442 Series

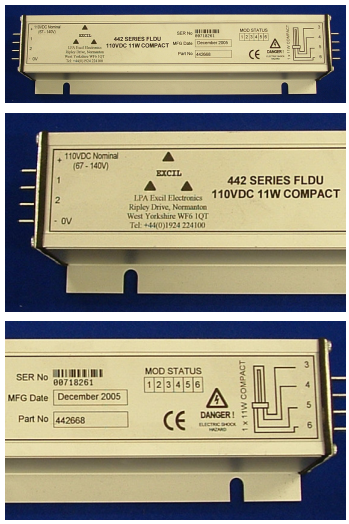
Fluorescent Lamp Driver Unit (230VAC / 110VDC)

Long Life Reliability does not cost the earth

LPA-EXCIL ELECTRONICS

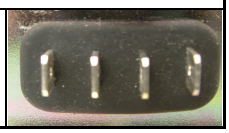
Feature Summary

- High power output — up to 70W T8 lamp.
- Advanced Electronic Lamp Drive incorporates soft-start technology, prolongs lamp life and reduces maintenance costs.
- Automatic shutdown gives enhanced passenger comfort.
- High reliability design - all variants > 130,000 hours MTBF*



Product Codes

- Due to the wide range of options individual products in the 442 series are referred to by product code.

	All Variants
Enclosure	UIC555 Enclosure (Figure 1)
Input / Output Connectors	Faston Blades x 8 

Single Lamp Products		
Lamp Type	**230VAC**	**110VDC**
18W PLL	442677	442692
70W T8	442127	442128
58W T8	442673	442144
36W T8	442655	442145
30W T8	442696	442156
18W T8	442656	442157
60W Circ		442196
22W Circ		442149
28W 2D		442158
8W T5		442632

Twin Lamp Products		
Lamp Type	**230VAC**	**110VDC**
18W PLL	442678	442685
8W T5	442147	442606
18W T8	442698	
28W 2D		442717

* MTBF figure calculated using US MIL-217F GM standard, assuming 40°C ambient temperature

Input Specification

Input Voltage and Current Data

	230V AC Variants	110V DC Variants
Operating Input Supply Voltage Range	161-264VAC RMS (50/60Hz)	67-140VDC
Nominal Input Supply	230VAC RMS (50/60Hz)	110VDC
Input Voltage Limits Without Damage	264VAC RMS(50/60Hz)	154VDC

230V AC RMS (50Hz/60Hz) Products			
Lamp Type		**Input Current Single Lamp***	**Input Current Twin Lamp***
PLL	**18W**	105	185
T5	**8W**	NA	120
T8	**70W**	300	NA
	58W	244	NA
	36W	230	NA
	30W	167	NA
	18W	99	198
		mA	**mA**

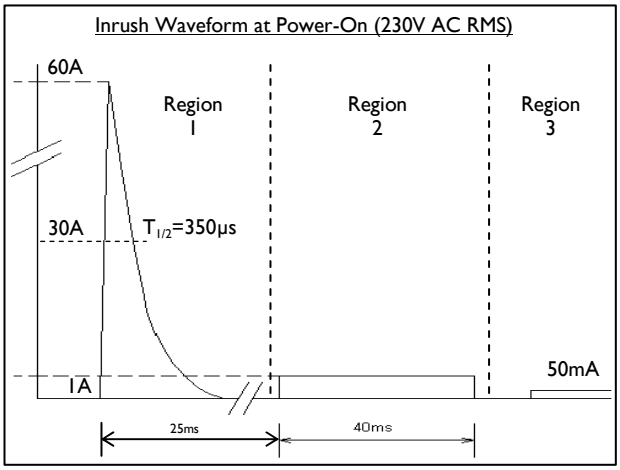
110V DC Products		
Lamp Type		**Input Current Single Lamp***
T8	**70W**	647
CIRC.	**60W**	540
		mA

