Satchwell

BAS2000
BAS 2800

CE
EMC APPROVED PRODUCT

DS13.31
April 1997

BUILDING AUTOMATION SYSTEM
UNIVERSAL NETWORK CONTROLLER

Type UNC 196

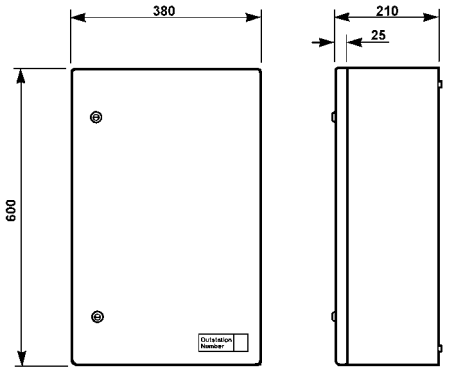
Specification no. 579-1-831

The Universal Network Controller (UNC 196) is fully intelligent and incorporates its own 16-bit microprocessor providing Direct Digital Control of plant. It scans and monitors dedicated functions and will automatically decide on any control action necessary. After initial programming from the terminal it can operate independently of other system components and communicates with any selected terminal only when necessary to down-load data such as alarms or logging information or on demand by the operator.

Each controller can monitor and control up to 96 items of plant and/or sensors. Plant monitoring and control requirements are met by the appropriate selection of input and output cards. Further flexibility is achieved by the ability of analogue points to be used in a digital mode (on/off).

Communications between the controllers are handled by a further dedicated 16-bit microprocessor on a separate communications card in the controller.

A UNC 196 outstation fitted with BAS 2800 EPROMs, a 32k E^2PROM and running on a BAS 2800 site will give software data protection of network configuration data.



Typical Weight:
nett 27 Kg
packed 28 Kg

Dimension in mm

21mm conduit entries in bottom of case

FEATURES

- **Intelligent Microprocessor based Outstation**
- **Dual 16-bit microprocessor technology**
- **Upto 96 configurable input/output points and upto 250 points including software points**
- **Local display and overrides from optional keypad**
- **Cable management system**
- **Two communication ports as standard**
- **Extra communications board available to give two further communications ports**
- **Flexible and configurable application software**
- **1.5 hour or optional 18 hour (typical) full function battery support**
- **Expandable RAM capacity**
- **IP55 Protection Class**
- **Door tamper switch monitored**
- **Mains/battery status monitored**

SPECIFICATION

Type:	**UNC 196** – Spec. no. 579-1-831 (EPROMs must be ordered separately)
Power Supply:	220V (–15%) to 240V (+10%), 50Hz (–10%) to 60Hz (+10%)
Consumption:	0.1A max @ 240V 50Hz
Heat Dissipation:	25W max, 10W typical
Fuse:	An external 3A fuse should be fitted to the mains power lead.
*** Power Failure Reserve:**	Nickel Cadmium rechargeable (continuously trickle charged) battery giving a typical 1.5 hour power failure back-up. An optional battery provides a typical 18 hour power failure back-up (578-3-367). Full monitoring control and communication are maintained during battery operation. Typical 30 day memory retention at the end of normal battery reserve. Battery backup times are typical and assume a fully charged battery that is in good condition.
Ambient Temperature Limits:	Operating: 0 to 50°C*. Storage & Transit: –10° to 55°C.
Relative Humidity Limits:	Storage: 5 to 95% rh non-condensing. Operating: 10 to 90% rh non-condensing.
Maximum Number of Points:	Up to 96 physical points and up to 250 points including software points (dependent on point configuration).
CPU Board:	Microprocessor: 80C86, 16-bit running at 8MHz RAM: to 128k bytes EPROM: to 512k bytes – Order separately
Communications Board:	Microprocessor: 80C86, 16-bit running at 8MHz RAM: to 64k bytes EPROM: to 512k bytes – Order separately E^2PROM: 8k bytes (allows permanent storage of site communications configuration data and telephone numbers if applicable) fitted as standard. On large communication networks or when a keypad is used a 32k E^2PROM (Specification number 579-1-481) should be used in place of the standard 8k E^2PROM. The 32k E^2PROM uses software data protection of network configuration data only when the outstation and site are BAS 2800. Ports: 1 – RS232 1 – RS485 (opto-isolation available – see page 2 for details)

* To maintain efficient operation of the battery, the outstation should not normally be operated for long periods outside the 10° to 40°C range.

