



Dryer Pro Controller

Version 5b, 06/23

Installation & Operation

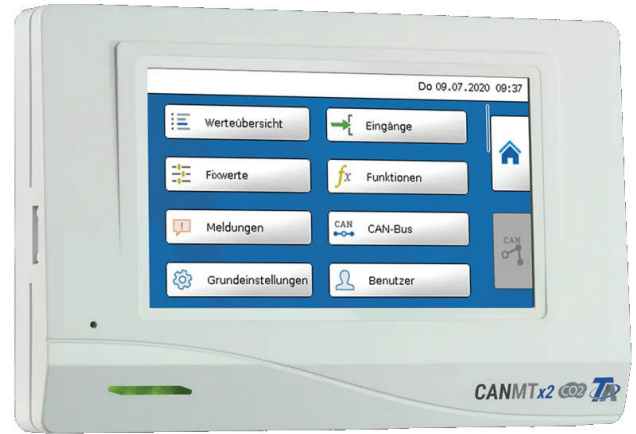
Pro controller with touch screen
for temperature and humidity
control

Pro controller explained



CANMT touch screen.

The touch screen provides your interface to view and control settings



UVR610 Controller.

The controller is the brains and interface for external inputs such as temperature and humidity sensors.



CMI Web interface.

The controller is the brains and interface for external access from the web via APP.



Inputs and outputs.



Temperature and humidity sensor

RJ 45 plug for connection to internet

Temperature sensor PT1000. For hot air flow temperature measurement from top of hot air heater

Electrical power connection

Refer to UVR610K instruction manual for details

Installation.

Mounting controller

The controller system is mounted in a IP rated container however this should be located so water, excess humidity and heat cannot cause damage.

Mount on to secure suitable location.

Cabinet mounting



Mounting sensors

Hot air flow sensor.

This sensor needs to be mounted in the top the Zero hot air heater.



Drill a 8mm in plenum chamber just above heater sensor

Drill a 8mm in plenum chamber just above heater sensor



Insert sensor so steel casing is level with top of brass retainer
DO NOT insert sensor cable into heater



Cable tie sensor wire to prevent heat damage



Electrical Connection

The Hot air flow sensor will arrive pre-connected to the central control to connection S1 and Ground (GRD)

If cable length needs extending ensure you use the correct cable type and connection method. See end of document for assistance.

Temperature and Humidity sensor

This is a bus controlled sensor so it can combine as two units i.e. temperature and humidity.

When fitting ensure the correct cable type is used. See end of this manual for assistance.

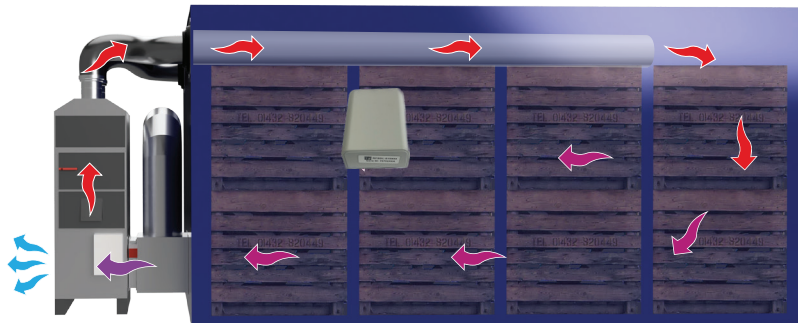
This comes pre mounted with a length of cable. If this needs extending make sure correct cable used.



Location

The location of the DL sensor depends on the style and build of your drying chamber. The aim should be to get the best average temperature and humidity possible. The location will depend on chamber size, heated air entry and type of log or wood storage.

