

# TEMPERATURE MONITOR DEVICES CTT

## DEVICES FOR PROTECTION, CONTROL, THERMIC MONITORING OF TRANSFORMERS, MOTORS, GENERATORS, INDUSTRIAL APPLICATIONS



**CTT-4**  
Programmable thermal control unit up to 4 or 8 inputs from Rtd Pt100 sensors.

- Programmable alarm, trip and ventilation threshold on each input
- It shows the parameters and measures on 2 ample digital displays, added function of maximum values memory, it displays automatically the highest temp
- Extendend range of power supply 20 ÷ 250 Vcc/cc or 110 - 230 - 400 Vca
- Serial output RS232/RS485 Modbus Rtu with management software (optional)
- Analog output 0/4 ÷ 20 mA measures conversion (optional)

## GENERALITY

### TEMPERATURE DISPLAY

CTT control units show normal temperatures on measurement channels and higher temperatures on large displays.

Using the "T-Max" function it is possible to recall and display the maximum temperatures which have occurred in each channel.

### DIAGNOSTIC

Electronic relays contain many self-diagnostic functions to prevent the unseen malfunctioning of system components which could lead to possible dangerous conditions and unsafe operation of machines.

### ALARMS AND INDICATORS

CTT controls units are equipped with light indicators and alarms relays whose change of state is set during the programming procedure:

- Led Prog.: indicating the programming phase
- Led Fault : indicatine fault trip on Pt100 thermal probe
- Led Fan: indicating alarm ventilation threshold exceeded
- Led Alarm: indicating alarm threshold exceeded
- Led Trip: indicating the trip threshold exceeded
- Led Hot: indicating display of higher temperature channels

### OUTPUT RELAIS

- Fan Relay: intervening when the fan switch-on threshold is exceeded
- Fault Relay: intervening when there is abnormally on Pt100 probe(relay normally excited, therefore fail safe)
- Alarm Relay: intervening when alarm threshold is exceeded
- Trip Relay: intervening when the trip threshold is exceeded

### DIAGNOSTIC

The device is provided of the thermic probes diagnostic functions.

- Probe Pt100 interrupted: signalling on the display of the message OPE
- Probe in short circuit: signalling on the display of the message SHR
- Probe out of order for the temperaturereading wrong: signalling on the display of the message FDC

### COMMUNICATION INTERFACE

CTT control unit can be supplied with RS232 and RS485 serial connection for communication with PCs or data acquisition control systems.

The communication protocol used is Modbus-Rtu

### MEASUREMENT INPUTS

For the measurement of temperature , the control units must be provided with Rtd thermal probe of the Pt100 type.

The temperature measurement range is between -30 °C and + 200 °C.

### MODELS

CTT-4 Control unit with 4 measurement input

CTT-8 Control unit with 8 measurement input

### OPTIONS

Serial output RS232/RS485.

Analog output 0/4 ÷ 20 mA

## APPLICATIONS

Overtemperatures caused by overloads or internal failure due to degradation of the dielectric qualities of insulating materials in transformers and electrical machines, inevitably leads to a reduced efficiency and energy loss in distribution systems. To prevent and control degradation of insulating materials in electrical machines due to the thermal stress, it is necessary to use integrated measurement systems such as CTT control units. CTT control units are able to read four temperature values (8 values on model CTT-8) with the help of four Pt100 probes.

For each input it is possible to set the threshold temperature of alarm and trip with great accuracy and to display the maximum values reached. Control units are enclosed in a self-extinguishing thermoplastic housing of 96 x 96 mm in compliance with DIN 43700 and are built in conformity with CEE directives 93/68 safety and 89/336. CTT control units can be supplied with the serial interface to allow remote monitoring of temperatures using a PC.

## FUNCTIONS

The control unit is programmed through keys located on the front panel:

### • SELECTION OF THE NUMBER OF ACTIVE CHANNELS

Setting up the number of active measurement channels 3 or 4 (8 fixed channels for model CTT-8).

### • VENTILATION CONTROL

The following ventilation control modes can be selected:

> fan control off – fan control on, 4 inputs

> fan control on 3 input – fan control on, only the 4 input

When the fan control is on the temperature setting values for fan control can be fully selected by the user.

### • ALARM AND TRIP TEMPERATURES (HOLD FUNCTION)

For each measurement input the values of alarm and trip can be chosen in the range 1 ÷ 200 °C.

