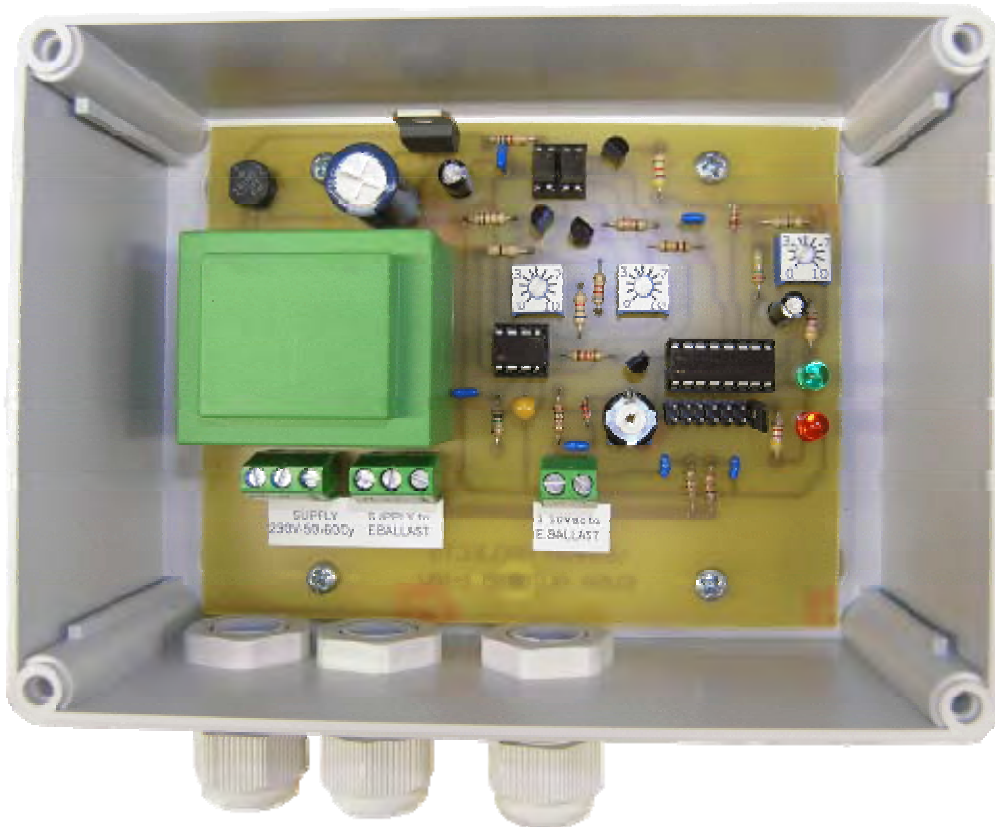


Automatic dimmer for dimmable E-ballast with 1 to 10V dc input



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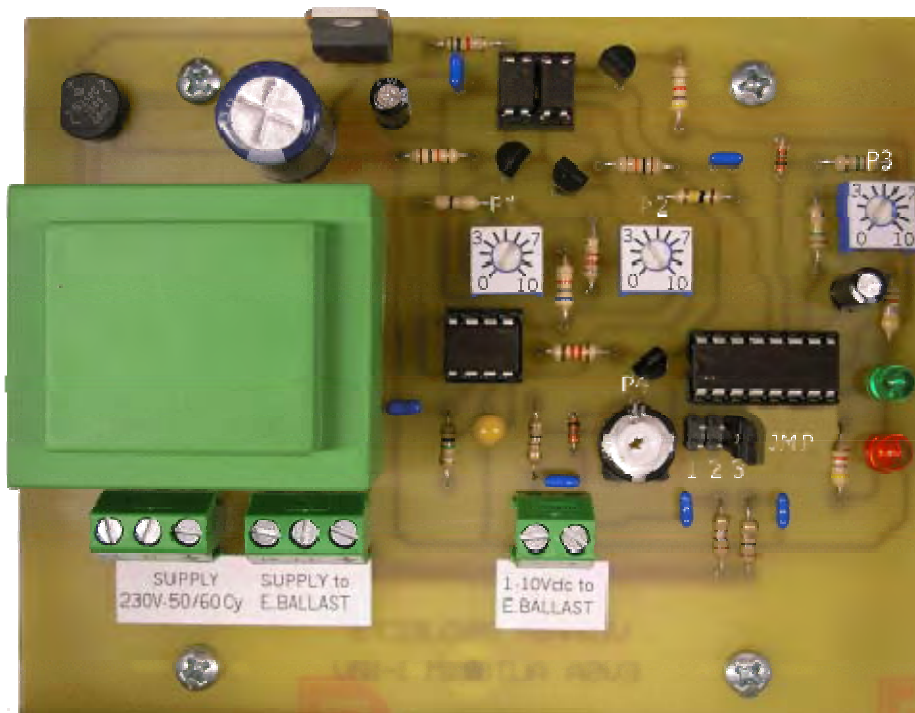
Now you can control sunrise, day length and sundown for 36, 55 and 80 watt Dulux lighting (or a combination of each) with a dimmable Electronic ballast. The system is suitable for up to 10 ballasts. It regulates the intensity from 10% up to 100%. Created as stand alone, you don't need to attach the dimmer to the computer. The dimmer is preset at 30 minutes of sunrise, 12 hours of full lighting and 30 minutes of sundown. You can change every preset value to the ones you desire. Place the dimmer behind a normal time clock (electronic or mechanical). This time clock regulates the total duration from start time till time out.

