

# 538 Series

## Fluorescent Lamp Driver Unit (24V DC)

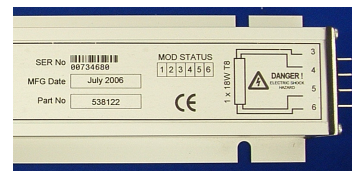
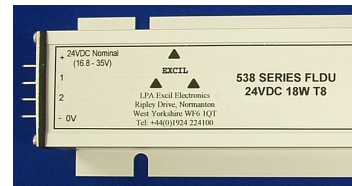


Long Life Reliability  
does not cost the earth

LPA-EXCIL ELECTRONICS

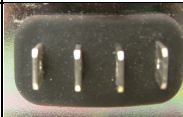
### Feature Summary

- Advanced Electronic Lamp Drive incorporates True Soft-Start technology to prolong lamp life.
- High reliability design. All variants >170,000 hours MTBF\*.
- Automatic shutdown gives enhanced passenger comfort.
- Variants available for a wide variety of different lamp types.



### Product Codes

- Due to the wide range<sup>†</sup> of options available, individual products in the 538 series range are referred to by product code in the table below<sup>†</sup>.

538 Product Range Standard Features		
Supply Voltage	24V DC	
Enclosure Type	Standard UIC555 Enclosure (Figure 1)	
Input/Output Connectors	0.25" Faston Blades x 8	

Single Lamp Variants			
Lamp Type	Product Code #	Lamp Type	Product Code #
22W CIRC.	538126	30W T8	538118
18W PLL	538142	18W T8	538122
8W T5	538134	15W T8	538130
36W T8	538110	40W T12	538145
9W PLS	538154		

Twin Lamp Variants	
Lamp Type	Product Code #
18W T8	549175
15W T8	549174
8W T5	538173

\* MTBF calculated using US MIL-217F GM standard.

† The most popular 549 series variants are shown in the table above. Other variants are available on request - contact us for more details.

## Input Specification

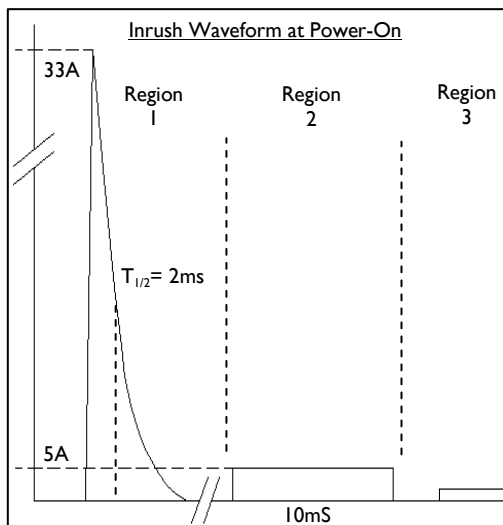
### Input Voltage and Current Data

All Variants		
Nominal Device Supply Voltage	24	V DC
Input Supply Voltage Range	16.8-32	
Input voltage limit without damage	32	

24V DC Products		
Lamp Type		Input Current Single Lamp*
CIRC.	22W	1100
	18W	900
T5	8W	400
T8	36W	1700
	30W	1500
	18W	900
	15W	800
T12	40W	1900
		mA DC

### Power On Inrush Data

All Variants		
Peak Inrush Current	33 (@ 24V DC)	A
Time to Half Value	2 (@ T=25°C)	ms



**Region 1:** All variants incorporate an inductor to limit the peak value of the input capacitor charging current.

**Region 2:** The input supply voltage is boosted to a regulated value via a current controlled process. During this process the input current is limited to 5A.

**Region 3:** The input current drops to quiescent levels until the lamp drive is activated and steady state current consumption results.

