

# C827-I

**Signal Transmitter for T / C - RTD – Ohm**  
**Configurable Universal Input - Output 4 ÷ 20 mA (2 wires)**  
**ISOLATED – 2017 Version**

**Cylindrical version suitable for mounting Din Head Type "B" DIN 43729**



**Operator's Manual**

**Cod. C827-I\_5B276\_UK\_M1**

**English Language**

**Product Rev: 3.0 - Manual Rev: 3.1**



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## 1 – General characteristics

C827 is an extremely compact signal transmitter, developed with latest generation technologies, without trimmers, jumpers and any other mechanical device to guarantee maximum reliability.

The signal retransmission technique is the typical standard in current (mA) on 2 wires, the same wires that in the Loop also power supply the device.

The shape of the product is round and very compact, such as to be compatible with the internal housing in the typical connection head for thermocouples type DIN "B" with threaded mounting distance 33 mm (DIN43729) or other compatible.

In input it accepts the most common types of THERMOCOUPLES, THERMORESISTENCES and Signals in Resistance.

## 2 – Technical Features

**Function:** Converter Transmitter of Configurable Signal

**Technology:** Microprocessor SMD circuit

**Input:** Configurable for T / C - RTD - Ohm

**T / C CJC Cold Joint Compensation:** Automatic

**Range & Accuracy:** See Following Specifications Tables

**Output:** 4 ÷ 20 mA Linear (Resolution 0.3  $\mu$ A)

**Response Time:** 1 Second @ 90%

**Insulation:** > 100 MOhm (within 500 Vdc) - 1500 Vrms (1 min - w / o Spark)

**Special Functions:** Sensor Break + Alarms

**Supply:** 12 ÷ 40 Vdc (Recommended 24 Vdc)

**Operating and Storage Conditions:** -40 ÷ 85 ° C - 5 ÷ 95 UR% Non Condensing

**Shock & Vibration:** 4 g / 2 @ 150 Hz (IEC 60068-26)

**EMC:** CE - GB / T 18268 - IEC61326-1

**Housing:** Plastic cylindrical

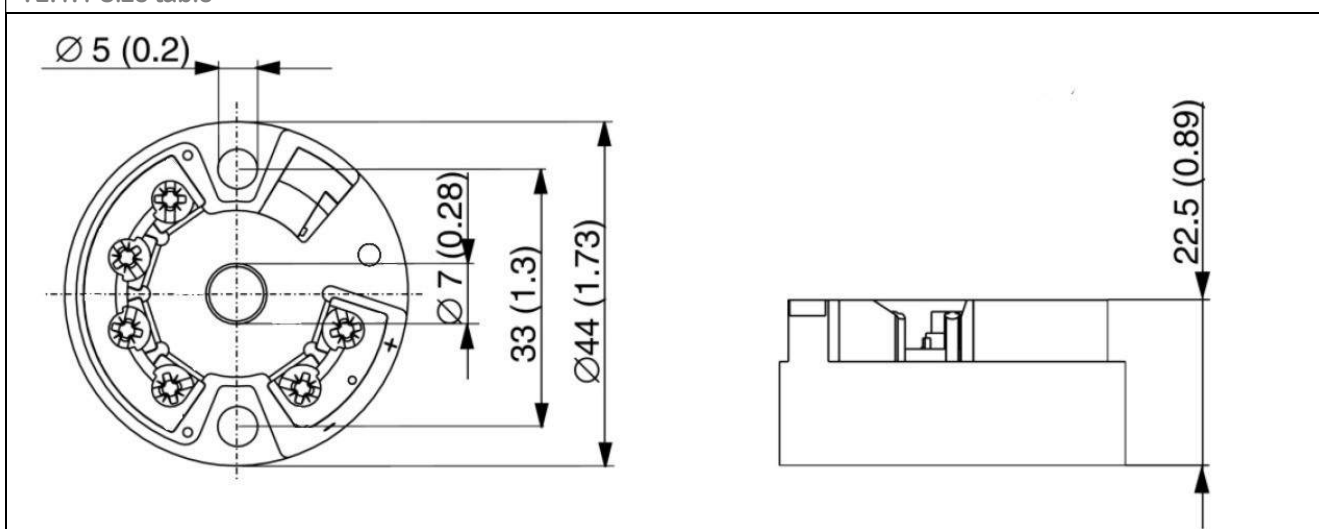
**Mounting:** Internal DIN Connection Head Type B & Compatible (DIN 43729)

