

CubelP Metering

Network Enabled Meters

Network enabled for easy connection

CubelP Meters are fitted with a standard RJ45 connector and use proven TCP/IP Network Protocols

Readable with any Web Browser

With an integral web-site, a standard web browser is the only software necessary to access the Meter. 16 web pages, all customisable, provide Meter readings.

Embedded Software

All necessary software is built into the meter. With SVG graphics, graphs & screens can be scaled and panned at will



Real-time graphics

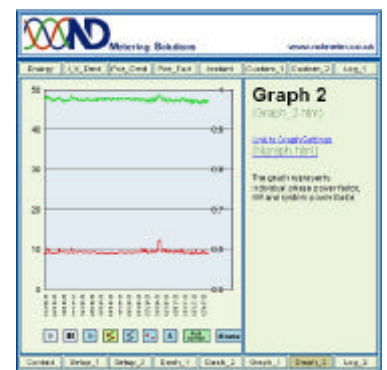
Using Java applets and FTP protocols, graph data is constantly updated

Read Meters across the Internet

Any location where a **CubelP Meter** is measuring the energy consumption can be monitored. With the correct permissions set, a meter can be read anywhere in the world.

Log Readings

Data Logging is available as an option. Up to 15 parameters can be selected for logging, as can the log interval.



Read Gas and Water Meters

Digital Inputs & Outputs are available as an option. Digital Inputs can be connected to the pulse outputs of other meters to make their readings available. (2 inputs are available)

Read Data Remotely

Network security would usually prevent access to the Meter from the Internet. **CubelP Meters** can be configured to automatically send data to a remote server, using standard FTP protocol to ensure free passage through firewalls

Multiple access to all meters

With **CubelP Meters**, multiple users can access the same Meter, reading different data at different rates

Local Alarms

Digital outputs, which are available as an option, can be programmed as alarms – for excessive Demand, high Neutral Current, ... ; any Meter parameter can be used. These outputs can also be used for local control. . (2 outputs are available)

Secure Data Backup

Embedded within each Meter is the facility to regularly transmit selected parameters to a remote web-site. Parameters, transmission frequency and destination URL are all freely programmable. Standard FTP protocol is used, thus ensuring free passage through firewalls

Data Export

An 'Excel Web Query' page allows direct import of selected data into any standard desktop application - such as a spreadsheet or word processor. This data can be automatically updated if required.



Energy Management

With Meter Readings available to any PC, these can be logged (every 15 or 30 minutes as required) giving the necessary Load Profile and Demand information needed for efficient Energy Management.

Facilities Management

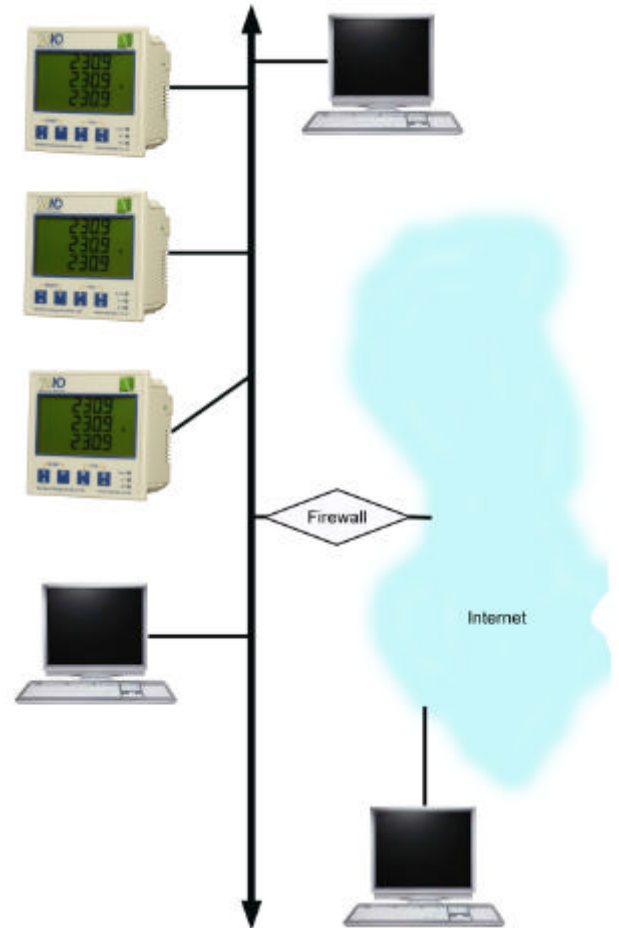
With totally different needs, the Facilities Manager - using his own software - can access any meter on site. To check available capacity, loadings and demands can be profiled; to check equipment operation, individual meters can be accessed; to respond to client queries, their Meters can be accessed and operation verified.

