

UNIVERSAL MULTI-LOOP INTELLIGENT ADVANCED CONTROLLER

Specification No. 581-4-253 IAC 420
841-1-201 Optional Real Time Clock Board

The IAC intelligent advanced controller is designed for use in small and large buildings such as office blocks, hotels and schools. The IAC has a stand alone capability, and may be configured from a central computer over the serial link.

The IAC has pre-sets to control common applications such as terminal unit control, VAV and zone control. In addition the controller can be customised to work on other less common applications.

The Satchnet software is used to program and monitor the IAC controllers.

The IAC controllers allow a number of alarms to be configured for temperature, Voltage and switched inputs. The IAC also has its own built-in software time clock for lighting and the controller time schedules.



FEATURES

- Compact size allows mounting in a confined space such as on a fan coil unit.
- IAC can be networked to a central monitoring system.
- Millennium compliant.
- IACs configured from a computer running Satchnet Pro Software using the simple Bubbleland graphical interface.
- Pre-set applications allow the IAC to be used in a stand-alone mode if required.
- Software configuration locking mechanism.
- Internal software time clock, controller and lighting time schedules.
- Complies with latest European EMC standards.
- Switched outputs may be configured as stepped outputs (including plant rotation), actuator outputs or outputs for lights and fans.
- Six configurable inputs that can be individually configured as Temperature (resistive), Analogue (0 to 10Vdc) or Digital (Switched) inputs.
- 0-10 Volt inputs can be used for humidity/pressure/velocity control or as a reset input.
- Resistive inputs can be used for Satchwell "T" type temperature sensors, RPW remote setting units, Ohms and Light sensors (NORP-12 Light Dependent Resistor (LDR)).
- 15Vdc supply output for humidity, pressure and Unifact sensors.
- 0 to 10Vdc or stepped fan control.
- Averaging of temperature (resistive) sensors and analogue inputs.
- Three off two stage controllers with each stage individually selected as P+I+D, P+I, or P only.
- Three cascade controllers.
- Six switched outputs.
- Three 0 to 10 Volt dc outputs.
- Optional Real Time Clock (RTC) board available. RTC board provides Real Time for the controller and stores RAM values such as heat counter value in case of power failure.



A Siebe Group Product



DS 2.801A - Wiring & Commissioning Information
DS 5.00A/2.501A - Commissioning Details
MLI 2.801 - Mounting Details

Sensors

DS 1.01/1.001 - DRT, DDT
DS 1.020 - DU, DUS, DUSF
DS 1.11/1.030 - DDU
DS 1.2/1.201 - DWT, DST
DS 1.07/1.501 - DRH, DDH
DS 1.4/1.401 - DOT, DOW
DS 5.10/1.901 - RPW

Actuators

DS 3.23/3.001 - AVUE
DS 3.26/3.010 - AVU
DS 3.15/17/3.201/215 - ARX, ARE
DS 3.20/3.401 - ALX/ ALE
DS 3.21/3.501 - ALXS, ALES
DS 24.020 - AVX

SPECIFICATION

Type:	IAC 420 – Three Loop intelligent Advanced Controller Specification No. - 581-4-253
Control Range:	–40 to 150°C, –40 to 302°F, 20 to 90% Rh, 250 to 9750 Ohms, 0 to 10,000 Lux
Power Supply:	24Vac ($\pm 10\%$), 47 to 63Hz. Supplied by a transformer conforming to EN 60742 - see DS 25.00/25.001 for details.
Fuse:	2A (Fast Blow) Protects the IAC controller not the triac outputs
Consumption:	6VA maximum (excluding any connected outputs).
15 Volt dc Output:	25 mA max
Power Failure Reserve:	E ² PROM preserves configuration data and user settings. The clock will stop during power failure (not if an RTC board is fitted) but memory will be preserved so that normal control is resumed on restoration of power. Note: If the controller is to be used in stand-alone mode with no serial link connection and uses time schedules then the RTC board should be fitted.
Ambient Temperature Limits:	Operating: 0 to 50°C Storage/Transit: –20°C to 55°C
Max. Ambient Humidity:	Operating and storage: 95% Rh non condensing

CONSTRUCTION

Case:	Moulded polycarbonate plastic case. Fire resistant to UL94 V-0.
Protection Class:	IP20
Mounting:	DIN rail or surface mounting. (DIN rail to DIN 46277 Part 3 – EN 50022/BS 5584)
Terminals:	Accept one 1.5mm ² wire. Pluggable screw terminal blocks (unshrouded, low Voltage only).
Wiring:	All temperature, analogue sensor and digital inputs must be screened with the screens connected separately to a common earth point. This earth point should be connected to the controller earth (0V terminal).