Connecting the E-ballast

Connect the necessary ballasts following the attached connection drawing. This connection drawing is also present on the inside of the box. All the 230 Volt connections should be connected in parallel, including the earth connection. All the 1 to 10 Volt dim inputs are also connected in parallel. Please pay your attention for the plus (+) and minus inputs (-). A maximum of 10 ballast's can be connected to the dimmer. Use only dimmable Electronic ballast's.

Connecting the automatic dimmer

Connect the Electronic ballast's to the dimmer as shown on the connection drawing. After that, connect a 3 core electrical supply cable with a minimum of $3 \times 0,75 \text{ mm}^2$ (AWG 18) to the dimmer (see connection diagram). The socket plug of the supply cable must have an earth pole which is connected to the earth wire of the supply cable. The supply wall socket must also have an earth connection. If not you can not use the installation.



Adjust the lighting time. [TIME ADJ. P3]

You can adjust the time that the lighting is 100% by changing the value on potentiometer P3. There is a possibility to choose from 0 to 10. Keep in mind that this time also includes the sunrise time. To get a larger spreading of time there is also a jumper field (JMP) and is numbered as 1, 2 and 3.

TIMETABEL P3 (Lighting time)

Potentiometer position	Jumper on 1 aprox. Hour	Jumper on 2 aprox. Hour	Jumper on 3 aprox Hour
0	1.56	3.12	6.24
1	1.78	3.56	7.12
2	2.70	5.40	10.80
3	3.13	6.26	12.52
4	3.63	7.26	14.52
5	4.12	8.24	16.48
6	4.69	9.38	18.76
7	5.12	10.24	20.48
8	5.68	11.36	22.72
9	6.26	12.52	25.04
10	6.40	12.80	25.60

The times in the timetable are indicative.

Jumper on 1 = time from 1.56 to 6.4 hour

Jumper on 2 = time from 3.12 to 12,8 hour

Jumper on 3 = time from 6,24 to 25,6 hour

With the jumper on 2 and the potentiometer P3 on 9 you get approx. 12 hours (12.52 hour minus the preset 30 minutes sunrise). To adjust the time more accurately you must turn the potentiometer slowly to the left or to the right. To the left the times becomes shorter, to the right the time becomes longer.

Calculation $12.52 \text{ hour} = 12 \text{ hour} + (.52 \times 60 \text{ minutes}) = 12 \text{ hour} + 31.2 \text{ minutes}$

Adjust the sunrise time **[DIM.TIME ADJ. P1 UP]**

The sunrise time can be adjusted with potentiometer P1.

There is a scale on the meter from 0 to 10.

Indicative times are on the time table below.

TIMETABEL P1

Potentiometer position	Time minute
0	7,9
1	11,6
2	17.6
3	22,7
4	31,4
5	37,3
6	43,7
7	49,3
8	56,2
9	69,9
10	75,2

To adjust the time more accurately you must turn the potentiometer slowly to the left or to the right. To the left the times becomes shorter, to the right the time becomes longer.

Adjust the sunset time
[DIM.TIME ADJ. P2 DOWN]

The sunrise time can be adjusted with potentiometer P2.
There is a scale on the meter from 0 to 10.
Indicative times are on the time table below.

TIMETABEL P2

Potentiometer position	Time minute
0	333,3
1	219,5
2	140,6
3	104,6
4	76,9
5	52,6
6	40,0
7	27,4
8	19,5
9	12,1
10	5,4

To adjust the time more accurately you must turn the potentiometer slowly to the left or to the right. To the left the times becomes shorter, to the right the time becomes longer.

Adjust the dim value
[P4 XX-LOAD]

