# ELECTRONIC & TECHNICAL SERVICES LTD.

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**IMPORTANT IF USING YOUR OWN SOLENOID VALVE ENSURE THAT THE MAXIMUM WATTAGE DOES NOT EXCEED 6 WATTS.**

## DESCRIPTION AND OPERATION OFTHE RELATIVE HUMIDITY CONTROLLER

**Design Concepts:**
To produce a control to provide a cutting with the optimum conditions of growth.In the early stages of growth the control can be set to give predominantly fogging conditions. As the cutting matures, the interval between fogging can be increased thereby effectively weaning the plant.

General Description
If the HDR1 R.H Override link is selected the grower must remember that the relative humidity sensor always overrides the burst timer.
If the HDR2 No R.H Override link is selected, the fogging valve will be on for the time selected on Fog Seconds control

The control section of the unit consists of a Wean Minutes timer, a Fog Seconds timer, a Timer (automatic) or continuous (manual override) switch, a manual start tactile push switch and a Humidity set point control.

Safety controls consist of a mains fuse and a secondary fuse on the low voltage supply to the valve. The Wean Timer determines the time in between fogging bursts, irrespective of whether the controller is calling for fog. The Fog Seconds timer determines the time for the operation of the solenoid valve. When HDR1 selected, should the relative humidity sensor exceed the set point, the sensor will always override the Fog Seconds timer.

**IMPORTANT**
**Do not trail the relative humidity sensor cable on the ground**
**and do not run alongside or parallel to cables carrying mains voltage.**

# Operation:

## OPTION 1 TIMER ONLY

By disconnecting the humidity sensor the controller can be used as timer with no sensory (humidity) feedback. If for example the Wean Minutes timer is set to 10 minutes the Fog Timer length timer set to 10 seconds, after the 10 minute period the fogging valve will be on for 10 seconds. The manual push to fog switch is always active.

## OPTION 2 FOGGING ONLY

Set the Wean Minutes timer to zero, when the humidity sensor is calling for fog the Fog Timer runs for the time set. If HDR1 is selected, the humidity sensor, when satisfied, will override the Fog Timer.
If HDR2 is selected fogging will run for the time set by the Fog Timer, irrespective of whether the humidity sensor is satisfied.

## OPTION 3 FOGGING AND WEAN

If the Wean Minutes timer is set at l0 minutes, the Fog Seconds timer set at l0 seconds and the humidity sensor is calling for fog; after l0 minutes the Fog timer is initiated and opens the solenoid valve. The Fog timer will run for its full length of l0 seconds as long as the humidity sensor is calling for fog. If HDR1 selected and the humidity sensor is satisfied, during the l0 seconds period, the humidity sensor will override and turn off the Fog timer. If HDR2 is selected the fog will run for the time set by the Fog Seconds timer.
Relative humidity is set by the front panel mounted Humidity control. Clockwise increases the desired humidity level, anti-clockwise decreases the desired humidity level.
The manual burst push switch will operate the Fog timer for the time indicated on the scale, but only when the humidity sensor is calling for fog.

<u>The Timer/Continuous switch</u>
When this is in the "timer" position the unit is controlled by the humidity sensor, when in the "continuous" position the solenoid valve is on continuously.

Making the humidity set point lower reduces the frequency of fogging, making the humidity set point higher increases the frequency of fogging, especially when HDR2 selected.

With HDR2 selected, the manual burst push switch will operate the Fog timer for the time indicated on the scale - if HDR1 selected the humidity sensor will override if the humidity has exceeded set point.

Operational Hints

To check the satisfactory operation of the unit, do the following;

1. Timer/Continuous switch is in "Timer" position.
2. Turn Wean Minutes time to max.
3. Select a Fog time.
4. Slowly adjust R.H high, until R.H sensitivity indicator is extinguished.
5. Push manual burst, solenoid valve should be on for Fog Seconds time.
6. Check that the R.H sensor is satisfied and the green sensitivity LED is illuminated
7. Push manual burst, nothing should happen.
8. Turn interval to zero and set R.H high, Fog time will initiate
9. Select continuous position solenoid valve should be permanently on.

**Technical Specifications:**

1. Integral 3-way mains terminal block connected to a 240V ac 50/60 Hz supply
2. Safe 24v AC 50/60 Hz to solenoid valve. Output rated at 0.5 amp.
3. Wean timing range from 0 seconds to 30 minutes.
4. Fog Seconds timer range from 0 to 10 seconds.
5. Can be used solely as a fogging controller.
6. Timer or Continuous control, switch selectable.
7. Manual trigger forfog burst.
8. Adjustable humidity control from 0 to 100% R.H with LED indication.
9. Fused on primary input and secondary outputs.
10. Fogging output indicator.
11. Accurate timing by micro controller
12. Smooth R.H setting control
11. Dimensions L 150mm W 110mm D 80mm

# ELECTRICAL CONNECTIONS FOR FOG WEAN UNIT

**WE STRONGLY ADVISE THE USE OF AN E.L.C.B. ON THE MAINS SUPPLY TO THIS UNIT**

Unscrew the four plastic corner screws and with great care remove the 14 way IDC cable connector from lower P.C.B. do not put any undue strain on cable.
Mount base of box utilizing the mounting points shown in **Fig1**.

