

Specifications



**Communications Controller module**  
Communications interfaces supporting 2w, 4w, V.23, FFSK, VF radio, Data radio, Ethernet TCP/IP, Fibre Optic  
4 individually isolated ports supplied standard with one serial card (RS232 or RS485)  
Protocol support for DNP3/IP, DNP3 Master, DNP3 Slave, Modbus Master, Modbus Slave, HDLC, HDLC/IP, Conitel 2020/2025  
Time Synchronisation IRIG-B, 1pps -UTC and standard offsets.  
Config port - RS232 for Local Master or local Aspex HMI  
Security Inputs - Tamper and Inhibit, Relay Alarm Output  
LED display for individual port operation

**Digital Input Module**  
40 voltage driven digital inputs isolated in pairs, common negative for each pair. Inversion, denounce, fleeting or latching selectable.  
**Input range** 12/24VDC or 110/120VDC selectable 48Vneg available on request.  
**Isolation** Opto-coupler

**Digital Output Module**  
40 pulsed or continuous control outputs, isolated in pairs, common return for each pair.“ON” condition is electrically energised. Software inversion selectable.  
**Supports three types of outputs** continuous, pulsed and pulsed paired.  
**Pulsed operation** Software configurable in 0.05sec increments up to 12 seconds  
**Contact rating** 5A @ 24VDC / 250VAC AC1  
**Isolation** Electromechanical relay

**Analog Input Module**  
Differential voltage or current analog inputs, group isolated in four groups of four inputs each. Supports paired bipolar inputs.  
**Input range** 0-10mA, 0-20mA/4-20mA, 0-5V individually jumper selectable.  
**Resolution** 12 bit  
**Current shunt-** 250 ohms (0 - 20mA)  
**Common mode rejection**  
- 500 ohms (0 - 10mA)  
- 100dB @ 50Hz

**Pulse Input Module**  
Provides 8 individually isolated pulse count inputs. Supports pulse rate, pulse accumulation.  
**Input voltage range** 12-24 VDC or 110-120VDC selectable.  
**Pulse rates** <55Hz  
**Serial I/O Module**  
Four individually isolated serial ports, software selectable for RS232 or RS485. Data rate 75 to 115200 bps asynchronous or synchronous.  
**Connectors** RS232 - RJ45  
RS485 - 3 pin Phoenix Combicon.  
**Data formats supported** Asynchronous or synchronous, HDLC/PPP  
**Protocols supported** DNP3.0, Modbus, Allen Bradley  
multidropped  
DF-1, Harris 6000, Cooper C2179, supports devices from each port.

**Injection Controller Module**  
Supports all available channels for Zellweger Decabit, Plessey Rhythmic, Landis & Gyr Semagyr 50 injection codes. Highly and fully configurable plant interface.  
**Input range** 12 /24VDC  
**Contact rating** 5A @ 24VDC / 250VAC AC1  
**Check input** supports three states for confirmation the injection telegram was successfully injected; no checkback, true checkback and inverted checkback.

**Injection Display Module**  
Display and local control of individual lead channel status via thumb wheel selector

**Time Sync Module**  
**Output** IRIG-B, 1 pulse per second

**All Modules**  
**Connectors** Pluggable 2.5mm sq rising clamp connectors.  
**Input Power** 18 -32 VDC  
**Open contact voltage** 1kV RMS 1 minute (unless stated)  
**Insulation test voltage** 2.5kV RMS 1 second, 2kV RMS 1 minute 5kVp BIL  
**Insulation rating** 500V

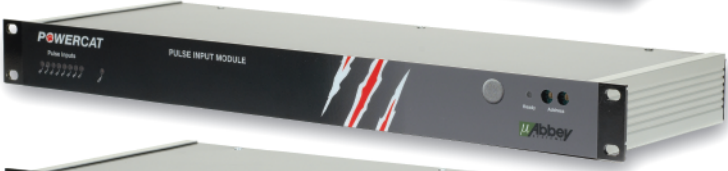
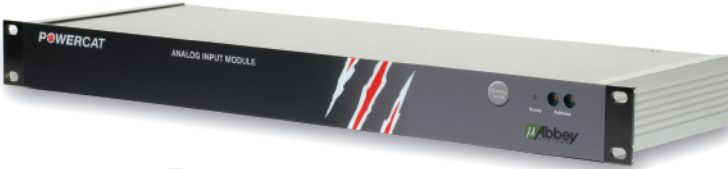
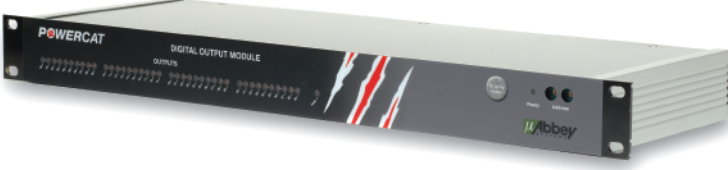
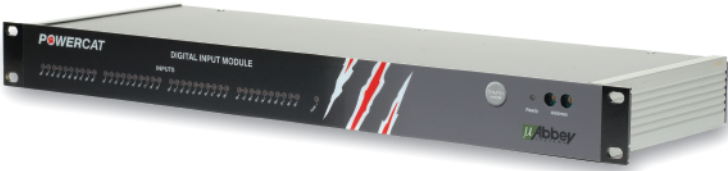
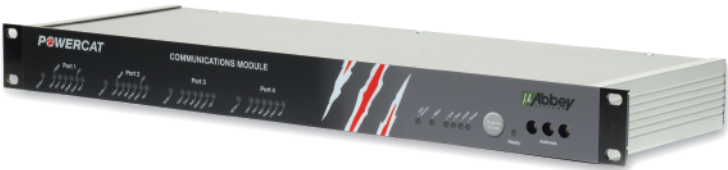
Introducing



