



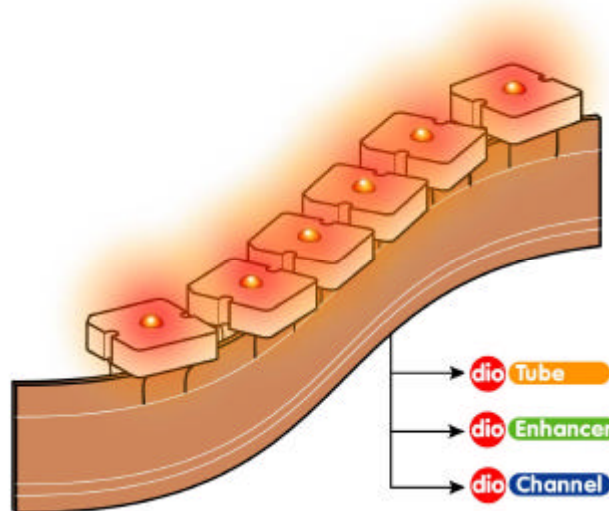
Preliminary Technical Data DIO™ Ribbon™

Features

- ✘ High Flux Output
- ✘ Solid State DIO™ Lighting
- ✘ Low Voltage operated (12V Typical)
- ✘ Available in Red, Amber, Blue, Cyan, Green & White*
- ✘ Cool beam, safe to touch
- ✘ More energy efficient than neon and Fluorescent lamps
- ✘ Wide operating temperature range
- ✘ Instant light. No warm up period
- ✘ High luminous maintenance
- ✘ No UV or IR (infra Red)
- ✘ Power Supply meets approbation requirements (UL, CE)
- ✘ Energy efficient (Switch mode power supply)

Benefits

- ✘ Up to 80% reduction in energy consumption
- ✘ Low voltage, typically 12 Volt DC
- ✘ Long life, expected life 60,000 hours.
- ✘ Virtually no maintenance or routine replacement of light globes.
- ✘ Environmentally friendly --- no disposal of glass or toxic substances.
- ✘ Impact and vandalism resistant --- contains no fragile glass envelope
- ✘ Risk reduction in Occupational Health and Safety due to reduction in maintenance, low voltage and not having to access fitting to replace burnt out globes.



Description

The DIO™ Ribbon uses semiconductor technology for efficiently converting electricity into visible light. The individual light emitters (DIO's™) are attached to a ribbon and are readily retrofittable into common existing or new sign housings.

The DIO™ Ribbon, is the core light source used in a range of lighting products including the "DIO Tube", the "DIO™ Enhancer" and the "DIO™ Channel".

A single DIO™ uses just between 0.125 and 0.175 watts of safe low voltage power, less than a quarter of the neon and Fluorescent lamp it can often replace. It is readily switchable by passive sensors and can be dimmed.

*White available in 2700, 4200 and 7000°K .

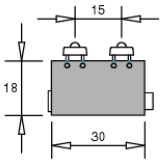
Patents Pending



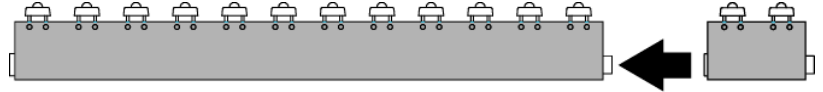
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Mechanical Specifications

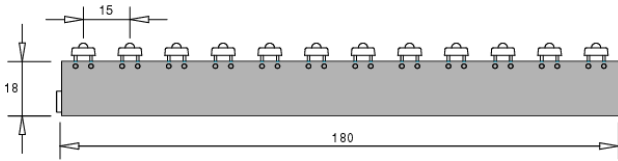
A). DIO™ Ribbon (15mm pitch)



