

<b>Topic</b>	Alarm Output – IEC 62109 Electrical Safety Requirements				
<b>Products</b>	Eclipse Inverter Models: 5000 kW				
<b>Bulletin No.</b>	150719	<b>Version</b>	V1_1	<b>Date</b>	19/7/15

## Background

Since the 11<sup>th</sup> July, 1915, all Inverters sold and installed in Australia must comply, and be certified to the electrical safety standard IEC 62109.

A feature of this new Safety Standard is the requirement for the User to be provided with an Alarm raised under certain wiring and fault conditions as detected by the Inverter.

This Installer Guide details how to install and connect the Alarm Output of the Eclipse inverter.

Access to this feature is limited to registered Installers only.



## IEC 62109 Alarm requirement

*Extract from the standard*

### 13.9 Fault indication

Where *this Standard* requires the inverter to indicate a fault, both of the following shall be provided:

- a) a visible or audible indication, integral to the inverter, and detectable from outside the inverter, and
- b) an electrical or electronic indication that can be remotely accessed and used.

The installation instructions shall include information regarding how to properly make connections (where applicable) and use the electrical or electronic means in b) above, in accordance with 5.3.2.10.

NOTE The requirement in b) is intended to allow a variety of techniques such as provision of a signal using relay contacts, an open-collector output, a message sent on a network communication system (for example wired or wireless Ethernet), etc. The intent is that the fault indication will be received by the person responsible for the system, when that person is located in a different location than the PV system.

## Installing an Inverter Alarm



### WARNING

Installation and wiring of the Inverter Alarm **MUST ONLY** be carried out by a suitably licensed electrician.

Failure to install the Alarm correctly could result in an electrical shock hazard leading to death or serious injury or potential fire risk.

## Alarm Output specifications

The Alarm output provided by the Eclipse Inverter is a normally open relay contact.

### Ratings

Maximum Voltage	<b>240V a.c. or 30V d.c.</b>
Maximum Current:	<b>1A – resistive only</b>

## Inverter Alarm Connection

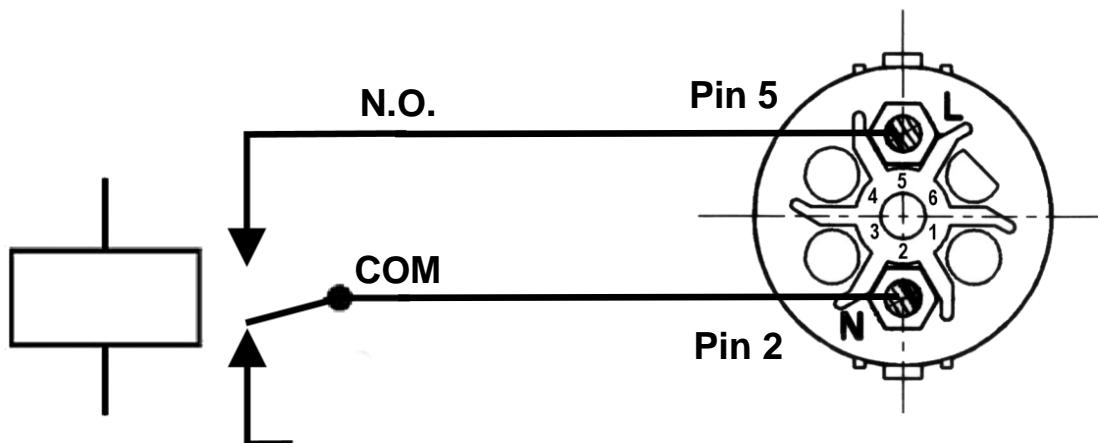
The Eclipse Inverters are supplied with a screw terminal style connector for terminating the Alarm wiring at the Inverter.

It comprises of two parts – terminal insert and outer housing.



MS Part No. 5884 - CON Eclipse Inverter ALARM output

### Inverter Alarm connector wiring.



## Alarm events raised by the Eclipse Inverter

The following table details the types of Alarms as required by IEC 62109, and under what conditions the Alarm is to be raised. The table also details the conditions under which the Alarm will be de-asserted.

Inverter event/condition	Alarm Raised	De-asserted
Disconnection device. The isolation provided by the automatic disconnection means shall be automatically checked before the inverter starts operation.	Checked any time the Inverter attempts to connect to the Grid.	'Next Day'
DC insulation resistance from the PV input (array) to ground. Tested before starting operation.	Tested by the Inverter before starting operation.	The array isolation state is continually assessed and the Alarm will be deasserted if the array isolation fault clears.  else 'Next Day'
Residual current monitoring that functions whenever the inverter is connected to the mains with the automatic disconnection means closed.	a) Continuous residual current: The inverter shall disconnect within 0,3 s and assert the Alarm if the continuous residual current exceeds limits as defined in IEC62109.	'Next Day'
	b) Sudden change in residual current: The inverter shall disconnect and assert the Alarm in accordance with the timing and limits as defined in IEC62109.	'Next Day'
Residual Current monitoring Device (RCD) self-test failure.	A self test of the RCD is automatically performed prior to the Inverter attempting to connect to the Grid.	'Next Day'

## Next Day

Theses Alarms remain asserted even after the end of a solar day.

When the Inverter next 'wakes up' at the point where there is minimum, solar energy available, the fault conditions are rechecked, and the Alarm is cleared if appropriate.

"Next Day" Alarm states can be cleared by cycling the AC power OFF-ON with no Solar input.