\* Input current values across the entire operational voltage range are available on request



## Output Specification\*

	All variants	
Arc Current Crest Factor†	< 1.5, all variants	
Minimum Must Strike Temp.	-30‡	°C
Lamp Strike Switch Cycles	Whole range >100,000 strikes, in accordance with UIC555-1 2.13/3.5	

## Environmental Specification

		All Variants	
Unit Weight		525	g
Dry Heat (Steady State)	RIA13 1990	70	°C
		6	Hrs
Sealing		IP65	
Shock and Vibration		BRB/LUL/RIA20	
Operating Temperature Range		-30 to +55	°C
MTBF - Ground Mobile @ 40°C (16 hours/day)		> 170,000	Hrs
		29	Yrs

## EMC Specification

The 538 Series FLDUs comply with the following standards:

- EN50121-3-2
- EN61373
- EN50155
- EN60529 to IP65

\* Further details of lamp drive output parameters are available on request.

† The 538 Series FLDU will strike the lamp without the requirement for a 'Striking Aid' within the above temperature limit.

‡ All EMC immunity tests for the 538 series comply with performance criteria 'A'

## Safety Specification

All 538 Series variants come equipped with the following protection circuitry as standard:

- DC Input voltage reverse protection (non-destructive).
- Lamp misconnection and failure protection.
- Lamp arc and electrode short circuit protection.
- Under voltage cut-off.
- Open circuit output.

## Installation Guide

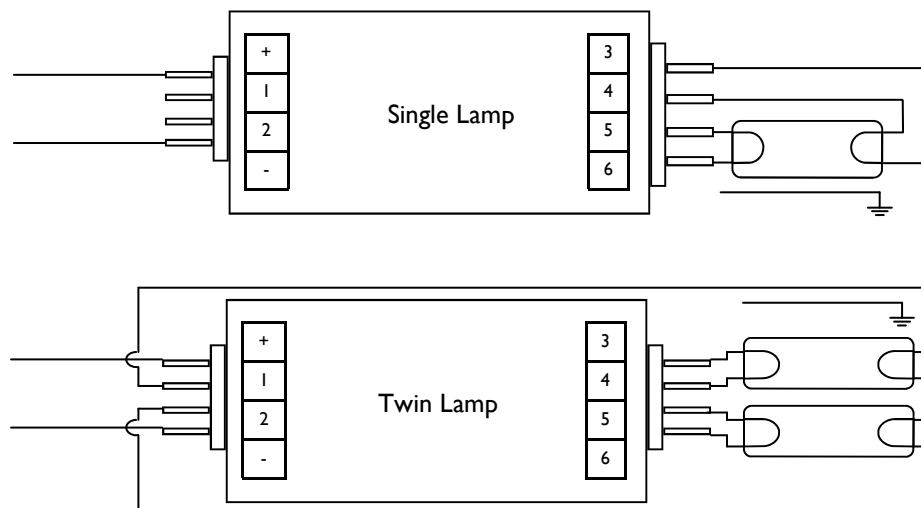
Maximum Supply Cable Impedance		
No. FLDU's	Input Voltage V DC	Impedance $\Omega^*$
1	16.8-32	0.5

Recommended Cable Size	
On input side (Supply/Control Signal)	2.5mm <sup>2</sup>
On lamp side	0.5-1.0mm <sup>2</sup>

Maximum Cable Capacitance for Optimum Performance and EMC Suppression		
Max	15pF	between two sets of lamp wires
Max	75pF	between one set of lamp wires and earth

Maximum Output Cable Length	2m
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### Installation Diagram - Faston Connector Devices





Input Connector Pin-Out		
Pin ID	Single Lamp Variants	Twin Lamp Variants
+	24V DC +ve	24V DC +ve
1	Not Connected	Electrode Lamp 1
2	Not Connected	Electrode Lamp 2
-	0V DC	0V DC

To achieve optimum performance the following output cables must be kept as short as possible:

