The NT538 ETH is an innovative electronic device microprocessor based, which is designed for dry type and cast resin transformers, with integrated ETHernet port.

Equipped with all the necessary functions needed to monitor and control the temperature of the transformer, as well as the existing product line NT538, it is presented, in this edition 2016, with a more functional version of both hardware and software.

Communication with the network is via ModBus TCP/IP protocol, that allows the user to display and to program all the unit functions from the comfort of the desk!

The NT538 ETH maintains the traditional 8 Pt100 inputs (windings + environment) and 4 relays ALARM, TRIP, FAN and FAULT, as well as new functions and renewed display on the front and thanks to the versatility of the new edition 2016, other sensor inputs (Ni100 / Ni120 / CU10 / PT1000 / IR etc.) are available.

On request, the unit is available with certification for Canadian and American market, as well as for marine applications.

All our units can also be supplied with a special coating on the electronic cards, resistant to difficult weather conditions, particularly characterized by high temperature and humidity (which are in tropical climates).

**POWER SUPPLY:** with input from 85 to 260 Vac-dc.
## Technical Specifications

### Power Supply
- Rated values 85-260 Vac-dc
- Vdc with reversible polarities

### Inputs
- 8 inputs RTD Pt100 3 wires (max section 1.5 mm²)
- Removable rear terminals
- Input channels protected against electromagnetic interference
- Sensor length cable compensation up to 500 m (1 mm²)

### Outputs
- 2 alarm relays (ALARM-TRIP)
- 2 alarm relays for fan control (FAN1 and FAN2)
- 1 alarm relay for sensor fault or working anomaly (FAULT)
- Output contacts capacity: 10A-250 Vac-res COSφ=1
- Ethernet output 10Base T / 100Base-TX Modbus TCP slave

### Tests and performances
- Assembling in accordance with CE rules
- Protection against electromagnetic noises CEI-EN61000-4-4
- Dielectric strength: 1500 Vac for 1 minute from relays to sensors, relays to power supply, power supply to sensors
- Accuracy: ± 1% full scale value ± 1 digit
- Ambient operating temperature: from -20°C to +60°C
- Humidity: 90% non-condensing
- Self-extinguishing housing NORYL UL 94V0
- Frontal in polycarbonate IP65
- Burden: 7.5VA
- Data storage: 10 years minimum
- Digital linearity of sensor signal
- Self-diagnostic circuit
- Option: tropicalization

### Displaying and data management
- 2 displays 13 mm with 3 digits for displaying temperatures, messages and channels
- 3 leds to display the state of the alarms of the selected channel
- 2 leds to display the state of FAN1 and FAN2
- Temperature monitoring from 0°C to 240°C
- 1 ALARM thresholds for each channels
- 1 TRIP thresholds for each channels
- 2 ON-OFF thresholds for FAN1 and FAN2 in common for all enabled channels
- Sensors diagnostic (Fcc-Foc-Fcd)
- Data storage diagnostic (Ech)
- Access to programming through front keyboard
- Automatic exit from relay programming, display and test after 1 minute’s inactivity
- Incorrect programming warning
- Possibility of setting automatic channels scanning, hottest channel, manual scanning
- Maximum reached temperatures and alarm storage
- Frontal alarm reset push button
- Voting function
- Fail Safe function

### Dimensions
- 100 x 100 mm DIN 43700 depth 131 mm (terminals included)
- Panel cut-out 92 x 92 mm
Electronic microprocessor based unit for the temperature monitoring of electric motors and MV dry type/cast resin transformers, the NT538AD, due to the 8 input channels and the multiple programming options, grants a great flexibility of use in many applications.

Developed with layout and advantages of the new technology platform (dual display, VOTING function, new microcontroller with increased operational capacity and data management), the NT538 AD provides the user, in a single product, the outputs:

- Analog 4-20mA
- Digital RS485 Modbus

It is equipped with 8 inputs for Pt100 sensors and thanks to the versatility of the new edition 2016, other sensor inputs (Ni100 / Ni120 / Cu10 / Pt1000 / IR etc.) can be available.

It is equipped with 4 dry contact relay outputs, ALARM and TRIP, FAULT for working anomalies and drive of FAN cooling system.

On request, the unit is certified for the American and Canadian market, as well as for marine applications.

All our units can also be supplied with a special coating on the electronic cards, resistant to difficult weather conditions, particularly characterized by high temperature and humidity (which are in tropical climates).

