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**Emergency lighting
solutions informations**



Hazlux®

InduXEL for explosive atmospheres

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Your security is one of ABB's top priority. Hazlux® provides reliable and practical solutions, products and services to ensure optimal, long-term protection.

With this ATEX range, which completes our range of emergency lighting products, Hazlux® offers solutions for all types of installations.

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Hazlux®, choosing the right partner

For your ATEX Emergency Lighting project

Hazlux®

When you're looking for ATEX emergency lighting, you need an experienced partner you can trust. Someone who will accompany you every step of the way and provide expert advice and exceptional service. The ABB sales team has been doing just that for close to a century. Choose Hazlux.

For more than 30 years, Hazlux® manufacturing facility has been producing high-quality luminaires to illuminate explosive atmospheres locations around the world. Built on innovation, state-of-the-art technology and expertise, the Hazlux® product range offers lighting solutions for any application in harsh conditions.

Each fixture is designed, manufactured, inspected, tested, and shipped from our facilities across North America and Europe to ensure it meets our exacting quality standards. Our products are built to last in any industrial environment, giving you complete peace of mind.



InduXEL

What is an ATEX product?

In many sectors of activity (hospitals, boiler rooms, storage areas, refineries, etc.), it is common to have ATEX zones. These zones are hierarchical (zones 0, 1 or 2) and classified by type of environment: gas or dust.

These zones, identified by specific regulations, require products with a special design. These luminaires are designed to protect the environment by not being the source of an explosion.

This design can be achieved in several ways, like encapsulation and increased safety. Hazlux®, with our InduXEL range, has selected several certified protection modes to guarantee the protection of your site and its employees.



Standards, zone definitions & product markings

World standards & what they mean

In this section we will outline the different Standards used throughout the work and what it means for products specified for use in explosive atmospheres. The map of the world opposite, illustrates the Standards that are generally used in these regions.



— ATEX and IECEx



— UL (Amérique) and IECEx



— UL (Amérique)



— EAC EurAsian communauté



— CSA (Canada) & IECEx



— IECEx



— InMetro (Brésil)



— No standard



The European Directives

The directive 1999/92/EC requires employers to eliminate or control risks from dangerous substances and to classify areas where explosive atmospheres may occur into zones, as laid down in regulations. They are designed to protect employees, the public and the environment from accidents owing to explosive atmospheres and since July 1st 2006 all existing sites, as well as new sites, must be fully classified.

The ATEX directive 2014/34/EU applies to the manufacturers of equipment. It defines the modules of conformity assessment for electrical and non electrical equipment.

Any product sold within the European Union designed for use in explosive atmospheres must be ATEX certified and bear the ATEX marking in conjunction with CE marking. This obligation is placed upon the manufacturer of the product. The ATEX marking is intended to inform the user about the product category corresponding to the zone for installation in the EU.



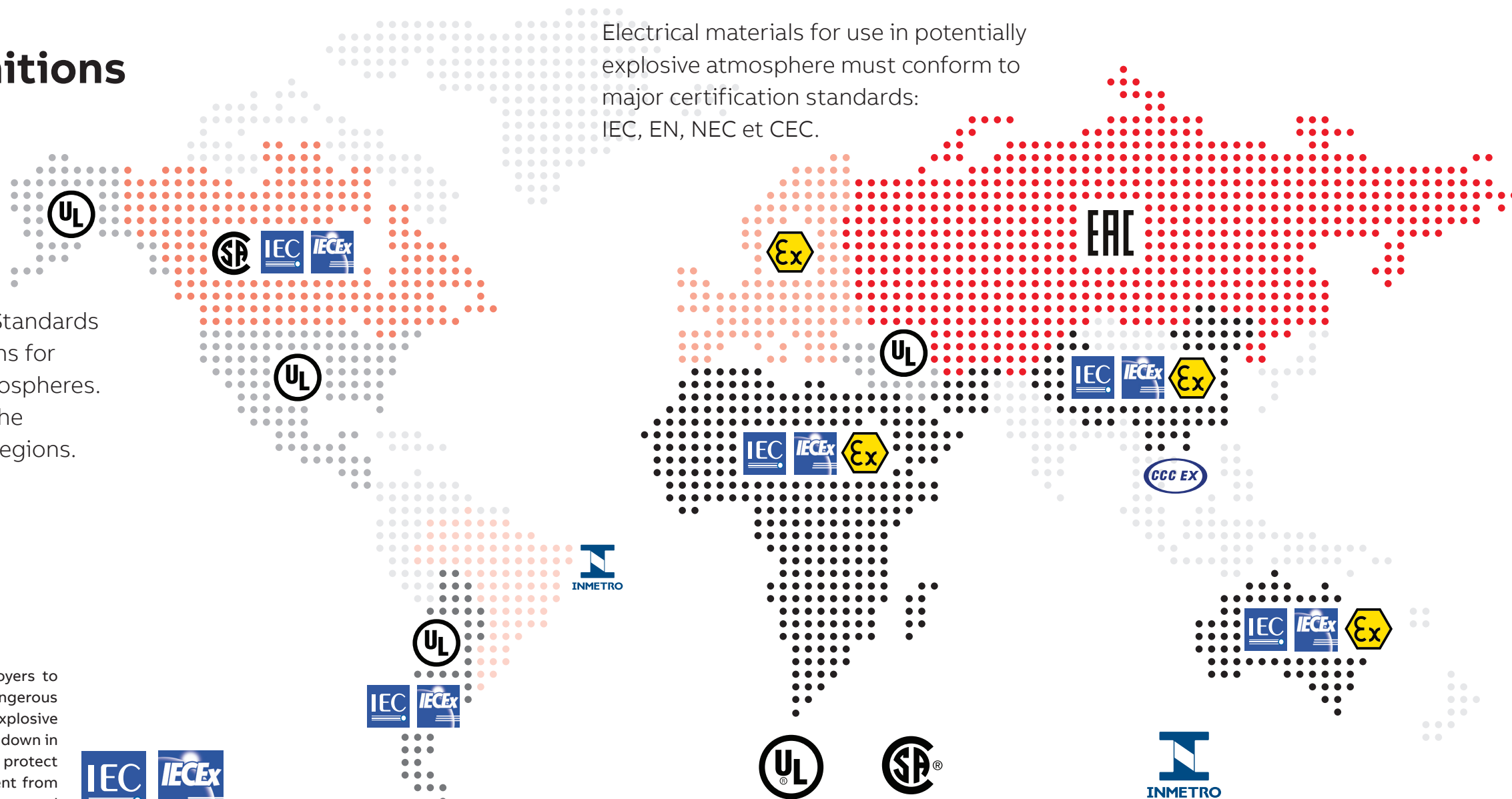
IECEx (International Scheme)

