

SubstiTUBE[®] Advanced & Advanced HE Datasheet



- Offices
- Train Stations, Underground Subways
- Factory Production lines
- Warehouses
- Supermarkets / Retail Stores
- Cold storage



Product features & benefits

- Quick, simple and safe replacement for traditional T8 fluorescent tubes with conventional control gear (CCG – magnetic ballast and starter).
- Reduced operational cost due to lower energy consumption
- Lower maintenance cost thanks to 2-4 times longer lifetime than traditional fluorescent tubes.
- Suitable for operation at low temperatures: Ambient temperature : -20° to + 45° C
- Instant-on light
- Very high resistance to switching loads: ideally suited for use in combination with motion sensors
- Life time of 50,000hrs (L70/B50)
- Mercury-free and RoHS compliant
- Efficacy up to 122lm/W on Advanced HE (1.2m models), 100lm/W for Advanced.
- High power factor: PF >0.9
- CCT: 4000K & 6500K
- Lengths: 0.6m, 1.2m, 1.5m
- Type of protection: IP20
- Base: G13, the same base type as traditional T8 fluorescent lamps
- Complies with Australian/New Zealand standards: AS/NZS 60598.2.1:2014, Amdt 1 & AS/NZS 60598.1:2013
- In cases of doubt regarding the suitability of the application the manufacturer of this lamp should be consulted before installation.



Product specifications

Product Model Number	GTIN	IC	Watt	Lumen	lm/W	CCT	Tube length	Average Beam Angle (50%)	SDCM
ST8A-0.6m-10W-840-EM	4052899426962	AB435530155	10	1000	100	4000K	0.6m	170°	<5
ST8A-0.6m-10W-865-EM	4052899426948	AB435520155	10	1000	100	6500K	0.6m	170°	<5
ST8A-1.2m-21W-840-EM	4052899427006	AB435560155	21	2100	100	4000K	1.2m	170°	<5
ST8A-1.2m-21W-865-EM	4052899426986	AB435540155	21	2100	100	6500K	1.2m	170°	<5
ST8A-1.2m-18W-840-HE	4052899441101	AB43551011M	18	2200	122	4000K	1.2m	170°	<5
ST8A-1.2m-18W-865-HE	4052899441088	AB43548011M	18	2200	122	6500K	1.2m	170°	<5
ST8A-1.5m-24W-840-EM	4052899427068	AB435600155	24	2400	100	4000K	1.5m	170°	<5
ST8A-1.5m-24W-865-EM	4052899427020	AB435590155	24	2400	100	6500K	1.5m	170°	<5

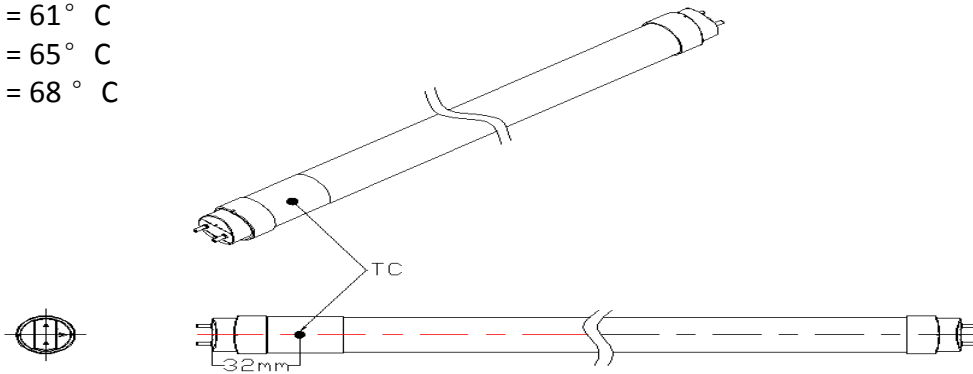
Product Model Number	Life time (L70/B50)	Input voltage	Input frequency	PF	CRI	Start time	Lamp tube material	Full width half maximum beam angle (C0/180)
ST8A-0.6m-10W-840-EM	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°
ST8A-0.6m-10W-865-EM	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°
ST8A-1.2m-21W-840-EM	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°
ST8A-1.2m-21W-865-EM	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°
ST8A-1.2m-18W-840-HE	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°
ST8A-1.2m-18W-865-HE	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°
ST8A-1.5m-24W-840-EM	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°
ST8A-1.5m-24W-865-EM	50,000h	220-240V AC	50/60 Hz	0.9	>80	<0.5 sec	Glass	210°

