



# Electrical Distribution

## Protection

Extract of Catalogue  
Low Voltage Energy

**MICHAUD**  
Export 



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

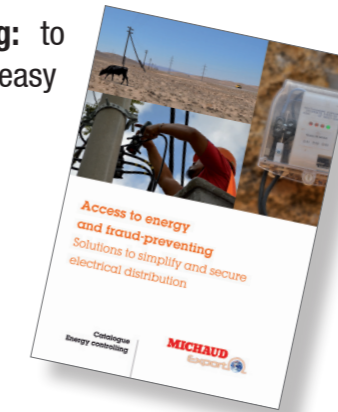
According to the international standards, **Michaud Export** designs and develops energy distribution solutions. The product range is focused on two fields of expertise:

**Michaud Export**  
in a few words:

**Reliability**  
**Support**  
Adaptability  
**Quality**  
Innovation  
**Expertise**  
Reactivity  
**Experience**  
**LISTENING**

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

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



**Creator of innovative solutions**



**Supplier of electrical equipment**

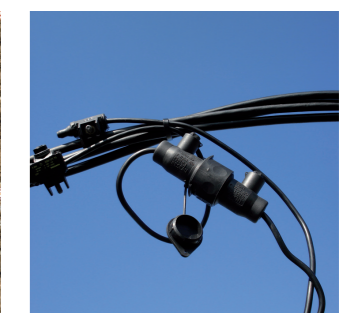
As a **technical expert in low-voltage networks**, Michaud focuses R&D on innovative solutions.

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

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

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

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



250  
staff members



7

establishments  
Europe,  
North Africa,  
Asia



Certified since



**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](http://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**.



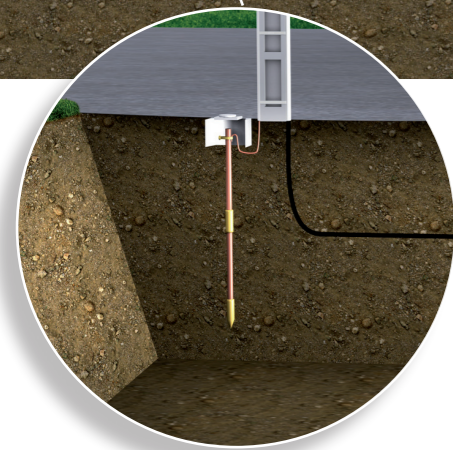
Protection



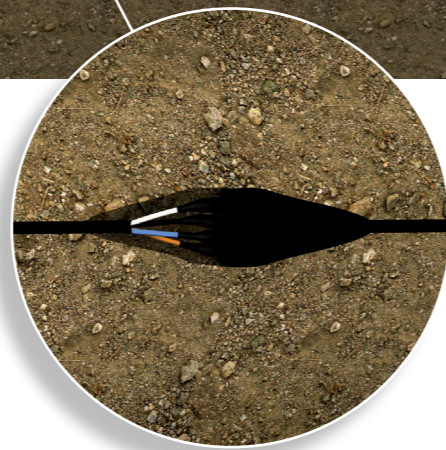
Housing



Overhead



Earth system



Underground



Installation

# Protection

## Protection

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## For a safe and effective electrical line, MICHAUD offers solutions for the protection of individual premises as well as low voltage network.



Lasting installations

As a specialist in low voltage distribution, MICHAUD gets involved in the networks **performance optimisation** and the guarantee of long-lasting electrical lines.



Protected networks

Thanks to protections installed in **strategic points** on the network or on service level, the power company takes advantage of a better control of faults propagation and an easier maintenance.



Customized products

The technical skills and the right understanding of problematics on the field enable to propose **suitable solutions** for specific demands (customer identification on the product, easy handling, fuse blown indicator...).

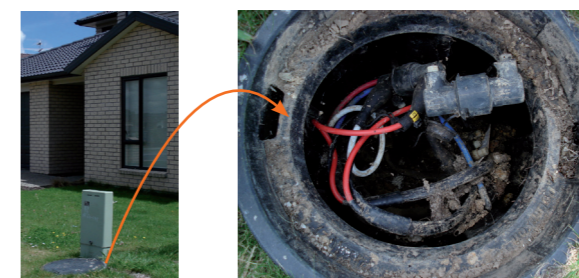
## Service protection

Two solutions can be used for individual houses protection: the **fuse switch disconnector** or the **cutout sleeve**. These devices enable a possible cutting point facilitating every interventions for the network manager.

Comparison between	Fuse switch disconnector	and	Cutout sleeve
Manipulation ease	++		+
	From ground level with a stick		On top pole
Economical solution	+		++

## A solution for the protection in underground environment

In order to adapt to various specifications met on the field, a partially and temporarily submersible solution, has been designed to ensure the protection of the underground network connection.

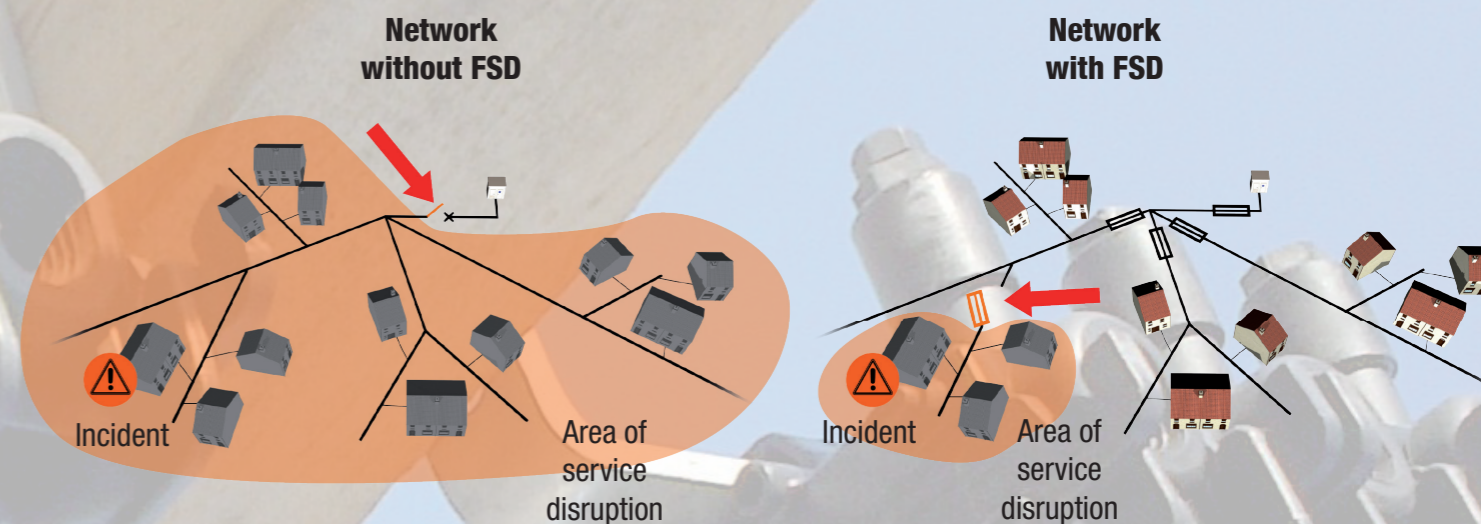


- ✓ Installation in a pit
- ✓ Working temporarily into water
- ✓ Full waterproof connection

## Network protection

Low voltage networks are usually **structured in a star shape** from the LV/MV transformer and are not looped. A single short-circuit could therefore make an entire network fail, creating customer service disruptions.

### MICHAUD solution: protection on strategic points



- ✓ Control of faults propagation
- ✓ Reduction of customers discontents

+ A suitable earth system device enables the temporary fuse switch protection for work.

SEE SHEET  
Earth system / Switch earthing and short circuiting device fort gang FSD





Installation video available on [www.michaud-export.com](http://www.michaud-export.com)  
(tab Documentation > Installation videos)

**The benefits:**

- + 50 up to 80% more economical than a circuit breaker
- + Strong solution, very little sensitive to charge imbalances
- + Solution available in single and three phases



**Fuse switch disconnecter: many options for all configurations**

Two types of protections

**Service protection**

Rating 100A or 160A



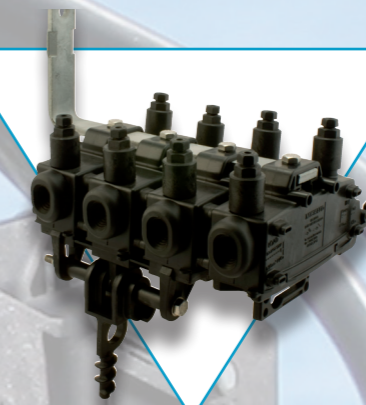
Fuse size 22x58 or NH 00

Conductors section max 35mm<sup>2</sup>, 95mm<sup>2</sup> or 120mm<sup>2</sup>

✓ Single phase FSD

**Network protection**

Rating 160A



Fuse size NH 00

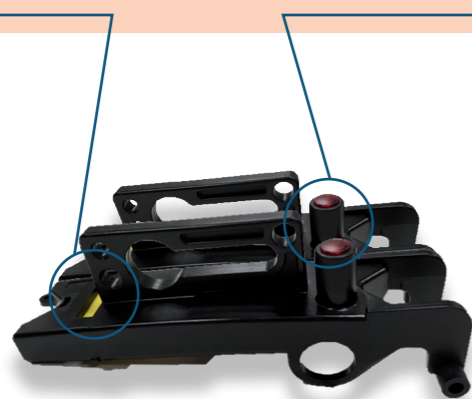
Conductors section max 95mm<sup>2</sup> or 120mm<sup>2</sup>

