

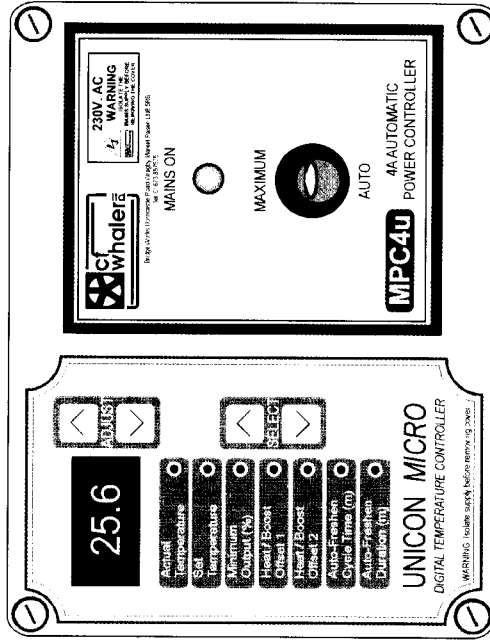


Ventilation Engineers  
and  
Controlled Environment  
Specialists

# Unicon micro Digital temperature controller operating an Apc4

## MPC 4U

PLEASE READ IMPORTANT INFORMATION



# C.F. Whaler Ltd

Bridge Works Horncastle Road  
Wragby Market Rasen LN8 5RB

Tel: 01673 857575

Fax: 01673 857788

### Ambient Temperature

- Boost fan 2 operates 24 C..... Heat/Boost offset 2 set to +4 C. RELAY 2 C./ N/C contacts closed.
- Boost fan 1 operates 22 C..... Heat/Boost offset 1 set to +2 C. RELAY 1 C./ N/C contacts closed.
- Set temperature 20 C.....
- Heater 1 operates 18 C..... Heat/Boost offset 1 set to -2 C. RELAY 1 C./ N/O contacts closed.
- Heater 2 operates 16 C..... Heat/Boost offset 2 set to -2 C. RELAY 2 C./ N/O contacts closed.

Note:- The Heat/Boost 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 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)

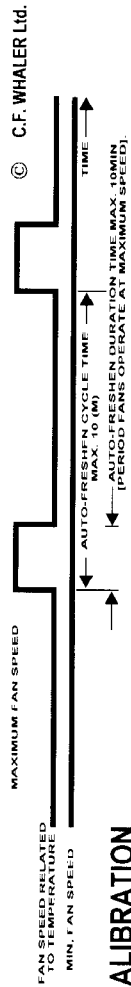
7..... Select the auto-freshen cycle time (M) parameter using the SELECT touch pads.

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-refresheen turned-off by setting the auto-freshen duration time to zero.



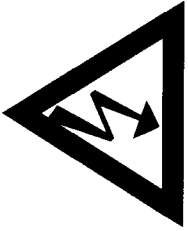
### CALIBRATION

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 C.F. Whaler 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 noisy to use screened cable that is earthed at the controller end

# 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 C.F. whaler 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.....	"Whaler" 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 C.F. Whaler 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.

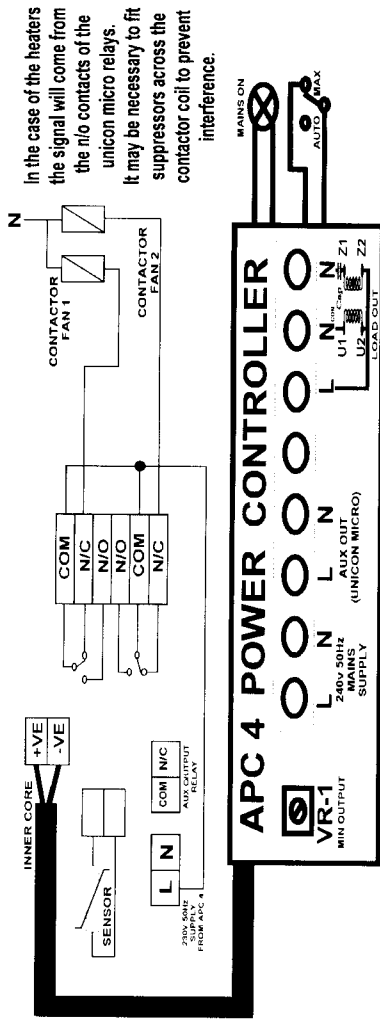
The digital based microcomputer system converts analogue signals from a thermal detector into digital pulses that are employed to control the output of the associated power unit.

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-Freshen 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 refresher 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, either 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.....