARABINERS	1.10	1
U837-5	SIMPLE TETHER WITH CARABINERS	0.800	1
U837-6	SIMPLE TETHER	0.400	1
U837-7	SIMPLE ADJUSTABLE TETHER	0.450	1
U837-8	SIMPLE ADJUSTABLE TETHER WITH CARABINERS - DIELECTRIC	0.650	1
U836-3	GUIDED TYPE FALL ARRESTERS	0.230	1
U836-4	CARABINER	0.080	1
U838-1	TIE-OFF	0.070	1
U838-2	TIE-OFF - DIELECTRIC	0.030	1
U838-3	ANCHORING POINT	0.030	1
U838-4	HANGING RING	0.050	1

Installation

Personal protective equipment

Insulating mat

U840

Application

This mat is used to protect the fitter working area from contact voltage, during electrical work, without load in HV context and under load in LV one. Several models are available from class 0 to class 4.

Description

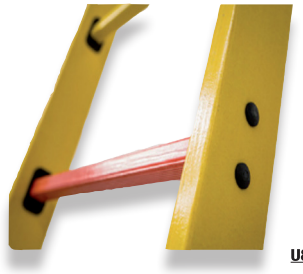
- This mat is made of rubber with both non-skid areas.
- This mat offers a high dielectric strength.
- It may be used for temperatures from -40°C to +70°C.
- This mat is used directly laid on the ground.

- Insulating mat is not a substitute to obligatory PPE but an element of secondary protection

It meets the criteria of **IEC 61111** standard.

Code	Designation	Working alternative voltage (V)	Thickness (mm)	Weight (kg)	Sales unit
U840-0 1x1	INSULATING MAT CLASS 0 - 1x1m	1 000	2.5	3.98	1
U840-1 1x1	INSULATING MAT CLASS 1 - 1x1m	7 500	3	4.74	1
U840-2 1x1	INSULATING MAT CLASS 2 - 1x1m	17 000	3.5	5.51	1
U840-3 1x1	INSULATING MAT CLASS 3 - 1x1m	26 500	4	7.19	1
U840-4 1x1	INSULATING MAT CLASS 4 - 1x1m	36 000	5	8.11	1

Insulating ladder



U841

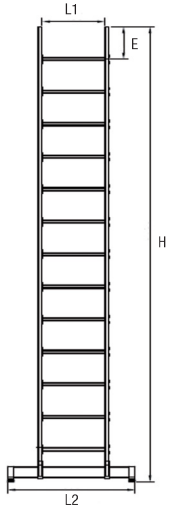
Application

This insulating ladder protects the fitter from current voltage during electrical installation works.

Description

- This ladder is in fibreglass. It is entirely made of composite material and does not comprise metallic part to realise mechanical bonding (screw, bolt...).
- This ladder is light and easily transportable.
- It offers a high resistance to atmospheric and chemical agents.
- It is available in several lengths.
- The ladder bottom is equipped with a stabilizer for models with a length superior to 3 meters.

This ladder meets the criteria of **EN 131** standard.



Dimensions in mm

Code	Designation	Dimensions (mm) H	L1	L2	E	Number of ladder rungs	Weight (kg)	Sales unit
U841-3	INSULATING LADDER 3m	3	400	400	250	11	9.5	1
U841-3.5	INSULATING LADDER 3.5m	3.5	400	800	250	13	10.5	1
U841-4	INSULATING LADDER 4m	4	400	850	250	15	12	1
U841-4.5	INSULATING LADDER 4.5m	4.5	400	900	250	17	14	1
U841-5	INSULATING LADDER 5m	5	400	950	250	19	16	1
U841-6	INSULATING LADDER 6m	6	400	1050	250	23	19	1

Collective protective equipment

Warning tape

F865

Application

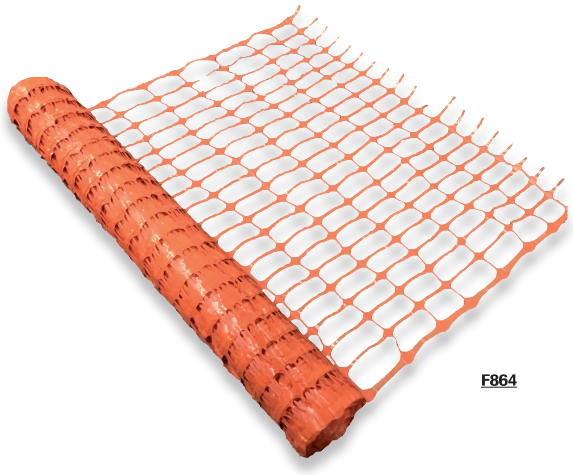
This warning tape enables to secure and delimit a work area on a construction site.

Description

- The warning tape is red and white (stripes).
- It is made of polyetylene.
- It is delivered in roll of 500m.