A fused mains supply of 240v needs to be connected to TB1 3 way terminal block labelled:
Live 240Vac
Neutral
Earth
Live fused at 500mAmp, slo blo

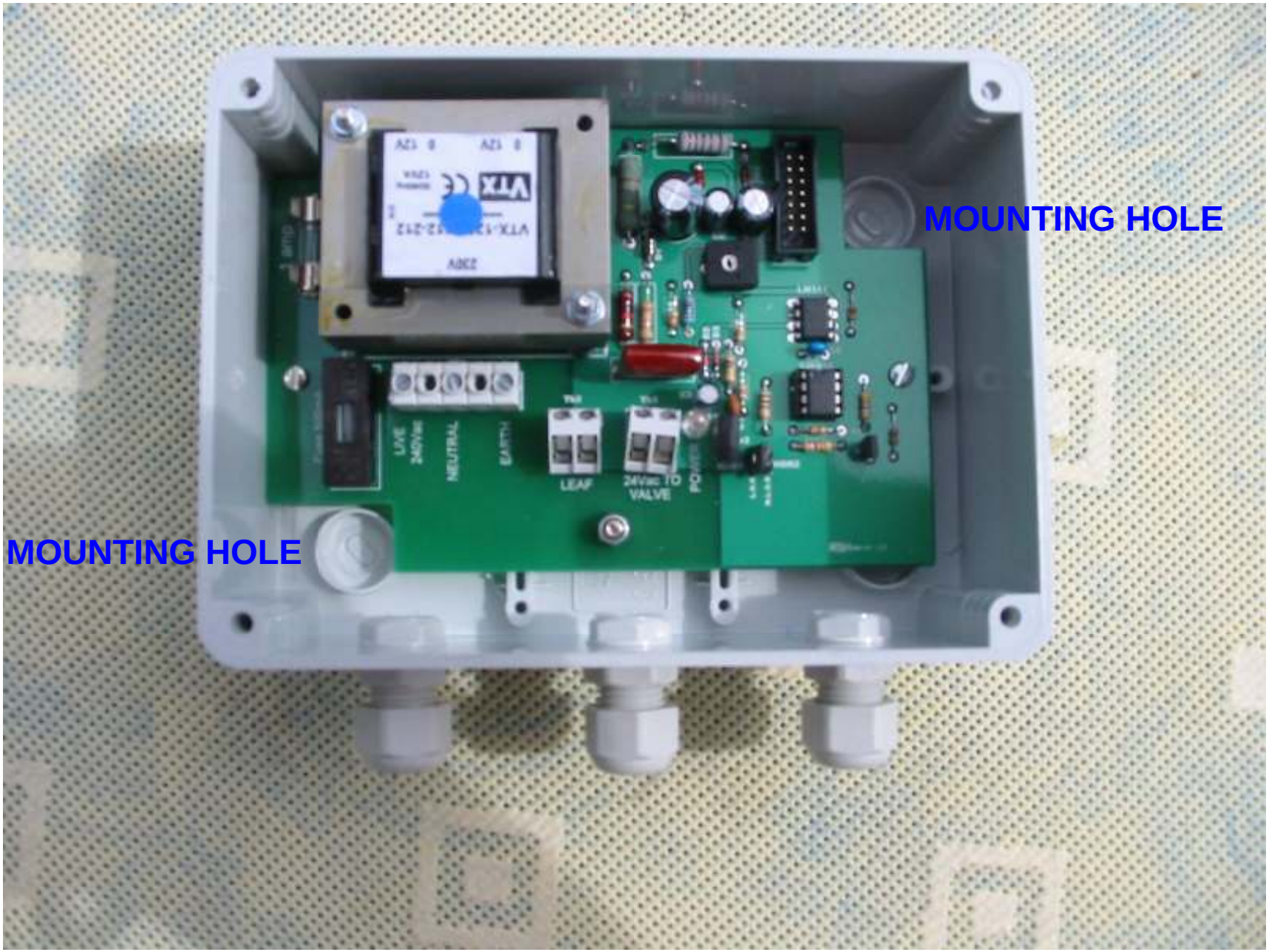
Valve Connection
Valve must be of a 24V a.c. type, maximum rating 6 watts.
Connect to TB3 labelled '24Vac to valve' using 2 core cable rated at 3 amps size 7/0.2 mm squared

Connect the humidity sensor to TB2 terminal block labelled "SENSOR".
DO **NOT** OVERTIGHTEN the terminal screws as this will damage the copper track on the PCB.

