



Innovative Electrical Automation Solutions

IES NETWORK PROTECTION BOARD

Installation and User Manual



**Model
IPS-03**

**CONTAINS IMPORTANT INSTALLATION AND TESTING PROCEDURES
THAT MUST BE FOLLOWED TO ENSURE COMPLIANCE WITH THE
DISTRIBUTION NETWORK SERVICE PROVIDER.**

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Version 3, March 2020

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Designed and Manufactured by



Disclaimer

The Information contained in this document is subject to change without notice. Integrelec reserves the right to make modifications and/or improvements to this document as well as to the products that this document refers to. Such changes will be incorporated into new editions of this document.

The IPS series feed-in limiters and grid protection devices are designed and manufactured by Integrelec.

The design, installation and certification the solar installation (including the equipment this manual refers to) must also be done in accordance with all regulations and requirements of the local distribution network service provider.

Warranty Information

This product is supplied with 12 months manufacturer warranty.

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1 Product Overview

The IPS range of Inverter Energy System Grid Feed-In Limiters (GFIL) and Grid Protection Boards have been developed specifically to meet the requirements set by Energex and Ergon Energy for small and medium scale inverter installations. These are also suitable for use in other states and territories subject to local regulations.

The IPS-03 model provides secondary network protection only and is designed for situations where export limitation is not required or where the inverter manufacturer's own export control system is used.

Other products in the IPS range include:

- IPS-01 (export control only)
- IPS-02 (export control and secondary network protection)
- IPS-04 (secondary network protection and solar distribution for multiple inverters up to 100kW. 3rd party export control systems can be fitted.)



1.1 Functional Description

- After switching on, a start delay of 60 seconds will occur while the network protection relay monitors for fault conditions. Stable network supply must be observed for 60 seconds before the system allows inverters to energise via contactors.
- Once in normal operation, if the network protection relay detects a network fault, the relay will isolate all inverters via contactors. All inverters remain isolated for the duration of the fault or power outage and for a further minute of no-fault conditions. This allows loads to come back online and the grid to stabilise before allowing the inverters to attempt to synchronise and re-connect.
- The protection relay is supplied preconfigured with the current network protection settings as required by Energy Queensland, current at the time of manufacture.

2 Package Contents

- 1 x Installation and User Manual
- 1 x IPS-03 IES Network Protection Board

In addition, the installer must also supply: (see Sec. 4.3 for details)

- 4C+E cable from Main Switch Board to GPB
- 1 x 3 phase circuit breaker rated to protect cable from Main Switch Board to IPS-03 board.
- 1 x 3 Pole Contactor (rated to the full inverter output current) per inverter.

3 Safety instructions

Installation and testing of this device must be performed by a licenced electrician in accordance with AS3000, AS4777 and other applicable standards.

4 Installation

For the IPS-03 to function as an approved network protection device in accordance with Energex and Ergon requirements as discussed in Sec. 1, it must be installed as follows.

4.1 Mounting

Wall mount the board as close as possible to the main switch board, downstream of all inverters.

4.2 Configuration

Figure 1 shows the overall cable topology for installation. Contactors may be installed either inside the IPS-03 board or at another enclosure.