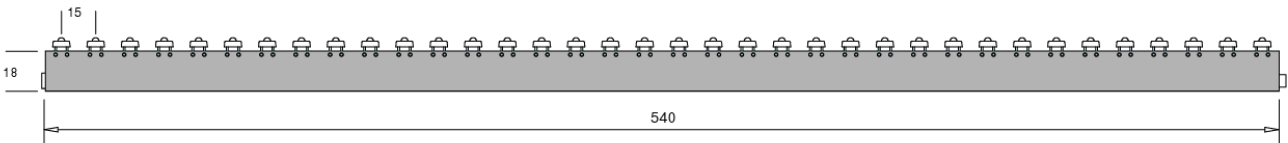
DIO™ Ribbon 30mm - 2 up, 15mm pitch
#117030x



To create continuous lengths,
click varying DIO Ribbon lengths together



DIO™ Ribbon 180mm - 12 up, 15mm pitch
#117023x



DIO™ Ribbon 540mm - 36 up, 15mm pitch
#117020x

Product	Pitch (mm)	Colour of DIO™	Part Number (Static Version)
DIO™ Ribbon 30mm – 2 up	15	Red	1170300
DIO™ Ribbon 30mm – 2 up	15	Red/Orange	1170301
DIO™ Ribbon 30mm – 2 up	15	Amber	1170302
DIO™ Ribbon 30mm – 2 up	15	Green	1170303
DIO™ Ribbon 30mm – 2 up	15	Blue	1170304
DIO™ Ribbon 30mm – 2 up	15	Cyan	1170305
DIO™ Ribbon 30mm – 2 up	15	Cool White	1170306
DIO™ Ribbon 30mm – 2 up	15	Warm White	1170302
DIO™ Ribbon 180mm – 12 up	15	Red	1170230
DIO™ Ribbon 180mm – 12 up	15	Red/Orange	1170231
DIO™ Ribbon 180mm – 12 up	15	Amber	1170232
DIO™ Ribbon 180mm – 12 up	15	Green	1170233
DIO™ Ribbon 180mm – 12 up	15	Blue	1170234
DIO™ Ribbon 180mm – 12 up	15	Cyan	1170235
DIO™ Ribbon 180mm – 12 up	15	Cool White	1170236
DIO™ Ribbon 180mm – 12 up	15	Warm White	1170232
DIO™ Ribbon 540mm – 36 up	15	Red	1170200
DIO™ Ribbon 540mm – 36 up	15	Red/Orange	1170201
DIO™ Ribbon 540mm – 36 up	15	Amber	1170202
DIO™ Ribbon 540mm – 36 up	15	Green	1170203
DIO™ Ribbon 540mm – 36 up	15	Blue	1170204
DIO™ Ribbon 540mm – 36 up	15	Cyan	1170205
DIO™ Ribbon 540mm – 36 up	15	Cool White	1170206
DIO™ Ribbon 540mm – 36 up	15	Warm White	1170202

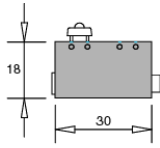


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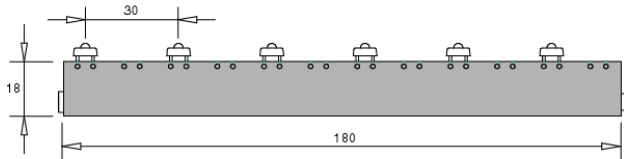
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Mechanical Specifications

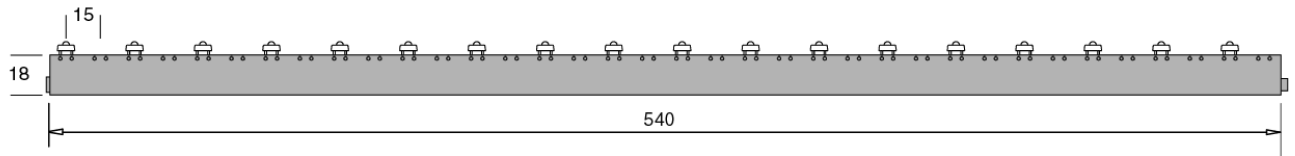
A). DIO™ Ribbon (30mm pitch)