**Electrical Connection:** Screw Terminal blocks

**Dimensions:** Diameter 44 mm. - Height 22.5 mm. (Max) - Weight: 34 Grams Approx

### 2.1 – General dimensions

T2.1.1 Size table



## 2.2 – Compatible Inputs Tables

Reference Conditions: 23 °C (73,4 °F) ± 5K

T2.2.1 Input T / C Table (Thermocouples)				
Type	Note	Standard Ref.	Range	Accuracy
T	Cu – Co	IEC 60584-1 (ITS90)	-200 ÷ 400 °C	< 0,1 % f.s.
E	Cr – Co	IEC 60584-1 (ITS90)	-100 ÷ 1000 °C	
J	Fe – Co	IEC 60584-1 (ITS90)	-100 ÷ 1200 °C	
K	Cr – Al	IEC 60584-1 (ITS90)	-180 ÷ 1372 °C	
N	Nicrosil – Nisil	IEC 60584-1 (ITS90)	-180 ÷ 1300 °C	
S	Pt – PtRh10%	IEC 60584-1 (ITS90)	-50 ÷ 1760 °C	
R	Pt – PtRh13%	IEC 60584-1 (ITS90)	-50 ÷ 1768 °C	
B	PtRh30% - PtRh6%	IEC 60584-1 (ITS90)	400 ÷ 1820 °C	

T2.2.2 Input Table RTD Pt				
Type	Standard Ref.	Type	Range	Accuracy
Pt100	IEC 60751		-200 ÷ 850 °C	< 0,1 % f.s.

T2.2.3 Input Table RTD Cu				
Type	Standard Ref.	Type	Range	Accuracy
Cu50	IEC 60751		-50 ÷ 150 °C	< 0,1 % f.s.

T2.2.4 OHM Input Table (Linear)				
Type	Standard Ref.	Type	Range	Accuracy
Lineare			0 ÷ 4500 Ohm	< 0,1 % f.s.

### 2.3 – Supply

The device is powered by the same Loop on which it transmits the current signal (mA) and must be between 12 and 35 ÷ 40 Vdc, recommended 24 Vdc

### 2.4 – Housing

**Material:** Made of plastic materials with external screw terminals for electrical connection

**Shape:** Typical cylindrical

**Dimensions:** Diameter 44 mm. - Thickness Max. 21 ÷ 22.5 mm Max (Terminals included)

**Central Hole:** Diameter 6.5 mm

**Distance between fixing holes:** 33 mm ± 0.5 mm.

**Note:** The device is compatible with connection head mounting for T / C DIN Type "B" (DIN43729) and compatible.

### 2.5 – Connection

**Connection Input & Output Sensor T / C-RTD-OHM: Screw Terminals**

**The electrical connection of the input and of the output must be made only with an isolated cable size AWG24 up to 14, using a different cable can damage the clamp and make the use of the transmitter dangerous, immediately canceling the warranty.**