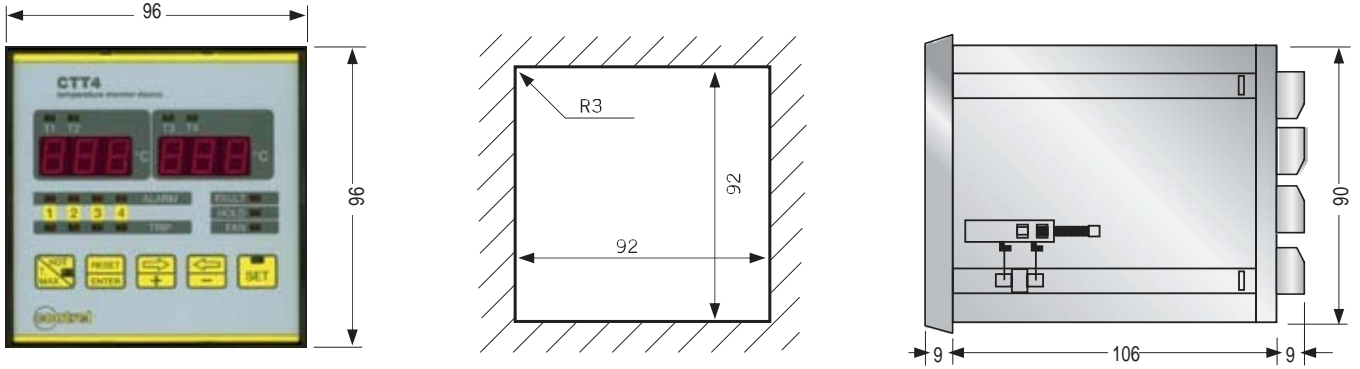
### • STORAGE OF ALARM AND TRIP CONDITIONS

This function will store alarm and trip values until they are manually reset.

## TECHNICAL CHARACTERISTICS

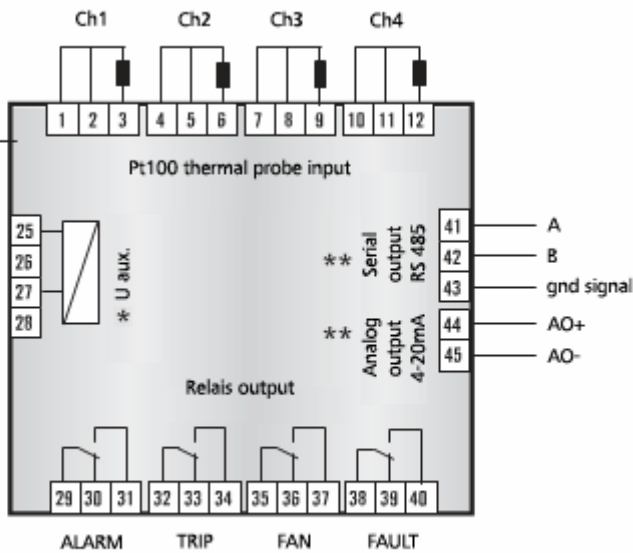
Power supply	20 ÷ 250 Vca/cc ±15% or 115 - 230 - 400 Vca 50-60 Hz
Power consumption	Max 4 VA
Measurement inputs	From probe Rtd Pt100 at two or three wires
Measurement range	-30 ÷ +200 °C
Accuracy	± 1 °C ± 1 digit
Display	2 led red display 3 digit
Outputs relays	N° 4 relay contacts NO-C-NC 8A 250Vca power factor 1 (N°4 relay for CTT8)
Connections	Trough removable terminal board. Max wire cross-section 2,5 mm <sup>2</sup>
Insulation	2500 Vca 50 Hz 60 sec. Withstand between inputs, outputs and power supply
Protection level	IP52 front panel (IP60 with optional protection cover) IP20 posteriore rear Reference standards CEI-EN 60529
Operating temperature	-10 ÷ 60 °C Umidity max 90 %
Storage temperature	-25 ÷ 70 °C
Reference standards	Elettromagnetic Compatibily CEI-EN 50081-2 EMC CEI-EN 50082-2 Safety CEI 41-1 / CEI-EN 60255
Dimensions / Housing	Flash mounting DIN 96 x 96 , depth 120 mm / Thermoplastic housing with UL94-V0
Weight	0,5 kg

**DIMENSIONS**

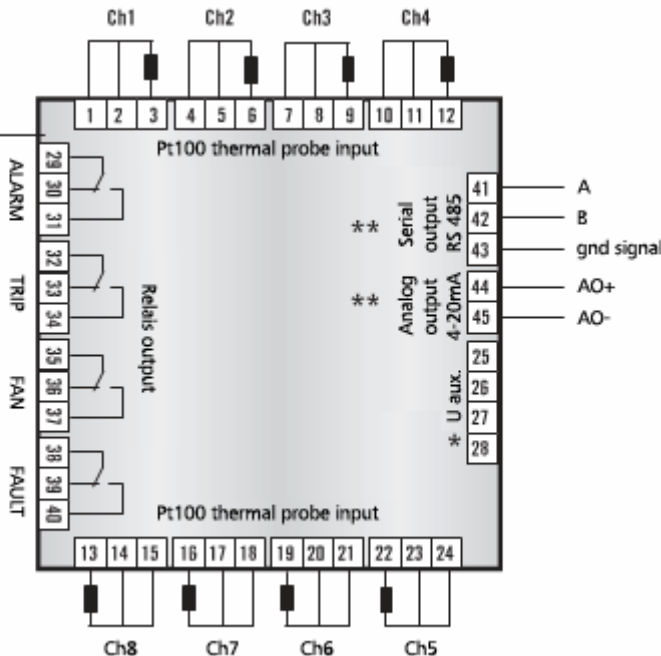


**WIRING**

**CTT-4**



**CTT-8**



\* U aux: 25-27: 24 ÷ 230 Vca / cc  
 or: 25-26: 115 Vca  
 25-27: 230 Vca  
 25-28: 400 Vca  
 \*\* Optional