SPECIFICATIONS (continued)

INPUTS

Analogue
0–10KΩ (span of at least 1KΩ should be used for adequate resolution), 0–10 volts, 0–20mA. See DS 13.41 for further information.

Digital
Volt-free Make/Break contacts. See DS 13.41 for further information.

OUTPUTS

Analogue
0–10V dc Output Signals (1mA). See DS 13.51 for further information.

Digital
SPST Voltage Free Relay Contacts (rated 1A, 250V) located internally or in a separate Interface Panel. See DS 13.51 for further information.

APPLICATION AND ENERGY MANAGEMENT FEATURES

– Provides Distributed Direct Digital Control
– Multi Password Access (from the central terminal)
– Energy Management Programmes
– Time Schedules
– Holiday Schedules
– Optimum start/stop of plant
– Automatic Power up of plant
– System and Plant Alarms
– Real Time System Logs
– Calculation Points
– Rotation Points
– Programmable points for user-defined control strategies
– Degree Day Calculations
– Maximum Demand Control

STANDARD CONTROL BOARDS

Boards already contained in the Outstation:

- Power Supply Board
- Central Processor Unit (CPU) and Memory Board
- Standard Communications Board

OPTIONAL FUNCTION BOARDS

Boards that can be plugged into the Outstation to give Monitoring and/or Control facilities:

- Optional Communications Board – 2 RS232 Port
- Optional Opto-isolated Communications Board (provides opto-isolation on RS 485 ports on standard and option boards) – 2 RS 232 Port – 1 RS485 Port
- Analogue Input Board – DS 13.41
- Analogue Output Board – DS 13.51
- Status Input Board – DS 13.41
- Command Board – DS 13.51
- Pulse Totalisation Board (one board per outstation only) – DS 13.91
- Command Interface – DS 13.51
- 64k byte RAM Expansion Kit – DS 13.31

EQUIPMENT

RAM Expansion:	64k bytes 579-1-363
E^2PROM:	32kbytes for larger communication networks, replaces 8k byte standard E^2PROM – 32k byte – Specification no. 579-1-481 Earlier versions of UNC 196 may need the 8k E^2PROM to be upgraded to a 32k E^2PROM (specification number 579-1-481) in order to use software data protection (for network configuration data). The UNC and site must also be upgraded to BAS 2800.
Autodial/Autoanswer Modem:	See DS 13.61
External Input/Output Modules:	When required externally mounted input/output modules are available as an alternative method of installation. These modules are then connected to the UNC Outstation by ribbon cables – see DS 13.55.
Battery:	Optional 18 hour (typical) battery pack – Specification no. 578-3-367. Battery backup times are typical and assume a fully charged battery that is in good condition.
Keypad:	Allows local communications with the outstation – see DS 13.80.
Network Interface Unit:	NIU to allow convenient connection to local area networks and remote modems – see DS 13.71.

CONSTRUCTION

Case:	Metal housing, lockable door, hinged on right.
Protection Class:	IP55
Terminals:	Hard wire to pluggable screw terminal blocks. Accept 0.5 to 1.3mm^2 conductor diameter, or IDC plug and socket connection to external input/output modules, see DS 13.55.
Conduit Entries:	Sixteen, 21mm diameter knockouts through a steel glandplate in the bottom of the case.

INSTALLATION

LOCATION

Select a position which is reasonably clean and free from damp and condensation. Conduit entries are in the bottom of the outstation. The door hinges on the right hand side and clearance should be left for the door to open more than 90°. The wall should be capable of supporting the weight of the outstation. If it is to be housed in an enclosure, ensure that the heat generated can be dissipated without raising the ambient temperature of the space above the maximum temperature limit.