**SEE ATTACHED DIAGRAM FIG 2.**

Upon completion of wiring, reconnect the 14 way IDC connector, it is biased and can only connect one way, **DO NOT FORCE**, look at the key which is a raised bump and connect to the header with the corresponding cut out. Also bend cable to the right, for clarity please refer to **FIG 3.**

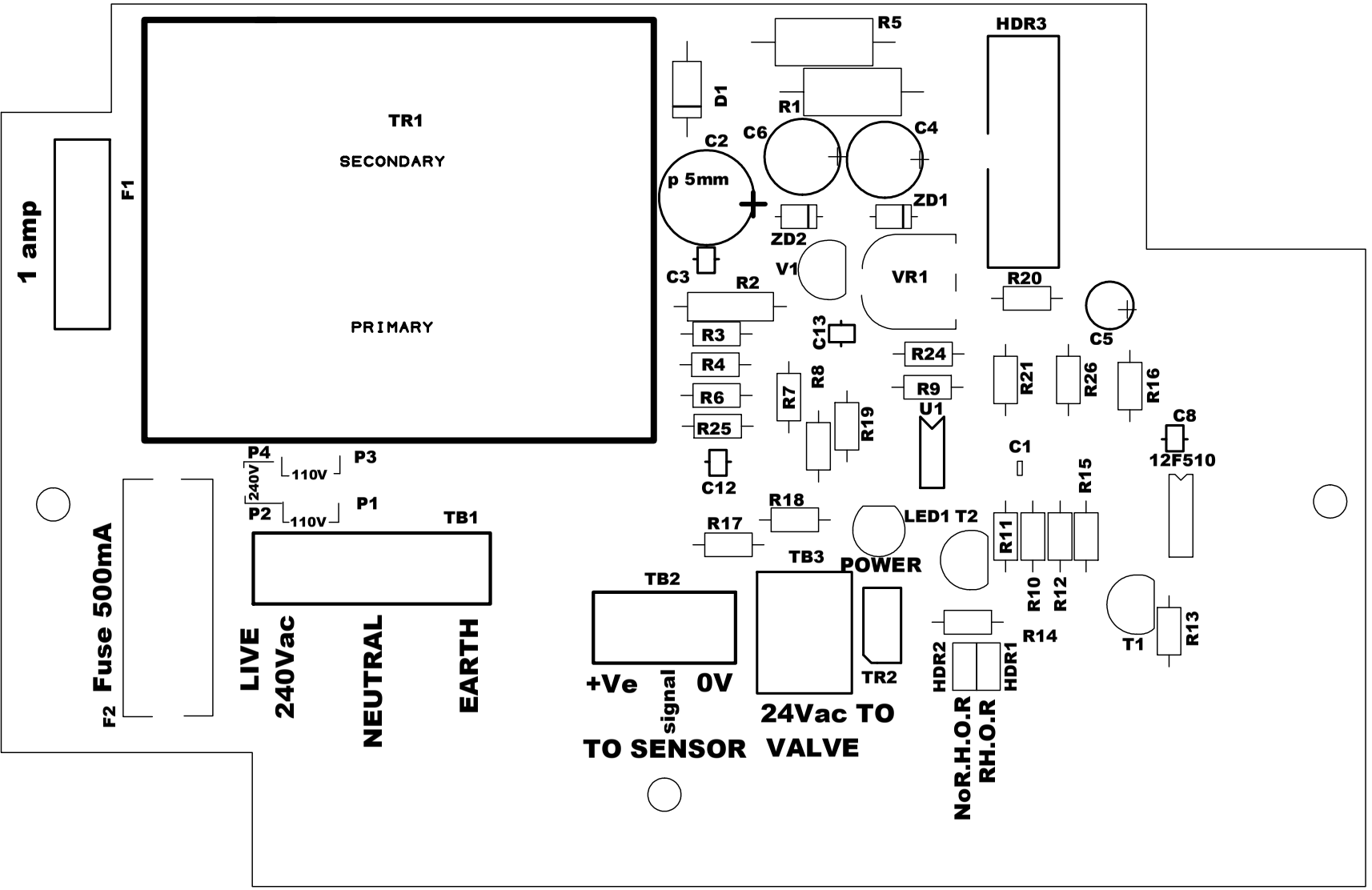
# FIG 1


MOUNTING HOLE
MOUNTING HOLE
LIVE 240VAC
NEUTRAL
EARTH
LEAF
24Vac TO VALVE
POWER

# ELECTRICAL CONNECTIONS FOR THE R. Humidity

**Last edit 12. 02. 22.**

FIG 2




MAINS CONNECTIONS

BROWN LIVE 240Vac

BLUE NEUTRAL

GREEN EARTH

ENSURE ALL CONNECTIONS ARE FIRM BUT AVOID OVERTIGHTENING

STANDARD VOLTAGE TO FOGGING VALVE IS 24Vac

RECOMMENDED CONDUCTOR SIZE 7/0.2mm SQUARED

**FIG 3**


BEND CABLE TO THE RIGHT
AS SHOWN HERE
LIVE
NEUTRAL
EARTH
LEAF
VALVE

Hosetail connectors RS Stock146-3183

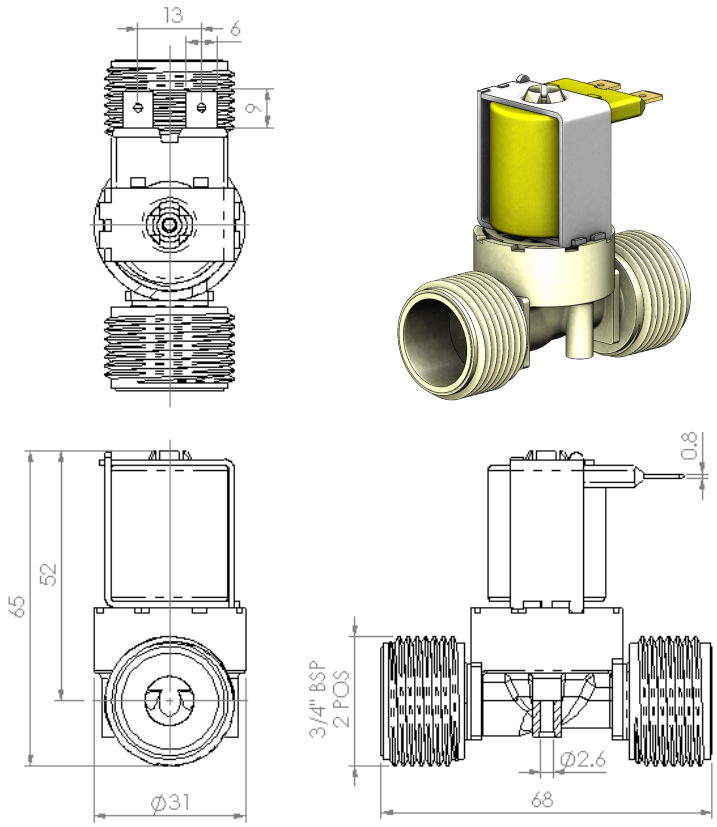
<-------- Direction of flow

ENGLISH

Datasheet

# RS Pro Solenoid Valve
# 2 Port, NC, 24v AC/DC, ¾” BSP

## RS Stock No: 1904137




| SPECIFICATIONS: | |
|---|---|
| VOLTAGE: | 24V |
| FREQUENCY: | AC/DC |
| POWER DRAW: | (2.8w at 12VDC) (9 w at 24Vac) |
| COIL INSULATION: | CLASS F (140°C OPERATING TEMPERATURE) |
| AMBIENT TEMPERATURE: | 60°C Max |
| MEDIUM: | Potable water 90° Max |
| DUTY CYCLE 100%: | Tu 60°C, Tm 25°C |
| DUTY CYCLE: | 3min ON / 5min Off - Tu 60°C, Tm 90°C |
| OPERATING PRESSURE: | 0.2 - 10 Bar |