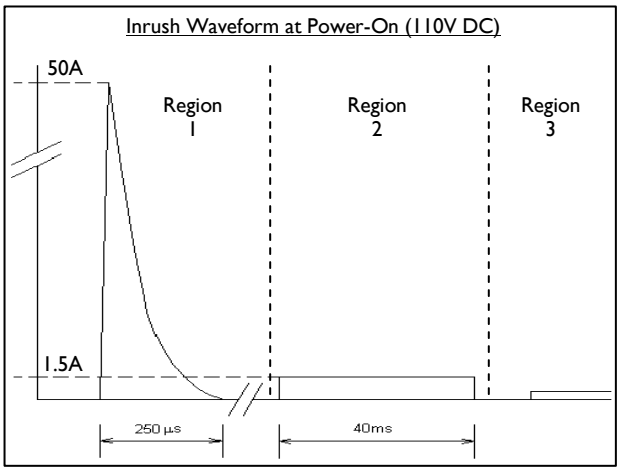
	230V AC Products	110V DC Products	
Quiescent Current— No Lamp*	50 (@ 230V AC RMS)	15 (@ 110V DC)	**mA**

Power On Inrush Data

	230V AC RMS	110V DC	
Peak Inrush	60A (@ peak sine)	50 (@ 140V DC)	**A**
Time to half value	350µs (@ T=25°C)	200µs (@ T=25°C)	**s**

Section continued overleaf





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 a fixed value.

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

Output Specification†

	230 V AC	110V DC	
Arc Current Crest Factor	< 1.5		
Minimum Must Strike Temp.	-25*	-30*	**°C**
Lamp Strike Switch Cycles	Whole range >100,000 strikes, in accordance with UIC555-1 2.13/3.5		

Environmental Specification

		230V AC	110V DC	
Unit Weight		475		**g**
Dry Heat (Steady State)	**RIA13 1990**	70		**°C**
		6		**Hrs**
Shock and Vibration		BRB/LUL/RIA20	EN50155 & EN61373/RIA20	
Operating Temperature Range		-30 to +70	-30 to +55 (70W) -30 to +70 (60W)	**°C**

* The 442 Series FLDU will strike the lamp without the requirement for a 'Striking Aid' within the above temperature limits.

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

	230V AC	110V DC	
MTBF Ground Mobile 40°C (16 hours/day)	131,000	210,000	**Hrs**
	22	36	**Yrs**
Sealing Rating (UIC 555 Enclosure)	IP65	IP65	

Compliance

The 442 Series FLDUs comply with the following standards:

- EN50121-3-2
- RIA12 (110VDC Range Only)
- EN61373
- EN50155
- EN60529 to IP65

Safety Specification

All 442 series variants come equipped with the following protection circuitry as standard:

- DC input voltage reverse protection, non-destructive (110V DC only)
- Lamp misconnection and failure protection.
- Under voltage cut-off.
- No lamp, no strike feature.

Installation Guide

Maximum Supply Cable Impedance		
No. FLDU's	**Input Voltage**	**Impedance Ω†**
1	67-80V DC	1
	80-90V DC	2
	90-140V DC	4
	161-264V AC RMS, 50/60 Hz	4

* All immunity tests comply with performance criteria 'A'.

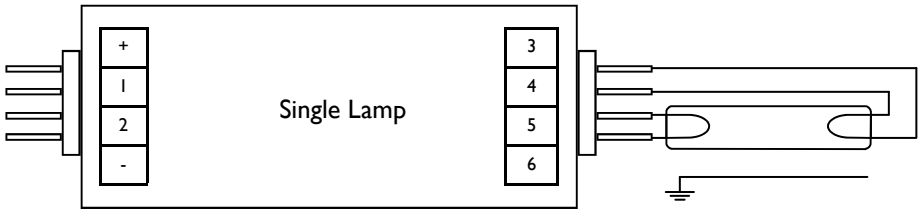
† Source impedance value MUST be divided by the number of FLDUs on each supply cable.

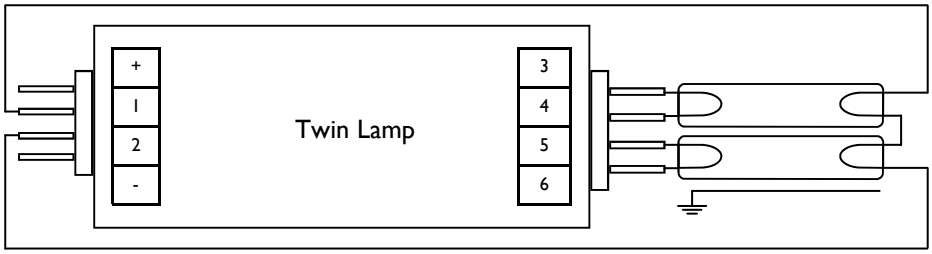
Recommended Cable Size	
On input side (Supply/Control Signal)	1.0-2.5mm²
On lamp side	0.5-1.0mm²