DIO™ Ribbon 30mm - 1 up, 30mm pitch
#117030x



DIO™ Ribbon 180mm - 6 up, 30mm pitch
#117023x



DIO™ Ribbon 540mm - 18 up, 30mm pitch
#117020x

Product	Pitch (mm)	Colour of DIO™	Part Number (Static Version)
DIO™ Ribbon 30mm – 1 up	30	Red	1170310
DIO™ Ribbon 30mm – 1 up	30	Red/Orange	1170311
DIO™ Ribbon 30mm – 1 up	30	Amber	1170312
DIO™ Ribbon 30mm – 1 up	30	Green	1170313
DIO™ Ribbon 30mm – 1 up	30	Blue	1170314
DIO™ Ribbon 30mm – 1 up	30	Cyan	1170315
DIO™ Ribbon 30mm – 1 up	30	Cool White	1170316
DIO™ Ribbon 30mm – 1 up	30	Warm White	1170247
DIO™ Ribbon 180mm – 6 up	30	Red	1170240
DIO™ Ribbon 180mm – 6 up	30	Red/Orange	1170241
DIO™ Ribbon 180mm – 6 up	30	Amber	1170242
DIO™ Ribbon 180mm – 6 up	30	Green	1170243
DIO™ Ribbon 180mm – 6 up	30	Blue	1170244
DIO™ Ribbon 180mm – 6 up	30	Cyan	1170245
DIO™ Ribbon 180mm – 6 up	30	Cool White	1170246
DIO™ Ribbon 180mm – 6 up	30	Warm White	1170247
DIO™ Ribbon 540mm – 18 up	30	Red	1170210
DIO™ Ribbon 540mm – 18 up	30	Red/Orange	1170211
DIO™ Ribbon 540mm – 18 up	30	Amber	1170212
DIO™ Ribbon 540mm – 18 up	30	Green	1170213
DIO™ Ribbon 540mm – 18 up	30	Blue	1170214
DIO™ Ribbon 540mm – 18 up	30	Cyan	1170215
DIO™ Ribbon 540mm – 18 up	30	White	1170216



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Mechanical Specifications (cont.)

B). Cabling

Parameter	Value	Units
Length of standard cable (Power supply to Ribbon) (Typ.)	1500	mm
Cable Gauge (min)	24	AWG

C). Power Supply – 2 models

#2002102 (DIO™ 12V DC Switchmode)

#2002103 (DIO™ 12V DC Switchmode)



Parameter	Details
Dimensions of Power Supply (Typ.)	130 x 60 x 35 mm (L x W x H)
Input Terminal Style	2 Pin IEC plug
Output Terminal Style	Wire to wire Connector (terminal block)

Electrical Specification

A). DIO™ Ribbon

Parameter	Symbol	Static (Red/Amber)	Static (Blue/Green/ Cyan/White)	Units
Operating Voltage (Typ)	V_o	12	12	V DC
Operating Current per DIO™ (Typ)	I_o	50	50	mA
Operating Current per meter of DIO™ Ribbon (15mm Pitch)	I_o	0.450	0.560	A
Operating Current per meter of DIO™ Ribbon (30mm Pitch)	I_o	0.225	.280	A
Number of DIO's supported by Power Supply		480	360	
Max length of cable (24AWG) when fully loaded.	L	1.5	1.5	M

B). Power supply

Input			
Parameter	Symbol	Value	Units
Input Voltage Range	V_{in}	90-264	V (ac)
Frequency	F	47-63	Hz

Output			
Parameter	Symbol	Value	Units
Power Output Range	P_o	5-80	W
Output Voltage (typ)	V_o	12	V (DC)
Number of Output connectors		1	
Output current per connector (Model 1)	I_o	0 to 3.75	A
Output current per connector (Model 2)	I_o	0 to 6.60	A

Notes: Electrical characteristics of Power supply at 25°C ambient temperature

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Environmental Ratings

Parameter	Symbol	Min	Max	Units
Operating Ambient Temp. (Power Supply)	Top	-10/14	+40/+122	°C/°F
Storage Ambient Temp (Power Supply)	Tst	-20/-4	+70/+158	°C/°F
Relative Humidity (Power Supply)	R _H		80%	
Operating Temp	-	-40/-40	+60/+185	°C/°F
Storage Temp	-	-40/-40	+100/+212	°C/°F

