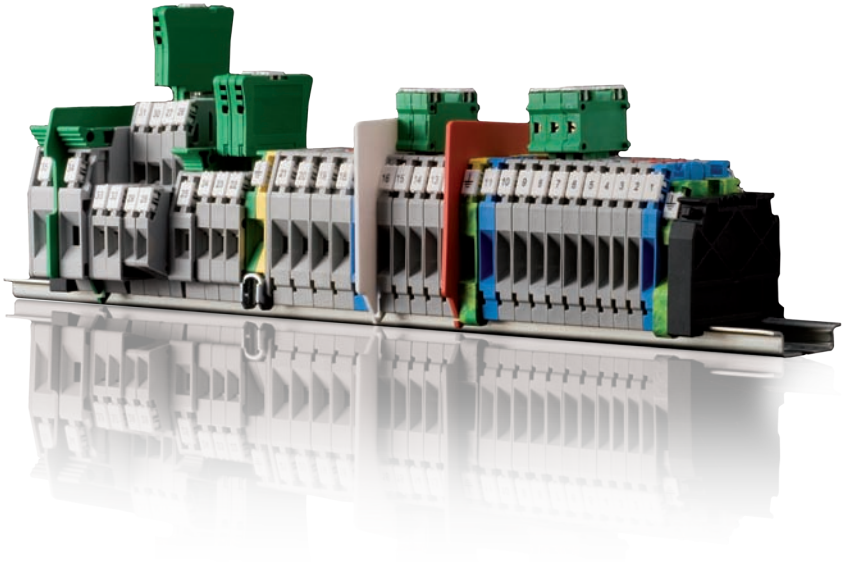
The Company

Cabur was founded in 1952 and shortly thereafter became one of the leading national Manufacturers of terminal blocks for electrical panels, focusing on the needs of the installers and offering state-of-the-art solutions, which have sometimes been used in general applications.
The Company advanced ahead of others by making particularly important qualitative choices regarding the raw materials used for their products and guaranteeing functionality, reliability in time and environmental protection.
All this led to 1985, the year when Cabur achieved the Class 1E Qualification (Equipment for Nuclear Power Generating Stations), ISO 9001 Certification (Quality) and ISO 14001 (Environmental), as well as certification of conformity with the ATEX Directive for "Ex e" installations on the main terminal block lines.

Cabur purchased a new state-of-the-art production facility in 2006, which spreads over an area of 15,000 m^2 in Altare, Province of Savona. Production processes, logistics and business activities have become more focused and efficient as a result of the surface area being doubled and the number of employed personnel substantially increased.

CSQ CERTIFICAZIONE DEI SISTEMI QUALITÀ DELLE AZIENDE
UNI EN-ISO 9001

CSQ IQNet
UNI EN-ISO 14001



Today's vast and diversified production is the optimal synthesis of Cabur's extensive experience deriving from its partnership with major national Organisations and Companies integrated with foreign operations and collaborations. To date, Cabur has developed and manufactured a vast range of products based on their own planning and design processes for the electrical and electronic engineering industries. The products are known to be reliable, even in extreme operating conditions, and are created to meet the various and complex installation requirements as best as possible. Production includes:

- a range of switchboard and panel terminals, designed to meet the fundamental requirements of the most difficult installation conditions
- feeders and electronic products for electrical panels intended for system and machine automation and process control
- a vast selection of connection items for civil installations.

Thanks to a signed agreement with Tyco Electronics, Cabur also distributes HTS multi-pin connectors in the Italian market, which enhance and complete the range of products with hundreds of references for an assortment of highly efficient solutions.

Please register on our website **www.cabur.it** to receive documentation about our products. You can then request all our publications, receive invitations to fairs and exhibitions in which Cabur participates and receive periodic newsletters that we send via e-mail.

Index

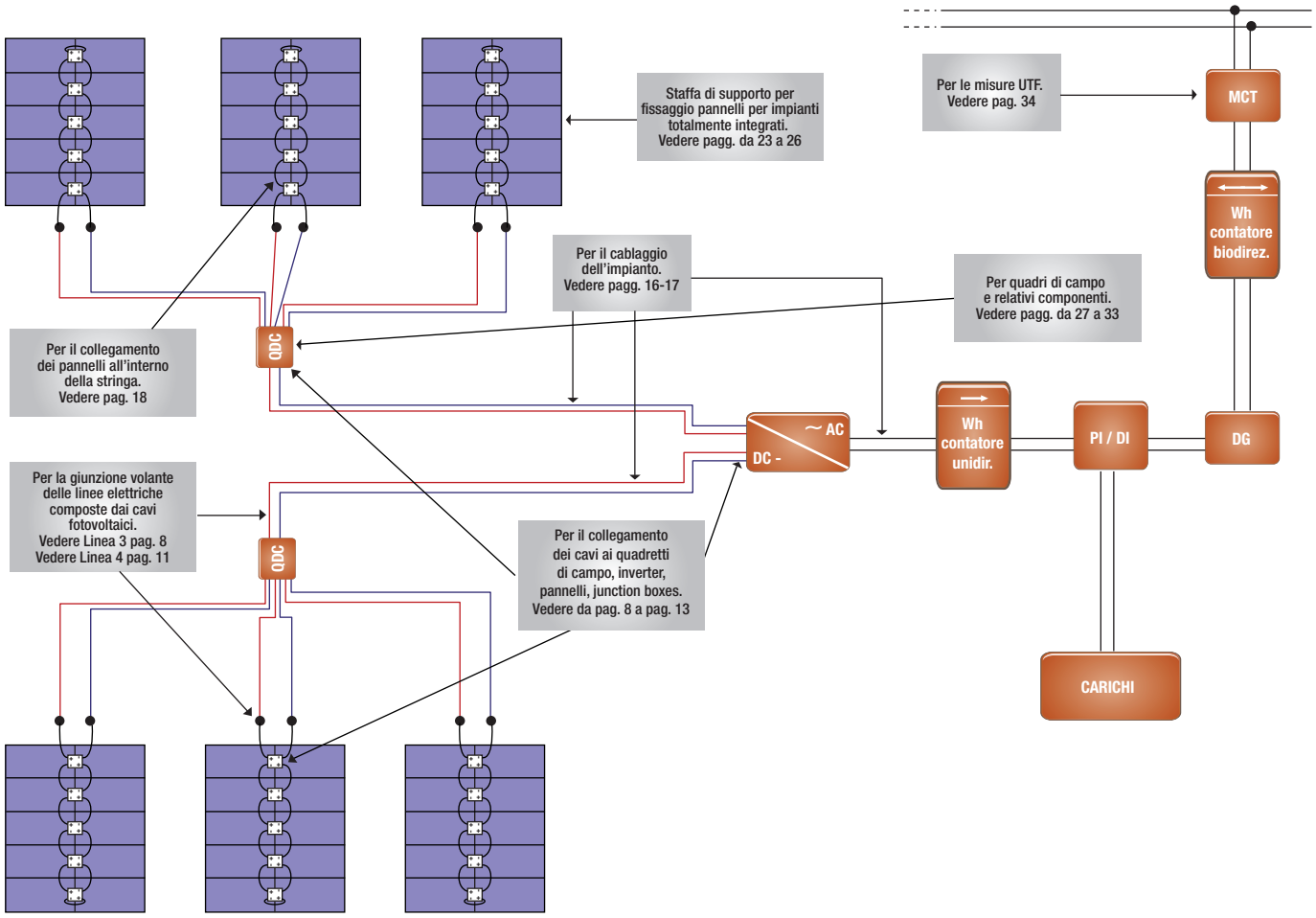
Selecting connection systems is a fundamental factor in determining the system's actual productivity, its efficiency over time and its useful life.
Cabur offers a range of connection solutions that are compliant with the highest standards on the market so as to optimise and guarantee the system's efficiency over time.

When opting for Cabur products, the installer can choose connectors that are suitable for the systems's technical features and specifications of the modules and inverters available on the market or those already installed. Selecting the most appropriate solution is very simple:

- to combine with the more common inverters / junction boxes, Cabur proposes the Cabur Solar series, whereby the connectors are identified by their diameter (3 or 4 mm) in accordance with the names "line3" and "line4".
- for connections with Tyco Electronics inverters / junction boxes, Cabur proposes Solarlok® connectors, of which they are the authorised distributor.

Both product families are excellent for photovoltaic cable junctions and a complete connection set is included, including wires, tools and accessories together with an ideal Kit for a first-time installation.

Moreover, Cabur proposes diodes for photovoltaic strings, switchboards and panel mounting brackets to be used specifically for photovoltaic systems. The following can be added to the list: terminals, surge protectors and control terminal blocks, which have technical features that are also compliant with and optimal for photovoltaic installations.



Cabur Solar connectors are split into two categories or groups: line 3 and line 4 whose number refers to the diameter of the metal contacts (pins), expressed in millimetres.

In turn, these lines are subdivided into movable connectors and male and female panel connectors. Then there are the Y-shaped joints that are useful for other sub-branches of the lines.

Male-female movable connectors of line 3 and line 4

These consist of 4 fundamental parts (figs. 1 and 4):

Fig. 1 - Exploded view of the connector body

1. A metal contact (also called 'pin') that is made of tinned copper and moulded with two flaps that are needed for the ISCS electric cable to be fastened …. this is implemented by means of a crimping method or rather, mechanically, by means of an **IS3153-IS3154** die that is placed in a special **UMCT3149** clamp. This ensures that the mount is secured in accordance with **CEI EN 60352-2**, whereby the flaps are bent on the metal core of the photovoltaic cable (figs. 2 and 3). Perfect insulation of the male metal contact can be further guaranteed when caps **IS51400** and **IS52400** are placed on the connector.

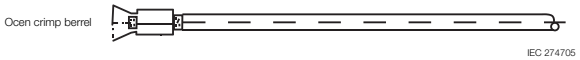


Fig. 2 - Wire crimped on pin

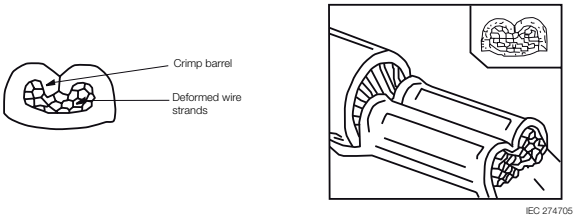


Fig. 3 - Wire crimped on pin

This pin can be either male or female and have a 3 mm or 4 mm diameter. Male pins with a 3 mm diameter had to have a cap applied so as to insulate the head in order to guarantee an **IP20** degree of insulation as the pin emerges too far out from the connector cavity and would not comply with **CEI EN 60529** when subjected to the test finger. Contrarily, the 4 mm male pins do not have such an insulating cap as the pin remains deep inside the insulating cavity of the connector (refer to fig. 4).

2. A rubber seal helps keep the internal parts of the connector waterproofed by tightening the insulating sheath of the electrical cable and preventing external agents, such as humidity, dust, oil, etc., from entering.
3. A ring nut made of rigid PPO plastic with a conical cavity. When this is tightened on to the main body of the connector, it forces the thin plates to move closer towards each other, which in turn press the rubber sheath against the cable insulation and in doing so, guarantee an **IP67** degree of protection, in accordance with the Technical Standard, **CEI EN 60529**.