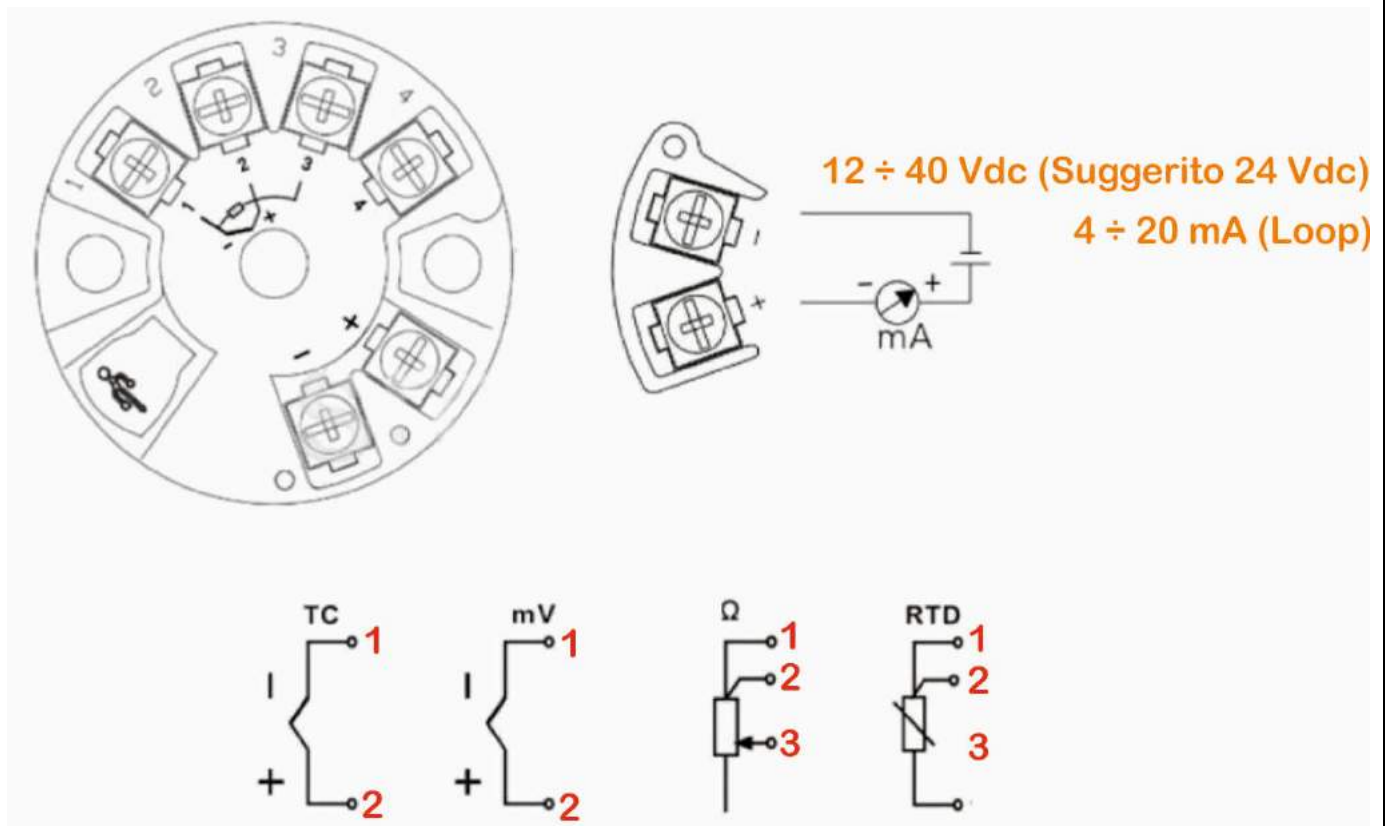
**Gate Connection Configuration:** Dedicated Mini USB Connector (See C827 Series Accessories)

### 2.6 – Environmental conditions

**Operating & Storage Conditions:** -40 ÷ 85 °C (-40 ÷ 185 °F) - 5 ÷ 95 UR% Non-condensing

### 3 – Wiring

#### T3.0.1 Tabella Legenda Wiring



#### 3.1 – Configuration Cable Connection (Ref. T3.0.1)

For the digital connection of configuration, the C827-I transmitter is equipped with a Mini USB connector.

