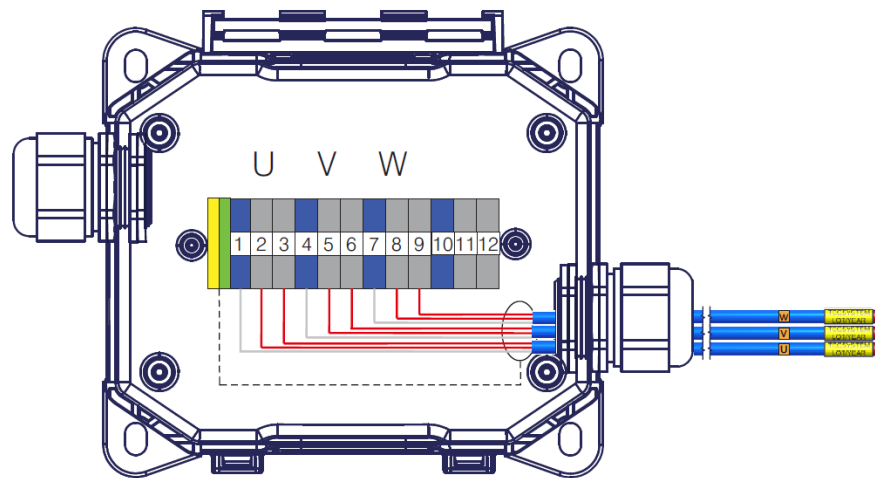


# INSTALLATION RULES for SCS/SENSOR Pt100



1MN0118 REV. 0



operates with ISO9001 certified quality system

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R. 1.6 02/09/22

ENGLISH

“Translations of the original instructions”

## INTRODUCTION

First of all we wish to thank you for choosing to use a **TECSYSTEM** product and recommend you read this instruction manual carefully: You will understand the use of the equipment and therefore be able to take advantage of all its functions.

ATTENTION! THIS MANUAL IS VALID AND COMPLETE FOR SCS BOX / SENSORS MODEL: PTSE - PTFE.



### **RULES FOR PROPER INSTALLATION OF SENSORS AND SCS BOX**

In order to ensure safe and reliable operation of the system to control the temperature of the transformer, you must follow the instructions provided in this document for installation and connection SCS BOX and Pt100 to the monitoring unit.

Each SCS BOX is made on specific request of the manufacturer of the transformer; in relation to the application and the safety standards of the transformer. The configurations of the SCS and its construction specifications can vary. The installation of the SCS is foreseen on industrial resin transformers with IP00 protection degree and internal working environment with: temperature from -25 ° C to + 40° C and max 90% non-condensing humidity.

The installer / user of the product is responsible for the proper installation of the product and its safety.

## CONTENTS

	PAG.
1) SAFETY REGULATIONS .....	3
2) TECHNICAL SPECIFICATIONS .....	4
• SCS BOX POLYAMMIDE .....	—
• SCS BOX ALUMINIUM .....	—
• PTSE SENSOR .....	5
• PTFE SENSOR .....	—
3) MOUNTING SCS BOX .....	6
4) POSITIONING OF SENSORS INSIDE THE TRANSFORMER .....	—
5) CONNECTING SCS BOX / SENSORS TO UNIT .....	7
6) WARRANTY CONDITIONS .....	8
7) TROUBLESHOOTING .....	—
8) EQUIPMENT DISPOSAL .....	9
9) USEFUL CONTACTS .....	—

## SAFETY REQUIREMENTS



### ATTENTION

Carefully read the manual before you start installation or functional testing of the SCS BOX or the sensors. Keep the instructions for future reference.



Do not approach or touch the wiring SCS BOX and probes if the transformer is in operation. Each operation of SCS or probes must be performed with the transformer off. Always follow the safety indications given by the manufacturer of the transformer and or the system on which you are working.



All the operations on the product must be performed by a qualified technician only.

**Failure to follow these instructions can result in damage, fire or electric shock, with possible serious injury!**

### LIQUIDS

Do not expose the equipment to splashing or drops, do not place in places where humidity is over 90% and never touch with wet hands.