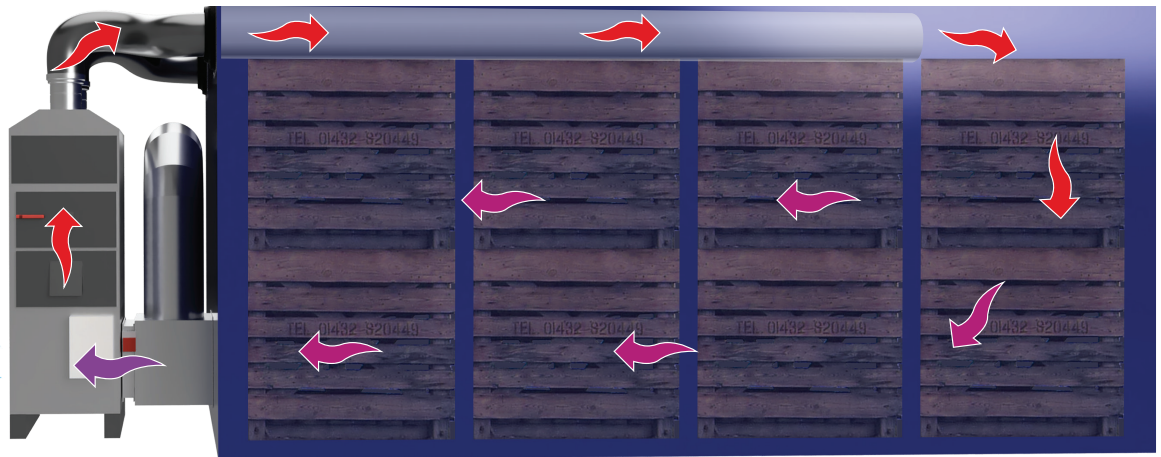
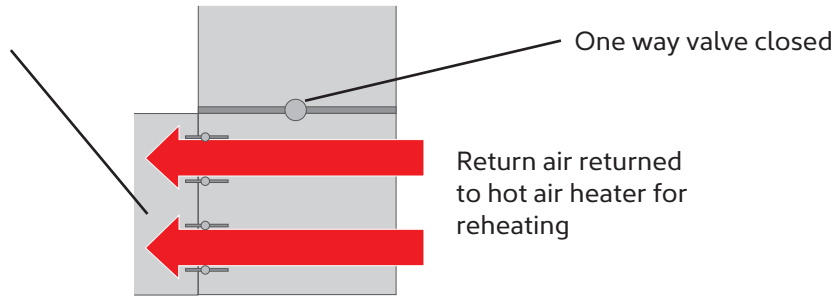
If using our drying chamber design we recommend around 1/3rd from roof and 1/3rd from exit.



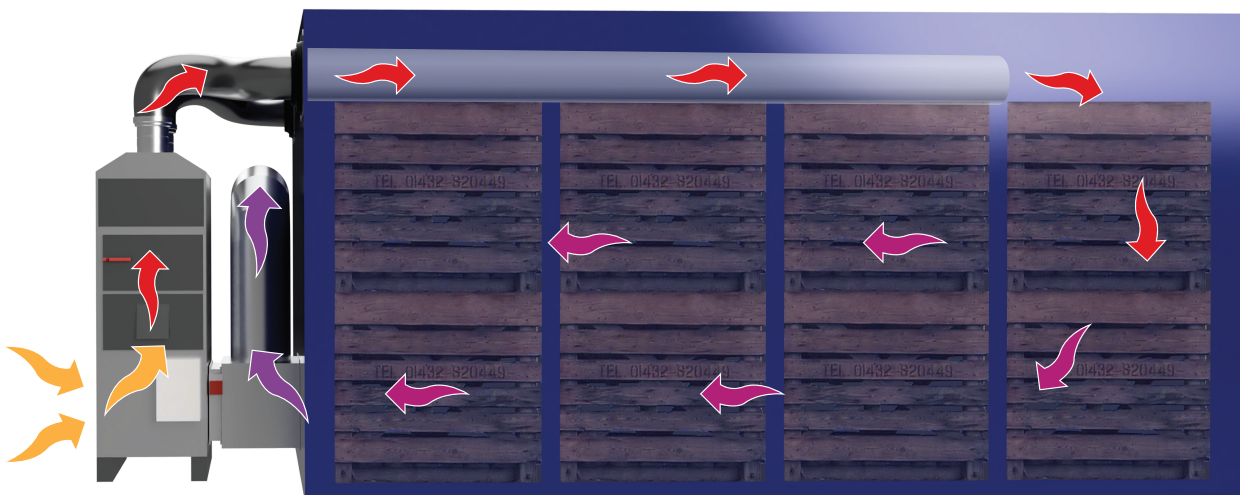
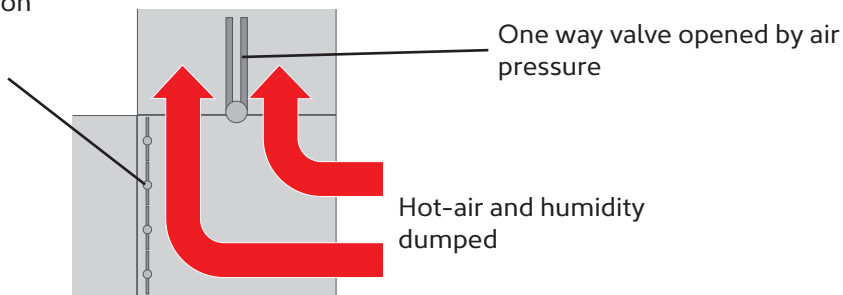
Recirculating Method

