



CROPSCAN 1 MK.2

— **Farm Electronics** —

Operator Instructions



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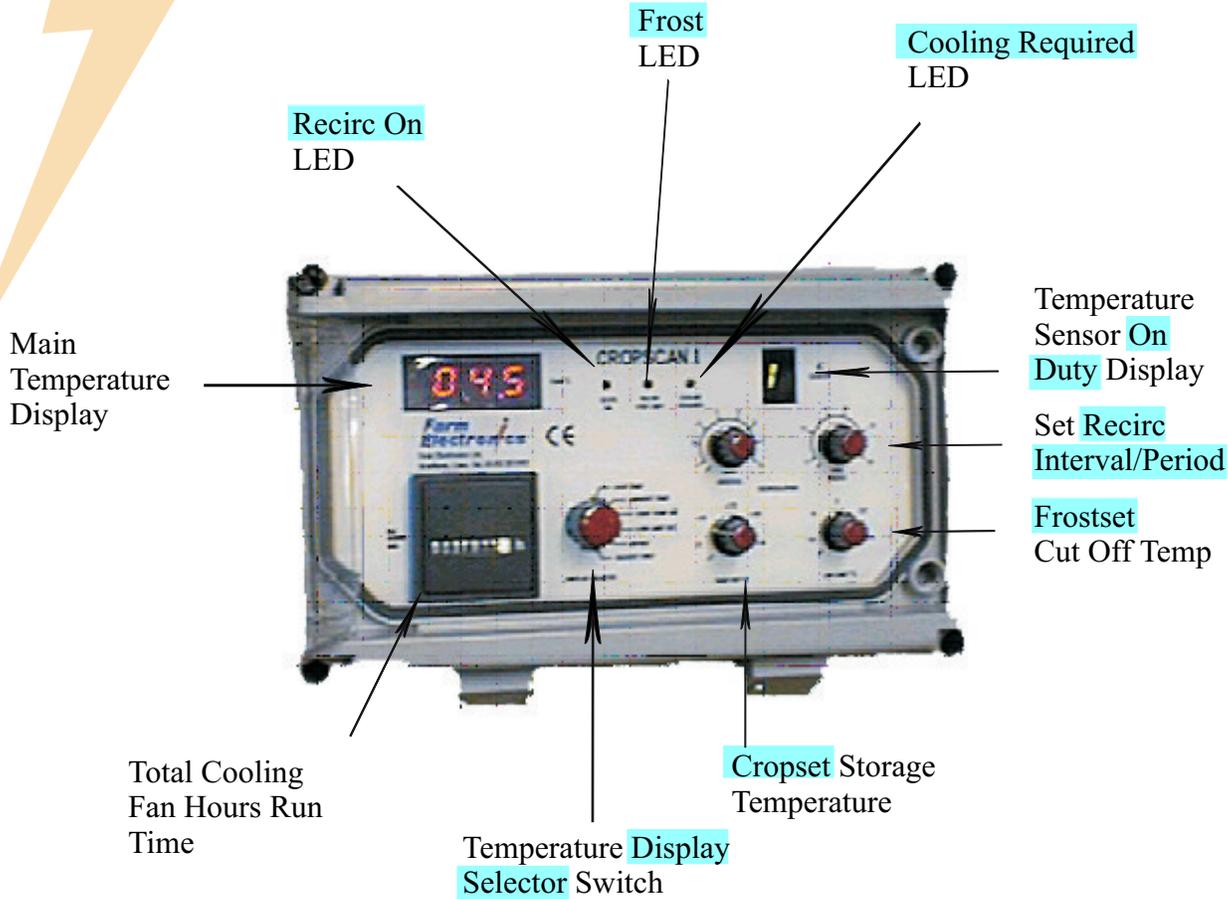
Instruction Code:
Temp/CS1mk2/0301

Crop Storage Equipment



CROPSCAN 1 OPERATOR INSTRUCTIONS

Key to Settings and Displays



The Cropscan 1 has 3 small Led indicators to show details, their meanings are described below.