The IECEx scheme is an international certificate of conformance for products used in a hazardous area.

This scheme provides:

- A single certification of conformity for manufacturers to comply that includes:
 - Testing and assessment of products to a standard including a full test report.
 - Ongoing surveillance of manufactures premises.
- A fast-track process for countries where regulations still require the issuing of national Ex certificates or approvals.

Electrical materials for use in potentially explosive atmosphere must conform to major certification standards: IEC, EN, NEC et CEC.



UL (America) & CSA (Canada)

The American and Canadian standards are the only ones to have different classifications and locations. ATEX & IECEx work to Groups and Zones whereas the NEC & CEC works to Classes and Divisions, there is no direct comparison between the two. This means that it is imperative that the two standards are not inter-changed within an area.



EurAsian Conformity Mark (Customs Union)

EurAsian Conformity Mark follows similar rules to that of IECEx as far as the breakdown of the zones and other criteria are concerned.

EurAsian Conformity Mark is the standard for the Customs Union which includes the Russian Federation, Kazakhstan and Belarus.



INMETRO (Brazil)

The National Institute of Metrology, Standardization and Industrial Quality (INMETRO) is the government body responsible for the implementation of measurement, safety and quality standards for electrical and electronic products. It guides the activities of accreditation, inspection, testing and certification bodies in Brazil which issue the products' certificates.



CCC EX (China)

Products placed on the Chinese market shall be certified according to the national regulations in force.

PCEC is accredited by CNAS (China National Accreditation Service for Conformity Assessment) for product testing and issuance of certificates of conformity of products used in explosive atmospheres.

Standards, zone definitions & product markings

Zone definitions - Onshore gases & vapours

The purpose of ATEX zones is to **define the risk** and **match the equipment to be used in each zone**. The site manager or his staff must determine the risk of explosion on a site in the presence of gas, vapour or dust. There are **3 levels of ATEX zone classification**, depending on the degree of ventilation of the fuel source and the nature of the ventilation in the zone. There is a **difference** between **gas/vapor zones and dust zones**.

Zone 0, 1, 2

For atmospheres containing explosive gas

Zone 0

In general, a zone 0 will be the inside of tanks, pipes, etc.

Zone 2

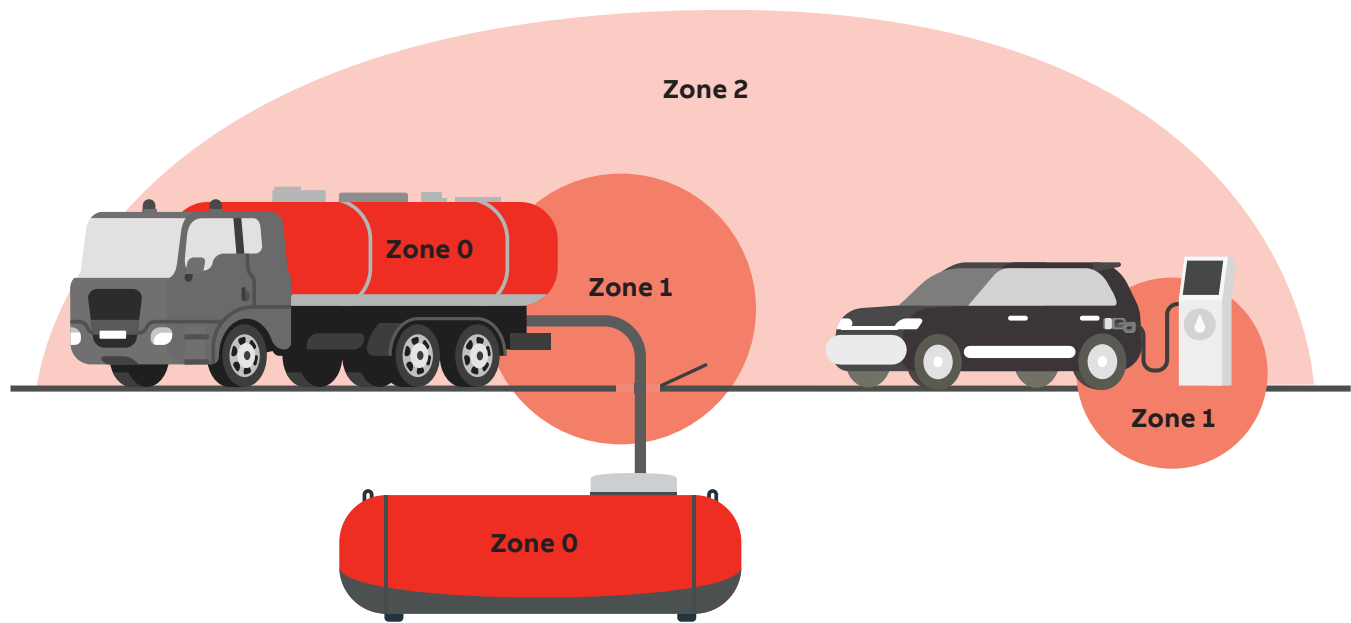
Zone 2 may include :

- Locations surrounding zones 0 and 1.
- Areas in the immediate vicinity of flanges, connections, pipe valves and fittings, glass level tubes, devices made of fragile materials or any other equipment likely to leak.