**Note:** The configuration connector is protected by a small interlocking plug that can easily be removed to access the internal connector as you can clearly see from the picture in the table below:

#### T3.3.1 Configuration Connector Table



## 4 – Functionality

### 4.1 – ALARMS function

The ALARMS function allows to configure the predefined alarm values on the measurement scale, at the exceeding of that, the transmitter forces the analog output to 3.8 mA in case of LOW ALARM and 22 mA in case of HIGH ALARM

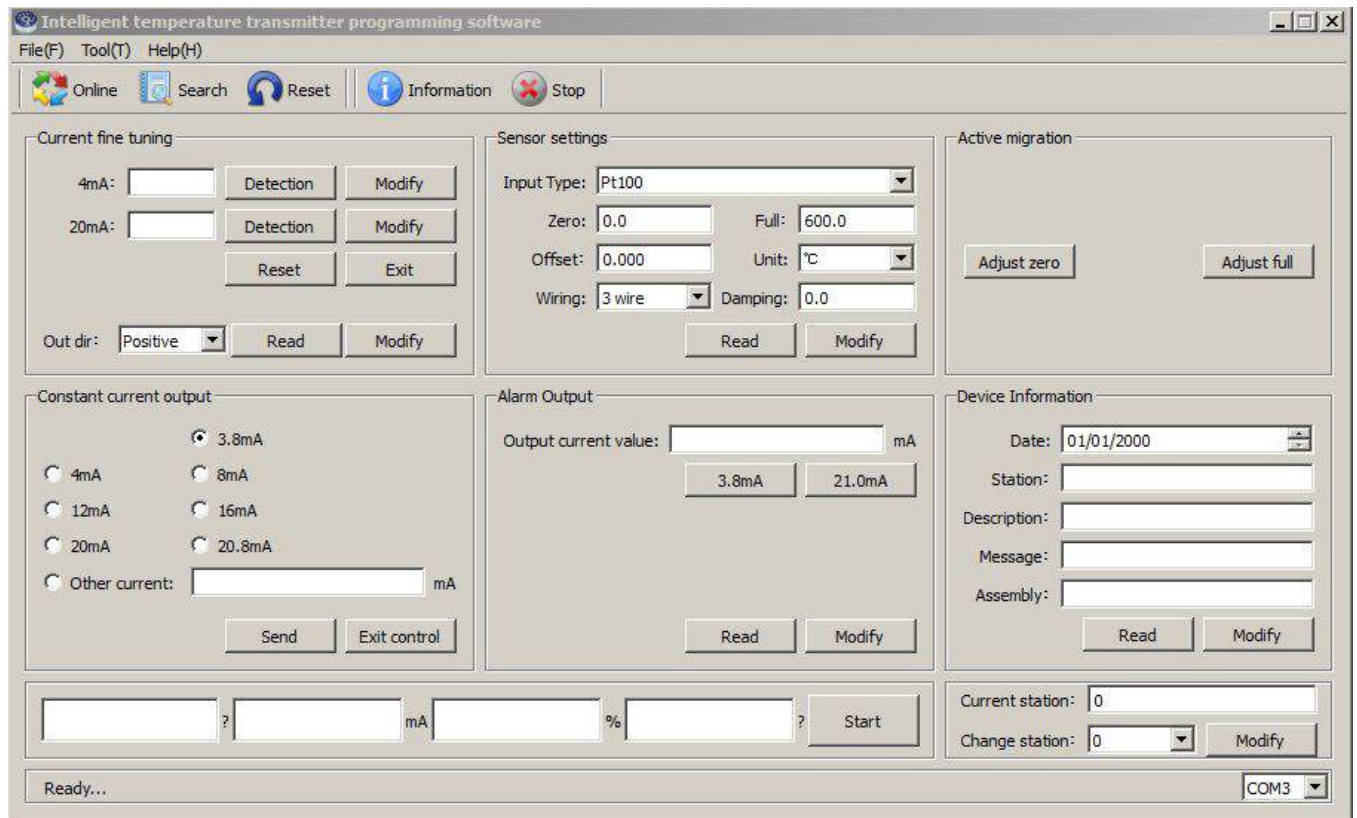
### 4.2 – COLD JOINT COMPENSATION function