Technical features

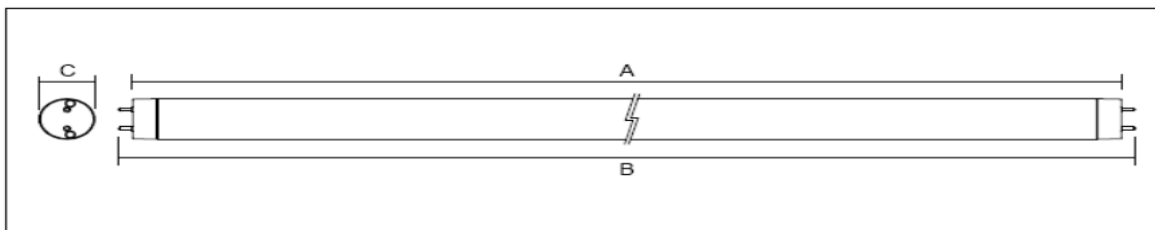
Minimum / Maximum ratings

	Ambient temperature Ta	Storage temperature Ts	Ambient temperature Tc
0.6m	-20° to 45° C	-20° to 80° C	-20° to 65° C
1.2m			
1.5m			

Tc Point: 0.6m = 61° C
 1.2m = 65° C
 1.5m = 68° C



Mechanical & Electrical Specifications



Models	A	B	C	Net weight
ST8A-0.6m...	589 mm	603 mm	27.5 mm	118g
ST8A-1.2m...	1198 mm	1212 mm	27.5mm	219g (EM) / 161g (HE)
ST8A-1.5m...	1500 mm	1513 mm	27.5mm	260g

(According to IEC 60081)

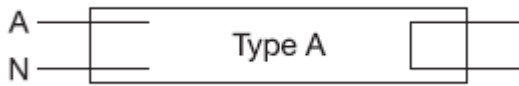
Optics:	Glass Cover
Mounting:	G13
Protection Class:	IP20
Tensile Strength (N/mm ²), Compressive strength (N/mm ²) & Impact strength (kJ/m ² esp. kN/m):	IEC 61195 and IEC 60061
ESD Protection:	IEC 61547
Dimming Function:	N.A.
Rated Voltage:	220-240V~, 50/60Hz
Power Factor:	>0.9 @ direct mains, >0.9 @ CCG non compensated



Standards

Safety Protection:	Short circuit protection / open loop protection
Photo-biological Safety:	IEC 62471
Flammability:	Glow wire test (750° C)
Insulation class:	IEC 61347-2-13
Safety Requirements:	AS/NZS 60598.2.1:2014 Amdt 1 + AS/NZS 60598.1:2013 AS/NZS 61347.2.13:2013 IEC 60598-1 + IEC 61347-2-13 + IEC 61195 + IEC 60061 + IEC 62776 proposal
Environment:	RoHS
EMC / radio disturbance characteristics:	EN 55015 (CISPR 15)
EMC / immunity:	IEC 61547 (IEC 61000-3-2 and -3-3)

This LED tube is Type A as per AS/NZS 60598.2.1:2014 Amdt 1



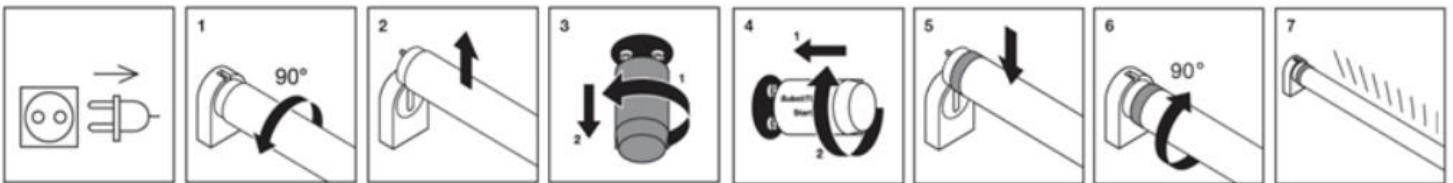
The SubstiTUBE Start is a HRC fuse rated at 250V, 0.5A quick-acting type

Installation Instructions

- Please ensure the power is switched off before installation.
- Carefully remove the fluorescent tube and conventional starter according to the lamp holder type.
- Insert SubstiTUBE® Advanced and SubstiTUBE Starter properly.