- ✓ Multi-phase FSD
- ✓ Available in 2, 3, 4, 6 poles

Many options

P

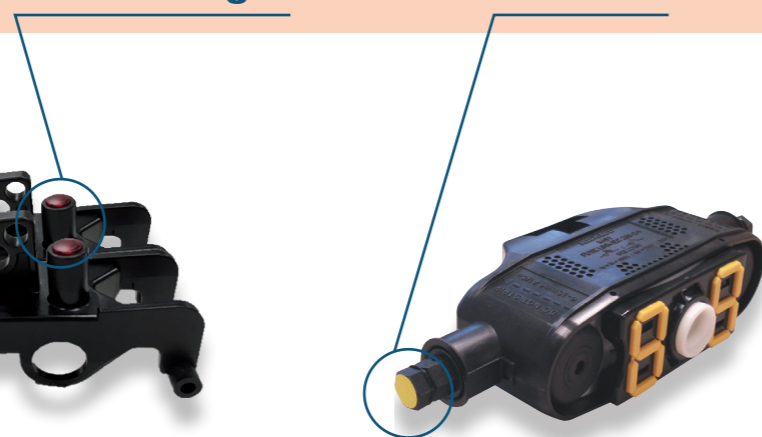
**Fuse presence indicator**



Check the fuse presence

L

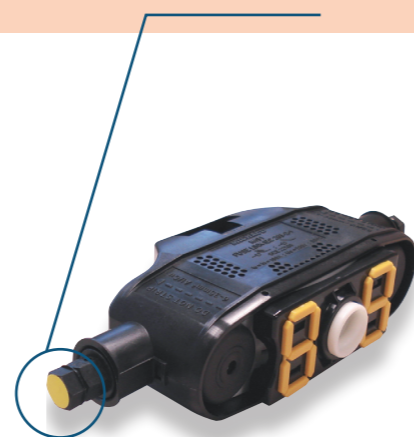
**Blown fuse LED light**



Be aware of a blown fuse

H

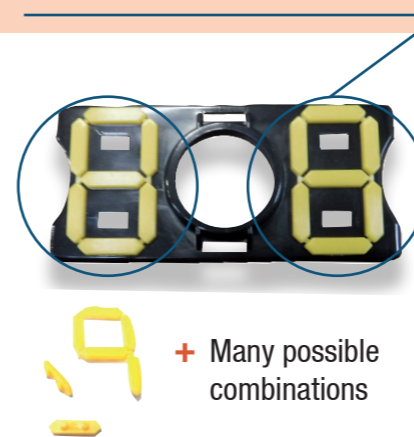
**Shear head indicator**



Check from ground level the good sheared-off of the head

N

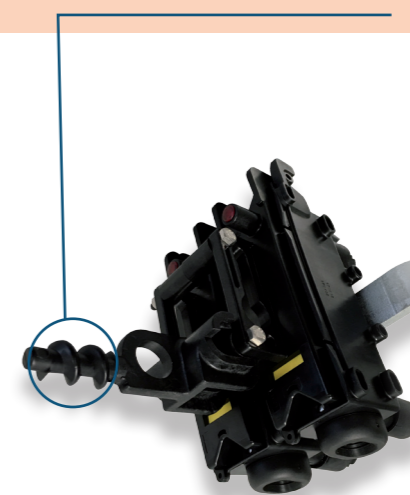
**Customer identification number**



Identify the line or customer number

S

**Neutral simultaneous cut**



Enable the simultaneous cut of phases and neutral

C

**Color of the fuse carrier**



Distinguish phases and neutral

# Fuse switch disconnecter 100A

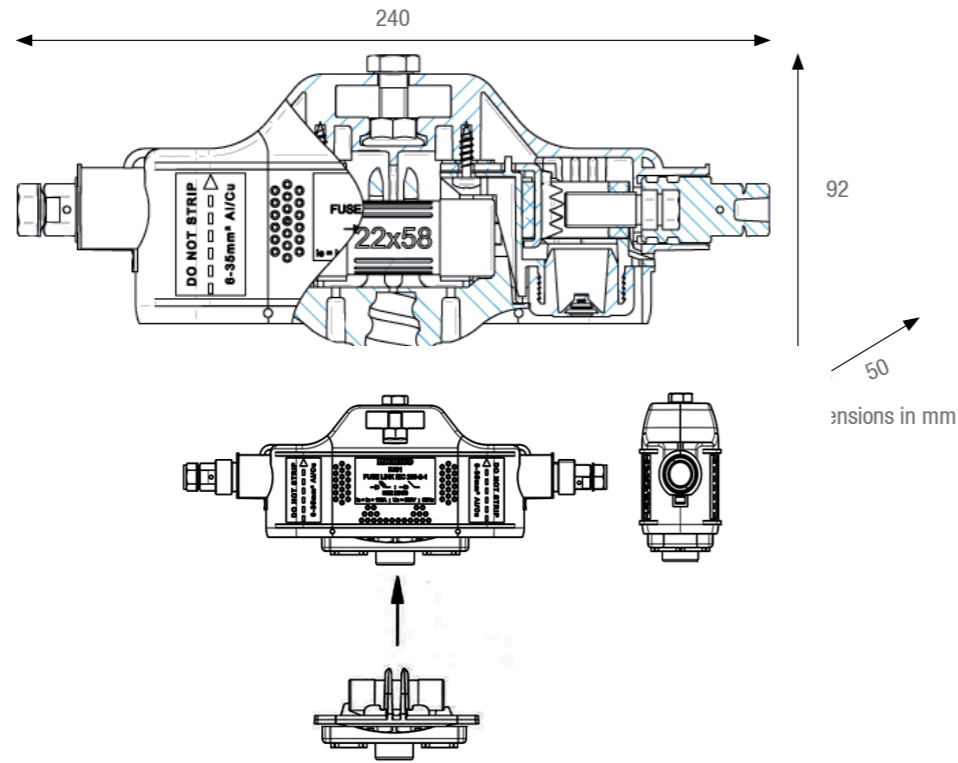


**MICHAUD**

## Application

This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network. It is designed to receive a neutral tube or 100A maximum, size 22x58 fuse cartridge (according to the IEC 269-2.1 standard).

- Rating** 100A
- Fuse size** 22x58
- Conductors section** 6-35mm<sup>2</sup>



## Description

- The FSD ratings are:
  - Rated voltage, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 100A
- The terminals are completely insulated. Connection is established using insulation piercing technology.
- The insulated conductor section ranges from 6 up to 35mm<sup>2</sup> Al/Cu.
- The tightening efficiency of the conductors is ensured by two shear head screws located on side body.
- The conductors inserting is performed from below.
- The fuse holder is opened, removed and closed using a pigtail stick.
- Note: the fuse holder can be installed without fuse.
- Screw heads and the fuse carrier can be sealed if necessary. The protection degree is IP33.

This fuse switch disconnecter meets the criteria of the **IEC 60 947-3** and **IEC 60 269-2** standard.

Code	Designation	Weight (kg)	Sales unit
K491	SINGLE PHASE FSD 100A (22x58) PIERCING 6-35	0.385	20

## Customised solution:

Several options available:

- For the shear head indicator, add **H** to the reference.
- For the customer identification number, add **N** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (white is standard colour).



## Option: Number plate alone

Code	Designation	Weight (kg)	Sales unit
K492	NUMBER PLATE FOR FSD K491 / CABLE	0.025	100



## Accessories

The bracket is made of galvanised steel highly resistant to corrosion. Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the FSD).

The adaptor made of synthetic materials is designed to fix a fuse switch disconnecter on a "swan neck" type bracket. It can also be fixed using a strap or 2 screws.



Code	Designation	Weight (kg)	Sales unit
K297	METAL BRACKET FOR SINGLE PHASE FSD	0.490	30
K295	PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET	0.070	5

SEE SHEET PROTECTION / Operating stick

SEE SHEET PROTECTION / Fuses

# Fuse switch disconnecter 100A



K291

Rating 100A

Fuse size 22x58

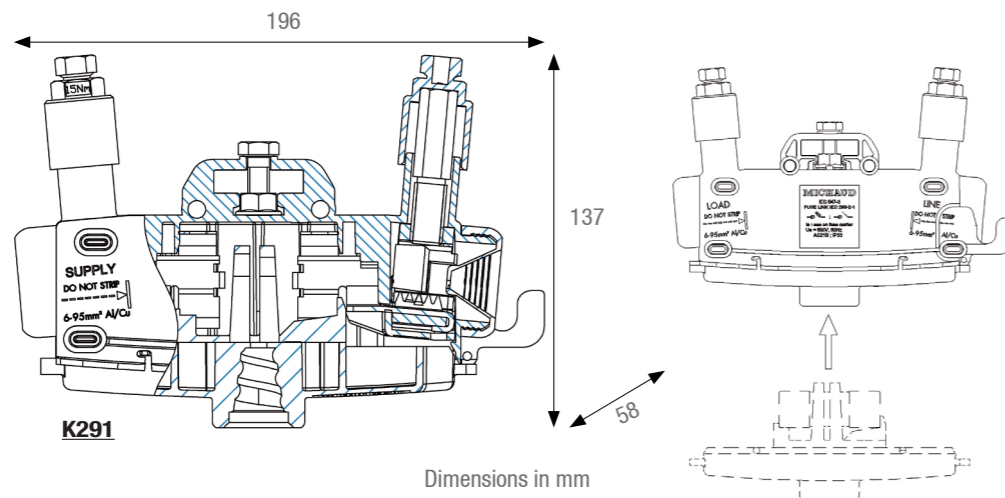
Conductors section 6-95mm<sup>2</sup>

**MICHAUD**

## Application

This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

It is designed to receive a neutral tube or a 100A maximum, size 22x58 fuse cartridge (according to the IEC 269-2.1 standard).



K291

## Description

- The FSD ratings are:
  - Rated voltage, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 100A
- The terminals are completely insulated. Connection is established using insulation piercing technology.
- The insulated conductor section ranges from 6 up to 95mm<sup>2</sup> Al/Cu.
- The tightening efficiency of the conductors is ensured by two shear head screws on top body.
- The fuse holder is opened, removed and closed using a pigtail stick.  
Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The fuse holder can be sealed if necessary. The protection degree is IP33.

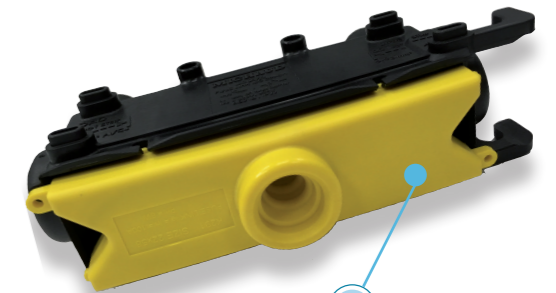
This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

Code	Designation	Weight (kg)	Sales unit
K291	SINGLE PHASE FSD 100A (22x58) PIERCING 6-95	0.510	1

## Customised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference. (Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the customer identification number, add **N** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



K291-C

Colour of the fuse carrier



## Accessories

The bracket is made of galvanised steel highly resistant to corrosion. Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the FSD).

The adaptor made of synthetic materials is designed to fix a fuse switch disconnecter on a "swan neck" type bracket. It can also be fixed using a strap or 2 screws.