By default the system will create a re-circulate loop of air unless one of the set points is reached. IE, flow temperature from heater, humidity exceeds set point in chamber or chamber exceeds set temperature.

Re-circulation flap open



Re-circulation flap closed



Mid point operation.

The recirculation flap has three positions.

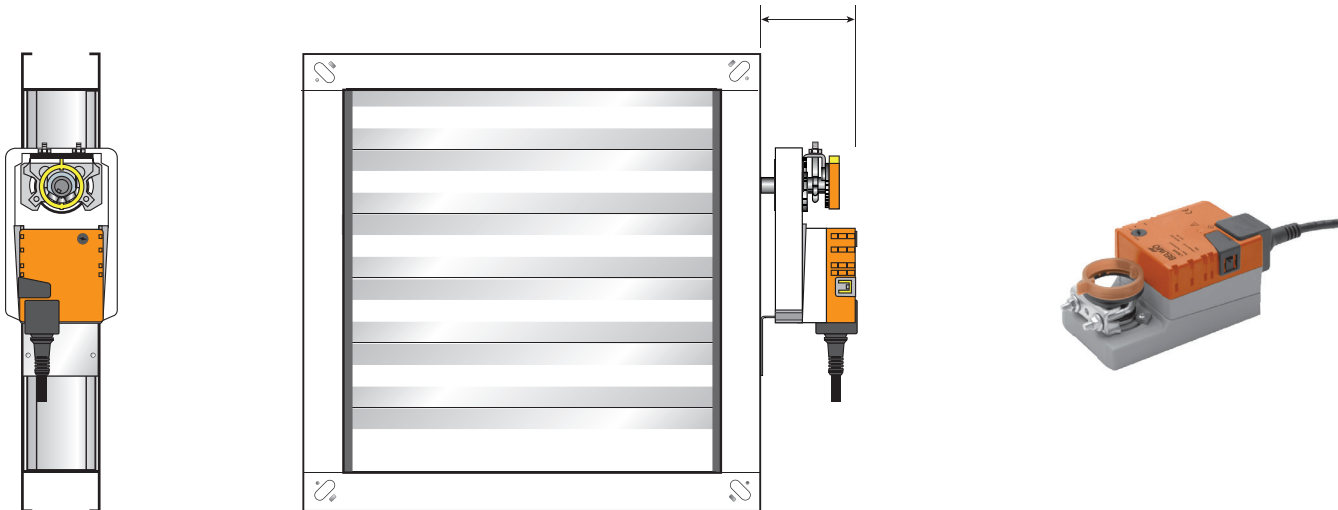
1. Re-circulate
2. Vent
3. Vent and re-circulate.

Vent and recirculate

Once the humidity or temperature drops below the maximum set point or rises above the minimum the Open close action of the re-circulation vent stops movement. The results in part venting part re-circulation.

