

2 YEAR
WARRANTY



Ω OMEGA[®] User's Guide

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TX402 **Head Mount TC/RTD Input** **Transmitter RFID**

Introduction / Introduzione

Thanks for choosing a Omega device.

*The **TX402** converts a signal obtained from temperature sensors PT100, PT1000 or NI100 (with a 2, 3 or 4 wires connection) into a current signal for 4..20mA loop (2 wires).*

Main features are:

- *High accuracy;*
- *16bit conversion;*
- *Programmable by RFid (NFC);*
- *Input -10..+70 mV*
- *2624 Word non-volatile memory (circular buffer) for data-logging with sampling time selectable by the user;*
- *Possibility to rescale the output 4..20mA compared to temperature input value;*
- *Field calibration to compensate eventual errors (Gain and Offset);*
- *Compact dimensions;*
- *The software **RF Programmer** (available for download on www.omega.com and the **TX400-RFID** allow:*
 - *complete configurability of the device;*
 - *download on PC of logged data;*
 - *visualization/printing of the temperature - time trend*

Grazie per aver scelto un prodotto Omega.

Lo strumento **TX402** converte un segnale di temperatura acquisito attraverso sonde PT100, Ni100 con collegamento a 2, 3 o 4 fili o TC in un segnale normalizzato in corrente per loop 4..20 mA (tecnologia 2 fili).

Le caratteristiche dello strumento sono:

- Elevata precisione;
- Conversione della misura a 16 bit;
- Programmabilità via RFid (NFC);
- Ingresso -10..+70 mV
- 2624 Word di memoria non volatile (buffer circolare) per data-logging con tempo di campionamento impostabile dall'utente;
- Possibilità di riscalare l'uscita 4..20mA rispetto all'ingresso in temperatura;
- Taratura in campo per recuperare eventuali errori delle sonde (Gain e Offset);
- Ridotto ingombro;
- Tramite il software **RF Programmer** (scaricabile dal sito omega.com) e il programmatore **TX400-RFID**, è possibile fare:
 - configurabilità completa del convertitore;
 - download su pc del logging registrato;
 - visualizzazione e stampa della curva temperatura - tempo

1 Safety guide lines / Norme di sicurezza

Read carefully the safety guidelines and programming instructions contained in this manual before using/connecting the device.

Only qualified personnel should be allowed to use the device and/or service it and in accordance to technical data and environmental conditions listed in this manual.

Do not dispose electric tools together with household waste material. In observance European Directive 2002/96/EC on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

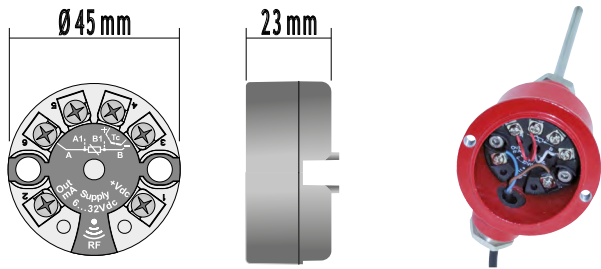
Prima di utilizzare il dispositivo, leggere con attenzione le istruzioni e le misure di sicurezza contenute in questo manuale.

L'utilizzo/manutenzione è riservato a personale qualificato ed è da intendersi esclusivamente nel rispetto dei dati tecnici e delle condizioni ambientali dichiarate.

Non gettare le apparecchiature elettriche tra i rifiuti domestici.

Secondo la Direttiva Europea 2002/96/CE, le apparecchiature elettriche esauste devono essere raccolte separatamente al fine di essere reimpiegate o riciclate in modo eco-compatibile.