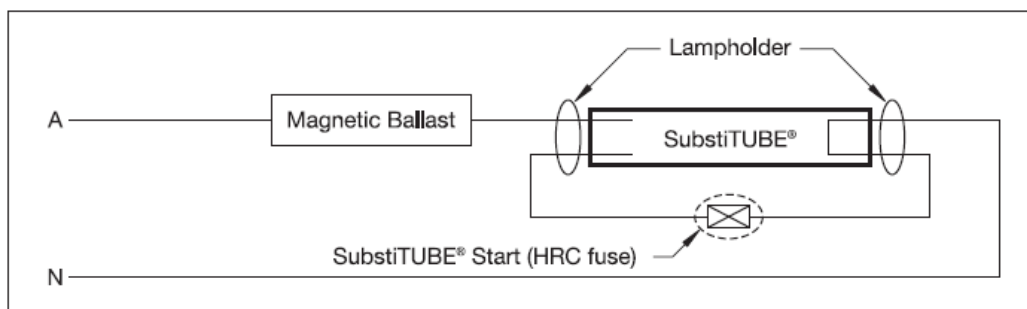
Below is an example for typical lamp holder types:

- Turn the fluorescent lamp 90° degrees and take it out of the socket.
- Remove the conventional starter by turning it.
- Insert and latch the SubstiTUBE® Starter into starter socket.
- Insert SubstiTUBE® Advanced into socket and lock into position by turning 90°. Check light distribution angle.

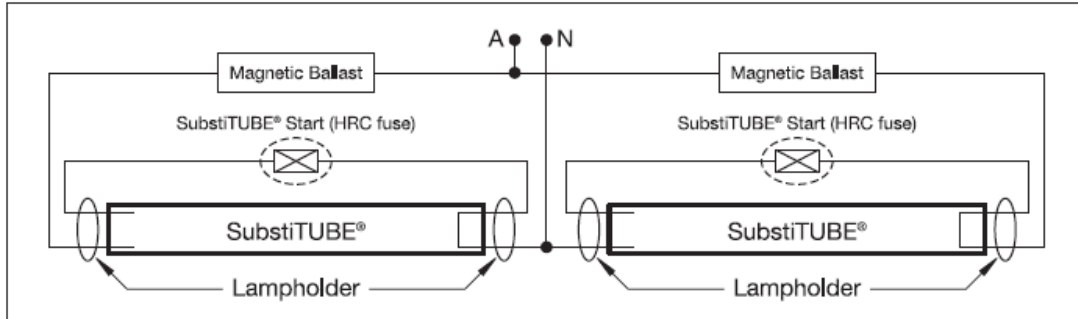


Wiring diagrams for use with magnetic ballasts (CCG) - retrofit

Single circuit luminaire with magnetic ballast (retrofit):



Double circuit luminaire with magnetic ballast (retrofit):



NOTE: If a luminaire contains a power factor correction capacitor, it is recommended to remove it from the circuit to maintain power factor >0.9. This should only be carried out by a licensed electrician.

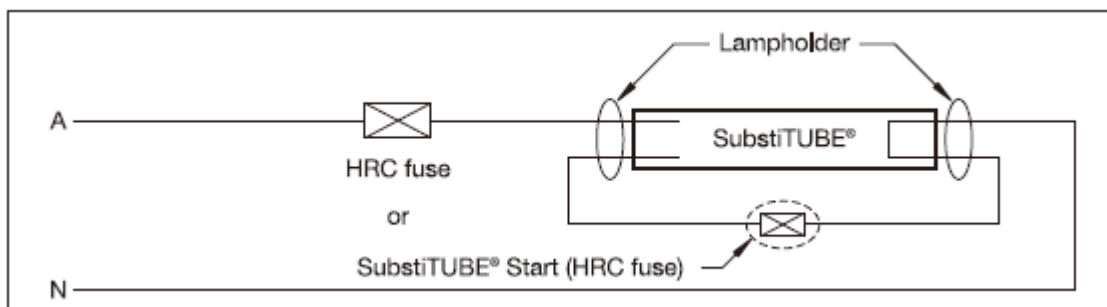
Installation instructions for operation on 240V mains or in luminaires with electronic ballasts (ECG)

WARNING: SubstiTUBE Advanced is not compatible for use with electronic control gear (ECG). SubstiTUBE is designed to operate with magnetic ballasts (CCG) as a retrofit tube without any modification to an existing luminaire.

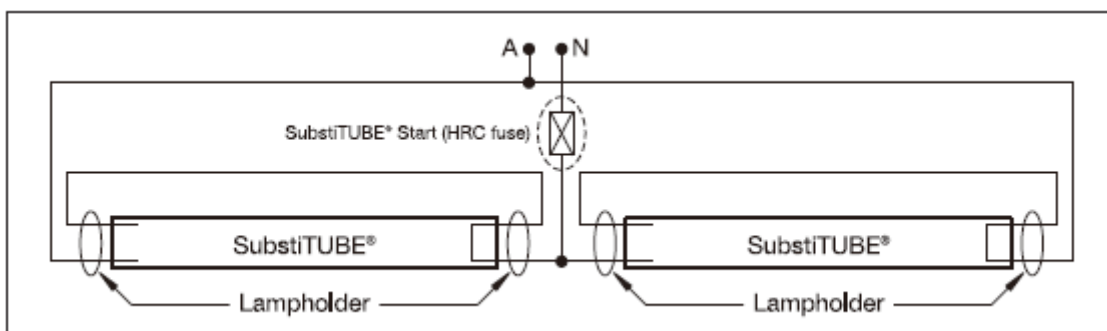
- SubstiTUBE Advanced can also be used in new or modified luminaires* for operation on 240V mains using the below wiring diagrams.
- If there is an existing ECG, bypass the ballast and rewire* according to below diagrams.

