

## 3MP SELF-HOLD MOTOR PROTECTOR

### Introduction

Recent history has seen a growing demand for a non-self resetting motor protection device to ensure a high level of safety. Sensata Technologies has developed the self hold motor protector for both 120 & 250 Vac applications in a wide current range.



### Design & Operating Principles

The heart of the 3MP self hold consists of the pre-set Klixon® snap action bimetallic disc welded into a metal housing with integrated terminal. The housing is covered by the plate on which a heater can be welded to increase the current sensitivity of the device. A PTC pill is mounted on top of the metal housing by a clip to meet the requirements for self hold. The combination of a variety of standard terminal configurations and carefully select-ed materials provides easy handling and mounting. Customized terminal configura-tions are available on request. Wires includ-ing connectors can be automatically attached to the standard crimp terminals. Sensata Technologies supplies a range of standard leads configurations; customized solutions are available on request. In construction where the 3MP self hold device is contacting conductive parts of the motor assembly, Sensata Technologies can deliver the self hold devices with a Mylar™ insulation sleeve. Customized coding and coloring is an option on request.

The operating principle of the 3MP self hold is both simple and effective. The protector is actuated by current passing through it and by the heat received from surrounding parts.

The electrical circuit is interrupted when the disc reaches its pre-set open temperature. Due to the heat supply from the PTC pill, the bimetal disc does not cool down below the close temperature. The contacts will remain open untill the appliance is switched off by the user, assuring a higher level of safety. The self-hold condition immediately after the first trip cannot be guaranteed by the protector itself. This depends on the application in combination with the selected 3MP self-hold and must be checked during application verification tests. (same as for winding temperatures). When switched off the device cools down to a safe temperature again and the contacts will automatically reset. The bimetal disc provides excellent thermal and current sensitivity in overload situation. Under locked rotor conditions the integrated heater in combination with the bimetal disc provide very accurate trip times for maximum protection.

### Applications

The 3MP self hold is used in domestic and industrial electric motors for washers, vacuum cleaners, chain saws, trimmers, lawn mowers and pumps in the 120 and 250 Vac applications.



## SPECIFICATIONS

<b>Standard operating temperature range</b>	from 80°C - 170°C (Increments 5K)
<b>Tolerance on open temperature</b>	± 8K
<b>Peak Temperature (5 Min)</b>	200°C
<b>Ambient Temperature to Guarantee Stable Self Hold function</b>	0°C
<b>Max. Ambient Temperature</b>	T-Open +20°C
<b>Time Check at T-Ambient 25°C</b>	4 to 10 Seconds Depending on Current Level
<b>Contact Rating</b>	18 A @ cos 0.6 / 250Vac / 300 cycles



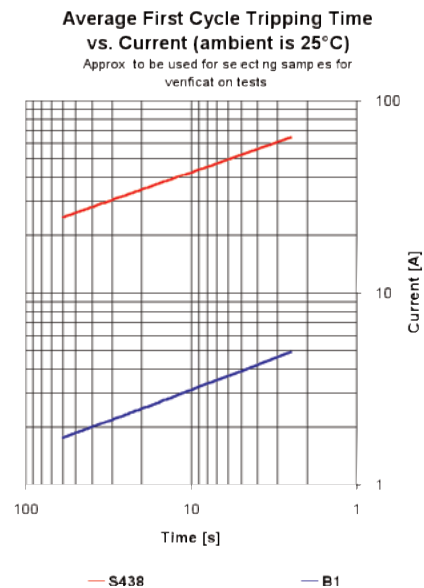
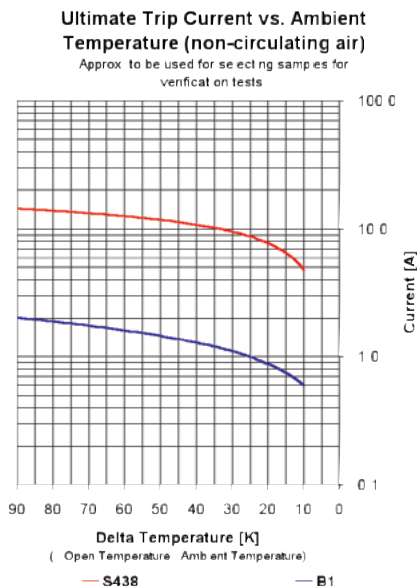
## TECHNICAL SPECIFICATIONS

### Declarations

Declarations to EN60730-2-2	
<b>Purpose of the Control</b>	Thermal Motorprotector
<b>PTI of Insulation Materials</b>	PTI 250
<b>Method of Mounting</b>	Off-winding, fixed position, no mounting limitation
<b>Type of Action</b>	Type 3C
<b>Reset Characteristic</b>	Automatic Voltage Maintained by PTC Heater. Device resets by interrupting power supply.
<b>Control Pollution Degree</b>	Degree 1

### Curves

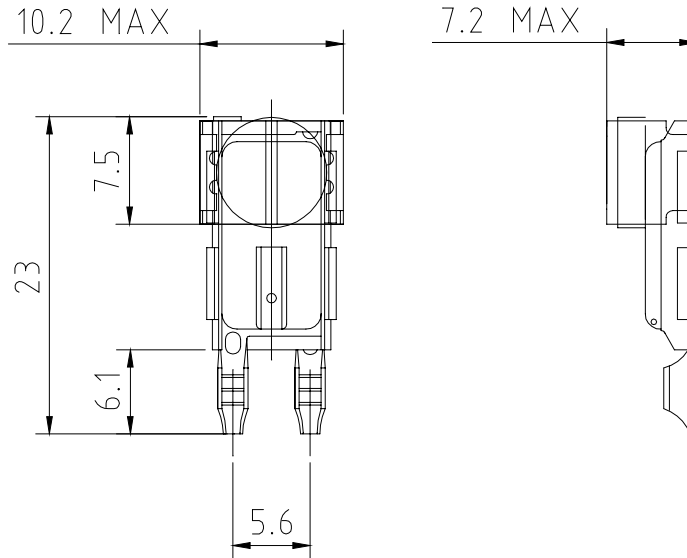
The curves of First Cycle Tripping time and Ultimate trip current are meant to be for selecting samples to perform verification tests only. In the figures two curves of a wide range of possibilities are shown. The level and slope can be varied by making an other selection for the pre-set temperature, bimetal disc and/or heater.





## DIMENSIONS (mm)

Dimensions in mm [Inch]



## AGENCY APPROVALS & CERTIFICATIONS



Agency	File Number	Standard
<b>ENEC</b>	2014531.07	EN60730-2-2 Thermal motor protector
<b>UL / C-UL</b>	E15962	UL2111 / CSA C22.2 No. 77

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