

Integrated Power Solution

The evolution of power!



Clearline
The Electronic Protection Company



IPS - a single integrated, modular approach to electrical reticulation.

The Concept

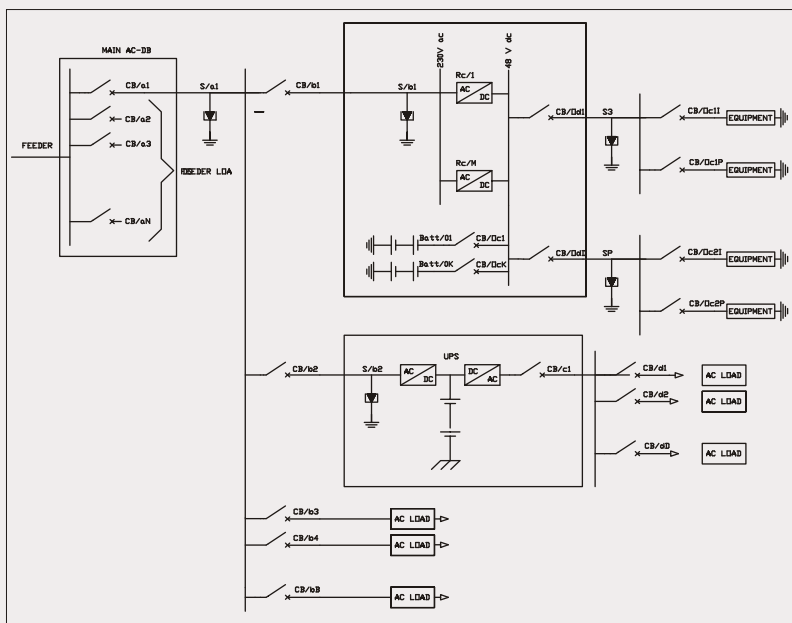
Traditionally, power reticulation follows an approach which incorporates the following steps:

- Generate the requirements,
- Establish the design and equipment specification
- Issue a tender
- Appoint an electrical contractor
- Project Manage the work until,
- Acceptance and handover

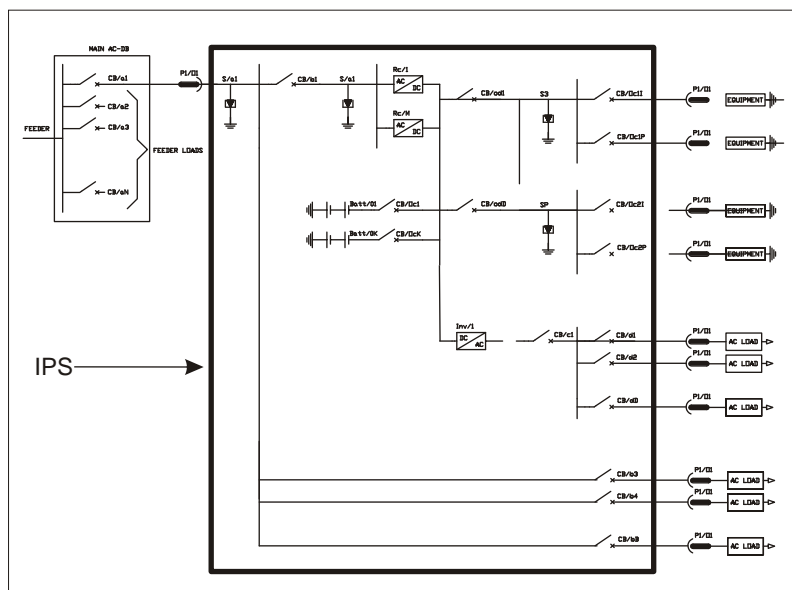
Whilst this process is generally accepted as best practice it is nevertheless fraught with potential problems such as quality control, extended execution time, and consistency of delivery due to the variety of vendors and contractors required to undertake specific aspects of the project.