Optical and Flux Characteristics (per single DIO™ at 25°C)

Colour	Colour, Dominant Wavelength λ _d (nm) [1]. Or colour Temperature [2] CCT (Typical).	Total Flux _v (mIm) ^[3] @ 70ma Typical.
Red	630nm	3000
Amber	592nm	1500
Blue	470nm	1700
Green	530nm	6100
Cyan	505nm	6200
Cool White	7000K	12,000
Warm White	2700K	10,000

- Notes: 1. The dominant wavelength is derived from the CIE Chromaticity Diagram and represents the perceived colour of the device.
 2. CRI (colour Rendering Index) for white product is 70.
 3. |_v is the total luminous flux output as measured with an integrating sphere after the device has stabilized.

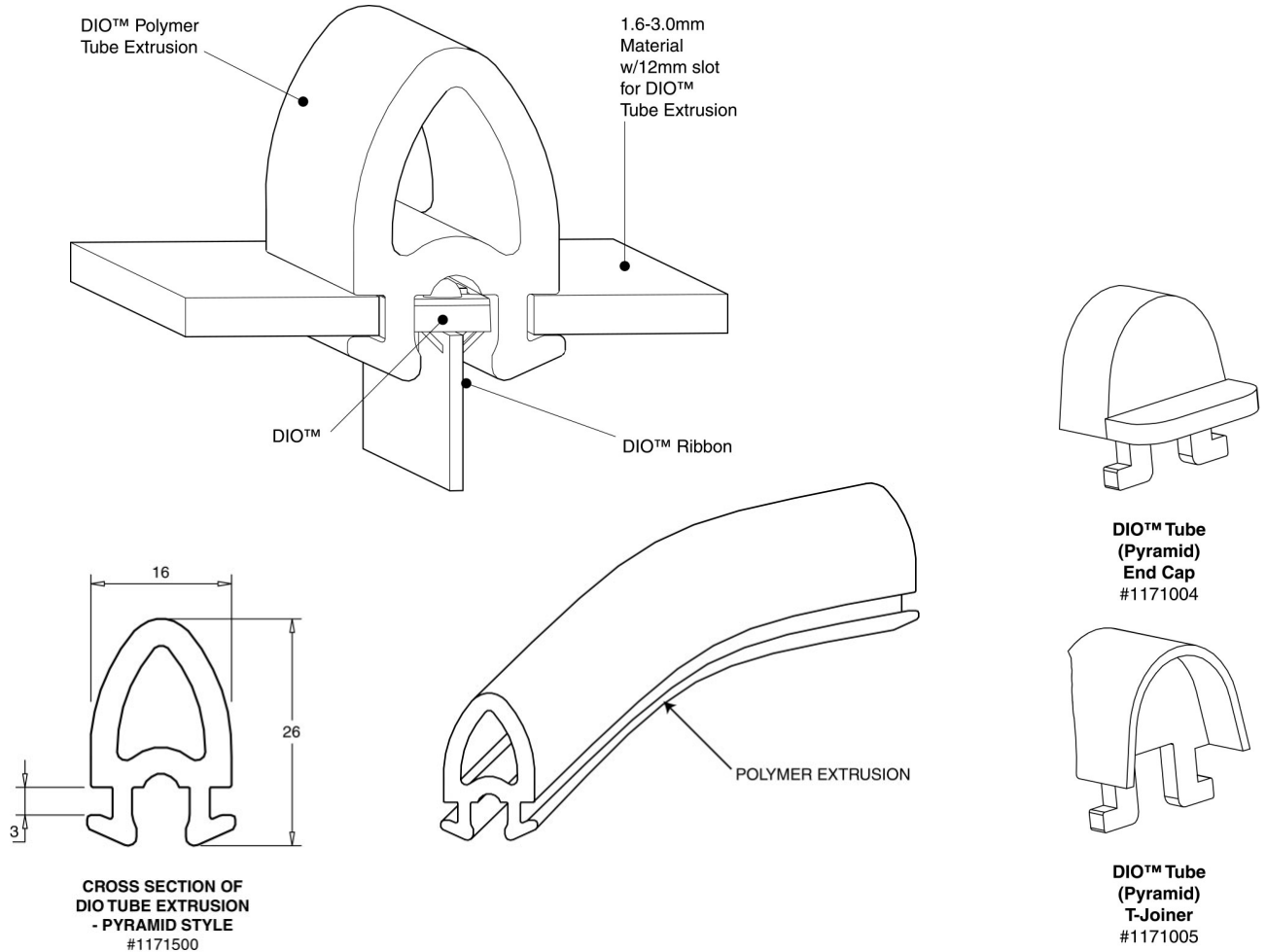


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- ✍ The DIO Tube makes static or animated coloured lines, that emulate neon but with all of the benefits of being a DIO™ Light including full animation.
- ✍ Use the DIO™ Tube to make; letters, words, numbers, lines, shapes, patterns; for signage, display or feature; inside or outside; roof top or counter level
