

Checking Temperature Sensors

DO check readings regularly - at least once a week.
DO NOT rely only on the value being what you are expecting.

DO NOT overheat sensors using a naked flame or other source of heating. This will damage the sensor permanently and cause it to misread.

A control or alarm system is only as good as the information it gets. If the information is wrong, it will do the wrong thing.

A regular check on temperature sensors is the best way to reduce the risk of errors due to faulty readings.

Dicam temperature sensors are robust, reliable and accurate, but - apart from death and taxes - there is nothing on this earth that can ever be guaranteed 100%.

Most sensor reading problems are due to connection or wiring problems - such as wet junctions. But whatever the cause of an error, it's important to detect and rectify the problem as soon as possible.

Test Procedure

- 1 Look at the reading on the Dicam unit display.
- 2 Check it's the value you were expecting.
- 3 Compare it with another reading - see below.
- 4 If the readings differ by more than a couple of degrees, investigate and correct immediately - make alternative arrangements for safety of stock if necessary.

Looking at the readings

The best way to check the readings is using Test : Sensors. In Test : Sensors you can see all the sensors being used by the particular controller.

For each sensor it shows something like :

SENSOR	CH : 3
RM2SEN1	23.6C

RM2SEN1 is the "name" of the sensor - in this case, it's Room 2 Sensor 1.

CH : 3 shows which terminals the sensor is connected to. In this case, it's sensor input 3 on this unit. An indication such as CH:30/1 indicates it's a remotely connected sensor (see Networking).

CH:NONE means that the program allows for this sensor, but no sensor has been installed, so no reading is shown.

23.6C is the reading from the sensor. In this case, it's 23.6° Celsius. If it has an F instead of C, the reading is °Fahrenheit.

A reading of [----] means there is no reading from the sensor. This is a danger sign - call your service electrician right away.

Comparing the reading

There are three basic ways to check that reading the Dicam unit is showing is accurate :

- A separate thermometer
- Your own estimate
- Another Dicam sensor reading

If you have a separate thermometer in the room, this is quite a useful check. The main drawback is that ordinary thermometers are not very accurate. Typically only within 1 or 2°, and may be as much as 5° out. (The main cause of inaccuracy on low cost thermometers is that they move with respect to the printed scale - with care, you can correct this.)

The other drawback is the settling time of the thermometer. For example, if you bring in your glass or hand held digital thermometer from outside the room, it may take as much as 10 minutes to settle to the right value.

Your own estimate - with practice, and where feasible - can be surprisingly accurate. Most people can estimate to within a degree or two - just as good as low cost thermometers - and it's very quick.

The only drawback is that it only works in the temperature range you're used to, and only if you can directly experience the temperature.

But it's probably the best method for routine use.

Comparing the reading with a sensor in the same room is also very good. This is the method the Dicam unit uses itself - in the Sensor Variance function.

If two sensors are in the same room - and even better if they are in the same sensor probe (TS44 sensors) - and read very similar values, the chances of both being wrong are very slim. (You should make another check - such as your own estimate or a thermometer - occasionally as a backup.)

Dicam sensors - when working correctly - are all within 0.5°C (and typically much closer than this). So if the Dicam sensor says 20.5° and your thermometer says 22°, you can regard the Dicam sensor as showing the right reading.

Warming up the sensor

Warming up the sensor "to see if it's working" is NOT useful except in one circumstance (see below).

Unless you warmed up the sensor to a specific temperature (using a precision calibrator, or stuck it in your

mouth - which is unhygienic) you couldn't know how much you had warmed it up. You could see the reading change, but you couldn't tell if it was the right reading.

The only time warming the sensor is useful is to check which sensor is which. If a sensor is wired to the wrong terminals - connecting Room 2 Sensor to Room 1 Sensor terminals, for example - can produce odd results.

If you suspect a sensor may be miswired, or if you're not sure which sensor is which - Warm each sensor very slightly in turn, and check which reading changes, using Test : Sensors.

DO NOT heat up a sensor using a flame, or anything similar. Overheating the sensor will cause a permanent change in the reading, with irreparable damage.

Networking

Dicam sensors can be networked.

That means they are connected to one Dicam unit, but the reading may be used by another Dicam unit.

By this method, a Dicam program can use more sensors than it has sensor terminals. (A Dicam unit has 8 sensor terminals.)

It also means that a reading from one sensor can be "shared" by several Dicam units. For example, outside temperature (EXT readings) is common to all the units, so there's no need to install an outside sensor for every

one. The sensor is connected to just one unit (usually the Netmon), and "broadcast" so all the other units can read it.

You can tell if a sensor is a networked (remote) sensor by looking in Test : Sensors. Sensors connected directly to the unit have a CH: number between 1 and 8. Sensors connected over the network have a CH: number such as 30/1 (meaning Unit 30, Input 1.)

For networked sensor readings, the unit where it's connected must be running correctly, and network communication must be functional. For example, if the Ext sensor reading is coming from Unit 30, but Unit 30 is switched off, no sensor reading will be obtained.

(The remote Dicam unit must be operational, but it does not need to active - for example, it's room might be deactivated.)

Dual (TS44) Sensors

TS44 sensors contain two sensor elements in a single housing. So you might have two readings, although you only seem to have one sensor probe.

Being in one housing, they will warm and cool at the same rate and should always read the same (within the accuracy of the sensors). So if you see readings from a dual sensor which differ more than a fraction of a degree, it indicates a fault in the sensor or wiring.