The COLD JOINT COMPENSATION function allows this important function to be carried out automatically thanks to a precision room temperature sensor inside the transmitter

## 5 – Configuration

The transmitter is totally configurable by means of a PC through the Windows Utility software package C827-SWT1-SWT1 (5B012) that does not even require installation and no intervention on trimmer, Jumper or Dip-Switch, typically a source of problems.

Thanks to the particular graphic structure of the software, the configuration procedure is extremely simple and intuitive, and can be managed by anyone even by non-experts.



In order to perform the software configuration, in addition of a PC equipped with Windows Operating System, the user must have acquired the USB cable-converter Mod. C827-CFG (Art. 5B011).

**Note:** The Windows configuration software can be downloaded for free, while the cable is optional and must be purchased separately.

### 5.1 – Software Installation

The Software does not require installation and can also be used directly from a flash drive

## 6 – Calibration



As in the case of CONFIGURATION (Par. 2.7), the transmitter is also equipped with a CALIBRATION procedure guided exclusively via Software.

The CALIBRATION of the device, while being guided and apparent simple, is an extremely critical activity that should not be underestimated, and for this reason reserved exclusively to specialized and properly equipped personnel authorized by CEAM.

A possible error in the execution of this procedure may result in making the device unstable and unusable, or due to incorrect calibration can generate a very high level of risk for the system to which it is intended.

In order to perform the calibration of the transmitter, in addition to the PC, the software, and the digital connection cable, other specialized equipment, such as those listed below, are also necessary:

- Precision Calibrator tool capable of generating and reading signals compatible with the transmitter
- Set of cables for connecting the Calibrator to the Transmitter
- Power supply to power the transmitter during calibration operations

**All the information concerning the complete calibration procedure, and the passwords to access the part of the software that allow it to be executed, are available in the appropriate Appendix manual, which is not normally distributed, but must be requested expressly writing to our commercial service, prior have completed the training course for use, or by signing the release you assume responsibility.**

### **WARNING!**

**An incorrect calibration can also irreparably damage the device, producing serious risks for things and people and / or an intervention carried out by unauthorized personnel immediately cancels the warranty.**

**The warranty is canceled immediately even if the user uses the device with cables, accessories and non-CEAM products.**



## 7 – Warranty

### **Attention!!**

The present handbook is merely indicative, and it is subject to changes in any moment, without giving any notice.

The not respecting strictly the indication found on this handbook, the opening and tampering the product, the incorrect use, the wrong wiring, the using of spare parts or optional not original CEAM Control Equipment, the removing of the labels, of the identification marks put by CEAM Control Equipment, and the hidden export to Extra CE counties, they make immediately lose the responsibility over the product and the warranty right!

**WARRANTY TERMS:** the product is under warranty for a period of 12 Months (Art. 1490 C.C. and following) starting by the delivery note date, also in case it is in vision, and then transformed in selling, the complete text of the warranty conditions offered by CEAM Control Equipment in conformity to the actual laws, are published, and are at disposal of any people which demand for them, the document is registered both in paper form and in electronic form, to the CEAM Control Equipment, headquarter, and to see it, it is sufficient to make a written request, specifying the title of the applicant.

#### **The warranty cover:**

The products and the components which bad functioning is referable for sure to production defects, the eventual defect met gives only the right to repair it, and not to substitute the product, besides the eventual production defect, does not give any right to resolute the contract, or to suspend the payment if not expressly agreed in written by CEAM.

