

# THE IQ3XCITE SYSTEM



# Introduction to the IQ3xcite system

The management and control of modern buildings grows ever more sophisticated. A Building Management System (BMS) must be tailored to suit each customer's specific control requirements. It must provide efficient HVAC control, coupled with the flexibility to accommodate changes in occupancy status and staff relocation at short notice; whilst simultaneously delivering improved comfort conditions. A BMS must also provide real time management information and control, enabling customers to achieve significant energy savings.

## The IQ3xcite system

Trend's IQ3xcite system delivers [unrivalled capability and flexibility](#), and is designed to match your needs, both today and tomorrow. [Ease of use](#) is paramount, and enabled by means of market leading technology in application.

As the cornerstone of the entire system, IQ3xcite controllers represent a massive leap forward in technology. By [communicating via Ethernet](#), IQ3xcite can integrate seamlessly with a client's IT network and the embedded web server enables access from anywhere in the world, without the need for proprietary software.

For a complete system offering, IQ3xcite controllers work hand in hand with a wide range of [complementary products](#). Supervisors and displays, such as the innovative touch screen network display [IQView](#), provide system wide monitoring and control, with the ability to locally adjust environmental conditions.

Terminal unit control is enabled via [IQL controllers](#), which incorporate LONWorks open systems technology. [A competitively priced range of peripherals](#) including Variable Speed Drives, Sensors, Valves and Actuators complete the portfolio.

### But, you need more...

In choosing Trend, you can be assured of [complete peace of mind](#). Whether you are looking for the best performing equipment, where Trend [product quality is second to none](#), or [value for money](#) where competitive pricing and whole life costs come into their own, Trends [market leading offering](#) speaks for itself.

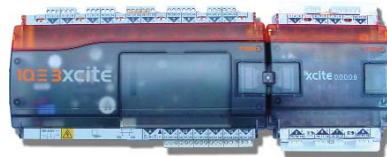
One of the best indicators of future success is past performance, and Trend continue to prove this time and time again. We are committed to providing the right solution for each and every customer, with market leading products and unrivalled service and support.

# Total IQ3xcite system benefits

The Trend IQ3xcite solution is designed to simplify interaction with the Heating, Ventilation and Air Conditioning (HVAC) system, and to ease integration into your existing business systems and processes. It provides all users with unparalleled levels of access, control and ease of use, and in turn improves occupant comfort within the working environment. Trend's product portfolio includes programmable and fixed function controllers, supervisory software and a range of peripheral products including valves & actuators, sensors and motor controllers.

## IQ3xcite controllers -

IQ3xcite controllers use TCP/IP over Ethernet, incorporating an on-board web server which can deliver user-specific web pages to a PC or mobile device running internet browser software. This DIN rail mounting controller has 16 input/output points capacity and can be expanded by up to 96 points by adding DIN rail mounting I/O modules. A 16 point non-expandable unit, as well as the 12 point IQ3xact controller, are also available. A local PC or display can be connected via the RS232 port.



## 963 Supervisor -

Supervisors are used to display monitored inputs and outputs, change control parameters and perform a wide range of energy analysis and maintenance functions.

Trend's 963 Supervisor is a client/server based software package where the 'client' requires nothing more than the browser Internet Explorer. 963 is available in both server and lite versions (client), and has a number of variants which include 963 Secure, for compliance with 21 CFR Part 11; 963 SNMP for transmitting alarms to IT monitoring systems and 963 SMS which enables retransmission of alarms to a GSM mobile phone.



## IQView -

Trend's IQView Network Display provides unprecedented user interaction with the Trend system. It is a self configuring, touch screen display designed to minimise engineering and simplify usage, and comes in surface and panel mount variants, both of which are available in colour and mono versions.



## Smart Display Unit -

A wall mounting display which enables monitoring and adjustment of selected control parameters in IQ3xcite controllers.



## IQL Terminal Unit Controllers -

Designed primarily for commercial buildings, the IQLs provide intelligent solutions for either individual or open plan offices. They are also ideal for hotel applications where separate room control is required. The entire IQL range has passed the LONMark Interoperability Association's Conformance Review and as such are LONMark certified.



## 916 Mobile Display Software -

Running on a Microsoft Pocket PC, the 916 provides an interface to the IQ system enabling monitoring and adjustment of parameters within IQ and IQL controllers. The 916 can be connected to the IQ network via a standard network connection (local supervisor port or CNC2), via a modem, or over Ethernet. A GSM phone may be used instead of a modem.



