



FireRaptor

Solar Panel Rapid Shutdown Solution



Keeping Solar Safe



Solar Panel Rapid Shutdown

- Manual Panel Shutdown to 0V Operated from Ground Level
- Automatic Panel Shutdown to 0V at >85°C (185°F) Temperature
- Automatic Panel Shutdown to 0V on External Power Loss
- Compliant with NEC 2017
- Suitable for New Installations or Retro-Fit



FireRaptor Overview

The IMO FireRaptor provides three forms of Solar Panel Rapid Shutdown to ZERO VOLTS in case of fire or other emergency:

• MANUAL EMERGENCY SHUTDOWN

Manual shutdown is operated via an Emergency Rapid Shutdown Switch utilising a typical “one push” large emergency push button. The switch can be conveniently located anywhere for emergency access and is supplied with a 24VDC power supply to interface with the FireRaptor units.

• AUTOMATIC EMERGENCY TEMPERATURE SHUTDOWN

Automatic shutdown occurs via the temperature sensor onboard the FireRaptor which detects an ambient temperature rise in excess of 85°C (185°F). In the event that the temperature exceeds 92°C (198°F) then the FireRaptor will only re-engage the solar panels by manual reset done via the emergency switch. Otherwise, the FireRaptor will re-engage the solar panels automatically if the temperature drops back below the 85°C (185°F) cut-out level.

• AUTOMATIC EMERGENCY EXTERNAL POWER LOSS SHUTDOWN

Disconnection of the external AC supply, by whatever means, causes automatic remote operation of the Emergency Rapid Shutdown Switch.

The FireRaptor can be installed without any set-up and with any string inverter as its functionality is completely independent. “Plug & Play” style installation using industry standard connectors is easy, whether fitted to new installs or retro-fitted to existing projects to upgrade fire safety functionality.

The FireRaptor meets the current requirements of



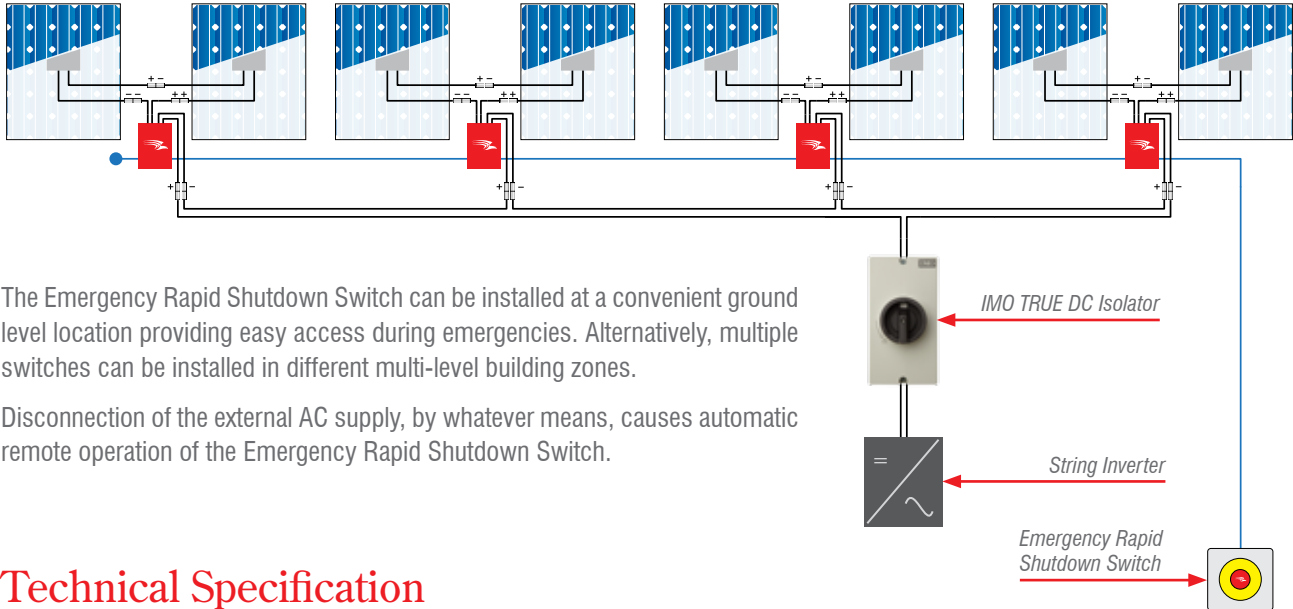
Ordering Information

Part Number	Description
FRS-01	FireRaptor Rapid Shutdown Unit - suitable for connection to two solar panels
FRS-ESW1	Emergency Rapid Shutdown Switch IP65 - includes 24VDC power supply
FRS-ESW1-K	Emergency Rapid Shutdown Switch IP65 with Key Lock - includes 24VDC power supply



FireRaptor Installation

One FireRaptor will control two solar panels. The diagram below illustrates an example of a 2kW FireRaptor protected installation using eight 250W solar panels and four FRS-01 FireRaptors.