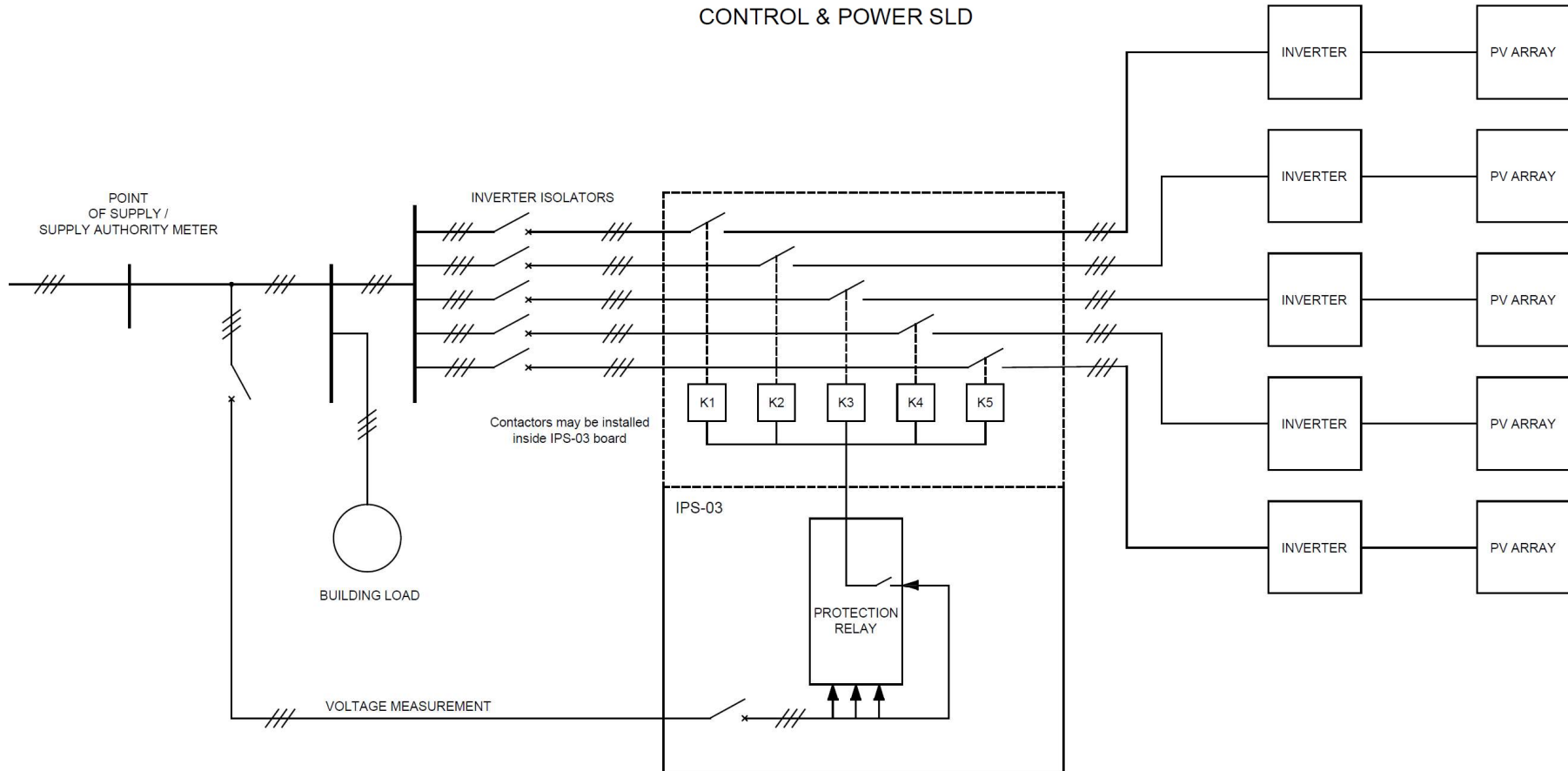


Figure 1 - Installation Topology

4.3 Electrical Connections

All electrical connections to the device are made at the terminals inside the enclosure:

