

# NAUTITECH®

HARNESSING TECHNOLOGY TO KEEP MINERS SAFE



IS Lights



IS Light Bar

## CUBEx IS Lights

Intrinsically Safe Lights



Scan QR Code for  
more information

[nautitech.com.au](http://nautitech.com.au)

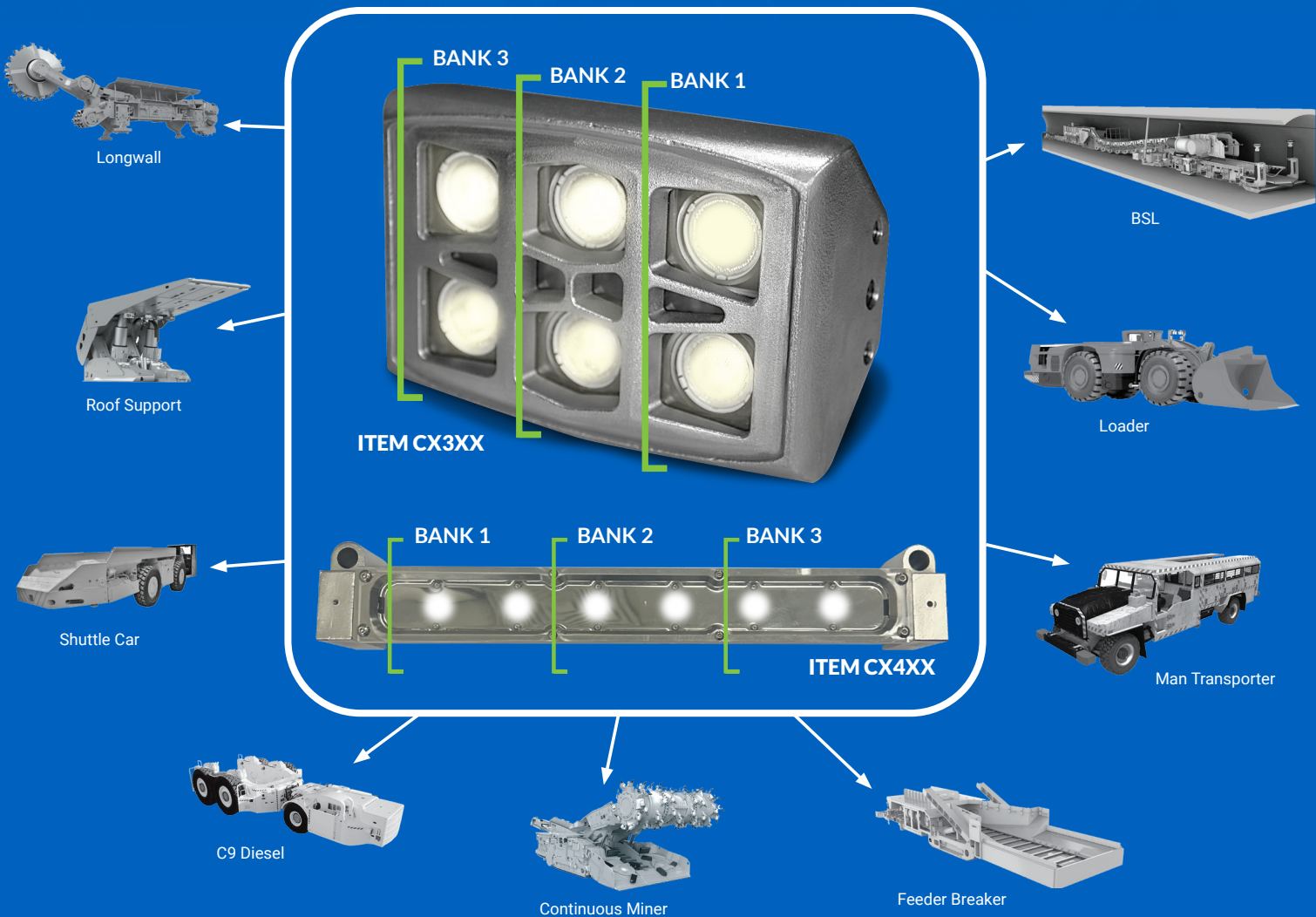
The CUBEx suite of intrinsically safe modular products is engineered for direct use in hazardous environments, eliminating the need for additional enclosures. By adopting an intrinsically safe solution, mining operations can achieve long-term cost savings through

- ⚙️ Reduced inspection requirements
- ⚙️ Lower maintenance demands
- ⚙️ Decreased machinery downtime

Unlike many other products on the market, CUBEx units are constructed from durable metal rather than plastic, delivering enhanced strength, reliability, and longevity in harsh operating conditions.

