



## Kelman

Kelman specialises in Dissolved Gas Analysis (DGA), which is an essential test for monitoring the condition of electrical transformers. Kelman's portable and on-line DGA equipment is used by many of the world's largest utility companies.

Just like many other Intelligent Electronic Device (IED) manufacturers, Kelman devices provide mission critical functionality for utility companies. Measuring and monitoring the performance of electrical transformers is a crucial element of their service delivery. In order to give their customers a completely reliable product and guarantee zero outages, Kelman needs to be able to ensure that they are providing real time status information from their IEDs.

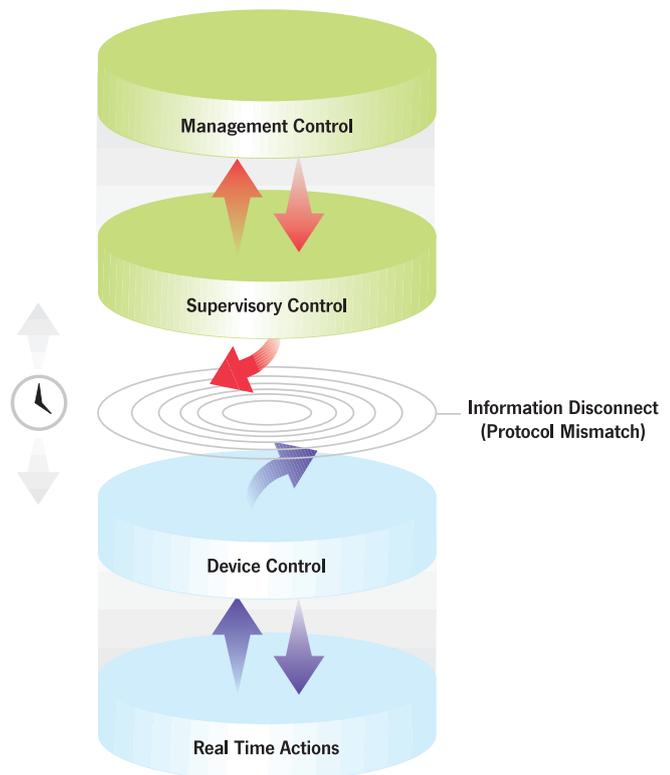
## The Problem

The vast range of IEDs and associated supervisory control systems used today provide important, mission critical services for utility companies. However, because these devices are designed and developed independently, they often use a range of different protocols that require translation for effective real-time, inter-device communication. This protocol mismatch makes it impossible for the IEDs to exchange real-time information with monitoring systems, so IED manufacturers need to build this communications channel into their devices to ensure that they are able to communicate with the control and monitoring systems.

## The Solution

Production Software's Protocol Integration Module (PIM) has been designed specifically to ensure IEDs can communicate in real time and their mission critical functionality is not compromised.

The PIM enables real time communication between a huge array of IEDs and supervisory control systems by translating different protocols, including MODBUS, Distributed Network Protocol (DNP), IEC 870-5 and in 2007, IEC61-850. The PIM ensures that operations staff are alerted to any system problems well before they become serious issues. The PIM's flexibility enables it to be easily programmed in the field to suit each customer's specific needs and their system requirements.



With the help of Production Software's PIM, Kelman is now able to ensure direct, real time communications between their IEDs and their customers' supervisory systems.

Stephen Beattie, Director, Engineering at Kelman says, "Without the help of PSL and their commitment to providing real time protocol conversions and direct communications, we could not have delivered the "TRANFIX DNP V3 Communications Protocol" to our customers on time."

**"PSL's friendly, experienced staff provided Kelman with the perfect partnership to deliver the quality products their customer's needed."**

# THE PIM

(Protocol Integration Module)



<< External Module

## The PIM:

### Reduces your operating costs

By grouping field data into classes for ease and speed of transfer, the PIM improves your bandwidth management thereby lowering your traffic costs.

### Improves your information quality and your network performance

By enabling the reporting of only exceptional incidents, the PIM enables interest to be triggered only when a value falls outside a prescribed range, and by deploying data aggregation, dynamic parameters can be prioritised.

### Seamlessly integrates into legacy networks

The PIM enables MODBUS devices to be seamlessly integrated into legacy networks, leveraging value from your existing capital investment, improving your performance and reducing your maintenance costs.

## Technical Specifications

### General

PIM supplied as:

- External Module – all PIM software and hardware supplied in a sturdy aluminium case
- OEM Module – all PIM software and hardware provided without a case
- Embedded Module – all PIM software provided for embedding within your own equipment

### Power Supply

External 10-60V DC source, 400mW

### Terminal Connectors

Master Ports: D range, 9 pin, female and RJ46 twisted pair

Slave Port: D range, 9 pin, male

### Communications Support:

Master Port - RS232 & RS485 & Ethernet

Slave Port – RS232 & RS485

### Unit Weight

OEM Module: 80gm (2.8oz)

External Module: 250gm (8.8oz)

### Mechanical Characteristics:

OEM Module: Base module includes mounting locations

External Module: Encapsulated by a tough aluminium case

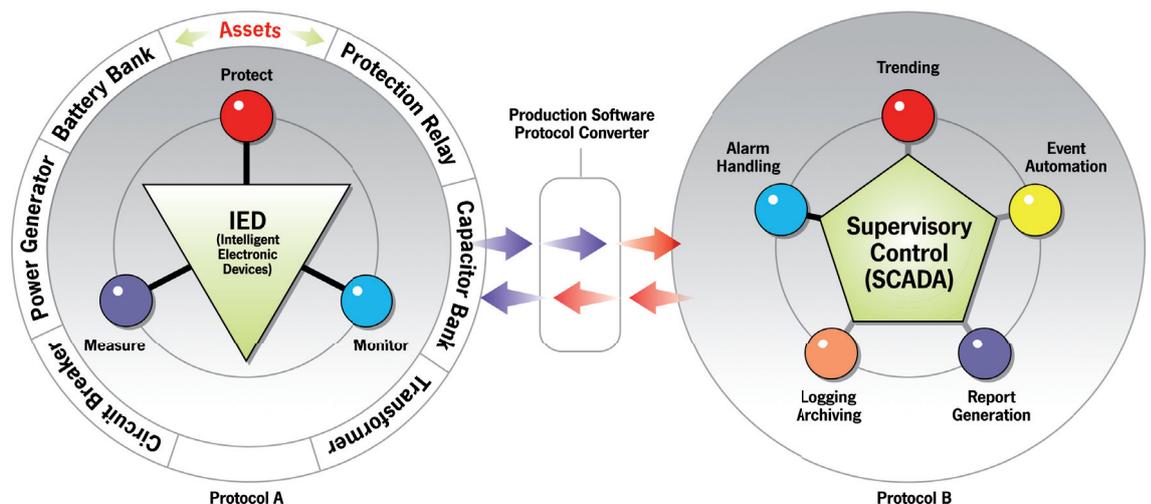
### Temperatures

Storage: -40° to +80°C (-40° to +185°F)

Operating: -20° to +60°C (-4° to +140°F)

Humidity: 5% - 95% non-condensing

The PIM handles the communications between a huge array of IEDs and SCADAs by converting protocols and enabling real time communication.



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