



Amber Switch – Load Shedding Type

Frequency Sensing Load Controller (Underfrequency)

Amber Switch is an automatic, frequency-sensing load control device. It can be used in small islanded (off-grid) power systems.

Amber Switch Load Shedding type (CAS-S-B*) can temporarily switch off low-priority loads to help prevent generator overloads. It identifies an overload by detecting a fall in the system frequency.

Application of Load Shedding Amber Switch

Each Load Shedding Amber Switch will control one appliance and is wired into the supply cord. The Amber Switch requires no user intervention and will automatically switch the appliance off when the system frequency is low and switch it on when it returns to its normal level. The frequency setpoint can be adjusted during installation. LED lamps indicate whether the appliance is switched on or off. A system can have multiple Amber Switch-controlled loads.

Amber Switch incorporates a number of features to help ensure stable operation of an islanded power system:

- A range of switch-off setting frequencies are available, to create a prioritised system.
- The switch-on frequency is higher than the switch-off frequency to help provide stability.
- When the frequency goes below the switch-off setting, the Load Shedder switches off immediately. When the frequency goes above the switch-on setting there is a delay of a few minutes before the load is connected.
- The delays are randomised to allow several switches to be installed without multiple devices switching simultaneously.

Each time the Amber Switch operates, a new random delay is chosen.

NOTE: The Load Shedding Amber Switch may not be suitable for some inverter-based renewable power systems whose frequency does not change in response to loading.

*Independent Type CAS-I-B is also available. This switches at higher frequency and has switch-off and switch-on time delays which vary depending on the difference between the measured frequency and the frequency setpoint.

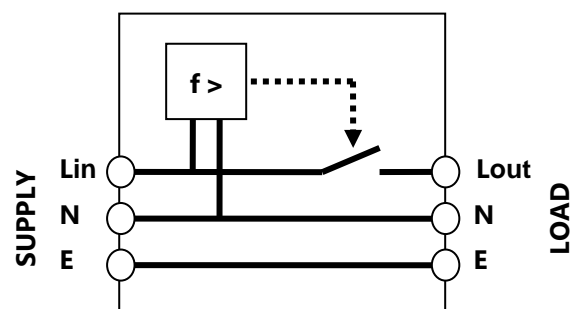


Suitable Loads

Each Amber Switch can control a load up to 13A (3kW at 230V; 1.5kW at 120V). The most appropriate loads are heaters (water heaters, storage heaters, space heaters).

The Load Shedding Amber Switch can be used for appliances with pumps, because of its long switch on delay. However inductive loads will reduce the overall cyclic life of the Amber Switch's relay.

Connection Diagram



Specification

Regulatory Compliance

| | |
|----------------|-------------|
| LV Directive | 2006/95/EC |
| EMC Directive | 2004/108/EC |
| RoHS Directive | 2011/65/EU |

Electrical Limits

| | |
|-----------------------|---------------------------------------|
| Supply voltage | 205 – 255 VAC |
| Supply frequency | f 45 – 65 Hz |
| Maximum Load | I _{max} 15 A pf > 0.95 |
| Rated impulse voltage | 1.5 kV |

Environmental conditions

| | |
|---------------------|------------------------------|
| IP Rating | IP20 |
| Ambient temperature | 0 – 30 °C |
| No. of cycles | 30,000 |
| Aging | 60,000 hrs |
| Mounting | Independent surface mounting |

Electrical connections

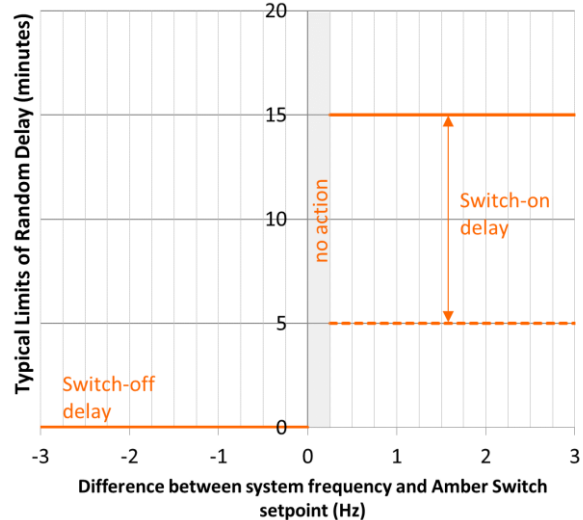
| | | |
|----------------|----------------|--|
| Stranded cable | all terminals | 0.2 – 2.5 mm ² 30 – 12 AWG |
| Cable glands | cable diameter | 5 – 10 mm |

(five available cable pushouts in casing)

Characteristics

| | | |
|------------|------------------|--|
| Switch-off | f _{off} | 48.25 to 49.75 & 58.25 to 59.75 Hz in 0.25 Hz steps |
| Switch-on | f _{on} | > f _{off} + 0.25 Hz |

The graph below shows the upper and lower limits of the switch-off and switch-on delay, as the system frequency changes with respect to the setting.



Physical

| | |
|-------------------------------|-------------------------|
| Dimensions (excluding glands) | 80 x 60 x 45 mm |
| Mass | 0.2 kg |
| Enclosure material | High impact polystyrene |
| Colour | RAL 9002 (off-white) |
| Mounting holes | 4-off ϕ 4 mm |

Ordering Information

| Product Code | Description |
|--------------|---|
| CAS-S-B | Amber Switch, Load Shedding Type, Surface-mount Wallbox with two cable glands |

For applications advice, instructions, prices and ordering, please contact our UK distributor:

For wholesale enquiries, please contact sales@ambercontrol.com

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