Engineering Management

With Real-Time access to all Meters and their readings, the Electrical Engineer can, on demand, investigate potential problems and action any necessary remedial work - without leaving his desk, wherever that may be. Any meter or group of meters can be displayed on his PC.

SCADA and Process Control

With industry standard MODBUS[®] TCP protocol, **CubelP Meters** can be easily integrated into most Process Control Systems. Individual or multiple Registers can be accessed and read by the software - every second if necessary.



Meter Reading & Billing

CubelP Meters make Meter Readings available to any PC - on the same network or anywhere over a link that can be as secure as necessary. Individual Energy Registers can be accessed and read by billing software - daily, weekly or monthly as required. The possibility of errors - as can occur where pulses are read and remotely counted - are eliminated.

Brief Specification

Network Interface

RJ45 Connector
10BaseT
Cat5 Cabling

IP Protocols

FTP, TFTP & SNTp
MODBUS[®] TCP
User configured IP address
DHCP, SMTP, SMS & E-mail in development

CubelP Meters

**CubelP 350, CubelP 350V
& CubelP 400** In Production

Rail Ip 350 & Rail Ip 350V In
Development

Web Server

HTTP
HTML Format, SVG for dynamic graphics
16 x 2 Direct Display Pages
Additional user-configured pages can be added
'Excel Web Query' Page
Network Configuration Page
Logging & FTP Data Transmission Configuration Page

Time

A real time clock is built in, synchronised to local or global time server using the SNTp protocol

Options

Digital Inputs & Outputs

2 digital Inputs for external pulsing devices or status
2 digital for Alarm or local control

Data Logging

31 days of ¼ hour data for 15 parameters maximum



Stephen P. Wales Ltd

The Old Brewery Works, Lr Ellacombe Church Rd,
Torquay. UK. TQ1 1JH
Tel: 01803 295430 Fax: 01803 212819
email: sales@stephenpwales.co.uk



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IP Meters

Internal Web-Server

IP Meter Web Server

All ND IP Meters have an integral web-server. This can be accessed from any PC or PDA with the correct permissions. 16 display screens are provided as standard; typical sample screens are shown below. Custom screens can be developed; facilities are provided for Customers to upload their own HTML files. Every parameter monitored by the Meter is available for download or incorporation into display screens.

Meter & network configuration can also be accessed using any web browser, as can the set-up of the integral Data Logger and the auto-export of data to a remote server (for remote viewing & data archiving).

The tabs along the top and bottom of the screen provide instant access to dynamic graphics – updating in real time – or static tables showing measured values. Data available includes voltages, currents, power factors plus powers (reactive and active) and energies – both import and export. Other available parameters include Neutral Current, individual voltage & current harmonics, ...