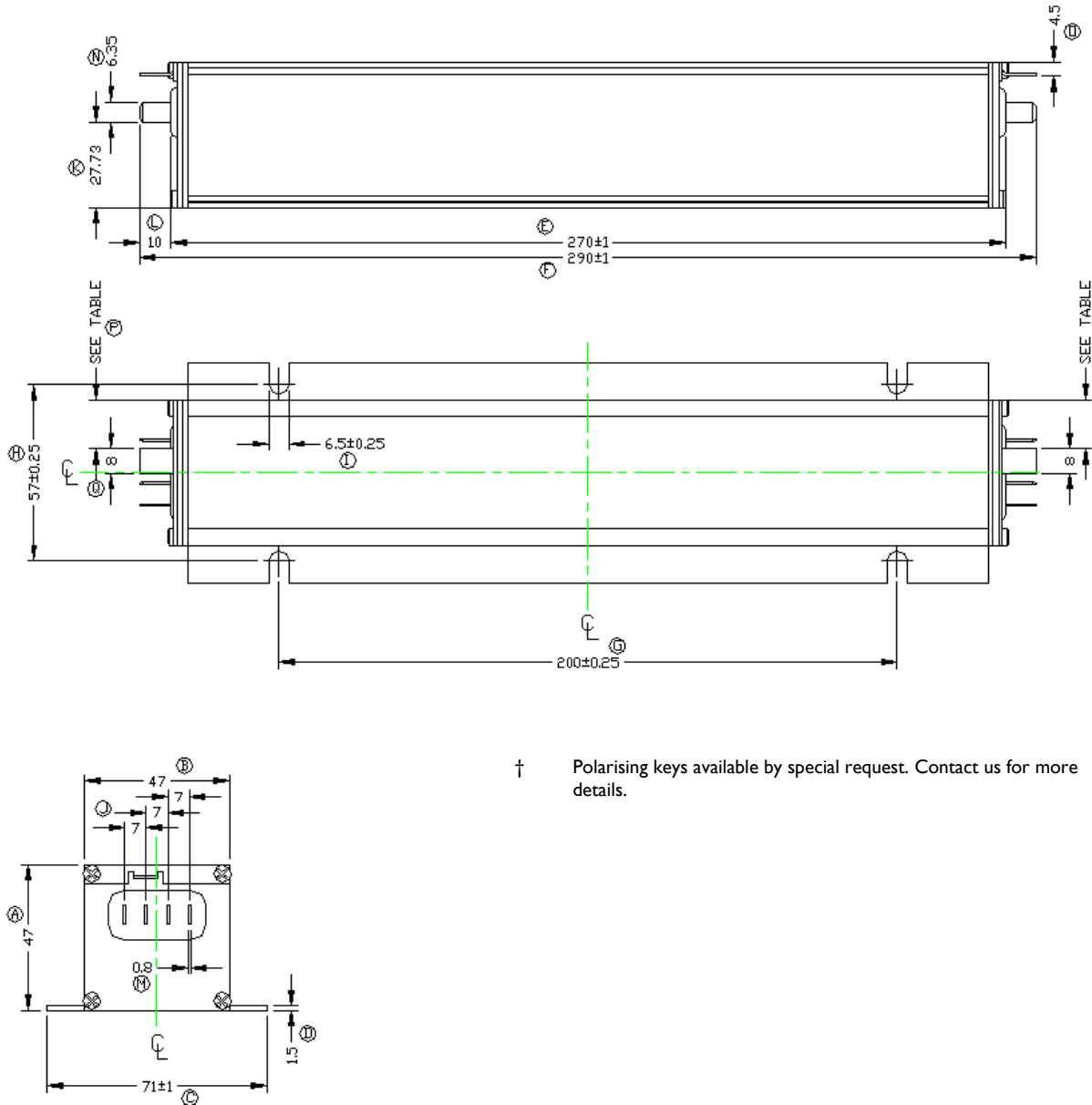
<b>Faston Blades</b>	Single Lamp	5 & 6
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\* Source impedance value MUST be divided by the number of FLDUs on each supply cable

# Mechanical Specification

All Dimensions in mm unless stated otherwise

Figure 1 - 538 Series Enclosure  
 Aluminium Enclosure, UIC 555 Space Envelope  
 0.25" Faston connectors†



† Polarising keys available by special request. Contact us for more details.

LPA-Excil makes every effort to ensure the accuracy of the information contained within this datasheet. However we reserve the right to withdraw and re-issue this datasheet at a later date.



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