Code	Designation	Length (m)	Width (mm)	Thickness (mm)	Weight (kg)	Sales unit
F865	WARNING TAPE RED/WHITE (ROLL 500m)	500	70	0.050	1.500	1

Safety barrier



F864

Application

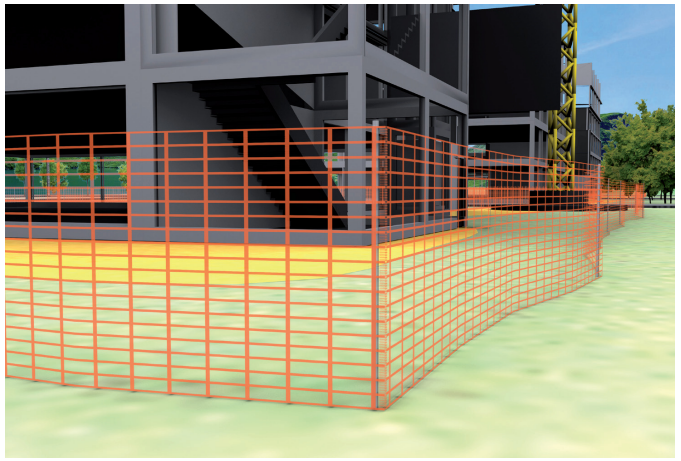
This safety barrier enables to secure and delimit a work area on a construction site. This netting is made of stretch mesh and offers a high tensile strength allowing extension without any risk of deformation or tearing.

Description

- The safety barrier is orange.
- The unoriented manufacturing process makes it more resistant in lengthwise axis.
- The netting is made of high density polyethylene.

It meets the criteria of the **EN 13934-1** standard.

Code	Designation	Length (m)	Height (m)	Color	Weight (g/m²)	Sales unit
F864	NETTING BARRIER	50	1	Orange	90	1

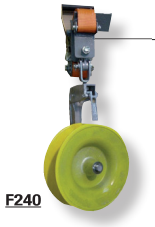


Installation

LV line unwinding and pulling

Pulley for aerial bundled conductors

MIRELEC


F240

F241

Application

This pulley is designed to receive low voltage A.B.C. (Aerial Bundled Conductors) for unwinding and pulling operations.

Description

- The body of the pulley is made of aluminium alloy.
- The 250mm diameter wheel is made of synthetic materials. It has a 60mm groove to make the passage of A.B.C. up to 3x150 + 70N + 16mm² easier.
- The pulley is equipped with safety locking allowing the rope to be fitted with one hand. This system prevents the rope and therefore the A.B.C. from jumping out of the wheel during handling.
- Two types of pole fixing are available:
  - Pulley with swivelling hook,
  - Pulley with ratchet tightener and 1.20m strap.

Code	Designation	Pulley width (mm)	Operating load (daN)	Weight (kg)	Sales unit
F240	PULLEY WITH STRAP	60	800	5.200	1
F241	PULLEY WITH HOOK	60	800	2.650	1

For other characteristics, please contact us.

Mechanical winch

Application

This mechanical winch is designed to pull conductors of a low voltage power line. Light and small, it can be used for all types of cable adjustments, in particular on top of supports. It can be used also for lifting loads, stowing poles and other applications.

Description

- Two hooks at each end enable the winch to be fixed. They are equipped with a safety locking pin.
- The operating arm with ergonomic handle makes it easier to adjust the traction.
- The body is equipped with ratchet tightening system.

Code	Designation	Operating load (daN)	Weight (kg)	Sales unit
U354	MECHANICAL WINCH 500	500	9.00	1
U355	MECHANICAL WINCH 1 000	1 000	9.00	1

Overhead comealong clamp

MIRELEC

F269

F258

F257

Application

This overhead comealong clamp is designed to pull, retain and stretch bare or insulated conductors of a power line. Three models are available according to the type of conductors to be implemented:
- Bare steel or aluminium cable,
- A.B.C. (Aerial Bundled Conductors) type neutral messenger,
- A.B.C. type fully supported.

Description

- The half-cylinder shaped parallel jaws ensure secure tightening of the conductor, protecting it.
- An ergonomic handle with its wide opening enables good handling.
- The sliding of the jaws and arms is facilitated thanks to bolts and slides.
- The assembly is made of corrosion-proof galvanised steel or aluminium.

Code	Designation	Conductor type	Tighten capacity	Maximum load (daN)	Weight (kg)	Sales unit
F257	BARE CONDUCTOR COMEALONG 4-12mm	Bare Al / Steel	4-12mm	1 700	0.500	1
F258	INSULATED CONDUCTOR COMEALONG 6-14mm	Insulated Al / Cu	6-14mm	800	1.555	1
F269	SELF-SUPPORTED A.B.C. COMEALONG 4x95-150mm²	A.B.C.	4x95mm²	600	6.500	1
			4x150mm²	900		

Wire-strainer

Application

This wire-strainer is designed to pull conductors on a low voltage electrical line manually.

