

Satchwell MicroNet

Building Management System – MicroNet 50 Series



MicroNet 50 Series

THE NEW GENERATION OF MICRONET SOLUTIONS

MicroNet is an easy-to-use, scalable and modular building automation system for the control of HVAC plant and associated building services. It offers unique benefits for small to medium sized buildings and complexes, providing optimum plant performance and significant energy savings. The system offers choices in communications and user interfaces to display information and provide local control options using standard platforms and technologies.

MicroNet 50 Series is a full line refresh of the MicroNet system hardware and the associated VisiSat engineering tool, delivering greater power, flexibility, and resilience. The new features further reduce engineering time and cost, and provide important additional protection against wiring errors and faults. The result is a faster, more robust, and even more competitive solution.

MORE POWERFUL HARDWARE

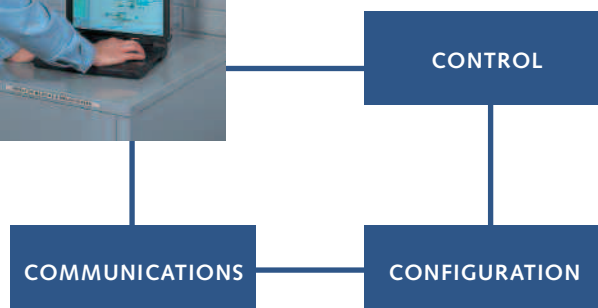
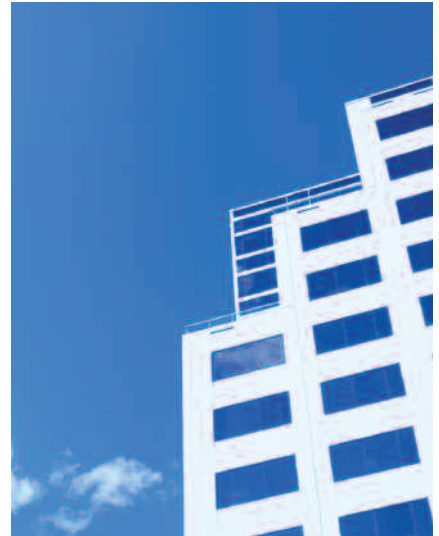
The many new controller features include:

- a faster processor and additional memory, plus 7 day data retention
- increased tolerance of wiring errors
- enhanced diagnostics and serviceability
- opto-isolated communication ports
- surge protection on all inputs
- on-board ARCNET communications (MNxxx-ARC devices)
- S-Link sensor support on all 50 Series controllers
- auxillary communication port option (MN550-XCOM & MN650-XCOM)

EASIER ENGINEERING

Engineering enhancements include:

- an increase to 500 object programming links, enabling larger and more complex control schemes
- a new programmable Logic Gate Object that simplifies logic programming
- a variety of other new and enhanced objects, with standard 32 instances
- a facility for upgrading existing schemes to MicroNet 50 Series
- support for Visio 2003



BENEFITS OF MICRONET

CHOICE OF USER INTERFACES

We offer multiple display options – from LCD's and touchscreens to powerful, intuitive software. You choose the interface that is right for your needs.

SIMPLE, COMPREHENSIVE ENGINEERING

Our engineering tools provide simple controller configuration, communication set-up and complete project documentation, all in one easy to use package. The result is higher quality projects, installed more quickly, with less disruption and more comprehensive documentation.

CHOICE OF COMMUNICATIONS

Our 'bus-du-jour'® communications allow seamless integration into your building control systems, maximising your investment, and saving you money. MicroNet can be a single controller or an extensive network.

FUTURE PROOF

The MicroNet system embraces industry standards such as RS485, ARCNET®, LONWORKS® and Visio® so that your system can grow with future technology developments.

MICRONET PARTNER NETWORK

MicroNet is available through a worldwide network of approved partners, who are also able to offer a range of service and maintenance options. MicroNet partners undergo regular training to ensure their system and application knowledge is second to none.