Fig. 4 - Series 3 pins (on the right) and series 4 pins (on the left)

4. The metal pin crimped on the wire is housed in the main body made of PPO plastic. The male connector houses the male metal contact (pin), whereas the female connector houses the female metal contact (pin). As is the norm in any electromechanical junction, the male pin enters the female pin, however, the contrary occurs with the plastic connector, i.e. the insulating casing, as the female enters the male. For this reason, the outer surface of the line 3 female connector has two red rubber rings that serve as an insulation seal so as to prevent external agents from entering. Similarly, the line 4 female connector also has a red rubber ring that serves the same purpose. Two rings have been used for the line 3 connector as this is shorter and therefore, more exposed to the elements. Contrarily, only one ring has been used for line 4 as this sets deeper inside the male and therefore, is more protected against the elements.

Male and female connectors are mechanically coupled thanks to two elastic flaps that have an anchored point. These are placed on the female connectors, which enter the relative slots on the insulating body of the male connectors. All this is rigidly and securely connected for there to be no possibility at all for the two connectors to accidentally become uncoupled, which would disconnect the power deriving from the photovoltaic field. The connectors can only be uncoupled

by applying pressure with your fingers on the two male flaps simultaneously and pulling in order for the female body to emerge from the male body. This must be done manually, without using any tools.

Line 3 and Line 4 male-female panel connectors

These consist of 3 parts (figure 5):

1. A metal contact that is identical to a movable pin.
2. A main body made of **PPO** plastic that houses the metal pin crimped on the cable, which in turn has a red rubber ring that lies between the surface of the connector and the wall of the box or sheet metal, depending where the connector is installed. This ring creates a tight seal between the connector and the panel so as to protect both by preventing the external elements from entering, thus guaranteeing an **IP67** degree of protection, in accordance with CEI EN 60529. The insulating ring is compressed by tightening the relative panel fastening hexagonal nut. Male movable connectors and female panel connectors are coupled as described earlier on for movable-movable connections.
   All this is rigidly and securely connected for there to be no possibility at all for the two connectors to accidentally become uncoupled, which would disconnect the power deriving from the photovoltaic field. The connectors can only be uncoupled by applying pressure with your fingers on the two male flaps simultaneously and pulling in order for the female body to emerge from the male body.
3. A fastening hexagonal nut that blocks the connector against the surface of the panel plate. These connectors are made of plastic so the nut does not need to be tightened too tightly as the thread would *strip* immediately.

Fig. 5 - Exploded view of the connector body

Our Line 3 and Line 4 movable connectors are TÜV certified.

Three steps to be connected

1

Insert the stripped wire into the contact that is to be crimped - and CRIMP -

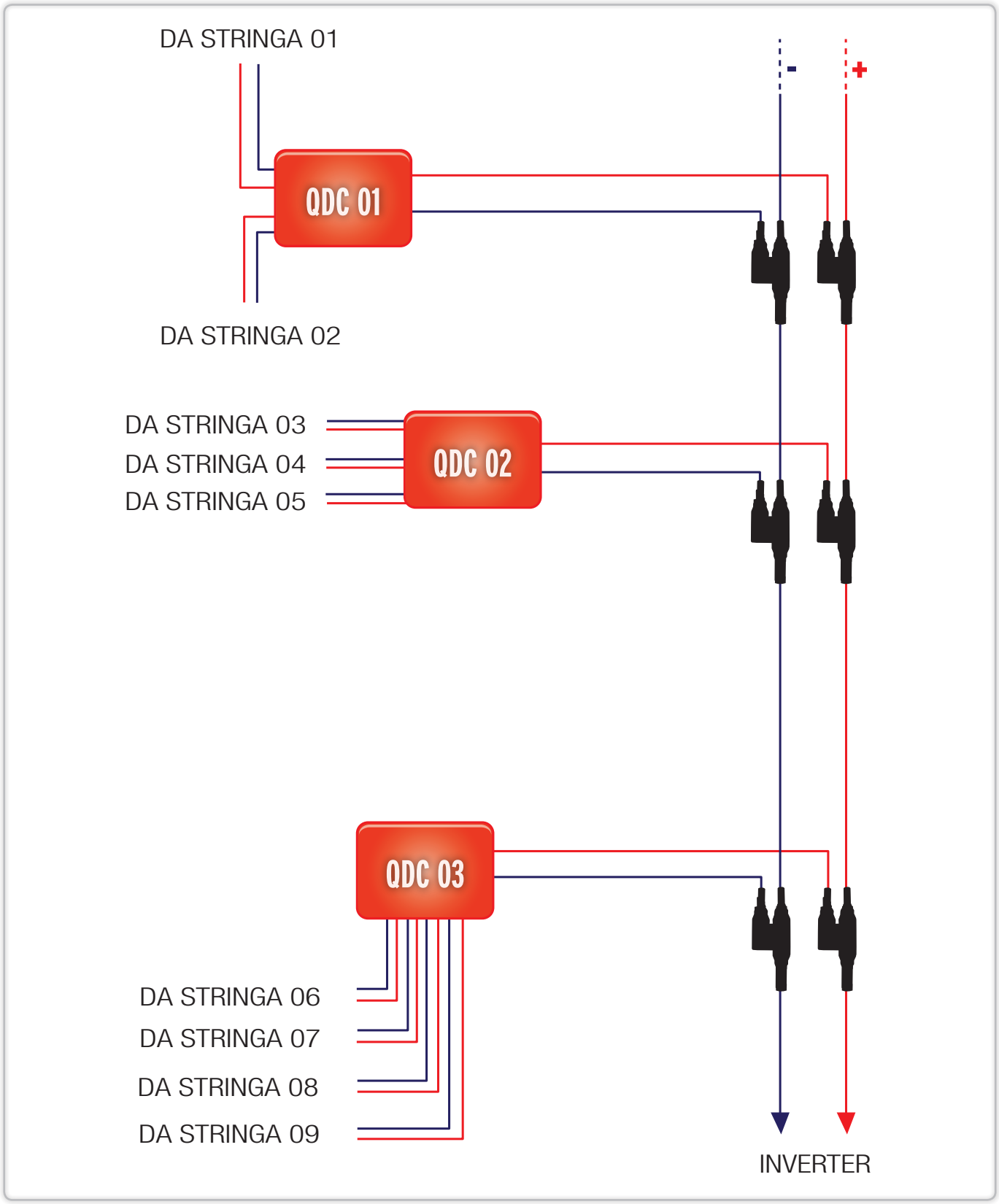
2

Insert the wire complete with the contact in the connector, then push vigorously ensuring you hear the CLICK that means the plastic and metal parts have been coupled. No junctions are to be implemented unless you are absolutely certainty that the plastic and metal parts have coupled.

3

Manually tighten the cable gland ring nut until the stop limit is reached to guarantee IP67

An example of a Y-shaped joint connection



Technical Data:

Pin size: Ø 3 mm
Cable cross-section: ranging from 1.5 mm² to 6.0 mm²
Maximum voltage: 1000 V DC
Maximum current: 25 A at 70 °C - 20 A at 85 °C
Contact resistance: < 5m Ohm

Materials:

Contact material: Cu
Covering: Tinned
Insulation: PPO

Environmental conditions:

Degree of protection: IP67 (IEC 60529)
Temperature range: -40 °C +90 °C
Flammability class: UL94-V0

Male Female Male Female

LINE 3 panel/inverter connector

TÜV pending

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS13110	KXMC03MPAN	Male panel/inverter connector for contacts ranging from 1.5 mm² to 4 mm²	100
IS13112	KXMC03MPAN	Male panel/inverter connector for contacts ranging from 4 mm² to 6 mm²	100
IS23111	KXMC03FPAN	Female panel/inverter connector for contacts ranging from 1.5 mm² to 4 mm²	100
IS23113	KYMC03FPAN	Female panel/inverter connector for contacts ranging from 4 mm² to 6 mm²	100

N.B.: It is recommended to use a specific crimper, which may be chosen from the tools shown on pages 14 and 15, for crimped contacts that have a 3 mm diameter on a cable with a cross-section of 6 mm². 14 and 15

Male Female Male Female

LINE 3 movable connector

TÜV certified

Suitable for a Cabur on Cabur connection

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS13240	KXMC03M1540	Male movable connector for contacts ranging from 1.5 mm² to 4 mm²	100
IS13242	KYMC03M4060	Male movable connector for contacts ranging from 4 mm² to 6 mm²	100
IS23241	KXMC03F1540	Female movable connector for contacts ranging from 1.5 mm² to 4 mm²	100
IS23243	KYMC03F4060	Female movable connector for contacts ranging from 4 mm² to 6 mm²	100

N.B.: It is recommended to use a specific crimper, which may be chosen from the tools shown on pages 14 and 15, for crimped contacts that have a 3 mm diameter on a cable with a cross-section of 6 mm². 14 and 15

Connectors with rolls of contacts come in packs of 1,000 pieces.

To place an order: add 'PR' to the actual code (pin roll)
E.g.: **IS13110PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for panels/inverters
E.g.: **IS13240PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for movable connectors
E.g.: **IS15240PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for movable connectors with holding hooks

Technical Data:

Pin size: Ø 3 mm

Cable cross-section: ranging from 1.5 mm² to 4.0 mm²

Maximum voltage: 1000 V DC

Maximum current: 25 A at 70 °C - 20 A at 85 °C

Contact resistance: < 5m Ohm

Materials:

Contact material: Cu

Covering: Tinned

Insulation: PPO

Environmental conditions:

Degree of protection: IP67 (IEC 60529)

Temperature range: -40 °C +90 °C

Flammability class: UL94-V0

Male Female Male Female

LINE 3 connector with holding hook

TÜV pending

To be used with junction box output connectors that are not Cabur

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS15240	KXMC03MG1540	Male movable connector with a holding hook for contacts ranging from 1.5 mm² to 4 mm²	100
IS15242	KYMC03MG4060	Male movable connector with a holding hook for contacts ranging from 4 mm² to 6 mm²	100
IS25241	KXMC03FG1540	Female movable connector with a holding hook for contacts ranging from 1.5 mm² to 4 mm²	100
IS25243	KYMC03FG4060	Female movable connector with a holding hook for contacts ranging from 1.5 mm² to 4 mm²	100

N.B.: it is recommended to use a specific crimper, which may be chosen from the tools shown on pages 14 and 15, for crimped contacts that have a 3 mm diameter on a cable with a cross-section of 6 mm² 14 and 15

LINE 3 Y-shaped connector

TÜV pending

Also called Y-shaped junctions. These have one inlet and two outlets that are mainly used to connect the entire string of photovoltaic panels to a single collection line that conveys all the current to the inverter.

