



## HUMIDITY MANAGEMENT MODULE TYPE H122 *Digital*

### USER INSTRUCTIONS

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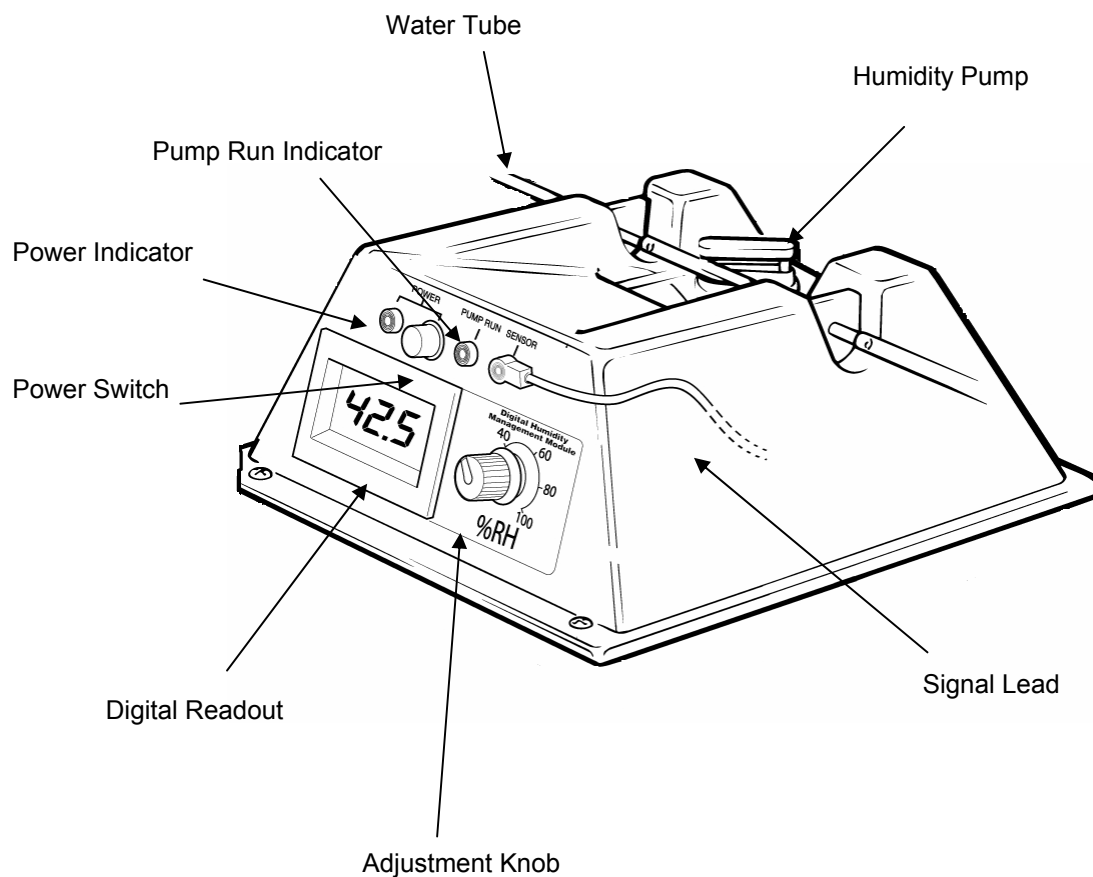
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These instructions detail the installation and operation of your new H122 *Digital* Automatic Humidity Management Module. Please read them carefully before setting up your machine to achieve best results and keep these instructions safe for future reference. The H122 module is optional accessory for the Brinsea Octagon 100 or 250 egg incubators and cannot be used in any other application. The H122 offers convenient and refined measurement and control of humidity within the incubator. If the Octagon 100 or 250 incubator has been ordered from new with the H122 fitted then only the operational instructions apply. If the H122 is to be retro-fitted to an Octagon 100 or 250 please first follow the installation instructions (in the shaded sections.)

