



TKTP430AC02





Installation and Operation Manual

rev. 1.4
24 June 2024

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Attention

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



General Warning

*It is mandatory to read this user manual in its entirety before proceeding with the installation, use and maintenance of this equipment by qualified technical personnel.
Follow scrupulously all indication reported in this manual.*

This equipment is manufactured in compliance with current safety standards, therefore it is recommended that you use all of these devices and make sure that their use does not cause damage or injury.

*This electrical panel must only be used for the purpose for which it was expressly designed.
Any other use is to be considered improper and therefore dangerous.*

*Disconnect the equipment in case of malfunction.
Before performing any maintenance operation, disconnect the equipment.
Do not handle or manipulate the panels in the presence of water, rain or condensation.
See the instructions on the disconnection of the equipment.*

All electrical installations must be carried out in accordance with local building codes and local authority requirements.

It's mandatory to install TKTP430AC02 in the environment conditions indicated on technical characteristics, which were design requirements, for its right operation.

Any connection work must be done with the equipment unplugged. The disconnection from the main switch and the isolation of the input circuits from the photovoltaic modules does not guarantee the total absence of dangerous voltages inside the TKTP430AC02. To access the conductive parts of the equipment safely, it is essential to isolate it from the inverter line (outputs), from the direct current lines of the solar panels (inputs) and from the external power supply line of the electronic equipment (if any).



Warning : Qualified Technical Personnel

All work must be carried out by qualified personnel. Operations could be dangerous to you and other people using this equipment. For safety reasons, all installation and wiring connections must be made by qualified technical personnel only.

Use installation tools suitable for system voltages. Protective gloves should be used against electrical hazards.

During its installation and operation, the personal safety regulations in force in the system for which the product is intended are mandatory.

It is recommended not to wear loose clothing or other clothing or accessories that could come into contact with the components of the TKTP430AC02, especially the metal parts.

TKTP430AC02's work with direct voltage which can reach up to 1500V. Its manipulation is highly dangerous, which can cause severe burns and even death if are not taken preventive measures or is handled by unqualified personnel.



Maintenance

Always use a suitable voltage sensing device to confirm that the power is off before installing or working with the panel.

Local, state and national regulations and safety practices for this type of equipment must be observed.

Only authorized personnel can access the panel. All maintenance and technical assistance work must be carried out by authorized "Specialized Personnel".

All inspections and tests must be performed with controls and equipment de-energized, disconnected and isolated from accidental contact with live parts, and all plant safety procedures must be followed.







Remember that for any manipulation inside the TKTP430AC02 all the warnings and safety measures indicated in the previous points must be considered.

1 INTRODUCTION





The TKTP430AC02 device: system supervisor control panel (tracker driver), contains a TP430 type PLC. It calculates the position of the sun based on geographical coordinates and the current time and sends the inclination to keep to the trackers. It also manages the possible presence of a weather station or an anemometer to guarantee the safety of the panels in the event of adverse meteorological events.

2 SAFETY INSTRUCTION

Introduce the safety instructions of operation and maintenance on the TKTP430AC02.

Icon	Meaning	Description
	DANGER	Indicates a very dangerous situation which, if not avoided, will result in death or serious injury.
	WARNING	Indicates a dangerous situation which, if not avoided, will result in death or serious injury.
	CAUTION	Indicates a dangerous situation which, if not avoided, will result in minor or moderate injury
	INSTRUCTION	Indicates important supplementary information and / or provides skills that can be used to help you solve a problem or save time.
	HIGH VOLTAGE	The product works with high voltages. Everyone works on the product should only be performed as described in this document.
	EARTH GROUND	This symbol indicates the location of the grounding terminal, which must be firmly connected to the earth via the PE (protective earth) cable to ensure operational safety.

