

# ESwitch

## Power Switch

The solution that will help you to save money!

### Easy replacement for mechanical contactors

Mechanical contactors controlling heating elements may operate three million times per year. The lifetime of these contactors is between 1 and 3 years; therefore they need to be replaced regularly during the typical life of an industrial machine.

ESwitch is an interesting solution to solve this problem. Because the contact is electronic, the lifetime is significantly extended. Its wiring is as simple as for a mechanical contactor and the mounting is very easy: just clip it on a DIN rail! It features a broad range of AC and DC command signals with a front face LED to display the input status to help commissioning and diagnostics.

### Extend the life of your heaters

Tests performed by a well-known heater supplier have shown that heaters can last up to seven times longer when used with a solid state contactor. Faster on/off cycle times cause less thermal expansion and contraction and thus reduce breakage due to fatigue and thermo-mechanical stress. So by preserving the heating elements, ESwitch will allow you to maximize your ROI:

- Increase lifetime of heating elements
- Reduce downtime
- Minimise scrap
- Improve yield and productivity

By combining robustness, security of operations with simplicity of integration and use, ESwitch offers the best ratio of 'performance versus price' for the power switches market.

### Easy

- No configuration
- Simplified installation
- Global standardisation

### Robust

- Reduce maintenance costs
- Reduce downtime
- Reliable operation

### Safe

- Partial Load Failure alarm
- Heating circuit dysfunction prevention
- Red light PLF detection

### Ideal for

- Injection moulding
- Thermo-forming
- Multi-zone heating
- Autoclaves
- Ovens



# Simple and performing

## Easy

Whether replacing an existing product or designing a new process, ESwitch will make you gain time and money. Careful consideration have been given in the design of this power switch to simplify your life from installation to operation.



### Easy to install

- Nothing to configure – plug and play product
- Nothing to fix – just clip onto DIN rail
- Minimal connection – pre-wireable plug in connector for the input signal and no need for electronics supply (self-powered)

### Easy to integrate

- Compact dimensions to reduce cabinet costs
- Global standard approvals and international voltages allow for worldwide use.
- Consistent form factor – same height and depth across the range
- Ideal form and fit drop in replacement for Eurotherm TE10S

### Easy to set up

- No adjustment except for the partial load failure option

## Prevention and Safety

With the Partial Load Failure alarm, ESwitch brings an added information on the process control by preventing dysfunction in the heating circuit. As a matter of fact, the 'Partial Load Failure' (PLF) feature (in option) detects any loss of one or more parallel heating elements (resistive or SWIR). The discrimination is 1 element in 6 for single phase load



The PLF detection is indicated by:

- Red indicator light (LED) on front fascia
- Changes of the alarm relay state

## Robust

Facing a more competitive market, you have to reduce your manufacturing costs while maintaining your quality requirements.



Thanks to its robustness and control performance, ESwitch will allow you to reach this dual goal with reducing downtime.

- No specific maintenance thanks to the use of power thyristor technology
- Robust – Reliable operation even under extremes environmental conditions: temperature (up to 55°C) – humidity (95%max) – altitude (2000m)

## Compliance

The ESwitch solid state contactor offer peace of mind for all the industrial users: OEMs, integrators, maintenance engineers, site managers, working in a global environment where industry regulations form an essential part of the engineering supply chain.



- Conformity to cUL standard
- CE compliance
- China RoHS



Let us show you how the benefits of ESwitch can save you time and money, visit [www.eurotherm.com/eswitch](http://www.eurotherm.com/eswitch)



## Technical Specification

### General

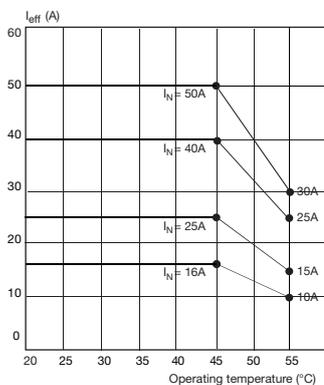
Directive:	EMC directive 2004/108/EC Low Voltage Directive 2006/95/EC
Safety specification:	EN 60947-4-3:2000 ( 2000-01-12) + EN 60947-4-3:2000/A1:2006 (2006-12-08) + EN 60947-4-3:2000/A2:2011 (2011-09-02)
EMC emissions specification:	EN 60947-4-3:2000 ( 2000-01-12) + EN 60947-4-3:2000/A1:2006 (2006-12-08)) + EN 60947-4-3:2000/A2:2011 (2011-09-02) Class A product
EMC immunity specification:	EN 60947-4-3:2000 (2000-01-12) EN 60947-4-3:2000/A1:2006 (2006-12-08) EN 60947-4-3:2000/A2:2011 (2011-09-02)
Vibration tests:	EN60947-1 annex Q category E
Shock tests:	EN60947-1 annex Q category E