**UNIVERSAL POWER SUPPLY:** with input from 24 to 240 Vac-dc.

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**NT538 BASIC unit without any outputs such as Analog or Digital (COD. 1CN0156)**

**NT538 BASIC centralina base senza uscite digitali o analogiche (COD. 1CN0156)**
Technical Specifications

Power Supply
- Rated values 24-240 Vac-dc
- Vdc with reversible polarities

Inputs
- 8 inputs RTD Pt100 3 wires (max section 1.5 mm²)
- Removable rear terminals
- Input channels protected against electromagnetic interference
- Sensor length cable compensation up to 500 m (1 mm²)

Outputs
- 2 alarm relays (ALARM-TRIP)
- 2 alarm relays for fan control (FAN1 and FAN2)
- 1 alarm relay for sensor fault or working anomaly (FAULT)
- Output contacts capacity: 10A-250 Vac-res COS²
- Modbus RTU RS485 output
- Optically isolated 4.20mA output

Tests and performances
- Assembling in accordance with CE rules
- Protection against electromagnetic noises CEI-EN61000-4-4
- Dielectric strength: 1500 Vac for 1 minute from relays to sensors, relays to power supply, power supply to sensors
- Accuracy: ± 1% full scale value ± 1 digit
- Ambient operating temperature: from -20°C to +60°C
- Humidity: 90% non-condensing
- Self-extinguishing housing NORYL UL 94V0
- Frontal in polycarbonate IP65
- Burden: 7.5VA
- Data storage: 10 years minimum
- Digital linearity of sensor signal
- Self-diagnostic circuit
- Option: tropicalization

Displaying and data management
- 2 displays 13 mm with 3 digits for displaying temperatures, messages and channels
- 3 leds to display the state of the alarms of the selected channel
- 2 leds to display the state of FAN1 and FAN2
- Temperature monitoring from 0°C to 240°C
- 1 ALARM thresholds for each channels
- 1 TRIP thresholds for each channels
- 2 ON-OFF thresholds for FAN1 and FAN2 in common for all enabled channels
- Sensors diagnostic (Fcc-Foc-Fcd)
- Data storage diagnostic (Ech)
- Access to programming through front keyboard
- Automatic exit from relay programming, display and test after 1 minute’s inactivity
- Incorrect programming warning
- Possibility of setting automatic channels scanning, hottest channel, manual scanning
- Maximum reached temperatures and alarm storage
- Frontal alarm reset push button
- Voting function
- Fail Safe function

Dimensions
- 100 x 100 mm DIN 43700 prof. 131 mm (compreso morsettiera)
- Foro pannello 92 x 92 mm

Options
- Versione Basic senza uscite RS485 e 4.20mA outputs

### Collegamenti elettrici | Electrical connections

**Collegamenti elettrici**

**Specifiche Tecniche**

**Alimentazione**
- Valori nominali 24-240 Vca-cc
- Vcc con polarità invertibili

**Ingressi**
- 8 ingressi RTD Pt100 a tre fili (sezione max 1,5 mm²)
- Collegamenti su morsettiere estraibili
- Canali ingresso protetti contro i disturbi elettromagnetici
- Compensazione cavi per sonde fino a 500 m (1 mm²)

**Uscite**
- 2 relè di allarme (ALARM-TRIP)
- 2 relè di gestione ventilazione (FAN1 e FAN2)
- 1 relè guasto sonde o anomalia funzionamento (FAULT)
- Relè di uscita con contatti da 10A-250 Vca-res COS²=1
- Uscita RS485 Modbus RTU
- Uscita 4.20mA optoisolata

**Test e prestazioni**
- Costruzione in accordo alle normative CE
- Protezione contro disturbi elettromagnetici CEI-EN61000-4-4
- Rigidità dielettrica: 1500 Vca per 1 minuto tra relè di uscita e sonde, relè e alimentazione, alimentazione e sonde
- Precisione: ± 1% vfs, ± 1 digit
- Temperatura di lavoro: da -20°C a +60°C
- Umidità ammessa: 90% senza condensa
- Contenitore in NORYL UL 94V0 autoestinguente
- Frontale in policarbonato IP65
- Assorbimento: 7.5VA
- Memoria dati: 10 anni minimo
- Linearizzazione digitale segnale sonde
- Circuito di autodiagnosi
- Opzione: tropicalizzazione

**Visualizzazione e gestione dati**
- 2 display da 13 mm a 3 cifre per visualizzare temperature, messaggi e canali
- 3 led per visualizzare lo stato degli allarmi del canale selezionato
- 2 led per visualizzare lo stato di FAN1 e FAN2
- Controllo temperatura da 0°C a 240°C
- 1 soglia di ALARM per ogni canale
- 1 soglia di TRIP per ogni canale
- 2 soglie ON-OFF ventilazione FAN1 e FAN2 in comune per tutti i canali abilitati
- Diagnostica delle sonde (Fcc-Foc-Fcd)
- Diagnostica memoria dati (Ech)
- Accesso alla programmazione tramite tastiera frontale
- Uscita automatica dalla programmazione, visualizzazione e test relè dopo 1 min. di inattività
- Segnalazione di errata programmazione
- Selezione tra scansione automatica canali, canale più caldo o scansione manuale
- Memoria max. temp. raggiunte dai canali e stato degli allarmi
- Tasto frontale per il reset degli allarmi
- Funzione Voting
- Funzione Fail Safe

**Dimensioni**
- 100 x 100 mm DIN 43700 prof. 131 mm (compreso morsettiera)
- Foro pannello 92 x 92 mm

**Opzioni**
- Versione Basic senza uscite RS485 e 4.20mA outputs