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS41310	KXMC03YMFF	Male/female-female Y-shaped connector for contacts with a cross-section ranging from 1.5 mm² to 4 mm²	30
IS42320	KXMC03YFMM	Female/male-male Y-shaped connector for contacts with a cross-section ranging from 1.5 mm² to 4 mm²	30

Connectors with rolls of contacts come in packs of 1,000 pieces.

To place an order: add 'PR' to the actual code (pin roll)

E.g.: **IS13110PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for panels/inverters

E.g.: **IS13240PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for movable connectors

E.g.: **IS15240PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for movable connectors with holding hooks

Kit 03 consists of connectors for contacts having a 3 mm ∅ and a cross-section of 4 mm² and accessories that are suitable for a first-time installation.
The Kit can be gradually supplemented with missing references.
Hereunder are the codes and serial number of the parts contained in the toolbox.

LINE 3 FIRST-TIME INSTALLATION KIT

CODE	SERIAL NUMBER	DESCRIPTION	NO. OF KITS
ISKIT03	SUNKIT03	**Line 3 First-time installation kit packaged in a professional toolbox**	1
		Kit composition:	
	KXMC03MG4000	Male connector with 3 mm holding hook for contacts with a 4 mm² cross-section	20
	KXMC03FG4000	Female connector with 3 mm holding hook for contacts with a 4 mm² cross-section	20
	KXMC03MPAN	Male panel connector with a 3 mm diameter for contacts with a 4 mm² cross-section	10
	KXMC03FPAN	Female panel connector with a 3 mm diameter for contacts with a 4 mm² cross-section	10
	KXMC03YMFF	Male/female-female Y-shaped connector with a 3 mm diameter for contacts with a cross-section ranging from 1.5 to 4 mm²	5
	KXMC03YFMM	Female/male-male Y-shaped connector with a 3 mm diameter for contacts with a cross-section ranging from 1.5 to 4mm²	5
	UMCT	CRIMPER	1
	KXM30	DIE FOR CONTACTS	1

Technical Data:

Pin size: Ø 4 mm

Cable cross-section: ranging from 1.5 mm² to 6.0 mm²

Maximum voltage: 1000 V DC

Maximum current: 30 A at 70 °C - 25 A at 85 °C

Maximum TÜV current: 25 A

Contact resistance: < 5m Ohm

Materials:

Contact material: Cu

Covering: Tinned

Insulation: PPO

Environmental conditions:

Degree of protection: IP67 (IEC 60529)

Temperature range: -40 °C +90 °C

Flammability class: UL94-V0

Male Female Male Female

LINE 4 panel/inverter connector

TÜV pending

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS14110	KXMC04MPAN	Male panel/inverter connector for contacts ranging from 2.5 mm² to 6 mm²	100
IS24111	KXF04AN1560	Female panel/inverter connector for contacts ranging from 2.5 mm² to 6 mm²	100
IS14109	KYMC04MPAN	Male panel/inverter connectors for contacts with a cross-section ranging from 1.5 mm ² to 2.5 mm²	100
IS24110	KYMC04FPAN	Female panel/inverter connectors for contacts with a cross-section ranging from 1.5 mm ² to 2.5 mm²	100

Male Female Male Female

LINE 4 movable connector

TÜV certified

Suitable for a Cabur on Cabur connection

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS14240	KXMC4M1560	Male movable connector for contacts ranging from 2.5 mm² to 6 mm²	100
IS24241	KXMC4F1560	Female movable connector for contacts ranging from 2.5 mm² to 6 mm²	100
IS14239	KYMC04M1525	Male movable connectors for contacts with a cross-section ranging from 1.5 mm ² to 2.5 mm²	100
IS24240	KYMC04F1525	Female movable connector for contacts with a cross-section ranging from 1.5 mm² to 2.5 mm²	100

Connectors with rolls of contacts come in packs of 1,000 pieces.

To place an order: add 'PR' to the actual code (pin roll)

E.g.: **IS14110PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for panels/inverters

E.g.: **IS14240PR** = a roll of 1000 male contacts complete with 1000 male plastic parts for movable connectors

Technical Data:

Pin size: Ø 4 mm
Cable cross-section: ranging from 1.5 mm² to 6.0 mm²
Maximum voltage: 1000 V DC
Maximum current: 30 A at 70 °C - 25 A at 85 °C
Contact resistance: < 5m Ohm

Materials:

Contact material: Cu
Covering: Tinned
Insulation: PPO

Environmental conditions:

Degree of protection: IP67 (IEC 60529)
Temperature range: -40 °C +90 °C
Flammability class: UL94-V0

LINE 4 Y-shaped connector

TÜV pending

Also called Y-shaped junctions. These have one inlet and two outlets that are mainly used to connect the entire string of photovoltaic panels to a single collection line that conveys all the current to the inverter.

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS41410	KXMC04YMFF	Male/female-female Y-shaped connector for contacts with a cross-section ranging from 1.5 mm² to 6 mm²	30
IS42420	KXMC04YFMM	Female/male-male Y-shaped connector for contacts with a cross-section ranging from 1.5 mm² to 6 mm²	30

LINE 4 Connector cap

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS51400	KXCSLTAF	Female connector cap	50
IS52400	KXCSLTAM	Male connector cap	50

Kit 04 consists of connectors for contacts having a 4 mm ∅and a cross-section ranging from 4 to 6 mm² and accessories that are suitable for a first-time installation.
The Kit can be gradually supplemented with missing references.
Hereunder are the codes and serial number of the parts contained in the toolbox.

LINE 4 FIRST-TIME INSTALLATION KIT

CODE	SERIAL NUMBER	DESCRIPTION	NO. OF KITS
ISKIT04	SUNKIT04	**Line 4 First-time installation kit packaged in a professional toolbox**	1
		Kit composition:	
	KXMC04M2560	Male connector with a 4 mm diameter for contacts with a cross-section ranging from 2.5 to 6 mm²	20
	KXMC04F2560	Female connector with a 4 mm diameter for contacts with a cross-section ranging from 2.5 to 6 mm²	20
	KXMC04MPAN	Male panel connector with a 4 mm diameter for contacts with a cross-section ranging from 2.5 to 6 mm²	10
	KXMC04FPAN	Female panel connector with a 4 mm diameter for contacts with a cross-section ranging from 2.5 to 6 mm²	10
	KXMC04YMFF	Male/female-female Y-shaped connector with a 4 mm diameter for contacts with a cross-section ranging from 1.5 to 6 mm²	5
	KXMC04YFMM	Female/male-male Y-shaped connector with a 4 mm diameter for contacts with a cross-section ranging from 1.5 to 6 mm²	5
	UMCT	CRIMPER	1
	KXM40206	DIE FOR CONTACTS	1

A complete range of tools

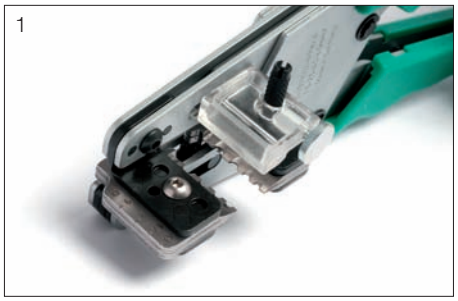
CODE	SERIAL NUMBER	DESCRIPTION	PIECES PER PACK
IS31579002	KXCSLSPE	Cabur Wire Stripper	1

Stripping

Even though this may be seem trivial, it actually presents some pitfalls. In fact, a special wire stripper must be used - other types of tools and especially electrician's scissors must never be used, as the double coating of the wires misleads the scissors even if the user is highly skilled in shearing strands.

- Our wire stripper (refer to picture 1) works like a guillotine and wires of various cross-sections can be rapidly and safely stripped due to the various grooves.
- The tool is sturdy and solid, therefore, it can be used thousands of times and can also be used to strip other wires.
- It cuts both coatings of the photovoltaic wire simultaneously and with precision (picture 2).
- A movable and adjustable pointer lets you set the stripping length with precision (picture 1).
- The blades slide parallel to the wire, for the cut sheathing to be ejected (picture 3).
- The Technical Standard CEI EN 60352-2 (Crimped connections – General requirements, test methods and practical guidance) allows a stripping length of about 8 mm for our Line 3 and Line 4 pins.
- The blades exert a defined cutting pressure due to the triggered mechanism that protects the strands.

1



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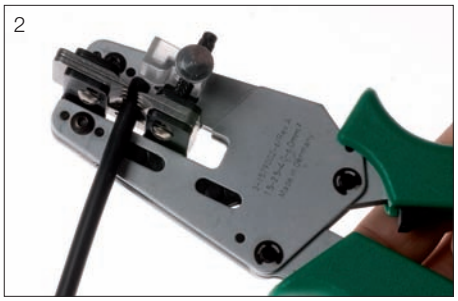

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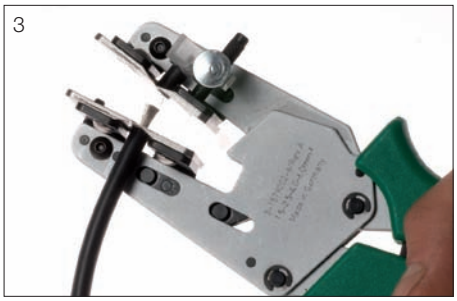


CODE	SERIAL NUMBER	DESCRIPTION	PIECES PER PACK
IS3151	KXCRI0406	Crimper complete with a die ranging from 1.5 to 6 mm^2	1

The IS3151 standard clamp is a particularly suitable tool for photovoltaic connectors that are to be crimped in a simple and quick process. Unlike the UMCT3149, which is equipped with IS3150-IS3153-IS3154 dies, it does not have the pointer and the die is fixed. It is ideally used in standard processes on small-sized systems.

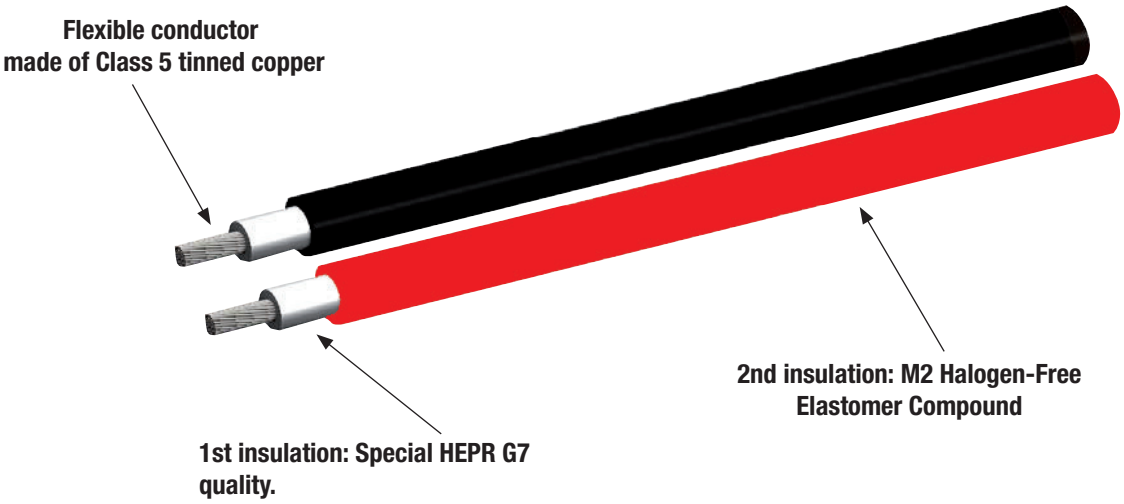
CODE	SERIAL NUMBER	DESCRIPTION	PIECES PER PACK
UMCT3149	UMCT	Crimper	1
IS3153	IS3153	Die for contacts ranging from 2.5 mm² to 6 mm² for Line 3	1
IS3154	IS3154	Die for contacts ranging from 2.5 mm² to 6 mm² for Line 4	1

The **UMCT3149 crimper** is designed for photovoltaic high precision crimping and therefore has a lateral locator that ensures the pin lies in the correct position. The locator is screwed to all the dies and can be removed, if necessary.
The shape of the slots guarantees highly effective crimping, however, since it is a professional tool it is not easy to use like the **IS3151** and therefore, the picture instructions below are to be followed.
Thanks to the interchangeability of the dies, **UMCT3149** can also be used to crimp eyelets, prongs, push rods and other useful wire terminals for the normal wiring process of switchboards and automation. Take note of the details shown on the die: the lower half displays the wire cross-sections, whereas the upper half displays the diameters of the pins, hence one can understand in which hollow part the pin is to be inserted for each contact.
Each die allows a specific crimping process. We will now see each of them.

