



# TKAC02





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# DATA SHEET

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### Attention


*The information contained in this document may change without notice.  
Therefore, please check our website ([www.kernelgroup.it](http://www.kernelgroup.it)) regularly  
and always download the latest version available.*

# 1 SAFETY





## Safety : General Conditions

	<p><b>DANGER</b></p>	<ul style="list-style-type: none"> <li>- This product is therefore designed to operate with direct current voltage values up to 230 VAC. This voltage value is potentially fatal. Voltage values between 24 VDC and 230 VAC are therefore present on this product.</li> </ul>
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## Safety : Installation and replacement precautions

	<p><b>DANGER</b></p>	<ul style="list-style-type: none"> <li>- The installation and / or replacement of this product must take place in absolute safety, therefore it is necessary to proceed with the installation and / or replacement of this product which is housed inside the field panel after disconnecting the power and dangerous voltages from solar panels.</li> <li>- In any case, any intervention involving the handling of the TK must be carried out by skilled and trained technicians equipped with insulation gloves designed for voltage values up to 230 VAC and after disconnecting any voltage and current from the solar panels.</li> </ul>
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## Important Safety Instructions

	<p><b>DANGER</b></p>	<ul style="list-style-type: none"> <li>- Contact with wiring terminals inside the device can cause death by electric shock!</li> <li>- Before to operate inside cards with tester, or with other measurement equipment, it is mandatory TO OPEN fuses and other components that can bring high level voltage inside cards.</li> </ul>
	<p><b>WARNING</b></p>	<ul style="list-style-type: none"> <li>- Please check all input and output wire terminals in case of high DC voltage and make sure there is no voltage before electrical connection to avoid electric shock!</li> <li>- Do not touch the live parts of the input and output sides to avoid electric shock when checking or maintaining the device.</li> <li>- All installation and wiring connections must be made by qualified technical personnel only.</li> </ul>
	<p><b>CAUTION</b></p>	<ul style="list-style-type: none"> <li>- All wiring and operation must comply with the requirements of the relevant local standards of the device.</li> <li>- Check the device and make sure there are no problems with the installation before putting it into operation!</li> <li>- Connect the wires to the positive and negative marked positions of the device to avoid the risk of short circuit, ensure personal safety and keep the device in normal operation.</li> </ul>
	<p><b>IMPORTANT</b></p>	<p style="text-align: center;"><b>Reference to current standards</b></p> <p>For any other consideration, safety precaution, it is absolutely necessary, before carrying out any installation and / or replacement of the TK, to refer to the regulations in force regarding the construction of combiner boxes.</p>

## 2 INTRODUCTION

Accessory (optional) to simplify system wiring.

When a photovoltaic field has a comb panel arrangement with a backbone, it is advisable to install a distribution box at each branch which sorts the cables and contains both a set of switches to remove downstream power and a repetition device. /amplification of communication network signals.

Each TKAC02 has the following sections :

**IN** = INPUT cables (Both RS\_485 and 230 Vac) coming from the previous TKAC02

**OUT** = OUTPUT cables (Both RS\_485 and 230 Vac) to the next TKAC02

**DRIFT** = DERIVATION cables (Both RS\_485 and 230 Vac) towards a group of TRACKERS (and panels)

## 3 HARDWARE CHARACTERISTICS

This chapter describes the hardware characteristics of TKAC02 :