These instructions are limited to the operation and function of the H122 humidity Control Module only, please refer to your incubator instructions for more general guidelines on humidity in incubation.

### FEATURES

- Continuous digital metering of relative humidity (%RH)
- Proportional control easily set against scale
- Precision bulk polymer sensor
- Pumped water flow - not level dependent



## 2.0 UNPACKING

The H122 *Digital* comprises:

## 1 **Type H122 Humidity module control unit**

Containing all control and indication functions and the water pump.

### 1 **Sensor unit**

Contains the (removable) sensor and sensor flex socket. Fits through the fan mounting plate at the rear of the incubator.

### 1 **Sensor unit clip**

Screws to the fan mounting plate of the rear of the incubator to receive the sensor unit.

### 1 **Length water tube 3m (10 feet)**

Silicone rubber tube for interconnecting and for peristaltic pump replacement.

### 1 **Sensor flex 1m (3.3 feet)**

Flex with jack plugs for connecting between control unit and sensor unit.

## 2 **Sheets of evaporating pad - To be cut to suit the incubator.**

## 4 **Fixing screws**

For securing the H122 module to the incubator.

- 2.1 Remove all tape and packing from the module and parts. Retain the box and packing materials to enable the unit to be repacked. **Please take care not to discard the pack of heavy white evaporating pad paper.**
- 2.2 Identify each part and check that they are all present and undamaged. If there are any parts damaged or missing please contact your retailer or Brinsea Products (at the address at the end of the document)  
Note also that the black humidity sensor fits into a socket in the sensor unit and can be pulled to remove. **Take care not to lose or damage the sensor, replacements are expensive.**
- 2.3 Check also that the electrical supply matches the machine's requirements (marked on the technical label on the back of the control unit).
- 2.4 Complete and return your guarantee card to register for the free two year guarantee covering your humidity module.
- 2.5 Go to [www.Brinsea.co.uk](http://www.Brinsea.co.uk) and register as a free member of the Brinsea e-mail group to receive the latest news and information such as advance notice about new products, special offers, exclusive competitions and much more.

## 3.0 PRINCIPLE OF OPERATION

The sophisticated bulk polymer sensor provides a highly accurate, linear signal of the relative humidity level within the incubator back to the Humidity Module which then displays this level on the digital meter.

The control system operates a tiny in-built water pump which transfers exactly the amount of water required into the incubator to maintain the required relative humidity which is set by the user. The control system compensates for changes in relative humidity level and, within working limits, will maintain a constant relative humidity level.