Code	Designation	SWL (kg)	Ø cable or Ø wire to pull (mm)	Lever's two way distance (mm)	Comealong type	Weight (kg)	Sales unit
U353	WIRE-STRAINER (400KG)	400	from 5 up to 8	65	2	4.90	1
U351	WIRE-STRAINER (600KG)	600	from 7 up to 15	75	3	5.20	1
U352	WIRE-STRAINER (800KG)	800	from 14 up to 18	90	4	6.20	1

Wooden pole climbers

Application

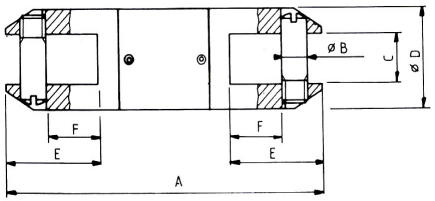
These climbers are designed to help fitters climbing along a wooden pole and facilitate work at height.

Code	Designation	Weight (kg)	Sales unit
F448 - 20	WOODEN POLE CLIMBERS 6 PEAKS DIAM 20cm	2.45	1
F448 - 25	WOODEN POLE CLIMBERS 6 PEAKS DIAM 25cm	2.70	1
F448 - 30	WOODEN POLE CLIMBERS 6 PEAKS DIAM 30cm	3.00	1
F448 - 35	WOODEN POLE CLIMBERS 6 PEAKS DIAM 35cm	3.20	1

Overhead pulling grip and swivel

Swivel

U356-14



MIRELEC

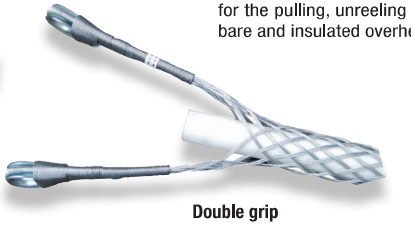
Application

This overhead swivel is used between two overhead pulling grips to replace an old conductor by a new one or between a pulling grip and the wire rope on the winch.
It prevents any twisting of the conductor during pulling, unreeling and laying.
All of the parts are made of alloyed steel.

Code	Designation	A (mm)	B (mm)	C (mm)	Ø D (mm)	E (mm)	Linear break-down (daN)	Weight (kg)	Sales unit
U356-14	OVERHEAD SWIVEL DIAMETER 14	61	6	6	14	16	1 650	0.075	1
U356-16	OVERHEAD SWIVEL DIAMETER 16	70	6.5	8	16	19	1 700	0.100	1
U356-22	OVERHEAD SWIVEL DIAMETER 22	88	8.5	10	22	29	4 600	0.230	1
U356-34	OVERHEAD SWIVEL DIAMETER 34	122	12	16	34	35	6 500	0.520	1
U356-38	OVERHEAD SWIVEL DIAMETER 38	122	12	16	38	35	9 500	0.690	1
U356-55	OVERHEAD SWIVEL DIAMETER 55	200	16	32	55	35	5 000	2.000	1

Single and double eye grip

Single grip



Double grip

MIRELEC

Application

This overhead pulling grip is designed for the pulling, unreeling and laying of bare and insulated overhead cables.

Description

- Eyes are made of galvanised steel.
- The single eye grip gets a grip at one of its ends and is closed at the other end (with a spliced core lug). It is used for cable-end pulling.
- The double eye grip is opened at both ends. It is used to start the pulling at the cable-end and to continue it in any part of the cable.

Code	Designation	Ø of cables (mm)	Maximum operating load (T)	M (mm)	N (mm)	Weight (kg)	Sales unit
SINGLE GRIP							
U357-8	OVERHEAD PULLING GRIP SINGLE EYE Ø 8	8 up to 10	0.400	250	125	0.070	1
U357-10	OVERHEAD PULLING GRIP SINGLE EYE Ø 10	10 up to 15	0.400	300	125	0.070	1
U357-15	OVERHEAD PULLING GRIP SINGLE EYE Ø 15	15 up to 20	0.800	350	130	0.129	1
U357-20	OVERHEAD PULLING GRIP SINGLE EYE Ø 20	18 up to 25	0.800	425	130	0.135	1
U357-25	OVERHEAD PULLING GRIP SINGLE EYE Ø 25	23 up to 30	1.650	475	135	0.225	1
U357-30	OVERHEAD PULLING GRIP SINGLE EYE Ø 30	30 up to 38	1.650	500	135	0.230	1
U357-35	OVERHEAD PULLING GRIP SINGLE EYE Ø 35	35 up to 43	3.400	525	150	0.445	1
U357-40	OVERHEAD PULLING GRIP SINGLE EYE Ø 40	40 up to 50	3.400	575	155	0.480	1
DOUBLE GRIP							
U358-8	OVERHEAD PULLING GRIP DOUBLE EYE Ø 8	8 up to 10	0.400	250	125	0.100	1
U358-10	OVERHEAD PULLING GRIP DOUBLE EYE Ø 10	10 up to 15	0.400	300	125	0.142	1
U358-15	OVERHEAD PULLING GRIP DOUBLE EYE Ø 15	15 up to 20	0.800	350	130	0.150	1
U358-20	OVERHEAD PULLING GRIP DOUBLE EYE Ø 20	18 up to 25	0.800	425	130	0.157	1
U358-25	OVERHEAD PULLING GRIP DOUBLE EYE Ø 25	23 up to 30	1.650	475	135	0.271	1
U358-30	OVERHEAD PULLING GRIP DOUBLE EYE Ø 30	30 up to 38	1.650	500	135	0.276	1
U358-35	OVERHEAD PULLING GRIP DOUBLE EYE Ø 35	35 up to 43	3.400	525	150	0.520	1
U358-40	OVERHEAD PULLING GRIP DOUBLE EYE Ø 40	40 up to 50	3.400	575	155	0.560	1

The same models are available in stainless steel or in Rilsan. Please contact us.
Further models type sleeved are also available.

