

Driving Integration

'Out of the Box', 'Non-Invasive' Power Monitoring CL-Amp Kit Solution

'Non-Invasive', easy to install, current monitoring solution

'Out of the Box' CL-Amp Kit Overview

With legacy data centres known to be operating at the extremes of their design capability and beyond, there is an urgent need to provide a 'non-invasive' current monitoring solution to retrofit, legacy and new build data centres, in order to monitor and increase visibility of power usage, help regain power and cooling capacity and ultimately enable clients to benefit from attendant cost savings, without the scheduled power downtime associated with traditional monitoring technologies.

To facilitate deployments, has configured a simple, cost effective, 'out of the box' kit solution, specifically designed for a single cabinet installation, removing the need to setup complex SNMP based network management systems. The kit comprises of all the necessary constituent component parts required for your 'non-invasive' current monitoring solution and consists of the following:

- 2 x CL-Amp devices.
- 2 x sets of cable collars supplied to support: 8mm to 18mm diameter cables.
- 1 x PowerHawk².
- 1 x Temperature sensor.
- 1 x spare sensor port.
- 1 x CD copy of Env-U, a client based application.
- 1 x set of 2m interconnecting patch cables from the CL-Amp to the PowerHawk².
- 1 x instruction manual.



Product Features

- 'Non-invasively' monitors standard 3 core single phase AC power cables [L, N & E], without the need to specifically identify and measure the live conductor only.
- Current measuring range 1.0 Ampere to 60 Amperes.
- Measured supply range: 90VAC ~ 250VAC. Frequency: 50Hz ~ 60Hz A.C.
- Size: 134mm x 88.5mm x 41mm, Weight: 135gm
- RS232 / RS485 communication link to the PowerHawk² monitoring device, to provide SNMP data collection, monitoring, and configuration of the CL-Amp.
- RJ45 connector for direct connection to the PowerHawk².
- 12V DC power supply @60mA (typically supplied direct from the PowerHawk²).
- Cable collars supplied to support: 8mm to 18mm diameter cables.
- Local LED display provides two digit readout.
- Can be calibrated to cable types to provide typically $\pm 3\%$ accuracy Ampere current readings.

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What the 'Out of Box' Kit Provides

The CL-Amp kit is intended to supply an all in, one easy to install, solution providing 'non-invasive', real-time current monitoring functionality to non-intelligent power strips and measurement of A.C. currents on typical data centre power supply feeds rated up to 32A.

The PowerHawk², as an ideal product that supports single cabinet power and environmental monitoring solutions using a single IP address, is the monitoring device of choice within the kit to provide the CL-Amp with power and a communication link. The 'out of the box' kit solution also provides, as standard, temperature monitoring, with the inclusion of a temperature sensor. The second sensor port on the PowerHawk² has been left spare for the client to decide, which additional sensor monitoring is most suitable for their application, i.e. humidity, or an additional temperature sensor. The additional sensor can be retrofit at any time.

To further enhance the 'out of the box' kit solution, a simple client software application, has been provided, known as Env-U. This desktop application will provide both a live and historical view of current, temperature and humidity data readings, in addition to providing simple trending information of the parameters monitored where basic management reports can be easily created and exported into Excel or CSV formats.

Component Parts of the Kit

CL-Amp

The CL-Amp is a unique innovative new product, designed and manufactured Technologies, to provide the urgently needed 'non-invasive' current monitoring solution into retrofit, legacy and new build data centres.

For the purpose of the 'out of the box' CL-Amp kit solution, the CL-Amp is powered by the PowerHawk², which also provides the necessary communication link to the CL-Amp, allowing the measured electrical current to be read.

The CL-Amp enables the 'non-invasive' real-time monitoring of current for any device or power strip, rated up to 32A. Devised with an open fork in the high quality and robust plastic, it is placed directly over a power cable with a choice of locking-ring collars to suit most international 13A, 16A and 32A cable sizes provided.



Product Features

PowerHawk²

- SNMP agent optimised for rack management.
- HTTP/HTTPS web interface for management and power strip control.
- Support for 5 Network Management Stations (NMS) to access the unit.
- Allows up to two CL-Amps, monitoring amps.
- Allows up to two auto sense analogue input channels per cabinet, which can be any combination of temperature or humidity.
- All alarm thresholds can be user defined and configured through an easy to use web interface or managed via SNMP for configuration and monitoring.
- Optional display unit for monitoring sensor and power information outside the rack environment
- LDAP login support.
- Real Time Clock (RTC) with battery backup.

