600 Series

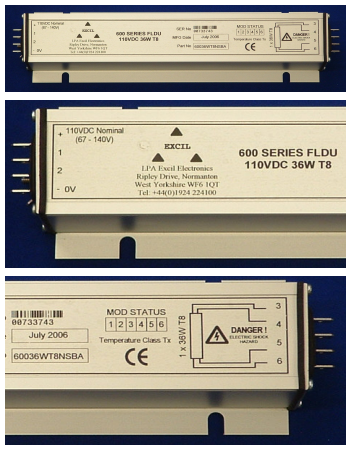
Fluorescent Lamp Driver Unit (110V DC)

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 and reduce maintenance costs.
- High reliability design — 210,000 hours MTBF, equivalent to 36 year service life*.
- Automatic shutdown and restart gives enhanced passenger comfort.
- Wide range of power supply and lamp options available.



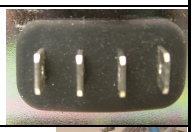
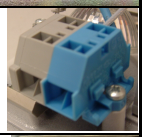
Product Codes

- Due to the wide range of options available, individual products in the 600 series range are referred to by a product code, derived as follows:

Lamp Style	Single Lamp	Twin Lamp
8W T5	Y	Y
13W T5	Y	Y
14W T5	Y	N
21W T5	Y	N
35W T5	Y	N
15W T8	Y	Y
18W T8	Y	Y
30W T8	Y	N
36W T8	Y	N
58W T8	Y	N
20W T12	Y	N
40W T12	Y	N
11W PLL	Y	N
18W PLL	Y	Y
18W PLC	Y	Y
22W CIR	Y	N
28W 2D	Y	Y

1st Suffix	Feature Description
N	Non-Dimming

2nd Suffix	Unit Configuration
S	Single Lamps
T	Twin Lamps

3rd Suffix	Connector Description
B	Blades 
C	Cage Clamp 
F	Beau Style (FKI/Thorn) 
W	Wires 

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

4th Suffix	Enclosure Description
A	Aluminium — standard UIC555, 47mm
D	EN50311 Annex D
D1	EN50311 Annex D, additional flanges
K	FK1 / Thorn style
L	Aluminium — low-profile UIC555, 35mm
H	Reduced flanges — UIC555 47mm

Product Code is then given by:
[SERIES NUMBER] [LAMP STYLE] [SUFFIX 1] [SUFFIX 2] [SUFFIX 3] [SUFFIX 4]

E.g:

Product Series	Lamp Style	1st Suffix	2nd Suffix	3rd Suffix	4th Suffix
600	36W T8	N	S	B	A
600 series	36W T8 Lamp	Non-Dimming	Single Lamp	Blade Connectors	Aluminium UIC 555 Enclosure

Input Specification

Input Voltage and Current Data

	All Variants	
Nominal Input Voltage	110	**V DC**
Input Supply Voltage Range	67-140	**V DC**
Input voltage limit without damage	154	**V DC**

Lamp Type		DC Input Current	
		Single Lamp (@ 110V DC)*	Twin Lamp (@ 110V DC)*
T5	8W	90	180
	13W	144	260
	14W	170	NA
	21W	230	NA
	28W	300	NA
	35W	380	NA
T8	15W	165	305
	18W	215	400
	30W	300	NA
		mA DC	mA DC

Table continued overleaf

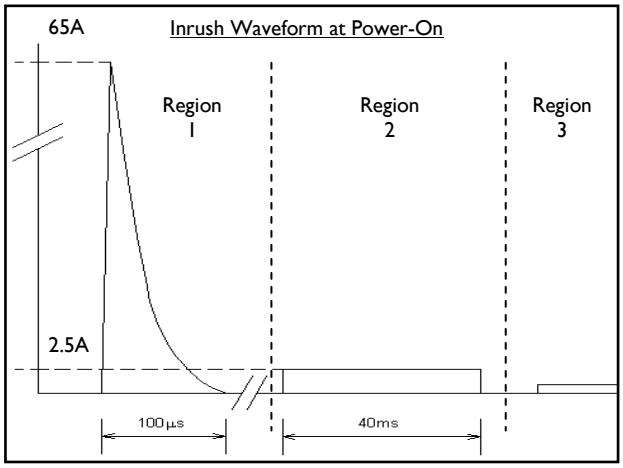
* Input current values across the entire operational voltage range are available on request