### CLEANING

Before cleaning the SCS BOX always disconnect the power cord of the unit, use a dry cloth to dust, no solvents or detergents, and compressed air.

### OBJECTS

Never insert objects into the SCS BOX. If this happens, unplug the device and call a technician.

### USE RESERVED TO QUALIFIED PERSONNEL

The purchased goods are a sophisticated electronic device that is totally unsuitable to be used by non-qualified personnel. Any intervention must be carried out by a specialist engineer.

### ACCESSORIES

The use of accessories or spare parts not original may damage the device and endanger the safety of the user. In case of failure contact technical support.

### POSITIONING

Install the sensors and SCS BOX in places protected from splashes of water and sunlight. Do not place near heat sources exceeding the parameters specified in this manual. Place on a stable surface, away from vibration. Place the device as far away from any strong magnetic fields.

### MAINTANANCE

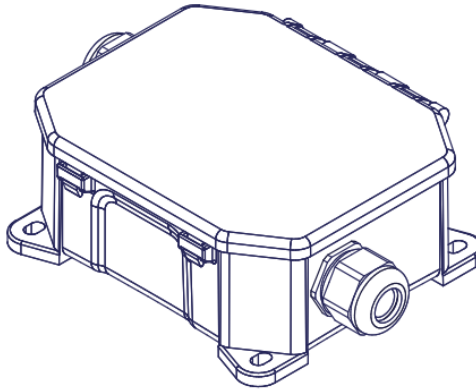
If any faults occur always contact qualified personnel.

### TECHNICAL INFORMATION

**Mail:** [technical@tecsystem.asia](mailto:technical@tecsystem.asia)

## TECHNICAL SPECIFICATIONS

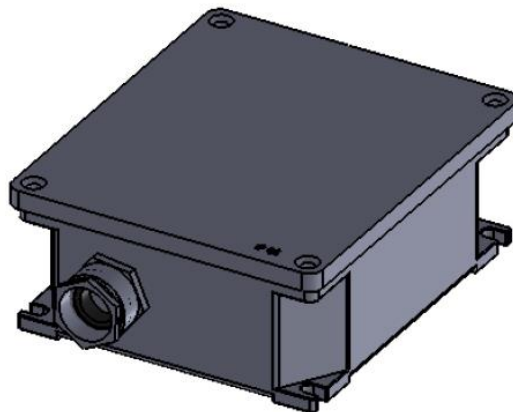
### SCS BOX POLYAMIDE



1MN0120 REV. 0

BOX SPECS	CABLE GLAND SPECS	TERMINAL SPECS
COLOUR: RAL7001	DIMENSIONS: PG16	SECTION WIRE 0,25 to 1,5mm <sup>2</sup>
MATERIAL: POLYAMIDE UL 94V0	MATERIAL: POLYAMIDE UL 94V0	WORKING TEMPERATURE: -20°C+120°C