Zone 1

A zone 1 may include :

- The immediate vicinity of zone 0.
- The immediate vicinity of supply openings, sampling or purge valves, filling and emptying openings, etc.
- Low points of installations (retention pits, gutters).



Zone 20, 21, 22

For atmospheres containing explosive dust

Zone 20

A zone 20 corresponds to the inside of tanks, pipes and containers, just like a zone 0 for gases/vapors.

Zone 22

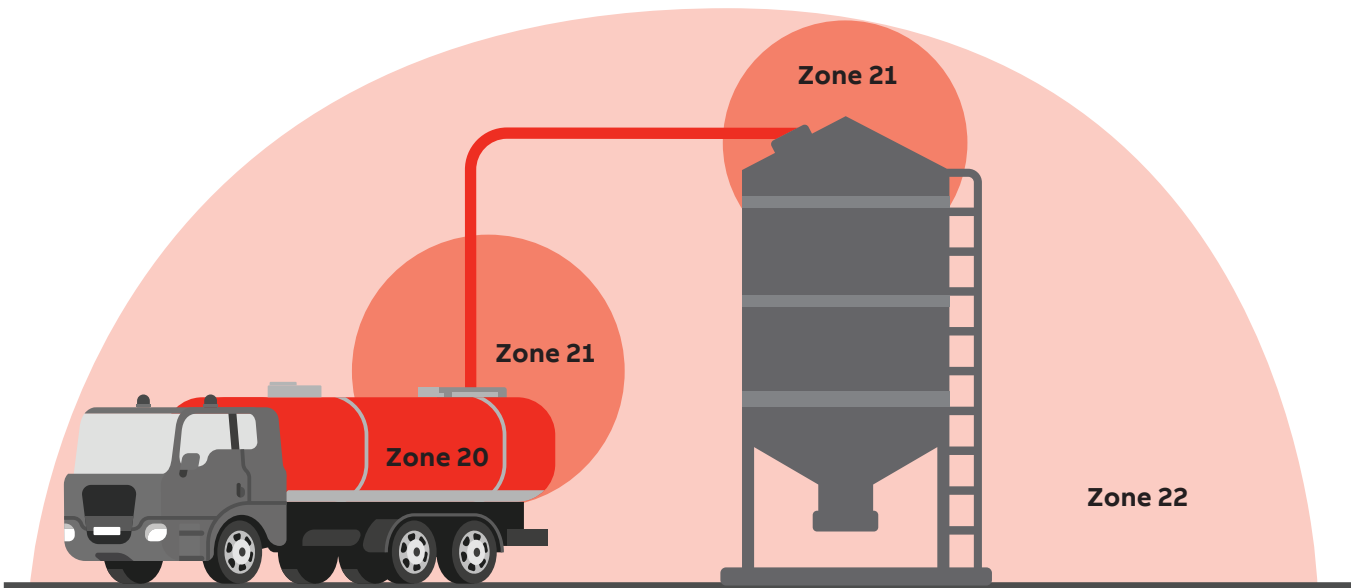
Zone 22 may include :

Locations in the vicinity of dust-containing equipment, protective systems and components, from which dust may escape in the event of a leak and form dust deposits.

Zone 21

Zone 21 may include :

- Locations in the immediate vicinity of powder filling or emptying points.
- Locations where layers of dust appear and are likely, in normal operation, to lead to the formation of a cloud of combustible dust of sufficient concentration mixed with air.



Classification of hazardous areas

	High	Medium / Low	Very low	Improbable
Definitions	Location where an explosive atmosphere is present permanently, for long periods or frequently = permanent, long-term or frequent danger	Location where an explosive atmosphere may occasionally occur during normal operation = occasional danger	Location where an explosive atmosphere is not likely to occur during normal operation or, if it does occur, is only of short duration. = rare or short-term hazard	Low/ No explosion risk
Gas / Vapor	Zone 0	Zone 1	Zone 2	Safe zone
Dust	Zone 20	Zone 21	Zone 22	Safe zone

Standards, zone definitions & product markings

Product marking guide

Classifications of hazardous area

Classification of hazardous area		Descriptions	ATEX		EPL	Equipment usage
			Group	Category		
Mining	Energised	Persistant risk of methane gas and others dusts	I	M1	Ma	-
	De-energised		I	M2	Mb	-
Gas environments	Zone 0	Persistant and continuous presence of gas for frequent or long period	II	1G	Ga	ATEX Equipment Category 1G, Equipment Protection Level Ga
	Zone 1	Likely occurence of gas presence in normal operation	II	2G	Gb	ATEX Equipment Category 2G or higher, Equipment Protection Level Gb or higher
	Zone 2	Unlikely occurence of gas presence in normal operation, short term persistence if any	II	3G	Gc	ATEX Equipment Category 3G, Equipment Protection Level Gc or higher
Dust environments	Zone 20	Persistant and continuous presence of dust for frequent or long periods	II	1D	Da	ATEX Equipment Category 1D Equipment Protection Level Da
	Zone 21	Likely occurence o f dust presence in normal operation	II	2D	Db	ATEX Equipment Category 2D or higher, Equipment Protection Level Db or higher
	Zone 22	Unlikely occurence of dust presence in normal operation, short term persistence in any	II	3D	Dc	ATEX Equipment Category 3D or higher, Equipement Protection Level Dc or higher

Gas & dust groups

	Group	Typical	Examples
Mining	I	Methane (Mining only)	
Gases	IIA	Propane	Ammonia, Methane Gasoline, Butane
	IIB	Ethylene	Town gas, Acrylonitril
	IIB+H2	Ethylene Hydrogen H	Town gas, Acrylonitril
	IIC	Hydrogen, Acetylene	Carbon disulphide
Dust environments	IIIA	Combustable flyings	Wood shaving
	IIIB	Non-conductive dust	Saw dust, flour
	IIIC	Conductive dust	Metal dust

Temperatures classification	
Class*	Surface temperature
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

* Temperature classification is based on the maximum surface temperature of the equipment in normal use.

