

LINE TUFF Series™

Hazardous Location Lighting

Built for the toughest explosive environments, the C1D1 Line Tuff light from Black and Blue delivers reliable illumination where flammable gases, vapors, or liquids may be present during normal operation, while its rugged construction stands up to thermal shock and heavy impact. the Line Tuff is designed for the purpose, and made to last.

Compliance

NEC/CEC Standard

UL 844 Hazardous Locations

Class I Division 1, Group C, D

Class I Division 2, Group A, B, C, D

CSA C22.2 No.137

CSA C22.2 No.250.0

UL 1598 Wet Locations

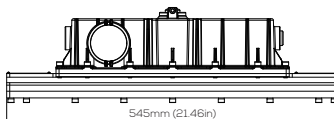
UL 1598A Marine Outside Type (Salt Water)

UL 8750 LED Safety

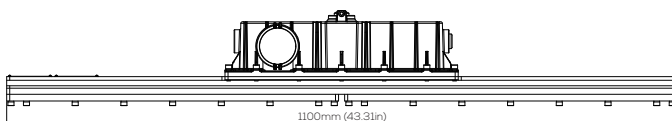
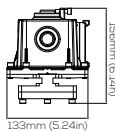
IP66/67 | IK08 | 5G | NEMA 4X

Dimensions

unit: mm(in)



2ft, 20W / 30W / 40W



4ft, 60W / 80W / 100W

Technical Data

Electrical

Rated Power	20W/30W/40W/60W/80W/100W
Input Voltage	100-277, 347-480V/AC
Input Frequency	50/60Hz
Power Factor	> 0.95
Driver Efficiency	≥ 90%
DC output Ripple & Noise	< 200mVP-P

Optical

Lumen Output	3,400lm ~ 17,000lm
Luminous Efficacy (Lumens per Watt)	160-170 lm/W
Beam Angle	110°
Color Temperature	3000K 4000K 5000K
CRI	Ra>70

Environmental

Ambient Operating Temperature	-40°C~+65°C
Ambient Operating Humidity	10%~90% RH
Atmospheric pressure	86~106KPa
T-Code	C1D1 T6 (65°C)

Technical

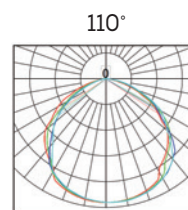
Lens Material	Tempered Glass
Mounting Options	Pendant / Ceiling / Wall / Pole Stanchion / Hanging
Cable Entries	3/4" NPT, 1-1/2" NPT
Net Weight	6.4kg(2ft) / 9.7kg(4ft)

Warranty

10 year limited system warranty

Lumen Maintenance: L70 > 150,000 hours @ 25°C

Beam Distribution



Ordering Information and Mounting Accessories

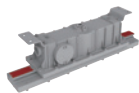
LTL2	20	H	3K	110	1	CG	GR	PD	XXX
Model	Power	Voltage	Color Temp	Optics	Ex. Level	Lens	Color	Mount Style	Accessories
LTL2 (2ft)	20 – 3,400 lm (20W) 30 – 5,100 lm (30W) 40 – 6,800 lm (40W)	L – 100-277V/AC H – 347-480V/AC ¹	3K – 3000K 4K – 4000K 5K – 5000K	110 – 110°	1 – CID1	CG – Clear glass DG – Frosted glass	GR – Gray	PD – Pendant mount (3/4" NPT) CLM – Ceiling mount SB – Offset ceiling / wall swivel bracket CM – Chain mount PCM48 – Pole clamp 48mm for pole Ø 1-7/8" PCM60 – Pole clamp 60mm for pole Ø 2-3/8" W90 – Wall mount 90° W25 – Wall mount 25° S90 – Stanchion-90° (1-1/2" NPT) S25 – Stanchion-25° (1-1/2" NPT)	SC SP1 SP1H SP2 SP2H CRD
LTL4 (4ft)	60 – 10,200 lm (60W) 80 – 13,600 lm (80W) 100 – 17,000 lm (100W)								

¹ Only available for 60W/80W/100W (LTL4-60, LTL4-80 or LTL4-100)

Mounting Options



PD
Pendant mount
3/4" NPT



CLM
Ceiling mount



SB
Offset ceiling / wall
Swivel Bracket



W90
Wall mount 90°
3/4" NPT



W25
Wall mount 25°
3/4" NPT



CM
Chain mount



PCM48
Pole clamp 48mm
for pole Ø 1-7/8"



