



# Series 852-318

## Transformer Winding Temperature Indicator



Electronic WTI

High Quality

Reliable

Versatile

Easy To Use

Retrofit Options

**Transformer Winding Temperature  
Protection from  
Ashridge Engineering**

## Series 852-318

The 852-318 WTI is an intelligent microprocessor controlled digital indicator with inputs for Three winding CT's and one PT100 temperature probe for Top Oil measurement. Also includes fan and pump feedback, plus remote cooling system activation control.

The series 852-318 primary display indicates the highest Hot Spot temperature, whilst allowing the user to view the Top Oil temperature on the secondary display.

The unit is user configurable via the integral keypad with manufacturer defined passwords for data security. All stored data is non-volatile flash with exception of the time/date which uses a 'Supercap' to maintain the time/date.

With six volt free relay contacts to provide alarm, trip, fan, pump, cooler failure warning and internal system watchdog functions. An additional 3 relays have been provided for user configuration.

SCADA ready outputs of MODBUS (RTU) and four off analogue outputs, which are user configurable.

High voltage isolation between inputs and outputs provides the high levels of integrity required for this demanding application.

IEC354; The algorithm designed by Ashridge Engineering fully meets these requirements for natural and forced gradients.

## Cooling System Control + Monitoring

The 852-318 employs sophisticated algorithms taking feedback from either a volt free contact or directly monitoring the fan and pump running currents.

In its preferred mode the 852-318 monitors the fan and/or pump running currents using external CT's thus always ensuring the correct hot spot gradient is used.

This ensures the hot spot temperature and therefore the alarm and trip values truly represent the conditions within the transformer, whilst simultaneously providing early warning of cooling system malfunction (partial or full).

A further standard function of the 852-318 is the 'Autocool' mode this allows the cooling system to be exercised at periodical intervals selectable between 1 to 30 days. The key feature of this function is the early warning of any cooler malfunction during the 'Autocool' exercise period.

### Railside and CHP applications:

Transformers used for Railside applications or CHP (Combined Heat and Power Stations) can become 'stressed' due to step changes in current, causing the oil to overheat within the transformer core before the normal switching operation of the cooling system occurs.

Our 'Step' mode provides a user adjustable solution, by immediately operating the cooling system for a timed period, thereby reducing the stress impact. on the transformer.





**Dimensions:**

**Wall Mounted Version**  
**285mm (W) x 216mm (H) x 133mm (D)**

**Standard Features**

- 3 Wire PT100 Input
- Three Winding CT inputs, (0-10A)
- System Condition Monitoring & Alarm
- Fan and Pump controller monitoring
- Auto Cooling System Exercising
- Wide Range Power Supply (42-265V)
- One, Two or Three Gradients
- 8 User Selectable Relays

**Ancillary Equipment**

- Standard or Custom PT100 Designs
- Standard or Custom Thermowells
- CT's for Fan and Pump Monitoring
- Remote monitoring via GPRS or SMS

**Installation:**

The series 852-318 has been designed for ease of installation and setting up.

The wide range switched mode power supply allows the 852-318 to be connected to a wide range of input voltages without the need for link changes.

Direct CT input connection reduces cabling requirements. The PT100 input and the analogue outputs require screened cable to ensure high EMC immunity.

**Setting Up:**

The series 852-318 is easily configured using the keypad on the front panel, with defined passwords for access to each section maintaining security of settings. Non-volatile memory ensures that data is not lost in the event of power failure.

An easy to use, on site, teach mode facility ensures the fan and pump feedbacks are dynamically and accurately calibrated.

**Accessories:**

Ashridge Engineering provides;

Platinum Resistance Thermometers:

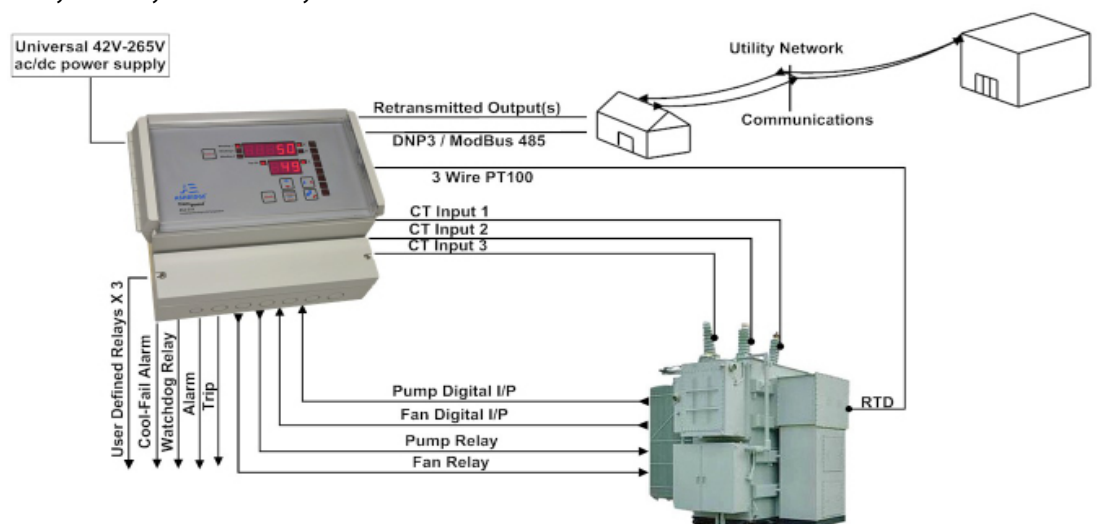
- Standard PT100
- Custom PT100
- Magnetic PT100

Stainless Steel Thermowells:

- Standard Thermowell
- Custom Thermowell

External CT's:

- Size A (10 Amps)
- Size B (30 Amps)
- Size C (60 Amps)
- Custom CT with or without mounting feet



**General Arrangement**

# Series 852-318

## SPECIFICATION

3 wire PT100 input:

+/- 1°C @ 20°C

PT100 inputs to Analogue outputs:

+/- 2°C @ 20°C

4 Analogue outputs:

0-10, 0-20 & 4-20mA (user selectable).

Maximum loop resistance 800Ω

RS485 output: Modbus (RTU) or DNP3

Winding CT inputs: 3 user selectable

0-10A, higher currents by special request,

(CT=0.03VA, 1:1000, Overload 75A for 3 secs)

Hot Spot Gradient Algorithm Conforms to

IEC 354

Relay outputs:

Watchdog, Alarm, Trip and a further 6 relays for Fan, Pump and Cool-Fail etc. Each with N/O or N/C volt free contacts (user selectable by links).

Relay rating: Contact life (for 1.2 x 10<sup>5</sup>

operations): 5A Non inductive

(Breaking: 100Vdc/0.4A, for inductive de-rate using L/R=7msecs, i.e. approx 0.2A@125VDC).

Power supply: Universal input, 42-265 Volts

ac/dc, power consumptions less than 6VA.

Weight: 1.55 Kg

ENVIRONMENTAL:

Operating temperature range: -20 to 70°C .

Wall mounted enclosure to IP65

Seismic to IEC 255-21-3 (class 2)

Damp heat to IEC 68-2-30

ENVIRONMENTAL APPROVALS:

EN60068-2-2, IEC225-21-1, IEC255-21-2 &

IEC 68-2-56

EMC:

Meets the intent of Directive 89/336 and LVD 73/23/ECC

IEC255-5, EN55022, EN50081-2, EN55011,

EN61000-4-2, EN 61000-4-3, EN61000-4-4,

EN61000-4-5, EN61000-4-6, EN61000-4-11,

EN61000-4-12, EN61000-4-16, EN60255-22-1

## ORDERING CODES

Wall Mounted Version:

852-318

## ALTERNATIVE PRODUCTS

**Single Windings Models:**

**852Plus:**

National Grid Approval, (Category 'A' for Unrestricted SuperGrid substations as WTI)

Wall Mounted Versions:

852Plus-W-V32 (Standard WTI)

852Plus-W-Q22a (Quad Booster)

**852-112, 113 or 116:**

1 CT Winding Input

1 PT100 Input

2-6 Output Relays

**Dual Windings Models:**

**852-216:**

2 CT Winding inputs

1 PT100 Input

6 Output Relays

**Triple Windings Models:**

**852-338:**

3 CT Winding inputs

3 PT100 Input

8 Output Relays

AGENT



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852-318-220409  
Subject to change without notification