Lamp Type		DC Input Current Single Lamp (@ 110V DC)*	DC Input Current Twin Lamp (@ 110V DC)*
T8	36W	345	NA
	58W	530	NA
T12	20W	200	375
	40W	382	NA
PLL	11W	128	256
	18W	180	370
PLC	18W	175	348
CIRC.	22W	193	NA
2D	28W	264	NA
		mA DC	mA DC

	All variants	
Quiescent Current—No Lamp (@ 110V DC)*	15	mA DC

Power-On Inrush Data

	All Variants		
Peak Inrush Current	@ 140V DC	65	A
Time to Half Value	@ T=25°C	70	µs



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 2.5A.
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	
Minimum Must Strike Temp.	-30*	**°C**
Lamp Strike Switch Cycles	>100,000 strikes, in accordance with UIC555-1 2.13/3.5	

Environmental Specification

		All Variants	
Unit Weight		425	**g**
Dry Heat (Steady State)	**RIA13 1990**	70	**°C**
		6	**Hrs**
Shock and Vibration		EN50155 & EN61373	
Operating Temperature Range		-30 to +55 (58W Variant)	**°C**
		-30 to +70 (All Other Types)	
MTBF - Ground Mobile @ 40°C, 16 hours/day (US MIL-217F)		210,000	**Hrs**
		36	**Yrs**

Sealing Rating	**Figure 1 — UIC 555**	IP65
	Figure 2 — UIC 555 LP	IP65
	Figure 3 — EN50311 Annex D	IP20
	Figure 4 - FKI/Thorn	IP20D

Compliance

The 600 Series FLDUs comply with the following standards:

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

* The 600 Series FLDU will strike the lamp without the requirement for a 'Striking Aid' within the above temperature limit.

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

‡ All immunity tests comply with performance criteria A

Safety Specification

All 600 Series variants come equipped with the following protection circuitry as standard:

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

Installation Guide

Maximum Supply Cable Impedance		
No. FLDU's	**Input Voltage V DC**	**Impedance Ω***
1	67-80	1
1	80-90	2
1	90-140	4

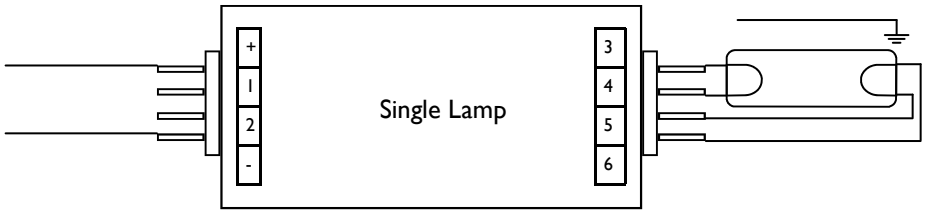
* Source impedance value MUST be divided by the number of FLDUs on each supply cable

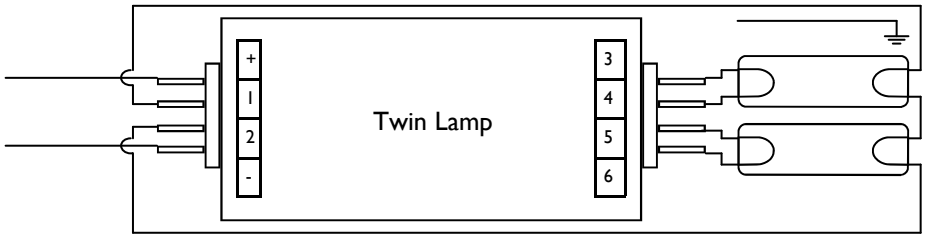
Recommended Cable Size	
On input side (Supply/Control Signal)	1.0-2.5mm²
On lamp side	0.5-1.0mm²