CUBEx IS lights for underground mining are the first controllable IS floodlights, headlights, and directional lights in Australia. These versatile and robust Intrinsically Safe lights for underground mining have been proven time and again in the field for applications including Longwall, BSL, continuous miner, shuttle car, diesel machines, and other mobile machinery.

Independent light banks enable customised adjustments to beam angles, colour, and intensity, providing flexibility for different operational needs. This versatility makes CUBEx IS Lights well suited for applications across longwall systems, development equipment, and RTVs.





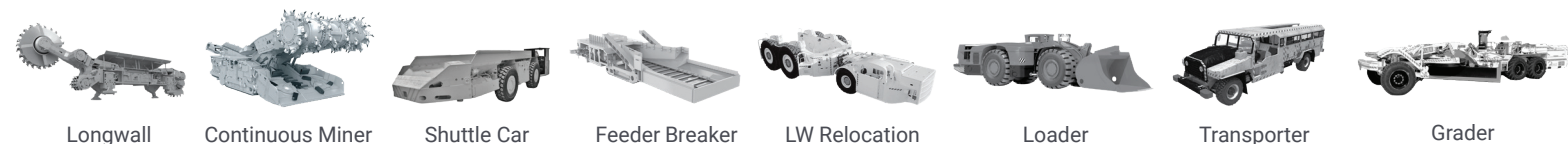
CUBEx IS Lights provide a wide selection of standard variants focused on flexibility depending on their application. Typical applications include Longwall, BSL, Continuous Miner, Shuttle Car, Diesel and other mobile machinery.

## STANDARD VARIANTS AVAILABLE

- ✓ **Beam angle: 5° to 120°**
- ✓ **Colours: white, red, green, yellow or blue**
- ✓ **Operation: flashing, non-flashing, triggered**
- ✓ **Use as reverse, tail, hazard, signal, traffic, work area, spotlight and floodlight**
- ✓ **Preset intensity as required**

**The light fittings are suited to applications including:**

- ☀ Area Lighting
- ☀ Vehicle Lighting
- ☀ Emergency Exit & Signalling
- ☀ Operational & Task Lighting