LV insulated toolings

Application

These toolings are designed to realise connections.

F445

INSULATED RATCHET WRENCH HEXAGONAL

This ratchet spanner is generally used for the installation of connectors.
It has a H13/H17 end socket. It is manufactured according to the standard:
DIN EN 60900: 2012 = 1000V + double triangle.

K004

HOLDING SPANNER

The holding spanner is designed to facilitate the installation of service connectors. It is placed on the connector walls.

K005

INSULATED WEDGE SEPARATOR

The wedge separator is designed to separate a conductor in an aerial bundle or in an underground cable to enable localised work on this conductor.
It comprises 2 wedges linked by a 1m long cord. Each black wedge is made of strong synthetic material, and is UV, shock and cold resistant.
2 separations are possible:
- 2cm: for the installation of connectors.
- 4cm: for the installation of anchoring and pulling devices.

A hole at the end enables insertion of a tool to make 90° rotation easier, providing the separation from 2 to 4cm. Very smooth ribs and a slight penetration angle make wedge insertion in the cable easier.

F450

BRUSH

This brush is used with neutral grease to brush conductor cores in order to remove the oxide film.

L024

NEUTRAL GREASE

This tube of neutral grease is used to brush the conductors to be connected and thus protect the electrical connection. The nozzle enables grease to be applied to contacts that are difficult to access. The neutral grease complies with the ERDF France technical guide.
It is neutral as regards aluminium and copper. It has the following technical characteristics:
- A high drop point (190°),
- A wide use temperature range (-20°C up to + 120°C).

Code	Designation	Weight (kg)	Sales unit
F450	BRUSH FOR CONDUCTOR WITH CASE	0.080	1
F445	INSULATED RATCHET WRENCH HEXAGONAL 13/17mm	0.380	1
K004	HOLDING SPANNER CBS/RDP	0.080	20
K005	INSULATED WEDGE SEPARATOR	0.360	5
K007	INSULATED WEDGE SEPARATOR 200x15x9mm	0.050	100
L024	CONTACTAL N190 NEUTRAL GREASE - TUBE OF 100g	0.115	1

Spanners

INSULATED CROSS SPANNER 8 - 10 - 13 - 17mm

The particular structure of this spanner allows it to be easily held.
Generally, 13 and 17mm spanners are used for the installation of insulation piercing connectors. The 4 sides are insulated from one to another one.

F460

Code	Designation	Weight (kg)	Sales unit
F460	INSULATED CROSS SPANNER 8-10-13-17mm	0.400	1

MONKEY WRENCH

These monkey wrenches ensure a 1000V protection.

U814-1

U814-2

Code	Designation	Length (mm)	Weight (kg)	Sales unit
U814-1	MONKEY WRENCH 10" 1000V	250	0.620	1
U814-2	MONKEY WRENCH 12" 1000V	300	0.950	1

HEX KEYS

U814-3

This set of spherical head hex keys comprises 10 pieces covering diameters from 1.5 up to 10mm².

Code	Designation	Ø key (mm)	Weight (kg)	Sales unit
U814-3	SET OF 10 SPHERICAL HEAD HEX KEYS	1.5 2 2.5 3 4 5 5.5 6 8 10	0.360	1

Screwdrivers

SET OF SCREWDRIVERS

Sets of screwdrivers U815-1 and U815-2 comprise 6 screwdrivers (3 flat screwdrivers and 3 cross-head screwdrivers PZ).

The set of screwdrivers U815-3 comprises 7 screwdrivers type Torx (T).

Code	Designation	Number of pieces	Shape			Sales unit
U815-1	SET OF 6 SCREWDRIVERS 1000V	6	-	3x100 4x125 5x150	PZ0 PZ1 PZ2	1
U815-2	SET OF 6 SCREWDRIVERS	6	-	4x100 5.5x100 6.5x125	PZ1 PZ2 PZ3	1
U815-3	SET OF 7 SCREWDRIVERS TORX	7	T6 T8 T10 T15 T20 T25 T30	-	-	1

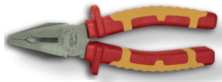
LV insulated toolings

Pliers

Application

These pliers are designed to facilitate the cable work for connection operations.