Only Line 3 pins can be crimped with die **IS3153**, however, all cross-sections can be used as follows: the first hollow part on the right for the wire with a 2.5 mm² cross-section. The second hollow part at the centre for the wire with a 4 mm² cross-section. The third hollow part on the left for the wire with a 6 mm² cross-section.
Only Line 4 pins can be crimped with die **IS3154**, however, all cross-sections can be used as follows: the first hollow part on the right for the wire with a 2.5 mm² cross-section. The second hollow part at the centre for the wire with a 4 mm² cross-section. The third hollow part on the left for the wire with a 6 mm² cross-section.

How to replace the die

Open the clamp to the maximum (fig. 1) – Slowly move the two levers of the clamp towards each other for three lock/unlock clicks (fig. 1) – Observe the locking pin on the die (fig. 2) – Insert the die by drawing the locking pin into the clamp compartment (fig. 2) – Ensure that the plastic tooth has blocked the die, i.e. it has gone up (fig. 3) – Close the two levers of the clamp to the maximum (fig. 4) – Release the handles; the clamp should automatically re-open completely (fig. 5) – When closing the clamp, should you realise that the crimp has not been successful or the clamp blocks for any reason, this can be released by closing and opening the handles whilst pressing the release lever on the inner part of the handle with your thumb.



General Description:

Unipolar wire with a flexible conductor made of Class 5 tinned copper.

First insulation - special HEPR G7 quality.

Second insulation - M2 Halogen-Free Elastomer Compound.

Specific for Photovoltaic systems that have a rated voltage equivalent to U o/U600/1000V in alternating current and no more than 1500V in direct current. It is flame retardant, halogen-free and designed for a minimum useful life of 25 years. Resistant to UV rays, water, the ozone, salt and atmospheric fluid in general.

Standard colours are Black and Red.

Technical features:

Continuous operating temperature: -40° +90

Maximum operating temperature: + 120 °C

Minimum operating temperature: -40 °C

Peak temperature: 250

Durability: 25 years*

Test voltage: 5 Kv

Minimum bend radius: 6 times the outer diameter.

Tensile strength: 50 N/mm²

Standard colours: Black, Red.

Approval:

IMQ

TÜV pending

* Provided that the temperature of the metal core never exceeds 90 °C.

CODE	SERIAL NUMBER	DESCRIPTION	WEIGHT Kg/Km
ISCS04400	KXCSOL4N400	4 mm² Black Wire. 400 mt bobbin.	62
ISCS04401	KXCSOL4R400	4 mm² Red Wire. 400 mt bobbin.	62
ISCS06300	KXCSOL6N300	6 mm² Black Wire. 300 mt bobbin.	85
ISCS06301	KXCSOL6R300	6 mm² Red Wire. 300 mt bobbin.	85
ISCS10200	KXCSOL10N200	10 mm² Black Wire. 200 mt bobbin.	135
ISCS10201	KXCSOL10R200	10 mm² Red Wire. 200 mt bobbin.	135
ISCS04100	KXCSOL4N100	4 mm² Black Wire. 100 mt coil.	62
ISCS06100	KXCSOL6N100	6 mm² Black Wire. 100 mt coil.	85
ISCS04101	KXCSOL4R100	4 mm² Red Wire. 100 mt coil.	62
ISCS06101	KXCSOL6R100	6 mm² Red Wire. 100 mt coil.	85

Various lengths can be bought, even different from those listed

Wire is available in black or red up to a cross-section of 240 mm².
For further details please contact Cabur srl

Laboratory tests implemented by IMQ for the photovoltaic wiring to be certified

Electrical tests	
Electrical resistance of the conductor	EN 50395 Art. 5
Voltage test of complete wires	EN 50395 Art. 6
No insulation leakage	EN 50395 Art. 10
Surface resistance of the sheath	EN 50395 Art. 11
Insulation resistance on a complete wire	CEI 20-13 Art. 3.2.03
– at 20 °C	
– at 90	
Direct current stability	EN 50305 Art. 6.7
Verification of the design and dimensional regulations	
Verification of compliance	Visual Inspection
design	and manual tests
Measurement of insulation thickness	EN 50396 Art. 4.1
Measurement of sheath thickness	EN 50396 Art. 4.2
Measurement of outer dimensions:	EN 50396 Art. 4.4
– average value	
– ovality	
Mechanical insulation properties	
Tensile resistance testing prior to aging	EN 60811-1-1
Tensile resistance testing after aging	EN 60811-1-2
Heat-stretching	EN 60811-2-1
Water absorption test	EN 60811-1-3

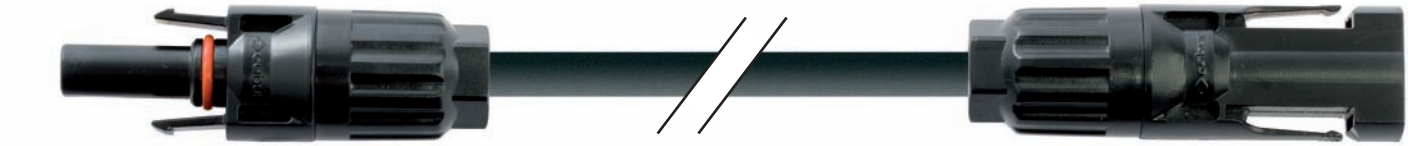
Mechanical properties of the sheath	
Tensile resistance testing prior to aging	EN 60811-1-1
Tensile resistance testing after aging	EN 60811-1-2
Heat-stretching	EN 60811-2-1
Water absorption test	EN 60811-1-3
Compatibility test	EN 60811-1-2
Low temperature tests	
Sheath bending test	EN 60811-1-4 Art. 8.1
Sheath stretching test	EN 60811-1-4 Art. 8.2
Impact resistance test	EN 60811-1-4 Art. 8.5
Ozone resistance test	EN 50395 Art. 8.1.3
UV resistance test	HD 605/A1 Art. 2.4.20
Reaction to fire	CEI 20-35/1-2
Halogen Evaluation	
Hcl Quantitative Determination	CEI 20-37/2-1
Determination of Corrosivity of Gases	CEI 20-37/2-2

No. of conductors per nominal cross-section (mm²)	Current capacity allowed at 90° (A)	Nominal outer diameter nominal (mm)	Maximum outer diameter maximum (mm)	Maximum electrical resistance maximum (Ω/Km)
1 x 4	55	5.5	6.2	5.09
1 x 6	70	6.3	6.9	3.39
1 x 10	95	7.5	8.2	1.95

Pre-wired cables

Cabur offers a variety of solutions to connect the string of panels. These solutions consist of Line 3 and Line 4 movable connectors on 4 mm² or 6 mm² wires that can be either black or red in colour (refer to the table below).

We have singled out the most common wiring solutions, however we can supply any other that requires a particular cross-section, colour, length and type of end connector and the quantity required. Please contact our Sales Department should you wish a different configuration.



To request custom pre-wired cables, use the table below to create the code as explained in the instructions

IS	XXX	XXNR	YYY	XXX

ES: ISVGF304N020VM4

Description: 4 mm² black wire, 0.20 mt long, headed with a Line 3 movable connector with female hook and a Line 4 male movable connector

M/F Connector Code
- V = Movable
- VG = Movable with holding hook
- P = Panel
- Y = Y-shaped junctions
- L3 = Cabur Solar Line 3
- L4 = Cabur Solar Line 4
- M = Male
- F = Female

Length of wire in centimetres
- YYY = Length of wire in centimetres

Wire cross-section 4 or 6 mm² XX
- 00 = Wire cross-section
- N = Black coloured wire
- R = Red coloured wire

Connector Code XXX
- V = Movable
- VG = Movable with holding hook
- P = Panel
- Y = Y-shaped junctions
- 3 = Cabur Solar Line 3
- 4 = Cabur Solar Line 4
- M = Male
- F = Female

Code
- IS = Solar Installation

The Solarlok® connection

Solarlok® items form a flexible system that easily creates reliable interconnections between the photovoltaic modules and the inverter. The entire concept is based on reliable and efficient management of the individual components of the interconnecting system.

The polarised lock, the turned and silvered crimp contacts and the pressure release connection system all guarantee a safe junction. Moreover, these products gain greater robustness and reliability due to the vast range of operating temperatures that can be used and compliance with international standards for photovoltaic connection systems.

Apart from the 4 and 6 mm^2 connectors and the 4 and 6 mm^2 wires in 100 m or 500 m bobbins, the Cabur package includes crimp clamps, wire strippers, contact extractors and a first-time installation KIT, complete with all the necessary accessories for photovoltaic connections.