There is also a hidden 'Excel Web Query' page allowing direct import of selected data into any standard desktop application – such as a spreadsheet or word processor. Such data can be automatically updated if required.

kWh	kvarh	Amp Dem 1	Amp Dem 2	Amp Dem 3	kW Dem	Pk kW Dem	kVA Dem	Pk kVA Dem	kW	PF	kvar	I Neut
25077	5921	127	138	92	92	107.2	98	121	79.3	0.95	26	3

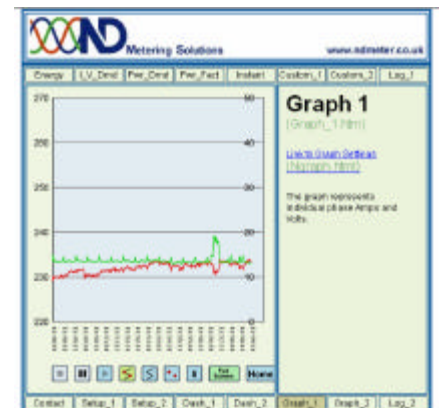
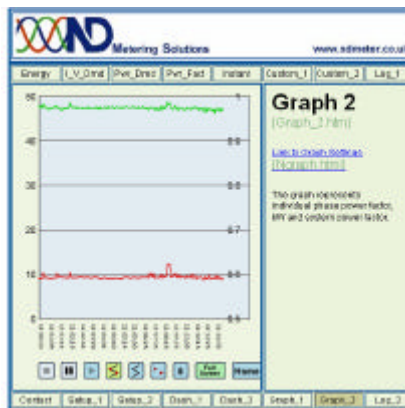
SVG graphics offer high resolution indicators and graphs which scale with window size and can be zoomed into or panned. Internet Explorer requires the free Adobe SVG viewer – download details are provided.

Graphing

Two real-time graphing screens are available on the standard IP Meter:

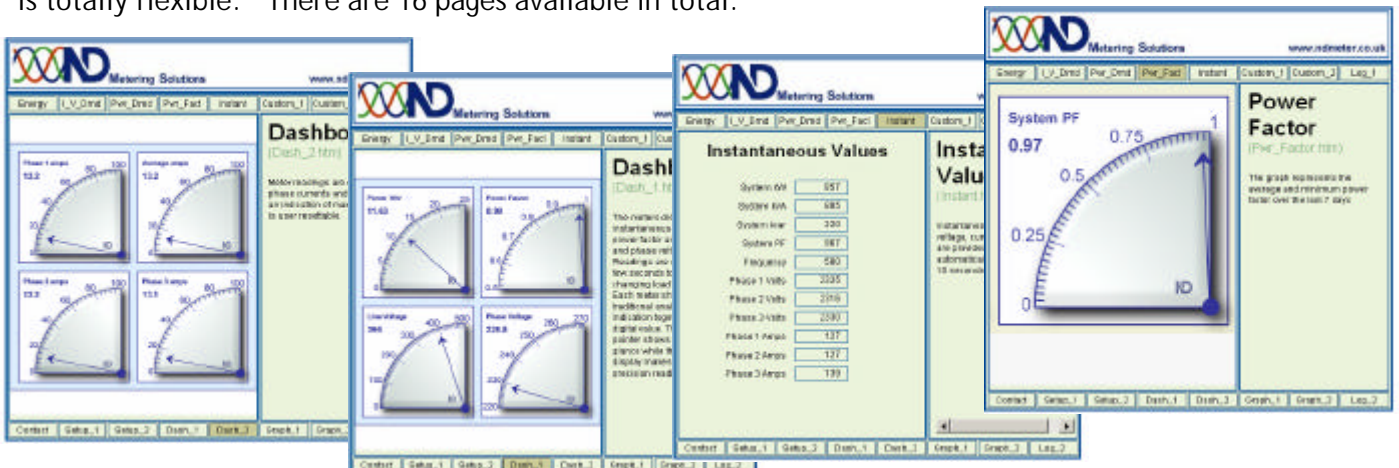
- PF and kW
- Voltage and Current

These Graphs pages can be displayed individually by adding the *tab name.svg* to the Meter's IP address (eg <http://...../graph1.svg>). Zoom and Pan is also available.