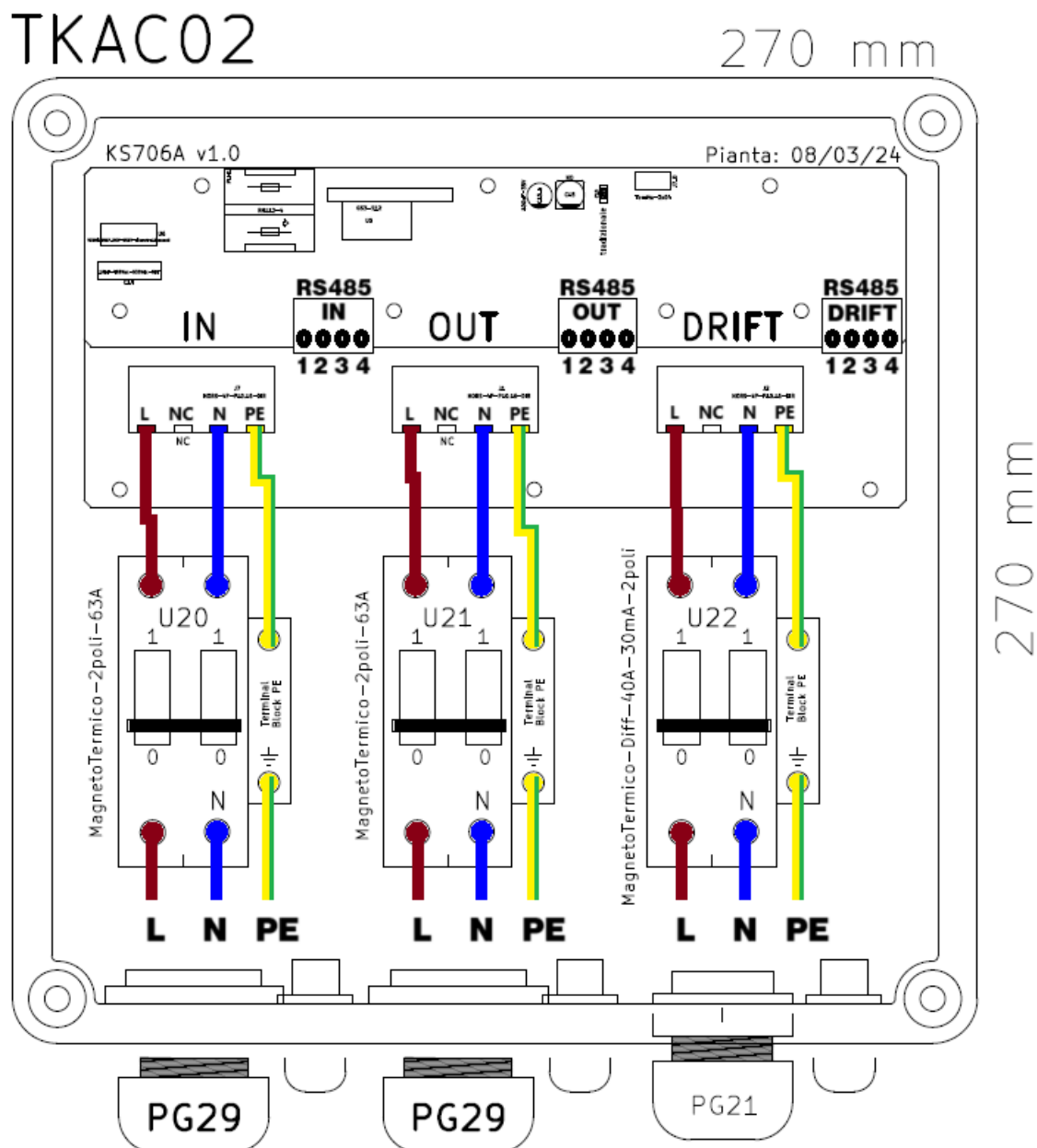
### 3.1 Electric Characteristics

ELECTRIC CHARACTERISTICS	
Power supply voltage	230 Vac
Maximum Permitted Power Supply	230 Vac
Microprocessor	ARM GD F303
Communication	RS_485

### 3.2 Mechanics Characteristics

MECHANICS CHARACTERISTICS	
Temperature Range	From -10 ^C to +70^C
Humidity Range	From 10 % to 90 % (non-condensing)
Operating Atmosphere	Without corrosive gas
Noise Immunity	According to rules in force
Box Protection degree	IP66
Box Weight	n.d.
Magnetothermic	63 A
MAX Current Limit	40 A