| | |
| EMC: | Fully Compliant |
| APPROVALS: | EN 60 730-2-8, WRAS, ACS. |
| TERMINALS: | 6mm x 0.8mm Male tab terminals (x2) |

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## DECLARATION OF CONFORMITY

Name of manufacturer or supplier: E&TS Ltd
Full postal address including country of origin: 40 Acreville Rd, Bebington, Wirral, CH63 2HY U.K.
Description of product: Relative Humidity Controller
Conforms to the following product specifications:

**Low Voltage Directive 2006/95/EC**

Standard EN61558-1:200 – A1:2009+AC:2006 - 08

**Safety** EN 60950-1:2006+AC:2011+A11:2009+A1:2010+A12:2011+A2:2013
IEC 60950-1:2005+A1:2009+A1:2012+A2:2012

**EMC and harmonised European and national standards**

**Directive 2014/30/EU**
Emissions EN55032-2012AC:2013
Immunity EN55024-2010

**RoHS**

This designated product is in conformity with the European Directive: 2011/65/EU
And does not contain substances which are listed as hazardous in EEE RoHS 2
Place of Issue: Bebington
Date: 31. 01. 2019
Name of authorised representative: John W Walker
Position of authorised representative: Managing Director
Declaration:
I declare that as the authorised representative, the above information in relation to the supply/manufacture of this product is in conformity with the stated standards and other related documents following the provisions of EEC Directives.
Signature of authorised representative:…….