Important Safety Instructions

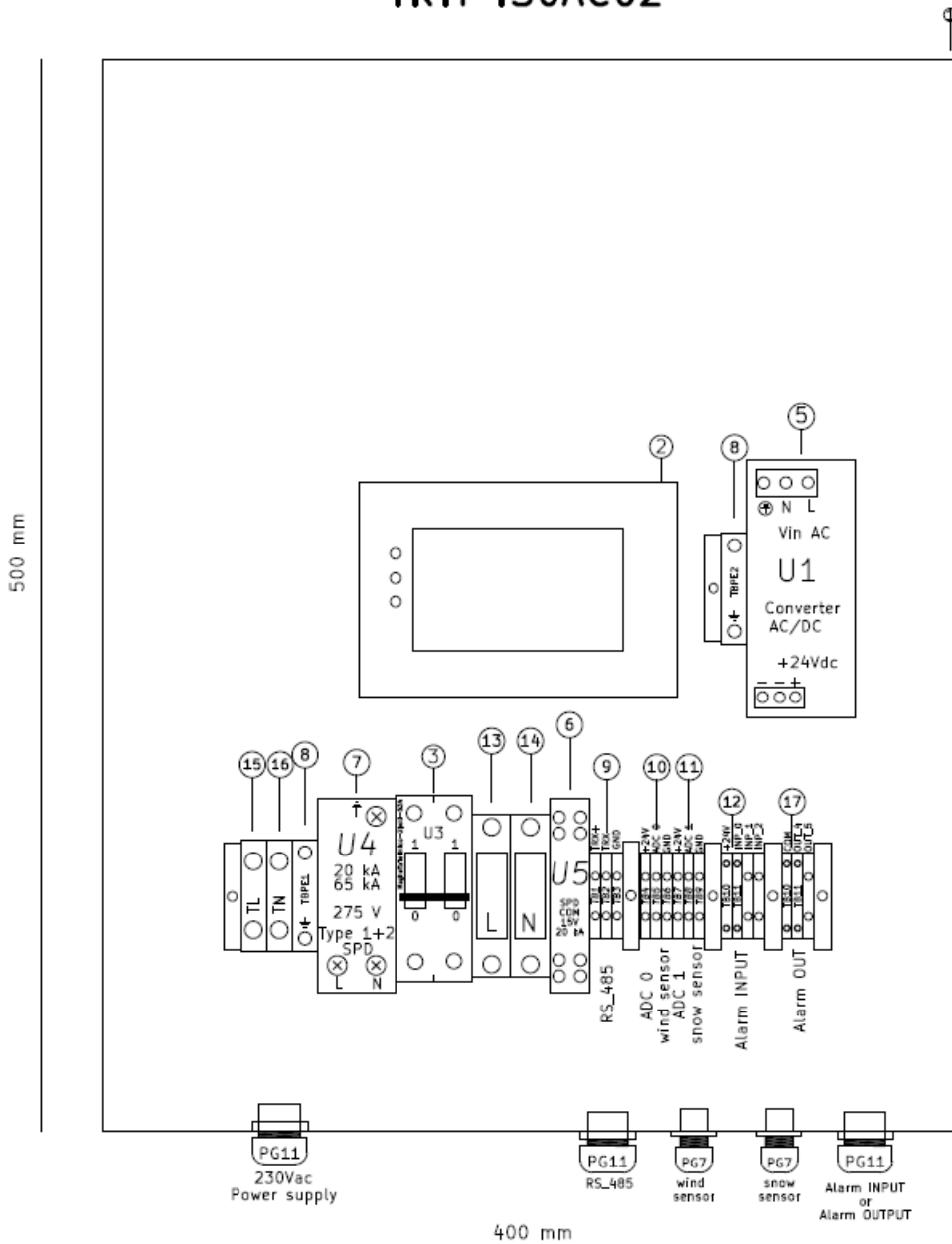
	DANGER	<ul style="list-style-type: none"> - Do not touch the terminals or conductors connected to PV modules or PV inverters, which could cause death by electric shock! - Contact with wiring terminals inside the device can cause death by electric shock! - TKTP430AC02 works with direct voltage which can reach up to 1500 V. Its handling is highly dangerous, which can cause severe burns and even death if preventive measures are not taken or it is handled by unqualified personnel.
	WARNING	<ul style="list-style-type: none"> - Make sure the DC and AC sources are both disconnected and the device shell is securely grounded to avoid electric shock when servicing or installing the device. - 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! - Do not touch the live parts of the input and output sides to avoid electric shock when checking or maintaining the device
	CAUTION	<ul style="list-style-type: none"> - Although the TKTP430AC02 is certified according to international safety standards, it becomes hot during operation. Do not touch the hot parts of the device during operation. - All wiring and operation must comply with the requirements of the relevant local standards of the device. - Check the device and make sure there are no problems with the installation before putting it into operation! - Be careful to move the TKTP430AC02 in case of a fall due to the weight of the device! - Although the device is IP66 protection class and can be applied outdoors, do not install the device in humid places or in direct sunlight as it is also an electronic device. - 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. - Pay attention to all wiring and safety instructions for the TKTP430AC02. - Heavy device, please move carefully!
	INSTRUCTION	<p>The product nameplate contains important information about the device, including model name, lot number, etc. If there is any problem or malfunction of the device during operation, customers can contact us directly and communicate the product serial number and the problem encountered: our assistance staff will do their best to help you promptly. Please keep the identification plate intact.</p>