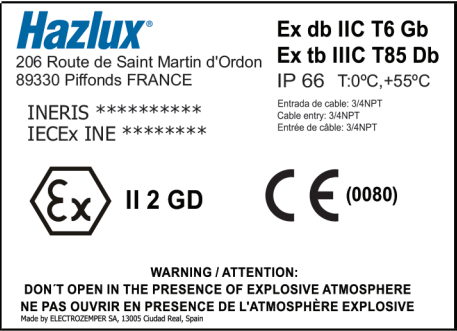
Standards, zone definitions & product markings

Product marking guide

Protection concepts

Protection concepts	Primary	Type of protection	EN/IEC Standard	Sub concepts	Gas zones	Dust zones	
By enclosure	Ex d	Flameproof	60079-1	Ex db	1	–	
				Ex dc	2		
	Ex t	Dust proof	60079-31	Ex ta	–	20	
				Ex tb		21	
				Ex tc		22	
	By exclusion	Ex p	Pressurisation	60079-2	Ex pxb	1	21/22
Ex pyb					1		
Ex pzc					2		
Ex m		Encapsulation	60079-18	Ex ma	0	20	
				Ex mb	1	21	
				Ex mc	2	22	
Ex o		Oil immersion	60079-6	Exob	1	–	
Ex q		Powder filing	60079-5	Exqb	1	–	
By equipment		Ex i	Intrinsically safe	60079-11	Ex ia	0	20
					Ex ib	1	21
					Ex ic	2	22
		Ex op	Optical radiation	60079-28	Ex op is	0/1/2	20/21/22
	Ex op pr				1/2	21/22	
	Ex op sh				0/1/2	20/21/22	
	Ex e	Increase safety	60079-7	Ex eb	1	–	
				Ex ec	2		
	Ex n	Non sparking	60079-15	Ex nA	2	–	
		Restricted breathing		Ex nR			
		Enclosed breaking		Ex nC			

Light fittings & boxes



Standards, zone definitions & product markings

Index of ingress protection

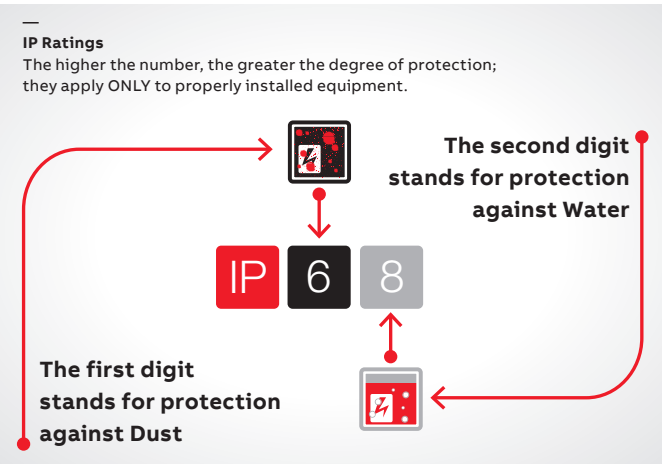
IP suitability ratings are a system for classifying the degree of protection provided by enclosures of electrical equipment.

Protection against Solid Bodies
Degree of protection for persons against access to hazardous parts inside the enclosure and/or against the ingress of solid foreign objects.

	0	No protection
	1	Objects greater than 50 mm, accidental touch by hands
	2	Objects greater than 12 mm, accidental touch by fingers
	3	Objects greater than 2.5 mm, e.g. tools/wires
	4	Objects greater than 1 mm, e.g. tools/wires/small wires
	5	Protected against dust - limited ingress (no harmful deposits)
	6	Totally protected against dust (Dust-tight)

Protection against Water
Degree of protection of equipment inside enclosures against damage from the ingress of water.

	0	No protection
	1	Protected against vertically falling drops of water
	2	Protected against direct sprays of water 15° from vertical
	3	Protected against sprays of water to 60° from vertical
	4	Protected against water sprayed from all directions - limited ingress permitted
	5	Protected against low pressure jets of water from all directions - limited ingress permitted
	6	Protected against strong pressure jets of water, heavy seas - limited ingress permitted
	7	Protection against the effects of immersion between 15cm - 1 m
	8	Protection against long periods of immersion under a quoted pressure, e.g. 2 bar at 24 hours
	9	IP69 Automotive standard DIN40050 and signifies resistance to high pressure jets of water (up to 80bar) from any angle



InduXEL
Solution for explosive atmospheres

- Reliable in extreme condition due to ultra-resistant envelope
- Increased safety and protection
- Cost saving solution due to easy installation

Ultra-resistant envelope

- IK10 mechanical resistance as a result of high-quality materials and components: sustainable investment for InduXEL121
- InduXEL222 has a special treatment for high chemical resistance: suitable for several types of detergent: P3-Topax 990 (Bactericidal liquid disinfectant in compliance with the Biocide Directive, for food processing industries), Topaz CL1 (Foaming chlorinated alkaline detergent for surface cleaning in the food industry), Topaz AC5 (Foaming acid detergent for surface cleaning and descaling in the food industry). For other products, please consult us
- Resistant to corrosion and external aggression is guaranteed due to the usage of stainless steel tips and clamps & the polycarbonate tube
- The fixing collars simplifies the orientation of the product during installation