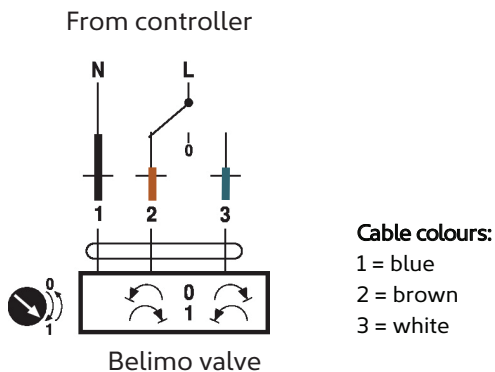
Re-Circulation Vent

There are many ways to create the recirculation system with dampers or flaps. If you are installing a Zero Ridge supplied equipment set you will receive a liner flap system and a electric motor which is power open power closed. This motor will have a 3 wire connection. Neutral and two power connection, one for opening and one for closing the control flap.

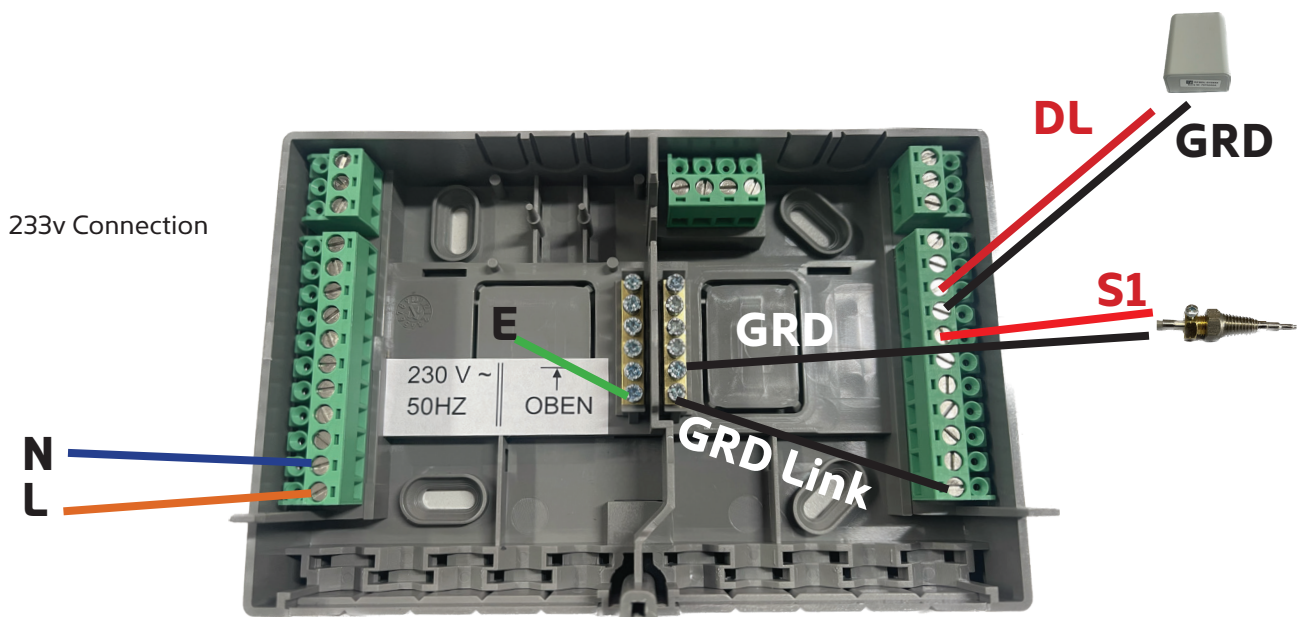
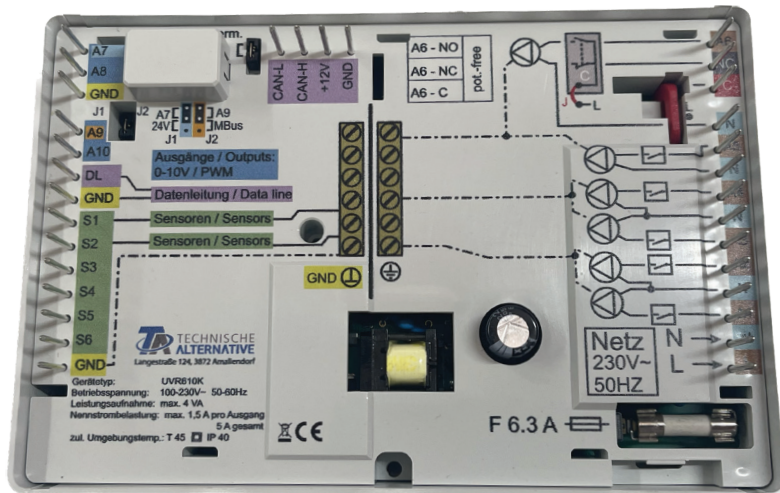


