



IDRATEK

INTELLIGENT AUTOMATION

IPD-001 Intelligent Power Distribution Module

© IDRATEK LTD
w: www.idratek.com



The information in this document is provided for guidance only. IDRATEK Ltd reserve the right to make any necessary changes, without notice, in order to improve the quality of their products.

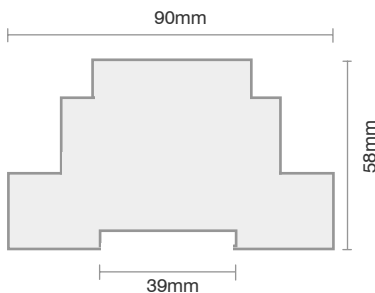
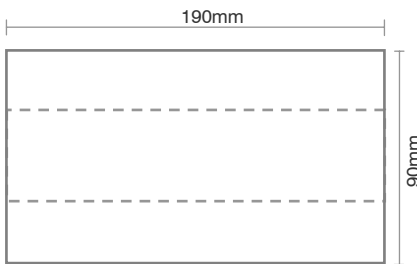
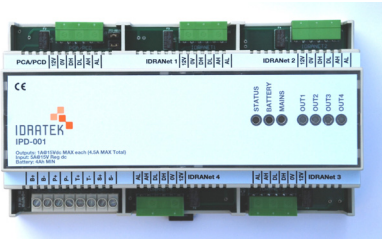
Overview and Important Notes

The Intelligent Power Distribution Module is intended to be used as a controllable power source for a typical sized IDRANet installation. The module requires an external power supply source and provides support for an optional battery back-up if required. The external power supply **must provide a regulated DC voltage which can be adjusted to 15.4V** to enable correct charging of the lead acid battery if this is fitted. It must also provide sufficient current for the IDRANet system and an additional 500mA (approx) for charging of the battery, operation of the module itself, and to provide power for the 'always on' spur. It is recommended that a 5A capacity (75W) supply is used. Most good quality supplies are likely to be short circuit protected however a 5A fuse is also provided on the IPD to protect the input DC supply.

The unit provides four separate relay switched IDRANet spurs each delivering up to 1 Amp via a standard IDRANet connector. As mentioned, a further spur provides an 'always on' connection for a PC interface module (e.g. PCD/PCA), and for relay units controlling alarm bell boxes for example. This spur is also limited to 1A - but only via a fuse. The total current consumption through these 5 spurs should not exceed 4.5A.

A dedicated battery charging and conditioning circuits is provided. This delivers up to a 400mA charging current which is optimised for a 4Ah lead acid battery (i.e. Ah Capacity / 10). Larger battery capacities may be used but they will not be charged at their optimum rate after a battery run down event. Likewise, smaller batteries may degrade quicker due to a higher charging current and are therefore not recommended for use.

An onboard microprocessor provides Reflex capability, IDRANet connectivity, and current monitoring functions. This can be instrumental in the management and monitoring of power delivery to the individual spurs and provides some isolation capabilities in the event of bus faults. A brief listing of the features is summarised below.



Spur Characteristics

- 4 Switched spurs up to 1A each (1 IDRANet connector per spur)
- 1 Always-On spur up to 1A max (load on all spurs must be < 4.5A)
- Spur voltage: 13.5 - 14.5V DC regulated (depending on supply and load)

General Features

- Automatic switchover to battery back up on mains power failure (if provided)
- Optimised for 4Ah Lead Acid battery
- Data and power isolation on each switched spur
- Switched spurs protected using both electronic current trip (for small overloads) and mechanical fuse (for large overloads)
- Fuse protected mains and battery circuitry
- On board data and audio bus loading circuits via link option
- On board data and audio bus spike protection

