



COMUS T8 LED TUBES PRODUCT DATA SHEET

1. Product introduction

Penn Elcom offer a new range of LED tubes as direct replacements for T8 traditional fluorescent lamps operating with magnetic ballasts or with some additional rewiring for the ones using electronic ballasts. Direct connection to the mains is also possible in the installations.

The Comus T8 LED tubes represent a simple retrofit solution that provides energy efficiency and significant maintenance costs. These environmentally friendly robust tubes emit no UV, have no mercury, they start instantly and have the advantage of a lamp life of 40000h and a 3 year warranty.

In certain applications the cost saving for maintenance exceeds the obvious energy savings. This is particular applicable in warehouses, signage, retail, industrial, car parks and anywhere there is restricted access.

Areas of application:

- Shopping malls;
- Restaurants;
- Exhibition halls;
- Signage lighting;
- Office buildings, etc.

Features:

- 180 degrees rotate G13 end cap which can be adjustable in any angle;
- Light transmittance of PC cover is up to 90%;
- High luminous flux;
- 3 Years warranty;
- With VDE, TUV, EMC, TUV RoHS, PSE certificate.

Benefits:

- Long service life: up to 40000 h;
- High luminous efficacy up to 91 lm/W;
- High CRI up to 83Ra;
- High power factor up to 0.95;
- Low THD under 15%;
- Energy efficiency class A+;
- Up to 60% energy savings.

2. Electrical and photometrical data

Comparison between Comus T8 LED tubes and traditional fluorescent tubes

Traditional fluorescent lamp length [mm]	LED tube length [mm]	Traditional fluorescent power consumption [W]	LED tube power consumption [W]
604	603.2	18	10
1213.6	1212.2	36	21
1514.2	1513.2	58	27

Electrical parameters (at 220V)

Model number	Input voltage [V]	Operating frequency [Hz]	Power [W]	Idc, max. [mA]	THD [%]
LEDT860057	220-240	50/60	10	300	<15
LEDT8120040	220-240	50/60	21	300	<15
LEDT8120057	220-240	50/60	21	300	<15
LEDT8150040	220-240	50/60	21	300	<15
LEDT8150057	220-240	50/60	27	300	<15

Photometrical parameters

Model number	Luminous flux [lm]	CCT [K]	Color rendering index, av. value	Illumination at 1 m [lx]	Illumination at 2 m [lx]	Illumination at 3 m [lx]
LEDT860057 (frosted cover)	900	5700	83Ra	250	65	25
LEDT8120040 (frosted cover)	1900	4000	83Ra	525	130	60
LEDT8120057 (frosted cover)	1900	5700	83Ra	525	130	60
LEDT8150040 (frosted cover)	2400	4000	83Ra	660	165	75
LEDT8150057 (frosted cover)	2400	5700	83Ra	660	165	75

General parameters

Model number	Working temperature [°C]	Stocking temperature [°C]	Working humidity [%]	Stocking humidity [%]	Length [ft]	Diameter [mm]
LEDT860057	-25~55	-25~55	0~85	0~85	2	26
LEDT8120040	-25~55	-25~55	0~85	0~85	4	26
LEDT8120057	-25~55	-25~55	0~85	0~85	4	26
LEDT8150040	-25~55	-25~55	0~85	0~85	5	26
LEDT8150057	-25~55	-25~55	0~85	0~85	5	26