2 Dimensions and installation / Dimensioni e installazione



1 *Technical Data / Dati tecnici*

1.1 *General data / Caratteristiche generali*

1	<i>Operating range</i> Range funzionamento	6-32 Vdc
2	<i>Current output</i> Uscita in corrente	4..20 mA (2 wires) / 4..20 mA (2 fili)
3	<i>Functional insulation</i> Isolamento funzionale	1K Vac
4	<i>Output resolution</i> Risoluzione in uscita	2 μ A
5	<i>Upper Linearity Limit</i> Limite linearità superiore	f.s. + 5°C
6	<i>Lower Linearity Limit</i> Limite linearità inferiore	f.s. - 5°C
7	<i>Failure output</i> Uscita guasto	<i>selectable 21mA, 3,8mA or anyone</i> <i>selezionabile tra 21mA, 3,8mA o nessuno</i>
8	<i>Current output protection</i> Protezione uscita in corrente	30 mA approx. 30 mA circa
9	<i>Rejection</i> Reiezione	50-60 Hz
10	<i>Max transmission error</i> Max errore di trasmissione	<i>greater between 0,1% f.s. or 0,2°C</i> maggiore tra 0,1% f.s. o 0,2°C
11	EMI	< 0,5%
12	<i>Cable resistance</i> Resistenza cavi	max 20 Ω
13	<i>Temperature coefficient</i> Coefficiente di temperatura	< 100 ppm
14	<i>Sampling time</i> Tempo di campionamento	300 ms
15	<i>Response time (10..90%)</i> Tempo di risposta (10..90%)	approx. 600 ms
16	<i>Sealing</i> Grado di protezione	IP 20
17	<i>Conformity</i> Normative	CE, EN 61000-6-4, EN 61000-6-2

1.2 Thermo-mechanic features / Caratteristiche termomeccaniche

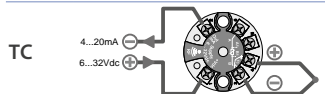
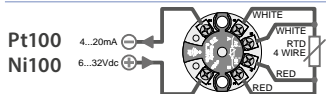
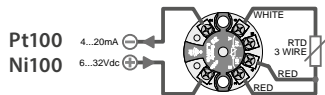
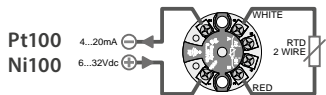
1	<i>Operating temperature</i> Temp. di funzionamento	-40..+85 °C
2	<i>Humidity</i> Umidità	30-90% @ 40°C (<i>non condensing / non condensante</i>)
3	<i>Storage temperature</i> Temperatura magazzinaggio	-40..+105°C
4	<i>Connections</i> Conessioni	<i>screw pins</i> morsetti a vite
5	<i>Conductors section</i> Sezione conduttori	1 mm ²
6	<i>Wires strip</i> Spelatura conduttori	8 mm
7	<i>Enclosure</i> Custodia	nylon (PA66)
8	<i>Dimensions</i> Dimensioni	23 mm, Ø 45 mm

2 Input / Ingressi

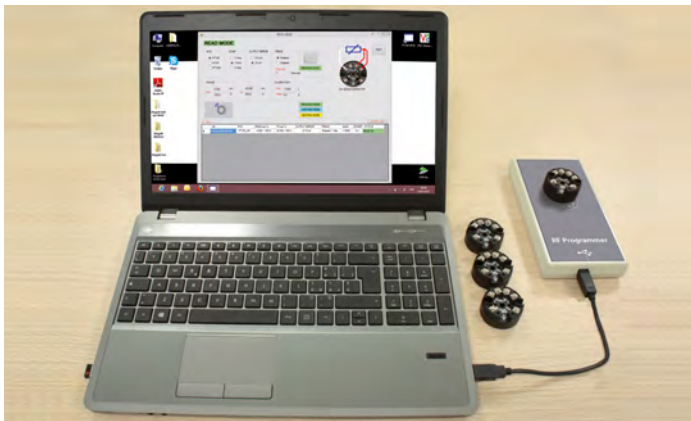
PT100	<i>Measuring range: -200..+600°C / Range di misura: -200..+600°C</i> <i>Connection: 2, 3, 4 wires / Tecnica di collegamento: 2, 3, 4 fili</i>
Ni100	<i>Measuring range: -60..+180°C / Range di misura: -60..+180°C</i> <i>Connection: 2, 3, 4 wires / Tecnica di collegamento: 2, 3, 4 fili</i>
TC K	<i>Measuring range: -260..+1360°C / Range di misura: -260..+1360°C</i>
TC S	<i>Measuring range: -40..+1760°C / Range di misura: -40..+1760°C</i>
TC R	<i>Measuring range: -40..+1760°C / Range di misura: -40..+1760°C</i>
TC J	<i>Measuring range: -200..+1200°C / Range di misura: -200..+1200°C</i>
TC T	<i>Measuring range: -260..+400°C / Range di misura: -260..+400°C</i>
TC N	<i>Measuring range: -260..+1280°C / Range di misura: -260..+1280°C</i>
TC B	<i>Measuring range: +40..+1820°C / Range di misura: +40..+1820°C</i>
TC E	<i>Measuring range: -260..+940°C / Range di misura: -260..+940°C</i>
Input mV	<i>Measuring range: -10..+70mV / Range di misura: -10..+70mV</i>