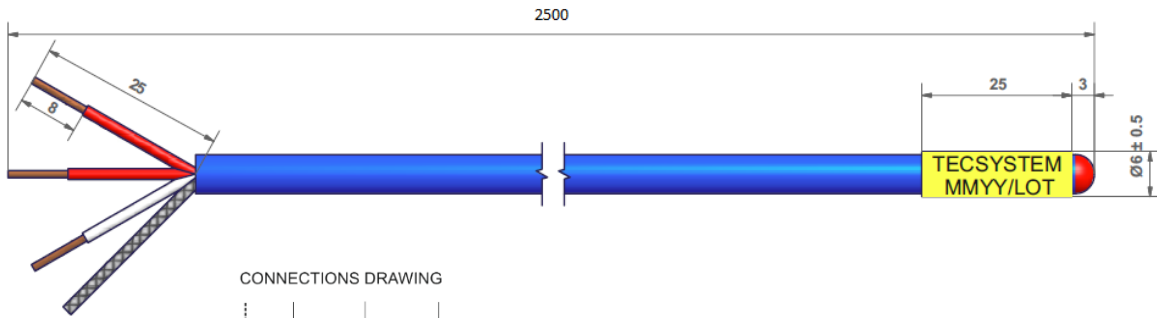
### SCS BOX ALUMINIUM



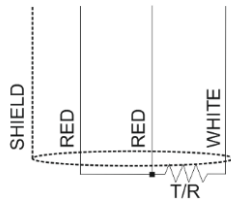
1MN0116 REV. 0

BOX SPECS	CABLE GLAND SPECS	TERMINAL SPECS
COLOUR: RAL7040	DIMENSIONS: PG16-PG21	SECTION WIRE 0,25 to 1,5mm <sup>2</sup>
MATERIAL: ALUMINIUM	MATERIAL: BRASS NICKEL	WORKING TEMPERATURE: -40°C+120°C

**PTSE SENSOR**



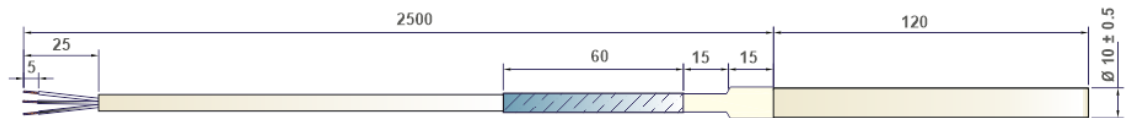
CONNECTIONS DRAWING



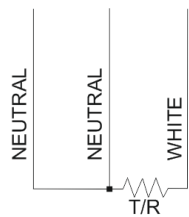
1MN0115 REV. 1

PTSE SENSOR SPECS		
STANDARD LENGHT: 2,5mt	TEMPERATURE MAX: 200°C	WIRE SECTION: Ø 5,2 SHIELDED
SENSOR: Pt100 OHM 0°C CL.B	TEST OF DIELECTRIC STRENGHT: AT 5KV <sub>vac</sub> BETWEEN SHORT CIRCUIT CABLES AND JACKET	3 WIRES CONNECTION: (WHITE-RED-RED)
MATERIAL: SILICON RUBBER	WIRE SECTION: 3X0,35mmq twisted	IDENTIFICATION: PRODUCTION MARKING

**PTFE SENSOR**



CONNECTIONS DRAWING



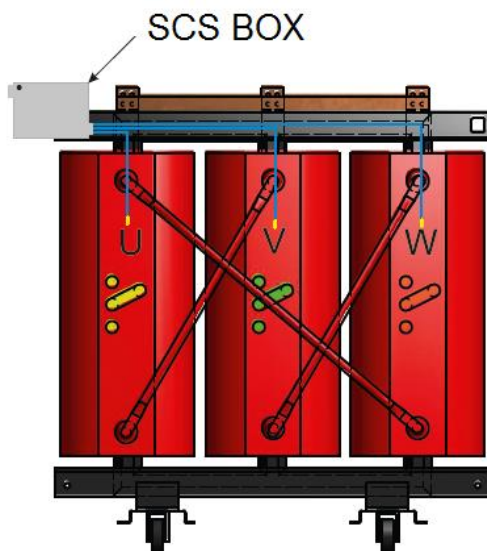
1MN0119 REV. 1

PTFE SENSOR SPECS		
STANDARD LENGHT: 2,5mt	TEMPERATURE MAX: 220°C	WIRE SECTION: Ø 5,5
SENSOR: Pt100 OHM 0°C CL.B	TEST OF DIELECTRIC STRENGHT: AT 30KV <sub>vac</sub> BETWEEN SHORT CIRCUIT CABLES AND PTFE TIP	3 WIRES CONNECTION (WHITE -TRANSPARENT-TRANSPARENT)
MATERIAL: TEFLON	WIRE SECTION: 3X0,38mmq twisted	IDENTIFICATION: PRODUCTION MARKING

