FZLV CENTRAL BATTERY SYSTEM

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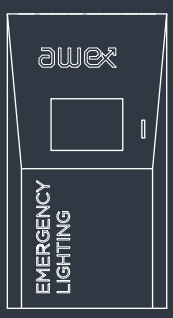
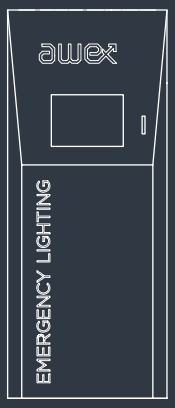
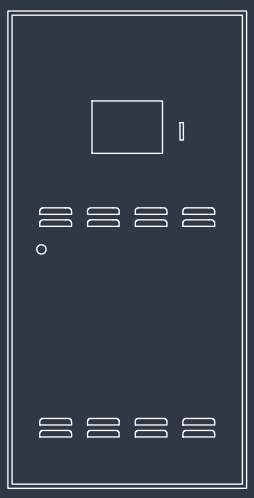






FZLV CENTRAL BATTERY SYSTEM

SYSTEM OVERVIEW

The emergency luminaire market has recently undergone a significant transformation, in particular as regards light sources. Luminaires with LED lamps are now more and more common in emergency lighting systems due to their longer durability, a better energy efficiency and lower operating temperatures. Moreover, increasingly restrictive requirements concerning safety, reliability and autonomy of such systems, as well as a reduction of their installation costs, inspired AWEX to design a new central battery system (FZLV) that would satisfy all those needs. The FZL V system supplies loads via SELV (Safety Extra-Low Voltage) circuits operating at 24V DC, according to protection class III. The use of SELV ensures a very high level of the safety of operation of the whole system and its components and complies with applicable regulations. The system also provides a good protection against electric shock in case of a firefighting action, even if voltage is present in the circuits. The FZLV combines advantages of decentralized autonomous systems with the convenience of using central battery systems.

The system incorporates own batteries whose capacity depends on the rated load and required duration of emergency lighting. The system is especially useful within a single fire zone. The use of a low power supply voltage does not only enhance the fire safety of the system, but also enables the use of smaller-sized batteries and consequently the cabinet is also smaller. A more compact size of the cabinet can be located in places where bulky central battery systems cannot be fitted.