UNIVERSAL PLIER

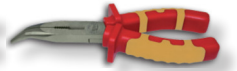


U810-1 U810-2 U810-3

U810-4

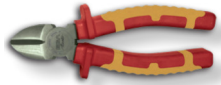
PHONE PLIER

U810-5



U810-6

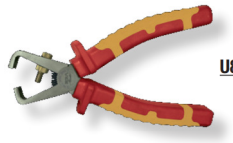
CUTTING PLIER



U810-7

U810-8

STRIPPING PLIER



U810-9

PLIER FOR INSULATED TERMINALS

U810-10

WATER PUMP PLIER

U810-11

SET OF 3 PLIERS

The set of 3 pliers comprises:
- a universal plier L=180mm
- a diagonal cutting plier L=160mm
- a stripping plier L=160mm

U810-12

Code	Designation	Length (mm)	Weight (kg)	Sales unit
U810-1	UNIVERSAL PLIER L=165mm 1000V	165	0.230	1
U810-2	UNIVERSAL PLIER L=180mm 1000V	180	0.270	1
U810-3	UNIVERSAL PLIER L=200mm 1000V	200	0.330	1
U810-4	UNIVERSAL PLIER L=210mm 1000V	210	0.280	1
U810-5	PHONE PLIER 1000V	200	0.210	1
U810-6	CURVED PHONE PLIER 1000V	200	0.210	1
U810-7	DIAGONAL CUTTING PLIER 1000V	160	0.210	1
U810-8	STRENGTHENED CUTTING PLIER 1000V	200	0.380	1
U810-9	STRIPPING PLIER 1000V	160	0.170	1
U810-10	PLIER FOR INSULATED TERMINALS	200	0.175	1
U810-11	WATER PUMP PLIER	254	0.350	1
U810-12	SET OF 3 PLIERS 1000V		0.620	1

Cutting

Application

These toolings are designed for cables and synthetic materials cut.

CABLE CUTTER

U811-1

U811-2
U811-3

U811-4

SCISSORS

U811-5

ANGLED KNIFE

U811-6

CUTTING PLIER FOR PLASTIC SADDLES

U811-7

PLASTIC PIPE CUTTER

U811-8

Code	Designation	Length (mm)	Weight (kg)	Sales unit
U811-1	CABLE CUTTER 1000V	250	0.500	1
U811-2	CABLE CUTTER WITH PAWL DIAM 32 1000V	260	0.600	1
U811-3	CABLE CUTTER WITH PAWL DIAM 52 1000V	280	0.800	1
U811-4	CABLE CUTTER WITH PAWL DIAM 70 1000V	300	0.900	1
U811-5	BIG BREACH SCISSORS 1000V	160	0.098	1
U811-6	ANGLED KNIFE 1000V	180	0.100	1
U811-7	CUTTING PLIER FOR PLASTIC SADDLES	150	0.100	1
U811-8	PLASTIC PIPE CUTTER 1000V	64	0.600	1

Installation

LV insulated toolings

Electrician sets

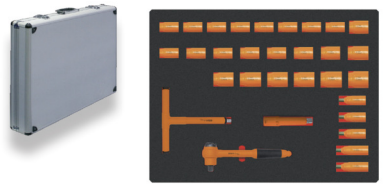
Application

These sets offer several toolings designed for LV electrical equipment installation.

17 pieces - U812-1

26 pieces - U812-2

37 pieces - U812-3



31 pieces - U812-5

5 pieces - U812-4

Code	Designation	Number of pieces	Weight (kg)	Sales unit
U812-1	ELECTRICIAN SET 17 PCS 1000V	17	3.60	1
U812-2	ELECTRICIAN SET 26 PCS 1000V	26	5.00	1
U812-3	ELECTRICIAN SET 37 PCS 1000V	37	9.00	1
U812-4	ELECTRICIAN TOOLINGS SET 5 PCS 1000V	5	0.75	1
U812-5	WRENCH SOCKETS SET 1/2" 1000V	31	10.00	1

Tool belts

U839-1

U839-2

Application

These belts make the fitter's job easier by giving an easy access to needed tools during the installation

Code	Designation	Weight (kg)	Sales unit
U839-1	SIMPLE TOOL BELT	0.500	1
U839-2	DOUBLE TOOL BELT	0.800	1

Measuring devices

Application

These devices are designed to perform test or control measurements in order to make sure of the right products installation.

U813-1

DIGITAL MULTIMETER
It measures direct or alternative current and voltage, resistance, electrical capacity, diodes and frequency.

CLAMP AMMETER
The clamp measures current, voltage, resistance, temperature, diodes and electrical continuity.

U813-2

U813-3

DIGITAL TESTER
It enables to perform voltage measurements from 0 up to 220V.

Code	Designation	Weight (kg)	Sales unit
U813-1	DIGITAL MULTIMETER	0.915	1
U813-2	CLAMP AMMETER	0.520	1
U813-3	DIGITAL TESTER 220V	0.040	1

Hydraulic crimping tool

F400

F407

F408

Application

These crimping tools are designed for the crimping of junction sleeves and lugs.
They are available in 2 versions:
- hydraulic type,
- electro-hydraulic type.

F424

F432

F420 - F421 - F422

Description

Hydraulic type:
- The ergonomic mobile handle enables the beginning of crimping by operating the tool with one hand.
- The developed force is 50kN maximum.
- The safety valve and audible "click" ensure efficient crimping and good protection of the hydraulic closing system.
- The ram retract mechanism is actuated by a release trigger.
- A 13mm stroke enables crimp connectors to be crimped between 6 and 150mm².
- The 180° rotating head facilitates use in any situations.
- The length is 365mm.
- The carrying case can contain one hydraulic crimping tool and up to 12 dies.