The efficient control and monitoring of a system depends heavily upon the field devices connected, and upon the quality of the information these provide:

**Sensors** - A range of devices for measuring temperature, humidity, air quality and pressure.

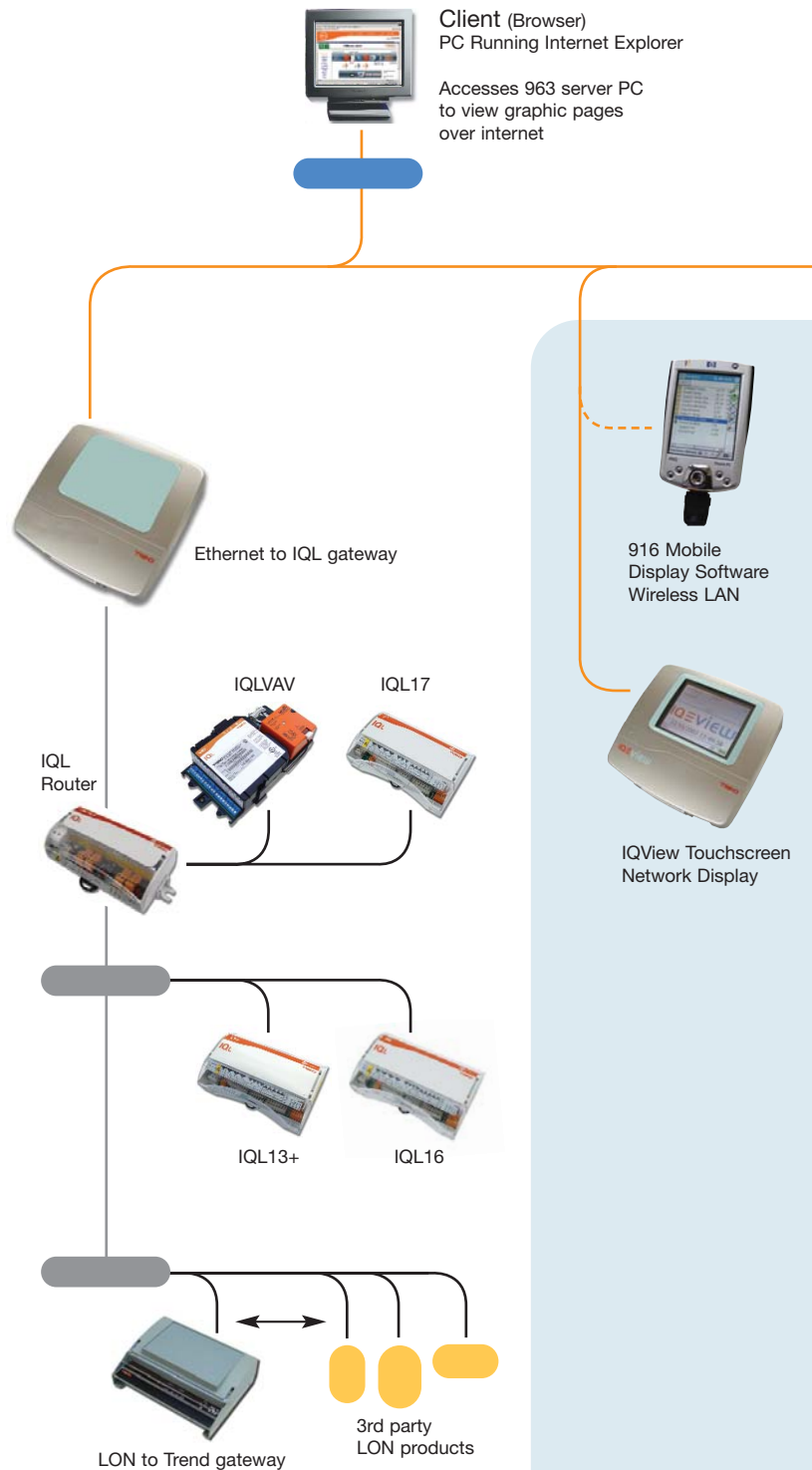
**Wireless sensors** - Wireless technology delivers significant benefits in terms of ease of installation and cost, and equally importantly provides flexibility and convenience in high churn environments.

**Meters** - The ability to measure energy and utility usage is essential to run a building effectively – you cannot control what you cannot measure. Changes to the Building Regulations (Part L2) have made metering a mandatory requirement in the majority of commercial building applications. Trend's range of utility meters suit a broad range of applications.

**Motor controllers** - The NX range of frequency convertors provide variable speed and torque control on AC motors. This ensures smoother, more efficient operation of HVAC plant and delivers considerable energy savings. The NXNI interface card enables the NX range to connect directly into the Trend network.

**Valves and Actuators** - Trend's range of Valves and Actuators cover all HVAC applications.

**Network products** - Trend provide a range of devices which enable interaction between different communication systems or legacy installations. One such example, the Ethernet Internetwork Node Controller (EINC), provides the means by which the Trend system network can be extended over an Ethernet network, seamlessly connecting IQ2xx to IQ3xx.



