

# **Anytronics : Anylight Outstations**

## **Dusk Sensor Outstation**

### **1.0 Introduction**

The Anylight Dusk Sensor outstation is one of a range of remote outstations manufactured by Anytronics which are compatible with their Anylight interface cards normally fitted inside a dimming pack. The outstations communicate with the interface card over a simple two wire interface and generate the command codes accepted by these interface cards in order to control Channel levels and recall stored Preset scenes.

The Dusk Sensor outstation is designed to sense when dusk occurs and to switch selected Channels or Presets on either for a preset period or until dawn.

The outstation is based on a light level sensor with a variable threshold to set the light level at which dusk or dawn occurs.

#### **Key Features of Dusk Sensor outstation**

- IP67 rated external housing (can also be used internally)
- Channel / Preset addressing set on panel back
- Light level threshold adjustment
- Communication with Anylight interface card over two wire interface
- Channel / Preset address ranges 1-64
- Channel level memory
- Outstation can be configured to provide various operational modes
  - Channel on for timed period (1-15 hours) after dusk
  - Channel on from dusk to dawn
  - Channel level raised for timed period (1-15 hours) after dusk
  - Channel level raised from dusk to dawn
  - Preset scene for timed period (1-15 hours) after dusk, then off
  - Preset scene on from dusk to dawn, the off
  - Preset scene for timed period (1-15 hours) after dusk, then next scene on
  - Preset scene on from dusk to dawn, the next scene on

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## **2.0 Installation**

### **Location**

For use as a dusk to dawn sensor, the unit should not be placed in a position where it will be illuminated by the controlled lighting. For use to bring lights on for a set period after dusk, this is less critical as the on period is not light level dependent, but it is still wise to consider the effect that any other lighting may have on the sensor.

The outstation can be supplied in a ceiling mount version for installation in a 110mm hole drilled in plasterboard ceilings, or in an IP67 rated housing for outdoor use.

### **Connection**

Only two low voltage data connections are required back to the A and B buss terminals on an Anylight interface card, and these connections can be made with either polarity. Multiple outstations may be wired in parallel across the A and B buss connections with either polarity. It is important to ensure that one A and one B connection is made from each outstation back to the interface card. Do not wire the outstations in series, or they will not work. A suitably wired outstation is shown in the photo overleaf.

**Do not earth or make any other connection to these outstations.**

### **Outstation Addressing**

Each outstation can address a single Channel or Preset address from 1-64. The Channel or Preset address is set by using the Address bcd switch and switches 1, 2 of the adjacent four way DIL switch. There is potential confusion here between the outstation address setting on the bcd switch of 0-F and the resultant interpreted Channel or Preset addresses at the interface card of 1-16. To try to overcome this, a lookup table is shown below with address setting shown in the left column, and the resultant Channel or Preset addresses shown in the table.

rotary	Sw1 Off	Sw1 On	Sw1 Off	Sw1 On
control	Sw2 Off	Sw2 Off	Sw2 On	Sw2 On
address setting	resultant address	resultant address	resultant address	resultant address
0	1	17	33	49
1	2	18	34	50
2	3	19	35	51
3	4	20	36	52
4	5	21	37	53
5	6	22	38	54
6	7	23	39	55
7	8	24	40	56
8	9	25	41	57
9	10	26	42	58
A	11	27	43	59
B	12	28	44	60
C	13	29	45	61
D	14	30	46	62
E	15	31	47	63
F	16	32	48	64

Note the effect of positions 1 and 2 of the four way DIL switch beside the bcd address switch in adding 16 or 32 to the selected address.

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A further layer of address checking takes place at the interface card which might only have a valid Channel address range of 1-8, or 1-32. In this case, addresses are usually 'rolled over' so that an address of 9 is interpreted as an address of 1 in an eight Channel interface (Anylight 8). This rollover feature can be disabled at the interface card however (see Anylight 8 interface installation instructions).

DIL switch 4 selects between Channel or Preset operation. If this switch is off, the outstation will control an individual Channel at the set address. If this switch is set to on, the outstation will control Preset scenes which may consist of any number of controlled Channels.

Note that to avoid involuntary programming of scenes from this unit during commissioning, it is not possible to programme scenes using this unit. A side effect of this is that Channel commands will show up on the LCD in the Anylight unit, but that the Preset commands that turn on Preset scenes will not.