3 INSTALLATION

Introduce the installation, wiring steps and safety instructions of the TKTP430AC02.

3.1 Internal Structure

FRONT View
TKTP430AC02



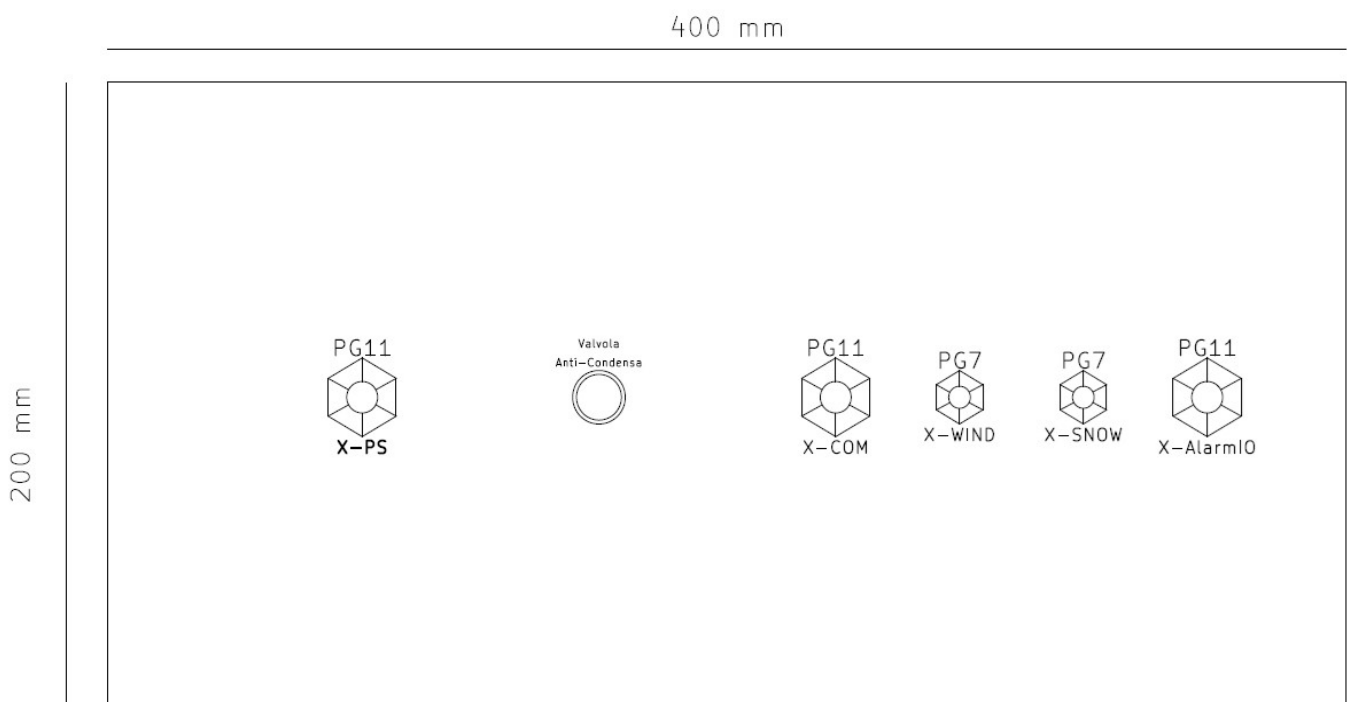
IMPORTANT

For further information on the operation of the TP_430, consult the manual : [trackers_driver_ita_xx.pdf](#)

3.2 Symbols legend

N°	DESCRIPTION
1	ENCLOSER 500x400x200
2	TP430/RCT/ETH
3	MagnetoTermico-2poli-63A
4	
5	AC/DC CONVERTER
6	Scaricatore di Protezione SPD PORTA SERIALE 15V 20 kA
7	SPD T1+T2 275V 65kA
8	TERMINAL BLOCK PE
9	TERMINAL BLOCK COM
10	TERMINAL BLOCK ADC 0
11	TERMINAL BLOCK ADC 1
12	TERMINAL BLOCK ALARM INPUT
13	FUSE HOLDER L 10x38 1000V 4A
14	FUSE HOLDER N 10x38 1000V 4A
15	TERMINAL BLOCK L
16	TERMINAL BLOCK N
17	TERMINAL BLOCK ALARM OUTPUT