# System diagram



PC running 963 Client / Server software

963 for IQ2 & IQ3xcite systems



Client (Browser) PC Running Internet Explorer

Accesses 963 server PC to view graphic pages over internet



IQ3xcite: 16 - 96 points



I/O modules



IQView Touchscreen Network Display

- Many I/O module variants available
- IQ3xcite has built-in web server
- Pages and graphics can be viewed with standard web browser software



Non-expandable IQ3xcite for smaller applications: 16 points

Sensor

Meter



Non-expandable IQ3xact for smaller applications: 12 points



Smart Display Unit



Variable Speed Drive



Ethernet to IQ gateway

Up to 116 devices per LAN (up to 116 LANs)



IQ131



IQ251



IQ222



IQ210



Smart Display Unit



Networked Variable Speed Drive



Room Display

## Network Key

- TCP/IP Ethernet
- - - Wireless LAN
- IQ Network
- LON Bus
- Local Supervisor Port
- I/O Bus for IQ3xcite expansion
- Screened Cable

# IQ3xcite solutions in application

With over 20 years market leading experience in the controls industry, Trend products are installed in all types of buildings including shops, leisure centres, offices, schools, hospitals, pharmaceutical plants, residential and factories. Trend provide energy efficient control and monitoring solutions for the processes of heating, ventilation, air conditioning as well as other building services, and in turn have a wide and impressive client list, ranging from J Sainsbury's through Proctor and Gamble to British Airways.

## Application case study 1 University of East Anglia

**Principal functions:** Control and monitoring of greenhouse temperature and lighting

The advanced design of Trend's new generation of IQ3xcite intelligent controllers has allowed the University of East Anglia's campus-wide building management system to be extended into a large, newly built greenhouse, which is used for important research work. Owing to the IQ3xcite's flexible firmware structure, it was possible to meet the requirement for numerous user-adjustable control settings, but still keep down costs. In addition, the controller's Ethernet connectivity has meant that integration with the rest of the Trend BMS could be readily achieved via the site's IT infrastructure. The University has also been equipped with a Trend 963 supervisor, enabling wider and improved system access. This and the IQ3xcites were supplied and configured by Aqua Control Services, as was most of the BMS.

## Application case study 2 Royals Business Park

**Principal functions:** Control and monitoring of HAC services, including 600 fan coil units; power metering

Trend's ability to provide total control and monitoring solutions is amply demonstrated by the advanced building management system designed and supplied by Integrated BMS Ltd for phase one of The Royals Business Park, a major speculative office development in London's Docklands. The system comprises a wide variety of Trend products, including the Ethernet connectable IQ3xcite controller and 963 supervisor, LONWorks-based IQL fan coil unit controls, energy saving NX variable speed drives and EM/MPO2 multi-parameter electricity meters – as well as numerous valves, actuators and sensors. Features such as the use of TCP/IP Ethernet will allow considerable flexibility – for owner and tenants.

## Application case study 3 Lancashire County Council

**Principal functions:** Control and monitoring of boilerhouse; multiple-site management and supervision

Lancashire County Council chose to use IQ3xcite controllers for a major boilerhouse refurbishment for a number of reasons. Firstly, they wanted to use the latest technology; secondly they needed to make use of the existing council IT network to connect 11 different sites in the Preston area to a Trend 963 Supervisor at their headquarters at County Hall. A total of 18 IQ3xcite outstations were used, all plugged into the councils own local intranet. This reduced the number and cost of telephone connections and rental, and in turn provided high speed, instant communication capability. The system was supplied, installed and commissioned by Nobbs & Jones of Preston, working closely with the Lancashire County Council IT department.

## Application case study 4 Engine Emissions Testing Facility

**Principal functions:** Control and monitoring of environmental conditions; management of alarms

A total of 10 IQ3xcite outstations were used to monitor and control the environmental conditions at an engine emissions testing facility in Hertfordshire. Control strategies included wind tunnels and soak test areas where a number of parameters such as windspeed, temperature & humidity are controlled by a system supplied by 3CL of Telford. The outstations connected together on their own Ethernet network, along with a Trend 963 Supervisor which also monitors alarms from the system. The intention is to join this into the clients own IT network at a later date.

# The benefits delivered...



## Reduced installation time on new and retrofit projects

Using open systems network architecture and flexible hardware minimises system complexity and site disturbance, thus reducing costs.

## Reduced on-site commissioning time

Advanced tools automate many tasks, while self-learning supervisors minimise data input, reducing commissioning time and the potential for human error.

## Powerful network communications

TCP/IP over Ethernet enables vast connectivity capability, coupled with LON networking for IQL terminal unit controllers.



## Flexible alarm handling

Advanced alarm strategies can easily be implemented, notifying whoever, wherever and whenever required direct to a users mobile phone, email system or indeed a Trend Supervisor... by means of standard industry protocols such as Short Message Service (SMS), Simple Network Management Protocol (SNMP), and Internet Protocol (IP).

## Ease of use

The voice of the customer is all important at Trend, resulting in products that are easy to use and that also ensure you get the most from your BMS. Using your Trend BMS correctly will deliver substantial savings on utility costs.



## Protect your investment

Trend's philosophy of continuous improvement is maintained through progressive platform development, ensuring that the investments of today remain investments for the future.

---

Trend Control Systems Limited

PO Box 34, Horsham, West Sussex RH12 2YF United Kingdom Telephone +44 (0)1403 211888 Fax +44 (0)1403 241608 [www.trend-controls.com](http://www.trend-controls.com)

SA105929 Issue 2.0