Electric connections

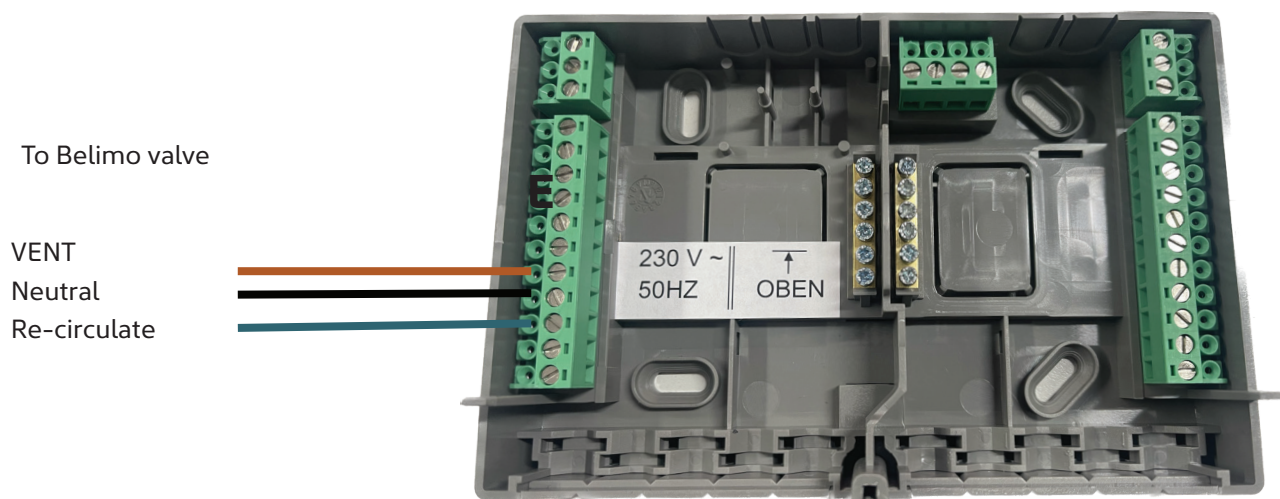
Refer to motor instructions. The following is suitable for the Belimo



Sensor connections into UVR610



Re-circulation flap electrical connection



Vent

Flap system is closed hot air and moisture vented to outside

Re-circulate

Means air blows into drying chamber and then back through hot air heater

Electrical connection and cable types

The heater and heating control is the electronic hub of the complete heating system. It consists of the Touch control unit, the central module and the drive module which depends on the system type. Using the control unit, you can regulate the heat and humidity control

Connections

The instructions in 2006/95/EC (low voltage directive) must be followed for the electrical connections to the system.

No electrical installations, such as power sockets, distribution boxes, lights or light switches may be located in the fuel storage. Any lights must be suitable for use in areas at risk of explosion. The regulations for rooms with a risk of dust explosion must be followed.

Electricity supply / voltage AC 1 x 230 V / AC 3 x 230 V / AC 3 x 400 V

ELECTRICAL CABLES

Mains 230V see Controller manual for details UVR610

Connection of sensors

The bus connection cable must be installed using LiYY 5 x 0.5 mm² or equivalent. Zeroridge can supply cable if required.

The maximum connection length from the central module to the connection sensors furthest away is 50m.