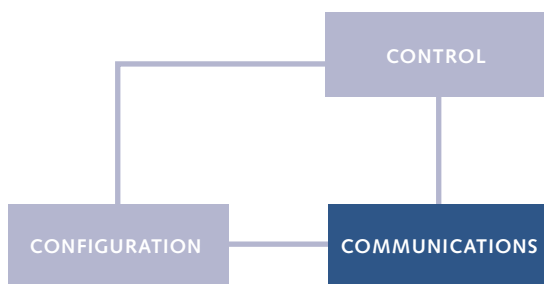
MicroNet

FLEXIBLE 'BUS-DU-JOUR' COMMUNICATIONS

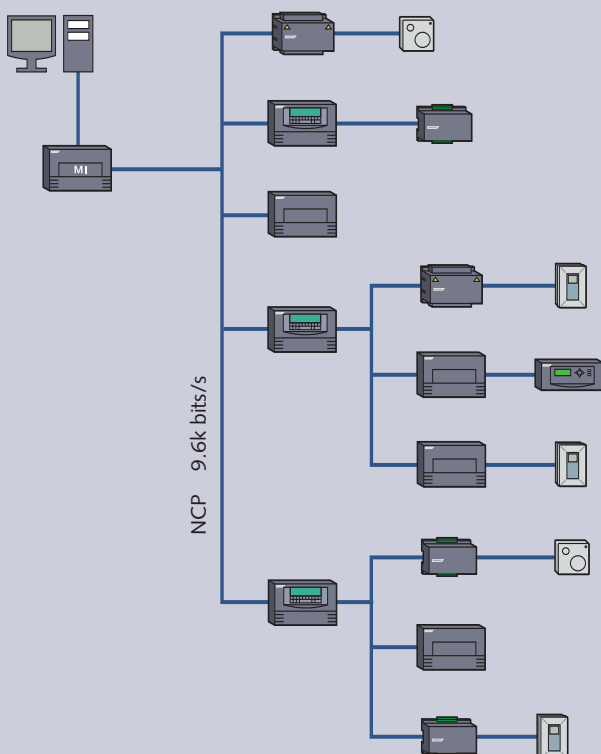
MicroNet allows you to keep up to date with building information technology and gives you the flexibility to choose the communications platform best suited to your business. Whether you begin with a simple stand-alone controller or a large network, all controllers will automatically integrate into your system. Communications are set up using the powerful configuration software.

There are three main types of network to choose from, each of which fulfils different requirements:

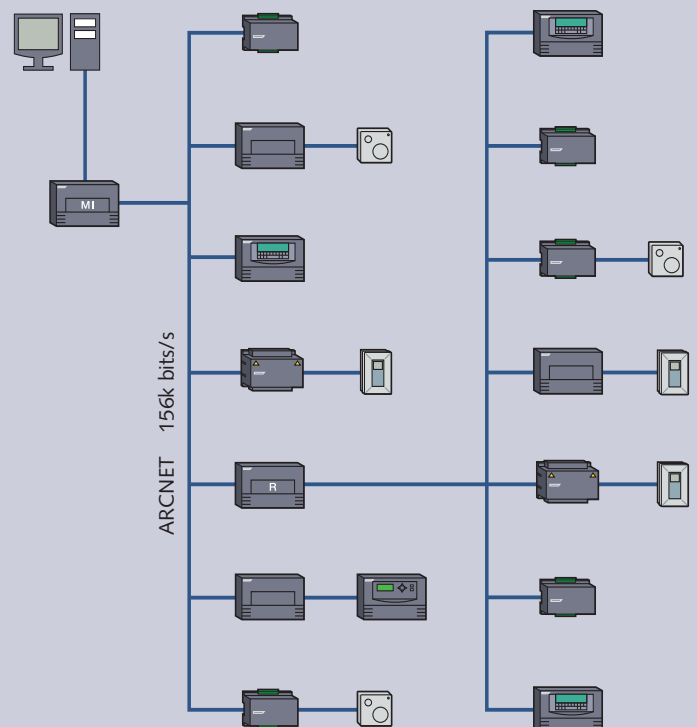
- **NCP** – for standard HVAC plant control in stand-alone or networking applications
- **ARCNET** – for fast peer-to-peer communications
- **LONWORKS** – an open system solution for integrating other manufacturers' equipment



Native Communications Protocol (NCP)



ARCNET®



NATIVE COMMUNICATIONS PROTOCOL (NCP)

This is a cost effective protocol used for stand-alone or networking systems. NCP can include one or more programmable controllers with MicroNet sensors and a touchscreen display for local control. An NCP network operates at a speed of 9.6k bits/s.

ARCNET®

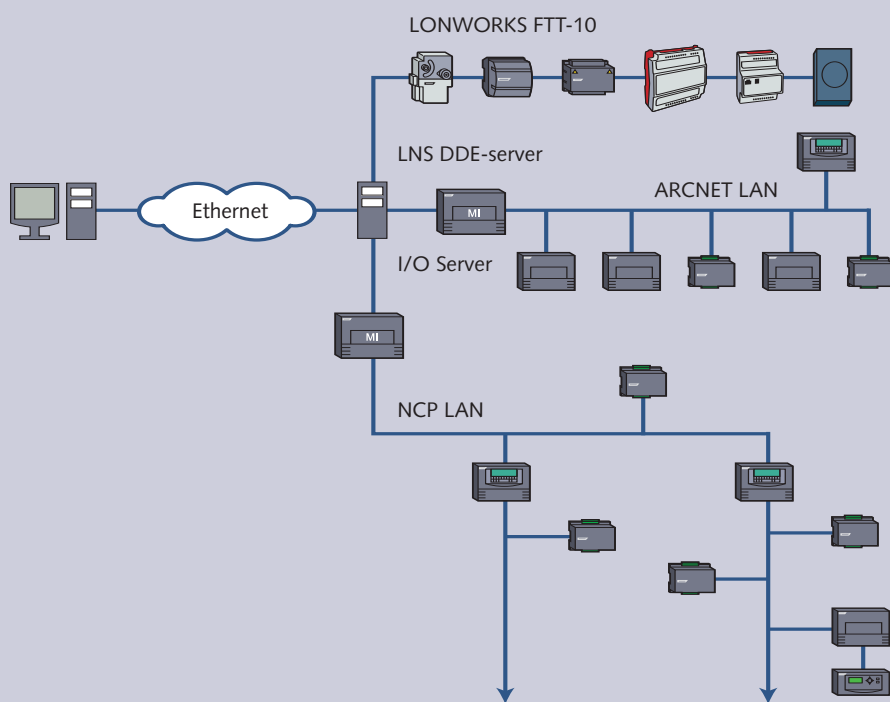
This system provides peer-to-peer token passing communications at high speed. ARCNET uses industry standard microprocessors to calculate and guarantee the times at which messages are sent from one device to another, so ensuring that controlled events occur when they are required. The system operates at 156k bits/s.