PCM60
Pole clamp 60mm
for pole Ø 2-3/8"

S90
Stanchion mount
90°1-1/2"NPT



S25
Stanchion mount
25°1-1/2"NPT

Accessories



CLM
Flush ceiling mount kit
1 pair



SB
Offset ceiling / wall
swivel bracket
1 pair



PCM48
Pole clamp 48mm 1 pair
for pole Ø 1-7/8"



CM
Chain mount
stainless steel
1 pair



SC2
Stainless steel
safety cable
Ø6 (3mm)



SP1
10KV Surge protector
(100-277V) *Standard



SP2
20KV Surge protector
(100-277V)



CRD
3' SEOWW-18/3 Cord
(Factory installed)

SP1H
10KV Surge protector
(347-480V) *Standard

SP2H
20KV Surge protector
(347-480V)

Classification of Divisions and Zones

Hazard Level	Division Scheme	Zone Scheme	Definitions
Continuous Hazard	Division 1	Zone 0 / Zone 20	A place in which an explosive atmosphere is continually present
Intermittent Hazard		Zone1 / Zone 21	A place in which an explosive atmosphere is likely to occur in normal operation
Hazard Under Abnormal Conditions	Division 2	Zone2 / Zone 22	A place in which an explosive atmosphere is not likely to occur in normal operation, but may occur for short periods

Hazardous Atmosphere Category

Explosive atmosphere	Typical Hazard Material	Hazard Class	Division Group	NEC 505 / CEC 18
Gases, vapors, and liquids	A: Acetylene B: Hydrogen, etc. C: Ether, etc. D: Hydrocarbons, fuels, solvents, etc.	Class I	Group A Group B Group C Group D	IIC IIC or IIB+H2 IIB IIA
Dusts	E: Metal dusts (conductive and explosive) F: Carbon dusts (some are conductive, and all are explosive) G: Flour, starch, grain, combustible plastic or chemical dust (explosive)	Class II	Group E Group F Group G	IIIC IIIC IIIB
Fibers and flyings	Textiles, wood-working, etc. (easily ignitable, but not likely to be explosive)	Class III	Not Applicable	IIIA

IP Codes

Solid Objects	Liquids
0 - No protection	0 - No special protection
1 - Objects > 50mm diameter	1 - Vertically dripping water
2 - Objects > 12.5mm diameter	2 - Vertically dripping water when enclosure tilted by 15°
3 - Objects > 2.5mm diameter	3 - Sprayed water up to 60°
4 - Objects > 1.0mm diameter	4 - Sprayed water from all directions
5 - Dust protected	5 - Water jets
6 - Dust tight	6 - Powerful water jets
	7 - Temporary submersion to a depth of 1m
	8 - Extended submersion to a depth of >1m

IK Codes

IK Code	Impact energy, J
IK01	0.14
IK02	0.2
IK03	0.35
IK04	0.5
IK05	0.7
IK06	1
IK07	2
IK08	5
IK09	10
IK10	20
IK11	50

Temperature Classification

Marking	NEC500 CEC	NEC 505 IEC-GROUP II
450°C	T1	T1
300°C	T2	
280°C	T2A	
260°C	T2B	T2
230°C	T2C	
215°C	T2D	
200°C	T3	
180°C	T3A	
165°C	T3B	T3
160°C	T3C	
135°C	T4	
120°C	T4A	T4
100°C	T5	T5
85°C	T6	T6

Zone classification and Equipment protection level (EPL)

Gas Zones	Definition	ATEX Category	EPL	Required Protection
Methane	Mines with methane and dust. Equipment remains energised in explosive atmosphere	M1	Ma	Two Faults
Methane	Mines with methane and dust. Equipment is de-energised in explosive atmosphere	M2	Mb	Severe Normal Operation
Zone 0	Explosive atmosphere present continuously or for long periods, frequently	1G	Ga	Two Faults
Zone 1	Explosive atmosphere is likely to occur under normal conditions, occasionally	2G	Gb	One Fault
Zone 2	Explosive atmosphere is unlikely to occur under normal conditions, short periods	3G	Gc	Normal Operation
Dust Zones	Definition	ATEX Category	EPL	Required Protection
Zone 20	Explosive atmosphere present continuously or for long periods, frequently	1D	Da	Two Faults
Zone 21	Explosive atmosphere is likely to occur under normal conditions, occasionally	2D	Db	One Fault
Zone 22	Explosive atmosphere is unlikely to occur under normal conditions, short periods	3D	Dc	Normal Operation