INPUTS

Six configurable inputs that can be configured independently by using jumper links on the controller PCB to be either Analogue (0-10Vdc), Resistive or Digital.

Analogue Type Input:

Range: 0 to 10Vdc

Resistive Type Input:

Range: 250 to 9750 Ohms

-40°C to 150°C using Satchwell "T" type temperature sensors, see Fig.1

-40°C to 302°F using Satchwell "T" type temperature sensors, see Fig.1

0 to 10,000 Lux

Digital Type:

Voltage free contact.

SERIAL LINK

EIA Standard RS 422/485 half duplex.

OUTPUTS

The controller can drive 0-10V, pulsed and thermic actuators, see fig. 1.

Notes:

1. All 0 to 10Vdc outputs are protected against accidental short circuit to 24Vac and ground.
3. Load resistance for each 0-10Vdc output must be equal to or greater than 10kΩ.
3. The maximum current that a 0-10Vdc output can source is 1mA.

IAC - INPUT/OUTPUT DIAGRAM

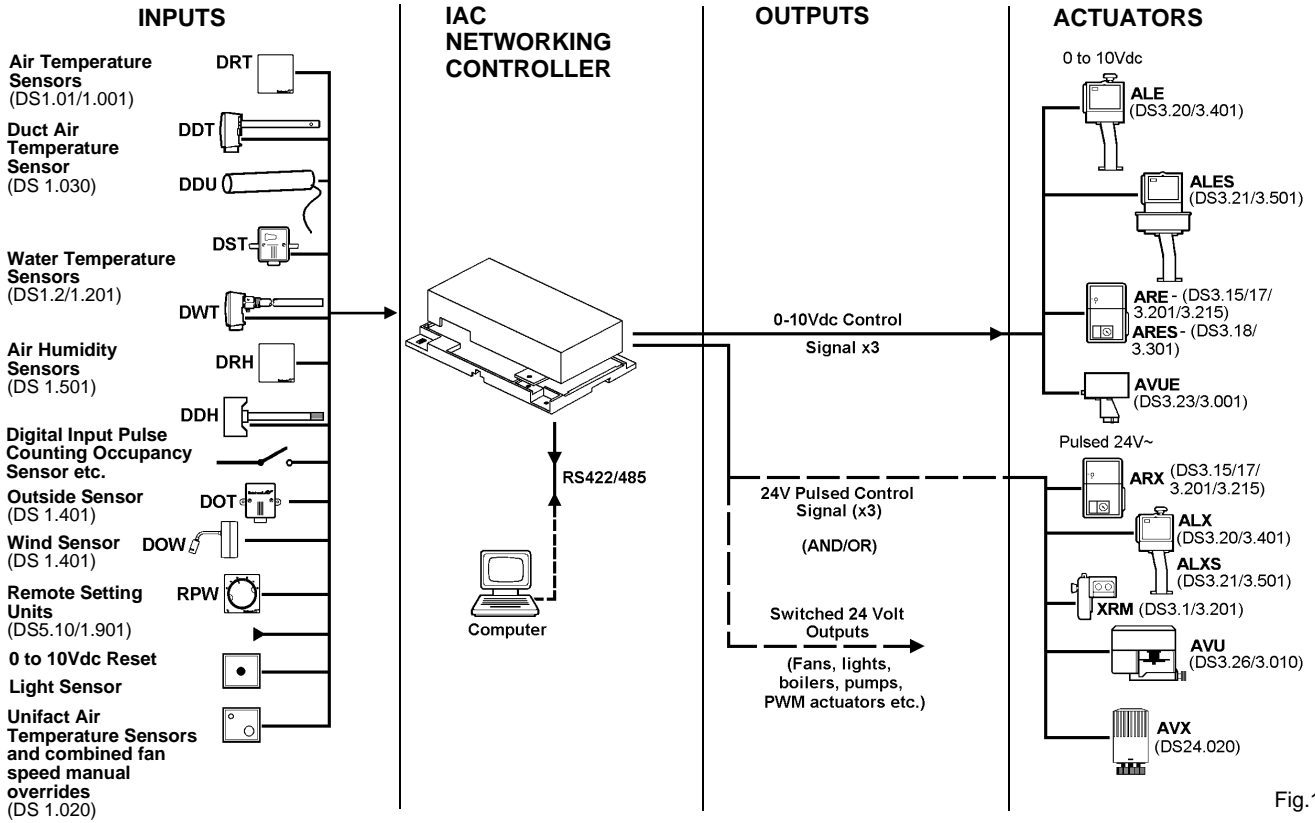


Fig.1

CONNECTION DIAGRAM

BASIC WIRING DIAGRAM

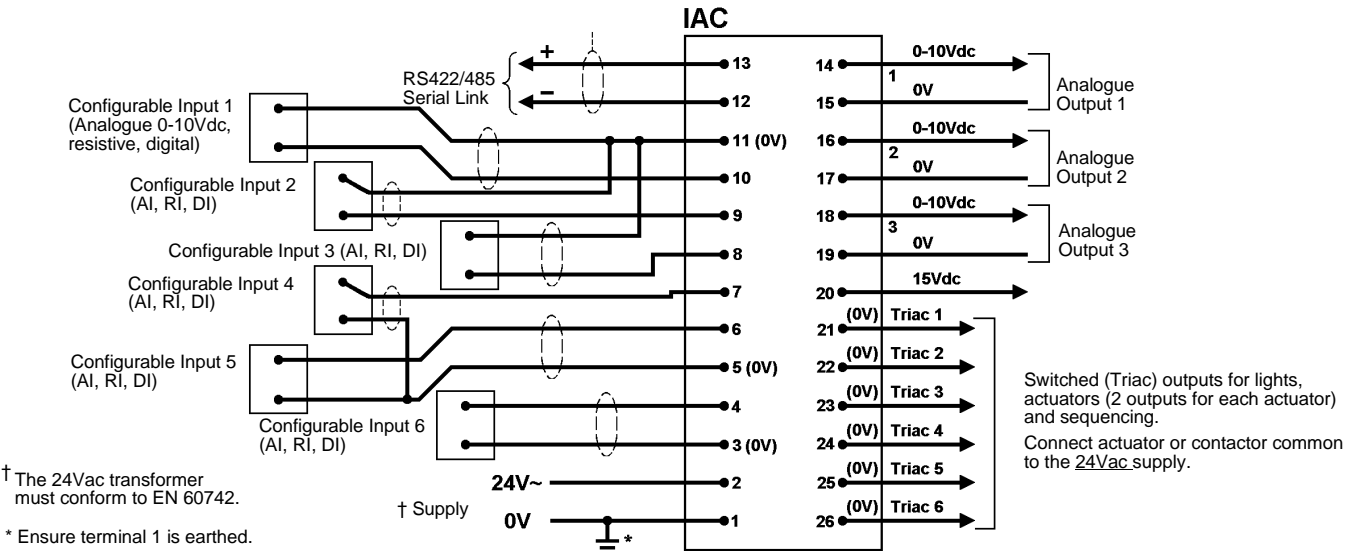