LONWORKS®

This technology provides additional flexibility, as it enables any manufacturer's LONMARK compliant equipment to integrate into one seamless system. Controllers communicate peer-to-peer, providing control and management information across the network. A LONWORKS network operates at 78k bits/s.



MicroNet system architecture including LONWORKS



Key

- MN 350
- MN 450
- MN 550
- MN 650
- MN TS
- MN LCD
- MN MI
- ARCNET Router
- MN Sx
- UniFact Pro
- DU sensors
- Server
- TAC Xenta Freely Programmable
- TAC Xenta VAV
- TAC Xenta Application specific
- MN 50, 100, 150, 200
- MN 110, 130
- Other LONMARK

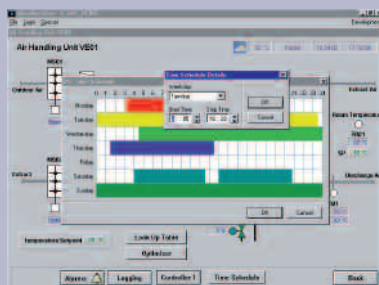
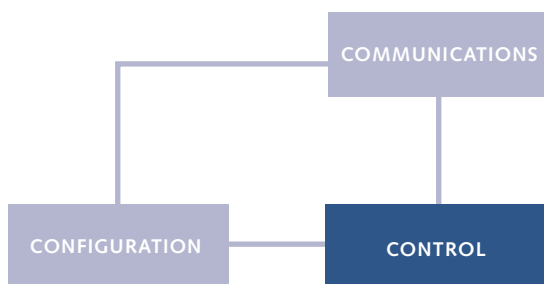
MicroNet

INFORMATION IS CONTROL

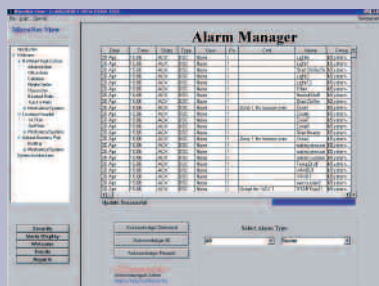
MicroNet software is designed for ease of use. It displays clear intuitive graphics to provide a practical solution for the effective control of all types of plant.

The whole network can be viewed using active graphics and real time information showing plant performance, set-up and status. MicroNet presents this data in a format of your choice that will help you predict trends, energy usage and make decisions to ensure ongoing savings and benefits.

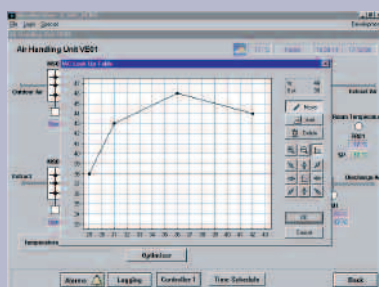
Remote displays allow you to interrogate and change plant settings to suit local conditions and improve comfort levels.



Scheduling



Alarm management



Compensation curve adjustment

ACTIVE GRAPHICS

Display up-to-date information for plant control.

DYNAMIC AND HISTORICAL TRENDS

Enables effective control by displaying trends for energy usage, external temperatures, building occupancy, etc.

SCHEDULING

Increases plant efficiency by intelligent scheduling of heating and ventilation start/stop times.

ALARMS

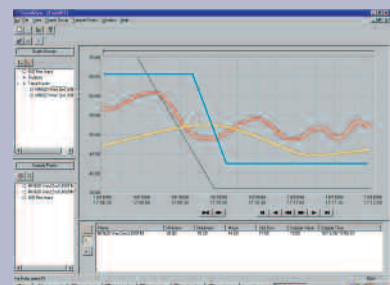
Alerts the operator to plant malfunctions or out-of-limit status.

REPORTING

Improves operational efficiency by providing management data in a customised format.