Tyco Electronics
Authorized Distributor

Y-shaped Connectors

CODE	SERIAL NUMBER	DESCRIPTION	CROSS-SECTION (mm^2)	POLARITY	COLOUR	Q. per PACK
IS101534611	KXSUNPOSSMM	Y-shaped Connector Male / Male - Male	4.0 - 6.0	Positive	Red	10
IS201534611	KXSUNNEGSMM	Y-shaped Connector Male / Male - Male	4.0 - 6.0	Negative	Blue	10

CODE	SERIAL NUMBER	DESCRIPTION	CROSS-SECTION (mm^2)	POLARITY	COLOUR	Q. per PACK
IS101740277	KXSUNPOSPFM	Y-shaped Connector Female / Male - Male	4.0 - 6.0	Negative	Blue	10
IS201740277	KXSUNNEGPFM	Y-shaped Connector Female / Male - Male	4.0 - 6.0	Negative	Blue	10

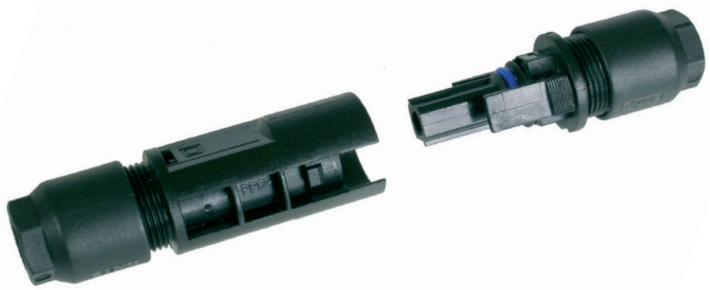
Hook

CODE	SERIAL NUMBER	DESCRIPTION	Q. per PACK
IS101534226	KXSUNGR	Holding hook	10

Solarlok ® connectors

General features:

Safe junction by means of coded spanners
Multiple connection and disconnection cycles
Wide range of operating temperatures -40 °C < T < +90 °C
TÜV and UL approved
1000 Vdc Continuous voltage
Direct current 25A
IP67 Degree of Protection



Tyco Electronics
Authorized Distributor

Connectors

CODE	SERIAL NUMBER	DESCRIPTION	CROSS-SECTION (mm²)	POLARITY	COLOUR	Q. per PACK
IS401394462	KXSUN04FPNEG	Female Connector	4.0	Negative	Blue	10
IS301394462	KXSUN04FPPOS	Female Connector	4.0	Positive	Red	10
IS401394461	KXSUN04MPNEG	Male Connector	4.0	Negative	Blue	10
IS301394461	KXSUN04MPPOS	Male Connector	4.0	Positive	Red	10
IS551394462	KXSUN06FPPOS	Female Connector	6.0	Positive	Red	10
IS651394462	KXSUN06FPNEG	Female Connector	6.0	Negative	Blue	10
IS651394461	KXSUN06MPPOS	Male Connector	6.0	Positive	Red	10
IS661394461	KXSUN06MPNEG	Male Connector	6.0	Negative	Blue	10

CODE	SERIAL NUMBER	DESCRIPTION	CROSS-SECTION (mm²)	POLARITY	COLOUR	Q. per PACK
IS261394461	KXSUN04MPNEU	Male Connector	4.0	Neutral		10
IS461394461	KXSUN06MPNEU	Male Connector	6.0	Neutral		10

CODE	SERIAL NUMBER	DESCRIPTION	CROSS-SECTION (mm²)	POLARITY	COLOUR	Q. per PACK
IS301394738	KXSUNDCAC4POS	Male panel connector	4.0	Positive	Red	10
IS401394738	KXSUNNEGPFM	Male panel connector	4.0	Negative	Blue	10

Solarlok ® Wires

Upon request. Delivery time frames: 30 working days from the order date, unless available in stock

Tyco Electronics
Authorized Distributor

General features:

Tested durability: 35 years

Double-walled insulation

Maximum temperature tolerated by the insulation coating: 122

Resistant to UV rays, water, the ozone, salt and atmospheric fluid in general.

Resistant to abrasion

Fireproof, halogen-free plastic that has low flame toxicity

Excellent flexibility and stripping characteristics

Operating temperature -40 < T < +110 °C

Maximum applicable voltage: 1000 Vdc

Maximum temperature of the metal core: 110 °C up to 20,000 hours of continuous operation

Compliant with IEC 60228 Class 5 (tinned, flexible copper wire)

TÜV approved

CODE	SERIAL NUMBER	DESCRIPTION	COLOUR	CROSS-SECTION (mm²)	LENGTH BOBBIN (m)
IS110956298	KXSUNC04N100M	Wire	Black	4.0	100
IS100956298	KXSUNC04N500M	Wire	Black	4.0	500
IS210956298	KXSUNC04R100M	Wire	Red	4.0	100
IS200956298	KXSUNC04R500M	Wire	Red	4.0	500
IS310956298	KXSUNC04B100M	Wire	Blue	4.0	100
IS300956298	KXSUNC04B500M	Wire	Blue	4.0	500
IS110956299	KXSUNC06N100M	Wire	Black	6.0	100
IS100956299	KXSUNC06N500M	Wire	Black	6.0	500
IS210956299	KXSUNC06R100M	Wire	Red	6.0	100
IS200956299	KXSUNC06R500M	Wire	Red	6.0	500
IS310956299	KXSUNC06B100M	Wire	Blue	6.0	100
IS300956299	KXSUNC06B500M	Wire	Blue	6.0	500

Solarlok® Tools and Kits

Suitable clamp for crimped, silvered contacts
Extractor for contacts
Clamp Wire Stripper

Tyco Electronics
Authorized Distributor

CODE	SERIAL NUMBER	DESCRIPTION
UMCT3149 + IS3152	UMCT3149 + IS3152	Crimper + die for Solarlok Tyco contacts
IS301102855	KXSUNESTRAT	Extractor
IS211579002	KXSUNSPE	Wire Stripper

First-time installation kit:

This consists of connectors, contacts and accessories that are suitable for a first-time installation.
The kit can be gradually supplemented with missing references.
Hereunder are the codes and serial number of the parts contained in the toolbox.
The kit does not include the wires.

CODE	DESCRIPTION	QUANTITY
ISKITYCO	First-time installation kit	1

Kit composition:

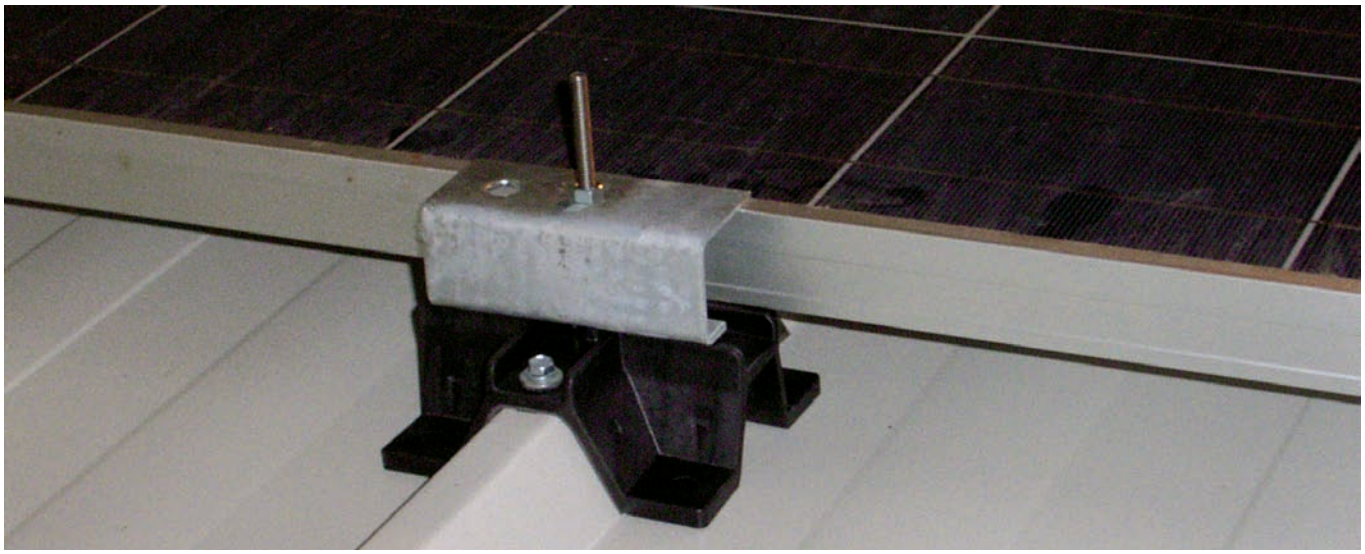
	DESCRIPTION	QUANTITY
	Professional Toolbox	1
	Crimped clamp 4-6 mm^2	1
	Extractor	1
	Wire Stripper	1
	4 mm^2 Negative Female Connector	20
	4 mm^2 Positive Female Connector	20
	4 mm^2 Neutral Male Connector	40

Supporting bracket for mounting photovoltaic panels

CODE	SERIAL NUMBER	DESCRIPTION	PART	PHOTOVOLTAIC MODULE HEIGHT	QUANTITY
ISFIX07	ISFIX07	Bracket for mounting panels on photovoltaic roofs	**MIDDLE**	35 mm.	5
ISFIX02	ISFIX02	Bracket for mounting panels on photovoltaic roofs	**END**	35 mm.	5
ISFIX10	ISFIX10	Bracket for mounting panels on photovoltaic roofs	**MIDDLE**	38 mm.	5
ISFIX06	ISFIX06	Bracket for mounting panels on photovoltaic roofs	**END**	38 mm.	5
ISFIX08	ISFIX08	Bracket for mounting panels on photovoltaic roofs	**MIDDLE**	40 mm.	5
ISFIX05	ISFIX05	Bracket for mounting panels on photovoltaic roofs	**END**	40 mm.	5
ISFIX09	ISFIX09	Bracket for mounting panels on photovoltaic roofs	**MIDDLE**	46 mm.	5
ISFIX03	ISFIX03	Bracket for mounting panels on photovoltaic roofs	**END**	46 mm.	5
ISFIX01	ISFIX01	Bracket for mounting panels on photovoltaic roofs	**MIDDLE**	50 mm.	5
ISFIX04	ISFIX04	Bracket for mounting panels on photovoltaic roofs	**END**	50 mm.	5

Totally integrated systems, which are implemented thanks to the innovative Cabur Solar Fix anchorage system, present the following advantages that should not be underestimated:

- Possibility to benefit from better incentive pricing in various countries.
- Possibility of using surfaces that are otherwise not used: even though panels that are not positioned well have lower efficiency, the system supplies an amount of energy that is added to the other string of panels.
- Possibility of obtaining solutions that are aesthetically and architecturally elegant and futuristic (ideal for modern buildings, especially schools, hospitals, public buildings, etc.). At this point, we refer to Technical Architects who wish to add a personal touch that helps the photovoltaic technology blend in with the geometry of the buildings. The result is an architectonic mixture of harmonious and futuristic shapes that mark and imprint a style.
- Possibility of replacing roofing materials with panels (savings on materials). Our support brackets are applied directly to the cement surface of the roof, which is then covered in membrane material, after which only the fastening pins will show as the entire bracket will be covered by the membrane. The panels are then fixed one next to the other, covering the entire surface and replacing the tiles, sheets or other roofing materials used.
- Possibility of replacing old and dangerous (and illegal) Eternit roofing, which is still seen today in thousands of buildings, especially in Italy, with elegant and advantageous materials. All old roofing made of Eternit is replaced with corrugated sheets that may or may not have holes for our brackets to be fastened (the holes can be drilled at a later stage, directly on to the roofing, during the mounting phase). When replacing asbestos-cement sheets on industrial roofing, sandwich panels (steel-insulation-steel) are mainly used. The Cabur Solar Fix device has been designed purposely to anchor photovoltaic modules to this type of roofing.