Maximum 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

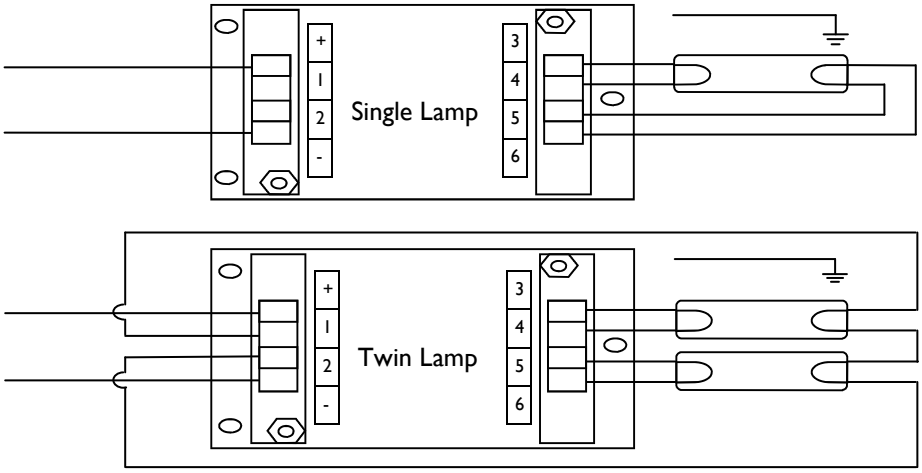
Maximum Output Cable Length	2m

Installation Diagram - Faston Connector Devices

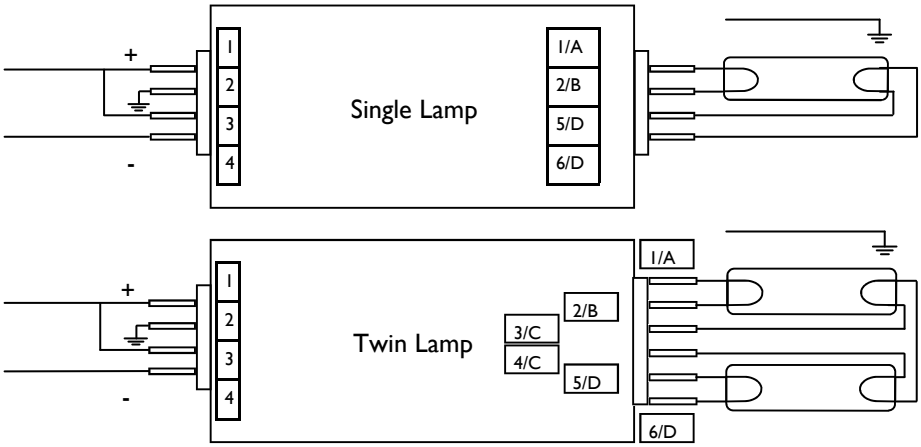




Installation Diagram - 4 Way Cage Clamp Devices



Installation Diagram - Beau Connectors



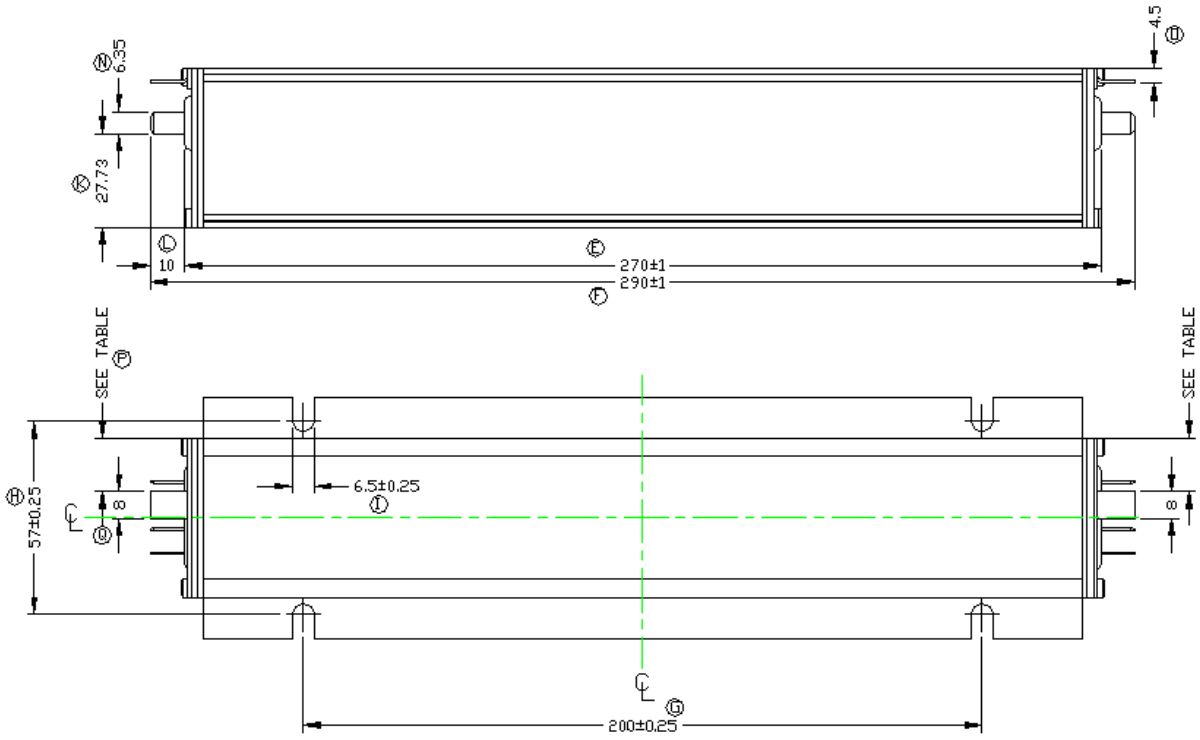
To achieve optimum performance the following output cables must be kept as short as possible:

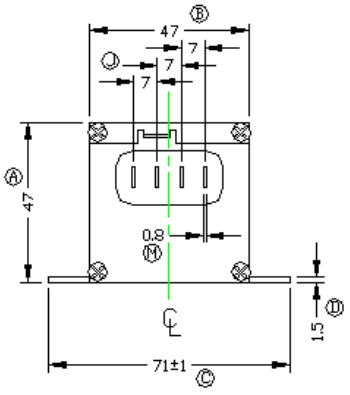
Faston Blades/Cage Clamp	Single Lamp	3 & 4
	Twin Lamp	1,2,3 & 4
Beau Connectors	Single Lamp	5 & 6
	Twin Lamp	3,4,5 & 6
Cage Clamp	Single Lamp	5 & 6
	Twin Lamp	1,2,5 & 6

Mechanical Specification

All Dimensions in mm unless stated otherwise

Figure 1 - [600/*TUBE*/*/*/B/A] Series Enclosure
Aluminium Enclosure, UIC 555 Space Envelope
0.25" Faston connector†





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

Figure 2 — [600/*TUBE*/*/*/B/L] Series Enclosure
Aluminium Enclosure, Low-Profile UIC 555 Space Envelope
0.25" Faston Connector

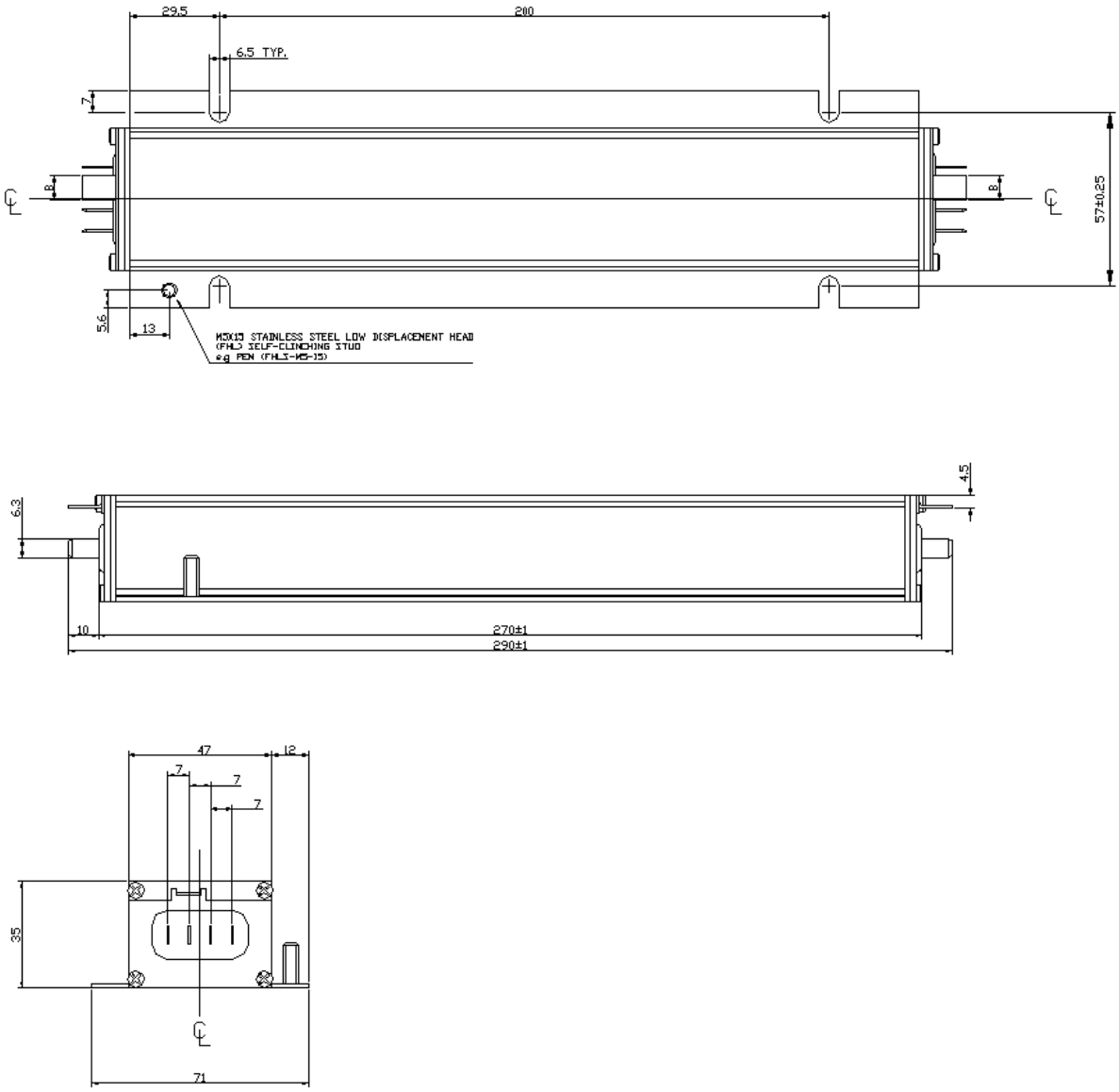


Figure 3 — [600/*TUBE*/*/*/C/D] Product Series Enclosure
Low-Profile Aluminium EN50311 Annex Space Envelope
4 Way Terminal Block/Cage Clamp