3.3 Bottom View

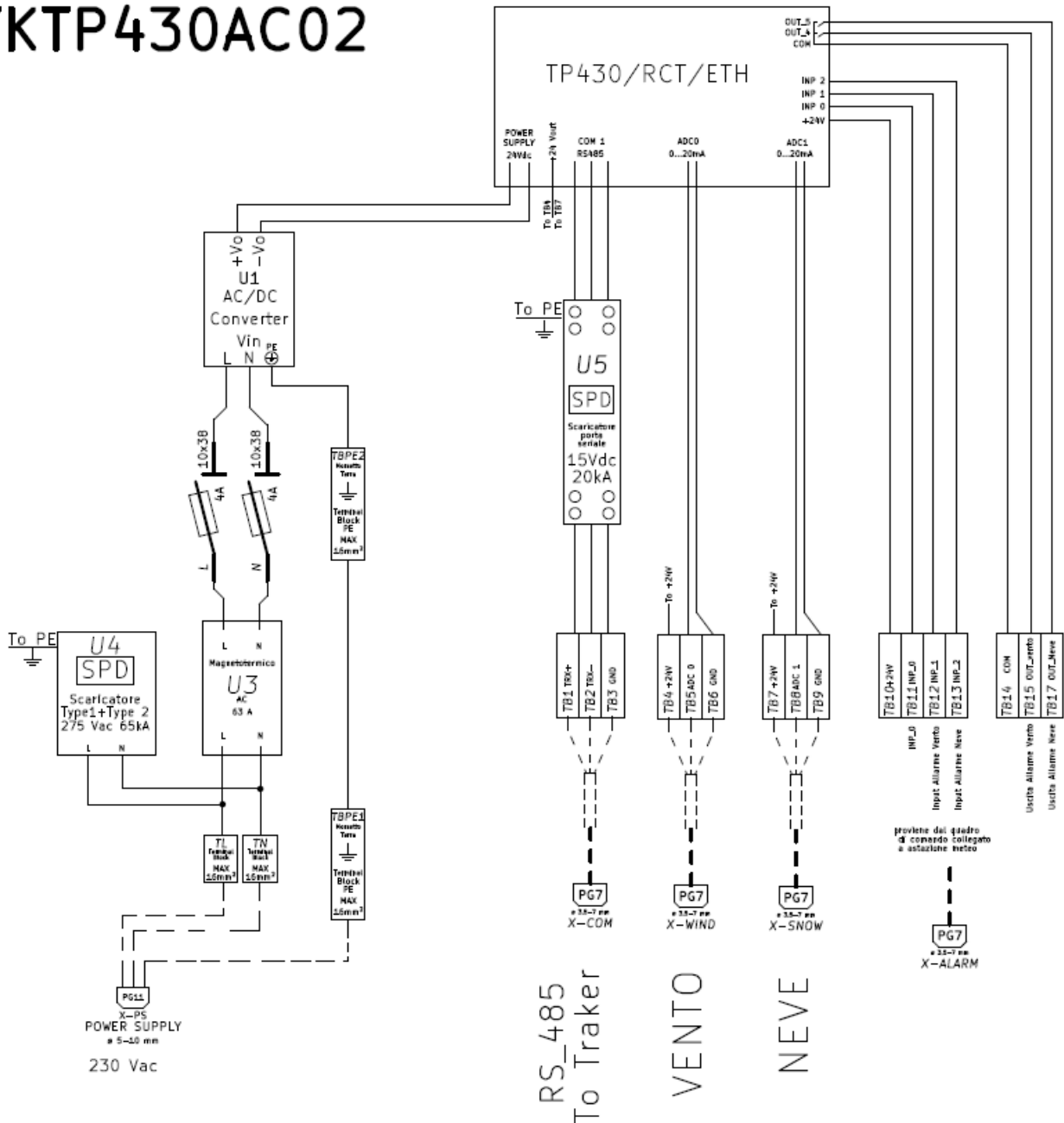



4 OVERVIEW

Introduce the mechanical structure, schematic diagram, etc. of the TKTP430AC02.