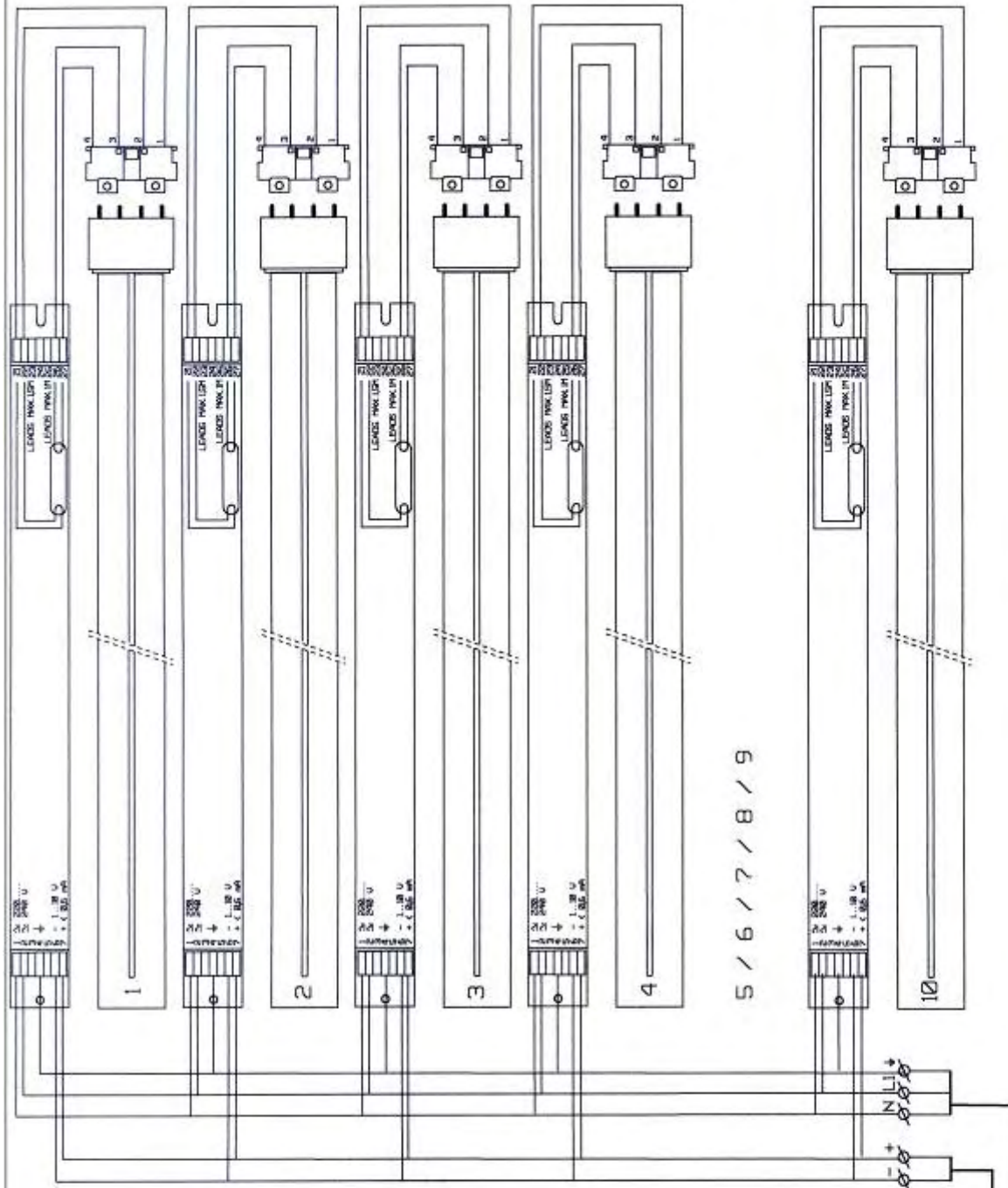
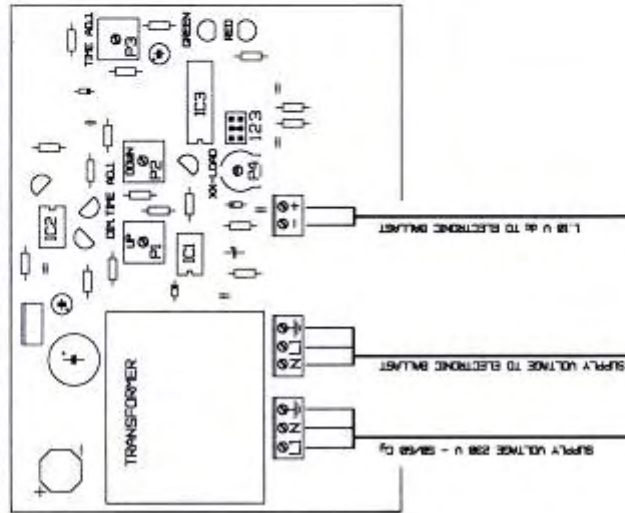
With potentiometer P4 you can slightly higher the percentage above 10% dim value.
P4 only works with a minimum of 2 electronic ballasts.
Normally the potentiometer is turned completely to the left.
Below is a table with the potentiometer completely turned to the right.
Beware that adjusting P4 has influence on the sunset time.

DIM VALUE TABEL P4

Quantity E-ballast	Dim level at start-up
2	12%
3	15%
4	18%
5	21%
6	24%
7	26%
8	28%
9	30%
10	32%

It is possible that some Dulux tubing blinks a little while started-up on 10%. This is a normal phenomenon. While the tubing is still cool the gases inside the tubing can't ionize for 100%.

AUTOMATIC DIMMING UNIT FOR DIMMABLE BALLAST



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Customer	Drawn	A. Verbrugga	Revision	Date:	Title:	Project
P1	Date	05-03-2006	A	CONNECTION DULUX-L 80 W	Equipm.	Doc./Drawing nr
P2	P4		B	WITH DIMMABLE ELECTRONIC BALLAST	Sheet	
P3	P5		C	IN PARALLEL CONNECTION TO AUTODIM		
	P6		D			