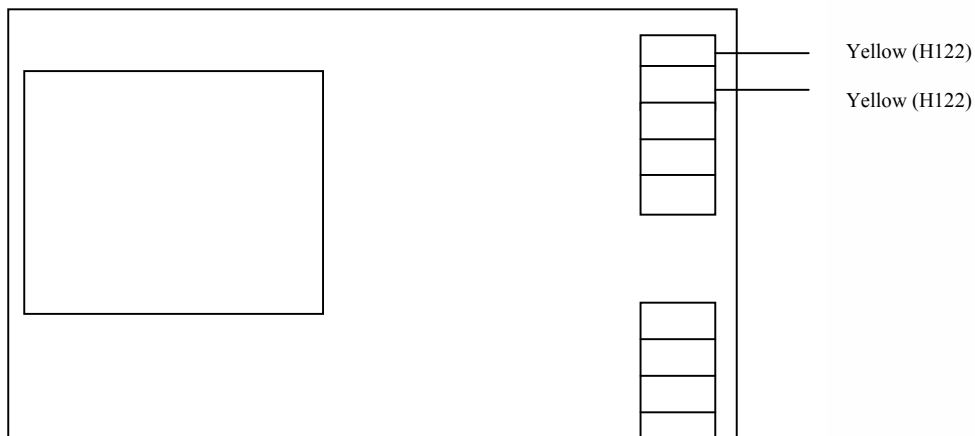
## 4.0 INSTALLATION

### **Fitting the Module (when purchased separately from the incubator)**

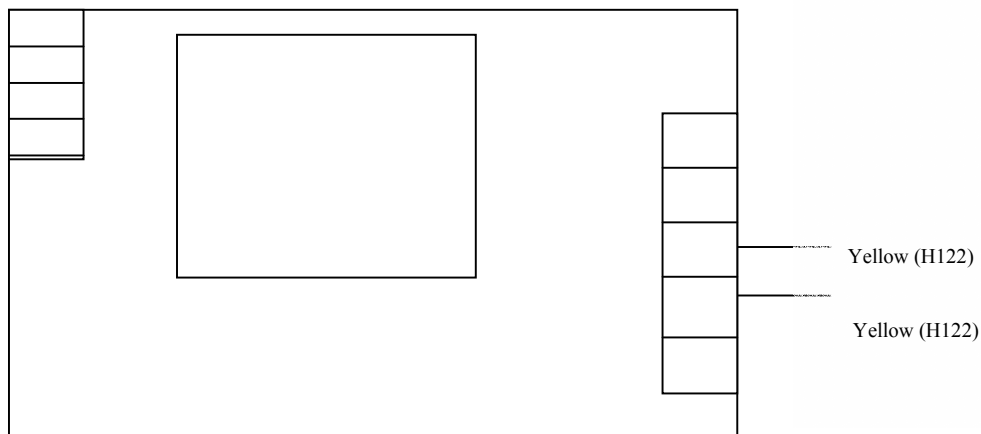
**Fitting of this part must be carried out by a suitably qualified person**

***BEFORE STARTING DISCONNECT THE UNIT FROM THE MAINS SUPPLY***

- 4.1 The Humidity Module is mounted on the plastic rail on top of the incubator immediately behind the temperature control housing. Locate the unit in position and drill four 2mm (5/64") fixing holes in the mounting rail corresponding to the holes in the H122 housing.
- 4.2 Remove the cover of the temperature control and remove the power supply cover. Identify which power supply circuit is fitted from the diagrams below. Connect the two yellow captive leads from the H122 to the two right hand connections as below as shown (either way around). Ensure all existing connections are left as they were:



Later power supply circuit layout:



- 4.3 Refit the power supply cover and temperature control cover.
- 4.4 Remove the two plugs fitted into the black panel on the rear of the incubator. Replace one with the sensor clip by drilling two 3 mm (1/8") holes and fastening the clip with the screws provided. **Note:** On some early incubators these plugs may be missing - if so please contact the Service dept. at the address at the end of these instructions.

- 4.5 Drill a 4mm (3/16") hole through the second plug and replace it in the hole. Pass a length of tubing from the suction side of the pump on the H122, through the guide clip and through the hole in the plug and into the water reservoir in the incubator. Alternatively use an external reservoir such as a 500ml water bottle standing behind the incubator.

### **Mounting the sensor unit**

- 4.6 Push a 75mm (3 inch) length of the silicone tube to the nipple on the sensor unit adjacent to the black sensor (moistening the end of the tube helps). Ensure the small black rectangular sensor is firmly pushed into its socket in the sensor unit. If it should come out, ensure it is replaced the right way up with the three pins closer to the top. If inserted upside down, the sensor will give an incorrect negative reading. Feed the unconnected outlet tube through the sensor mounting clip on the back of the incubator and ease the sensor unit into the mounting clip, until it locates with a 'click'.
- 4.7 From inside the incubator feed the outlet tube through the tube guide clip at the back of the machine and into the evaporating tray.
- 4.8 The H122 Humidity Management Module is supplied with a length of silicone tube fitted around the pump rotor. This length will wear and need periodic replacement. It can also become flattened if left unused for some time because the inside walls of the tube will stick to each other around the rotor and prevent water passing through. This can happen from new if the unit has been stored for a time. Either replace this length of tube (see section 6) or remove it and roll it between finger and thumb to 'unstick' it.
- 4.9 Cut a piece of evaporating pad to 10cm x 28cm and place on the tray to the rear of the incubator and lay the outlet pipe on top of the pad.  
**Note: The second 'V' shaped piece of evaporating pad described in the incubator instructions must not be used in conjunction with the Humidity Module.**
- 4.10 Ensure that there are no kinks in the tubing especially where they pass through the tube guide clips.
- 4.11 Connect the sensor flex from the Module housing to the sensor unit.