### **3.0 Operational Modes**

#### **Normal Operation**

The dusk sensor is triggered when the ambient light level falls below the threshold light level which has been set by the user (see below). When triggered it will bring on the addressed lighting either for a fixed period, or until dawn (ie when the light level rises above the threshold again), depending on the setting of the Timed Period bcd switch as follows :-

Setting	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Period(hours)	D-D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

With DIL switch X of the 2 way DIL switch off, lights are switched on and off.....

At Timed Period setting zero, when triggered, the unit brings on the controlled Channel or Preset for a minimum period of four hours, and then extinguishes them at dawn once the light level has risen above the set threshold level.

At other Timed Period settings, the unit brings on the controlled Channel or Preset for the set period of 1-15 hours, and then extinguishes it whether it is light or dark.

In all settings, the light level must remain above the set threshold light level for four hours before the sensor can be triggered again at nightfall.

With DIL switch X of the 2 way DIL switch on, more varied operation is selected.....

#### **Channel Memory**

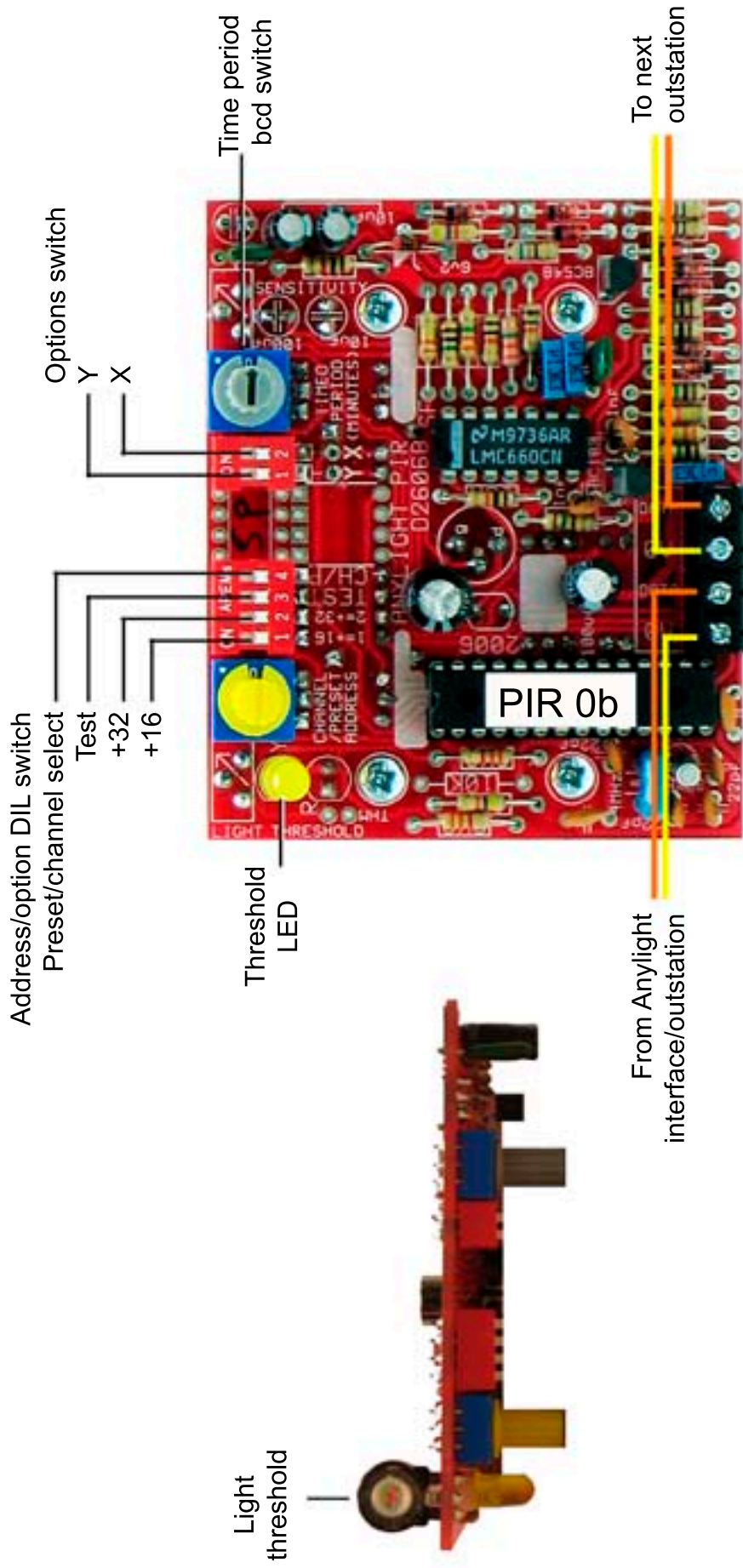
With Channel control selected (address DIL switch 4 off), the light level on the addressed Channel will be raised when the unit is triggered, (either from the current level to full on, or from off to the previously memorised level) and then back to the original level after the timed period, or at dawn.