Maximum performance: the particular shape of the bracket creates a hollow space for ventilation, which exceeds 4 cm (between the photovoltaic module and the underlying surface), which is not obstructed by secondary structures. This way the installation is less prone to overheating, which in turn provides greater efficiency than totally integrated traditional systems and can be compared to the efficiency of partially integrated installations.

Patent: the patent was filed on 19/01/09 at the Chamber of Commerce, Industry, Crafts and Agriculture (CCIAA) in Macerata. Number MC2009U000002.

Universality: all measurements of sandwich panels found on the market can be covered thanks to the two profiles of the corrugated sheets, whereas the bracket can be used on wooden or clay-cement roofing thanks to the holes in the base wings of the bracket.

Simple and light: installation is easy and quick and in a few steps, the bracket is set in place and ready for the photovoltaic modules to be anchored. A lightweight support for the material used (especially if compared with traditional steel anchor profiles).

Material quality: DURETAN BKV-30H, insulates the roofing from the photovoltaic module, especially if the roofing is made of metal, preventing galvanic or sliding currents from forming. This prevents anodic oxidation from forming on the contact metals. Moreover, the material is not subject to decay and frost and is resistant to low and high temperatures. The bracket is certified for 20 years - bear in mind that the material is already being used in the automotive sector and in some photovoltaic applications.

Ecological: when compared to metal brackets, less energy is required to produce this and therefore less CO_2 emissions are emitted into the atmosphere. Moreover, 20% of the material used to manufacture it is recycled material.

Mounting

This bracket has an exceptional mechanical resistance and together with its light weight, greatly facilitates the laying phase of the panels that is to be carried out by the installers. Therefore, it is no longer necessary to carry large quantities of aluminium profiles on to the roof or place them in awkward places. However, more importantly, it is no longer necessary to cut and shape the metal frames to adapt them to the panels and roof pitch profiles. Only 4 holes are needed in the concrete to fasten our brackets with as many fishers (8 mm < Ø < 10 mm).
However, if the number of panels is marked with a P and the number of brackets with an S, every row of panels will give the following simple proportion.

$$S = 2P + 2$$

If the string consists of a number (N) of rows, then:

$$S = N (2P + 2)$$

These simple formulae are used to determine the number of brackets required to create an installation that consists of (P) panels placed in (N) number of rows to form the string. If Sr is the number of strings of the installation:

$$S = SrN (2P + 2)$$

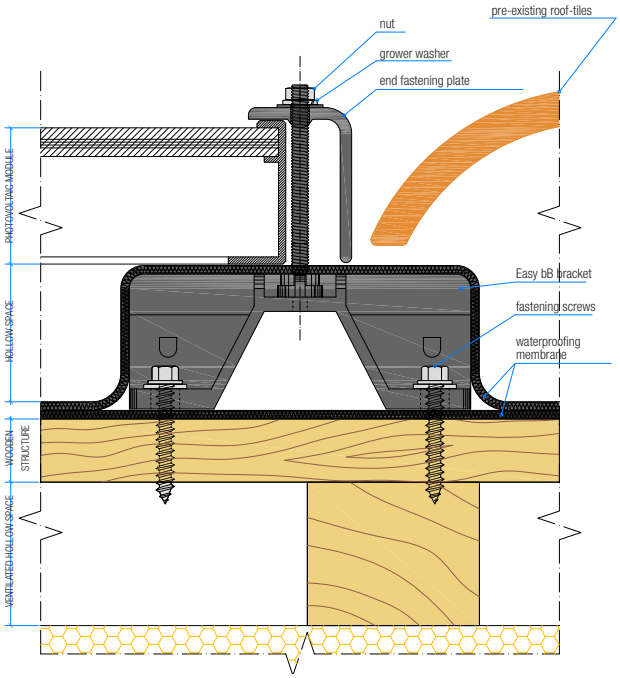
The accessories required to fasten each are shown in the table below. You will notice that the only difference is the fastening bracket, which will obviously be bent into an L-shape for the end anchor as this compensates for the missing panel (refer to the following pictures).

MIDDLE ANCHOR	END ANCHOR
Bracket made of nylon and fibreglass	Bracket made of nylon and fibreglass
Stainless steel washer	Stainless steel washer
Stainless steel screw - height is defined by the type of module that is to be anchored.	Stainless steel screw - height is defined by the type of module that is to be anchored.
Rubber gasket 110 x 130 mm	Rubber gasket 110 x 130 mm
Stainless steel self-locking bolt	Stainless steel self-locking bolt
Middle aluminium plate	Stainless steel plate - its size is relative to the height of the module

Materials:

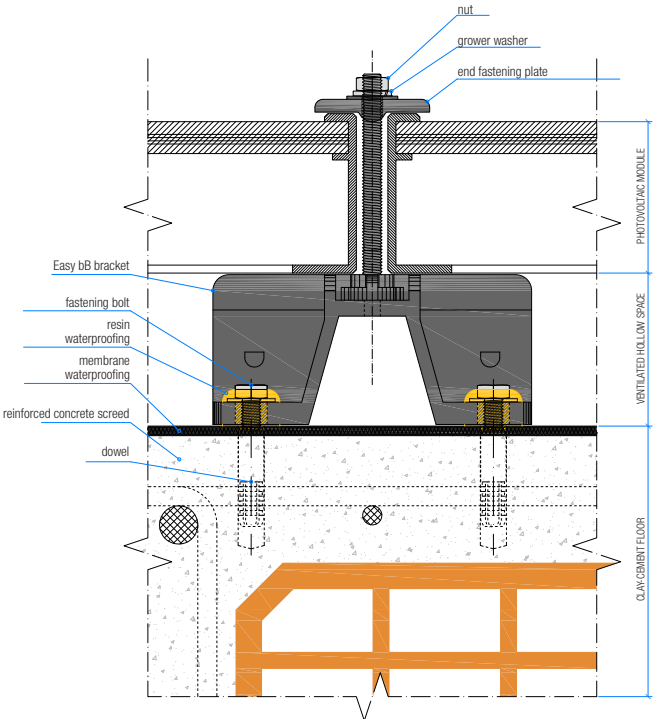
This bracket is made of plastic material that is reinforced with 30% fibreglass (DURETAN BKV-30H).
The distance between the panel and the supporting surface is more than enough for the flow of natural convective air that is useful for the panels to be kept cool.
This system allows any type of panel to be fastened on to any supporting surface and at any inclination, even 90°!
Therefore, total integration is guaranteed on the entire surface of the building that faces South.
The bracket has been tested by Meccano spa and most of the tests implemented pertain to the mechanical and UV resistance.

EXAMPLE: MOUNTING ON SMOOTH ROOFING
INCLINED WITH A WOODEN STRUCTURE



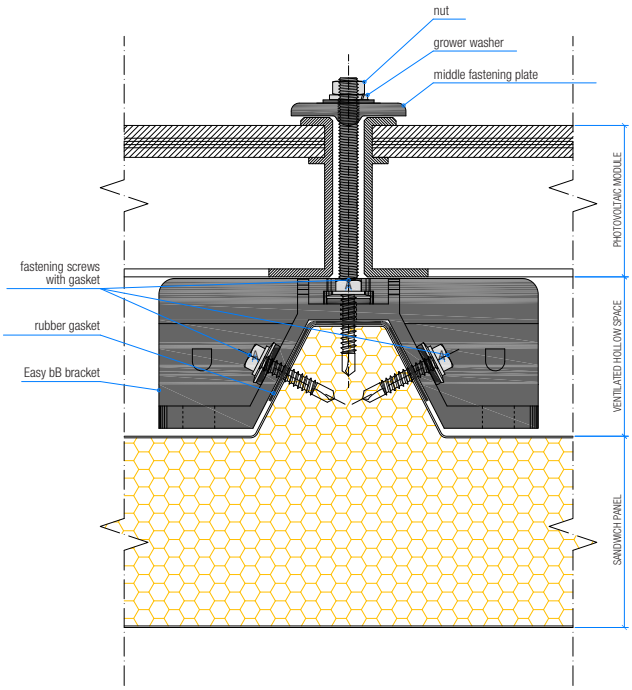
Code ISFIX02 - Serial Number ISFIX02 - End anchor

EXAMPLE: MOUNTING ON SMOOTH ROOFING
INCLINED WITH A CLAY-CEMENT FLOOR STRUCTURE



Code ISFIX01 - Serial Number ISFIX01 - Middle anchor

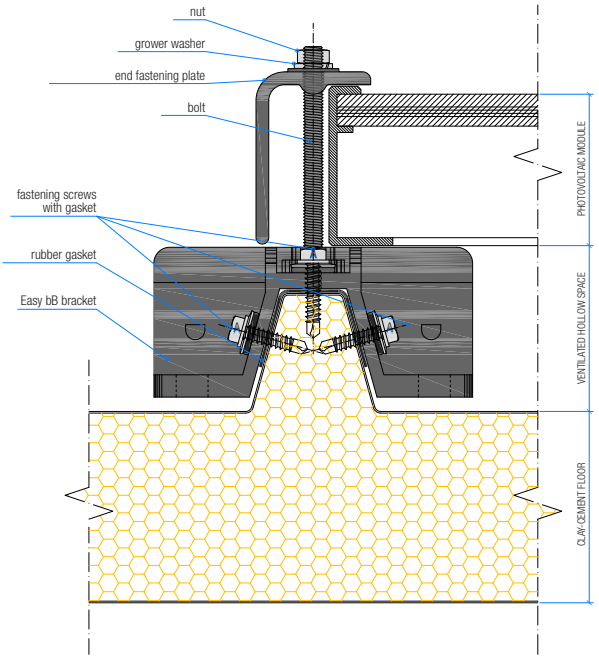
EXAMPLE: MOUNTING ON SANDWICH PANELS
(METAL-INSULATOR-METAL) - CORRUGATED TYPE 1



A - the sandwich panel sheet metal is fastened with screws via
the upper vertical holes and/or the imprint on the slanting walls of the bracket

Middle anchor

EXAMPLE: MOUNTING ON SANDWICH PANELS
(METAL-INSULATOR-METAL) - CORRUGATED TYPE 2



A - the sandwich panel sheet metal is fastened with screws via
the upper vertical holes and/or the imprint on the slanting walls of the bracket

End anchor

StringBox connection panels for photovoltaic panel strings

The Stringbox connection panels are designed and manufactured in accordance with the CEI 82-25 standards.
This is not just a product series but a true and proper solution to the various needs of this sector. In fact, other than the standard models that are kept in stock, Cabur also offers its well-known CMS option (Custom Made Solution), which allows Clients to personalise their own control panel by selecting the components that are to be inserted and wired.
The panels are available in 1, 2, 3, 4, 6 and 8-string versions and include all the components necessary to protect and connect the photovoltaic panel strings in parallel.

All components are pre-wired and if the panels have a connector input, the Client must simply connect the panels and only wire the output cable to the inverter and the ground. The component handling and installation processes are shortened considerably.

The picture below shows the components that can be inserted in the panel.

Panels that are to be used outdoors; made of polyester reinforced with fibreglass, UV resistant and having an IP65 degree of protection.