Longwall

Continuous Miner

Shuttle Car

Feeder Breaker

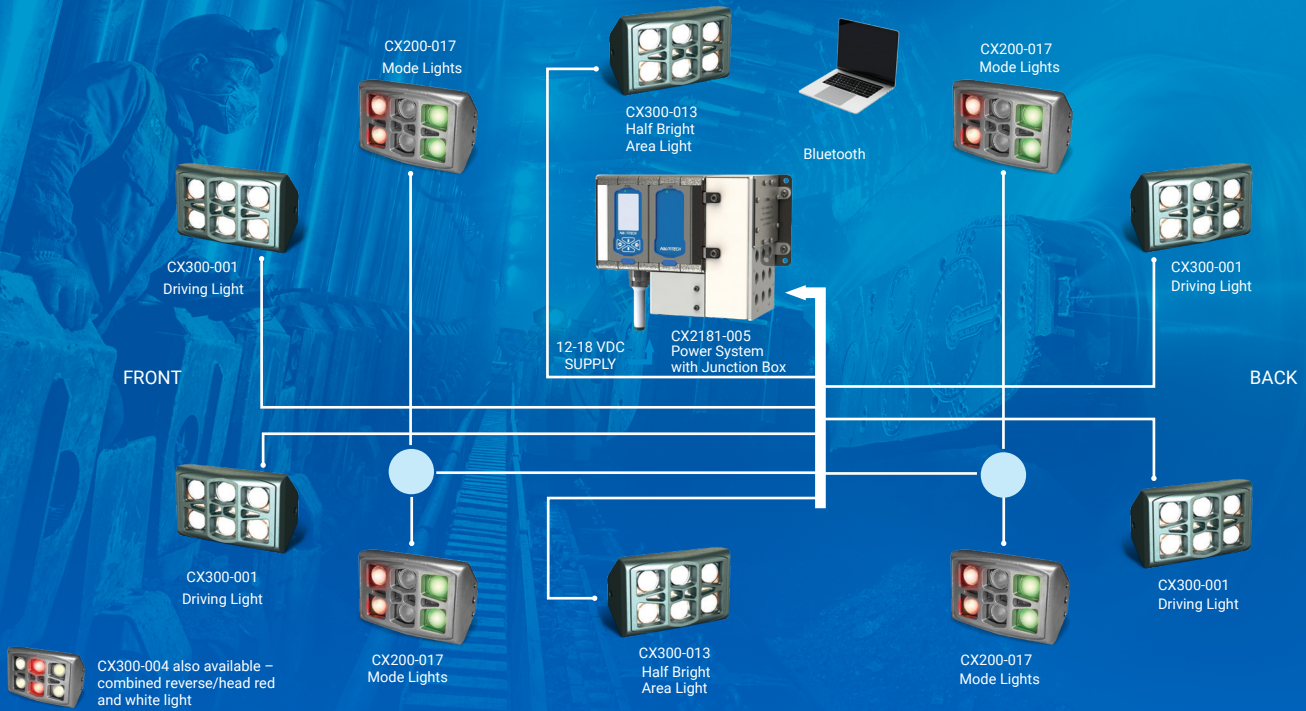
LW Relocation

Loader

Transporter

Grader

# SYSTEM SCHEMATIC (SHUTTLE CAR)



# ILLUMINATION STUDY (SHUTTLE CAR)

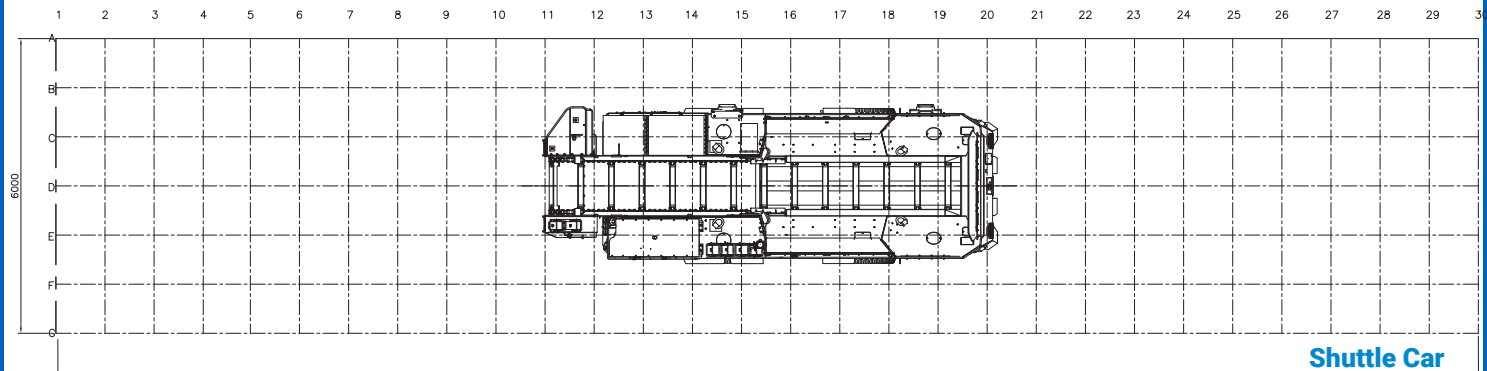
This table illustrates the recorded illumination results at 1.5x stopping distance for a shuttle car travelling at 10km/hr

	STOPPING DISTANCE (m)	1.5X STOPPING DISTANCE (m)	MEASURED LUX INBYE @ 2.1m	MEASURED LUX OUTBYE @ 2.1m
<b>CUBEx IS LED (CX200)</b>	1.4	2.1	64	87
<b>Other FLP Light</b>	1.4	1.4	12	20