This hydraulic crimping tool meets the criteria of **NF C 20-130**.

Electro-hydraulic type:
- The developed force is 60kN maximum.
- The crimping time varies between 5 and 8 seconds depending on the section.
- The return is automatic after complete crimping.
- The autonomy is approximately 120 crimping operations.
- The F408 adaptor is used to assemble proposed dies.
- The product is delivered in a carrying case.

Code	Designation	Weight (kg)	Sales unit
CRIMPING TOOLS			
F400	50kN HYDRAULIC CRIMPING TOOL	2.350	1
F401	CARRYING CASE FOR 50kN HYDRAULIC CRIMPING TOOL	2.850	1
F407	60kN ELECTRO-HYDRAULIC CRIMPING TOOL	4.500	1
F408	HEXAGONAL DIE ADAPTOR	0.110	1
F409	BATTERY FOR F407	1.200	1
DIES FOR PREINSULATED SLEEVES			
F420	HEXAGONAL DIE TYPE E140	0.115	1
F421	HEXAGONAL DIE TYPE E173	0.115	1
F422	HEXAGONAL DIE TYPE E215	0.115	1
DIES FOR Al/Cu LUGS			
F424-140	HEXAGONAL DIE E140 Al/Cu SECTIONS 35+50	0.115	1
F424-173	HEXAGONAL DIE E173 Al/Cu SECTIONS 70+95+120	0.115	1
DIES FOR TUBULAR LUGS			
F432-4-120	HEXAGONAL DIE SECTIONS 4+120	0.115	1
F432-6-35	HEXAGONAL DIE SECTIONS 6+35	0.115	1
F432-10-50	HEXAGONAL DIE SECTIONS 10+50	0.115	1
F432-16-70	HEXAGONAL DIE SECTIONS 16+70	0.115	1
F432-25-95	HEXAGONAL DIE SECTIONS 25+95	0.115	1
F432-150	HEXAGONAL DIE SECTION 150	0.115	1
F432-185	HEXAGONAL DIE SECTION 185	0.115	1
F432-240	HEXAGONAL DIE SECTION 240	0.115	1

Other dies and hydraulic tools are available. Please contact us.

Installation video available on www.michaud-export.fr
(tab Documentation > Installation videos)

Web site

Discover our latest news, catalogues, products range as well as information mediums to assist you in the use of our products.

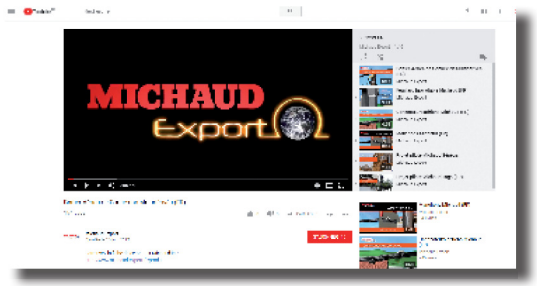
www.michaud-export.com

LinkedIn

Join us on Michaud Export's LinkedIn network to follow the company's development and to share with us.

YouTube

Follow our YouTube channel in order to discover products implementation videos and this way facilite your installations on the field.



Implementation

These products must be implemented and used in **compliance with the applicable regulations** with a skilled, qualified professional undertaking to do so following the generally accepted rules of the trade.

For **live-line** implementation or handling, the electrician must comply with the requirements for live-line work conditions and must be equipped with the necessary personal protection equipment. The implementation temperature limits are: -10°C to +40°C.

Live-line work is carried out under the responsibility of the ordering customer in compliance with the applicable rules.

Before powering up the equipment, all the required verifications must be carried out.

Tools

The product should be installed and used with **suitable tools**.

The screw heads should be tightened with the appropriate tool: **Spanner** for hexagonal cap screws, **flat screwdriver** for slotted screw heads of the right size, **Phillips screwdriver** for cruciform screw heads, **HSHC screw head (awls)** for hollow hexagonal screw heads, etc. The screw heads with no torque-limiting device must be tightened to the recommended torque and must not be tightened again.

Recommendations for use

The installation instructions must be read carefully before using the product.

The product must be used and implemented in compliance with these recommendations for use and installation instructions. It must be used for the applications for which it was defined by the operator/manager of the network and on an electrical installation that is compliant and compatible with the product.

Never exceed the capacities indicated on the device and in the instructions sheet.

Unless explicitly indicated, products are designed for no-load connection.

Environment

Please group your waste together and follow the recycling and destruction instructions before leaving the worksite.

For further information:
www.michaud-export.com

1. APPLICATION OF CONDITIONS:

Purchaser make himself acquainted with these general selling conditions which shall lay down the Parties law, except purchaser's written denunciation ratified by MICHAUD EXPORT and despite opposite clauses that could be included in the purchaser's general conditions. Possible renunciation of one or few clauses herein does not interfere with the validity of the other clauses.