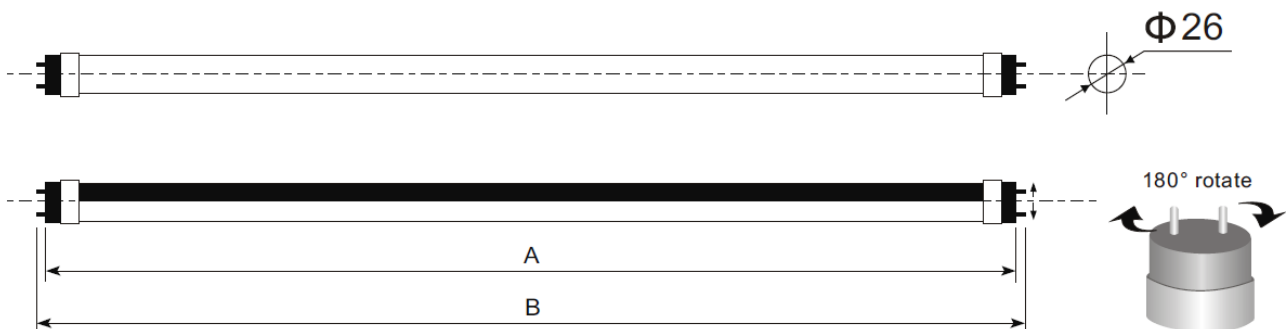


Figure 2.1 Product dimensions

LED Tube	A [mm]	B [mm]
0.6 m	580	594
1.2 m	1198	1212
1.5 m	1498	1512

3. Photometrical results and graph

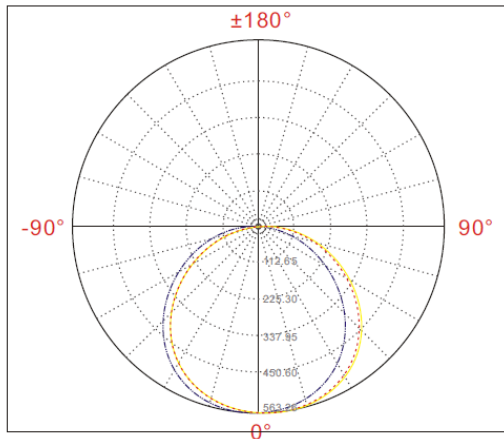


Figure 3.1 Luminous intensity distribution (unit: cd)

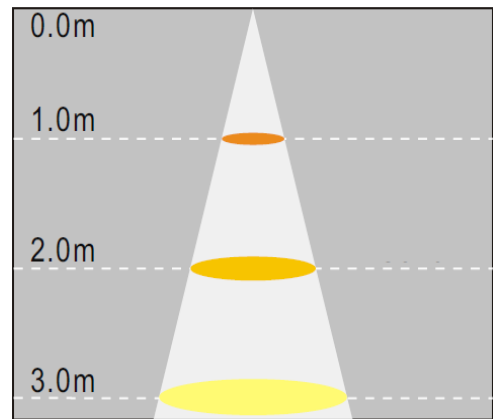


Figure 3.2 Lux distance curve

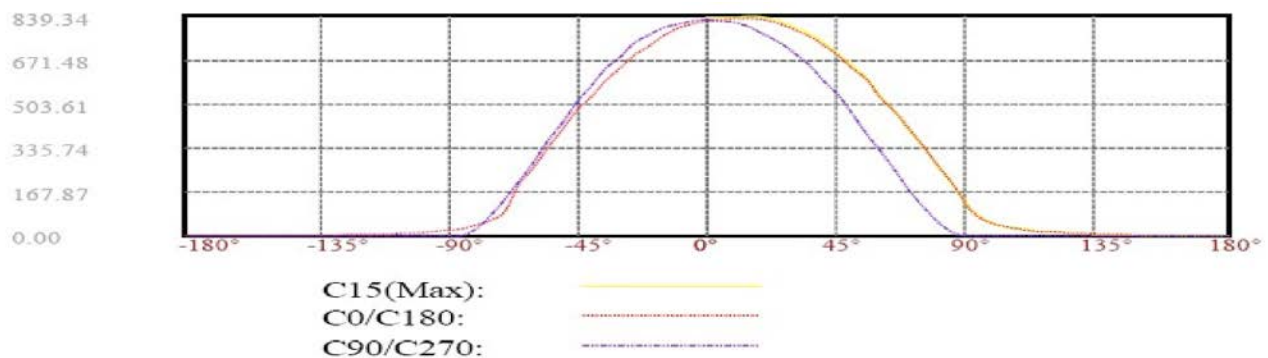


Figure 3.3 Beam angle of C15 plane: Clear Cover: 118.40°, Frosted Cover: 130°

4. UK Mains Voltage Test

Original measurements were taken in our factory and were conducted usually at 220V.

To provide the most accurate values for the electrical parameters we conducted a series of measurements in real time. Each tube was connected to mains voltage and linked to a high-end power meter. The measurements obtained are the relevant values for active power (P), reactive power (Q), apparent power (S), input current (I) and power factor (PF, not $\cos\phi$) when the products are used with UK voltage.

