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## Omniflex strengthens UK presence

### Omniflex UK Ltd formed



Gary Bradshaw, Sales Manager, Darren Barratt, Sales Support Manager and Barry Parkes, Technical Manager

In order to strengthen our position in the UK, we are delighted to announce the opening of our UK office, with the formation of Omniflex (UK) Ltd.

With our 25 plus years' history of trading in this market our pedigree is well known. This latest development will ensure that our customers are provided with improved service and access to the latest technological solutions in the fields of remote I/O, RTUs, data acquisition, alarm annunciation, sequence of events recording and signal conditioning systems.

OMNIFLEX has already established offices and a comprehensive partner network throughout the world and as part of our expansion strategy, we see the UK as a key growth area for us in the future. The new UK office will be based in Stockport.

## Powerterm Power Supply Charger Series launched

Our Powerterm Power Supply Series is back in the spotlight again. By listening to our customers we have introduced the Powerterm Charger Series which is more than just a battery charger. It's a combined Power Supply and Charger packed with useful features.

It features a charger tuned for sealed lead acid batteries, and a temperature-compensated charging rate using a temperature sensor strapped to the battery for feedback to the charger, protecting the battery during high ambient temperature conditions. Batteries need to be checked regularly to ensure that they are in good order. The Powerterm Charger Series provides facilities to allow the batteries to be tested on location. A charger shutdown input is provided. On activating this

input, the charger is disconnected, allowing the battery voltage under load to be measured.

The Powerterm Charger Series also provides an AC mains-fail detected output. Batteries are capable of delivering enormous

currents under system fault conditions that can damage wiring and equipment. The Powerterm Charger Series incorporates an auto-resettable load cutout, which disconnects the load under over-current fault condition. During prolonged power outages, the back-up battery will eventually discharge. If the load remains connected, the battery enters its 'deep' discharge phase, which can cause irreparable damage to the battery, and reduce its capacity and life. The Powerterm Charger Series incorporates an under-voltage cut-out that disconnects the load when the battery voltage begins to fall.

The Powerterm Charger Series incorporates an independent charge current control circuit to prevent overcharge of the battery, even on no load. This has the added benefit of allowing the Powerterm Charger Series to deliver maximum rated load even when the battery is discharged and under full charge.



currents under system fault conditions that can damage wiring and equipment. The Powerterm Charger Series incorporates an auto-resettable load cutout, which





## Conet Explorer Suite

Conet Explorer is the latest software development from Omniflex and comprises a suite of software tools and utilities running on Windows platforms for Omniflex product configurations. Ongoing development will see new applications being added. Conet Explorer replaces the Chatterbox, Ezi-Edit tools which have served us for so long.

Conet Explorer has the following products included:

- DITVIEW – Data interchange table (DIT) viewer/editor.
- EZIEDIT – Interactive editor environment for writing programs
- EZITERM – Terminal mode facility to interact with Omniflex CPUs
- EZIFORTH – Programming language for Omniflex products

A communications server is at the heart of the Conet Explorer Suite connecting Windows to Omniflex devices via the PC serial connection or via a Conet port installed on the PC. This server supports the following protocols: Conet via Conet port only  
Conet/p via RS232 port  
Conet/s via RS232 port  
Modbus via RS232 port

One of the breakthroughs is that this server allows us in conjunction with Maxiflex T1 and T2 CPUs to access Conet networks via other ports. The PC Notebook can now access a Conet network via the Maxiflex programming port or via the serial ports on the CPU without the need for a PC Conet interface card.

New generation Omniflex products will use the Explorer Suite tools or simply the Omniflex Configuration Utility for product calibration, ranging and set-up.



# Loop the loop!

## New OMNITERMS solve all your loop problems

Instrumentation loop problems are frustrating at the best of times and downright time-consuming affairs for plant maintenance staff to deal with.

Most problems relate to isolation and ground faults, some of which present themselves intermittently or are hidden so deep in the plant wiring that tracing them becomes a full time job.

Omniflex's new OMNITERM range of DIN rail mount loop isolators use advanced electronic techniques to address the common problems associated with instrumentation loops using several specialised new products:

- LPI loop isolator
- LPX loop isolator
- LPR loop repeater
- LPS loop splitter



The OMNITERM LPI and LPX are current repeaters specifically designed to isolate instrument current loops from circulating ground currents that can cause system inaccuracies, or at worst, instrument failure.

The current applied to the input is repeated on the isolated output, and the load present on the output is reflected back to the input. No separate power source is required.

These second-generation products utilise advanced electronic techniques to achieve high accuracy with minimum loop losses and zero field calibration.

The LPI is optimised for lowest volt drop over 4-20mA, while the LPX is optimised for use with an extended current range from 0-50mA and load impedances down to zero ohms.



The OMNITERM LPR current loop repeater and OMNITERM LPS current loop splitter products are specifically designed to create additional current loop signals from an existing current loop signal with minimal effect on the impedance of the existing loop.

The LPR has a single isolated output while the LPS has two isolated outputs.