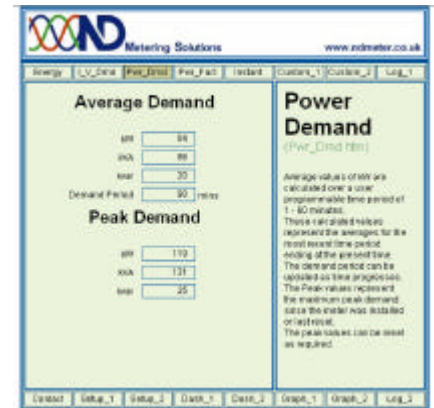
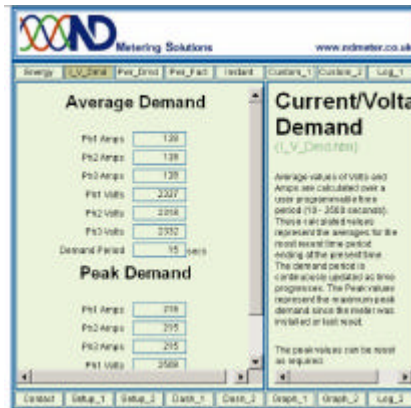
Instantaneous Values

Instantaneous values can be displayed in tabular or graphic format. Pages can be customised, and custom pages developed in HTML format. Pages can be freely allocated as tabular or graphic—the overall layout is totally flexible. There are 16 pages available in total.



Energy & Demand

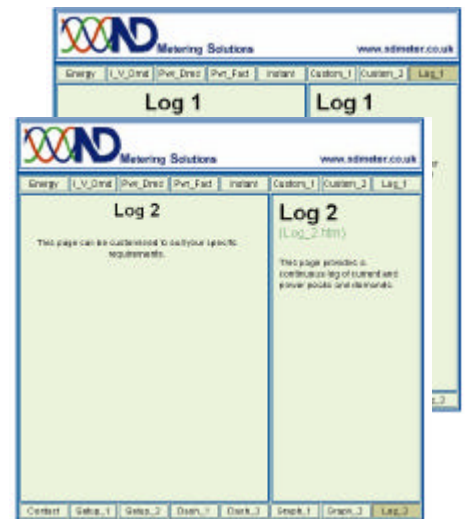
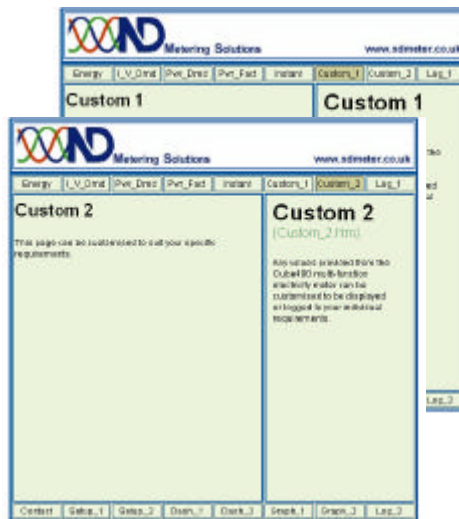
Displays of Energy consumption and Demand values — for the Powers (kW, kVA & kvar), the Currents and the Voltages. Instant information on Energy Consumption and on system capacity is always available at the click of a button.



Custom & Logging Screens

The Log pages can also be customised, providing access to the 15 parameters that may be logged within the Meter.

For external logging, the Meter can be configured to transmit data to a specified target (such as a remote server) using standard FTP protocol. Alternatively, there is an 'Excel Web Query' page allowing direct import of data into any standard desktop application.



Configuration & Support Information

Meter and Ethernet configuration is available at the click of a button, plus links to further information and support. Hidden pages allow setup of the network interface, and the data log. Parameters and log interval can be set; as can the URL of the external log site and the FTP interval.



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