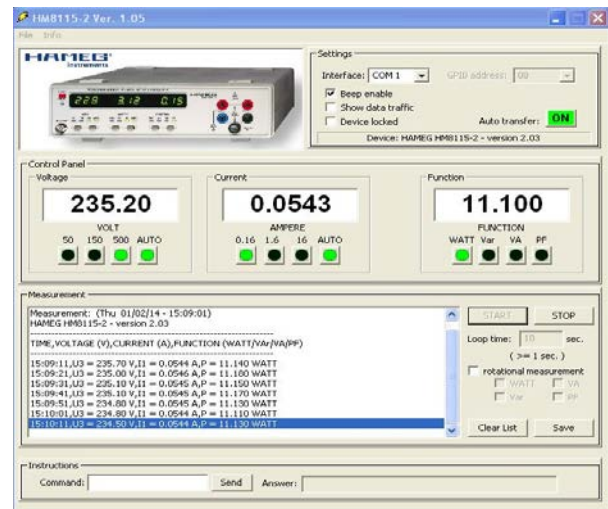


Figure 4.1 Real time measurements

Electrical parameters at UK mains voltage

Model number	Mains voltage [V]	Mains current [mA]	P [W]	Q [VA _r]	S [VA]	PF
LEDT860057	235.2	54	11.1	6.3	12.72	0.87
LEDT8120040	234.6	99	20.89	10.2	23.19	0.9
LEDT8120057	235.9	98	21	10.1	23.17	0.9
LEDT8150040	241	119	25.15	12.6	28.63	0.9
LEDT8150057	235	123	26	12.6	28.94	0.9

5. Installation

The purpose of this user guide is to explain the necessary steps for use of Comus T8, and to assure peak performance of product. It is intended for use as reference by a fully qualified electrician or technician. This document should never be considered a substitute for any provision of a regulation or state and/or local code. Please read this entire manual to fully understand and safely use this product. Specifications are subjected to change without notice. Please visit www.penn-elcom.com for the most recent user guide versions.

Getting started

This document contains important information about installing and operating your new Comus T8 safely and accurately.

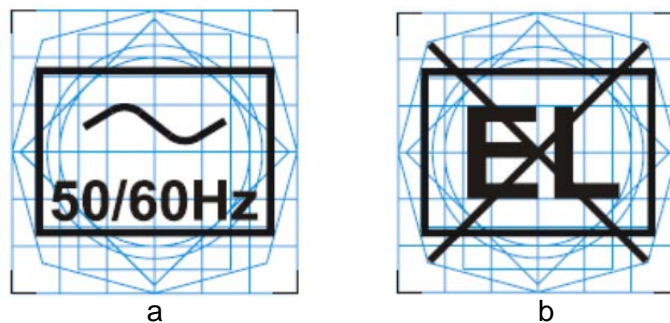


Figure 5.1 Product labels: a – suitable operating frequencies, b – not suitable for emergency operation

Product declaration:

- The package box includes: Comus T8 LED tube, LED starter and manual;
- Any constructive change of the luminaire in case of applying retrofit LED tube shall not be permitted;
- The product is IP20 rated. The tube must be used in dry conditions or in a luminaire that provides protection (figure 4.3).



Figure 5.2 Label indicating operating environment restrictions

Caution:

- Risk of electric shock. Ensure that the power supply is off when installation is being done;
- The device should be installed and operated by a qualified electrician or technician in accordance with relevant local codes;
- Do not use sharp tools near or on the surface of the device;
- The tube is not suitable for dimming!

Unpacking:

- Unpack and carefully examine the product;
- Report any damage and save all packing materials if any part of the product was damaged during transport;
- Do not attempt to use the device if it is damaged.

User responsibilities:

The responsibility of complying with all state and local laws, ordinances and regulations in regards to the installation, maintenance and operation of the device lies with the buyer and handler of the device. These parties may include, but are not limited to, the contractor, installer, purchaser, owner and user of the product.

Planning suggestions:

- Consult an Electrical Inspector to review all wiring plans;
- Create a Layout plan drawing, per lighting;
- Use Designer's or Architect's recommendation;
- Consult Penn Elcom's lighting technical staff as needed.

Planning the installation:

This device installation requires planning to ensure timely installation with minimal complications and down time.

Installation instructions:**A. Retrofitting CCG:**

For upgrading an existing luminaire with fluorescent tube and conventional control gear to a LED tube all that needs to be done is to exchange the starter and replace the old tube with the new one. If the starter has not been changed to the new one then the tube will start blinking. Please turn off immediately and change the starter as the tube can suffer damage. Existing power factor compensation capacitors worsen the power factor, but may remain within the luminaire. Furthermore, it should be taken into consideration the maximum amount of tubes connected to one circuit breaker according to technical datasheet.

Use the figure below and the instructions provided for a proper installation of the product.