Fig.2

† The 24Vac transformer must conform to EN 60742.

* Ensure terminal 1 is earthed.

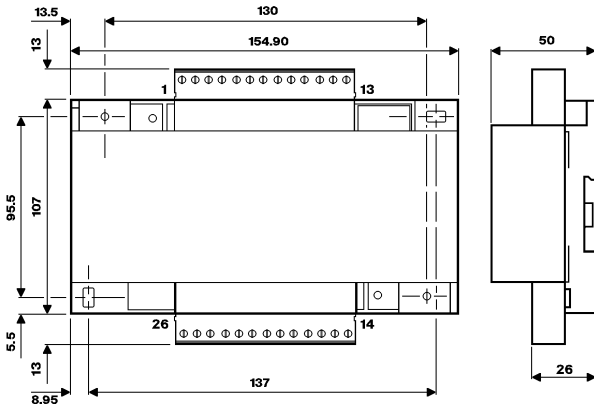
Input wiring screened. Connect screens separately to a single earth point at the controller only.

Terminal 1 is an Earth Terminal.

As default the inputs are configured as follows:

- Input 1 - Resistive (temperature)
- Input 2 - Resistive (temperature)
- Input 3 - Resistive (temperature)
- Input 4 - Analogue (0-10Vdc)
- Input 5 - Analogue (-0-10Vdc)
- Input 6 - Digital

WIRING DIAGRAM



Dimensions in mm



Satchwell Control Systems Limited
Farnham Road, Slough, Berkshire,
United Kingdom SL1 4UH

Tel: +44 (0)1753 550550
Fax: +44 (0)1753 824078

CAUTION

- For full wiring information refer to DS 2.801A.
- 24Vac devices must be supplied by a transformer conforming to EN 60742.
- Design and performance of Satchwell equipment are 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 is given by the Company in writing relating to a specific application.