Fuse holders (10.3 x 38, UL Approved, 1000 Vdc). These are found in the panels having 4, 6 and 8 strings and have the function of disconnecting the string if this malfunctions, is short-circuited or there is a short-circuit in its connections. Normally, the panels with 2 and 3 strings are not supplied with fuse holders as the maximum current generated by one or two strings is not enough to trigger the safety intervention of the fuse, should their be a malfunction on a string. The fuses must be chosen and ordered by the Client in accordance with the string current value.

Connectors for special photovoltaic wireswith an IP67 degree of protection, **equipped with a mechanical locking device to prevent them from being accidentally uncoupled**.

Surge Protectors [20 kA (8/20), Ures 1.5 kV], available in 500 Vdc, 600 Vdc, 800 Vdc and 1000 Vdc for the best coordination with the actual voltage generated by the system.

DC disconnecting switch (UL approved, 1 kVdc, available for rated currents ranging from 32 A to 70 A). As required by CEI 82-25, the disconnecting switch is triggered by an under-load. The voltage generated by the strings can be disconnected when interventions must be implemented downstream on the SolarBox panel.

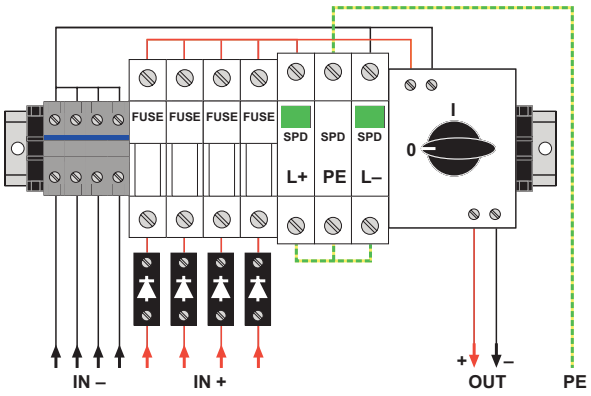
Cable gland for the IP65 output of the ground connection cable of the surge protectors and for the cable output to the inverter

Blocking diodes are available upon request (add the letter 'D' to the order code). These have an inverse voltage resistance of 1.6 kV for strings with a Un of up to 800 Vdc. The diodes are mounted on a 3 mm aluminium plate that serves to dissipate the heat generated by the current that flows through them. The diode's function is to prevent the string's current from circulating in full efficiency in a "shady" or faulty string, or when its generating force diminishes or deteriorates.

ATTENTION: a very common mistake made with the ground wire emerging from the surge protectors is to connect the ground to the rail guide or to bind the wire with the output wire connected to the inverter. The minimum cross-section of the ground wire of the surge protectors is 10 mm² and must be kept separate and as far away as possible from the DC power cable that goes to the inverter. The inverter's ground must be connected to the system's ground and the ground clamp of the surge protectors with a cable that has a minimum cross-section of 6 mm².
Every StringBox product is supplied with technical data that contains the main operating parameters and the connection diagram.

Standard StringBox.

The following list contains the standard models that are kept in stock.
To meet the various requirements of Clients and their applications, thanks to the well-known CMS option (Custom Made Solution) for pre-wired terminal blocks, Cabur creates special solutions that the Client can personalise by following the indications given in the table below.
Please contact our Sales Offices to agree upon delivery times and costs.



Example of a panel used for 4 strings, complete with a fuse holder, blocking diodes, surge protectors and a disconnecting switch.

SERIAL NUMBER	CODE	NO. OF STRINGS	BLOCKING DIODE	DISCONNECTING SWITCH	SURGE PROTECTOR
ISB01FXCA05	ISB01FXCA05	1		32A to 750Vdc	500Vdc
ISB01FXCA06	ISB01FXCA06	1		32A to 750Vdc	600Vdc
ISB01FXCA08	ISB01FXCA08	1		32A to 750Vdc	800Vdc
ISB01FXCA10	ISB01FXCA10	1		32A to 750Vdc	1000Vdc
ISB02FDCA05	ISB02FDCA05	2	•	32A to 750Vdc	500Vdc
ISB02FXCA05	ISB02FXCA05	2		32A to 750Vdc	500Vdc
ISB02FDCA06	ISB02FDCA06	2	•	32A to 750Vdc	600Vdc
ISB02FXCA06	ISB02FXCA06	2		32A to 750Vdc	600Vdc
ISB02FDCA08	ISB02FDCA08	2	•	32A to 750Vdc	800Vdc
ISB02FXCA08	ISB02FXCA08	2		32A to 750Vdc	800Vdc
ISB02FDCA10	ISB02FDCA10	2	•	32A to 750Vdc	1000Vdc
ISB02FXCA10	ISB02FXCA10	2		32A to 750Vdc	1000Vdc
ISB03FDCA05	ISB03FDCA05	3	•	32A to 750Vdc	500Vdc
ISB03FXCA05	ISB03FXCA05	3		32A to 750Vdc	500Vdc
ISB03FDCA06	ISB03FDCA06	3	•	32A to 750Vdc	600Vdc
ISB03FXCA06	ISB03FXCA06	3		32A to 750Vdc	600Vdc
ISB03FDCA08	ISB03FDCA08	3	•	32A to 750Vdc	800Vdc
ISB03FXCA08	ISB03FXCA08	3		32A to 750Vdc	800Vdc
ISB03FDCA10	ISB03FDCA10	3	•	32A to 750Vdc	1000Vdc
ISB03FXCA10	ISB03FXCA10	3		32A to 750Vdc	1000Vdc
ISB04FDCA05	ISB04FDCA05	4	•	32A to 750Vdc	500Vdc
ISB04FXCA05	ISB04FXCA05	4		32A to 750Vdc	500Vdc
ISB04FDCA06	ISB04FDCA06	4	•	32A to 750Vdc	600Vdc
ISB04FXCA06	ISB04FXCA06	4		32A to 750Vdc	600Vdc
ISB04FDCA08	ISB04FDCA08	4	•	32A to 750Vdc	800Vdc
ISB04FXCA08	ISB04FXCA08	4		32A to 750Vdc	800Vdc
ISB04FDCA10	ISB04FDCA10	4	•	32A to 750Vdc	1000Vdc
ISB04FXCA10	ISB04FXCA10	4		32A to 750Vdc	1000Vdc
ISB06FDCB05	ISB06FDCB05	6	•	63A to 750Vdc	500Vdc
ISB06FXCB05	ISB06FXCB05	6		63A to 750Vdc	500Vdc
ISB06FDCB06	ISB06FDCB06	6	•	63A to 750Vdc	600Vdc
ISB06FXCB06	ISB06FXCB06	6		63A to 750Vdc	600Vdc
ISB06FDCB08	ISB06FDCB08	6	•	63A to 750Vdc	800Vdc
ISB06FXCB08	ISB06FXCB08	6		63A to 750Vdc	800Vdc
ISB06FDCB10	ISB06FDCB10	6	•	63A to 750Vdc	1000Vdc
ISB06FXCB10	ISB06FXCB10	6		63A to 750Vdc	1000Vdc
ISB08FDCB05	ISB08FDCB05	8	•	63A to 750Vdc	500Vdc
ISB08FXCB05	ISB08FXCB05	8		63A to 750Vdc	500Vdc
ISB08FDCB06	ISB08FDCB06	8	•	63A to 750Vdc	600Vdc
ISB08FXCB06	ISB08FXCB06	8		63A to 750Vdc	600Vdc
ISB08FDCB08	ISB08FDCB08	8	•	63A to 750Vdc	800Vdc
ISB08FXCB08	ISB08FXCB08	8		63A to 750Vdc	800Vdc
ISB08FDCB10	ISB08FDCB10	8	•	63A to 750Vdc	1000Vdc
ISB08FXCB10	ISB08FXCB10	8		63A to 750Vdc	1000Vdc

All the above QDC's are made with Cabur Solar Line 4 panel connectors – Code IS14110 and IS24111 – and a positive (+) fuse holder.
Customised solutions can be requested.

SPDBox connection panels downstream on the inverter.

The Stringbox panels are designed and manufactured in accordance with the CEI 82-25 standards.
The panels are available in standard versions with surge protectors for single-phase, three-phase and three-phase with neutral circuits. Custom configurations can be requested, such as panels with a different amount of free modules (for a magnetothermic switch to be added) and with or without the cable gland for input and output cables.

- **Panels** that are to be used outdoors; made of polyester with an IP65 degree of protection.
- **Surge protectors** available from 20 kA (8/20) Umax. 320Vac, 2 poles with a spark gap for single-phase circuits, from 40kA (8/20) Umax. 460Vac, 3 poles for three-phase circuits, from 40kA (8/20) Umax. 460Vac, 3 poles with a spark gap for three-phase circuits with neutral.
- **Cable gland** for an IP65 output of the connection cables.

Standard versions

SERIAL NUMBER	CODE	TYPE OF CIRCUIT	TYPE OF PANEL	OCCUPIED MODULES	FREE MODULES	DIMENSIONS
ISSAM05P	ISSAM05P	single-phase	3-5 modules	2	3	120x160x90
ISSBM05P	ISSBM05P	three-phase	3-5 modules	3	2	120x160x90
ISSBM08P	ISSBM08P	three-phase	4-8 modules	3	5	200x160x90
ISSCM05P	ISSCM05P	three-phase + neutral	3-5 modules	4	1	120x160x90
ISSCM08P	ISSCM08P	three-phase + neutral	4-8 modules	4	4	120x160x90

Direct current surge protectors

Our surge protectors are suitable for protecting the photovoltaic installation from surges deriving from atmospheric discharge (lightning), protecting the continuous field upstream on the inverter as well as the alternate field downstream on the inverter.
Below are four models that have 4 trip voltages from 500 - 600 - 800 - 1000 V for the photovoltaic field, and models with a voltage of 230 and 400 Vac for the alternate field.
The particular features of every model are shown in the table below.