Except any formal and express derogation made by MICHAUD EXPORT, all purchaser's orders carry off his full and entire consent to the present General Selling Conditions which prevail over any Purchasing Conditions. All particular purchasing clauses or conditions aiming to modify the present conditions must not be contrary to the seller's ones.

2. ORDER:

Any order shall not constitute a contract unless accepted in writing by MICHAUD EXPORT.

3. PRICE LIST:

3.1 Unless otherwise stated by MICHAUD EXPORT, price lists and commercial offers are established in Euro €, excluding any other currency, even Euro indexed currencies, and is governed by Incoterms 2010 to be defined with the purchaser in the particular conditions.

3.2 The price list is established for standard items with specific given technical characteristics. Any technical changes on products to adapt them to other specifications or standards may lead to extra unit costs and price revision.

3.3 Unless otherwise stated by MICHAUD EXPORT,MICHAUD EXPORT reserves the right to gather purchaser's orders and to deal with according to a minimum invoice amount of 800 € excluding tax and freight charges (according to general price list in due force on the order date). Any order which amount is lower than 1 500 € shall result in the invoicing of a fixed sum of 150 € meant to cover administrative fees.

3.4 Unless otherwise stated and written by MICHAUD EXPORT, validity of the price list is one month starting when given to the purchaser.

3.5 The price list is subject to alteration without notice.

4. DELIVERY TIME:

4.1 The delivery time is defined as the case may be according to the commercial relationships established with the purchaser. MICHAUD EXPORT use their best endeavours to deliver the goods by the time fixed for delivery, however, in case of delay, they will not be responsible for any loss or damage thereby caused to the purchaser unless expressly accepted in writing by MICHAUD EXPORT.

4.2 Should partial or delayed deliveries occur, it does not justify any cancellation of purchaser's orders, and MICHAUD EXPORT shall not be liable and responsible for any actual or potential, direct or indirect, or consequential damages caused to the purchaser through delay or by failing on deliveries.

5. DISPATCH:

5.1 MICHAUD EXPORT use their best endeavours to select appropriate method of delivery with no responsibility on it. Choice shall be made freely unless purchaser's contrary notice who then support following additional cost that may follow.

5.2 Ex-works delivery is considered as an effective delivery, notably regarding modalities and payment terms.

5.3 Partial loss or damage during in transit must be reported to the carrier and to MICHAUD EXPORT in writing by registered letter with proof of delivery within three days after receipt of the goods by the purchaser. If these conditions are not complied with, the purchaser will be responsible for any loss or damage that may occur during transit.

The purchaser commits to return to MICHAUD EXPORT at his own costs and risks the products he rejected during his check-up for due investigation. The purchaser agrees that MICHAUD EXPORT shall return the products at the purchaser's cost and risks after examination or any possible repair or replacement.

6. USE OF THE PRODUCTS:

The purchaser has to follow imperatively the laws, current prescriptions in due force and custom rules regarding instruction procedures and use of the products. MICHAUD EXPORT shall not be responsible in case of wrong use of the products according to the specifications and prescriptions of use advised by MICHAUD EXPORT.

7. TESTING AND INSPECTION:

When testing and/or inspection is required by the purchaser, tests shall be carried out at MICHAUD SA's facilities, and relevant costs shall be covered by the purchaser, unless any exemption agreed and approved by MICHAUD EXPORT.

8. WARRANTY:

8.1 MICHAUD EXPORT guarantees the purchaser against latent defect of the goods according to the conditions driven by the law.

Once a guaranteed shortcoming is stated by the buyer, it is up to him to send his reclamation to MICHAUD EXPORT with a registered letter with proof of delivery within a time limit of three months starting from the fault's appearance.

This reclamation has to be accompanied by a detailed description of the fault's nature.

After this period of time the goods delivered shall be deemed as in good condition and the purchaser is no longer entitled to make a complaint about any defect on the products.

8.2 MICHAUD EXPORT guarantees its products for a period of one year after delivery or shifting from our facilities.

In case of fault, defect, non-conformity proved or admitted by MICHAUD EXPORT, MICHAUD EXPORT undertakes to replace the products admitted defective in reasonable time. In order to be replaced, rejected products shall be returned. No other prejudice of damage shall be required by the purchaser.

8.3 The guarantee is excluding the followings:
- If the product has been repaired or modified by the buyer or by third parties chosen by him ; or
- If it concerns items that have been made by sub-contractors or MICHAUD EXPORT suppliers to whom the normal producer or Subcontractor guaranty applies ; or
- If the defect is coming from the buyer's negligence, or recklessness ; or
- If the defect is the result of a force majeure or of an external event.

9. TAKING BACK OF THE PRODUCTS:

In case the purchaser renounces to the ordered and delivered products, no taking back will be considered unless expressly accepted in writing by MICHAUD EXPORT. Rejected goods shall be sent back to the French plant defined by MICHAUD EXPORT. Credit of the sent back goods will be registered after receipt in the warehouse. Taking back value will systematically take into consideration a reduction to be defined for administrative and check-up cost as well as a reduction for restoration of the product and packaging if necessary.

10. PAYMENT:

10.1 Payment terms are defined with the purchaser in the particular conditions. All goods shall be paid to the MICHAUD EXPORT head office located in Viriat France whatever the payment terms used. Invoice date shall be the starting point of the settlement period.