Safety and protection

- The sealed design and cylindrical shape protects the InduXEL from internal and external dust
- Class II luminaire with limited surface temperature, suitable for environments where conductive dust accumulation is possible, according to EN60598-2-24, ▽marking*.
- Suitable for low and high-pressure cleaning depending on version

* only for InduXEL222

Cost saving solution

- One product for both escape route lighting and signage
- Consistent light output during the lifetime of the product
- Quick maintenance due to easily accessible electronics
- Easy maintenance with Naveo®pro supervision for InduXEL222 version

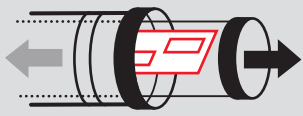


InduXEL222

Solution for extreme conditions -
Zone 2 & 22

InduXEL Cost saving solution

Rapid maintenance
with sliding connectic
base module



Protective cover
in 316L stainless steel
as standard (optional)



Available in self contained
Escape route signalisation and
lighting version in one product

High-performance and homogeneous lighting
due to LED light diffuser
Enhanced safety with an operating time
of 3 hours

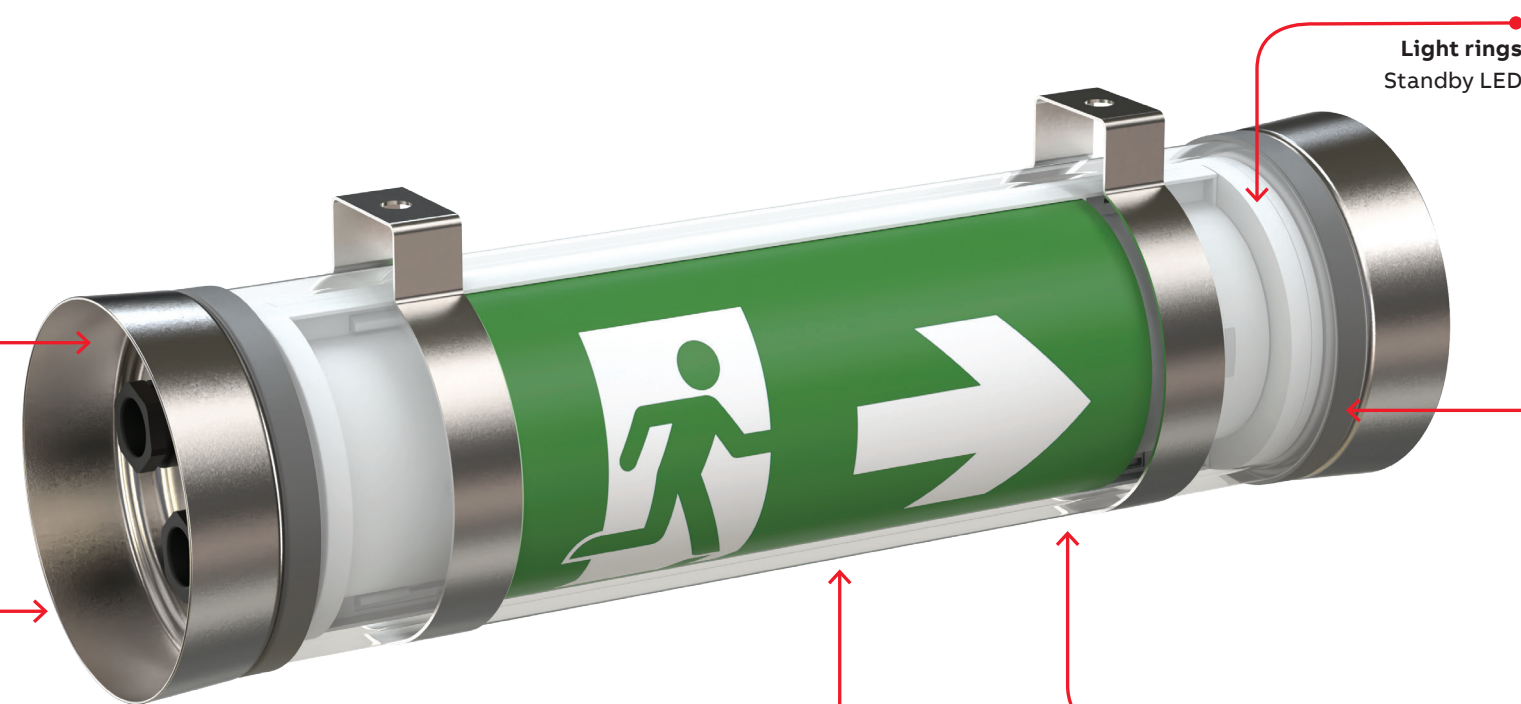
InduXEL Safety and protection

Sealed design and cylindrical
shape against the dust

Operating temperature 0 °C to 40° C

Marking

Surface temperature suitable for environments
where conductive dust accumulation is possible