K297

K295

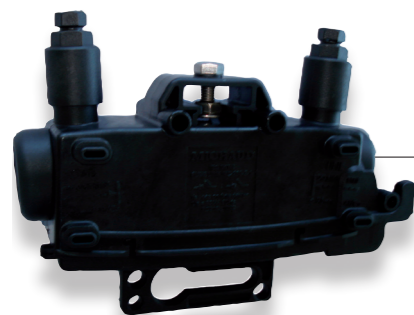
Code	Designation	Weight (kg)	Sales unit
K297	METAL BRACKET FOR SINGLE PHASE FSD	0.490	30
K295	PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET	0.070	5

SEE SHEET PROTECTION / Operating stick

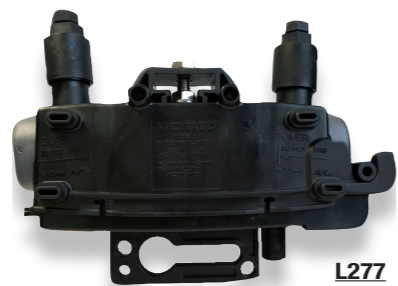
SEE SHEET PROTECTION / Fuses



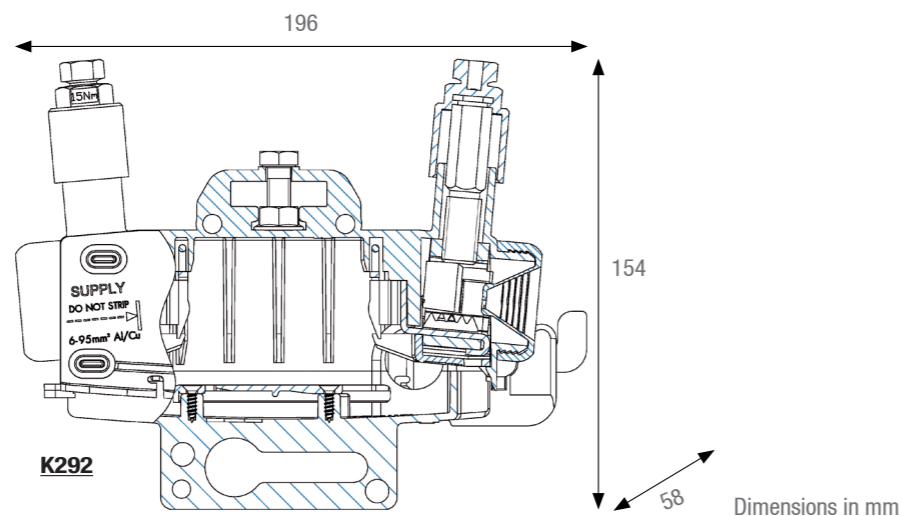
# Fuse switch disconnecter 160A



**K292**  
Insulation piercing



**L277**  
Stripping



**MICHAUD**

## Application

This Fuse Switch Disconnecter (FSD) is a single phase device. It is installed at the top of pole or on façade. It protects the overhead connection supplying an individual customer and the low voltage network.

It is designated to receive a 160A fuse cartridge or 240A maximum solid connecting link size 00 (according to the IEC 269-2.1 standard).

**Rating 160A**

**Fuse size NH 00**

**Conductors section**

6-95mm<sup>2</sup> (K292), 6-120mm<sup>2</sup> (L277)

## Description

- The FSD ratings are:
  - Rated voltage, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 160A
- The terminals are completely insulated.
- The FSD K292 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).
- The FSD L277 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).
- The tightening efficiency of the conductors is ensured by two shear head screws on top body.
- The fuse holder is opened, removed and closed using a hook stick.
- Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The fuse carrier can be sealed if necessary. The protection degree is IP33.

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

Code	Designation	Weight (kg)	Sales unit
K292	SINGLE PHASE FSD 160A (NH 00) PIERCING 6-95	0.470	1
L277	SINGLE PHASE FSD 160A (NH 00) STRIPPING 6-120	0.470	1

## Costumised solution:

Several options available:

- For the presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.  
(Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



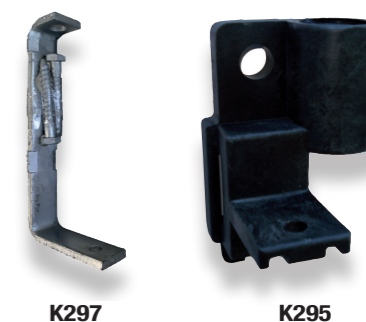
## Option: Fuse carrier alone

Fuse carriers L297 and L298 can be used with existing MICHAUD fuse switch disconnectors size 00 on the field for retrofit operations, adding indicators.

Code	Designation	Weight (kg)	Sales unit
L297	FUSE CARRIER (Size 00) WITH BLOWN FUSE INDICATOR	0.091	1
L298	FUSE CARRIER (Size 00) WITH DISPLAY & BLOWN FUSE INDICATORS	0.091	1

## Accessories

The bracket is made of galvanised steel highly resistant to corrosion. Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the FSD). The adaptor made of synthetic materials is designed to fix a fuse switch disconnecter on a "swan neck" type bracket. It can also be fixed using a strap or 2 screws.



Code	Designation	Weight (kg)	Sales unit
K297	METAL BRACKET FOR SINGLE PHASE FSD	0.490	30
K295	PLASTIC ADAPTOR FOR SINGLE PHASE FSD BRACKET	0.070	5

SEE SHEET  
INSTALLATION / LV insulated toolings

SEE SHEET  
PROTECTION / Operating stick

SEE SHEET  
PROTECTION / Fuses

# Fuse switch connector 20A

Protection

**Rating** 20A

**Fuse size** 10.3x38

**Conductors section** 16-95mm<sup>2</sup>/  
1.5-16mm<sup>2</sup> depending on the versions



K223 and K224

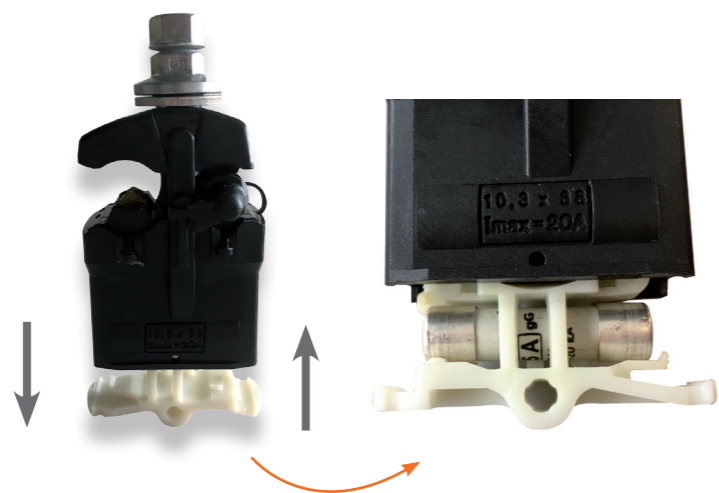
K228 and K229

## Application

This fuse switch connector is designed to receive a 10.3x38mm fuse cartridge or neutral tube. It is used to protect street light or insulated service conductors connected to the low voltage A.B.C. (Aerial Bundled Conductors) or bare line conductors. It is designed for 20A maximum fuse cartridge. It is used in no mechanical load situations.

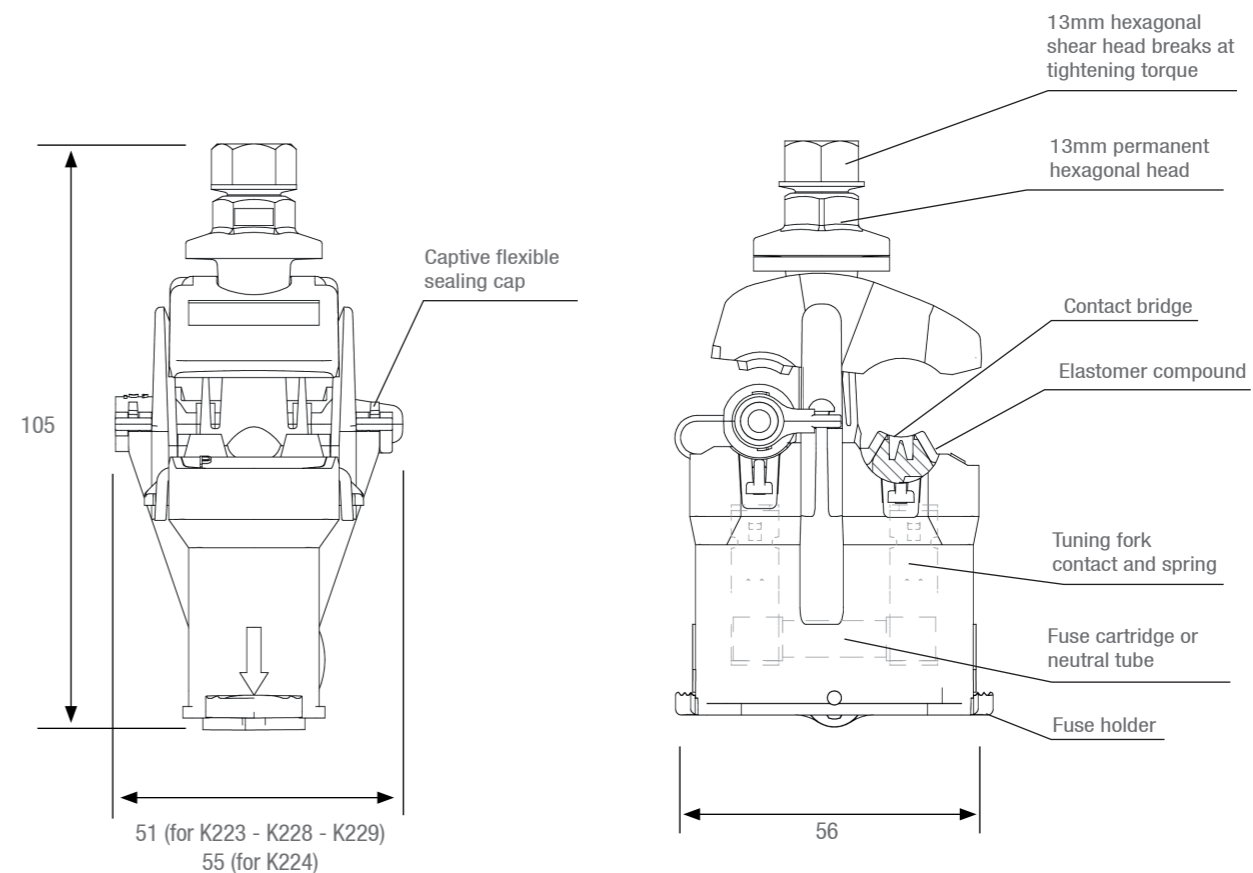
## The benefit:

+ Unlosable fuse carrier



## Description

- Tightening of the bare or insulated main line conductor and piercing on the tap line conductor are carried out simultaneously in a single operation.
- The sealing end cap is flexible in order to check good tap conductor insertion. It can be installed with service cable outlet on left or right side.
- Tightening efficiency is ensured by a shear head screw.
- An elastomer compound ensures insulation during piercing of the conductors to be connected.
- Connection of the fuse cartridge on the tuning fork contacts is ensured using springs.
- The sealable fuse holder is operated easily by hand. Two arrows engraved on the side of the box indicate the opening and closing direction to be followed.
- The protection degree is IP2X during installation. It becomes IP33 after installation on the insulated conductor.