These 24Vd.c. powered modules accept a 0-20mA or 4-20mA input, and create 0-20mA or 4-20mA outputs. The output current loops repeat the input signal and are isolated from the input signal and 24Vd.c. power supply. Impedance changes on the output loops have no effect on the input loop. The module input is fully differential allowing the input to be connected anywhere in the input loop.

## OmniWatch Events Monitor

### SER260 events to a monitor panel

This application was required to monitor the boiler control system and provide sequence of event recording so that shutdowns/trips (events) could be analysed and the causal fault determined with minimal delay.

SER260 Sequential Events Recorder logs all events to better than 1 millisecond. The logged information can be printed out onto external line printers if necessary or the 24 column internal printer. (Events can also be logged indefinitely to a PC hard disk using an events management package Omni4000)

For this application however there were two boilers and the events on each need to be viewed separately and local to each boiler switch panel. It was requested that each boiler be able to view locally up to 128 of the last events on a display – specifically not on paper copy because this can be interfered with or may run out. The events monitor was to also trap the first out-event on the top of the screen for the boiler operators to see immediately. The solution to this was to customise OmniWatch to do this function. The new design was

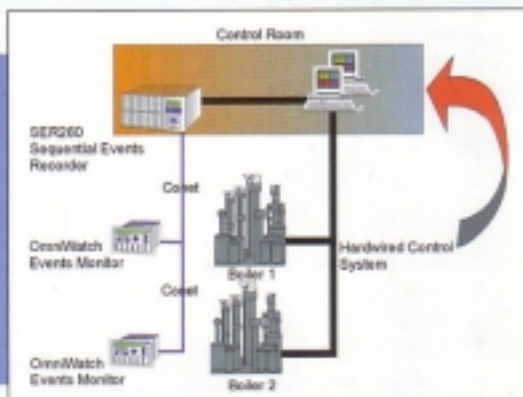
called OmniWatch Events Monitor.

OmniWatch accepts queue event data from the SER via the Conet network and stores it in a circular buffer which can be viewed on screen by the user to observe the sequence of events logged by SER260. Up to four of these OmniWatches can be supported by one SER260 and its Conet port. The SER260 receives its inputs from the boiler control logic system and ensures that every change of state is logged so that in the case of a shutdown the correct sequence of events can be traced, minimising

downtime in rectifying the fault. The events are logged to 1ms resolution. (1000 per second)

The Conet link to the OmniWatch Events Monitor panels may be run over screened twisted pair up to 10km from the SER260. This enables the OmniWatch panel to be located close to the boiler in the switchgear room whilst SER260 is located in the control room. OmniWatch is restricted to receive input events from one SER260 input card so events on Boiler 1 are not confused with Boiler 2.

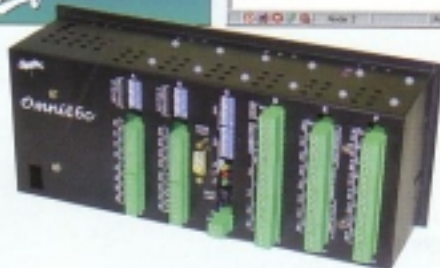
OmniWatch Events Monitor system with Ser260 Sequential Events Recorder



# Configure your Omni16C via PC!

OmniSet Windows configuration utility for Omni8/16C

**N**ow you can have all the flexibility you desire. Omni8/16C configuration just got a whole lot easier. Besides using the DIP switches you can now configure with a PC. Using OmniSet, a Windows-based configuration utility and a serial port cable, you can now set up the entire Omni16 from your PC. All the options you wished you could change are now available via the PC package. Individual timers, split first-out groups, selection of group alarm members, multiple group alarms and selection of repeat output status, and the list goes on. Every Omni8/16C has a jack plug on the rear for serial communications which, once connected to your PC, allows you to use OmniSet to do the configuration. Comprehensive help and the windows pull-down options make the set-up a pleasure.



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## Redundant systems with Maxiflex and Conet

**T**his is a fully redundant system comprising dual redundant network systems ie dual master nodes, dual Conet networks and dual front-end I/O nodes.

The system is made up of a primary link and a secondary link. Each link includes a master node that is responsible for connecting the SCADA system to the I/O node in the same link. The master nodes are also the nodes responsible for ensuring the integrity of the entire system so that there is always communication between the SCADA system and an I/O node. In order to accomplish this, each master node is connected via Conet to an M1582B Conet NIM module that is fitted into the Maxiflex rack of the other master node. As the M1582B Conet NIM modules are electrically isolated from the Conet network, the primary Conet LAN and secondary Conet LAN are isolated from each other, providing complete dual redundancy from the master nodes through to the I/O nodes.

The primary link is used by the SCADA system during normal operation. The primary master is continuously checking all relevant communication and I/O node status indicators to ensure the link is healthy. In the event of a failure in one or more status indicators, the primary system will flag this to the SCADA system and this condition will be detected by the secondary master node. At this point the secondary system will 'take control' of the communications link until the primary link is restored. Once the primary link is restored, the secondary link will 'release control' of the communications link to the primary system.