\* test conducted with only 4 LED lights

Graphical illustration below of variance between Illumination (Shuttle Car with CUBEx IS Lights) - Illumination (Shuttle Car with FLP Lights)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
<b>A</b>	3.8	4.25	4.14	5.15	5.94	5.14	3.81	2.18	0.85	1.84	4.57	1.47	-0.06	4.17	49.7	137.1	17.56	2.33	6.12	3.64	0.63	5.28	4.22	5.9	6	5.27	4.72	3.58	2.54	2
<b>B</b>	2.79	4.74	6.39	6.75	7.3	7.45	12	11.7	5	1.74	14.52	0.85	-0.83	-4.01	-1.05	833.6	5.84	0.03	23.47	0.84	21.1	27.29	23.18	13.2	7.36	6.58	4.57	2.57	0.97	1.15
<b>C</b>	3.93	1.45	7.18	7.52	11.57	14.55	10.85	19.3	20.5	214.1											171.3	55.75	29.02	18.85	8.36	4.63	2.72	1.57	1.16	1.03
<b>D</b>	4.5	5.35	6.17	7.29	10.65	11.87	19.07	35.8	70.9	126.4											16	55.94	19.22	8.05	3.41	2.72	1.99	1.71	1.88	1.32
<b>E</b>	4.84	5.7	7.64	10.02	15.37	20.32	26.42	49.1	81.6	343.6				DRIVERS CAB							258.9	54	9.42	7.12	6.55	6	7.5	3.76	2.84	2.27
<b>F</b>	4.3	5	6.42	6.82	8.99	14.16	24.67	34.02	34.4	16.2	-0.6	0.48	4.8	-1.7	-15.5	943.8	13.96	0.2	46.67	-0.2	5.87	8.2	12.18	3.59	1.3	1.29	2.3	2.96	3.65	2.34
<b>G</b>	4.49	5.25	7.9	9.12	12.83	11.82	10.44	7.65	3.2	2.3	4.06	7.45	2.35	1.4	19.32	89.1	31.9	4.78	8.03	3.44	1.2	1.25	2.32	2.69	3.61	1.61	1.31	0.68	1.22	1.4



Shuttle Car

## KEY FEATURES – IS LIGHTBAR



CUBEx IS Lightbars are suitable for a wide range of applications, including

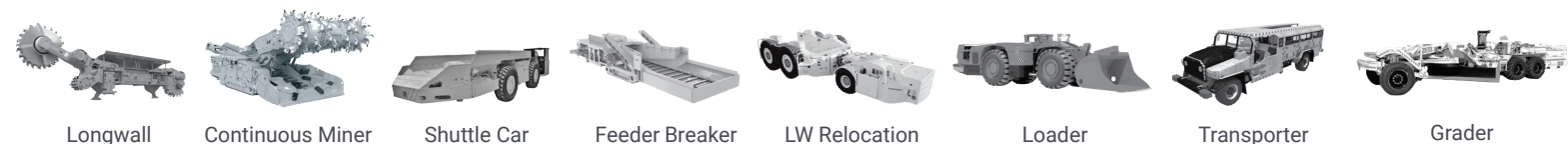
- ☀ Area lighting
- ☀ Walkways
- ☀ Cabin lighting
- ☀ Floor and Dashboard gauge illumination
- ☀ Awareness/Mode lighting
- ☀ General machine lighting

Brightness of each bank is adjustable from 0 (12.5%) to 7 (100%) brightness using rotary switches at the rear of the housing.



Typical applications for the IS Lightbar include Longwall Chocks, Multi-Bolters, Continuous Miners, Shuttle Cars, Conveyor Belts, and RTVs and is available in multiple configurations to suit different scenarios.

Application	Description
<b>Area Lighting</b>	CUBEx IS Light fittings are intrinsically safe (Ex ia) for Zone 0 environments where CH4 may be present. Delivering up to 1000 lumens per fitting, lighting layouts can be tailored to achieve required illumination levels. Units can be switched as a single bank of six lamps or three banks of two lamps which can be configured for colour, strobing, or flashing as required.
<b>Vehicle &amp; Equipment Lighting</b>	A wide range of colour, photometric, and switching options support vehicle and equipment applications, including multi-bolter walkway lighting, conveyor discharge visibility, dashboard illumination, and cabin lighting for personnel.
<b>Operational &amp; Task Lighting</b>	Ideal for face lighting, portable use, and general work lighting, offering a versatile and universal solution across mining operations.



Longwall

Continuous Miner

Shuttle Car

Feeder Breaker

LW Relocation

Loader

Transporter

Grader

## I.S. LIGHTS & LIGHTBAR

I.S. Parameters	
Ui	20V
Ii	3.2 (CX300 only)
Li	Negligible
Ci	Negligible

- 3 x Independent circuits
- High efficiency, long life
- 1500 lumens (max)
- Colour temperature 2700K-5000K
- IP 67 connector
- Rated from 10.5-20V DC
- $-20^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$
- Suitable for 12V applications
- Tailor made cables

## POWER SUPPLY MODULE (PSM)

Entity Parameters	
Um	90V

- Ex mb [ia] I Mb (Um Applied)  
Ex ia I Ma (Um Withdrawn)
- $-20^{\circ}\text{C} < \text{Ta} < +60^{\circ}\text{C}$
- Rated voltage: 7-18V