Dimensions in mm

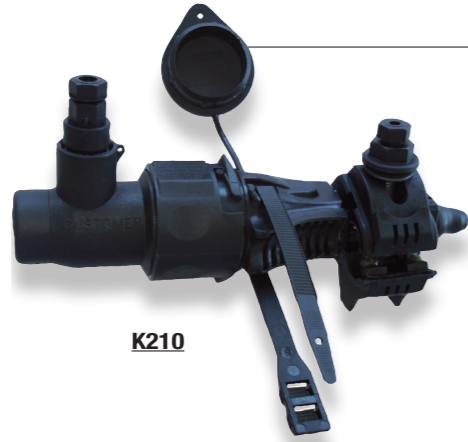
Code	Designation	Capacities Main (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K223	FUSE CONNECTOR 20A (10.3x38) PIERCING 95/10	Al / Cu Insulated 16-95	1.5-10	0.130	10
K224	FUSE CONNECTOR 20A (10.3x38) PIERCING 95/16	Al / Cu Insulated 16-95	6-16	0.130	10
K228	FUSE CONNECTOR 20A (10.3x38) BARE Cu 95/10	Cu bare 16-95	1.5-10	0.130	10
K229	FUSE CONNECTOR 20A (10.3x38) BARE Al 95/100	Al bare 16-95	1.5-10	0.130	10

Protection

# Fuse switch connector 100A

Protection

- Rating** 100A
- Fuse size** 22x58
- Conductors section**  
35-150mm<sup>2</sup> / 6-35mm<sup>2</sup>



K210

**MICHAUD**

### Application

This fuse switch connector is designed to receive a 22x58mm fuse cartridge or neutral tube. It is used to protect the insulated service conductors connected to a low voltage A.B.C. (Aerial Bundled Conductors). It is used in no mechanical load situations. Opening and closing of the cutout can be performed under a load of 63A maximum.

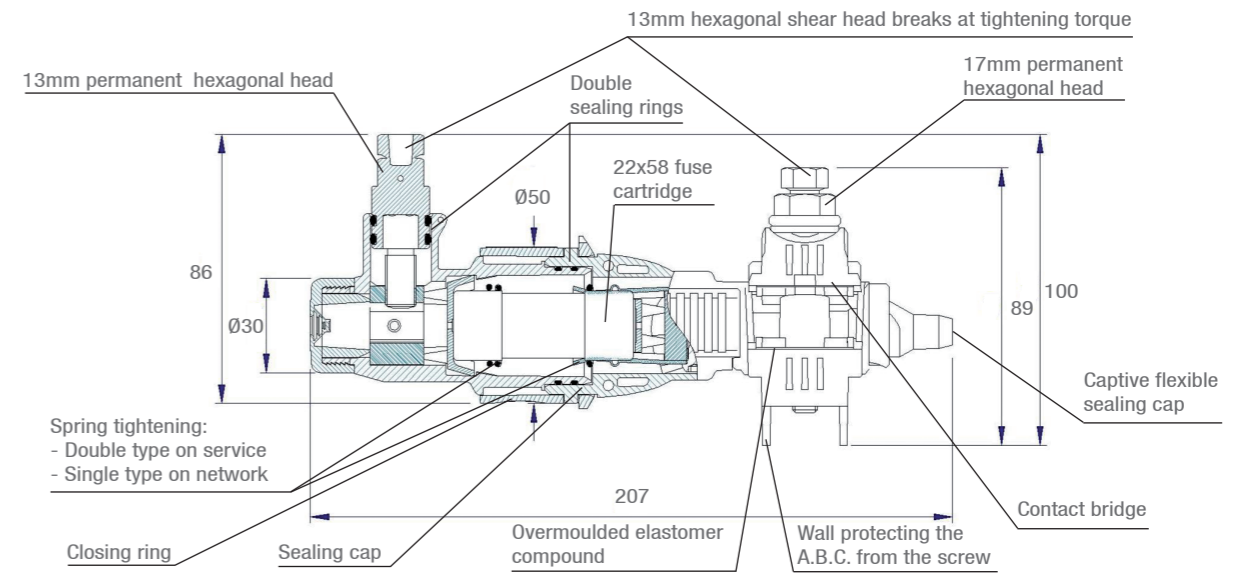
### Description

- Insulation piercing on the main and tap conductors is carried out independently.
- Tightening efficiency is ensured by shear head screws. The dielectric strength in water is greater than 6kV.
- An elastomer compound ensures insulation during piercing of the conductors to be connected.
- The spring tightening on the cartridge is calibrated so that when the cutout is opened, the cartridge remains on the customer side (therefore without voltage).
- Once the cartridge has been installed, the cutout is locked using the closing ring.
- The closing ring and the 13mm permanent head can be sealed.



K210

Code	Designation	Capacities Main insulated Al-Cu (mm <sup>2</sup> )	Capacities Tap insulated Al-Cu (mm <sup>2</sup> )	Weight (kg)	Sales unit
K210	FUSE SWITCH CONNECTOR 63A (22x58) PIERCING 150/35	35-150	6-35	0.310	10



Dimensions in mm

SEE SHEET  
INSTALLATION / LV insulated toolings

SEE SHEET  
PROTECTION / Fuses

Protection

# Fuse cutout sleeve 100A

Protection

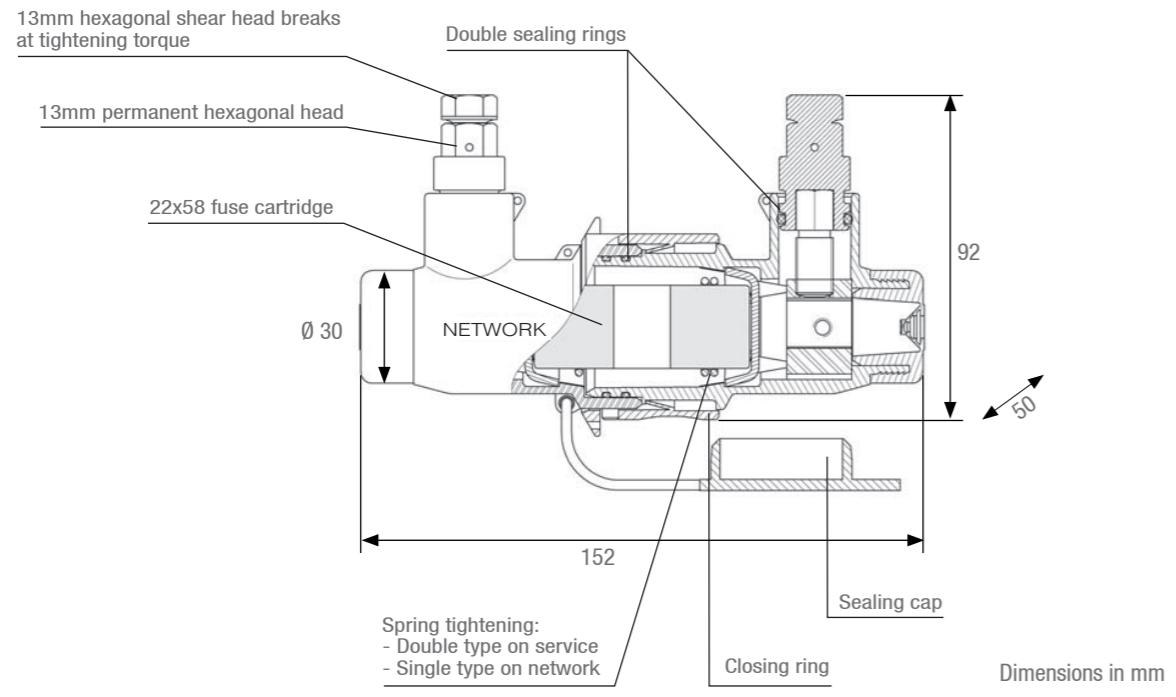
**Rating 100A**  
**Fuse size 22x58**  
**Conductors section**  
6-35mm<sup>2</sup> (K221), 16-35mm<sup>2</sup> (K219)



**MICHAUD**

## Application

This cutout sleeve is designed to receive a 22x58 fuse cartridge, a neutral tube or a mini-switch. It is used in no mechanical load situations. It is equipped with mechanical tightening terminals allowing its installation using a simple spanner. Opening and closing of the cutout can be performed under a load of 63A maximum.



## Description

- Connection is established using insulation piercing technology for the K221 and stripping technology for the K219. The tightening screws are equipped with shear heads.
- The terminals offer the following capacities:
  - 6-35mm<sup>2</sup> Al/Cu or 16M-50M Al for the K221,
  - 16-35mm<sup>2</sup> Al/Cu or 16M-50M Al for the K219.
- The product has a dielectric strength in water greater than 6kV.
- The spring tightening on the cartridge is calibrated so that when the cutout is opened, the cartridge remains on the customer side (therefore without voltage).
- A sealing cap temporarily protects the access on the network side (black on K221 ; grey on K219).
- Once the cartridge has been installed, the product is locked using the closing ring.
- The closing ring and the 13mm screw can be sealed.
- The sleeve accepts 63A fuses. The 100A fuse is only accepted with 35mm<sup>2</sup> copper wiring.

This sleeve meets the criteria of the **ErDF 69 40 070** French specification.



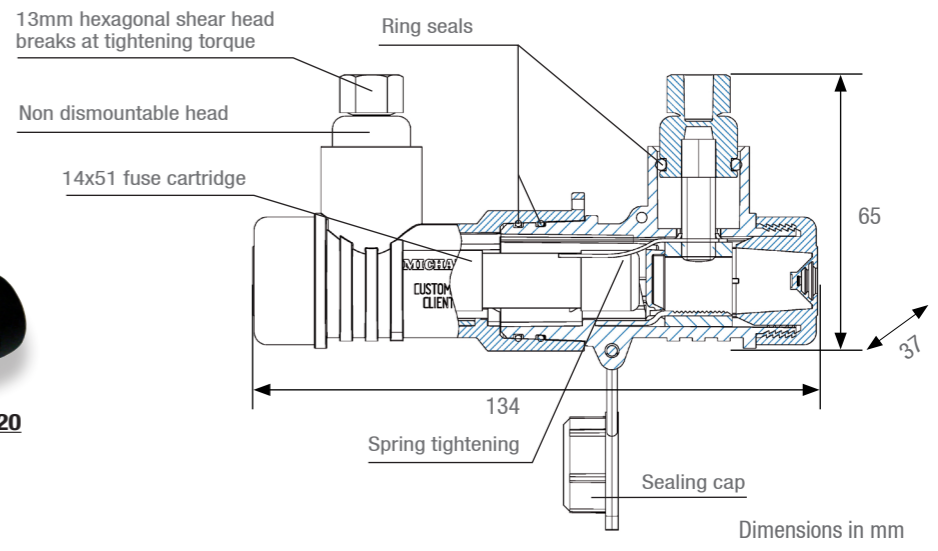
Protection

Code	Designation	Weight (kg)	Sales unit
K221	CUTOUT SLEEVE 63A (22x58) PIERCING 6-35	0.235	70
K219	CUTOUT SLEEVE 63A (22x58) STRIPPING 16-35	0.235	70

## Alternative: Cutout sleeve with 50A

The cutout sleeve is also available in 14x51. It accepts fuses up to 50A and Al/Cu conductors from 2.5 to 16mm<sup>2</sup>. Connection is established by stripping the conductor. Connection is ensured by a shear head screw that cannot be dismantled.