WARNING: Modifications* to the wiring of an existing luminaire must be carried out by a qualified personnel only. Any modifications made to the original luminaire will alter the safety aspects of the original luminaire; hence compliance certification of the original luminaire will no longer be applicable to the modified luminaire.

Wiring configuration for new or modified luminaires with single circuit:



Wiring configuration for new or modified luminaires with double circuit:





***WARNING:**

The supplied warning sticker shall be placed on all 240V mains wired luminaires and shall be visible during lamp replacement as per AS/NZS 60598.2.1:2014 Amdt 1.

***WARNING:**

A fuse shall be used to protect a fluorescent lamp that is inadvertently installed against short circuits.

Each fuse shall:

- a) be of the 250 V HRC type;
- b) have a 2A max. quick-acting type rating; and
- c) be used to protect a maximum of two lamps.

NOTE:

A quick-acting type fuse is defined in the IEC 60127 series as 'Type F'. The luminaire shall have a fuse replacement rating label.

WARNING:


The rating of the lamp shall not exceed the maximum wattage of the lamp that it is intended to replace or the total wattage of the replacement lamps shall not exceed the maximum wattage of the luminaire.





Safety and Application notes


- The SubstiTUBE® Advanced must be handled with care. Do not install or operate product in a damaged condition. Risk of contact with live parts if the tube is broken. If a tube is broken within a luminaire, please ensure power is turned off before removing the tube.
- When operating with CCG (magnetic ballast), SubstiTUBE® Starter has to be inserted to replace the conventional fluorescent lamp starter. If the conventional starter is not replaced, the SubstiTUBE® Advanced will start flashing and may be damaged!
- Do not use SubstiTUBE® Advanced in luminaires which do not have any conventional starter or whereby the conventional starter cannot be replaced.
- Not suitable for luminaires with serial lamp connection i.e. more than one tube at one magnetic ballast.
- The SubstiTUBE® Advanced lamp emits light at a limited angle ($>170^\circ$), unlike conventional fluorescent tubes which are 360° omni-directional.
- Due to the light distribution characteristic of the SubstiTUBE Advanced, the resulting light characteristic of the luminaire is likely to change. It is not guaranteed that e.g. standards for lighting at working places will be complied with after replacement. A photometric check of the installation is highly recommended.
- The effective energy savings depend on the efficiency of the luminaire setup to be replaced and should be considered individually on a case by case basis. Particularly magnetic ballast losses are reduced to ohmic losses and are typically only about 1W.
- The SubstiTUBE® Advanced is protected according to IP20.
- This lamp may not be suitable for use in all applications where a traditional fluorescent lamp has been used. The temperature range of this lamp is more restricted. This lamp is ideally suited for use in open air conditions, within the specified ambient temperature (T_a) range marked on the product label. Use of lamps in enclosed luminaires is not generally recommended. Use of lamps in enclosed luminaries should only be done after appropriate tests have been conducted, to ensure that lamps operate below the specified T_a and T_c max temperature limits.
- SubstiTUBE® Advanced may also be driven directly on line voltage. In order to grant a safe operation mode please refer to the application note for installation information (p 5-6).
- Photo-biological Safety of Lamps and Lamp Systems according to IEC 62471
Risk Group: Exempt



-  The LED tube isn't suitable to be used in emergency luminaries designed for double-capped fluorescent lamp(s).

-  This LED tube is not dimmable.

-  LED tube suitable for 50Hz or 60Hz operation.


-  LED tube should be used in dry conditions or in a luminaire that provides protection.

- The product includes two parts: a LED tube and a LED starter.

- Increased weight may reduce the mechanical stability of certain luminaries and lamp holders and may impair contact making and lamp retention.

- Suitable to be used in combination with magnetic ballast only.

- Not suitable for use with high frequency electronic ballasts.

-  Only to be used with provided SubstiTUBE® LED starter.

- This lamp is designed for general lighting service (excluding e.g. explosive atmospheres).

Sales and Support

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