Light rings
Standby LED



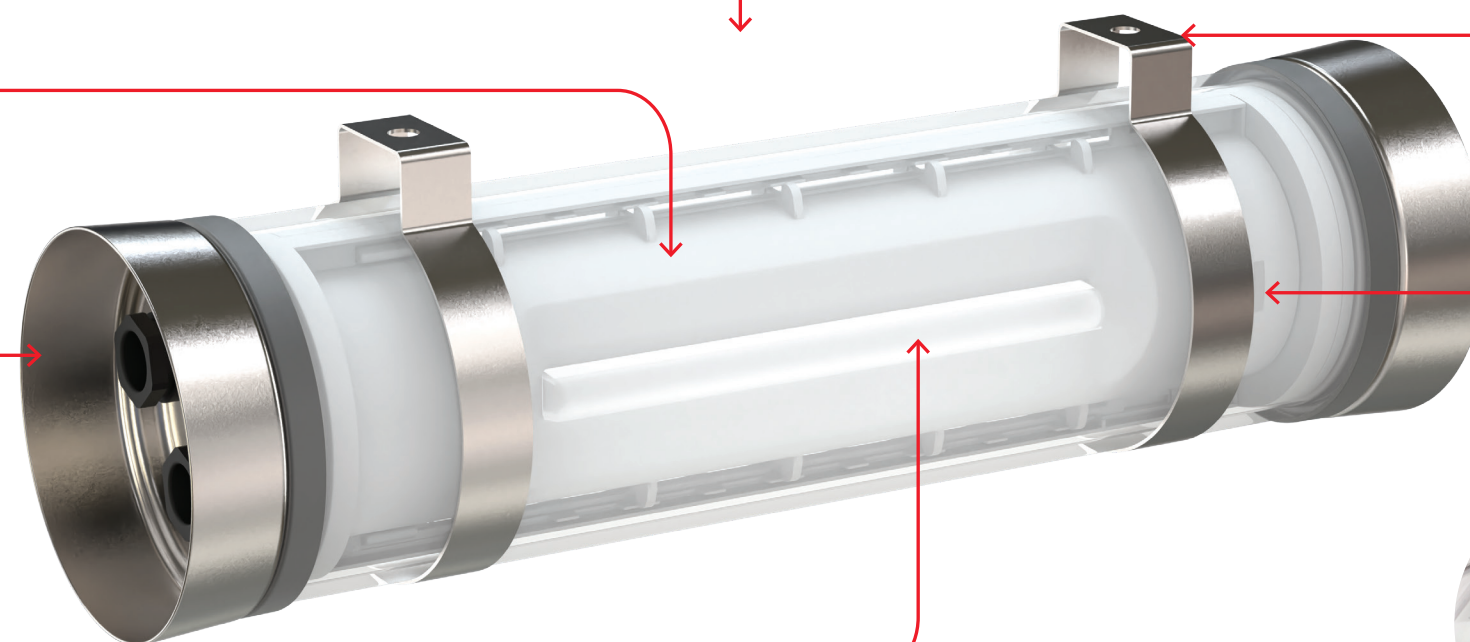
InduXEL Reliable in extreme conditions

Stainless steel solution
(316L)

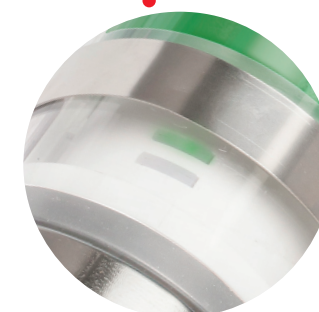


Reinforced sealing IP65
gasket and cable gland

Polycarbonate tube
with anti UV treatment

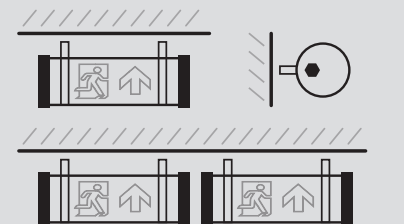


LED self-test
Simplified maintenance with
3 hour autonomy



InduXEL Easy to install

Mounting, wiring and
expanding flexibility



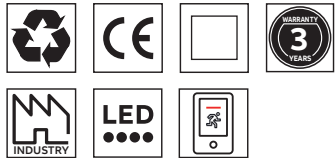
Mounting collar
360° orientation possible

Certification

Certifications	Spécifications	Standards
 	Diffuser : Polycarbonate	Approved to EN 60079-0 : General requirements
 	Rated voltage : 230 VAC - 50Hz	EN 60079-7 : Increase safety "e"
 	Supplied with pictogram and 1 cable gland	EN 60079-31 : Enclosure "t"
	Class II luminaire with limited surface temperature, suitable for environments where conductive dust accumulation is possible, according to EN 60598-2-24, marking ▽	Directive 2014/34/EU
 		II 3 GD Ex ec IIC T6 Gc Ex tc IIIC T50°C Dc
 		Ambiant temperature: 0°C to 40°C
		EMC Directive (2014/30/UE) EN 55015 : Conducted emission test and radiated emission test EN 61547 : EMC immunity EN 61000-3-2 : Harmonic current emission class EN 61000-3-3 : Limitation of voltage changes and flicker
		Low voltage Directive (2017/35/EU) EN 60598-1: Luminaire general requirements and tests, including dielectric strength and isolation resistance EN 60598-2-22 : Particular requirements for emergency lighting
		IP test IEC 60529: IP65
		Impact protection index IEC 62262: IK07



InduXEL222
Self-Contained

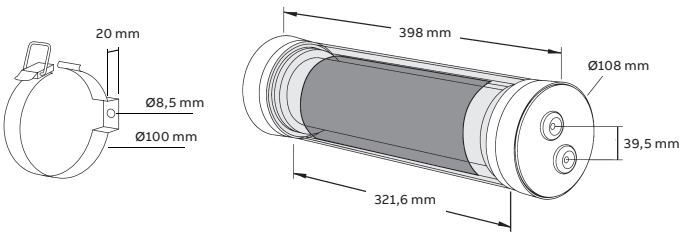


- Features**
- Emergency lighting suitable for zones 2 & 22
 - Easy to install
 - Rapid maintenance with Naveo®Pro supervision
 - Polycarbonate diffuser & UV protected
 - Stainless steel solution (316L)
 - Including accessories (cable gland & plug)