**Rating 50A**  
**Fuse size 14x51**  
**Conductors section**  
2.5-16mm<sup>2</sup>



Code	Designation	Weight (kg)	Sales unit
K220	CUTOUT SLEEVE 50A (14x51) 2.5-16	0.195	20

SEE SHEET  
INSTALLATION / LV insulated toolings

SEE SHEET  
PROTECTION / Fuses

# Fuse insulation piercing pit connector 100A

Protection

- Rating** 100A
- Fuse size** 22x58
- Conductors section** 6-50mm<sup>2</sup>



**K199**

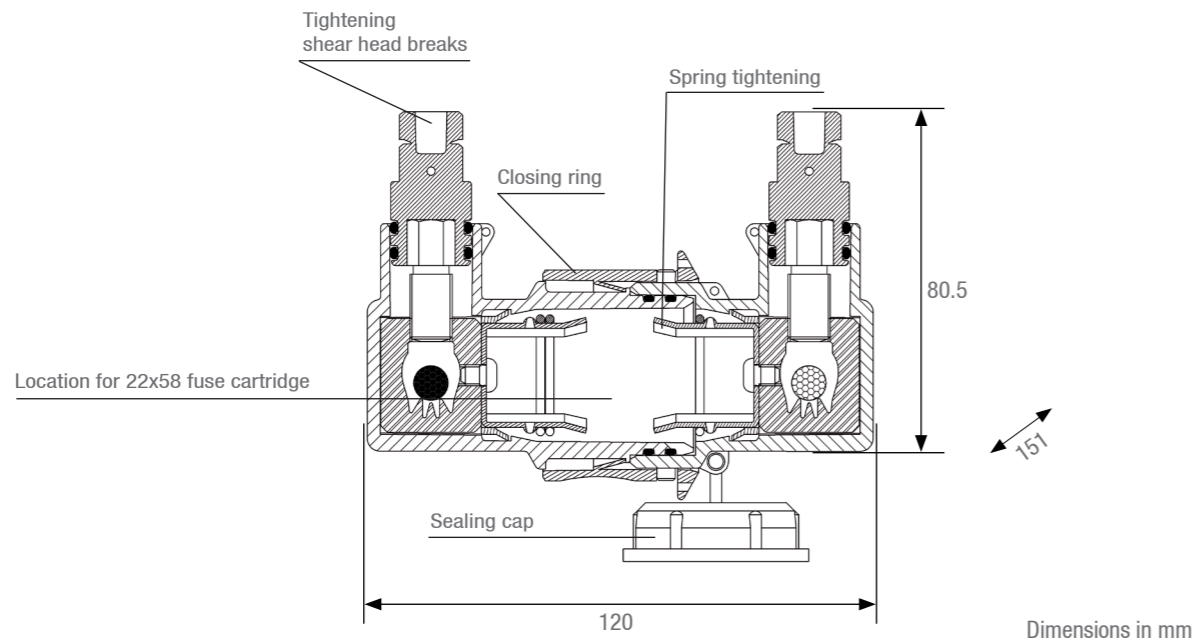
**MICHAUD**

**Application**

This Fuse Insulation Piercing Pit Connector (IPPC) is designed to receive a neutral tube, a mini-switch or a 100A maximum, size 22x58 fuse cartridge. It is used to connect a customer service line to an underground conductor. It is installed in a pit and can operate partially and temporary immersed in water. It is equipped with mechanical tightening terminals allowing its installation on a conductor using a simple spanner.

**Description**

- Terminals use insulation piercing technology.
- Tightening efficiency is ensured by shear head screws.
- The connection is totally watertight.
- The terminals offer a capacity from 6 up to 50mm<sup>2</sup> Al/Cu.
- The elastic tightening of the cartridge is calibrated so that when the connector is opened, the cartridge remains on the customer side (therefore without voltage).
- A sealing cap temporarily protects the access on the network side.
- Once the cartridge is installed, the connector is locked using the closing ring.



Protection

Code	Designation	Weight (kg)	Sales unit
K199	FUSE INSULATION PIERCING PIT CONNECTOR 100A (22x58) PERFO 6-50	0.302	10

SEE SHEET  
INSTALLATION / LV insulated toolings

SEE SHEET  
PROTECTION / Fuses

# Fuse switch disconnecter double pole 160A

Rating 160A

Fuse size NH 00

Conductors section

6-95mm<sup>2</sup> (K298), 6-120mm<sup>2</sup> (L278)



**MICHAUD**

## Application

This Gang Fuse Switch Disconnecter (Gang FSD) is a multi-phase device. It is installed at the top of a pole or on façade. It protects the overhead connection supplying one or several multi-phase customers or the low voltage circuit of a pole mounted transformer. It is designed to receive 160A fuse cartridges or 240A solid connecting links, size 00 (according to the IEC 269-2.1 standard).

## Description

### Fuse Switch Disconnecter

- The FSD ratings are:
  - Rated voltage, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 160A
- The FSD K298 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).
- The FSD L278 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).
- The fuse holders are opened, removed and closed simultaneously using a hook stick or a stick to be screwed on the adaptor.  
Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The protection degree is IP33.

### Bracket

- The bracket is available in 2 holes type. It is made of galvanised steel highly resistant to corrosion.
- Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the Gang FSD).

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

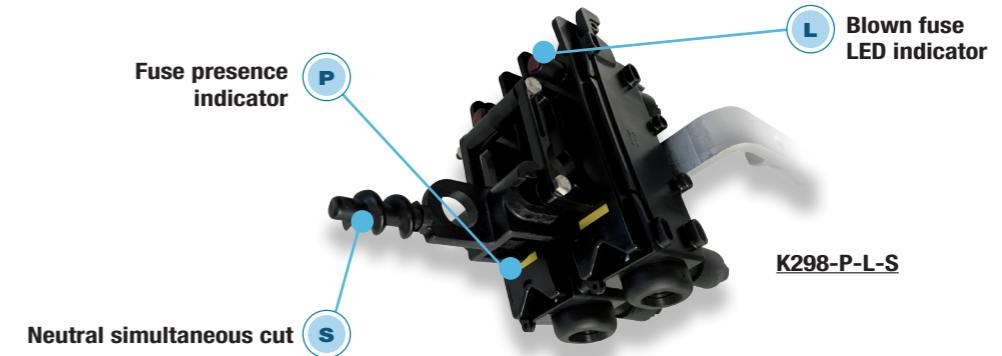
Code	Designation	Weight (kg)	Sales unit
K298	DOUBLE POLE FSD 160A (NH 00) PIERCING 6-95	1.850	1
L278	DOUBLE POLE FSD 160A (NH 00) STRIPPING 6-120	1.850	1

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.

## Customised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.  
(Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the neutral simultaneous cut, add **S** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



## Option: Double tap

A double tap is available by adding an end connector with two insulation piercing taps. The conductor section goes from 6 up to 35mm<sup>2</sup> Al/Cu.

Code	Designation	Weight (kg)	Sales unit
K098	DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )	0.110	12

SEE SHEET  
INSTALLATION / LV insulated toolings

SEE SHEET  
PROTECTION / Operating stick

SEE SHEET  
PROTECTION / Fuses

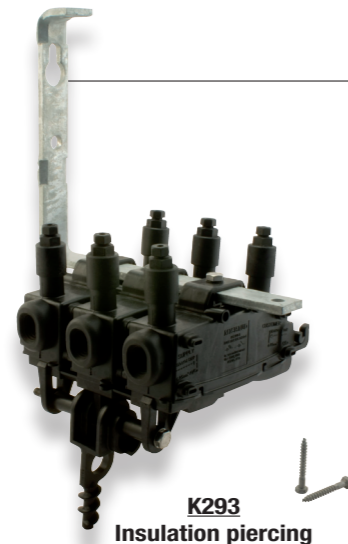
# Fuse switch disconnector triple pole 160A

Rating 160A

Fuse size NH 00

Conductors section

6-95mm<sup>2</sup> (K293), 6-120mm<sup>2</sup> (L284)



**MICHAUD**

## Application

This Gang Fuse Switch Disconnecter (FSD) is a multi-phase device. It is installed at the top of a pole or on façade. It protects the overhead connection supplying one or more multi-phase customers or the low voltage circuit of a pole mounted transformer. It is designed to receive 160A fuse cartridge or 240A solid connecting links, size 00 (according to the IEC 269-2.1 standard).

## Description

### Fuse Switch Disconnecter

- The FSD ratings are:

- Rated voltage, Ue : 500V
- Rated frequency : 50 up to 60Hz
- Rated insulation voltage, Ui : 1 000V
- Rated current, Ie : 160A

- The FSD K293 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).

- The FSD L284 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).

- The fuse holders are opened, removed and closed simultaneously using a hook stick or a stick to be screwed on the adaptor.

Note: the fuse holder can be installed without fuse.

- The polarity test points are accessible on each terminal without removing the fuse holder.

- The protection degree is IP33.

### Bracket

- The bracket is available in 4 holes type. It is made of galvanised steel highly resistant to corrosion. A hook at its end is used to fix a service cable anchoring clamp.

- Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the Gang FSD). Fixing on poles can also be carried out using two stainless steel straps thanks to spurs on the bracket.

This fuse switch disconnector meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

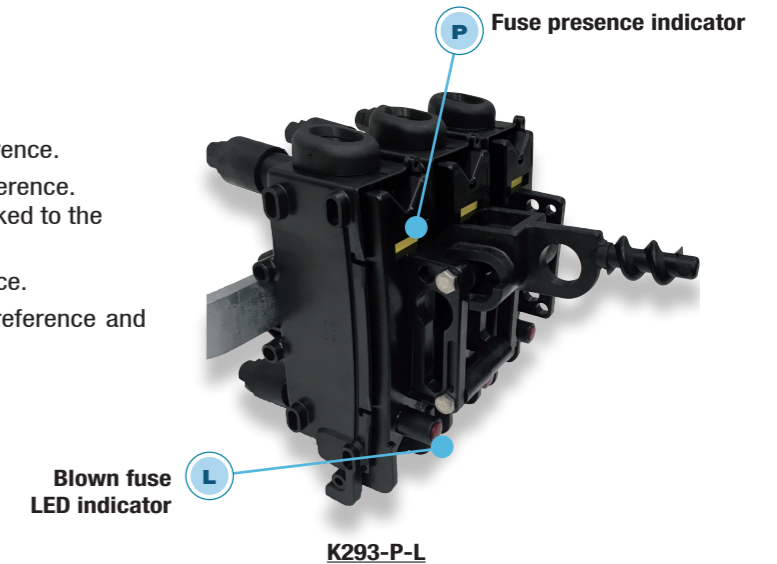
Code	Designation	Weight (kg)	Sales unit
K293	TRIPLE POLE FSD 160A (NH 00) PIERCING 6-95	2.710	1
L284	TRIPLE POLE FSD 160A (NH 00) STRIPPING 6-120	2.710	1

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.