FINE TUNING PERFORMANCE

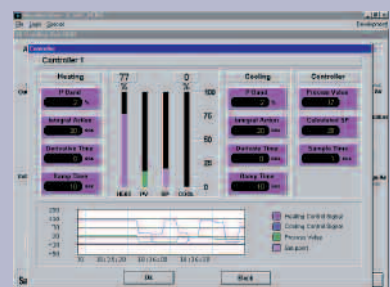
Achieves optimum efficiency levels by maximising controller performance.



Trends

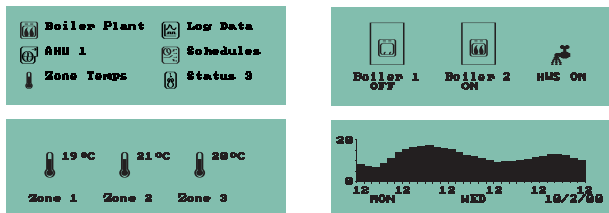


3D active graphics

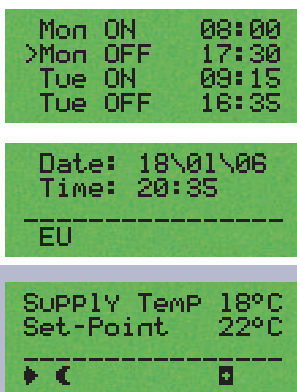


Plant fine tune

Typical MicroNet Touch Screen displays



Typical MicroNet LCD displays



MicroNet Touch Screen – fully graphical LCD display which can be controller or wall/panel mounted.

MicroNet LCD Display – Text menu driven display which can be controller or wall/panel mounted.

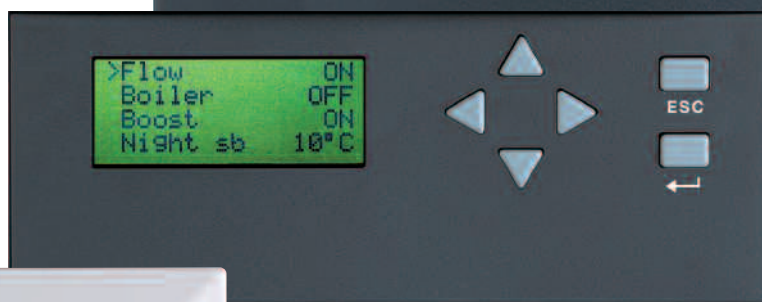
MicroNet Sx Room Sensor – graphic driven LCD display sensors.



MicroNet Touch Screen

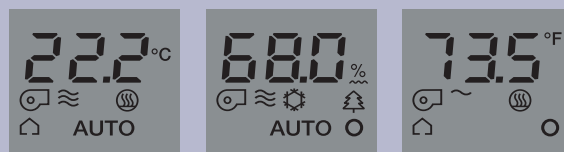


MicroNet LCD



MicroNet Sx

Typical MicroNet Sx displays



LOCAL INTERROGATION

MicroNet offers a choice of local displays for viewing and changing plant settings.

The MicroNet Touchscreen – is unique within the HVAC industry. With a touch of the screen, trends and alarms can be graphically displayed and changed. The touchscreen is fully programmable and connects to any of the 'bus-du-jour' options.

The MicroNet LCD – is a programmable, 4 line by 16 character, easy to read display which connects directly to MN550 or MN650 controllers.

MicroNet Sx room sensors – provide zone information as well as set-point and fan speed adjustments.

MicroNet

POWERFUL SOFTWARE TOOLS

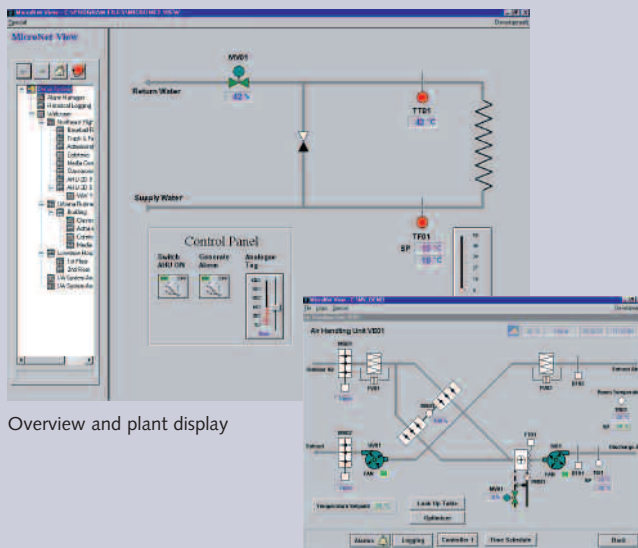
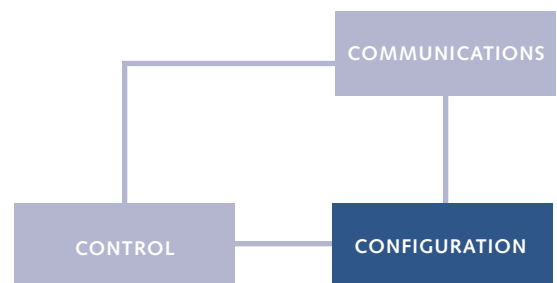
MicroNet View is the user interface to control and monitor the installed plant. MicroNet Tool Suite software options are used to set up the controllers and network. Both programmes are compatible with Microsoft Windows® and provide intuitive, easy-to-use graphical tools for supervision, control and plant integration.

