



OEM CONTROLLER BOARD FOR MICROMISER 12 ATOMISER

Installation & Operation Instructions

1. Introduction

The Micronair EX7492 OEM controller board provides similar functionality to the EX7482 mains powered controller for the Micromiser 12 atomiser, but is supplied as a bare printed circuit board for building into customers' systems. Typical applications include industrial and laboratory equipment and UAV aerial spray systems.

The board requires 24 V DC power, which can be provided from the customer's system or from a plug-top power supply in applications where the controller must be remote from mains power.

Atomiser rotational speed can be controlled by a pre-set adjustment on the board, a remote potentiometer or by a DC control voltage.

These instructions refer to the controller board only. See the Micromiser 12 & 16 handbook for full details of the installation, calibration and operation of the atomiser.

2. Connectors, Controls and Indicators

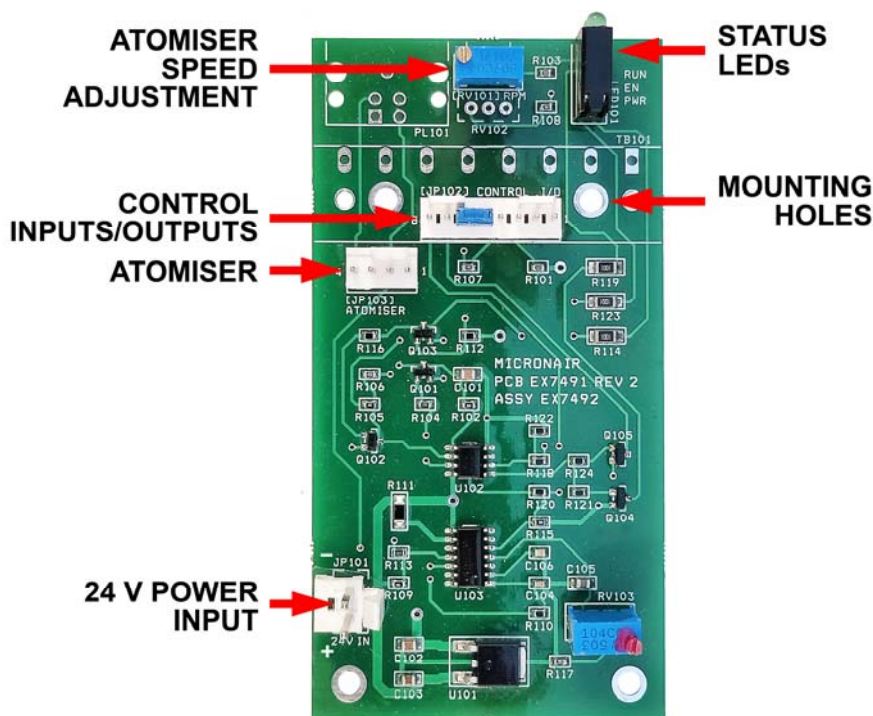


Fig. 1 – Top View on PCB

2.1. Connectors

24 V power input – 2 pin header for use with Molex KK series 0.156” housing and contacts. The power supply must provide a smooth DC voltage at a minimum of 0.75 A, continuously rated. Pin connections are as follows:

- Pin 1 (square pad on PCB) – +24 V DC
- Pin 2 – Ground

Atomiser – 4 pin header for use with Molex KK series 0.1” housing and contacts. The Micromiser 12 atomiser is connected using a cable with a 4 pin female M12 connector at the atomiser end (Micronair P/N CBP3430 or similar). Pin connections and wire colours for standard A coded moulded cables are as follows:

- Pin 1 (square pad on PCB) – +24 V DC (brown)
- Pin 2 – Tachometer pulse from atomiser motor (white)
- Pin 3 – Ground (blue)
- Pin 4 – Speed control voltage to atomiser motor (black)

Control inputs/outputs – 8 pin header for use with Molex KK series 0.1” housing and contacts. Pin connections are as follows (see section 3 for further details):

- Pin 1 (square pad on PCB) – Control ground
- Pin 2 – Enable input
- Pin 3 – External speed potentiometer high
- Pin 4 – External speed potentiometer low
- Pin 5 – Speed control input
- Pin 6 – Speed control output (from potentiometer on PCB)
- Pin 7 – Atomiser running output
- Pin 8 – Atomiser speed output (analog voltage)

2.2. Controls

Atomiser speed adjustment – 20 turn trimmer potentiometer to adjust the rotational speed of a Micromiser 12 atomiser between 1,500 – 12,000 RPM.