The Emergency Rapid Shutdown Switch can be installed at a convenient ground level location providing easy access during emergencies. Alternatively, multiple switches can be installed in different multi-level building zones.

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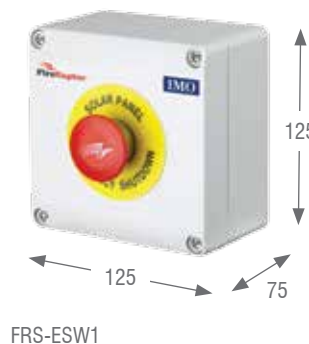
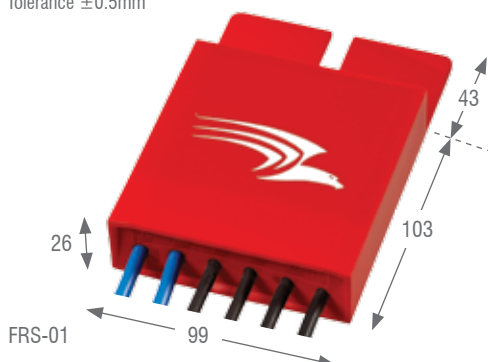
Technical Specification

Shutdown Control Cable	2x1mm ² cable + Tyco SuperSeal 2-pole connector
Panel & String Cable	4mm ² DC rated cable + MC4 type connector
DC Power Supply*	24VDC suitable for up to 20 FireRaptor units (40 panels) - Input 90-264VAC
Maximum Input Power	700W (350W per panel)
Maximum Input Voltage	150V (75V per panel)
Maximum Input Current	12A
Maximum System Voltage	1500V
Input Protection	Over voltage & transient voltage suppression
Maximum Output Current	12A (99.5% efficiency)
Dielectric Strength	1500VAC for 1 minute
Maximum Output Voltage	150V (75V per panel)
Output Protection	Over voltage, over current & transient voltage suppression
Ambient Operating Temperature	-30°C to +85°C
IP Class Protection	FireRaptor - IP68 (designed to comply with NEMA 4X), Emergency Switch - IP66 (designed to comply with NEMA 3R)
Casing	FireRaptor - Flame retardant ABS - UL94-V0, Emergency Switch - Flame retardant ABS - UL94-HB
Weight (without cables)	300g
Panel Cable Length	120mm
String & Control Cable Length	1800mm
Standard Compliance	EN61000, EN61646, EN61215, IEC 62716 draft C (NH ₃ resistant), VDE-AR-E 2100-712, BS7671-712

* FRS-ESW1/FRS-ESW1-K Rapid Shutdown Switch can be upgraded to suit larger installations. Contact IMO for more details.

Dimensions (mm)

Tolerance ±0.5mm



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IMO Automazione

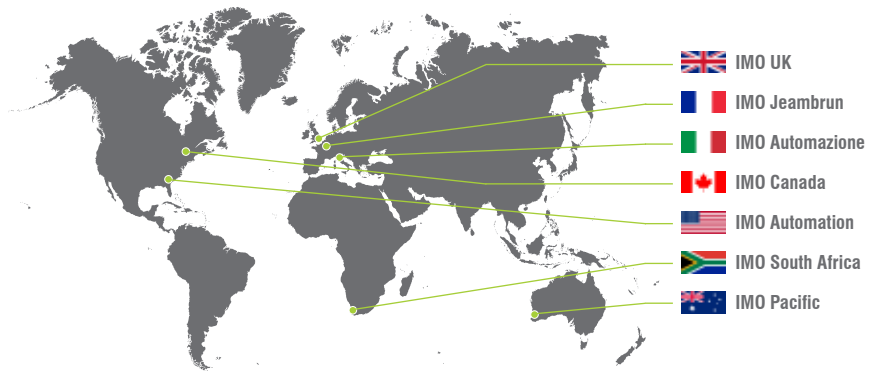
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