## MOUNTING SCS BOX

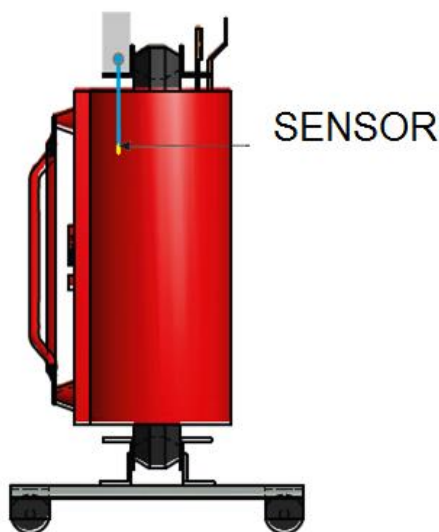
The SCS box must be mounted on one side of the transformer respecting the following guidelines:

- Maintain a safe distance between the windings voltage and the SCS BOX. The safety distance must be specified by the manufacturer of the transformer according to the voltage on the primary and secondary windings.
- Do not place the SCS BOX near the hot air flow coming from the windings or the core.
- Working temperature range of the SCS BOX: -20°C to 120°C (-40°C to 120°C ALUMINIUM BOX).
- Maximum humidity 90% (non-condensing).
- Location place protected from splashing water and sunlight.



1MN0117 REV. 1

## POSITIONING OF SENSORS INSIDE THE TRANSFORMER



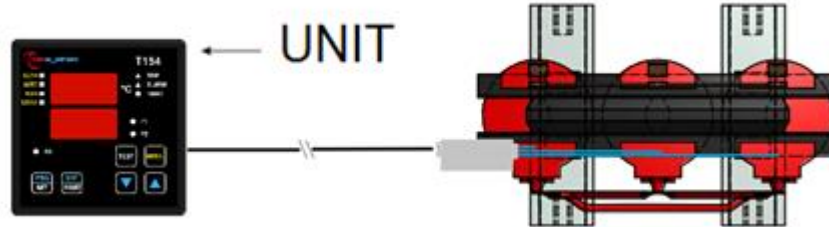
Sensors should be inserted into the secondary of the transformer respecting the following guidelines:

- each sensor U-V-W must be inserted inside the secondary winding transformer, the sensor CH2 must be placed in the central column
- Avoid from any occlusion into the channel where the sensor has to be placed.
- The cable of the Pt100 must be laid in a linear mode, without creating windings and must be protected and secured by a special duct.
- The sensor type installed must comply with the rules of the security measures for the tensions on which it is applied. The installer / user of the transformer is responsible for the proper installation of the product and its safety.

1MN0117 REV. 1

## CONNECTING SCS BOX / SENSORS TO THE MONITORING UNIT

To ensure a safe connection of the Pt100 sensor between SCS BOX and the temperature monitoring unit, you must strictly perform the following rules:



1MN0117 REV. 1

### Installation rules:

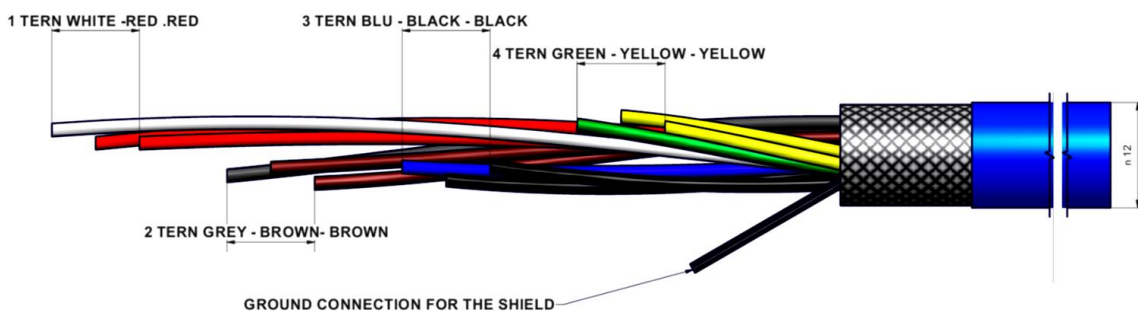
- Every sensor must be connected using a 3 wires cable with minimum section of 0,35 mm<sup>2</sup> and maximum of 1 mm<sup>2</sup>.
- Extension cable must be shielded with tinned copper covering at least the 80% of the surface.
- Wires has to be twisted together.
- Shield must be connected to ground from only one terminal, choosing the side of the monitoring unit.
- Cable transporting data signals from the sensors must not be close to energy cables either low or high voltage.
- Sensor and data cables must be positioned as linear as possible without creating windings.
- Terminals, if present, must be very tight crimped to avoid false connection.