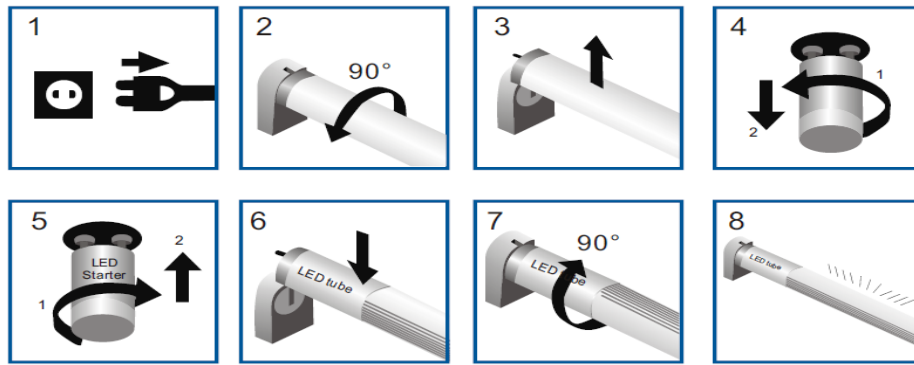


Figure 5.3 Comus T8 LED tube installation steps

1. Switch off electricity;
2. & 3. Remove the conventional tube;
4. Remove the starter;
5. Install the retrofit version starter into the starter holder;
6. Insert the retrofit version LED lamp into the lamp holder;
7. Secure the position by turning the tube by 90°;
8. LED tube in operation.

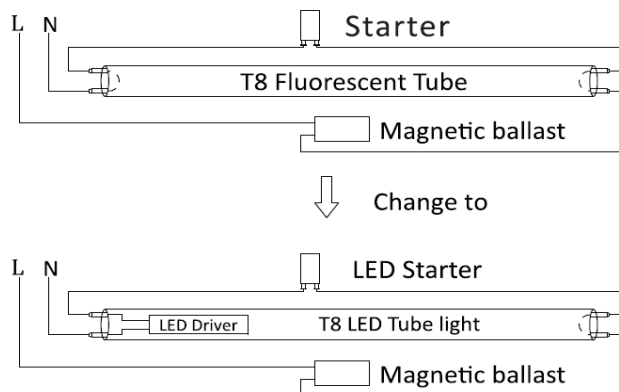


Figure 5.4 Wiring diagram for retrofitting CCG

B. Retrofitting ECG

For upgrading an existing luminaire with a fluorescent tube and electronic control gear to a LED tube all that needs to be done is to replace the old tube with the new one and bypass the electronic ballast. This implies rewiring as can be seen from figure 4.5.

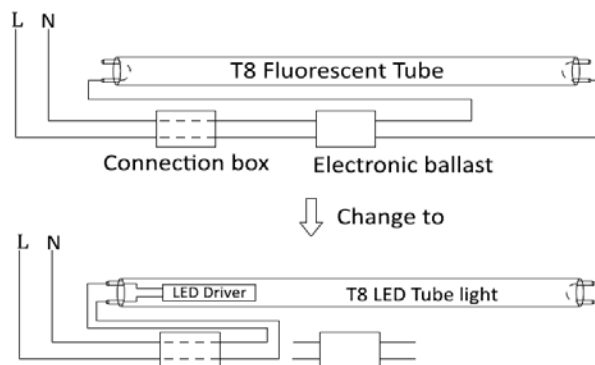


Figure 5.5 Wiring diagram for retrofitting ECG

C. Direct wiring

For new lighting installations the Comus T8 LED tube can be connected directly to the mains supply (figure 4.6). There is no need for additional control gear or wiring.

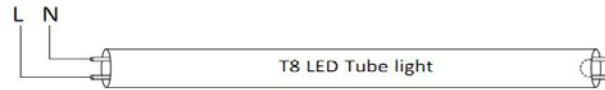


Figure 5.6 Direct wiring to the mains supply

6. Packaging

Packaging information

Size	Carton size L x W x H [mm]	Carton size L x W x H [in]	Qty/ctn	Weight [kg]	Weight [Lb]
2 ft.	670 x 240 x 200	26.38 x 9.45 x 7.87	20	7.5	16.53
4 ft.	1270 x 240 x 200	50 x 9.45 x 7.87	20	12.5	27.56
5 ft.	1570 x 240 x 200	61.81 x 9.45 x 7.87	20	16.5	36.38