The Integrated Power Solution (IPS) resolves these problems by integrating this diversity of elements into a single, modular unit which is built off site using strict quality control and acceptance procedures. The result is an integrated, modular power solution which can be specified very quickly using a 'tick-list' type approach.

The benefits are best presented diagrammatically as below.



The adjacent design which is typical of the telecom industry shows the various cabling and DB requirements. This includes several AC and DC distribution boards. Such an installation takes several days if not weeks to complete and is prone to the potential problems listed above.



The IPS simplifies the reticulation by integrating the various elements in a single "Black Box". Since the unit is preassembled, quality checked, and functionally tested, all that remains to be done is to connect the equipment, and a mains supply using preassembled cables and plugs.

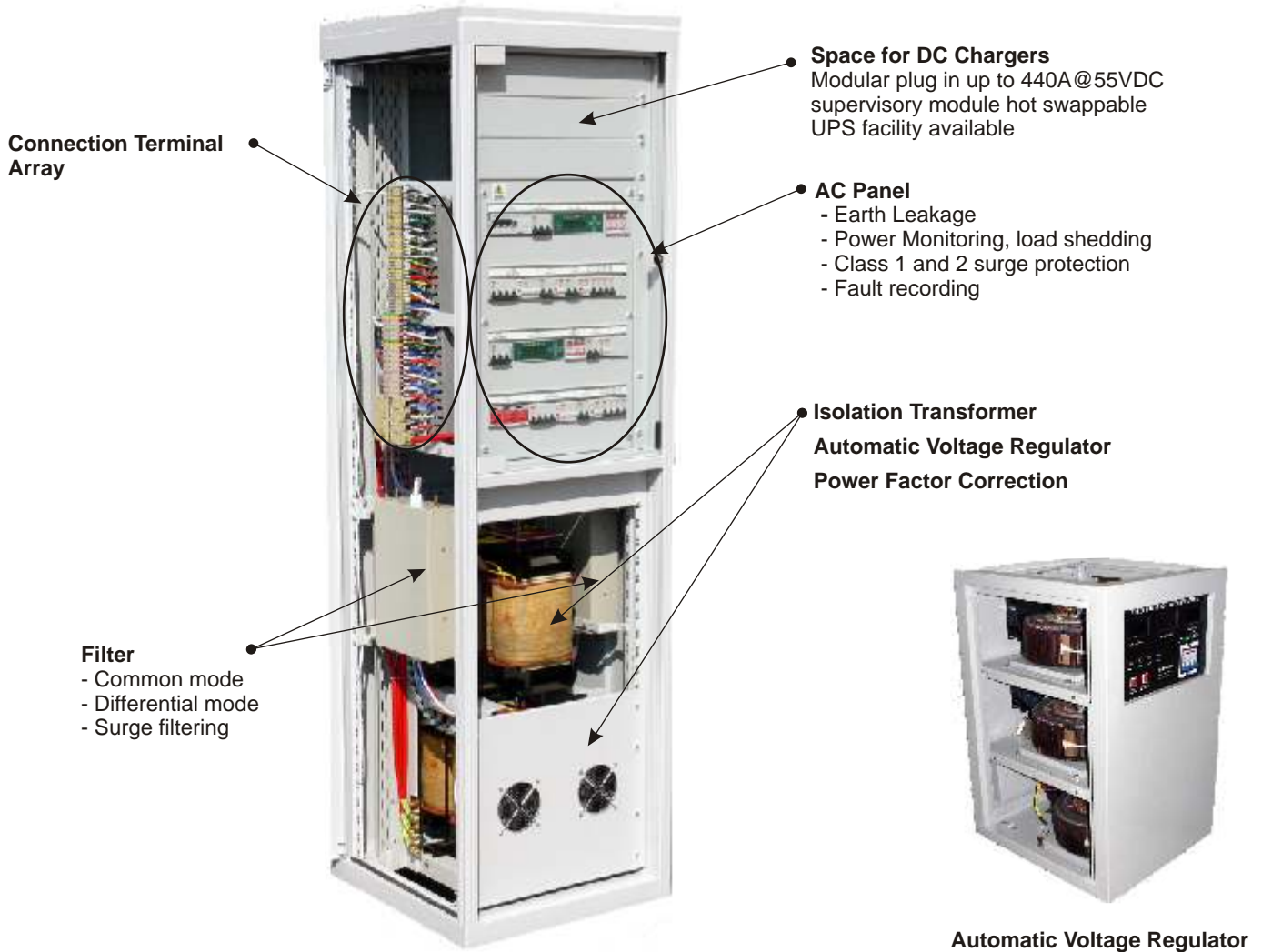
The most obvious benefit of the IPS is the cost saving as a result of time and labour; a typical installation now takes less than 2 days and the consolidation of supply can reduce the material costs by as much as 50%. Further benefit is derived from a reduction in delays due to non-compliance to specification. Also, since all units can be pre-inspected, costly return trips to remote sites are all but eliminated.