### Approvals

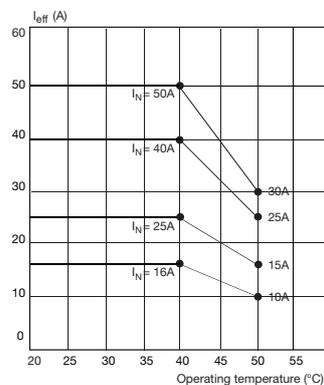
cUL:	UL60947-4-1A and UL60947-1
CE:	EN60947-4-3 and EN 60947-1 A certificate of conformity can be provided on simple request
CCC exempt:	Product not listed in catalogue of products subject to China Compulsory Certification
RoHS	Restriction of Hazardous Substances compliant
Protection:	CE: IP20, According to EN60529 UL: Open type

### Condition of use

Atmosphere:	Non-corrosive, non-explosive, non-conductive
Degree of pollution:	Degree 2
Storage temperature:	-25°C to 70°C (maximum)
Operating temperature:	0 to 45°C without derating
Altitude:	1000m maximum at 45°C 2000m maximum at 40°C For higher temperature see de-rating curves below
Humidity limits:	5% to 95% RH (non-condensing)



Current derating curves as a function of ambient temperature  
 $I_N$  = nominal current at 45°C)  
 for an altitude up to 1000m.



Current derating curves as a function of ambient temperature  
 $I_N$  = nominal current at 40°C)  
 for an altitude up to 2000m.

### Power

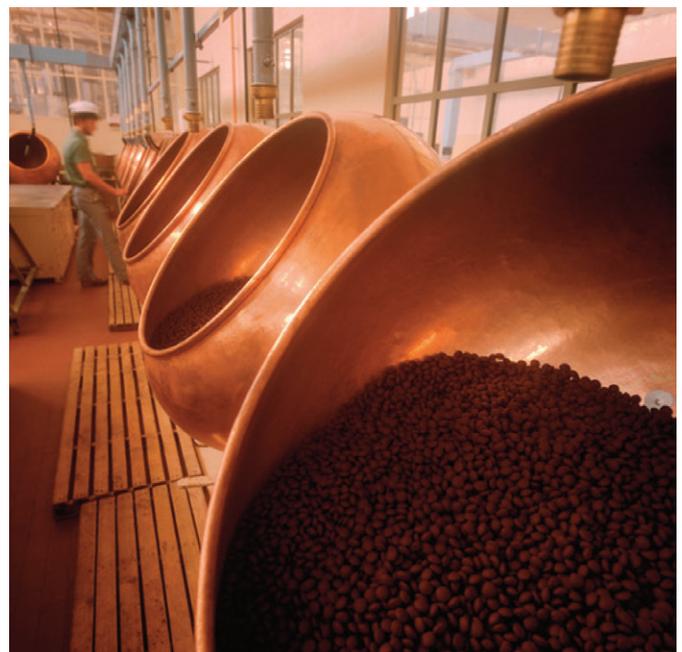
Nominal current:	16 to 50A
Nominal voltage:	100V to 500V (+10%/–15%). Refer to order code for more details
Frequency:	47Hz to 63Hz
Short circuit protection:	High speed fuse (coordination Type 1)
Type of loads:	AC51: Pure resistive
Power terminals:	Safe cage type, cable size 1.5 to 16mm <sup>2</sup> tightening torque 2.3Nm (20.4 lb.In)
Safety earth screw terminal:	Cable size 1.5 to 16mm <sup>2</sup> tightening torque 2.3Nm (20.4 lb.In)

