OPUS software

Specialists in Telemetry & SCADA System Software

OPUS-RTU Remote Telemetry Unit

OPUS SOFTWARE presents **OPUS-RTU**, the new generation of Remote Telemetry Unit. **OPUS-RTU** has a future proof design employing off the shelf hardware components and open connectivity. These intelligent RTU systems are typically based on the very latest miniature embedded PC technology and are capable of operating as a combined RTU, data filter, data logger and HMI.

The RTU design is based on open access and open connectivity making the units ideally suited to third-party system integrators.

OPUS-RTU includes high-performance communications software and is provided with a simple interface that enables the units to be integrated into the user's telemetry systems with minimal effort and fuss. No special knowledge of the underlying protocols or special software development skill is required.

Hardware Platforms

OPUS-RTU software can be installed on any Windows 7 Professional based computer system and is typically installed on an embedded PC (Mini-ITX or Pico-ITX) hardware platform.

Mini-ITX embedded PC

The embedded PC hardware platforms are ideally suited for small entry level or RTU systems. These miniature low-cost systems employ a small 2.5-inch solid-state drive as a bootable drive and to record all essential operating system data. In addition it is used for all data logging and to record all active

Pico-ITX embedded PC

system data (e.g. archives and system logs). This solid-state drive along with the use of standard Mini-ITX or Pico-ITX hardware provides the highest possible reliability, designed for '24/7' (once on always on) operation.

Unless an integrated HMI is required, RTUs are usually supplied without any display, keyboard or mouse interface. The Remote Admin Workstation link or Microsoft's Remote Desktop interface can be used to provide on-site connectivity between an engineer's laptop and the RTU via a LAN or WIFI connection. Alternatively, portable interfaces such as the IBM traveller keyboard with mouse pad can be used to connect to the RTU via one of the many USB ports.

RTUs typically interface to the plant via local or remote devices such as PLCs or Ethernet I/O devices. Various types of I/O interfaces are available to support all manner of input and output configurations. I/O modules may be used as either separate DIN rail mounted units connected via an Ethernet LAN or a Wireless link, or installed in one or more multi-slot units.

ADAM-5000/TCP 8-Slot I/O Unit

Open Connectivity

All communications between an OPUS-RTU, sub-master station and master station system, including the RTUQUERY utility software, use the standard Opus TCMP2 Telemetry Communications Protocol.

Opus TCMP2 is an efficient and secure binary data protocol used for both polling and alarm reporting between telemetry systems. Each RTU or Opus sub-system can support links with up to four separate higher-level systems (e.g. centralised master stations).

Opus TCMP2 is an open protocol, fully documented with advice to developers who wish to communicate directly with the RTUs and integrate support for TCMP2 based systems into their own products.

In addition, the RTUQUERY utility program (with API Application Program Interface) is freely available to all users. This interface provides users with the means to poll an RTU and extract user specified data without the need to understand the underlying protocol or undertake any special software development. All data resulting from the query is returned in a standard CSV form ready for importing into the user's database or spreadsheet.

Modbus/TCP or DNP3 protocol interfaces can also be provided.

Data Filtering

Full data filtering facilities are provided within the unit's database configuration. Individual telemetry point data (digital status, analogue values and totalised counts) can be duplicated from the source stations (raw plant data) into separate filtered stations ready for data acquisition and reporting to the centralised systems. Point archives (or trend data) relating to the filtered data can also be selected individually for data acquisition. Other archive data, logging either the raw plant data or filtered data, can be maintained locally on the RTU and analysed via a local/remote workstation or Admin link as and when the need arises.

Data Logging

OPUS-RTU provides extensive data logging facilities, including individual periodic point archives (trends), individual time-stamped point archives (trends) and event archives (SOE, Sequence Of Event data).

Archive data can be sampled locally by the RTU or acquired from other devices, outstations or PLCs. All logged data can be individually

selected for data acquisition, other archive data can be left on the local RTU for analysis via a workstation link as and when required.

OPUS-RTU maintains a local history relating to all the telemetry point data (digital status, analogue values and totalised counts). This data can be accessed and analysed in an identical fashion to the time-stamped point archive data via the standard workstation or Admin links.

OPUS-RTU also maintains detailed statistical data relating to the inbound and outbound data acquisition and alarm reporting channels, general access logs, communication logs, reconfiguration logs and management reports. Once again this data can be accessed via the standard workstation or Admin links.

Advanced Graphic Workstations
OPUS-RTU utilises the standard Opus PC6-SQL software which includes the full-featured AGWS6 (Advanced Graphic Workstation) package. The workstation software is unlicensed and can be installed on any number of computer systems.