MICRONET VIEW

The powerful graphical user interface for managing plant information, MicroNet View comes with an extensive library of symbols for easy configuration of custom graphics.

MICRONET TOOL SUITE

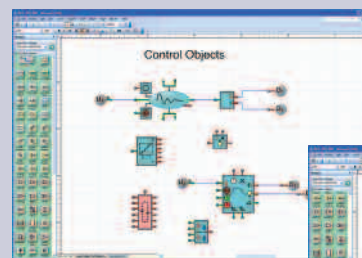
Provides flexible system engineering tools using a Visio drawing package to create and programme networks, touch screens, control applications and customised objects. The screens feature easily understood graphic representations of common control algorithms and functions, and 'Wizards' that automate routine functions.



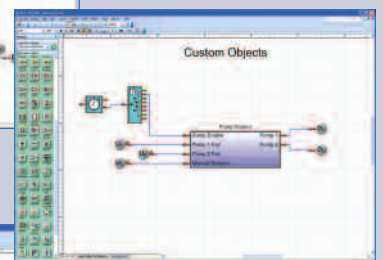
Overview and plant display



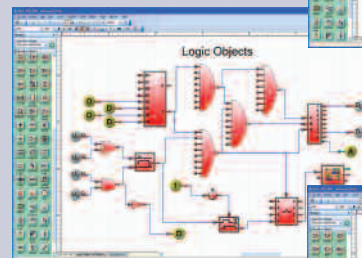
3D plant graphic



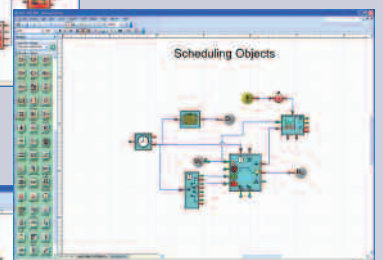
Control objects



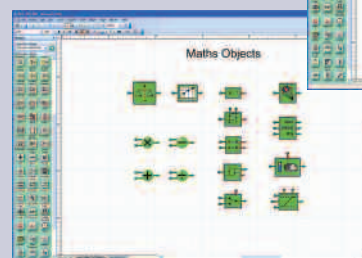
Custom objects



Logic objects

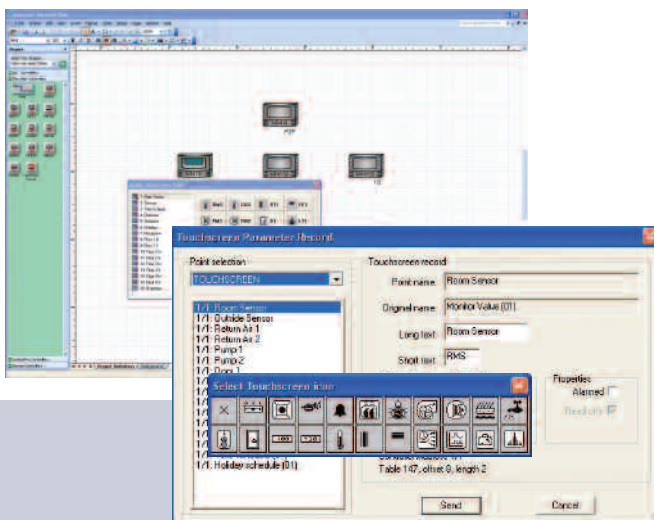