## 5.0 **OPERATION**

The module will be factory calibrated but may be returned to the address at the end of these instructions for re-calibration for a small fee.

- 5.1 Ensure that the suction (inlet) tube is below the water level either in the internal reservoir or in an external water bottle.
- 5.2 Press the power supply switch . Power indicator will light. Turn the humidity control knob anti-clockwise to minimum.
- 5.3 The meter will give a readout of humidity, at incubation temperature this will usually be a fairly low figure (15 to 30%). Allow 5 minutes for the reading to stabilise and adjust the humidity control knob to raise the humidity, the pump will run and the 'pump run' indicator will light. To achieve the desired relative humidity

level allow 30minutes between adjustments and use the meter reading as your guide to turning the control knob up or down.

- 5.4 When the humidity level is stable the pump will cut in and out evenly, pumping small amounts of water to offset moisture losses as incubator air is passed out through ventilation holes.
- 5.5 Refer to your incubator instructions for suggested humidity levels.

## 6.0 ROUTINE MAINTENANCE

### 6.1 Changing the pump tube

The peristaltic pump will need to have its tube replaced about every 3 months. Cut a length of tube to about 135mm (5¼"). Remove the connectors and pull off the old tube. Replace with the new tube, avoiding twists. Use the diagram on the product label to thread the tube exactly as shown over the pump head. The tension must be sufficient to ensure complete occlusion of the tube without unnecessary flattening between the pump rollers. Adjust tube length as necessary. Ensure that the tube does not stick together if left for long periods by unhooking it during storage.

### 6.2 Changing the evaporating pad

Change the pad as necessary to maintain good evaporating efficiency. If chicks are to be hatched in the incubator, change the pad after each hatch to avoid bacterial contamination.

## 7.0 TROUBLESHOOTING

The control module is calibrated from 0 to 100% RH and is theoretically capable of controlling throughout most of the range. However, the minimum and maximum levels of humidity achievable in an incubator depend upon several factors, particularly the fresh air ventilation rate. You may need to allow 24 hours for humidity to stabilise after making changes.

If you cannot get the level of RH you want, consider these notes:

### 7.1 Humidity will not go low enough

First increase the fresh air ventilation level - enlarge ventilation holes in the incubator cabinet. This will help to disperse the moisture given up by the eggs. There will still remain a lower limit determined by the moisture content of the ambient air, particularly in warm humid conditions. This can only be countered by dehumidification of the room air outside the incubator with a branded dehumidifier but is rarely a problem in practice except for ratites.

### 7.2 Humidity will not go high enough

Restrict fresh air ventilation to the minimum safe level. Remember embryos need to breathe! Increase evaporating pad area. If the pad is too small, you may have a flood in your incubator.

**Do not attempt to achieve higher than 80% RH.**

Check that water is reaching the incubator when the pump runs – if not check the whole length of the tubing for kinks and check that the tubing around the pump has not become permanently flattened. If it has, replace

the pump tube. Silicone tubing is very flexible but can be damaged by sharp finger nails. A tiny perforation on the suction side of the pump will let in air and prevent the pump drawing water.

7.3 If further problems are experienced please contact your retailer or Brinsea Products at the address below.

## 8.0 SPECIFICATIONS

Sensor:	Sensor accuracy +/- 3%. Hysteresis 0% R.H. Response time 2 minutes
Water Transfer:	In-built peristaltic pump Maximum water flow rate 30g/hour
Control setting and metering:	Indicated in % RH (linear)
Electrical supply:	15v AC from temperature control module on incubator
Dimensions: (module)	170mm x 200mm x 90mm (W x D x H)

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