## LIGHT INTERFACE MODULE (LIM)

Output Parameters	
Uo	20V
Io	1.2 A
Co	2uF
Lo	100uH

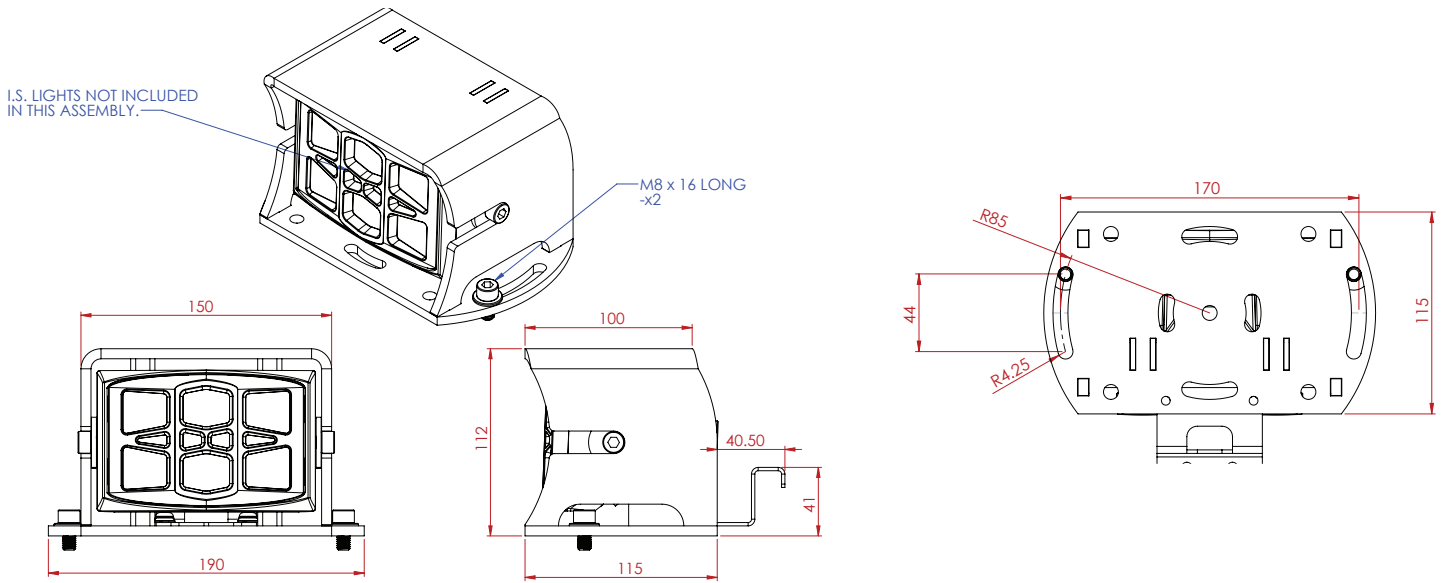
- 8 x GPIO ports with dual switches EX ib | Mb
- 1 port with single switch Ex ib | Mb
- Backplane power
- $-20^{\circ}\text{C} < \text{Ta} < +60^{\circ}\text{C}$
- Configuration via Bluetooth
- Crocodile scale enclosure
- IP66