#### **Alternating Scenes**

With Preset control selected (address DIL switch 4 on), the addressed Preset will be recalled when the unit is triggered, and at the end of the timed period (or dawn for period setting zero) the Preset at the next address will be recalled. Note that these Presets might or might not include exactly the same Channels, but for sensible operation they should include all the same Channels.



# Dusk Sensor Outstation



Light threshold

Address/option DIL switch  
 Preset/channel select  
 Test +32 +16

Threshold LED

Options switch  
 Y X

Time period bcd switch

PIR 0b

From Anylight interface/outstation

To next outstation

## Set Up Mode

If switch 3 of the 4 way DIL Address switch is switched on, the unit will enter the 'set up' mode. [In doing so, it will command the lighting at the Preset or Channel address to the day time setting (with DIL X off, lights off).] In this mode it is possible to set the threshold level defining the dusk and dawn levels.....

### Threshold light level adjustment

The light level threshold can be set using the labelled rotary preset potentiometer on the edge of the PCB. Turning the threshold preset potentiometer clockwise increases the light level at which the unit will switch the lights on. However if set too high, this will set the threshold light level at a very high value which the ambient light level will never reach, so that it will not detect dawn when the light level rises above this threshold. In this case, the outstation will only bring on the lighting once and will then be disabled, as it will never detect dawn, so **avoid leaving this potentiometer at the maximum clockwise setting.**

This enabling threshold can be set to lower and lower levels by turning the Preset control anti-clockwise. To set the threshold light level at the current ambient light level, first switch DIL switch 3 to the on (ie Set Up or Test) position, and the threshold control fully clockwise. Allow a few seconds for the unit to enter set up mode (the yellow LED should be now be lit). Turn the threshold control slowly anti-clockwise until the LED goes out, then very slowly back clockwise until it just comes on again. [Note that the integrating light level measurement has at least a one second response time, so the LED will only respond slowly to changes in light level or to the threshold adjustments.]

When the LED is just lit, the unit will switch at the current light level.

Set DIL switch 3 'Test' to off once this adjustment is completed.

### Fade rates

Normally the unit will fade lights up and down at the rates set in the Anylight system. By setting switch Y of the two way DIL switch to on, the fastest fade rate will be used by the dusk sensor instead.

## **4.0 Checking outstation operation**

After studying the above text and tables on page 2/3, change the DIL switch settings to produce the lighting control function you require.

You can quickly check for correct operation by selecting 'set up' mode (DIL switch 3) for 30 seconds, and then deselecting 'set up' mode with the unit in the dark. The lights should be brought on to night time setting within a couple of minutes. On re-entering set up mode, the lights should revert to day time setting.

By leaving 'set up' mode with the unit in the light, then nothing will happen until the unit has been in a low ambient light level for while. The unit should then trigger and bring on the night time setting lighting as the light level falls, returning to day time setting after the timed period, or at dusk.

NOTE, as above, that if you keep the unit dark whilst either

- a. leaving set up mode by setting DIL switch 3 to Off, or
- b. connecting up the TWIF interface to power up the unit,

then the controlled lights will be brought on after about a minute. This is a good way to test that the addressing is set correctly in both outstation and in the Anylight system. By entering set up mode again, the lighting can be returned to daytime setting as a further operational check.

Suggestions for troubleshooting Anylight installations are included in the Anylight interface installation notes.