GENERAL

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

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)

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: indicating 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 RELAYS
- 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 temperature reading 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 lead 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 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 programmed through keys located on the front panel:

ELECTION 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 ABD TRIP CONDITIONS
This function will store alarm and trip values until they are manually reset.

TECHNICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Power supply</th>
<th>20 ÷ 250 Vca/cc ±15% or 115 - 230 - 400 Vca 50-60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power consumption</td>
<td>Max 4 VA</td>
</tr>
<tr>
<td>Measurement inputs</td>
<td>From probe Rtd Pt100 at two or three wires</td>
</tr>
<tr>
<td>Measurement range</td>
<td>-30 ÷ +200 °C</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 1 °C ± 1 digit</td>
</tr>
<tr>
<td>Display</td>
<td>2 led red display 3 digit</td>
</tr>
<tr>
<td>Outputs relays</td>
<td>N° 4 relay contacts NO-C-NC 8A 250Vca power factor 1 (N°4 relay for CTT8)</td>
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<tr>
<td>Connections</td>
<td>Trough removable terminal board. Max wire cross-section 2,5 mm2</td>
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<tr>
<td>Insulation</td>
<td>2500 Vca 50 Hz 60 sec. Withstand between inputs, outputs and power supply</td>
</tr>
<tr>
<td>Protection level</td>
<td>IP52 front panel (IP60 with optional protection cover) Protection level IP20 posteriore rear</td>
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<tr>
<td></td>
<td>Reference standards        CEI-EN 60529</td>
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<tr>
<td>Operating temperature</td>
<td>-10 ÷ 60 °C</td>
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<tr>
<td>Storage temperature</td>
<td>-25 ÷ 70 °C</td>
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<tr>
<td>Reference standards</td>
<td>Elettromagnetic Compatibily CEI-EN 50081-2</td>
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<td></td>
<td>EMC CEI-EN 50082-2</td>
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<td></td>
<td>Safety CEI 41-1 / CEI-EN 60255</td>
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<tr>
<td>Dimensions / Housing</td>
<td>Flash mounting DIN 96 x 96 ,depth 120 mm / Thermoplastic housing with UL94-V0</td>
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<tr>
<td>Weight</td>
<td>0.5 kg</td>
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DIMENSIONS

WIRING

CTT-4

CTT-8

<table>
<thead>
<tr>
<th>Ch1</th>
<th>Ch2</th>
<th>Ch3</th>
<th>Ch4</th>
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<tr>
<td>1</td>
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Pt100 thermal probe input

Relays output

Analog output

Serial output

** Optional

CTT-8

<table>
<thead>
<tr>
<th>Ch1</th>
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<th>Ch3</th>
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<tbody>
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<td>13</td>
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Pt100 thermal probe input

Relays output

Analog output

Serial output

** Optional

* U aux: 5-27

24 ÷ 230 Vac/dc

oppure 25-26

115 Vac

25-27

230 Vac

25-28

400 Vac