Mains suitable cable YSLY-JZ cables must be used for all pumps (3 x 1 mm²) and mixers (4 x 1 mm²). The cable diameter must be calculated according to the type of installation and cable length, but must be a Minimum of 1mm².

The length of the cables for the PT 1000 sensors must not exceed 30 m each. Otherwise the temperature values may be falsified. LiYCY PVC/TCWB/PVC Grey 2x0.5mm² 250V.

Sensor leads

Sensor terminal diagram

Sensors are always connected across the relevant sensor terminal (S1 – S6) and sensor earth (GND).

In order to prevent measurement fluctuations and ensure perfect signal transmission, sensor leads must not be subject to external negative influences through 230 V cables. Never run sensor leads together with mains voltage cables in the same conduit.

When using non-screened cables, route sensor leads and 230 V cables either in separate cable conduits or with a minimum clearance of 5 cm.

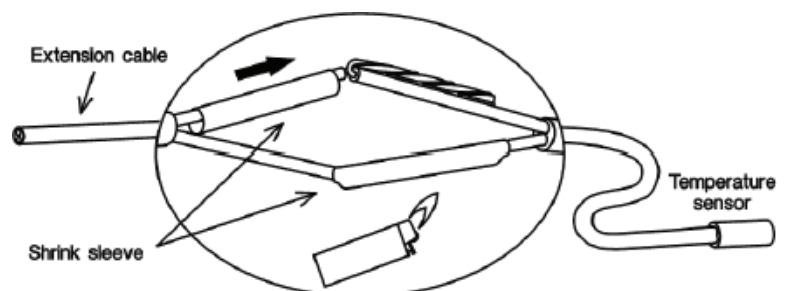
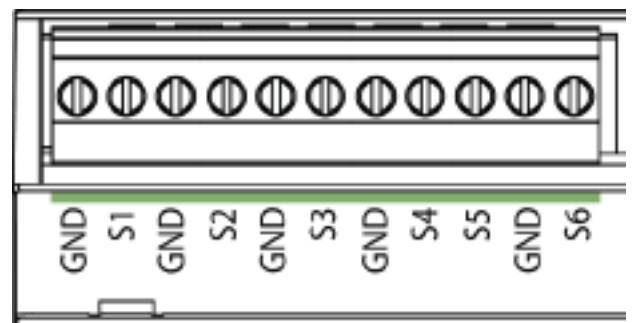
Sensor leads for PT100 or PT500 sensors must be screened.

If screened cables are used, the screen must be connected to the sensor earth (GND)

All sensor leads with a cross-section of 0.5 mm² can be extended to up to 50 metres. With this lead length and a PT1000 temperature sensor, the measuring error is approximately +1 K. A correspondingly larger cross-section is required for longer leads or a lesser measuring error.

The connection between the sensor and the extension can be made by pushing heat shrink tubing (trimmed to 4 cm) over one core and twisting the bare wire ends. Solder the connection if one of the wire ends has been tin-plated.

Then push the heat shrink tubing over the connection and heat up carefully (e.g. with a lighter) until it sits tightly over the connection.



Operation

Controller Modes

1. Warmup

Closes all vent action to allow recirculate.

2. Automatic control

Controls when recirculation takes place based on heater temperatures and/or humidity in drying chamber.

3. Refuelling,

Temperature in heater drops and drying chamber circulation fans stop at around 40c in heater

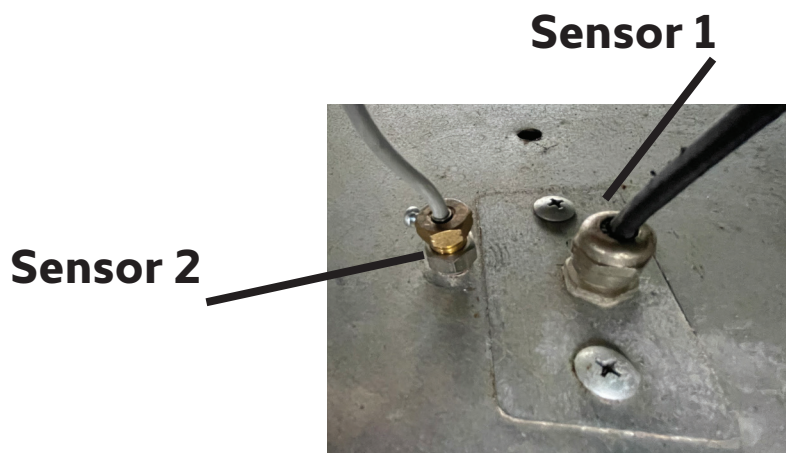
Do not switch off chimney fan until fire has burnt out otherwise damage may occur to chimney fan and heater structure.