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Each locking ring separates into two halves and is placed around the power cable and pushed into the CL-Amp clamping bore, retaining the cable with a neat twist and lock action. A very lightweight device, it is designed to be installed at any convenient location on the cable.

Local and remote monitoring is achieved by connecting the CL-Amp to the Sinetica branded, PowerHawk² monitoring device, with local monitoring via an integral LED display on the CL-Amp.

PowerHawk²

As part of the 'out of the box' kit solution, it is the PowerHawk² that is used to power the CL-Amp and read the associated data. The PowerHawk² is a cost effective monitoring and control solution, which enhances the Unite Technologies family of Sinetica branded product portfolio.

The PowerHawk² has specifically been designed with simplicity in mind, to provide single rack



level power and environmental monitoring, using a single IP address.

Ideal for single cabinet installations, the PowerHawk² supports up to two CL-Amps, monitoring amps.

In addition, two environmental input sensors are supported, which can be any combination of temperature and/or humidity.

The PowerHawk² allows up to 5 SNMP Network Management Station (NMS) addresses to access the unit. Alarm conditions will generate trap messages, which can be directed to a maximum of 10 specified management stations. SNMP alarm trap thresholds may be set on any of the input measured parameters, i.e. amps, temperature and humidity.

Env-U Client Application

Env-U is an 'in-house' developed client application, included as part of the 'out of the box' kit solution to provide both a live and historical view of current, temperature and humidity data readings, coupled with simple trending information of the parameters monitored, allowing basic management reports to be easily created and exported into Excel or CSV formats.

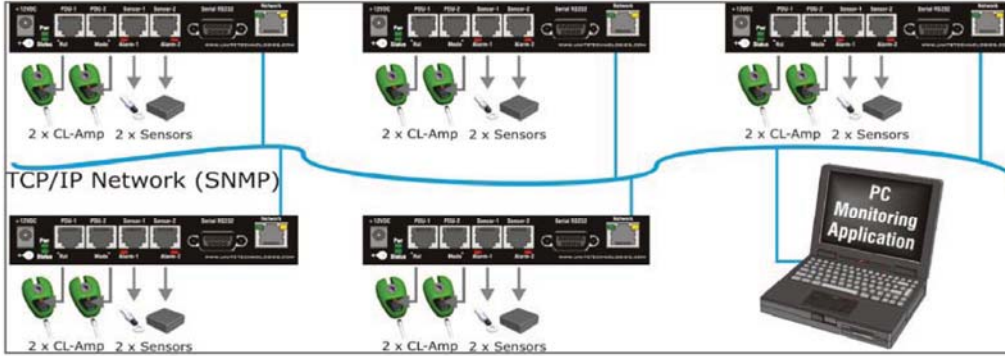
Product Features

Env-U Client Application

- Simple client based application.
- Uses standard SNMP protocol to support the PowerHawk² device.
- Supports up to a maximum of 25 nodes. 1 PowerHawk² = 1 node.
- Supports three types of sensor; 2 x CL-Amps and 2 x sensors.
- Polls devices and creates and logs SNMP traps as alerts.
- Live and historical view of data.
- Simple trending information and management reports.

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Figure 1.0 Application Overview



The Env-U application is intended to collect the CL-Amp electrical current data and the temperature/humidity readings from the PowerHawk² device. Using standard SNMP protocol, Env-U will monitor up to a maximum of 25 networked PowerHawk² agents.

Three types of sensor are supported, namely:

- 2 x electrical current data readings from the CL-Amp.
- 1 x temperature sensor.
- 1 x spare sensor port for a humidity or second temperature sensor.

Figure 2.0 Env-U shows a historical view of temperature changes over a given time period.

Based on Microsoft .NET framework version 2.0, Env-U is capable of logging any SNMP alarms that are generated by the agent devices.

The agent devices will be polled at regular intervals and the read data collected and stored in the applications database at one minute intervals, for a maximum of 186 days. In addition to the polling and capture of data, it is important for Env-U to provide and log alarm messages as SNMP traps when user defined thresholds are exceeded.

Env-U is not a full SNMP Network Management Station. For large installations or if further feature sets are required, clients may upgrade to our Enterprise Device Management software application.