If you do not follow carefully the installation instructions provided, there may be some anomalies in the temperature reading, for which TECSYSTEM is not responsible.

Note: for better contact with the spring terminal of the SCS BOX, do not use crimp terminals. Insert the stripped wires.

Installation not in accordance with the rules set by TECSYSTEM, within the application of the transformers / electric motors, can cause: incorrect temperature readings, alarms or abnormal tripping, RTD faults, damage to the Pt100 inputs of the temperature monitoring unit.

In order to support the customer, TECSYSTEM SH has realized a special cable for the transport of the data signals, according to CEI, with all the protection requirements: mod. **CTES 1CA0003**.



1MN0034 REV. 0

## TECHNICAL SPECIFICATIONS OF THE EXTENSION CABLE FOR Pt100

1. Cable 20 x AWG 20/19 Cu/Sn
2. Section 0.55 mm<sup>2</sup>
3. Flame retardant insulation PVC105
4. CEI 20.35 IEC 332.1 regulations
5. Maximum operating temperature: 90°C
6. Conformation: 4 sets of three twisted and coloured conductors
7. Shield in Cu/Sn
8. Flame retardant PVC sheath
9. External diameter 12mm
10. Standard conformation in 100m coils



### **IMPORTANT NOTICE**

**Before performing the insulation test of the control panel, where the unit is installed, you have to disconnect it from the power line and disconnect the sensors, in order to avoid serious damage.**

## WARRANTY CONDITIONS

The Product purchased is covered by the manufacturer's or seller's warranty at the terms and conditions set forth in the "Tecsystem SH's General Conditions of Sale", available at [www.tecsystem.asia](http://www.tecsystem.asia) and / or purchase agreement.

The warranty is considered valid only when the product is damaged by causes attributable to TECSYSTEM SH, such as manufacturing or components defects.

The warranty is invalid if the Product proves to have been tampered with / modified or incorrectly connected and causing voltages outside the set limits and does not comply with the technical data for use and assembly, as described in this instruction manual.

The warranty is always ex Shanghai as stated in the "General Conditions of Sale".

TROUBLESHOOTING	WHAT TO DO
One sensor seems to be broken	Check the wires are well tightened and, by a multimeter instrument, check the continuity.
One of the sensor seems to be in short circuit.	By a multimeter instrument check the resistance value of the sensor between the white wire and the two reds (transparent).
Information from sensors seems to be wrong.	Check connections of the sensors, check if everything is correct in respect of suggestions on the paragraph Connecting SCS BOX / sensors to the monitoring unit on page 7.



## EQUIPMENT DISPOSAL

The European directive 2012/19/EU (WEEE) has been approved to reduce the waste of electrical and electronic appliances and to encourage the recycling and reuse of materials and components of these appliances, thereby reducing the disposal of harmful residues and compounds originating from electrical and electronic material.



All the electrical and electronic equipment supplied after 13 August 2005 is marked with this symbol, pursuant to European directive 2012/19/EU on electrical and electronic waste (WEEE). Any electrical or electronic equipment marked with this symbol must be disposed of separately from normal domestic waste.

Returning of used electrical appliances: contact TECSYSTEM or the TECSYSTEM agent to receive information on correct disposal of the appliances.

TECSYSTEM is aware of the impact its products have on the environment and asks its customers active support in the correct and environmentally-friendly disposal of its devices.

## USEFUL CONTACTS

TECHNICAL INFORMATION: [technical@tecsystem.asia](mailto:technical@tecsystem.asia)

COMMERCIAL INFORMATION: [lucyzhao@tecsystem.asia](mailto:lucyzhao@tecsystem.asia)



This QR code only for WeChat !