## Customised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference. (Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).



## Option: Double tap

A double tap is available by adding an end connector with two insulation piercing taps. The conductor section goes from 6 to 35mm<sup>2</sup> Al/Cu.



Code	Designation	Weight (kg)	Sales unit
K098	DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )	0.110	12

## Alternative: Fuse switch disconnector double triple pole 160A (size 00)

Code	Designation	Weight (kg)	Sales unit
K296	DOUBLE TRIPLE POLE FSD 160A (NH 00) PIERCING 6-95	3.800	1

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.



SEE SHEET  
PROTECTION / Operating stick

SEE SHEET  
PROTECTION / Fuses

# Fuse switch disconnecter quadruple pole 160A

Rating 160A

Fuse size NH 00

Conductors section

6-95mm<sup>2</sup> (K294), 6-120mm<sup>2</sup> (L281)



**MICHAUD**

## Application

This Gang Fuse Switch Disconnecter (FSD) is a multi-phase device. It is installed at the top of a pole or on façade. It protects the overhead connection supplying one or more multi-phase customers or the low voltage circuit of a pole mounted transformer. It is designed to receive 160A fuse cartridge or 240A solid connecting links, size 00 (according to the IEC 269-2.1 standard).

## Description

### Fuse Switch Disconnecter

- The FSD ratings are:
  - Rated voltage, Ue : 500V
  - Rated frequency : 50 up to 60Hz
  - Rated insulation voltage, Ui : 1 000V
  - Rated current, Ie : 160A
- The FSD K294 uses the insulation piercing technology and receives insulated conductors from 6 up to 95mm<sup>2</sup> Al-Cu (entry seals are of black colour).
- The FSD L281 uses the stripping technology and receives insulated conductors from 6 up to 120mm<sup>2</sup> Al-Cu (entry seals are of grey colour).
- The fuse holders are opened, removed and closed simultaneously using a hook stick or a stick to be screwed on the adaptor (neutral cut-off is performed independantly).  
Note: the fuse holder can be installed without fuse.
- The polarity test points are accessible on each terminal without removing the fuse holder.
- The quadruple pole FSD is equipped with a neutral blade contact size 00 integral with the fuse holder, on the neutral side (independent opening reaches to neutral cut).
- The protection degree is IP33.

### Bracket

- The bracket is available in 4 holes type. It is made of galvanised steel highly resistant to corrosion. A hook at its end is used to fix a service cable anchoring clamp.
- Fixing on a pole or façade is achieved by two 10mm diameter galvanised steel screws and two holes on the bracket (top hole having a key shape to make it easier to position the Gang FSD). Fixing on poles can also be carried out using two stainless steel straps thanks to spurs on the bracket.

This fuse switch disconnecter meets the criteria of the IEC 60 947-3 and IEC 60 269-2 standards.

Code	Designation	Weight (kg)	Sales unit
K294	QUADRUPLE POLE FSD 160A (NH 00) PIERCING 6-95	3.240	1
L281	QUADRUPLE POLE FSD 160A (NH 00) STRIPPING 6-120	3.240	1

Note: Fixing with two 10mm diameter galvanised steel screws is provided with the disconnecter.

## Costumised solution:

Several options available:

- For the fuse presence indicator, add **P** to the reference.
- For the blown fuse LED indicator, add **L** to the reference.  
(Use a NH 00 fuse carrying metal fixing bracket linked to the blade)
- For the shear head indicator, add **H** to the reference.
- For the neutral simultaneous cut, add **S** to the reference.
- For the colour of the fuse carrier, add **C** to the reference and specify the colour (black is standard colour).

Fuse presence indicator



K294-P-L



Blown fuse LED indicator



K098

## Option: Double tap

A double tap is available by adding an end connector with two insulation piercing taps. The conductor section goes from 6 to 35mm<sup>2</sup> Al/Cu.

Code	Designation	Weight (kg)	Sales unit
K098	DOUBLE TAP END CONNECTOR (6-35mm <sup>2</sup> )	0.110	12

SEE SHEET  
INSTALLATION / LV insulated toolings

SEE SHEET  
PROTECTION / Operating stick

SEE SHEET  
PROTECTION / Fuses



# Operating stick



**MICHAUD**

## Application

This telescopic operating stick is used to check that there is no voltage, to earth or to operate a fuse switch disconnector, remotely from the ground level. Each model is equipped with a notched universal U-shaped terminal end.

## Description

- The stick and the extension comprise 1, 2 or 3 elements.
- Each element is made of glass fibre composite and has a high mechanical strength (IEC 1235 standard).
- The upper tube is filled with yellow foam to ensure the dielectric strength in the upper part.
- The hollowed lower tube receives the upper tube, in retracted position. It is entirely treated against humidity through siliconisation (the retracted or deployed position is locked using a push button).
- The work must be operated, with limited load at the top, with no mechanical stresses (twisting).
- The assembly can be used for low voltage applications at any time when the stick is deployed.
- The stick is equipped with the following elements:
  - A U-shaped notched universal end for fixing a suitable terminal end (wing nut equipped),
  - A second end with a mount equipped with a protected connection for the optional extension,
  - A hand grip for secure holding.
- The stick diameter is 42mm.
- The stick and the extension can be delivered in a protective cover in order to facilitate handling and storage.

Code	Designation	Elements number	Extension bar application	Length when closed (m)	Length when opened (m)	Weight (kg)	Sales unit
F200	OPERATING STICK 2E - 1.5M (TERMINAL END U)	2	No	0.85	1.50	1.050	1
F201	OPERATING STICK 2E - 2M (TERMINAL END U)	2	Yes	1.10	2.00	1.200	1
F202	OPERATING STICK 2E - 3.2M (TERMINAL END U)	2	Yes	1.75	3.20	1.500	1
F203	OPERATING STICK 2E - 5M (TERMINAL END U)	2	Yes	2.65	5.00	3.000	1
F204	OPERATING STICK 3E - 4.5M (TERMINAL END U)	3	No	1.65	4.50	3.000	1
F205	OPERATING STICK 3E - 5M (TERMINAL END U)	3	No	1.85	5.00	4.000	1
F206	OPERATING STICK 3E - 6M (TERMINAL END U)	3	No	2.50	6.00	5.000	1
F207	OPERATING STICK 1E - 1M	1	No	1.00	1.00	0.800	1
F208	PROTECTIVE COVER FOR OPERATING STICK	1	No	2.00	2.00	0.600	1

## Terminal end

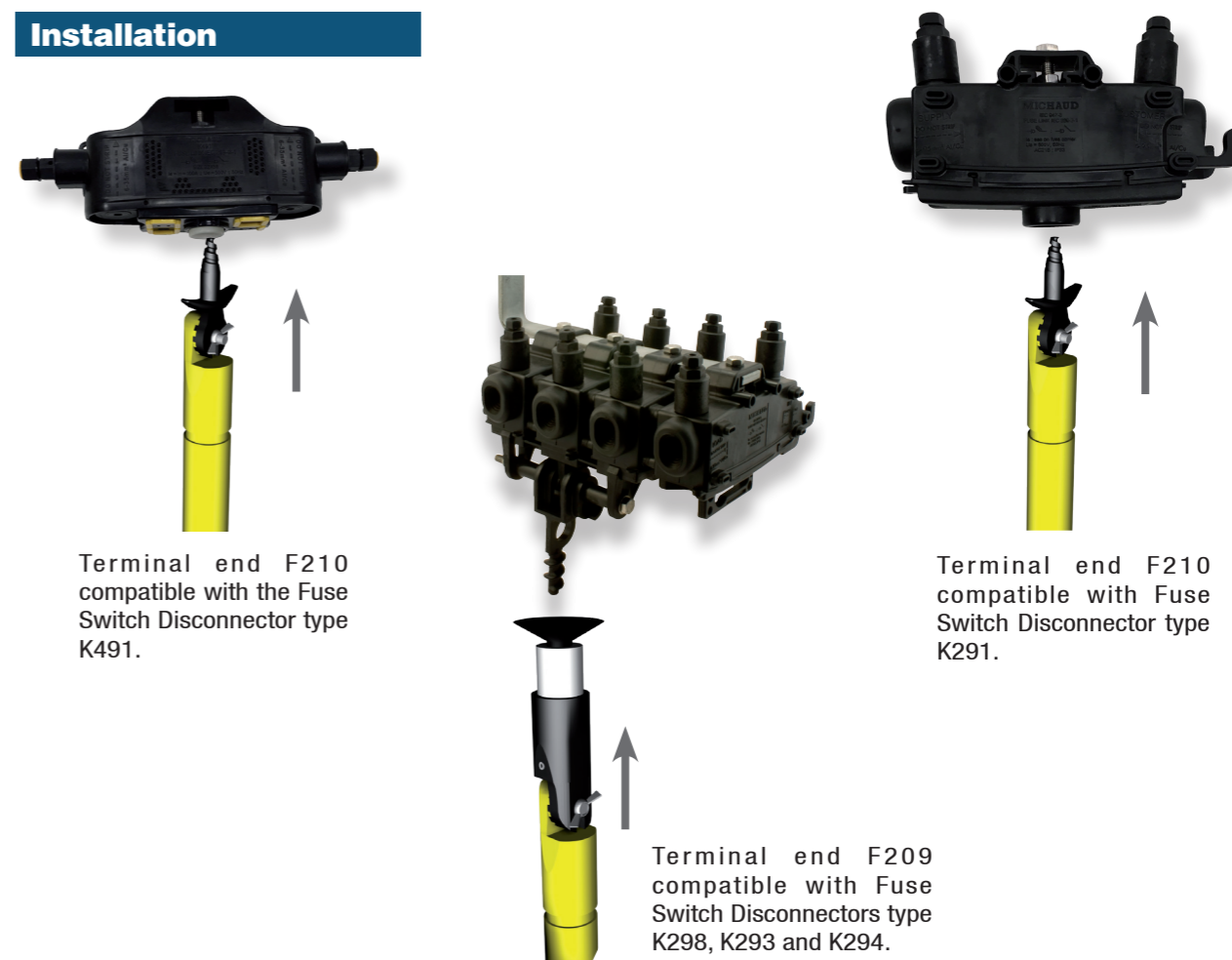


## Application

To operate a Fuse Switch Disconnector (FSD) remotely from the ground level, the notched universal U-shaped threaded terminal end is fixed to the operating stick. The F210 end can be used to operate a Fuse Switch Disconnector manually, without loss of handling thanks to its handle shape.