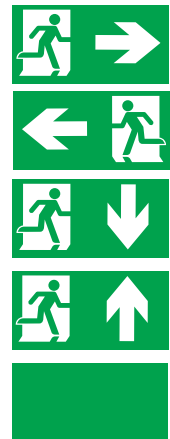
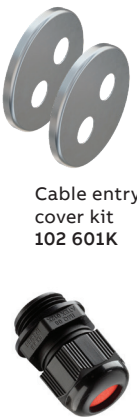
	Material code	Type code GID code	Technology	IP/IK	M/NM	Lumen (lm)	Consumption (W)	Battery (Ni-Mh)
	Signage / Lighting - 3 hours*							
	XTE9600S-M3/ST EX	1129105 7TCA309185R0011	Self-test	65/07	M/NM	200	3,5	4.8V - 1.2 Ah
	XTE9600S-M3/COM EX	1139105 7TCA309185R0012	Naveo®Pro wired	65/07	M/NM	200	3,5	4.8V - 1.2 Ah

* Product provided including pictograms
Ambiant temperature : 0°C to +40°C
Voltage rated : 230V - 50 Hz
Glow wire 850°C

Dimensions



Accessories and spare parts InduXEL222

	Description	Material code	GID code
 Pictograms*	Cable gland	For cables from 6 to 12mm - M20 Nylon	674 114 7TCA022225R0002
	Cable entry cover	InduXel cable entry cover kit	102 601K 7TCA091830R0075
	Pictograms*	Pictogram PF 202/51	12220251 7TCA091350R4186
		Pictogram PF 202/52	12220252 7TCA091350R4184
		Pictogram PF 202/53	12220253 7TCA091350R4187
		Pictogram PF 202/58	12220258 7TCA091350R4183
	Pictogram PF 202/50	12220250 7TCA091350R4185	
	Battery	4.8V -1.2Ah for 1129105 and 1139105	102 702K 7TCA091830R0077

* Pictograms are branded VanLien

Naveo®Pro for InduXEL222

A smart emergency lighting solution

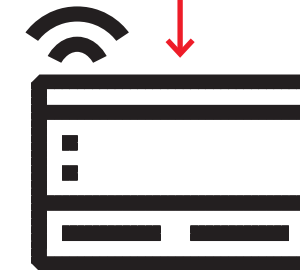
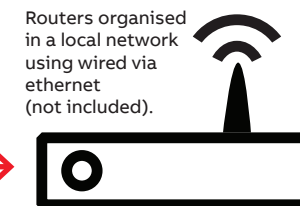
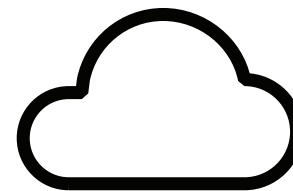
Naveo®Pro is a remote monitoring application. This solution is a connected system which uses a gateway to inspect, monitor and manage all types of emergency lighting installations.

How does it work ?

With Naveo®Pro being connected all the time, your emergency lighting system is always fully up to date. You can easily set up the connection:

- The Gateway continuously receives all luminaires data and pushes this information to the Naveo®Pro app.
- On continuous request from the cloud the Gateway automatically sends all (test) data to the Naveo®Pro app. With Naveo®Pro you are therefore constantly in touch with your system status anytime and anywhere.

Naveo®Pro
application

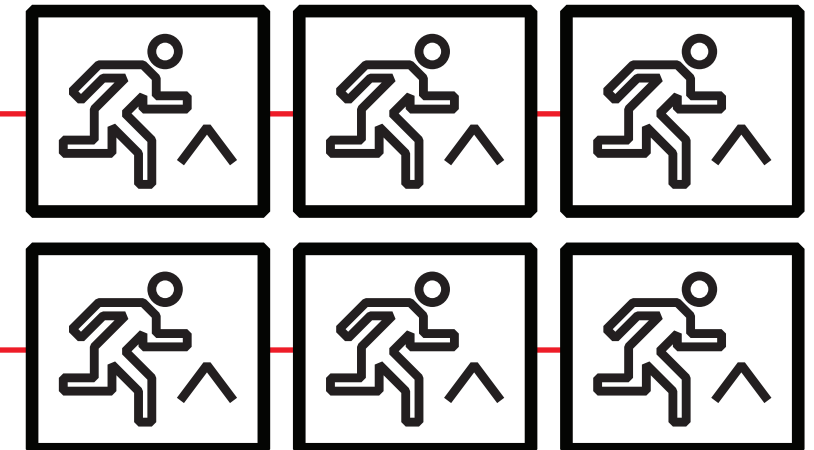


Naveo®Pro Gateway connects your emergency lighting to the Cloud

The Naveo®Pro Gateway is an IoT Gateway designed to deliver connectivity to all types of installations. The gateway acts as a networking device that connects the emergency lighting luminaires with the data stored in the cloud. The gateway is at all times connected to the cloud providing a realtime status of your safety systems.