- RECIRC ON - Will illuminate when Fans are running in Recirculation.
- FROST - Will illuminate when a Frost condition is detected.
- COOLING REQ. - Will illuminate when a sensor requiring cooling is detected.
NB. This only indicates that there is a demand for cooling, not that cooling is possible or taking place.



CROPSCAN 1 (MARK 2) (continued)

UNIT SETTING AND OPERATION

Set required time interval between recirculation on the **Interval Hrs** dial. (Adjustable 1-8hrs).
Set required fan run time for recirculation on the **Period Mins** dial. (Adjustable 5-30mins).

Readout only - This selection will lock the display to readout of crop temperatures only. All relay output functions are disabled.

OPERATION

When a Crop Sensor is found above **Cropset** level, the temperature is compared with ambient. If it is 2 degrees or more above the ambient temperature cooling is initiated. Cooling is continued until this differential is reduced or the crop sensor/s is cooled below the set point.

Hot sensors can be seen when scanned, by the Green **Cooling Required** LED which will illuminate.

A twelve minute run on timer is initiated each time cooling required is called for.

If the ambient Temperature falls below the **Frostset** level cooling will immediately cease as the ambient temperature is now considered to be too low to safely use for crop cooling. When the ambient temperature rises up again cooling may re-start if a demand still exists.

Frost is indicated by the Red **Frost** LED.

During periods when Ambient Cooling is not required or there is a Frost condition, the recirculation function will come into operation. The interval time will begin to elapse. If this occurs the cooling fans will run on Recirculation only for the time period set on the Period timer. This function will continue to cycle Off and On until interrupted by an Ambient Cooling fan run. If the interval timer has not completed its total time when interrupted it will begin again from zero when Ambient Cooling ceases.



CROPSCAN 1. (MARK 2)

OPERATOR INSTRUCTIONS

GENERAL DESCRIPTION OF UNIT FUNCTION

The controller is a scanning thermostat capable of scanning up to 8 No. Crop Sensors. As these sensors are scanned, the actual temperature of each crop sensor is displayed in turn on the Red LED display, in degrees C. The sensor is shown on the Green **on duty** LED display (1-8). The unit spends approximately 5 seconds on each sensor.

Desired crop storage temperature can be pre-set using the **Cropset** dial on the front fascia of the unit. the low limit ambient cut off temperature **Frostset** is set in the same way.

Display of crop temperatures, ambient temperature, crop and frostset points can be selected using the **Display selector** switch.

An in-built **Offset** (2 degrees) ensures ambient temperature is cooler than the highest Crop Temperature sensor by at least the offset level before cooling is initiated.

Recirculation of the store air is initiated on a timed interval/period basis. The frequency of recirculation is determined by the operator by setting the desired time on the recirculation **Period Hrs** and **Interval Mins** dials.

The total cooling fan running time is recorded by an hours run totaliser on the fascia of the Cropsan 1.

UNIT SETTING AND OPERATION

Select **Cropset** on the display selector, adjust **Cropset** dial to to desired crop storage temperature on the display.

Select **Frostset** on the display selector, adjust **Frostset** dial, to minimum acceptable cooling temperature on display.

Return display selector to **Croptemp** position.

The unit will now control crop temperature based on these settings.



CROPSCAN 1 Mark 2) (continued)

GENERAL POINTS TO NOTE

Ensure all crop sensors **plugged into the junction box** are always in the crop.

Unplugged crop sensors will be ignored for control purposes. The system can operate successfully on only one crop sensor if required.

At the end of the storage season always coil up sensors and store in a safe, dry place. Do not skewer potatoes with sensors.

Either drop sensor down pre-positioned tubes in stack (bulk) or bury sensors under crop (box).

Always leave control unit switched on even when not in use. This will maintain electronics in a sound dry condition. Select **Readout Only** when not in use.