10.2 Legal property transfer of the goods shall be retained until full payment of the whole sold goods. MICHAUD EXPORT keep the property of the goods until full payment of their price, sending bank drafts or any other bond notes building payment obligation not constituting a payment.

10.3 Any unpaid draft or invoice being at maturity will produce due interest, without giving notice. Applicable penalties shall be equivalent to three times the legal interest rate at the payment date located on the invoice. Payment of any other sums owed by the failing debtor shall be immediately payable, even if they are accepted draft. Any full or partial non-execution by the Customer of the payment obligations or any delay in payment shall, without prejudice to any damages and interests, lead to the payment of fees of 40 € for collection charges set down by decreet made pursuant to the section 121 of this act. Moreover, MICHAUD EXPORT keep the right, in that case, to suspend or cancel fulfilment of the contracts and pending orders and demand cash in advance payment of any other delivery, whatsoever past conditions agreed for such delivery.

10.4 Any change in the purchaser situation regarding sale or other party's investment in the business, decease, incompetence, suspension of payment, official recovery, official receivership, temporary proceedings suspension, dissolution or form modification, even after partial fulfilment of the contracts or pending orders entails application of the same conditions as the ones described in case of unpaid invoice.

11. FORCE MAJEURE:

Neither MICHAUD EXPORT nor the buyer can be held responsible for a possible delay or lack in their obligations' execution, if this delay or lack is the result of a force majeure. A force majeure exists notably in the following situations, if they present certain characteristics of a force majeure, this means if the event was irresistible, unforeseeable, and externally provoked. This non-exhaustive list enumerates some situations which constitute a force majeure: explosions, fires, incidents, destruction of machinery, factories and equipment, natural disasters, acts by governmental authorities (refusing or cancellation of a license …), wars, or any acts of war, flooding, riots, or social conflicts.

The party that faces such a circumstance which responds to the above given definition must immediately inform in writing the other party of this intervention and when this circumstance possibly ends. In the case of absence of information, the concerned party can not prevail over, unless in the case of intervening circumstances, which also prevent any communication.

Where a force majeure case which responds to the above definition intervenes, the time for the contract's execution is prolonged for a period of time corresponding to the event's duration. This does not include any payment of damages and interest or a penalty for the delay.

However if the above mentioned circumstances do persist for a period of time of 6 months, each party can cancel the contract without any payment of damages and interest.

12. CANCELLATION:

The contract is cancelled by law, without the need of any judicial formality where there are serious shortcomings by one of the parties concerning essential obligations. Cancellation would become effective within one month after the mailing of a registered letter with proof of delivery of an earlier made formal notice which stayed unfruitful.

The essential obligations, which the parties have to fulfill, notably consist of the due payment by the buyer or the merchandise's non-delivery by MICHAUD EXPORT. In case of a serious shortcoming to the contract's essential obligations, the sale will be cancelled in good law without prejudice of damages and interest that can be claimed.

Any tolerance that one party allows the other not to prevail immediately over one of its rights, will not prejudice the party's rights to prevail over them later, except in case of a contrary convention or stipulation to the present conditions.

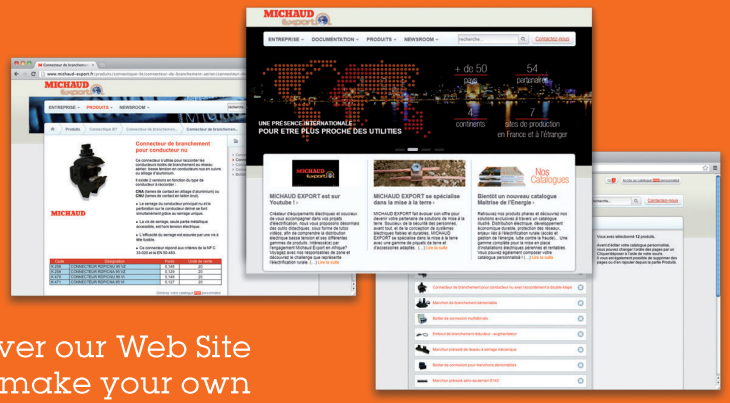
13. JURISDICTION ATTRIBUTION:

These General Selling Conditions shall be ruled and governed by the French Law as followed by the courts. Any dispute deriving from these General Selling Conditions, after failure of a previous conciliation procedure shall be of the exclusive French jurisdiction of the competent Commercial Court of Lyon located in France. Each party accepts to bear any costs and expenses it would have exposed.

14. OFFICIAL LANGUAGE:

The French version of these general selling conditions, available upon enquiry, is the only legally acceptable version.

Creator of electrical equipment



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Photos : Michaud, Flaticon

Creation : Michaud Export

International expert in electrical distribution, **Michaud Export** designs, develops and implements reliable systems reducing maintenance operations on distribution networks.

As the architect of your solution, the company focuses on on-going innovation and leverages on the worldwide renowned expertise of the 250 employees at **Michaud Group**, leader in the industry for systems and connection fittings for electrical installations.

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