Time and scheduling objects

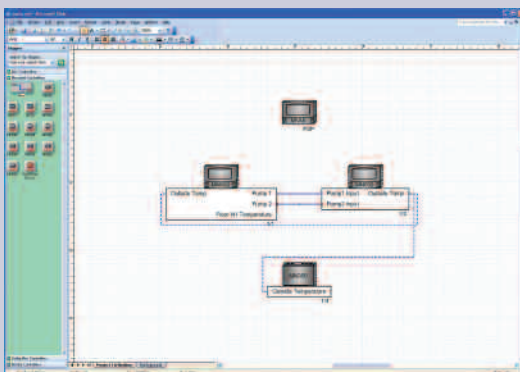


Maths objects

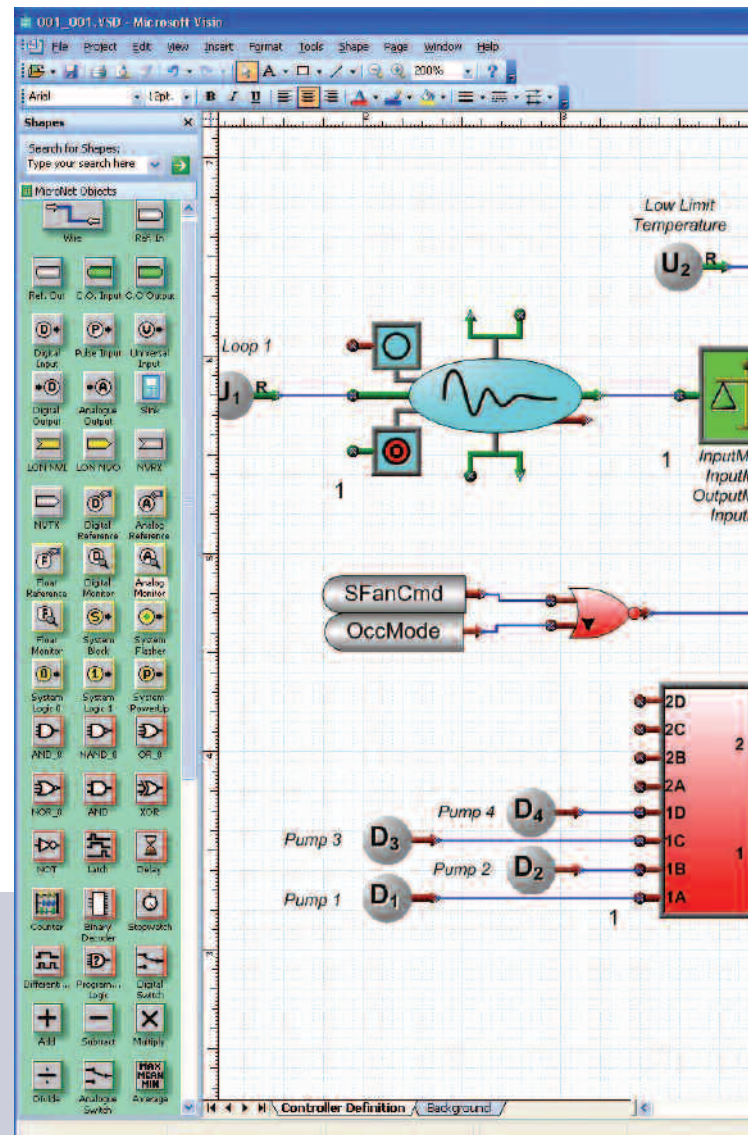
Special MicroNet Tool Suite Features



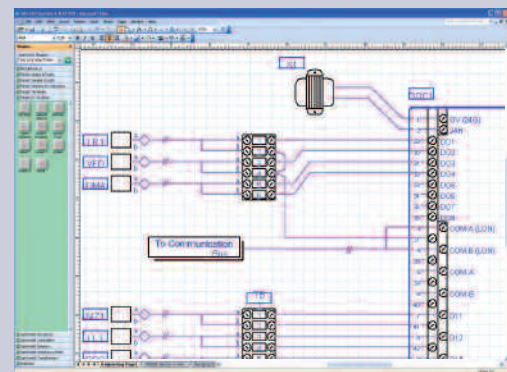
Touchscreen Configuration Tool – uses 'Wizard' software to provide an easy-to-use programme to configure touchscreens.



Network Binding Tool – is used to configure ARCNET networks.



Clear, intuitive graphic screens



MicroNet Tool Suite – can be used to draw plant operation and wiring diagrams.

MicroNet




THE SYSTEM

MicroNet consists of MicroNet controllers with optional displays, sensors and accessories, MicroNet View (graphical user interface), and MicroNet Tool Suite (configuration and network management tools). The system offers three 'bus-du-jour' options: RS-485 Native Communications Protocol, ARCNET, and LONWORKS.