The workstation can connect to the RTU via any form of bearer circuit (radio, private wire, modem, LAN/WAN, Internet etc.), although a typical link would be established via either data/fax modem or an ADSL Broadband modem.
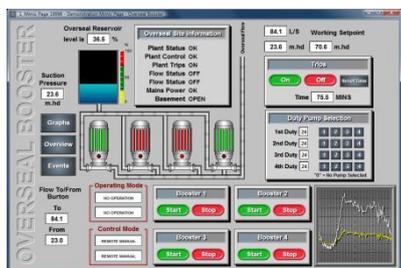
Full-graphic workstation mimic display

All Internet RTU connections are fully secure and can be provided using low-cost ADSL Broadband connections. Alternatively, a VPN (Virtual Private Network) can be used and global access controlled via a standard Opus Workstation Server.

The workstation package supports both mouse driven and touch-screen interfaces. In addition to the optional full-graphic integrated HMI or local/remote operator interfaces, this software is also used to provide the standard 'Local Admin' and 'Remote Admin' links.

The Local Admin and Remote Admin interfaces are unlicensed workstation user options that provide non-mimic time-limited connections to the RTU.

They provide access for the system administrator or engineer and assist in general reconfiguration, system monitoring, maintenance and fault-diagnosis.

Local Admin
The Local Admin workstation interface can be activated with a simple mouse click via either a local interface (display, keyboard and mouse attached to the RTU) or via an engineer's laptop computer acting as a Remote Desktop via one of the LAN connections.

Remote Admin
The Remote Admin workstation interface is permanently enabled and provides for secure remote access to the RTU via a standard workstation link. Workstations typically connect to the RTU via the internet or a data/fax modem; however, any form of bearer circuit can be used.
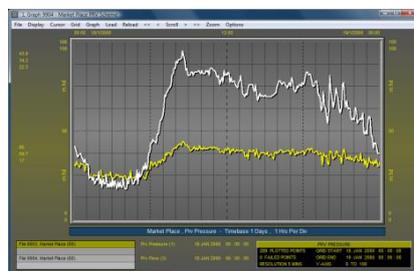
Local/remote admin workstation display

Integrated HMI/Operator Displays
A full-graphic workstation user option is available to provide an integrated HMI display or support local/remote workstations. This option supplements the Local Admin and Remote Admin time-limited non-mimic interfaces that are provided free of charge and intended for system administration, configuration and fault diagnosis.

SQL IMS and Web Interface
The SQL Information Management System (IMS) provides support for both Microsoft Access and Microsoft Sql Server databases. In addition to the SQL IMS, the SQL Web Interface provides browser access via a local or wide area intranet or the Internet. The


MS Excel SQL Access

system's current data can be viewed using mobile devices such as PDAs, mobile phones, or any PC that has internet access.
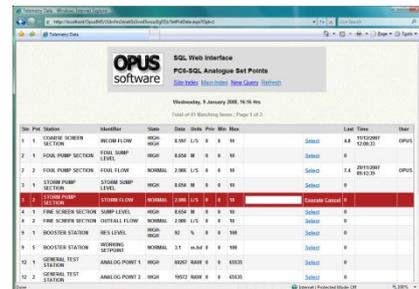
Web Interface

Other Features
The Management Report Generator provides for on-demand or automated report generation in either TXT, CSV or HTML formats.
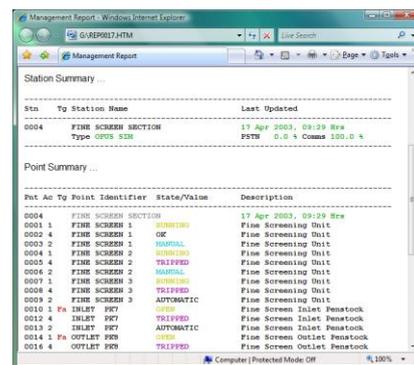
HTML Management Report

Alarm reporting via paging, text SMS, voice SMS, email or fax services.

Alarm Dial out to Mobile Devices

Separate hot standby, file server, workstation server and SQL/Web server systems are also available.

Since the Opus PC6-SQL and AGWS (Advanced Graphic Workstation) software was designed from the outset to support large distributed telemetry systems, all Opus systems, including the RTUs, are fully upgradeable and can be licensed and configured to support a practically unlimited number of stations, points and users in a wide variety of hardware configurations.

For further information contact:
Opus Software Limited,
The Studios, 31 Ipswich Gardens,
Grantham, Lincs NG31 8SE.
Tel: +44 (0)1476 594100
Mob: +44 (0)7860 707 577
Email: sales@opussoftware.co.uk
Website: www.opussoftware.co.uk