The Design

The entire system is integrated into a standard 19" rack, and the modular design ensures that upgradeability is almost limitless. This also means that the infinite combinations of elements which can be integrated ensure that IPS's are available for every conceivable application and quality of supply.

The design ensures that the IPS offers not only massive reductions in costs but also:

- Upgradeability**
- Flexibility of application**
- Versatility of design**
- Portability**
- Reduction of unforeseen errors and delays**
- Reusability**



Options

The following standard options are currently available:

1. Up to 20KVA 3-Phase isolation and power monitoring and control using high efficiency transformers
2. 20KVA automatic voltage regulator 3 phase with wide voltage input range - servo driven
3. 20KVA fast digital AVR with wide voltage input range
4. Charger Cabinets
 - 440A, 48V charger excluding Batteries
 - 60A, 48V Charger Including Batteries
5. Power factor correction cabinet

Specifications

Due to the versatile nature of the IPS no standard specification exists, but rather each IPS is specified and built according to client's requirements using a checklist type approach. The design then ensures that the power requirements of the site have been accommodated. The completed IPS undergoes stringent quality checks and is fully tested. The unit is then supplied with a signed certificate of compliance.

The following standard systems are accommodated:

- **Circuit Breakers**
Both AC and DC Circuit breakers can be accommodated.
- **Surge Protection**
Class I and Class II protection can be fitted with Surge capacities up to 100KA and response times as low as 10ns using silicon devices.
- **EMI Filtration**
Filtration isolates both high frequency noise sources on the supply side as well as lower order harmonics generated by non linear loads.
- **Earth Leakage Protection**
- **Isolation Transformers**
- **Power Factor Correction Equipment**
IPS provides a modular expandable power factor correction solution for installations with high inductive loads
- **Rectifier/Batteries/Inverter**
- **Uninterruptible Power Supplies**
Provision is made for rack mountable UPS's which can be stacked to increase power outputs.
- **Electronic Voltage Stabilisers**
State-of-the art stabilisers can be incorporated to not only provide constant output voltages but also to cope with voltage drops across high impedance lines as well as exceptionally high in-rush currents.
- **Backup Generator Supply Management**
The IPS offers interface and control facilities for standby generation and can interface with remote monitoring and control equipment.
- **Remote Monitoring and Control**
Access to data and status monitoring as well as various control actions is possible via most standard communication protocols
- **Metering Functions**
The IPS provides for pre/post paid and split billing systems as well providing statistical power usage data.
- **Demand Monitoring and Control**
The systems provides for Peak Lopping and Load Shedding , ensuring the most efficient use of power by combining use of Standby, backup and primary power supplies.

The concept which provides versatility and high levels of customisation is ideal for applications such as:

- **Telecomms** - Ideal for high volume rollout of remote sites
- **Mining industry** - Ideal for temporary sites
- **Buildings**
- **Factories**
- **Warehouses**
- **IT Industry**

The IPS provides exceptional benefit by reducing both direct material costs and time costs and is ideal where ever short commissioning times, high volume rollouts and temporary solutions are required.

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