- ✍ DIO™ Tube Extrusion available in clear, red, blue, white & green.



SELECTION GUIDE	
Part Number	Description
1171501	DIO™ Tube Extrusion – Pyramid Style - CLEAR
1171502	DIO™ Tube Extrusion – Pyramid Style - WHITE
1171503	DIO™ Tube Extrusion – Pyramid Style - RED
1171504	DIO™ Tube Extrusion – Pyramid Style - GREEN
1171505	DIO™ Tube Extrusion – Pyramid Style - BLUE
1171004	DIO™ Tube End Cap (to suit 1171500 series - Pyramid)
1171005	DIO™ Tube T-Joiner (to suit 1171500 series - Pyramid)

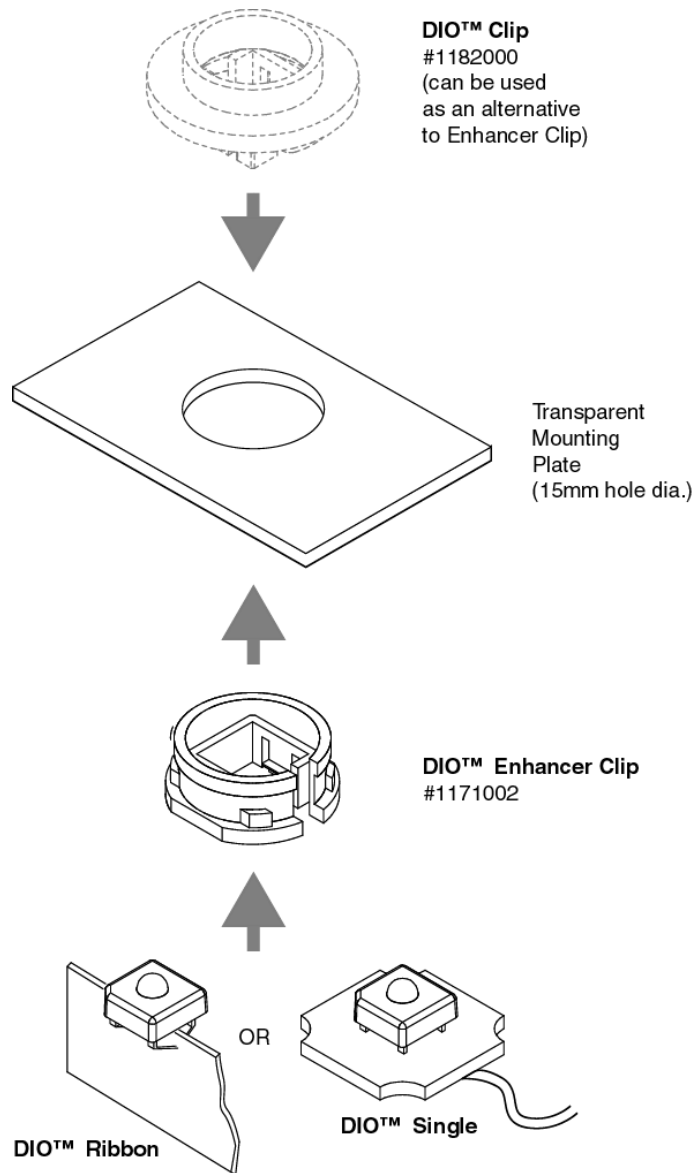
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- ✍ The DIO Enhancer enhances existing fluorescent lit signs with static or animated coloured light, by creating a layer of DIOs that snap into a clear sheet sitting behind the original front cover sheet.
- ✍ Use the DIO Enhancer to highlight; letters, words, numbers, lines, shapes, patterns; for signage, display or feature; inside or outside; roof top or counter level... in red, cyan, blue, white, orange, yellow and green brightly coloured light.