GENERAL FEATURES Basic Code plus extractable cartridge	ISPD14555	ISPD14556	ISPD14557	ISPD14558
Class	2	2	2	2
Ground System	–	–	–	–
Technology	MOV	MOV	MOV	MOV
Maximum continuous voltage	Uc = 500 Vdc	Uc = 600 Vdc	Uc = 800 Vdc	Uc = 1000 Vdc
Level of protection	Up = 1,800 Vdc	Up = 2,000 Vdc	Up = 2,500 Vdc	Up = 3,000 Vdc
Nominal impulse discharge current 8/20	In = 20,000 A	In = 20,000 A	In = 20,000 A	In = 20,000 A
Maximum discharge current 8/20	Imax = 40,000 A	Imax = 40,000 A	Imax = 40,000 A	Imax = 40,000 A
Connection cable cross-sections	4 mm² < Ø < 25 mm²	4 mm² < Ø < 25 mm²	4 mm² < Ø < 25 mm²	4 mm² < Ø < 25 mm²
Intervention time	ta < 25 nS	ta < 25 nS	ta < 25 nS	ta < 25 nS
Operating temperature	-40 °C < T < 80 °C	-40 °C < T < 80 °C	-40 °C < T < 80 °C	-40 °C < T < 80 °C
Fault indication	Mechanical green/red	Mechanical green/red	Mechanical green/red	Mechanical green/red
Possibility of remote control	YES	YES	YES	YES
Mounting	On a TH35 rail guide	On a TH35 rail guide	On a TH35 rail guide	On a TH35 rail guide
Casing material	Fireproof UL94V0	Fireproof UL94V0	Fireproof UL94V0	Fireproof UL94V0
Degree of protection	IP20	IP20	IP20	IP20
Colour	Yellow	Yellow	Yellow	Yellow
Dimensions (Width-Height-Depth)	–	–	–	–
Pieces in each package	1	1	1	1

Alternate current surge protectors

GENERAL FEATURES Basic Code plus extractable cartridge	ISPD14275	ISPD1425G	ISPD14440	ISPD1444G
Class	2	2	2	2
Ground System	TN-S ; TN-C ; TT ; IT	TN-S ; TN-C ; TT ; IT	TN-S ; TN-C ; TT ; IT	TN-S ; TN-C ; TT ; IT
Technology	MOV	MOV	GDT	GDT
Maximum continuous voltage	Uc = 275 V	Uc = 440 V	Uc = 255 V	Uc = 440 V
Level of protection	Up = 1,200 V	Up = 2,000 V	Up = 1,800 V	Up = 1,800 V
Nominal impulse discharge current 8/20	In = 20,000 A	In = 20,00 A	In = 30,000 A	In = 30,000 A
Maximum discharge current 8/20	Imax = 40,000 A	Imax = 40,000 A	Imax = 40,000 A	Imax = 40,000 A
Connection cable cross-sections	4 mm² < Ø < 25 mm²	4 mm² < Ø < 25 mm²	4 mm² < Ø < 25 mm²	4 mm² < Ø < 25 mm²
Intervention time	ta < 25 nS	ta < 25 nS	ta < 25 nS	ta < 25 nS
Operating temperature	-40 °C < T < 80 °C	-40 °C < T < 80 °C	-40 °C < T < 80 °C	-40 °C < T < 80 °C
Fault indication	Mechanical green/red	Mechanical green/red	Mechanical green/red	Mechanical green/red
Possibility of remote control	YES	YES	YES	YES
Mounting	On a TH35 rail guide	On a TH35 rail guide	On a TH35 rail guide	On a TH35 rail guide
Casing material	Fireproof UL94V0	Fireproof UL94V0	Fireproof UL94V0	Fireproof UL94V0
Degree of protection	IP20	IP20	IP20	IP20
Colour	Yellow	Blue	Yellow	Blue
Dimensions (Width-Height-Depth)	–	–	–	–
Pieces in each package	1	1	1	1

Terminals with CBC series screw clamps

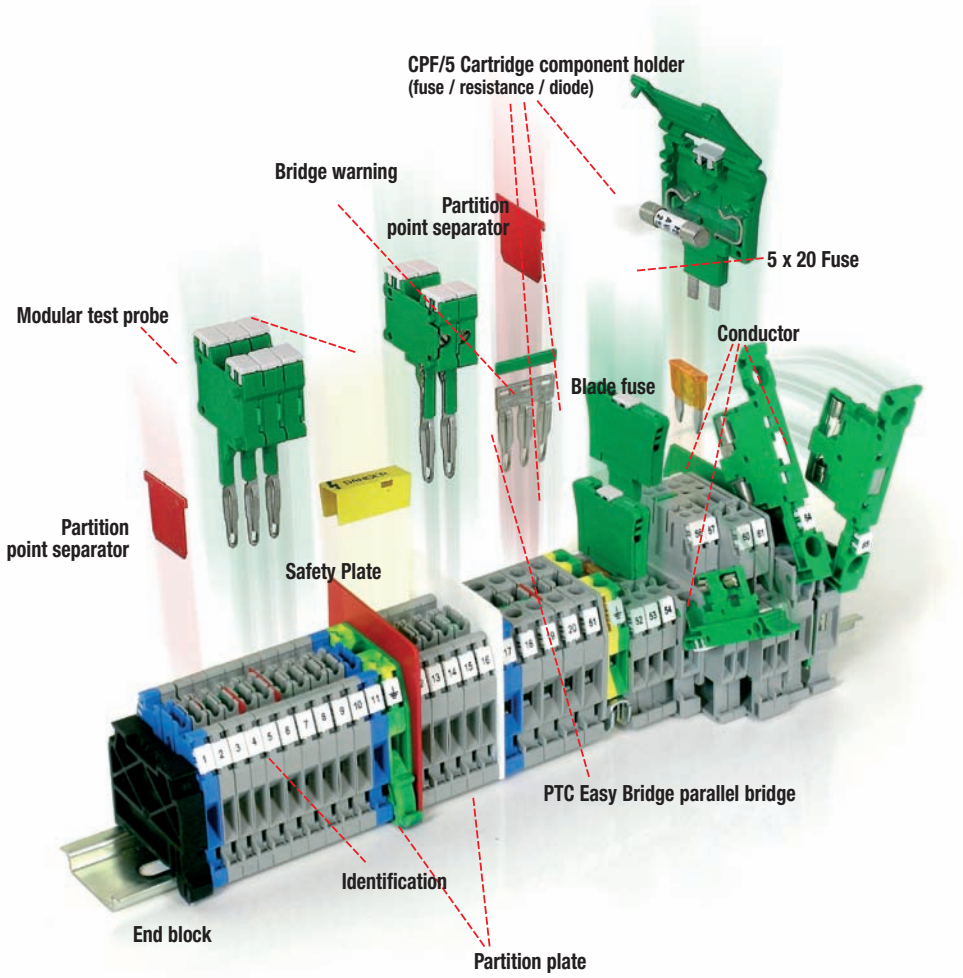
We recommend our CBC terminal series (for cables with a cross-section range from 4 to 35 mm²) and our GPA series (for cables with a cross-section ranging from 50 to 240 mm²) for junctions of photovoltaic cables inside junction boxes and/or electrical panels, having a cross-section that exceeds 6 mm². Both product families are particularly suitable for photovoltaic installations. This is due to their well-known technical-quality features that have become popular in various applications as well as, and particularly due to the possibility of wiring electrical cables that have a voltage up to 1000 V.

It is recommended to use the more common Line 3 and 4 photovoltaic connectors for the low voltage cables, whereas, CBC terminals for medium voltage cables and lastly, GPA terminals for high voltage cables.

GREY VERSION		CBC.2/GR code CBC02GR	CBC.4/GR code CBC04GR	CBC.6/GR code CBC06GR	CBC.10/GR code CBC10GR	CBC.16/GR code CBC16GR	CBC.35/GR code CBC35GR
For flexible / rigid conductors		from 0.2 to 4 mm²	from 0.2 to 6 mm²	from 0.2 to 10 mm²	from 1.5 to 16 mm²	from 1.5 to 25 mm²	from 2.5 to 50 mm²
Nominal current in accordance with CEI EN 60947-7-1		24 A	32 A	41 A	57 A	101 A (25 mm²)	150 A (50 mm²)
Nominal voltage in accordance with IEC 60947-7-1		1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Height / Width / Thickness (mm)	TH/35 7.5 mm	52 / 44 / 5	52 / 44 / 6	52 / 44 / 8	52 / 44 / 10	56 / 47 / 12	63 / 56 / 16
	TH/35 15 mm	60 / 44 / 5	60 / 44 / 6	60 / 44 / 8	60 / 44 / 10	64 / 47 / 12	71 / 56 / 16

Ground terminals for PR/3 profiles	TE0.2 code T0910	TE0.4 code T0430	TEC.6/0 code T0120	TEC.10/0 code T0510	TEC.16/0 code T0220	TEC.35/0 code T0320

Terminals with CBC series screw clamps



CBC series terminal block and relative accessories.

GPA series power terminals

GPA.70/GR

GPA.95/GR

GPA.150/GR

GPA.240/GR

TEC70/0

GREY VERSION		GPA.70/GR code GA400GR	GPA.95/GR code GA100GR	GPA.150/GR code GA200GR	GPA.240/GR code GA300GR	TEC70/0 code T0810
For flexible / rigid conductors		from 10 to 95 mm^2	from 10 to 120 mm^2	from 50 to 185 mm^2	ranging from 95 to 300 mm^2	from 10 to 95 mm^2
Nominal current in accordance with CEI EN 60947-7-1		192 A	232 A	309 A	415 A	192 A
Nominal voltage in accordance with IEC 60947-7-1		1000 V	1000 V	1000 V	1000 V	1000 V
Height / Width / Thickness (mm)	TH/35 7.5 mm	70 / 91 / 20,5	87 / 98 / 26	99 / 108 / 31	120 / 119 / 37	70 / 91 / 20,5
	TH/35 15 mm	78 / 91 / 20,5	95 / 98 / 26	106 / 108 / 31	128 / 119 / 12	78 / 91 / 20,5
	G32	75 / 91 / 20,5	91 / 98 / 26	103 / 108 / 31	124 / 119 / 37	71 / 91 / 20,5

Diode for photovoltaic solar panel strings.
This device has been designed to help designers and installers when mounting the blocking diode of the recirculating current on photovoltaic solar panel strings.
The adapter for the DIN rail guide allows a quick and safe mounting process.
The IEC 60364-7-712 standard stipulates the operating voltage with which the system can be used.

Code **ISDS102** - Serial Number **KXDS102**

Description: Panel diode for photovoltaic strings

- Insulated from the DIN 3750 rail guide Vca / 5 sec.
- Blocking voltage: 2 kV
- Maximum operating voltage (DC): 1000 V
- Maximum forward voltage drop: 2.5 V
- Maximum operating current: 10 A
- Maximum temperature tolerated by the casing: 90 degrees
- Weight: 235 g

Control terminal block

The Cabur control terminal blocks have been designed to allow electricity suppliers and users to easily check the measuring instruments, without having to disconnect the power during the inspection process itself or whilst replacing any instrument.
ENEL (Italy's largest power company) has adopted a particular colorimetric method to identify the operating phases in the areas where the terminal blocks are to be installed.

Every terminal block consists of an insulated terminal board made of thermosetting resin (black phenolic resin), a copper-zinc alloy terminal holder. The voltmeter and amperometric circuits together with the disconnecting switches and short circuit devices all form part of the terminals. Every terminal block is supplied with a transparent cover (made of cellulose acetate) and appropriate captive screws designed to seal the entire installation.
Every screw has a hole for the lead-sealed wire to pass through.

The phases are marked with different colours, which must be specified when ordering. It is recommended to place the terminal block upstream on the bi-directional meter, i.e. with reference to the electrical wiring diagrams given in CEI 82-25, between the meter and the delivery point.

	SINGLE-PHASE	DUAL-PHASE	THREE-PHASE
CAMPANIA REGION LOMBARDY REGION	MC401B	MC402B	MC403B
VENETO REGION TRENTINO REGION	MC401G	MC402G	MC403G
REST OF ITALY	MC401R	MC402R	MC403R