The display selector switch would normally be left in the **Croptemp** position when running system in automatic. This will show the temperature of each crop sensor in turn as it is scanned.



CROPSCAN 1 (Mark 2) (continued) Unit Configured for Single live Outputs

INSTRUCTIONS FOR INSTALLATION

GENERAL

Screw the unit to a firm flat surface using the external black brackets on the casing.

Try to ensure the unit is mounted at operator eye line for ease of viewing temperature readouts etc..

The unit requires a 240 volt ac, 50Hz power supply fused at 5 amps (max).

Output connections depend on the complexity of the installation. (See main terminal function list).
NB. On installations using a FE starter panel the Cropscan unit will be pre-connected to this panel in the factory.

In principle however Cooling, Recirculation Louvres Open and Louvres Close give a single live output when the controller wishes to activate these functions.

The common of these relays can be linked to any voltage up to 240 v AC maximum to suit application. (NORMALLY 240 VOLT AC 50HZ).

A low voltage output is provided for additional safety cut off if required (i.e.. Remote Frost Stat)
This cuts off the cooling control outputs if broken. If not required a permanent wire link should connect these two terminals.

Up to 8 Crop Temperature Sensors can be connected to the controller. This via an 8-way or 2 x 4-way junction boxes normally positioned centrally within the store and linked back to the Cropscan 1 with a multicore cable to the 15 way Dee socket on the side of the unit. Avoid running near mains cables where practical. If run alongside, a 50mm gap should be maintained.



CROPSCAN 1 (Mark 2)

INSTALLATION INSTRUCTIONS (Continued)

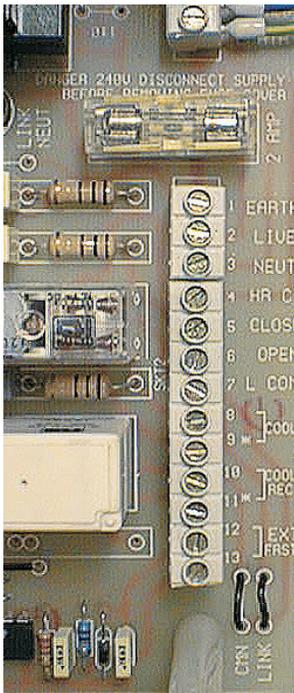
The Ambient (outside) sensor plugs into its own single blue socket on the side of the Cropscan 1 enclosure.

This sensor would normally be positioned near the air intake point using the stand off bracket provided.

Avoid fixing in a location which is subject to prolonged sunlight and would therefore cause the unit to see higher than average ambient air temperatures.

Terminal Connections - Unit Configured for single outputs.

(Mark 2 Power/Relay PCB)



- 1 — Earth
- 2 — 240 v ac
- 3 — Neutral
- 4 — Input to Hours Run Totaliser 240v ac
- 5 — Louvres Close Output
- 6 — Louvres Open Output
- 7 — Relays Common Input (max 240 v ac)
- 8 — Spare
- 9 — Cooling Output
- 10 — Spare
- 11 — Cooling and Recirculation output
- 12 — External frostat cut off Link (normally made)
- 13 — Break with external contacts to disable unit (Low voltage)

Notes:

Maximum Relay switching load = 1 Amp Resistive.

Louvre Relay Contacts have Arc Suppressor networks fitted which may cause small control relays to hold in off load. The relay coil loading therefore needs to be greater than 20 ma.

Output Voltage of Terminals 5, 6, 9 and 11 = Common Input Voltage on Terminal 7.



CROPSCAN 1

INSTALLATION INSTRUCTIONS

Mounting of Ambient Temperature Sensor Bracket

This bracket is provided for locating the Ambient Temperature Sensor. It spaces the sensor off the wall fabric the store helping to obtain a more accurate ambient air temperature reading.

It is normally located on the same wall as the main air intake to the store.

East or West facing walls are less desirable, due to increased direct - sunlight.