SELECTION GUIDE	
Part Number	Description
1171002	DIO™ Enhancer Clip (Bezel to suit 3mm plate)

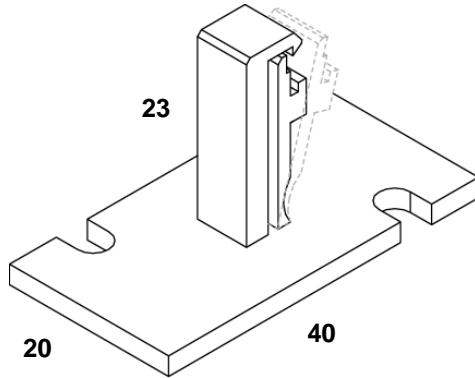
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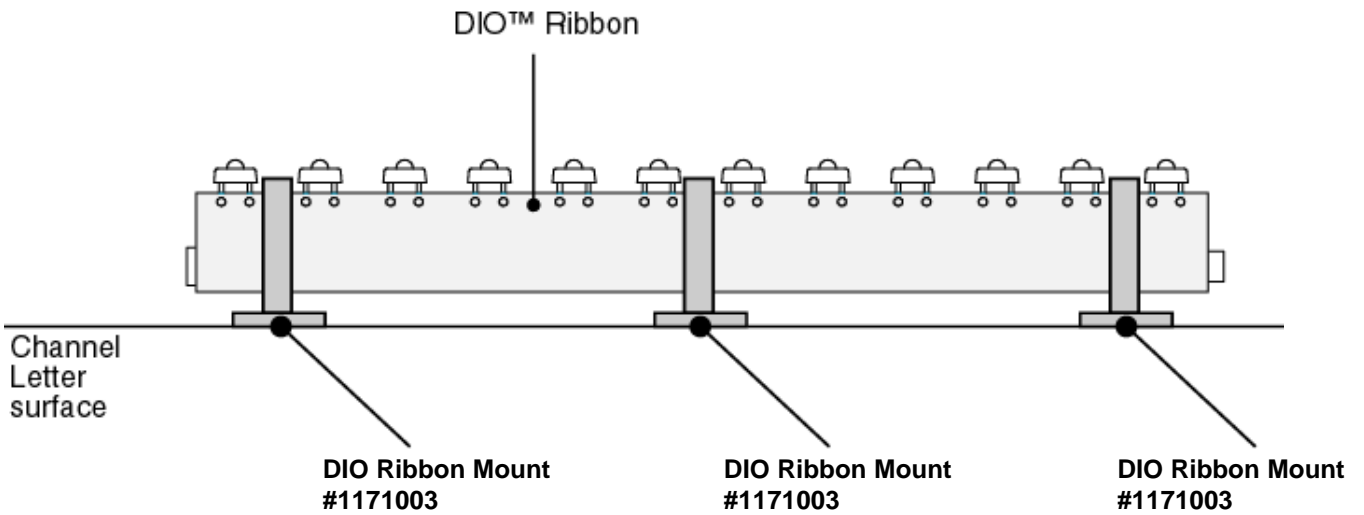
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- ⌘ The DIO Channel lights channels letter signs with static or animated coloured light.
- ⌘ The bright light is created from DIOs on the DIO Ribbon, held at 90° by DIO Ribbon Mounts.



**DIO Ribbon Mount
#1171003**



SELECTION GUIDE

Part Number	Description
1171003	DIO™ Ribbon Mount (stand off)

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