Both master nodes must be downloaded with the redundant link software for the system to operate. No redundant software is required to be downloaded to the front-end I/O node thereby keeping these nodes free for any user application required.

## When your Network needs to leave the Highway The 4x4 of Industrial Networking Solutions

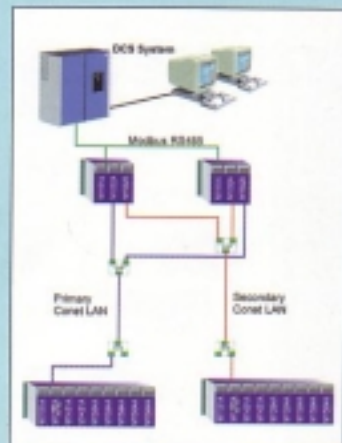
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Redundant system overview

## Omniflex delivers Hong Kong harbour radar station monitoring system

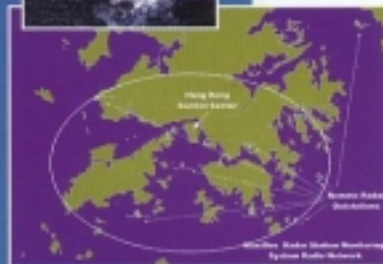
Hong Kong Telecom and Hong Kong Harbour Authority recently completed factory acceptance testing at Omniflex's premises in Durban for a system to monitor all the radar outstations for the Hong Kong Harbour Traffic Management Centre.

**B**ased on the award-winning Maxiflex programmable RTU system, Maxiflex collects data from 18 radar outstations located over a wide geographic area some of which are very remote, inhospitable and accessible by helicopter only. The collected data is transmitted back to Hong Kong Harbour

Traffic Management Centre via a microwave data communications network (using Omniflex's CONET/s protocol) provided by Hong Kong Telecom. Omniflex was chosen as preferred supplier owing to its networking and engineering flexibility, ability to interface directly (serial communications) to UPS systems at the radar stations, and to remotely re-program outstations from the engineering station located at the Traffic Management Centre. With Hong Kong harbour

being one of the busiest ports in the world, up-time and speed of data collection were crucial and Maxiflex's ability to provide multiple full duplex parallel communications paths (Conet/s) for each of the 18 outstations was vital to the success of the project. Being the junction of two different forms of maritime transport – the large ocean-going vessels from the Pacific Ocean and the smaller, coastal and river trade craft from the Pearl River – and the only modern, fully developed deep water harbour between Singapore and Shanghai, Hong Kong is the focal point of all maritime trading activities in southern China. In 1999, Hong Kong handled a total of 169 million tonnes of cargo

through its port and 16,2 million TEUs, making it the busiest container port in the world for the sixth consecutive year. With its local distributor Omniflex has ensured the ready availability of spares, technical support, and maintenance backup for the system based in Hong Kong.



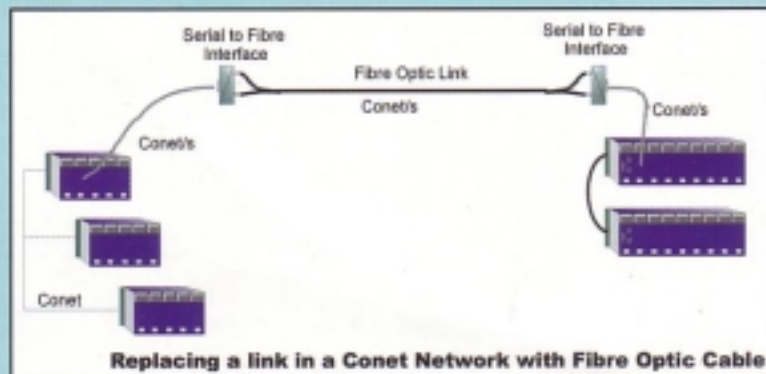
Photographer: Mr Lo Kwok-Wah  
Assisted by: Mr Michael Yeung,  
Mr Edmond Wong and Mr Johnny Chan

## CONET on fibre-optic!

Putting a fibre link into your Conet LAN

**W**e have implemented a version of Conet which runs through a serial port connection called CONET/s. This serial implementation of Conet/s allows us to use the Conet Protocol on a RS232 link, which was previously not possible. Using standard RS232 to fibre converters, a link in a Conet network can be replaced with a fibre connection as shown in the application drawing. The fibre link is transparent to the Conet network and no special consideration is required to implement this – all networking activities take place as if the fibre link did not exist. Conet/s is a standard option on the Maxiflex T1 and above series CPUs, along with Modbus, and can be run concurrently out of the same CPU with Conet.

Conet/s is a full duplex protocol which makes it effectively as fast as the 62500 Baud Conet twisted pair network even though it uses an RS232 port. Conet/s has also been used on high-speed data radio links that can support full duplex communications.



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The new Powerterm Charger Series