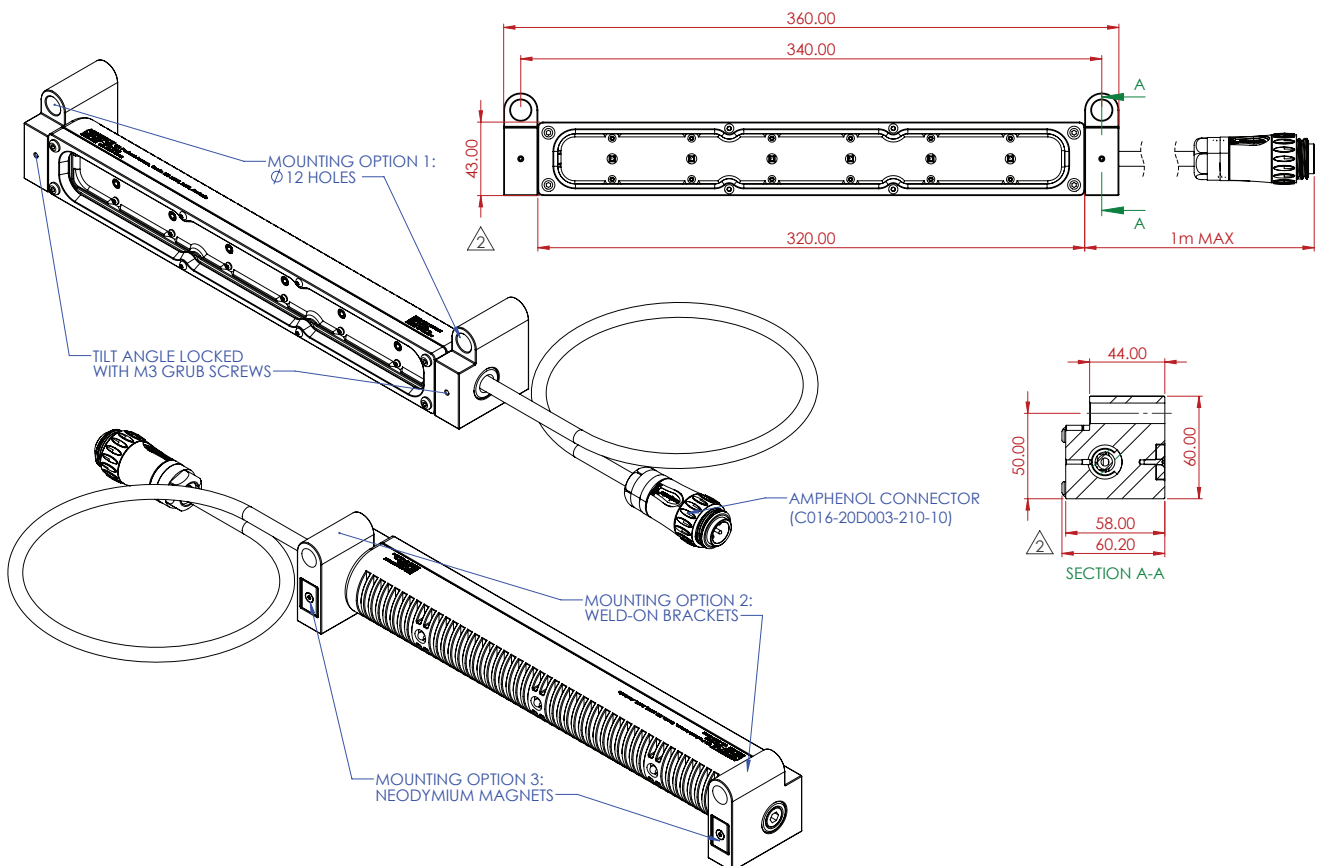
Certified under IECEx 60079-11:2023 and IECEx 60079-0:2017 electrical apparatus for explosive gas atmospheres

Certificate Number IECEx MSC 15.0002X  
Certificate Number Nemko 24ATEX1001X

## MECHANICAL SPECIFICATIONS (IS LIGHTS)



## MECHANICAL SPECIFICATIONS (IS LIGHTBAR)



# NAUTITECH®

HARNESSING TECHNOLOGY TO KEEP MINERS SAFE

NAUTITECH® is an Original Technology Manufacturer (OTM), and global provider of **smart electronic** and **software** solutions for OEMs and mine sites in underground mining.

We design and manufacture equipment that delivers **Communications** and **Visibility**, supports **Automation**, and provides a platform for **Asset and Condition Monitoring** of underground equipment. Our **data analytics** software can help detect safety risks and gain intelligence for improved mining operations.



## South Africa

Middelburg, Mpumulanaga  
South Africa

+ 27 78 800 2589

sales\_za@nautitech.com.au



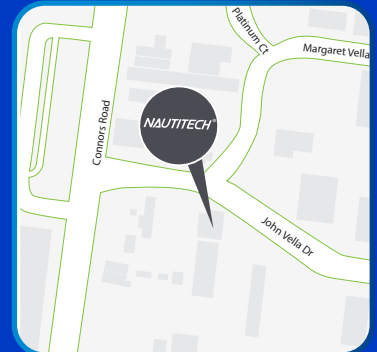
## New South Wales

3/9 Packard Avenue  
Castle Hill, NSW 2154

+ 61 2 9899 6857

+ 61 417 711 018

sales@nautitech.com.au



## Queensland

14 John Vella Drive  
Paget, QLD 4740

+ 61 7 4911 4171

+ 61 400 268 755

sales@nautitech.com.au

Scan QR Code to discover our range of products and services

