

## Technical information N°4 : The different normalized thermostat electrical life classes

In the specifications for an electromechanical thermostat, the expected life is described in terms of mechanical and electrical lifetimes.

### Electrical life :

This is specified as a minimum number of cycles (action of opening and closing) will make, carry, and break the specified load without contact sticking or welding, and without exceeding the electrical specifications of the device.

### Mechanical life :

This is the number of operations which a thermostat can be expected to perform while maintaining mechanical integrity. Mechanical life is normally tested with no load or voltage applied to the power contacts, and is not part of this document.

Switch performance is influenced by a variety of factors, including: frequency of operation, type of load, temperature, humidity, altitude. Electrical ratings have been tentatively standardized in UL 1054, CSA22.55 or IEC61058-1 (Switches for appliances). IEC60730-x standards have specified testing methods and preferred electrical life classes for electrical control and safety switches. These life classes are (cycles):

300 000, 200 000, 100 000, 30 000, 20 000, 10 000, 6 000, 3 000 (1), 1000(1), 300 (2), 30(2)(4), 1( 3) .

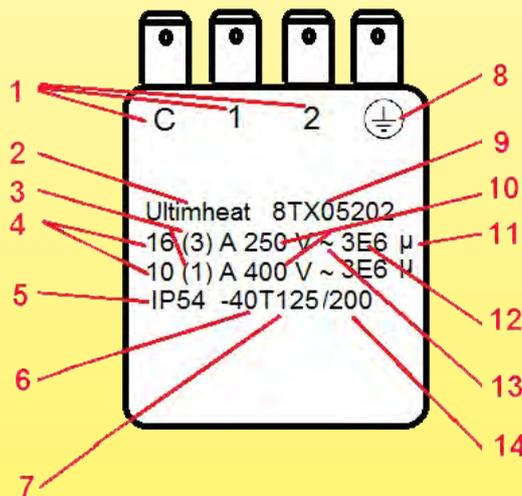
- 1) Not applicable to thermostats or to other fast cycling actions.
- 2) Applicable only to manual reset.
- 3) Applicable only to actions which require the replacement of a part after each operation.
- 4) Can only be reset during manufacturer servicing.

The rating tables should be considered as working maximum for most applications. Hereunder are given some limitations that apply when they are used in other loads and voltages.

The current rating of thermostat switches is given in their technical data sheets for a resistive load in 250 or (and) 400V AC and a specified number of operations. When there is enough room, these values are printed on the product. In most cases, only the minimum mandatory information is printed. The cycle number is exceptionally printed, but this is one of the most critical parameter to estimate the expected life of the thermostat.

## Technical information N°5 : Explanation of printed values made on a thermostat upon

### IEC60-730-1 § 7-2



- 1: Identification of terminals that are suitable for the connection of external conductors, and if they are suitable for line or neutral conductors, or both. L= must be used for line in The United Kingdom, other countries no restriction. N must be used if the terminals must be used for neutral ( All countries).
- 2: Manufacturer's name or trade mark.
- 3: Inductive load rating with power factor = 0.6 (When inductive load value is not printed, these contacts may be used for an inductive load, provided that the power factor is not less than 0,8, and the inductive load does not exceed 60 % of the current rating provided for the resistive load.)
- 4: Resistive load rating with power factor = 0.95+/-0.05
- 5: Degree of protection provided by enclosure, does not apply to controls or parts thereof classified as IP00, IP10, IP20, IP30 and IP40.
- 6: High temperature limits of the switch head (Tmax), if other than 55 °C.
- 7: Low temperature limits of the switch head, if lower than 0 °C.
- 8: Ground terminal identification (if existing).
- 9: Unique type reference.
- 10:Rated voltage or rated voltage range in volts (V) (Frequency printing is mandatory if other than for range 50 Hz to 60 Hz inclusive).
- 11: Micro-disconnection (reduced contact gap) Printing is not mandatory.
- 12: Number of cycles of actuation for each manual action (For manual reset thermostat).  
Number of automatic cycles for each automatic action (for control thermostat). Printing is not mandatory.
- 13: For use on alternative circuit, 50 to 60Hz inclusive.
- 14: Temperature limits of mounting surfaces (Ts) if more than 20 K above Tmax.