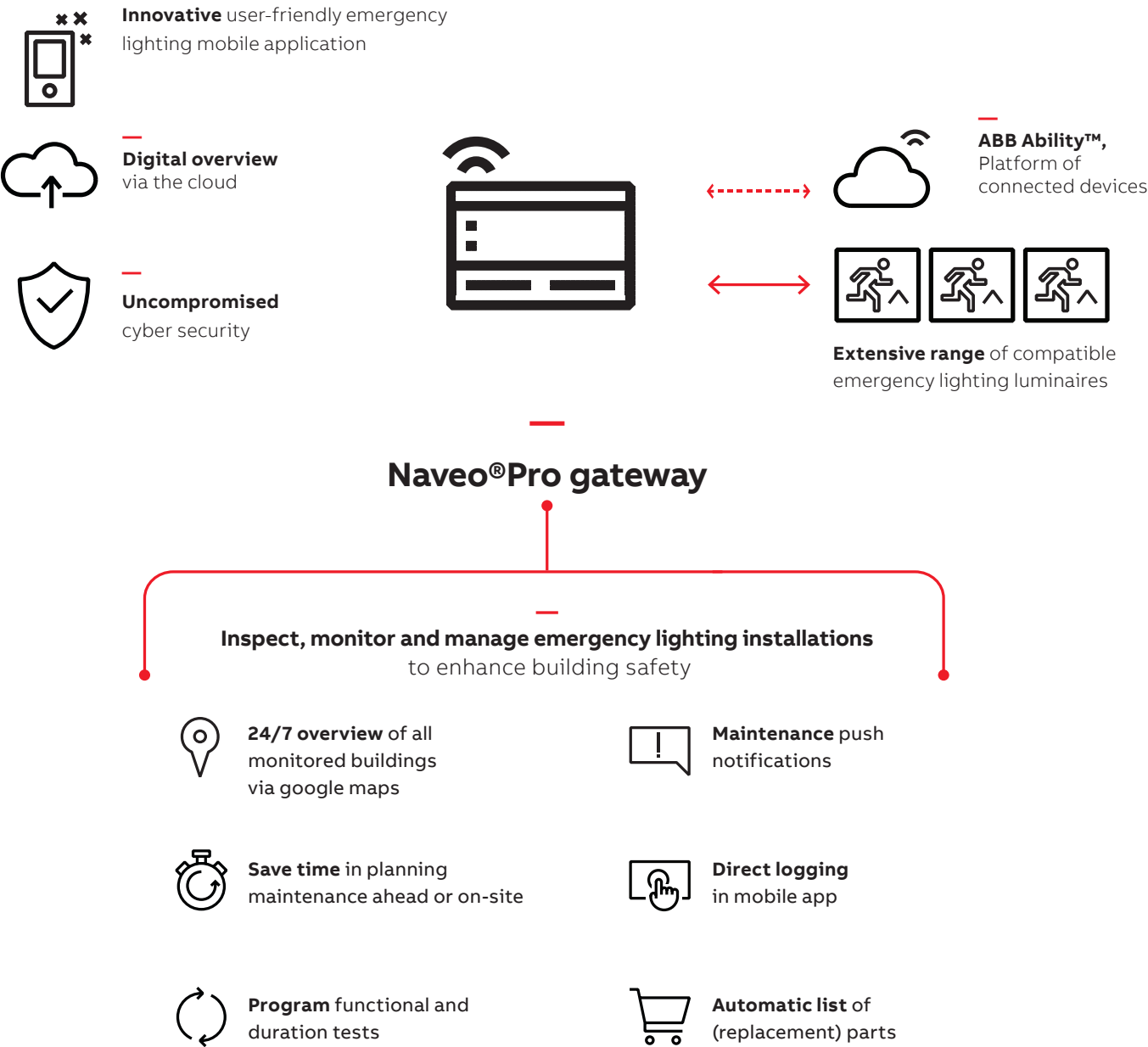
The gateway takes in charge up to 500 Self-Contained and/or slave products.

Emergency lighting
luminaires



Naveo®Pro for InduXEL222

Control your emergency lighting system



Naveo®Pro



Description	Material code	GID code
Naveo®Pro gateway	51000040	7TCA305060R0000
Naveo®Pro gateway + Ipad wifi	51000041	7TCA305060R0004
Naveo®Pro gateway + Ipad 4G	51000042	7TCA305060R0003

Technical reference

Spacing data

The spacing tables are based on the following parameters:

- Maintenance factor: 0.80
- Emergency lighting factor: 1.00
- Minimum illuminance on centre line: 1.00 lx
- Minimum illuminance on half of escape route width: 0.50 lx
- Diversity on the centre line max. 40 : 1
- Width of escape route: 2.00 m

InduXEL222
Distance table for even escape routes

Mounting Height [m]					
2.00	3.37	8.68	7.88	7.05	2.83
2.50	3.50	9.24	8.48	7.70	3.01
3.00	3.56	9.65	8.92	8.19	3.11
3.50	3.54	9.92	9.23	8.54	3.13
4.00	3.43	10.06	9.41	8.76	3.07
4.50	3.25	10.09	9.48	8.89	2.94
5.00	2.96	10.02	9.44	8.90	2.71
5.50	2.56	9.82	9.29	8.80	2.37
6.00	1.94	9.50	9.04	8.60	1.84



Product naming

Material code explanation

XTE 9600S-M3/ ST EX

- 1
- 2
- 3
- 4
- 5
- 6

- 1

Product type

XT – Escape route signage

EL – Escape route lighting

XTE – XT+EL
- 2

Product serie:

Industrial

9600 - InduXEL
- 3

Mounting version

S - Surface
- 4

Electrical versions

M3 - Maintained 3 hour
- 5

Communication

ST - Self-Test

COM - Wired
- 6

Options:

EX – Explosion proof

Legend

- 

Industry application



IP protection



Naveo®Pro



Warranty



Class I



Class II



Impact protection



EU reglementation



Certification ATEX



Light source : LED



Recyclable product



Non maintained



Maintened

Index

Material code	GID code	Page
112 9105	7TCA309185R0011	17
113 9105	7TCA309185R0012	17
51000040	7TCA305060R0000	20
51000041	7TCA305060R0004	20
51000042	7TCA305060R0003	20
102 601K	7TCA091830R0075	17
102 702K	7TCA091830R0077	17

Material code	GID code	Page
12220251	7TCA091350R4186	17
12220252	7TCA091350R4184	17
12220253	7TCA091350R4187	17
12220258	7TCA091350R4183	17
12220250	7TCA091350R4185	17
674 114	7TCA297180R0006	17