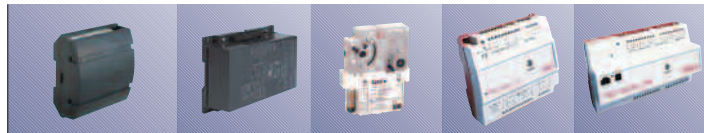
'Bus-du-jour' Controllers

Displays

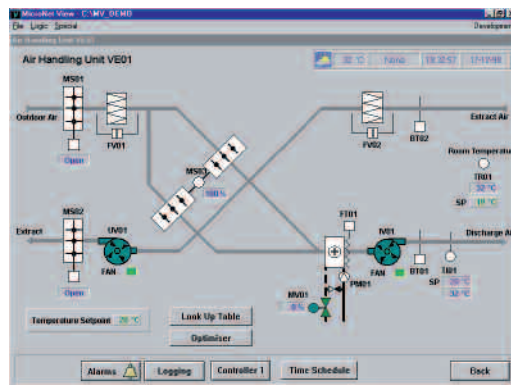
Networking

									
	MN 350 Programmable Controller	MN 450 Programmable Controller	MN 550 Programmable Controller	MN 650 Programmable Controller	UniFact Pro Application Specific Controllers	MN TS Touch Screen Displays	MN LCD LCD Displays	MN Sx Room Sensors	MN50-MI Manager Interface
	MN-350-NCP NCP Controller	MN450-NCP NCP Controller	MN550-NCP NCP Controller	MN650-NCP NCP Controller	URC-41N-10X ⁵⁾ On/off control	MN50-TS-NCP ⁴⁾ NCP display for controller/wall mounting	MN50-LCD ^{3) 4)} Controller/wall mounting	MN-S1-100 Sensor only	MN50-MI-NCP NCP Network Interface
	MN-350-ARC ARCNET Controller	MN450-ARC ARCNET Controller	MN550-ARC ARCNET Controller	MN650-ARC ARCNET Controller	URC-51N-10X ⁵⁾ 3 speed control	MN50-TSP-NCP NCP display for panel mounting	MN50-LCDP ³⁾ Panel mounting	MN-S2-100 With override	MN50-MI-ARC ARCNET Network Interface
			MN550-XCOM NCP Controller with auxillary comms for LAN + LCD	MN650-XCOM NCP Controller with auxillary comms for LAN + LCD	Where X denotes the pre-loaded application 0 = 4-pipe FCU 1 = 2-pipe with changeover 2 = DX cooling and electric heater 3 = airside control	MN50-TS-ARC ⁴⁾ ARCNET display for controller/wall mounting		MN-S3-100 Display – override, setpoint adjust override	MN50-MI-RTR ARCNET to ARCNET Router/ Repeater
						MN50-TSP-ARC ARCNET display for panel mounting		MN-S4-100 Display – override, setpoint adjust, controller mode functions	
						MNL-TS-100 ⁴⁾ LONWORKS display for controller/wall mounting		MN-S4-FCS Display setpoint adjust, on/off, fan speed functions	
						MNL-TSP-100 LONWORKS display for panel mounting		MN-S5-100 Display – override, setpoint adjust, fan status, controller mode functions, emergency heat	
I/O	15	15	22	32	9 (41N types) 11 (51N types)				
DI	–	–	2 (10 pulse Hz)	8	2	–	–		
UI	8 0 - 10KΩ 0 - 10Vdc 0 - 20mA Digital	6 0 - 10KΩ 0 - 10Vdc 0 - 20mA Digital	10 0 - 10KΩ 0 - 10Vdc 0 - 20mA Digital	12 0 - 10KΩ 0 - 10Vdc 0 - 20mA Digital	2 0 - 10KΩ 0 - 10Vdc 0 - 20mA Digital	–	–		
Triac	4 24Vac, 18VA / 230Vac, 6VA	6 24Vac 18VA	–	8 24Vac 1A	4 OV switched	–	–		
Relay	3 10A, 230Vac	–	6 5A, 230Vac	–	1 (41N types) 3 (51N types) 5A, 230Vac	–	–		
AO	–	3 0 - 10Vdc	4 0 - 10Vdc	4 0 - 10Vdc	–	–	–		
Auxillary Power	Source supply for sensors 15Vdc	Source supply for sensors 15Vdc	Source supply for sensors 15Vdc	Source supply for sensors 15Vdc	Source supply for sensors 15Vdc				
HMI	Connection to remote touch- screen, LCD display (MN TS, MN LCD) or MN Sx sensors	Connection to remote touch- screen, LCD display (MN TS, MN LCD) or MN Sx sensors	Optional touch- screen or LCD display (MN TS, MN LCD) or MN Sx sensors	Optional touch- screen or LCD display (MN TS, MN LCD) or MN Sx sensors	Connection to remote touch- screen MN TS, MN Sx & DUS sensors	Yes	Yes		
Clock	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Network clock	Yes	No ²⁾		
Comm.	RS-485 NCP, ARCNET or LON FTT-10	RS-485 NCP ARCNET or LON FTT-10	RS-485 NCP ARCNET or LON FTT-10	RS-485 NCP LON FTT-10	RS-485 NCP	RS-485 (19.2Kb), ARCNET (156Kb) or LON-FTT-10	Point to point		
Supply	24Vac or 230Vac	24Vac	24Vac	24Vac	230Vac	24Vac	24Vac		
Agency listings	CE	CE	CE	CE	CE	CE, cUL	CE	CE	CE

