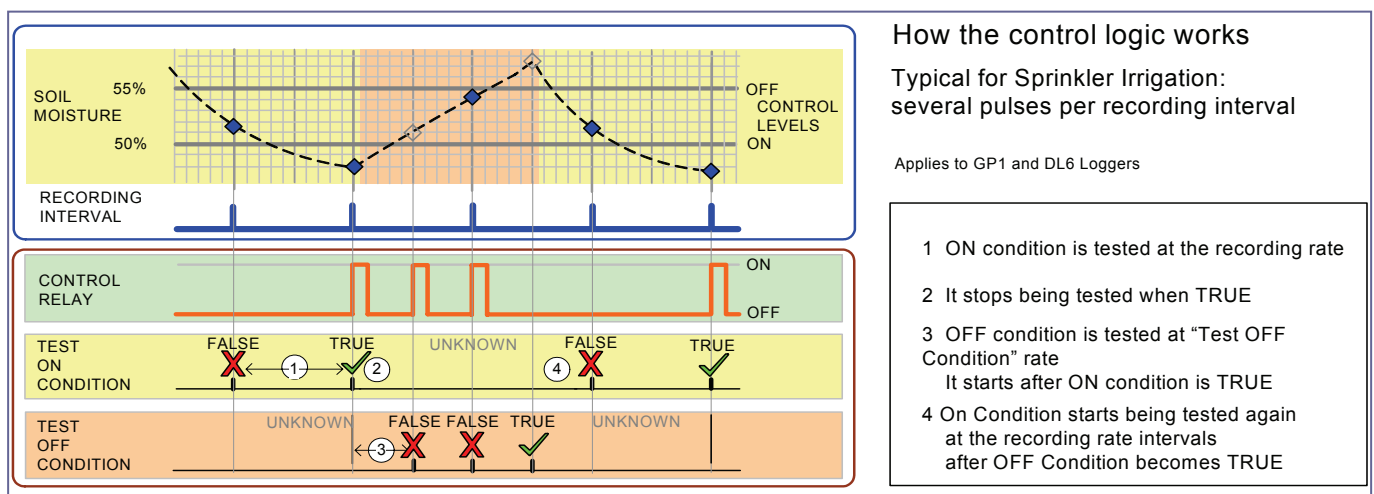


# How the DeltaLINK Control Logic Works

## Simple Pulsed Irrigation

This diagram illustrates how the DeltaLINK control logic works when the GP1 or DL6 logger is used for irrigation control. The irrigation is based on the soil moisture level. This is more efficient than simple timer-based controllers. Time of day can however be added to the conditional logic, to prevent watering at night, for example.



In this example:

The control levels have been set arbitrarily 50 and 55% volumetric water content.

The water comes on if the soil is less than 50% and stays on till the soil reaches 55%.

When the ON condition is true the logger relay can be configured to irrigate with pulses of water. This helps prevent run-off, avoid puddling and prevent saturation of the top layers.

Pulsing is enabled by setting the **Enable Pulsing** check box on the **Control Page**

Pulse duration and frequency are set independent of the logging rates:

The pulse frequency is set by the **Test whether to deactivate every** parameter.

The pulse duration rate is set by the **Pulse Duration** parameter

The actual soil moisture profile may exceed the upper limit, if for instance, the soil wets up very quickly, as it may if the plant is in a small pot.