2.1 Connections / Connessioni

Cables colors according to IEC60751 / Colorazioni cavi come da IEC60751



3 Configuration / Configurazione



To configure this signal converter it is necessary to use a TX400-RFID and the configuration software RF Programmer, available on www.omega.com. After connecting the TX400-RFID via USB and activating the software, it is possible in "EDIT" mode to configure the device selecting type of sensor, measuring range, output for error signal and sampling frequency for the registration. The keys "WRITE" and "READ" allow to write and read data on the devices quickly and easily.

On the lower side of the display a list of all programmed devices is showed; it can be printed to confirm that the programming has been completed successfully.

La configurazione di questo convertitore di segnale richiede l'utilizzo di un base programmatore (TX400-RFID) e del software di configurazione RF Programmer scaricabile dal sito www.omega.com.

Dopo aver connesso tramite porta USB il TX400-RFID e attivato il software è possibile con la modalità "EDIT" parametrizzare il dispositivo selezionando il tipo di sensore, range di misura, uscita per segnalazione errore e la frequenza di campionamento per la registrazione. Con i tasti "WRITE" e "READ" è possibile scrivere e leggere i vari dispositivi velocemente e in modo agevole. Nella parte bassa dello schermo appare la lista riassuntiva dei dispositivi programmati, che può essere stampata per certificare la buona riuscita delle operazioni.

RFID HEAD

READ MODE

RTD: PT100, NI100, PT1000

COMP: 2 Wire, 3 Wire, 4 Wire

OUTPUT ERROR: 3.5 mA, 21 mA

TREND: Enabled, Disabled

Time shot: 1 Seconds

RANGE: From 4,000 mA / -200.0 °C To 20,000 mA / 800.0 °C

CALIBRATION: Gain 1,0000 %, Offset 0.0 °C

READING DATA

TEST

READING MODE

WRITING MODE

EDITING MODE

N° TAG = 1

SN	RTD	FROM mV/°C	TO mV/°C	OUTPUT ERROR	TREND	GAIN	OFFSET	STATUS
E0022C449C90375F	PT100_3W	4,000 / -200,0	20,000 / 800,0	21,0 mA	Enabled 1 Sec	1,0000	0,0	READ OK

4 Data Logger

This signal converter is provided with a datalogging function for the input signal. Fixing the sampling time (1..3600 seconds) each time the loop 4..20mA powers the device up, this will store the input value into a non-volatile memory. Through the TX400-RFID it is possible to download / display / print all data.

Questo convertitore di segnale è provvisto di una capacità di storicizzazione del segnale in ingresso. Fissando il tempo di campionamento (impostabile tra 1 e 3600 sec.) ogni volta che il loop 4..20mA alimenterà il dispositivo questo archivia il valore in ingresso su una memoria non volatile. Tramite il TX400-RFID è possibile scaricare tutti i dati e presentarli a video o stamparli.





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2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

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1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
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