

Unicon micro
Digital temperature controller
operating an Apc4

MPC 4u

PLEASE READ IMPORTANT INFORMATION



Welco Engineering Ltd

Units 7a-7c, Vale Road
Spilsby, Lincolnshire,
PE23 5HE
Tel: 01673 857575

HEALTH AND SAFETY AT WORK



DANGER ELECTRIC SHOCK RISK

ELECTRIC DEVICES CAN CONSTITUTE A SAFETY HAZARD

It is the responsibility of the user to ensure that the installation and maintenance of the product are carried out in strict compliance with any relevant instructions, regulations, codes of practice or bylaws in force.

This equipment should only be installed and commissioned by appropriately qualified personnel who have read and fully understood this users manual.

If in doubt contact your supplier or Welco Engineering Ltd. for technical advice.

Every care has been taken to ensure that the contents of this instruction booklet are accurate at the time of printing, however no liability is accepted for any consequence of its use.

The manufacturers reserve the right to revise the product specification and other technical features resulting from improvement and continual development.

MPC4u CONTROLLER SPECIFICATION FAN/HEATER CONTROL VERSION

Supply Input	230v 50Hz. +10%. 1KVA
Supply Output.....	0 - 230v 1KVA
Maximum Output Current	4 amp
Output Control.....	maximum/ auto
Temperature Range	0 - 40 C
Resolution	0.1 C °
Heater/Boost Fan Offsets.....	-5 C to +5 C
Heater/Boost 1 & 2 Relay Outputs.....	Single Pole Change Over
Relay Contact Rating	8A 30v d.c. / 230v a.c.
Sensor.....	"Welco" Type B.
Minimum Output.....	Adjustable 10 - 100% Max Output
Auto Freshen Cycle Time.....	Adjustable 0 - 10 mins. 6 sec Steps
Auto Freshen Duration Time.....	Adjustable 0 - 10 mins. 6 sec Steps
Parameter Settings.....	Front Panel Touch - Buttons
Enclosure.....	IP55 180x230x65, Polycarbonate

DESCRIPTION

The Unicon Micro unit designed and manufactured by Welco Engineering Ltd. precisely controls the environment temperature by controlling the speed of ventilating fans or power input to heaters as the environmental temperature increases above or falls below a simple touch- button programmable *set temperature* value.

The digital based microcomputer system converts analogue signals from a thermal detector into digital pulses that are employed to control the output of the associated power unit.

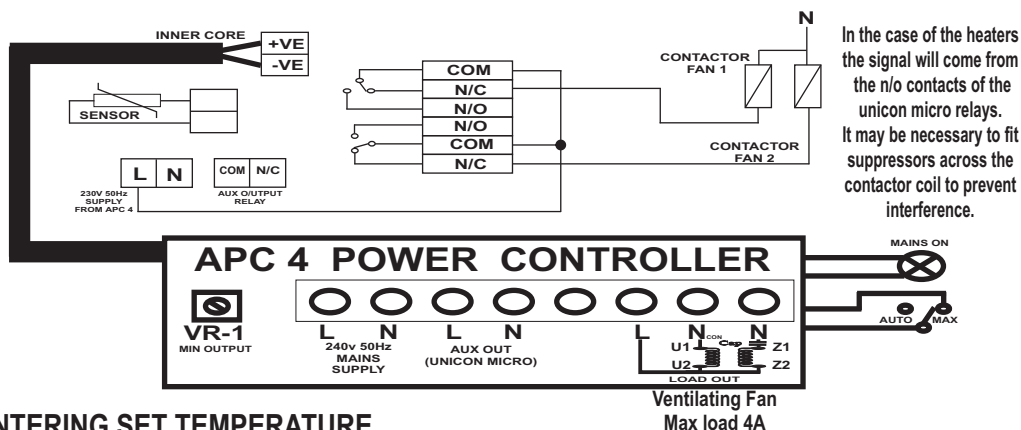
Touch-button controls set all operational parameters which are shown on the numeric display, e.g. *Set Temperature, Minimum Output* (fan speed), *Heater or Boost Ventilating Fan Offset* and *Auto-Refreshen Cycle Times*.

The minimum output (Fan Speed) is adjustable from 10% to 100% of the maximum output available to ensure minimum ventilation related to stock age and density. To prevent fans stalling a fixed minimum is pre-set by a manually adjustable pot marked [VR1/idle] within the MPC4u unit.