### Control

Supply of electronics:	Self powered product
Command signal:	Logic signal either DC or AC
Input:	Polarity insensitive, + and – can be crossed Command signal indication by green LED
Voltage	Logic dc (LGC): 5 to 32V dc (ON >5V, OFF <2V) Logic ac (LAC): 30 to 55V ac, (ON >30V, OFF <5V) Logic ac (HAC): 85 to 264V ac, (ON >85V, OFF <10V)
Current:	Logic dc (LGC): 10 to 20 mA dc (ON>8mA, OFF <0.5mA)

### Option

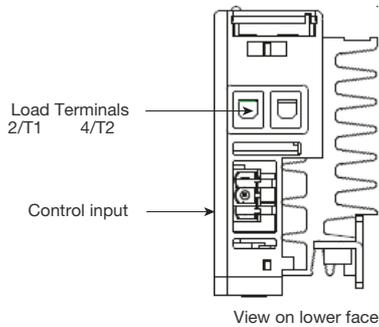
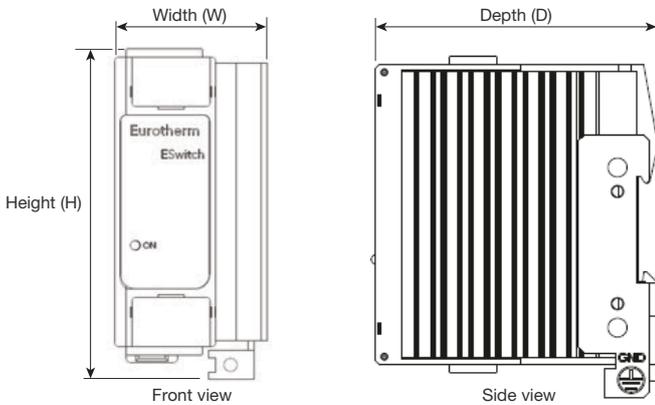
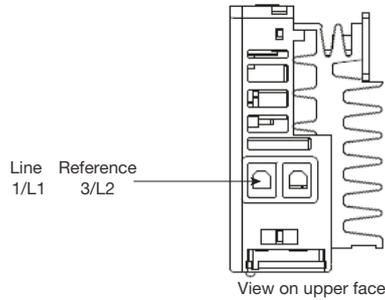
Partial load failure:	Detection of an increase in load impedance due to a failure or a disconnection of one part of the heating load.
Discrimination:	1 element in 6 for single phase load
Indication:	Red indicator light (LED) on front fascia



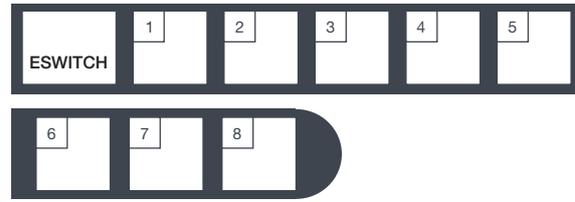
# Mechanical Details

Model	Height	Width		Depth	Weight	Mounting
		without PLF	with PLF			
16A	115mm	36.8mm	52.5mm	92.5mm	0.55kg	DIN rail
25A	115mm	54.3mm	70mm	92.5mm	0.7kg	DIN rail
40A	115mm	89.3mm	105mm	92.5mm	0.9kg	DIN rail
50A	115mm	106.8mm	122.5mm	92.5mm	1.2kg	DIN rail

Mounting: DIN rail



# Order Codes



## Basic Product

ESWITCH Solid state contactor

## 1 Current

16A	16 amps
25A	25 amps
40A	40 amps
50A	50 amps

## 2 Voltage

120V	120 volts
240V	240 volts
500V	500 volts

## 3 Input Type

LGC	Logic dc input (5-32V dc)
LAC	Low voltage ac (48V ac)
HAC	High voltage ac (100-240V ac)

## 4 Manual Language

ENG	English
FRA	French
GER	German
SPA	Spanish
ITA	Italian

## 5 Partial Load Failure\*

-	Without partial load failure
PLF	Relay contact open on alarm
IPF	Relay contact closed on alarm

\* Partial load failure only available with LGC input

## 6 Fuse\*

NOFUSE	Without fuse
FUSE	Fuse without microswitch
MSFUSE	Fuse with microswitch

\* According to the CE regulation it is mandatory to place a high-speed fuse in order to protect the thyristors: Do not use to protect the installation

## 7 Standard/Special

-	No Special
99	Special

## 8 Special description

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