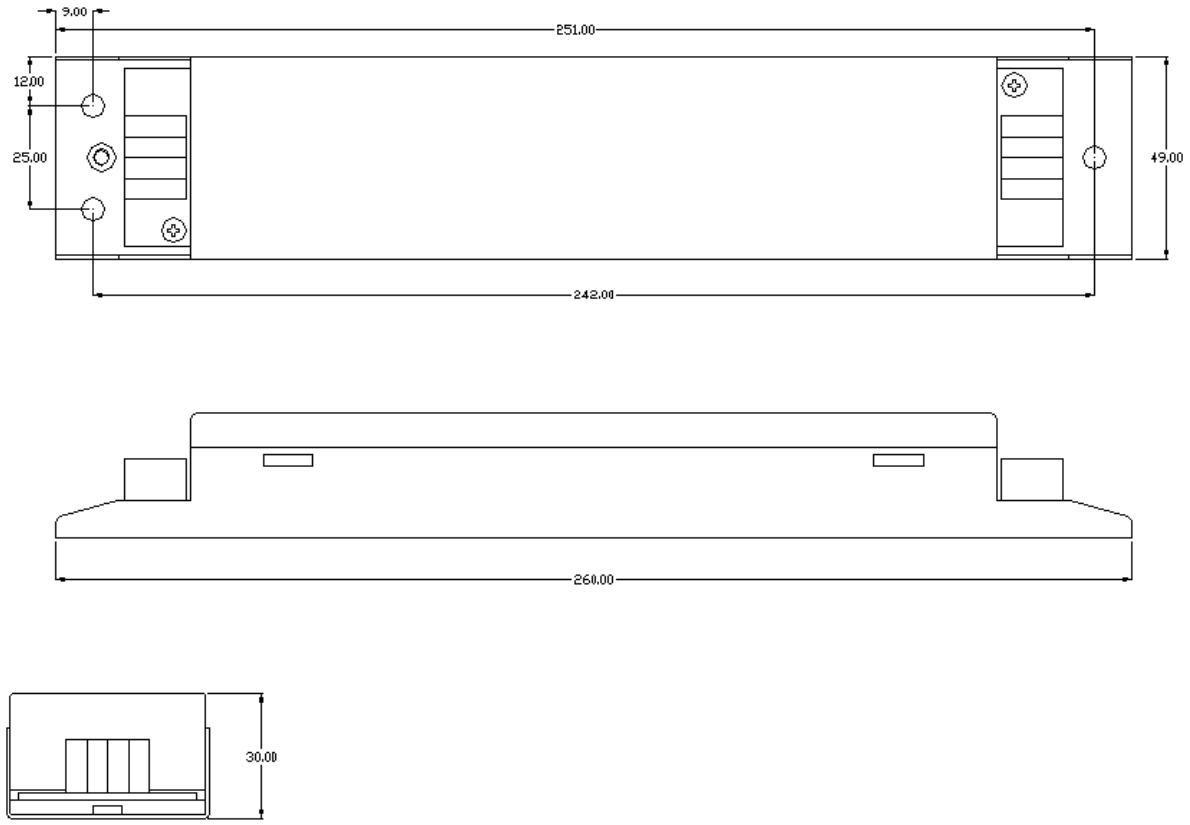
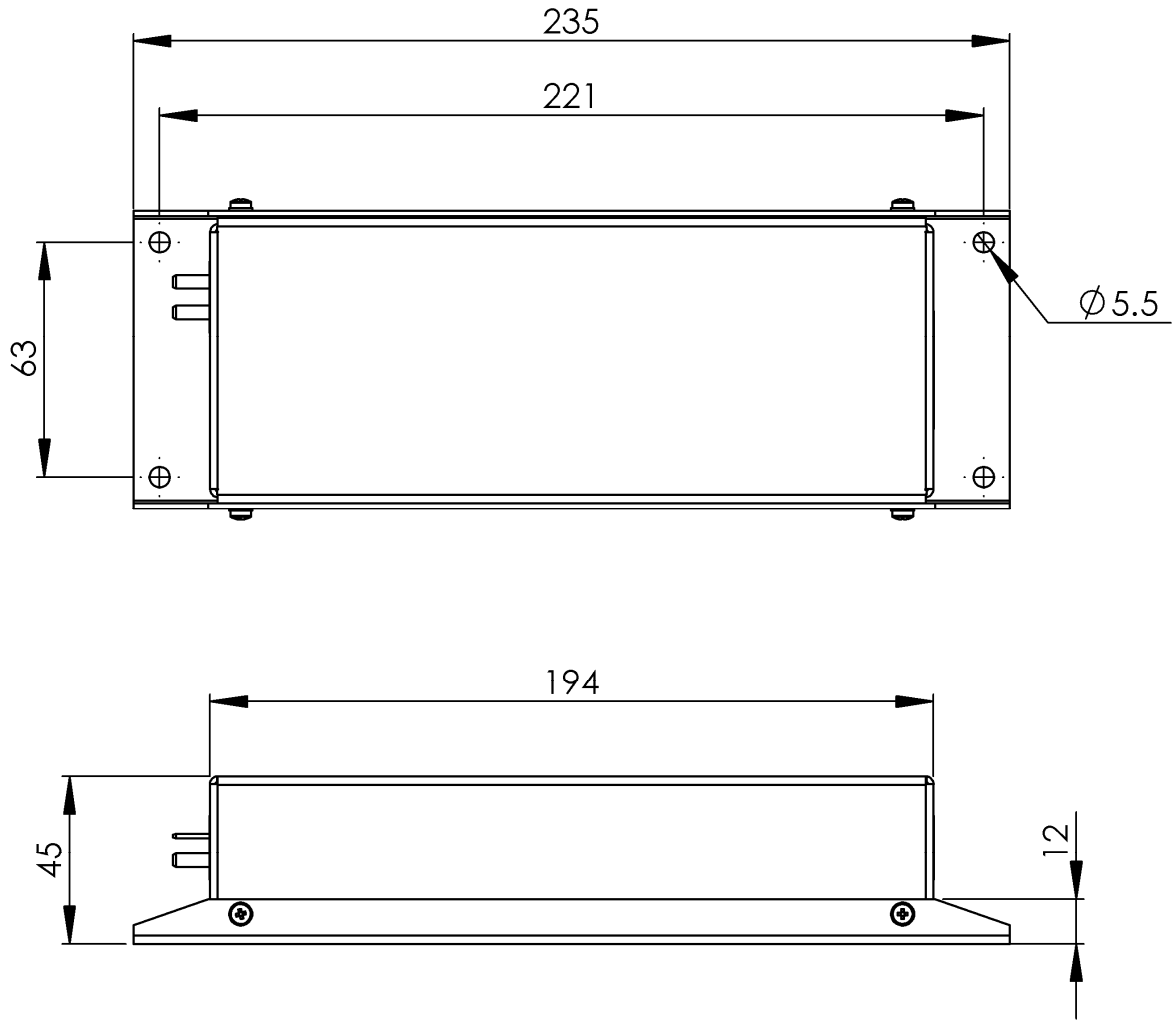


Figure 4 — [600/*TUBE*/*/*/F/K] Product Series Enclosure
FKI/Thorn Style Enclosure
Beau Connectors



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