### 3.3 Connections



### 3.4 RS485 Communication cable

Everything about the RS485 connection, must meet certain features :

Maximum cable length

it must be no longer than 1,2 Km (it means the entire line length, and not the connection between two nodes)

Technical characteristics of the cable to use

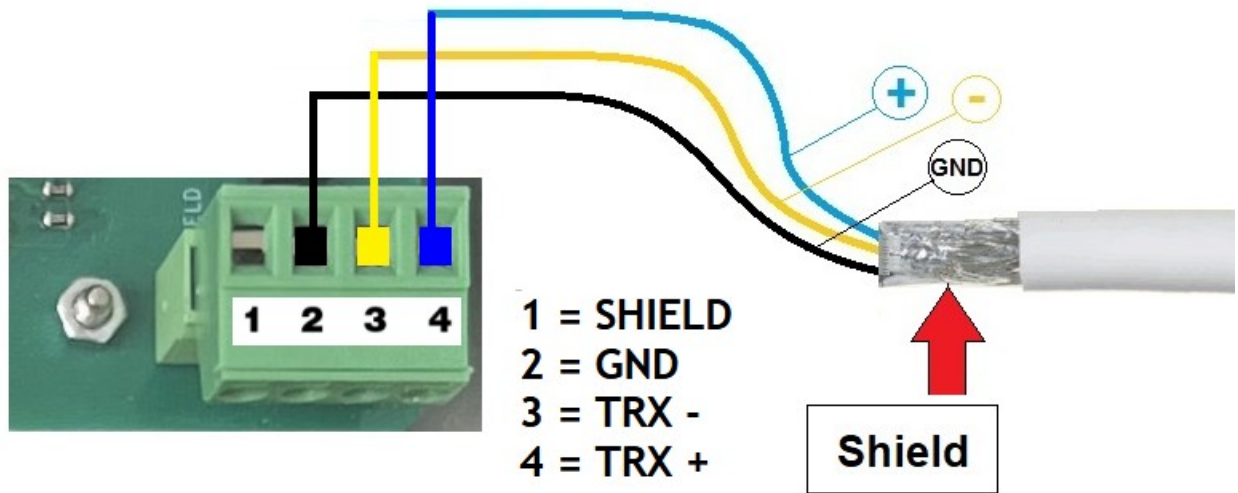
It must be a three-wire cable 3x0.50mm / 3x0.75mm

How to do the RS485 connection

The RS 485 connection must be a three-wire connection (TX+, TX- and GND) with shielded cable.

The cable shield can be left floating, or it can be connected to the "SHIELD" pin of the RS\_485 connectors

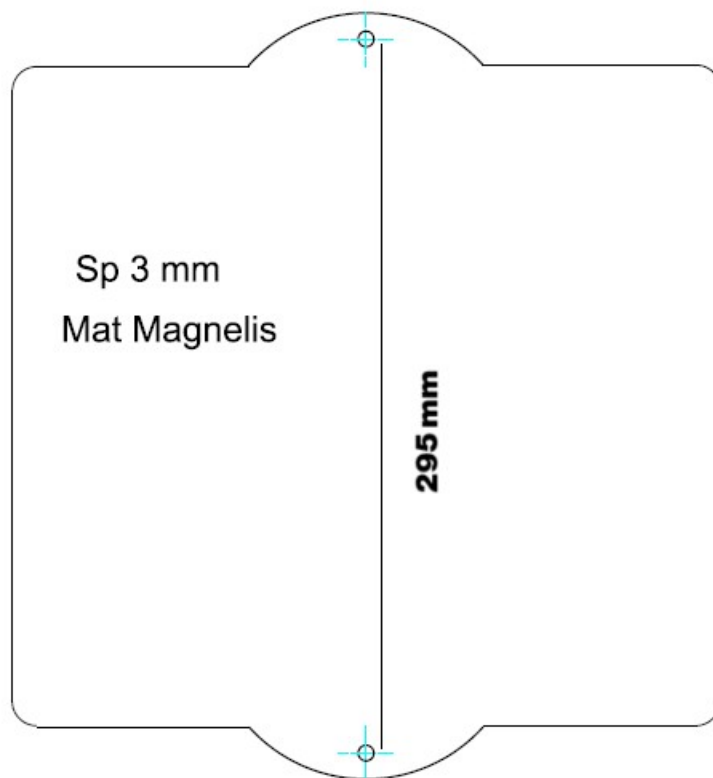
THIS CHOICE IS AT THE CUSTOMER'S DISCRETION.