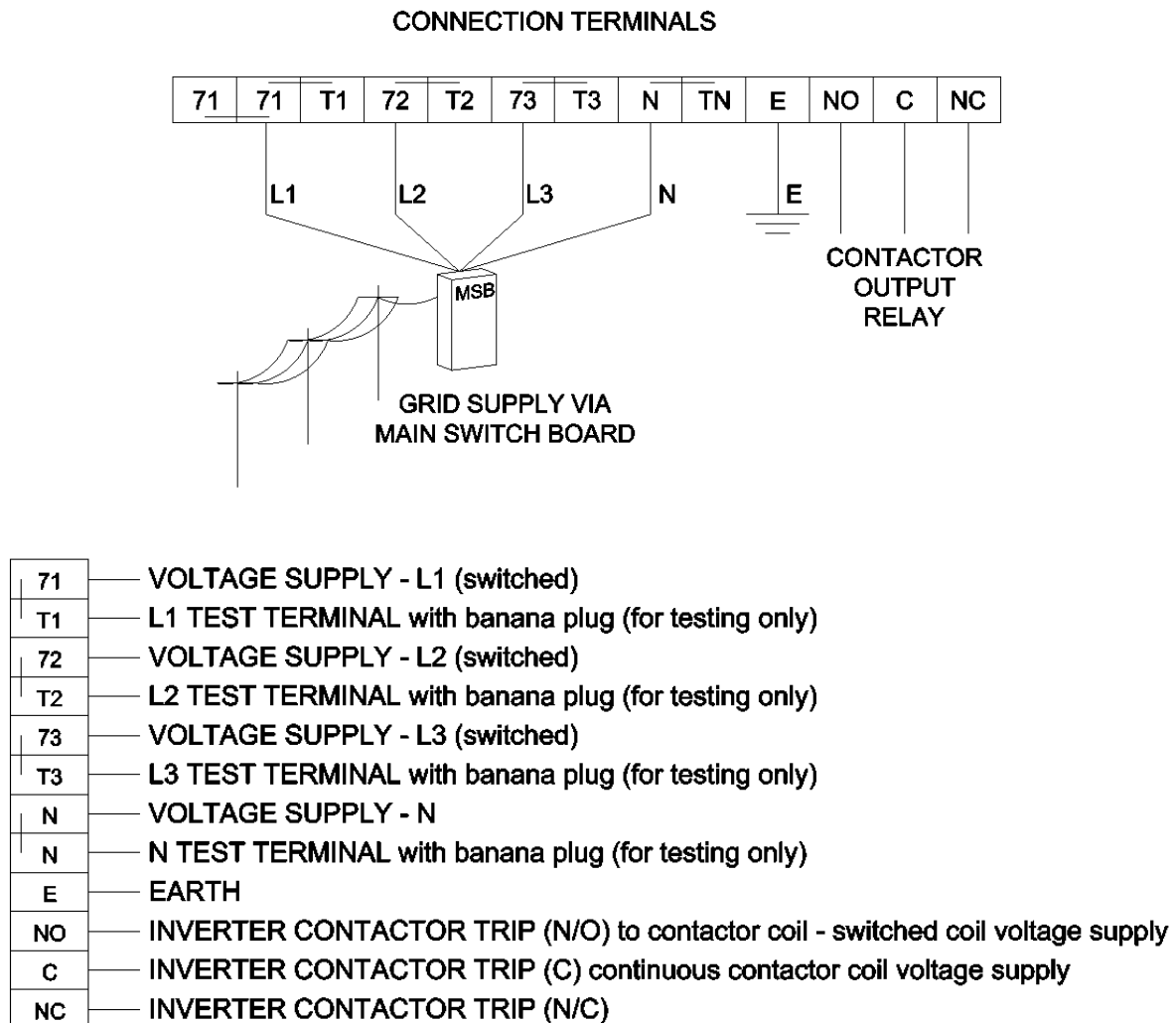


Figure 2 – Connection Terminals

The NO (normally open), C (common), and NC (normally closed) terminals are supplied as dry contacts to control inverter contactors. Appropriate control voltage must be wired to the common (C) terminal to power contactor coils, wired as normally open so that contactors isolate in the event that the network protection relay trips.

Voltage supply connections should be from a reference point as close as possible to the MSB. Some distribution network service providers permit this point to be at another point in the installation provided that it is electrically downstream of all inverters.

Inverter contactors may either be installed inside the board or in another enclosure if more convenient to do so.

4.3.1 Network Protection Relay

The network protection relay is supplied preconfigured to comply with Energex / Ergon requirements, current at the time of manufacture. Testing and verification must be carried out at the time of final commissioning by the RPEQ engineer certifying the installation.

5 End User Guide

Once installed and tested, the IPS-03 is a fully automated system that requires no end user interaction. The two built in status indicators – ‘fault’ and ‘running’ show current status of the protection system.

5.1 Network Protection Relay

If there is a network fault or power outage, the protection relay will isolate the inverters from the electricity grid via contactors. If there is still power supplied to the IPS-03, the red ‘fault’ indicator on the front of the panel will be lit to show that the inverters have been disconnected.

The green ‘running’ indicator shows that all faults are clear and inverters are energised.

The IPS-03 is supplied with the network protection relay settings preconfigured as required by Ergon Energy and Energex, current at the time of manufacture.

6 Technical Data

Parameter	MODEL
MODEL	IPS-03
Phases	3
Input Voltage	415V (3P + N)
Power Consumption	2W
Dimensions	600(h)x400(w)x210(d)
Weight	20kg
Warranty	12 months
Supply Networks	Energex Ergon Energy

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