

SmartGuard™ – Technical Information

What is SmartGuard™

SmartGuard ISS™ (Intelligent Safety System) is a robust, patent pending, and custom designed electronic circuit which monitors the transformer loading and controls the power to the transformer under certain conditions at start-up, overload, and short circuit. In addition to controlling the transformer, SmartGuard™ also indicates diagnostic information via a three colour status LED.

Operation of SmartGuard™ Features

1. Soft-start

When power is applied, SmartGuard™ uses sweeping angle phase control to ramp up power to the transformer and load over a period of approximately 1.5 seconds. During soft-start, the status LED will cycle through the colours red-amber-green. Soft-start is complete when the green LED state is displayed. After the soft-start period has finished the transformer is supplied with a regular full wave AC voltage.

2. Overload protection

When the load on the transformer exceeds approximately 120% to 150% of the rated load, SmartGuard™ uses phase angle power control to regulate the average current passing through the transformer to a value less than the rated current of the transformer. When overloaded the status LED changes to amber to indicate the overload condition exists. The overload should be removed and the power cycled to reinstate normal operation.

3. Short Circuit protection

When the transformer output is shorted, SmartGuard™ uses phase angle control to regulate the short circuit current to a value less than the rated current. When a short circuit is detected the status LED will change to red and if the shorted condition remains for more than 4 to 5 seconds the power to the transformer will be disabled. When the transformer has been disabled the red condition on the status LED will be maintained until reset is performed by cycling the power.