#### **The warranty does not cover:**

Defects generated by incorrect or improper use of the product  
 Defects generated by using spare parts or consumables products not original CEAM  
 Defects generated by environmental and/or atmospheric problems and/or natural calamity  
 Products and/or services tampered or modified even partially  
 Products and/or services to which have been taken off, or tampered, even partially, labels and lot codes original CEAM

#### **In any case, the warranty does not cover:**

Batteries, magnetic devices, perishable products and/or consumable products  
 The components of Third parts, to which it must answer directly, the assistance service of the same, with the modalities provided from them.  
 The technical time used to verify and/or to repair the products  
 The travelling allowance, and the technical intervention on the place, if effected.  
 The packaging and shipping cost of the products there and back.  
 All the additional costs supported by CEAM to fulfil the warranty.

#### **Clause of responsibility exclusion**

CEAM does not assume any responsibility, regarding eventual damages, direct or in direct, caused to people or things, or damages for non production and/or incorrect production and/or eventual damage, in some way referable to the product and/or to this handbook service.

CEAM does not assume any responsibility regarding eventual damages caused to people or things because of the eventual not conformity to the product and/or service of the present handbook, which is merely indicative, and that can be changed by CEAM in any moment without giving any notice.



EMC GB/T 17626.2:1998 – IEC61000-4-3:1995

## 8 – How to Order

The product can be viewed and selected directly online on the [sensorstore.it](http://www.sensorstore.it) catalog, from which you can also download all the available documentation and also the configuration software, or you can directly access the product page through the Qrceam system with the code on the side .

On the same web page are indicated both alternative products and the available accessories



<http://www.sensorstore.it/catalogo/c827.html>

## Optional Accessories:

### **Configuration Software:**

C827-SWT1- Art. 5B012 - Configuration Software Professional Full Version, free download - No installation required

### **Connection cables for configuration:**

C827-CFG-TTL-USB - Art. 5B011 – Cable TTL-USB Active 1 mt

### **Other Suggested Accessories:**

C801-M - Triple Separate Output Power Supply - Various Available Voltages

C810-1PH - Single-phase 10A noise suppression filter - Art. 5596

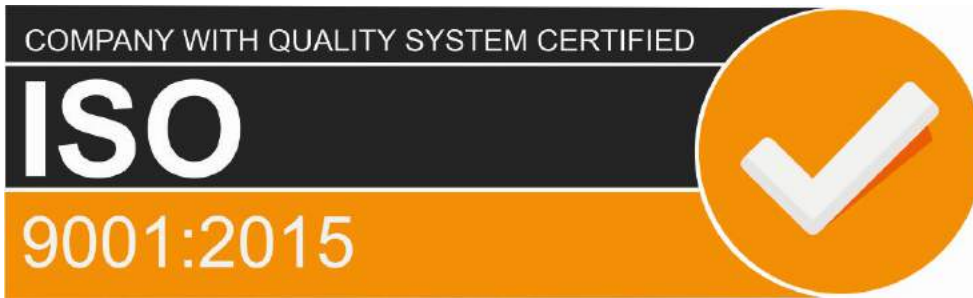
C810-FUL-1PH - Single-Phase Network Overvoltage Protection - Art. 5861

### **Other Matched Products Reported:**

Calibrators Series C6000 Signal Readers-Simulators - Various Models Available

**Configuration table**

<b>Transmitter Configuration Table</b>	
<b>Transmitter Mod.</b>	<b>C827-I</b>
<b>Art.</b>	
<b>Batch</b>	
<b>Serial Number</b>	
<b>Power Supply</b>	
<b>Input Type</b>	
<b>Measurement scale</b>	
<b>Output Type</b>	
<b>Output Range</b>	
<b>General Notes</b>	
<b>Installation Date</b>	
<b>Operator</b>	
<b>Plant</b>	
<b>Branch</b>	
<b>Measure Point</b>	
<b>Scheduled Calibration</b>	
<b>Installation Notes</b>	



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