4.1 Block Diagram

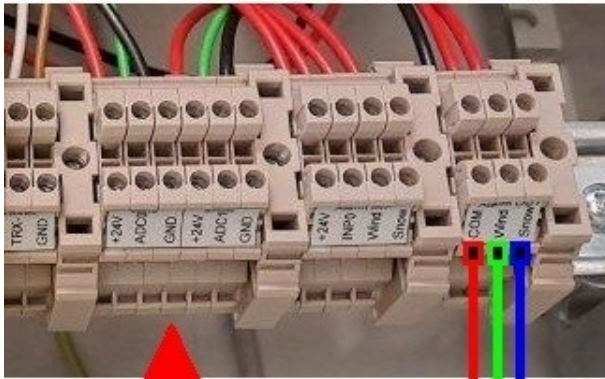
TKTP430AC02



	<p>IMPORTANT</p>	<p>If there are 2 or more TKTP430AC02 in the system, you need to connect the weather station (Wind / Snow) to only one of them (MASTER weather station). You then need to connect the ALARM OUTPUTS (Wind / Snow) from this TKTP430AC02 to all the others in the system (SLAVE weather stations).</p> <p><u>WEATHER STATION MASTER</u> <u>WEATHER STATION SLAVE</u> ALARM OUTPUT WIND >>> ALARM INPUT WIND ALARM OUTPUT SNOW >>> ALARM INPUT SNOW</p>
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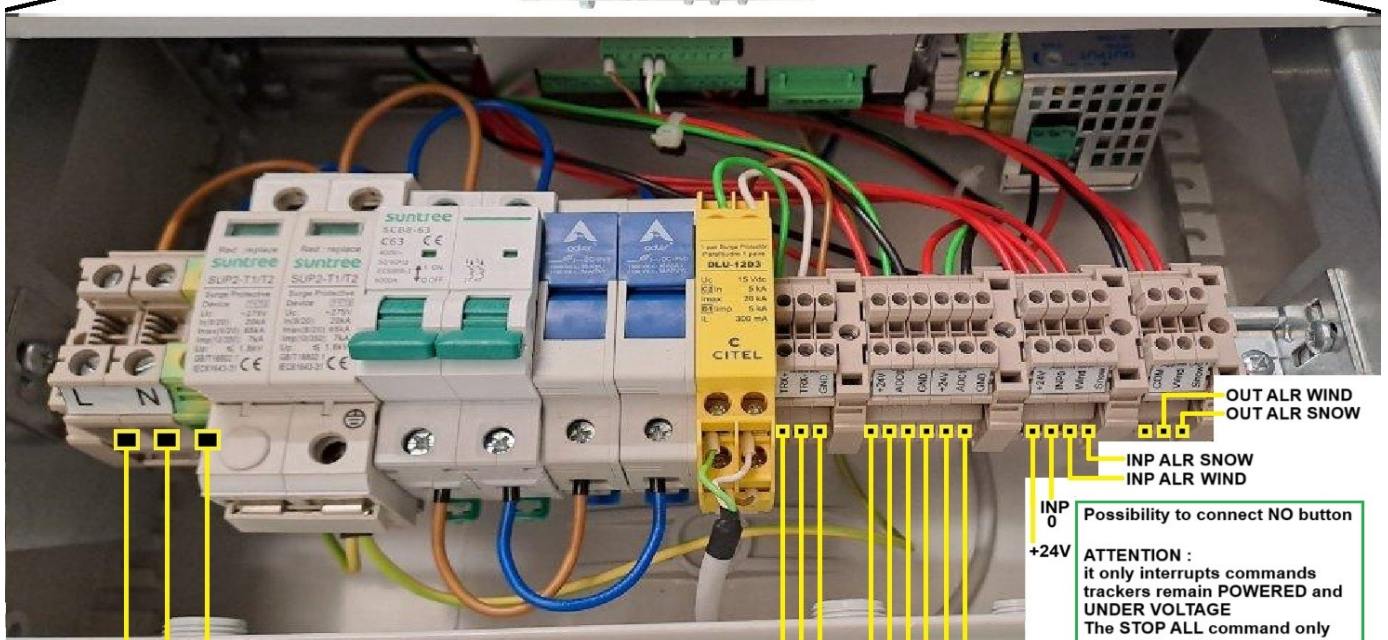
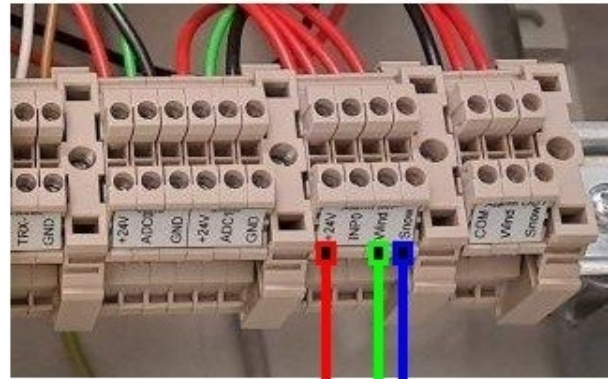
4.2 Connections

WEATHER STATION MASTER



Weather Station

WEATHER STATION SLAVE



ATTENTION :
it only interrupts commands
trackers remain POWERED and
UNDER VOLTAGE
The STOP ALL command only
works if the 485 is working

L N PE
(Protective Earth)

Power Supply
230 Vac

Trx+ GND +24V GND +24V GND
Trx-
RS 485
To Tracker
ADC0 WIND
ADC1 SNOW

5 BEFORE TO START

1. Examine all components before connecting. Internal connections must be carefully inspected before installation.
2. Check cable connections and check the fixing of the non-active parts whose function is the protection against direct contacts of the active parts.
3. General cleaning: Remove any internal objects (wire pieces, screws, nuts, wires...), insects, dust and dirt.
4. Do not install the panel near any flammable or corrosive substance.
5. Check the correct tightening torque of the electrical connections to avoid bad contacts. **Incorrect tightening or low wire cross section may cause fire and shock hazard as well as shorten the life of this product.**

6 CONTACTS

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