## 4 GENERAL NOTES

### 4.1 Fixing

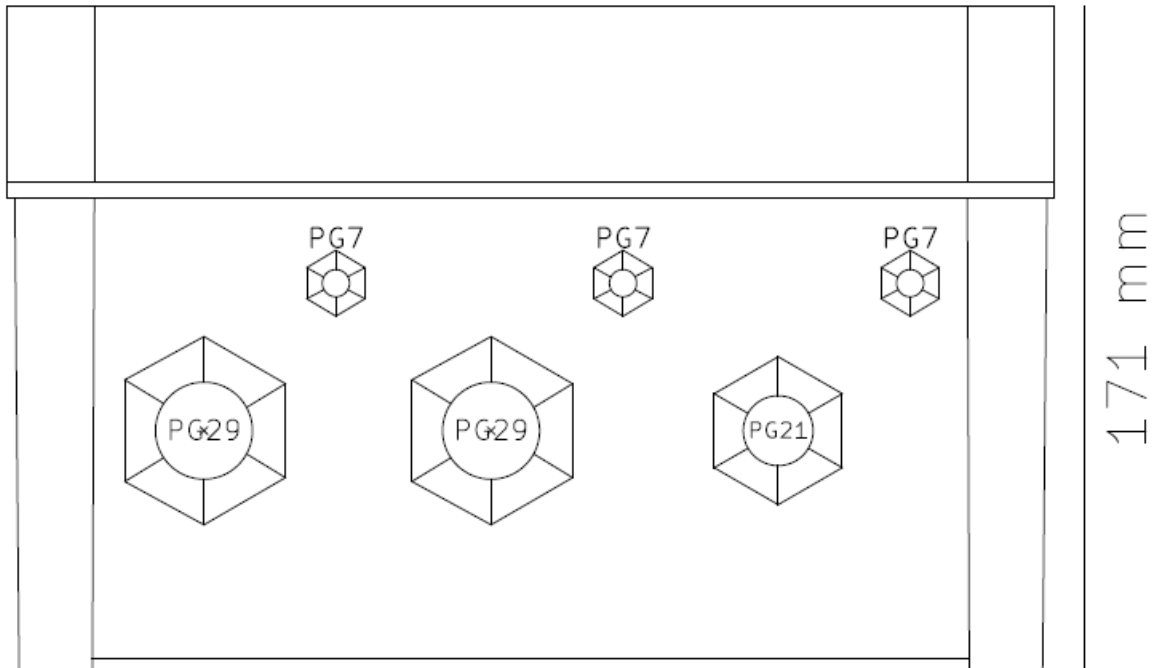
The TKAC02 will be supplied with a metal fixing plate, to facilitate assembly :



Recommended :  
Screws M6

## 4.2 Cables

Recommended cables :



OUTSIDE diameter of the CABLES		
PG7	Ø 3-6.5 mm	Min 3 - Max 6,5 mm
PG21	Ø 13-18 mm	Min 13 - Max 18 mm
PG29	Ø 18-25 mm	Min 18 - Max 25 mm



## 5 CONTACTS

### GENERAL

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