Code	Designation	Weight (kg)	Sales unit
F209	BORED TERMINAL END DISCONNECTOR / STICK	0.105	10
F210	THREAD TERMINAL END DISCONNECTOR / STICK	0.035	10
F213	TERMINAL END TYPE L DISCONNECTOR / STICK	0.180	10

## Installation



Terminal end F210 compatible with the Fuse Switch Disconnector type K491.

Terminal end F210 compatible with Fuse Switch Disconnector type K291.

Terminal end F209 compatible with Fuse Switch Disconnectors type K298, K293 and K294.

Nota : The F213 end is compatible with the Switch Disconnector type K292.

# Fuse cartridge gG

## MIRELEC

### Application

These gG fuses cartridges are designed to protect goods. They are implemented in a cutout sheltered from outside weather conditions.

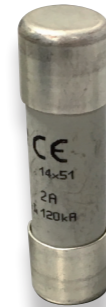


## Type 10.3x38

### Description

- This fuse cartridge is available in size 10.3x38mm.
- It is type gG HPC (High Breaking Capacity).
- It is not equipped with light indicator.

This fuse meets the criteria of the **NF/EN/IEC 60269-1**, **NF HD/IEC 60269-2**, **NF C 60200-1** and **NF C 60200-2** standards.



## Type 14x51

### Description

- This fuse cartridge is available in size 14x51mm.
- It is type gG HPC (High Breaking Capacity).
- It is not equipped with light indicator.

This fuse meets the criteria of the **NF/EN/IEC 60269-1**, **NF HD/IEC 60269-2**, **NF C 60200-1** and **NF C 60200-2** standards.



## Type 22x58

### Description

- This fuse cartridge is available in size 22x58mm.
- It is type gG HPC (High Breaking Capacity).
- It is not equipped with light indicator.

This fuse meets the criteria of the **NF/EN/IEC 60269-1**, **NF HD/IEC 60269-2**, **NF C 60200-1** and **NF C 60200-2** standards.

Code	Designation	Voltage (V)	Breaking capacity (kA)	Weight (kg)	Sales unit
<b>FUSE CARTRIDGE 10.3x38 gG</b>					
U661-1	FUSE CARTRIDGE 10.3x38 1A	500	80	0.070	10
U661-2	FUSE CARTRIDGE 10.3x38 2A	500	80	0.070	10
U661-4	FUSE CARTRIDGE 10.3x38 4A	500	80	0.070	10
U661-6	FUSE CARTRIDGE 10.3x38 6A	500	80	0.070	10
U661-8	FUSE CARTRIDGE 10.3x38 8A	500	80	0.070	10
U661-10	FUSE CARTRIDGE 10.3x38 10A	500	80	0.070	10
U661-12	FUSE CARTRIDGE 10.3x38 12A	500	80	0.070	10
U661-16	FUSE CARTRIDGE 10.3x38 16A	500	80	0.070	10
U661-20	FUSE CARTRIDGE 10.3x38 20A	500	80	0.070	10
U661-25	FUSE CARTRIDGE 10.3x38 25A	500	80	0.070	10
U661-32	FUSE CARTRIDGE 10.3x38 32A	500	80	0.070	10
<b>FUSE CARTRIDGE 14x51 gG</b>					
U660-1	FUSE CARTRIDGE 14x51 gG 1A	690	80	0.021	10
U660-2	FUSE CARTRIDGE 14x51 gG 2A	690	80	0.021	10
U660-4	FUSE CARTRIDGE 14x51 gG 4A	690	80	0.021	10
U660-6	FUSE CARTRIDGE 14x51 gG 6A	690	80	0.021	10
U660-8	FUSE CARTRIDGE 14x51 gG 8A	690	80	0.021	10
U660-10	FUSE CARTRIDGE 14x51 gG 10A	690	80	0.021	10
U660-12	FUSE CARTRIDGE 14x51 gG 12A	690	80	0.021	10
U660-16	FUSE CARTRIDGE 14x51 gG 16A	690	80	0.021	10
U660-20	FUSE CARTRIDGE 14x51 gG 20A	690	80	0.021	10
U660-25	FUSE CARTRIDGE 14x51 gG 25A	690	80	0.021	10
U660-32	FUSE CARTRIDGE 14x51 gG 32A	500	80	0.021	10
U660-40	FUSE CARTRIDGE 14x51 gG 40A	500	80	0.021	10
U660-50	FUSE CARTRIDGE 14x51 gG 50A	400	80	0.021	10
<b>FUSE CARTRIDGE 22x58 gG</b>					
U640	FUSE CARTRIDGE 22x58 gG 2A	690	80	0.056	10
U641	FUSE CARTRIDGE 22x58 gG 4A	690	80	0.056	10
U642	FUSE CARTRIDGE 22x58 gG 6A	690	80	0.056	10
U643	FUSE CARTRIDGE 22x58 gG 8A	690	80	0.056	10
U644	FUSE CARTRIDGE 22x58 gG 10A	690	80	0.056	10
U645	FUSE CARTRIDGE 22x58 gG 12A	690	80	0.056	10
U646	FUSE CARTRIDGE 22x58 gG 16A	690	80	0.056	10
U647	FUSE CARTRIDGE 22x58 gG 20A	690	80	0.056	10
U648	FUSE CARTRIDGE 22x58 gG 25A	690	80	0.056	10
U649	FUSE CARTRIDGE 22x58 gG 32A	690	80	0.056	10
U650	FUSE CARTRIDGE 22x58 gG 40A	690	80	0.056	10
U651	FUSE CARTRIDGE 22x58 gG 50A	690	80	0.056	10
U652	FUSE CARTRIDGE 22x58 gG 63A	690	80	0.056	10
U653	FUSE CARTRIDGE 22x58 gG 80A	500	120	0.056	10
U654	FUSE CARTRIDGE 22x58 gG 100A	500	120	0.056	10
U655	FUSE CARTRIDGE 22x58 gG 125A	400	120	0.056	10

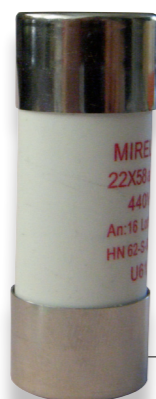
For other fuses, contact us.

# Fuse cartridge AD

## MIRELEC

### Application

These AD fuse cartridges are used together with the circuit-breaker installed on the individual service tap connection. They perform the cutoff for high short-circuit currents and thereby extend the service life of the associated circuit-breaker, which is not overloaded up to the limit.

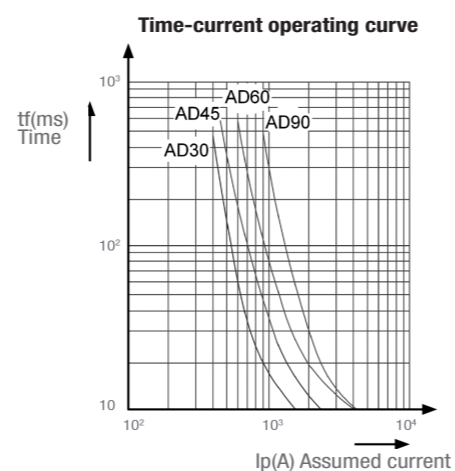


## Cylindrical cartridge

### Description

- This fuse cartridge is available in several sizes: 10.3x38, 14x51 and 22x58mm.
- Many models are available according to the circuit breaker nominal current to which it must be connected: AD 15A, AD 30A, AD 45A, AD 60A and AD 90A.
- Low power loss limits heating of the device holding the fuse and extends its service life.
- It is specified for a nominal voltage of 440V in alternating current with nominal frequency of 50Hz.
- The nominal breaking capacity is 20kA.

This fuse meets the criteria of the **HN62-S-83**, **NF/EN/IEC 60269-1**, **NF HD/IEC 60269-2**, **NF C 60200-1** and **NF C 60200-2** standards.



Code	Designation	Weight (kg)	Sales unit
<b>FUSE CARTRIDGE 10.3x38mm</b>			
U623	FUSE CARTRIDGE 10.3x38 AD 15A	0.009	10
U620	NEUTRAL TUBE 10.3x38	0.012	10
<b>FUSE CARTRIDGE 14x51mm</b>			
U615	FUSE CARTRIDGE 14x51 AD 15A	0.021	10
U616	FUSE CARTRIDGE 14x51 AD 30A	0.021	10
U617	FUSE CARTRIDGE 14x51 AD 45A	0.021	10
U621	NEUTRAL TUBE 14x51	0.016	10
<b>FUSE CARTRIDGE 22x58mm</b>			
U610	FUSE CARTRIDGE 22x58 AD 15A	0.056	10
U611	FUSE CARTRIDGE 22x58 AD 30A	0.056	10
U612	FUSE CARTRIDGE 22x58 AD 45A	0.056	10
U613	FUSE CARTRIDGE 22x58 AD 60A	0.056	10
U614	FUSE CARTRIDGE 22x58 AD 90A	0.056	10
U622	NEUTRAL TUBE 22x58	0.028	10

Note: Other 10.3x38, 14x51, 22x58 fuses can be supplied upon request: please contact us.

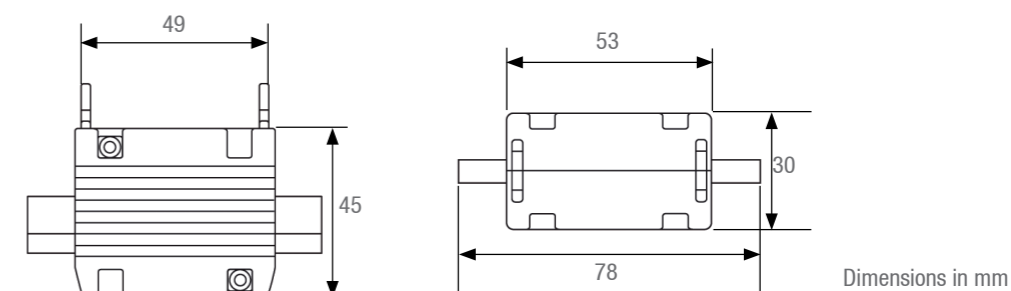


## Fuse cartridge size 00

### Description

- The size of this blade fuse cartridge is 00 according to the **IEC 60269-2-1** standard.
- There are 4 models available according to the nominal current of the circuit-breaker to which it must be connected: AD 30A, AD 45A, AD 60A and AD 90A.
- The fixing brackets are made of insulating synthetic materials.
- The accessible metal parts (screws), with the exception of the blades, are potential free and also have the degree of protection IP2X according to the **NF EN 60529** standard.
- Low power loss limits heating of the device holding the fuse and extends its service life.
- It is specified for a nominal voltage of 440V in alternating current with nominal frequency of 50Hz.
- The nominal breaking capacity is 20kA.