LONMARK™ Controllers

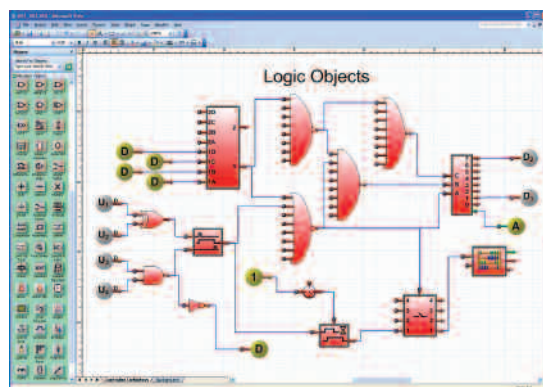


MN 50/100/150/200 Controllers	MN 110/130 Controllers	TAC Xenta VAV Controllers	TAC Xenta application specific controllers	TAC Xenta freely programmable controllers
MNL-5RF2-100 Fan Coil Profile	MNL-11RF2 Fan Coil Profile	TAC Xenta 102-ES VAV Controller with internal air flow sensor	TAC Xenta 103-A Chilled Ceiling Controller	TAC Xenta 281 Fixed I/O
MNL-5RH2-100 Heat Pump Profile	MNL-13RF2 Fan Coil Profile		TAC Xenta 104-A Roof Top Unit Controller	TAC Xenta 282 Fixed I/O
MNL-5RR2-100 Roof Top Profile		TAC Xenta 102-AX VAV Controller with internal air flow sensor and built-in damper actuator	TAC Xenta 110-D Dual Room Controller	TAC Xenta 283 Fixed I/O
MNL-5RS2-100 Satellite Profile			TAC Xenta 151-D Dual Fire Smoke Actuator Controller	TAC Xenta 301 Expandable I/O, 2 modules
MNL-10RF2-100 Fan Coil Profile				TAC Xenta 302 Expandable I/O, 2 modules
MNL-10RH2-100 Heat Pump Profile			TAC Xenta 121-FC Fan Coil Controller	TAC Xenta 401 Expandable I/O, 10 modules
MNL-10RR2-100 Roof Top Profile			TAC Xenta 121-HP Heat Pump Controller	Xenta Module 411 10 DI
MNL-10RS2-100 Satellite Profile				Xenta Module 412 10 DI, LED's
MNL-15RF2 Fan Coil Profile				Xenta Module 421A 4 UI / 5 RO
MNL-20RF2-100 Fan Coil Profile				Xenta Module 422A 4 UI / 5 RO, LED's, manual overrides
MNL-15RH2-100 Heat Pump Profile				Xenta Module 451A 8 UI / 2 AO
MNL-15RR2-100 Roof Top Profile				Xenta Module 452A 8 UI / 2 AO, LED's, manual overrides
MNL-15RS2-100 Satellite Profile				Xenta Module 471 8 0-10V/0-20 mA inputs
MNL-20RH2-100 Heat Pump Profile				Xenta Module 491 8 0-10V outputs
MNL-20RR2-100 Roof Top Profile				Xenta Module 492 8 0-10V outputs, manual overrides
MNL-20RS2-100 Satellite Profile				
CE, cUL	CE, cUL	CE, cUL	CE, cUL	CE, cUL



MN VIEW

MicroNet System Graphical User Interface



MN TOOL SUITE

MicroNet System Graphical Network Configuration and Controller Engineering Tools

KEY

I/O	Input Output Points
DI	Digital Input
UI	Universal Input
RO	Relay Output
Triac	Digital Output
Relay	230Vac relay output or pilot duty 24V relay
AO	Analogue Output
HMI	Human Machine Interface
Comm(s)	Communications
NCP	Native Communication Protocol (RS-485)
FTT	Free Topology Transceiver

NOTES:

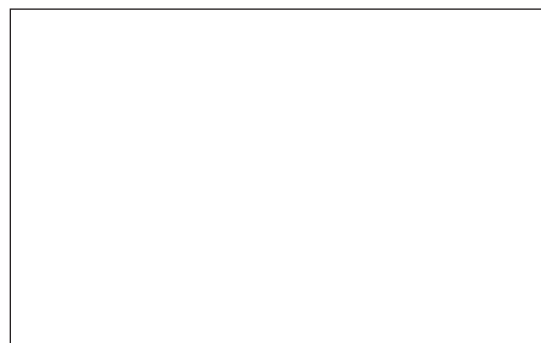
- 1) The controller receives current time from the network. An optional real-time clock board (MN50-RTC) is available for stand-alone operation.
- 2) Configurable as timekeeper in stand-alone mode. Interrogation of the controller clock in network mode.
- 3) Only stand-alone operation when used with MN350 & MN450.
- 4) MN DK – wall mounting kit for touch screen and LCD displays.
- 5) Commissioning requires:
URC-IR-100 – Infra-red/RS-232 Receiver and
URC-SET-100 – NCP Palm Commissioning Software.

Satchwell is a global brand of TAC. Satchwell systems and products benefit from over 80 years' experience in the design and manufacture of control systems for commercial and industrial buildings.

ISO9001 certification and advanced manufacturing systems, based on Six Sigma and just-in-time techniques, ensure Satchwell products are built to the highest standards of quality and reliability. The products are backed by 1st class after sales support and ongoing research and development programmes, assuring customers of the long-term security of their investments.



MicroNet – DS 10.XXX



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