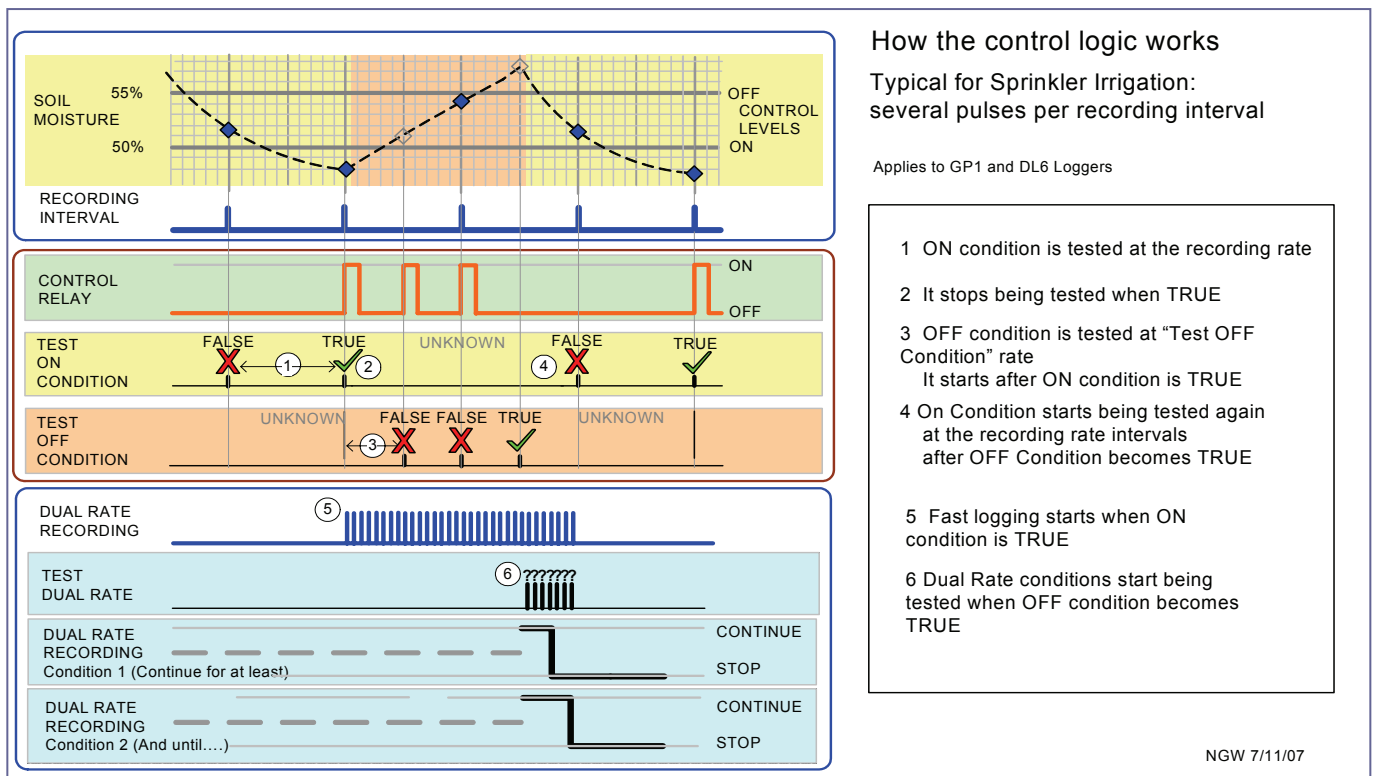
## Pulsed Irrigation with Dual rate logging

This example has the same parameters as the simple irrigation example on page 1.

Dual rate logging has been added by checking the **Dual rate soil moisture recording** checkbox on the Program **Main** page, and entering appropriate parameters onto the **Dual Rate** page

Note: Dual rate logging does not stop until both the Control tab logic is met and, in addition, the following two additional logic conditions on the Dual Rate tab are met:-

Condition 1: **Continue for at least** and Condition 2: **And until all soil moisture changes fall below** (see diagram).