Two relay outputs providing N/O and N/C output contacts function at adjustable temperature offset and may be used to either operate additional ventilating fans or switch on heaters. The unit also provides *automatic refreshen* of the environment that helps to prevent stale air build-up by operating the ventilating fans at full speed for a set regular interval during a set time period.

Output signal from the Unicon Micro drives the power output board (APC 4u) see diagram.

This unit is switched to operate in two modes, ether maximum or automatic. In maximum the APC 4 P.C.B. operates at full fan speed independently of the Unicon Micro.



ENTERING SET TEMPERATURE

- 1..... Select the temperature by operating the lower touch pads marked **SELECT** until the appropriate LED indicator is illuminated.
- 2..... Using the upper touch pads marked **ADJUST**, set the *set temperature* required. Note:-the unit automatically returns to record actual temperature after a short delay.

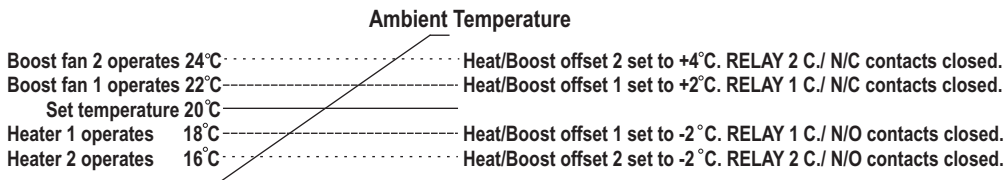
ENTERING MINIMUM OUTPUT % [MINIMUM FAN SPEED]

- 3..... Select the minimum output (%) parameter using the lower **SELECT** touch pads. Note the minimum output (%) LED is now illuminated. Value must be chosen to satisfy the minimum ventilation requirements related to stock age and density. Manually set the minimum fan speed [VR1 APC4] so that the fan idle speed is sufficient to cool the motor when set to 0%

ENTERING HEATER/BOOST FAN OFFSET 1

- 4..... Select the heater/boost fan offset 1 parameter using the lower **SELECT** touch pads. Note the heater/boost fan offset 1 LED is now illuminated.

continued.....



Note:- The *Heat/Boost* offset temperatures may be set either side of the set temperature by using either positive or negative values [maximum + or - 5°C].

5..... Using the upper ADJUST touch pads, set the *Heat/Boost* offset required.

ENTERING HEAT / BOOST OFFSET 2

6..... Repeat operations 4 and 5 to set *Heat / Boost* offset 2

APPLICATIONS

The UNICON MICRO unit may be used to operate two stages of ventilating fans, choosing positive *Heat / Boost* offset values or alternatively two stages of heating, if negative *Heat / Boost* offset values are selected. It is possible to operate one stage of ventilating fan and one stage of heating by setting positive and negative values for the to *Heat / Boost* offsets.

The output contacts may be alternatively employed to operate an alarm should the temperature exceed the set offset limits about the set temperature.

ENTERING AUTO-FRESHEN CYCLE TIME (M)

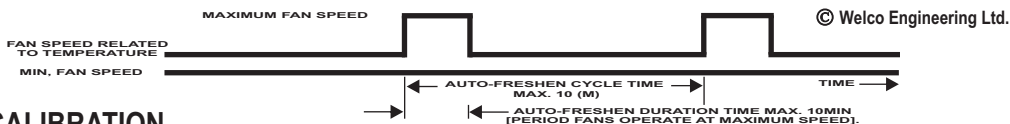
7..... Select the auto-freshen cycle time (M) parameter using the SELECT touch pads.

8..... Set the required auto-freshen cycle time (M) maximum 10 minutes using the ADJUST touch pads.

ENTERING AUTO-FRESHEN DURATION TIME (M)

9..... Select the auto-freshen duration time (M) parameter using the SELECT touch pads.

10... Set the required auto-freshen duration time (M) maximum 10 minutes using the ADJUST touch pads. Note:- Auto-refreshen turned-off by setting the auto-freshen duration time to zero.



CALIBRATION

The UNICON MICRO is factory calibrated and should not require further adjustment. if however calibration is necessary, set the sensor temperature to approximately 25°C using a good quality mercury thermometer as a reference. Adjust resistor marked VR1(TCAL) until the digital display of the UNICON MICRO records the identical value of that indicated by the mercury thermometer. Once this is achieved the unit is calibrated for the full range of operating temperatures. On NO account should any other variable resistor be adjusted, since Welco Engineering Ltd. will not accept responsibility for any damage caused.

SENSOR

The sensor input cable can be extended up to 100m without appreciable effect on the unit's performance, but it is strongly advised , particularly where the electrical environment tends to be