Maximum Output Cable Length	2m

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

Installation Diagram - Faston Connector Devices





Input Connector Pin-Out				
	230V AC		**110V DC**	
Pin ID	**Single Lamp**	**Twin Lamp**	**Single Lamp**	**Twin Lamp**
+	230V AC RMS	230V AC RMS	+110V DC	+110VDC
1	Not Connected	Electrode Lamp 1	Not Connected	Electrode Lamp 1
2	Not Connected	Electrode Lamp 2	Not Connected	Electrode Lamp 2
-	0V	0V	0V	0V

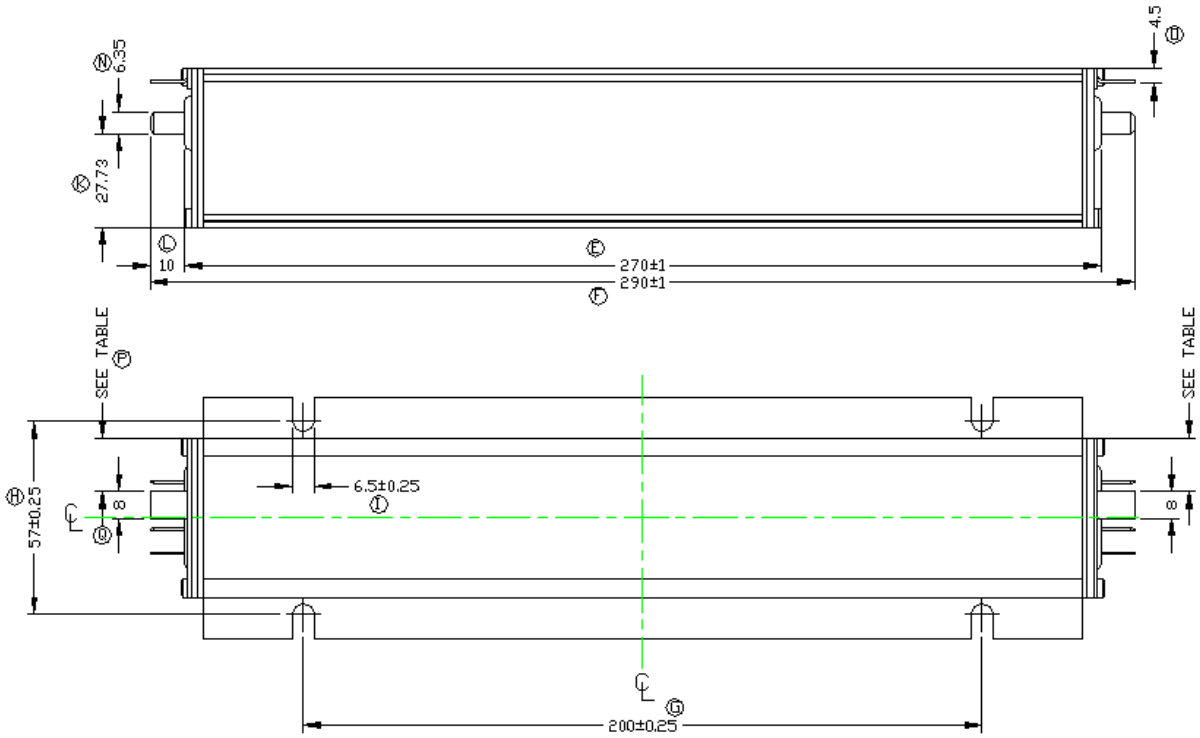
To achieve optimum performance the following output cables must be kept as short as possible:

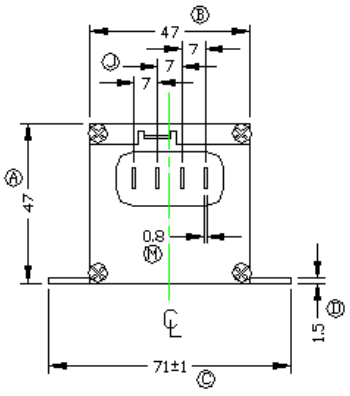
All Variants		
Faston Blades	Single Lamp	5 & 6
	Twin Lamp	1,2,5 & 6

Mechanical Specification

All Dimensions in mm unless stated otherwise

Figure 1 - 442 Series Enclosure (230V AC and 110V DC variants)
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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