If this adjustment is used pins 5 & 6 of the input/output header must be joined by a jumper cap or a link on the mating housing. If the atomiser speed is controlled by an external potentiometer or control voltage this adjustment is not used.

2.3. Indicators

Three green status LEDs on the edge of the board have the following functions (LED 1 is at the top, furthest from the PCB):

- LED1 – Power. Voltage regulator on board is operating correctly
- LED 2 – Enable. Controller is enabled and atomiser powered
- LED 3 – Run. Atomiser is rotating at >1,500 RPM

3. Control Inputs & Outputs

3.1 Atomiser Speed Control Input – Pin 5

The rotational speed of the atomiser is set by an analogue voltage to this input. This voltage may be supplied either by the speed control potentiometer on the PCB or by an external potentiometer or control voltage. When using the potentiometer on the PCB this terminal must be connected to the Atomiser Speed Control output – pin 6. When using an external potentiometer the wiper must be connected to this pin. The range of the control voltage is +0.3 V (1,500 RPM) to +5.0 V (12,000 RPM).



The voltage applied to the Speed Control input pin must not exceed +12 V and must never be negative with reference to the Ground pin. Failure to observe these limits could result in damage to the controller.

3.2 Speed Control Potentiometer High – Pin 3

The speed of the atomiser can be controlled by an external potentiometer (for example on the outside of a cabinet) instead of the potentiometer on the PCB. In this case the potentiometer should have a track resistance of 10 K ohms. The end of the track corresponding to clockwise rotation of the potentiometer (maximum atomiser speed) must be connected to this pin.

3.3 Speed Control Potentiometer Low – Pin 4

When using an external speed control potentiometer the end of the track corresponding to anti-clockwise rotation (minimum atomiser speed) must be connected to this pin.

3.4 Atomiser Enable Input – Pin 2

The atomiser motor can be stopped and started by means of the Enable input pin. This pin is active high and is pulled up to the internal 12 V supply through a 22 K ohm resistor. The atomiser will therefore run when this pin is open circuit. The rotation of the atomiser can be stopped by pulling the Enable input pin low by means of a switch, relay contact or NPN transistor connected between the Atomiser Enable input and Ground pins.



The Atomiser Enable input pin must not be connected to an external voltage. Connection to an external voltage could result in damage to the controller.



The Atomiser Enable input is intended to control the atomiser during normal operation. It must not be used to stop the atomiser prior to contact with the rotating disc. The power supply to the controller must be disconnected before touching the atomiser.

3.5 Atomiser Speed Control Output – Pin 6

This pin is connected to the wiper of the potentiometer on the PCB and provides a DC voltage to control the speed of the atomiser. When using the potentiometer to control the atomiser this pin must be connected to the Speed Control input pin – pin 5. If using an external potentiometer or control voltage this pin must be left open circuit.

3.6 Atomiser Run Output – Pin 7

This pin provides an output to indicate that the atomiser is rotating at a speed greater than 1,500 RPM. The output is driven by a NPN transistor and is pulled low when the atomiser speed is greater than 1,500 RPM (corresponding to the green Run LED being illuminated). This output is intended to provide an indication that the atomiser is operating normally and can be used to operate an external indicator or to provide an input to a control or monitoring system.



The Atomiser Run output is not current limited and can sink a maximum current of 100 mA with reference to the Ground pin. The maximum externally applied voltage between the Atomiser Run output and Ground pins is +24 V. A higher current or voltage or a negative voltage applied to the Atomiser Run output pin could result in damage to the controller.

3.7 Atomiser RPM Output – Pin 8

This pin provides a DC voltage proportional to the rotational speed of the atomiser disc. The output is 1 V per 2,000 RPM and can be used to drive an analog or digital voltmeter scaled in RPM or may be used as an input to an external control or monitoring system.



The Atomiser RPM output is not current limited and a short circuit between the Atomiser RPM output and Ground pins could result in damage to the controller. The impedance of a load connected to the RPM output pin should be greater than 5 K ohms for maximum accuracy of the reading.

3.8 Control Ground – Pin 1

This pin is connected to the ground (0 V) rail of the controller's internal power supply and provides the reference for all low voltage controller inputs and outputs

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