This fuse meets the criteria of the **HN62-S-83** standard.

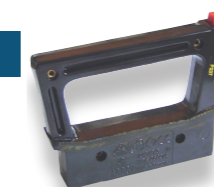


Code	Designation	Resistance to 20°C (μΩ)	Consumption (W)	Blade temperature rise (°K)	Weight (kg)	Sales unit
P241	FUSE CARTRIDGE SIZE 00 AD 30A	1150	1.4	9	0.150	10
P242	FUSE CARTRIDGE SIZE 00 AD 45A	740	2.1	16	0.150	10
P243	FUSE CARTRIDGE SIZE 00 AD 60A	650	3.3	20	0.150	10
P244	FUSE CARTRIDGE SIZE 00 AD 90A	430	5.1	34	0.150	10
P240	NEUTRAL BLADE CONTACT SIZE 00				0.060	10

### Variant: Service connection protection with 100A maximum power

Code	Designation	Weight (kg)	Sales unit
P236	FUSE CARTRIDGE SIZE 00 100A	0.150	10

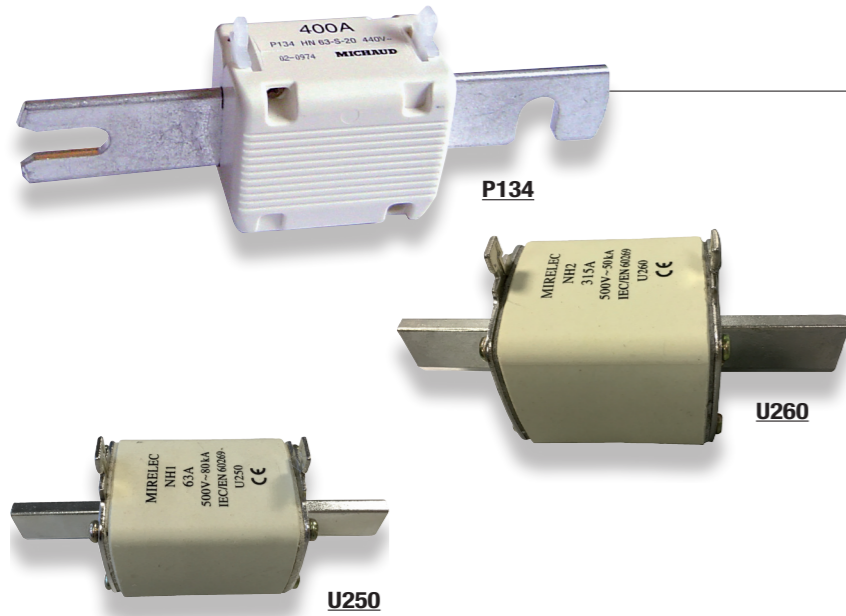
### Accessory



The operating handle is used to install and extract fuses size 00 and size 2 in devices when these are not equipped with an integrated gripping system.

Code	Designation	Weight (kg)	Sales unit
P237	HANDLE FOR FUSES SIZE 00 - SIZE 2	0.260	1

# Fuse cartridge NH1 and NH2



## MIRELEC

### Application

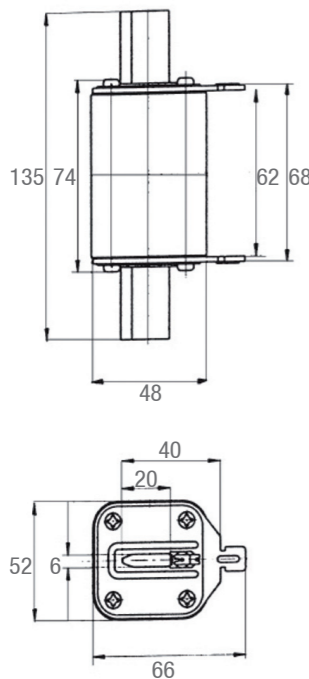
The low voltage fuse cartridge NH1 or NH2 is used as protection unit of the low voltage public electricity supply networks and works. It is installed in:

- Low voltage switchboards of the public electricity supply substations,
- Cutout boxes, inside or outside supply switches,
- Switch cabinets for subsurface networks,
- Metering boxes and cabinets for different uses.

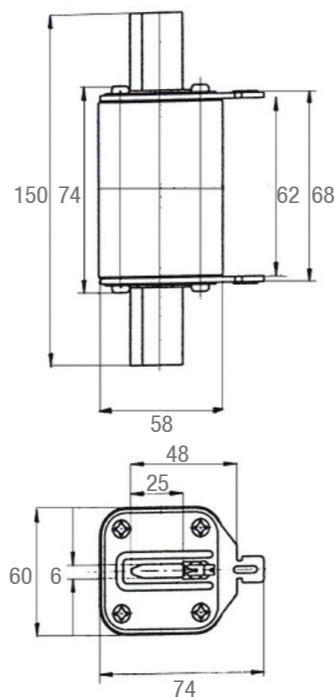
### Description

- The size of this blade fuse cartridge is NH1 or NH2 according to the IEC 269-2-1 standard.
- It is available in several ratings:
  - 63A, 125A, 200A and 250A for NH1 115mm,
  - 250A, 315A and 400A for NH2 115mm,
  - 125A, 200A, 250A and 400A for NH2 160mm.
- It is specified for a nominal voltage of 440V in alternating current with nominal frequency of 50Hz.
- The nominal breaking capacity is 50kA minimum.

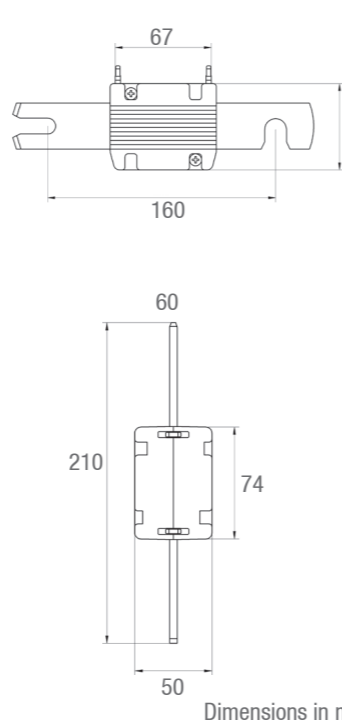
Fuse cartridge NH1 115mm



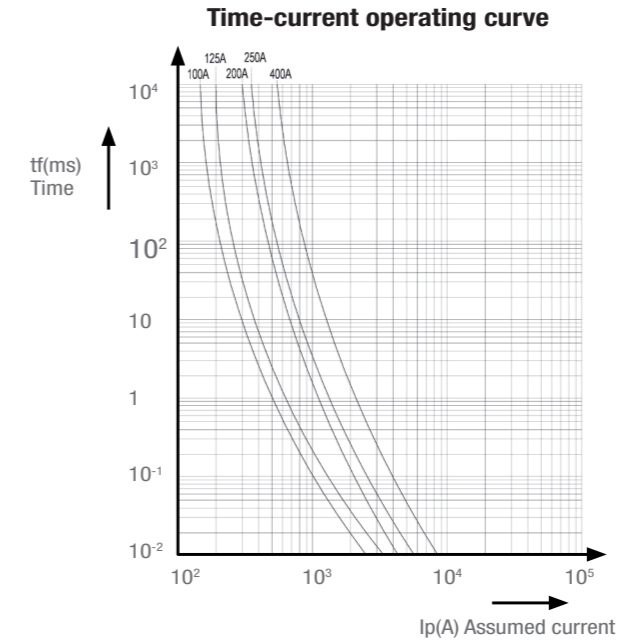
Fuse cartridge NH2 115mm



Fuse cartridge NH2 160mm



Dimensions in mm



Code	Designation	Weight (kg)	Sales unit
<b>FUSE CARTRIDGE NH1 AND NH2 115mm</b>			
U250	FUSE CARTRIDGE NH1 63A 115mm	0.400	3
U253	FUSE CARTRIDGE NH1 125A 115mm	0.400	3
U255	FUSE CARTRIDGE NH1 200A 115mm	0.400	3
U256	FUSE CARTRIDGE NH1 250A 115mm	0.400	3
U259	FUSE CARTRIDGE NH2 250A 115mm	0.650	3
U260	FUSE CARTRIDGE NH2 315A 115mm	0.650	3
U261	FUSE CARTRIDGE NH2 400A 115mm	0.650	3
P238	NEUTRAL BLADE CONTACT NH2 115mm	0.210	1
<b>FUSE CARTRIDGE NH2 160mm</b>			
P130	FUSE CARTRIDGE NH2 125A 160mm	0.780	3
P131	FUSE CARTRIDGE NH2 200A 160mm	0.780	3
P132	FUSE CARTRIDGE NH2 250A 160mm	0.780	3
P134	FUSE CARTRIDGE NH2 400A 160mm	0.780	3
P239	NEUTRAL BLADE CONTACT NH2 160mm	0.290	1

### Accessory



The operating handle is used to install and extract fuses size 00 and size 2 in devices when these are not equipped with an integrated gripping system.

Code	Designation	Weight (kg)	Sales unit
P237	HANDLE FOR FUSES SIZE 00 - SIZE 2	0.260	1

## Web site

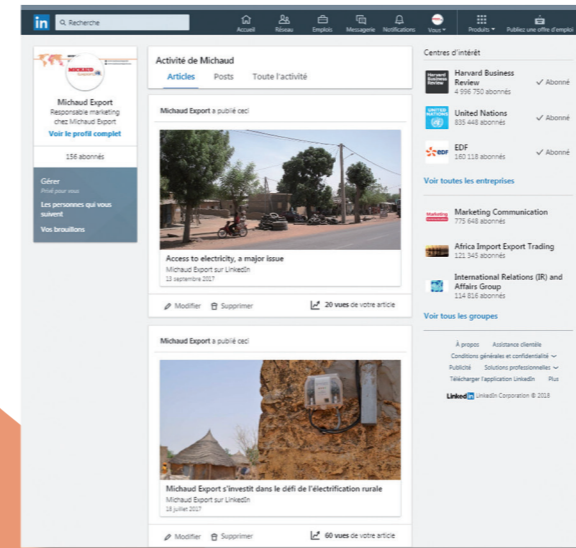
Discover our latest news, catalogues, products range as well as information mediums to assist you in the use of our products.

[www.michaud-export.com](http://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 facilitate 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.

For further information:  
[www.michaud-export.com](http://www.michaud-export.com)



## 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.

### 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 decret 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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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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