Temperature readings may be different between sensors.

Sensor 1 is mounted into a different location to sensor 2.

Sensor 1 is on the heater

Sensor 2 on touch screen



Settings

By Pressing the Edit button on either the touch screen or via web access you can change the default settings

The screenshot shows a control panel titled 'EDIT SETTINGS'. It is divided into two main sections: 'Humidity' and 'Temperature'. Each section contains two rows of settings, each with a minus button, a numerical value, and a plus button.

Category	Setting	Value
Humidity	Set Point - Low	20.0 %
	Set Point - High	80.0 %
Temperature	Drying Chamber Set Point - High	80.0 °C
	Heater Set Point - High	95.0 °C
	Set Point - Low	90.0 °C

Humidity

Its unlikely you need to change. It is possible to check venting operation by turning the Set -point high to a lower setting IE 50.1% the minimum set allowed

If you have new wood in drying chamber, the chamber humidity will be high The vent will show open. (Flap too drier closed) air coming from vent.,

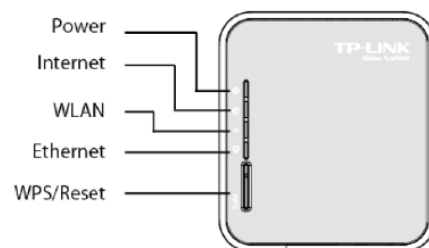
You can also use a lower figure during early stages of drying to act as total loss system.

Temperature

Heater set point `high` is when the system will start to vent if boiler becomes to hot.

The aim is to prevent heater exceeding a very temperature IE over 110C. Its possible the boilers warning bleeder will operate for a short period while venting starts. If the bleeding continues to operate for to long period reduce high set point and keep a gap of 5c between high and low.

Access to Internet with WNA



The WNA can be configured as

Wireless router

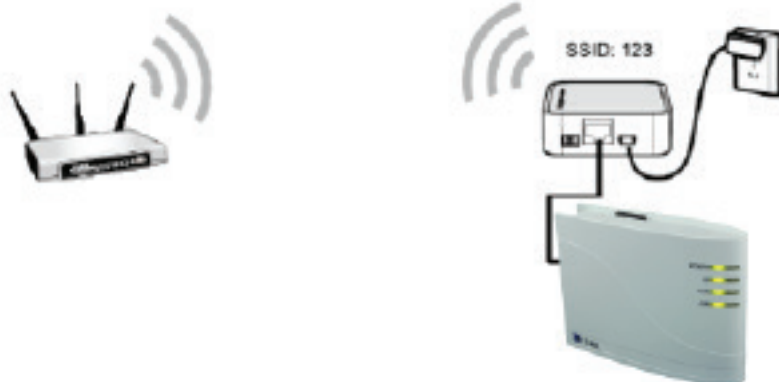
3G/4G USB producing its own wireless network and allowing hard wired RJ45 connection into the CMI in the main control box.

You will need a 3rd party USB dongle with available data.



Bridge/Repeater

In this mode the WNA acts a bridge into an existing Wi-Fi network allowing hard wired connection to the CMI in control box



If you wish to purchase a WNA contact Zero biomass 01531 584000

Terms

Our standard terms and conditions apply see www.zeroridge.co.uk

Deposit required to confirm order.
Final payment on completion.
This quote is valid for 30 days.



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**Part of the Zero Ridge Ltd
Group**



zeroridge

Much Marcle
Herefordshire
HR8 2LY

01531 584000
zeroridge.co.uk