MOUNTING

1. Fix brackets 'A' (4 off), one to each corner of the outstation, using bolts 'B' as shown in fig.1.
2. Drill fixing holes into the wall to the dimensions given above.
3. Mount the outstation on the wall securely.
4. Connect power supply cable.

DO NOT SWITCH ON POWER SUPPLY UNTIL COMMISSIONING HAS BEEN CARRIED OUT BY A COMPETENT SATCHWELL ENGINEER OR AN APPROVED SATCHWELL AGENT.

COMMISSIONING

This unit is commissioned as part of a BAS System.

WIRING PRECAUTIONS

The power supply wiring should be screened. The screen should be earthed at the outstation only.

The outstation must have a verified good earth.

All wiring to the outstation input and output (I/O) terminals must be twisted pair screened wiring with the screen earthed at the outstation earth terminals only.

It is recommended that internal wiring in the outstation is loomed and identified to aid servicing and enhancements to the system. Separate conduit is provided in the outstation for signal wiring and mains wiring, and it is essential that this conduit is used when wiring an outstation.

A full wiring specification is available from Satchwell Control Systems Ltd or your local Satchwell agent on request.

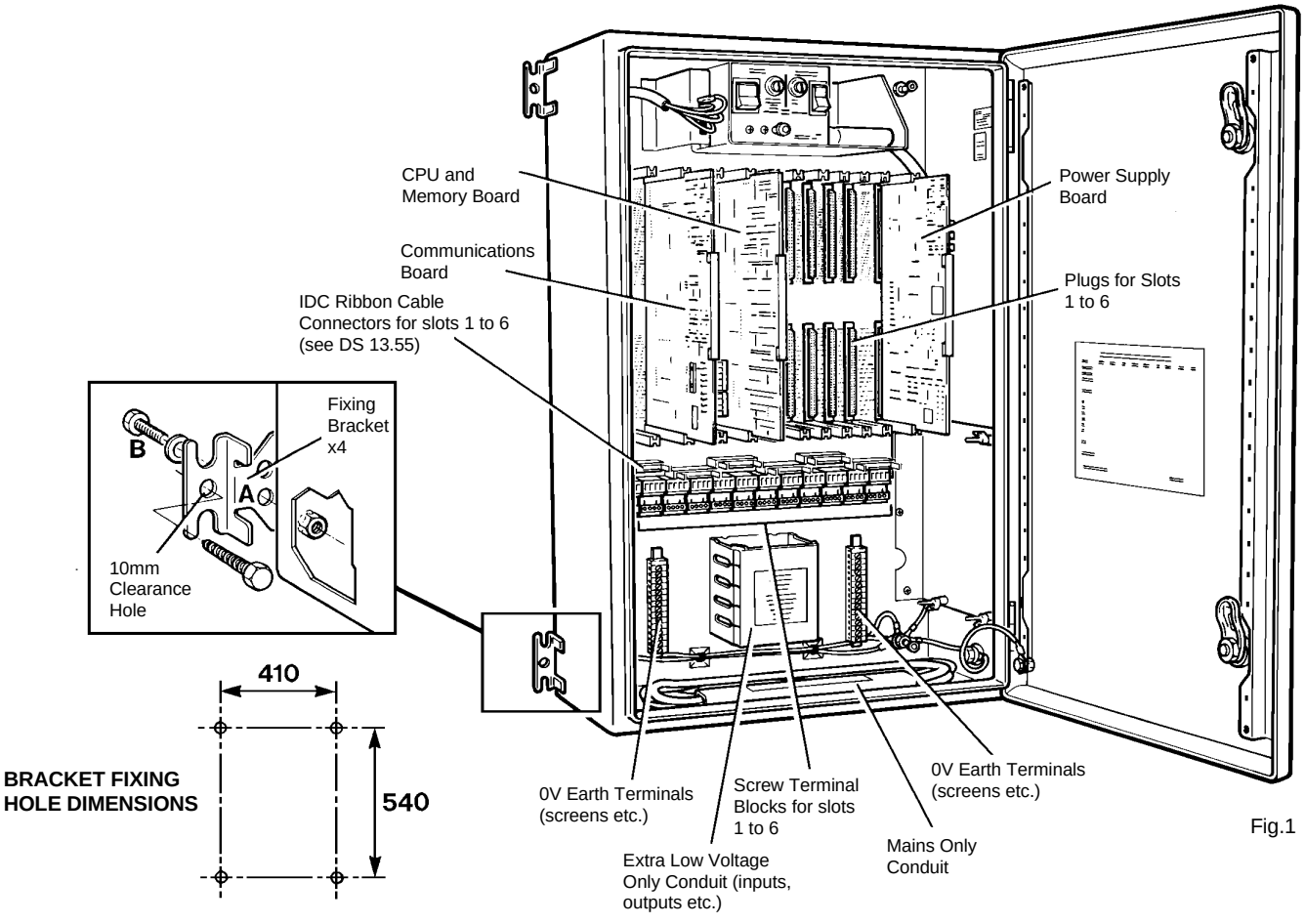


Fig.1

CONNECTION DIAGRAMS

BASIC HARDWIRED SYSTEM

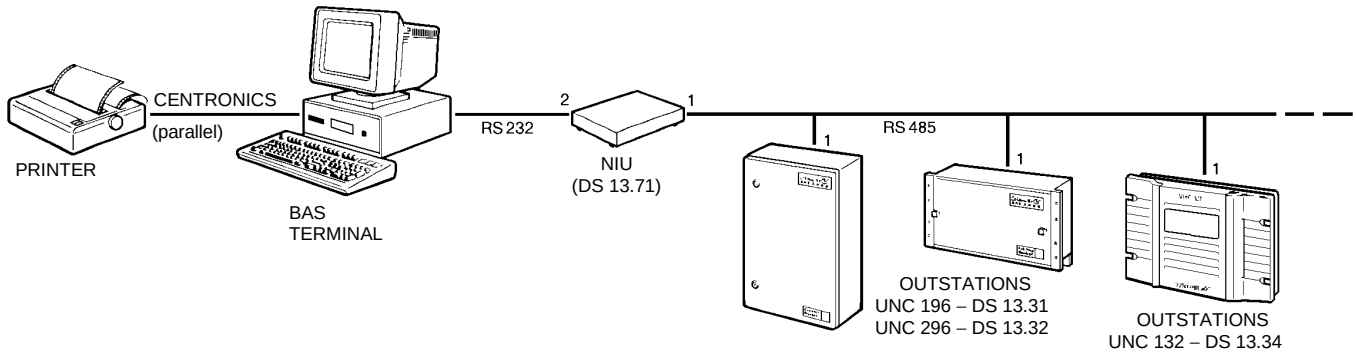


Fig.2

SMALL HARDWIRED SYSTEM WITH MODEM CONNECTION

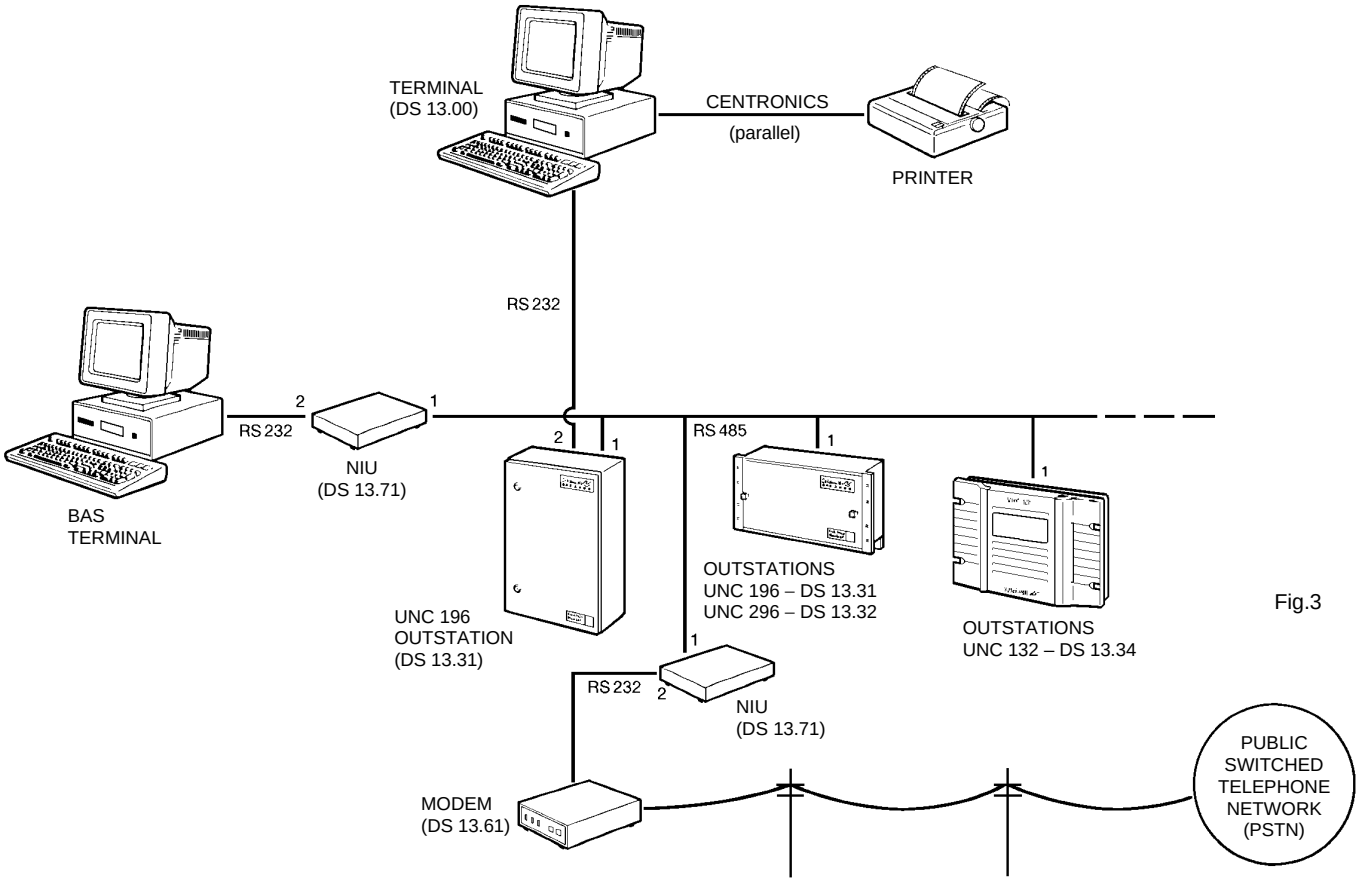


Fig.3

CAUTION

- **This is a mains operated device. Local wiring regulations and usual safety precautions must be observed. Note earthing requirements – see page 3.**
- **The UNC should be installed, commissioned and serviced by competent Satchwell engineer or an approved Satchwell agent.**
- **Observe wiring precautions on page 3.**
- **This product contains Nickel Cadmium batteries which are completely safe whilst in normal operation. Batteries must be disposed of in an authorised landfill site.**
- Observe maximum ambient temperature.
- Interference with those parts under sealed covers renders the guarantee void.
- Design and performance of Satchwell equipment is subject to continual improvement and therefore liable to alteration without notice.
- Information is given for guidance only and Satchwell do not accept responsibility for the selection or installation of its products unless information has been given by the Company in writing relating to a specific application.
- A periodic system check of the management system is recommended. Please contact your local Satchwell service office for details.

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