Modular SCADA Remote Terminal Unit

Powercat is an industrial modular RTU designed specifically for Electrical Distribution and Telemetry applications. Powercat flexibly fits into existing SCADA sytems with ease, collecting and concentrating data from Energy meters, Protection relays, Transformer relays, PLCs, PSUs and discrete I/O to return it to the SCADA Master or for internal program control.

- High I/O isolation
- Multiple protocol support DNP3 Master and Slave, Modbus, DFI, Conitel and others
- PLC functionality
- GPS Time Synchronisation for RTU & protection relays onsite
- Local HMI/Config tools
- Ethernet interface TPC/IP
- Load Management System modules



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INNOVATORS IN REMOTE CONTROL TECHNOLOGY



# What's New



Powercat is an update to our Powerlink RTU product with a new Architecture, faster M32c processor, Flash RAM and additional interfaces for Time Syncing and IP communications as standard.

## Communications Controller Module

The hub of the system, the Comms Controller combines the functions of two of our earlier products, the communications controller and serial module into a single module. Four slots in the rear of the module allow users to fit interfaces for

- modems for radio or line comms for HDLC or Conitel
- Isolated RS-232/RS-485 serial card for Asynch protocols DNP3, Modbus, DF-1

In addition each module is fitted with

- IRIG-B Time Sync input
- Security Inputs (Tamper and Inhibit), Alarm Relay Output
- Config port for a Local Aspex HMI/Display or Local Master RTU setup
- Intermodule bus port to communicate with other I/O modules



**Time Sync Module**  
IRIG-B and IPPs

**Security/Alarm I/O**  
**Intermodule Bus**  
to other I/O modules



**Power**  
24VDC

**2 x Spare Slots**  
For expansion

**Aspex HMI**  
Local Display and Control



**Local Master**  
Configuration and program tool box



**IP Communication**  
10/100 Base-T

**Serial Communications Port**  
RS2342 or RS485



**2w or Radio Modem**  
HDLC synchronous



## Digital Input Module

40 paired isolated inputs for status monitoring. Debounce and Inversion are software selectable. LED display of each input status.



## Analog Input Module

Connects analog transducers or inputs with 12 bit accuracy. Inputs are independently filtered for rejection of noise and ripple.



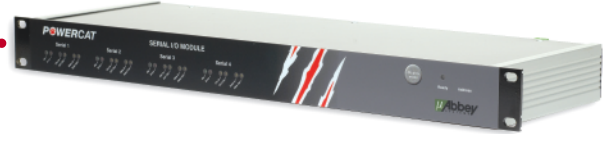
## Serial I/O Module

Allows the connection of serial IEDs i.e. reclosers, feeder relays, generator relays, transformer VRRs, flow meters, valve actuators, PLCs, VSDs etc without the need to independently wire discrete I/O modules. Uses standard protocols (DNP3.0, Modbus, DF-1) and specialised protocols (Cooper 2179, Harris 6000 and others).



## Injection Display Module

A specialised module that displays the status of each injection control load channel and allows local control to shed /restore the channel.



## Digital Output Module

40 paired relay outputs to connect with external equipment for Control (i.e. contactors, actuators and relays). Protection against operation during power up/down and defect states.

## Pulse Input Module

Power and flow meters are connected to the Pulse Input module; output pulses provide calculated consumption and flow information at the Master. These can later be used in pre-formatted reports or spreadsheets.

## Injection Controller Module

A specialised module for the control of ripple injection plant for load management purposes. All standard codes catered for incl Enermet Decabit, L&G Semagyr 50, Plessey Rhythmic, K22, (Pulsadis, Riccontic, Telegyr -Enermet's IP). Local load levelling can be achieved using RTU logic programming and load metering providing it comes back to Powercat.

## Powercat Features

Wide range of communications options with the SCADA Master 2W, 4W, Synch Radio, Asynch Data Radio, IP, Fibre Optic

## Modular

Any combination of DI, DO, AI, Serial IO, Time Sync & Load Control modules may be connected to custom build your substation interface. Modules use a flexible intermodule bus for comms with the Communications Controller.

## High Isolation

- Inputs are isolated in pairs to withstand 2kV/1min or 5kVp BIL
- Relay Outputs are paired and share a common
- Serial ports are isolated to IEC 255-5
- Optional RS232 and RS485 Fibre Optic converters

## Logic Programming Functionality

Each Powercat RTU can operate as a programmable logic controller with programs either downloaded from the SCADA Master over the communications channel or loaded via the configuration port.

- Logic programs for Alarm conditioning, selective data storage, Local Load Management
- Preprocess data at the RTU as virtual I/O

- Programs can run at the SCADA Master or RTU allowing online program creation and testing

## Ethernet Port

- Connect via IP standard 10/100-Base-T