## How to ignore the additional logic conditions

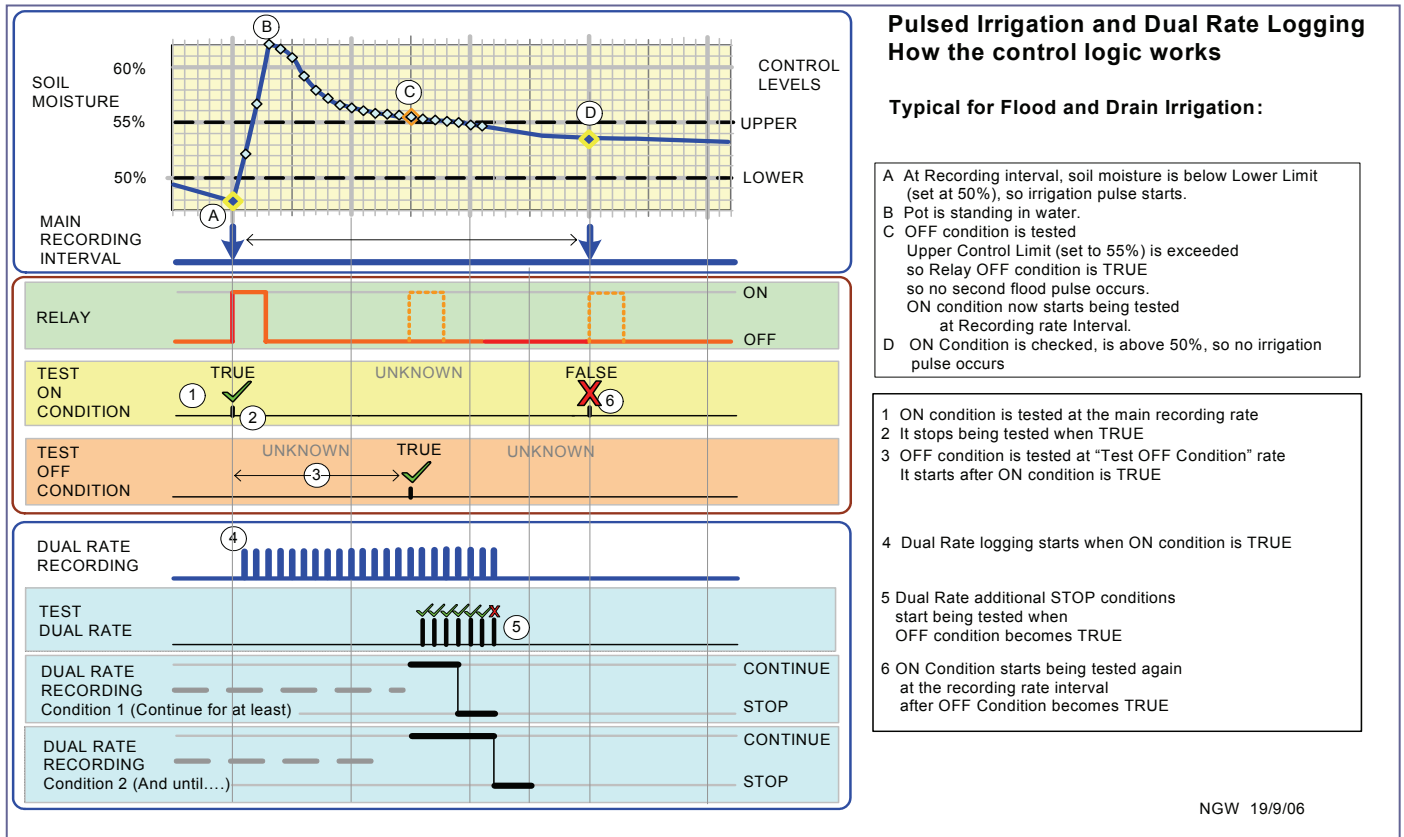
It is easy enough to set the logger to ignore Condition 1: **Continue for at least** - by setting the duration to zero.

Condition 2 is more tricky - **And until all soil moisture changes fall below**.

To have the logger ignore this condition - it is a rate of change of soil moisture - set it to an improbably high value, e.g. 3600 m<sup>3</sup>.m<sup>-3</sup> per hour.

See also the applications note: **Dual Rate Soil Moisture Recording with DeltaLINK** installed with the DeltaLINK Program Files in the Document Library, and also on the Software and Manuals CD.

### Pulsed Irrigation and Dual Rate Logging: Flood and Drain Irrigation



The control logic using DeltaLINK to control flood and drain irrigation is similar to the example given on page 2.

The wetting cycle looks different, and there is only one pulse per main logging interval.

In this example we typically have one four minute flood pulse per hour. The flood tray fills for about four minutes. Then it drains down under gravity taking about ten to fifteen minutes.

For further details see the DeltaLINK Applications Note **Flood and Drain Irrigation Control with a GP1 Logger** on the Delta-T Software and Manual CD and also installed in the DeltaLINK Program Files Document Library .