Functional

- Status indicator LED
- Spur power indicator LEDs
- Mains and battery indicator LEDs
- Current level on any spur can be interrogated at any time
- Current measurement resolution ~5mA per spur
- All four channels capable of independent Reflex functions
- Three independent Reflex triggers for each channel :
 - Current level equals or exceeds user defined 'High' limit
 - Current level equals or falls below user defined 'Low' limit
 - Current level change exceeds user defined 'Delta' limit (auto-datuming)
- Chronometer with leap year correction and Reflex functions :
 - Two independent chronometer based Reflex triggers
 - Two independent time interval based Reflex triggers, one typically used as a PC health watchdog
- Tamper, battery and mains detect inputs with associated Reflex functions
- Module Initialise trigger
- Fully IDRANet Compatible

Environmental

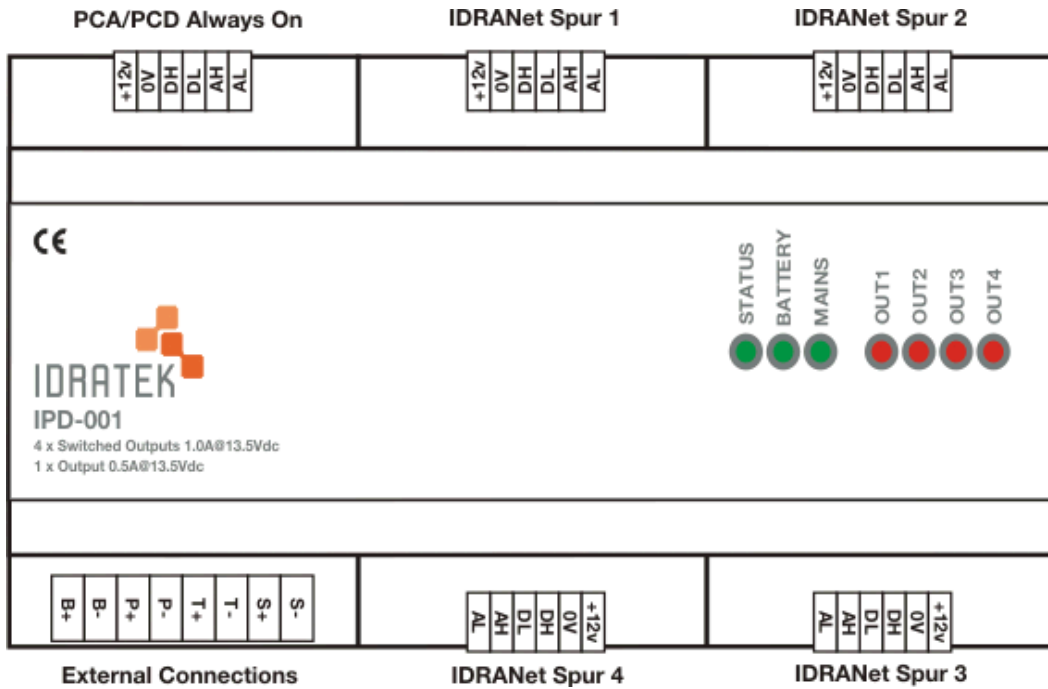
- Operating temperature 0°C to +40°C
- Operating humidity 5% to 95% (non-condensing)

Mechanical

- Standard height 9M wide DIN Module
- Fits 35mm DIN Rail with sprung retaining clips
- Dimensions 160mm x 90mm x 58mm (WxHxD)

Module Connections

The IPD-001 module is shown overleaf. It provides 4 switched IDRANet spurs as well as one always-on IDRANet spur for connection to a PC interface such as a PCA-001 or PCD-001. A terminal block provides external connections to the power supply (P+ / P-), battery (B+ / B-), tamper switch loop (T+ / T-) and on-off DC isolator (S+ / S-). If the tamper detection loop is not required, the T+ and T- terminals should be fitted with a shorting link.



Example Connectivity

Connecting the unit requires the PC interface connection to be connected first with the PC interface module (PCA/PCD) connected to a PC serial port running Cortex. Then each IDRANet spur can be connected as required. The following image shows the IPD-001 connected to the PC interface and to two spurs numbered 2 and 4. Although outputs 1 and 3 are energised as indicated by the LEDs, no network is connected.