FZLV

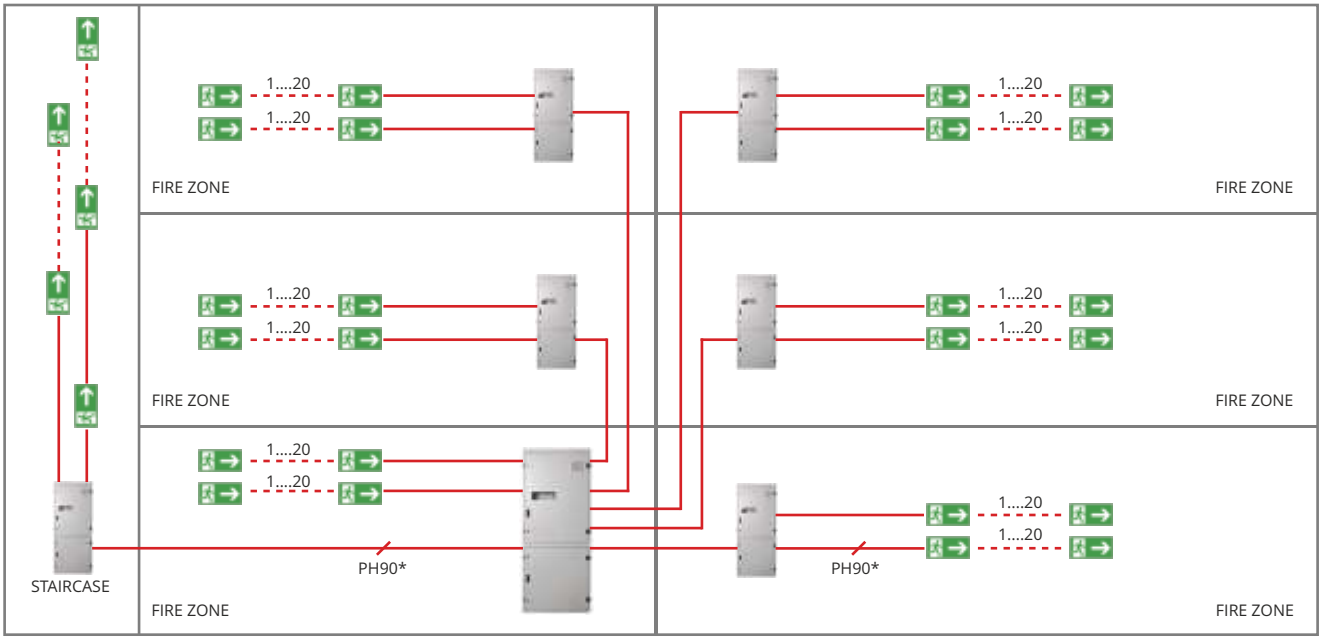
FZLV – MAX

FZLV CENTRAL BATTERY SYSTEM

An FZLV unit can be supplied from a 230V AC or a 216V DC power source. As a result, the unit can be connected to a central battery system (CBS) as a substation without installing internal batteries. This functionality enables the system to be used in facilities where a CBS is required, but a safe voltage must also be ensured in areas where there is a risk of electric shock.

Comparison of two different power supply concepts: conventional and decentralised

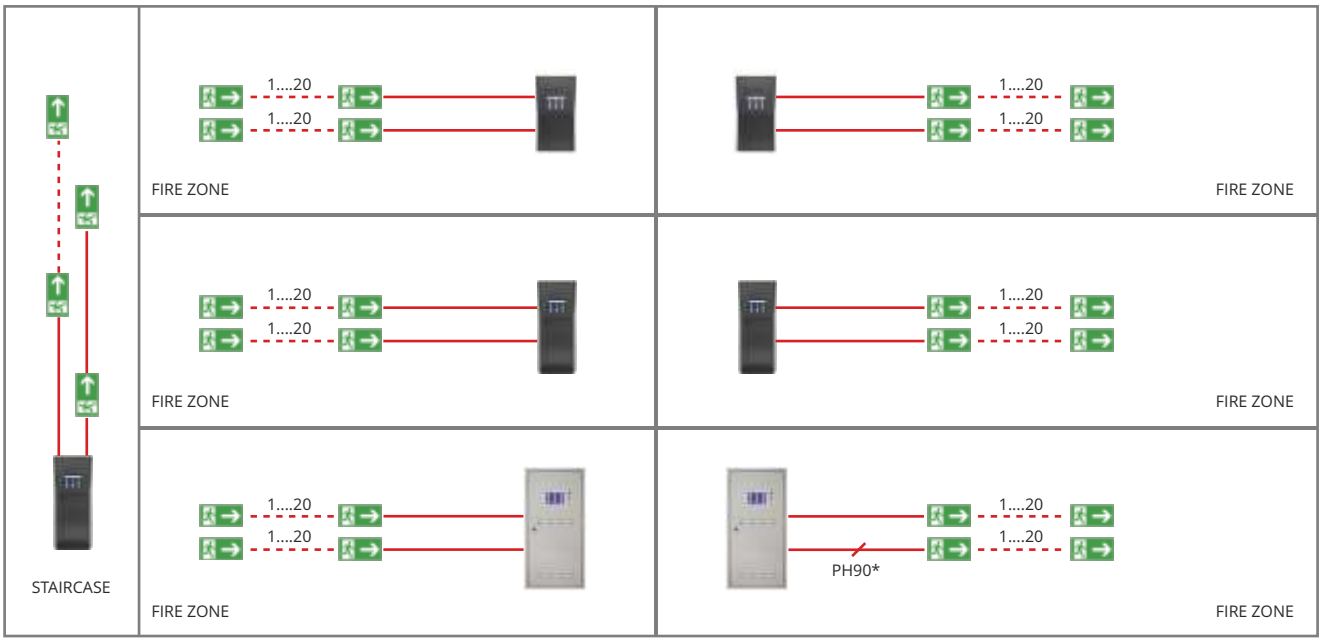
CONVENTIONAL CENTRAL BATTERY SYSTEM



Conventional system

Main station failure	Damaged insulation of the branch circuit
Cable failure: main station – substation	Total substation failure
Damaged insulation of the branch circuit	Risk of electric shock

FZLV CENTRAL BATTERY SYSTEM



Decentralized system

Main station failure	No central system
Cable failure: main station – substation	Each system is independent; the failure is limited to one fire zone
Damaged insulation of the branch circuit	Negligible fire hazard (SELV)

*national regulations apply

FZLV CENTRAL BATTERY SYSTEM

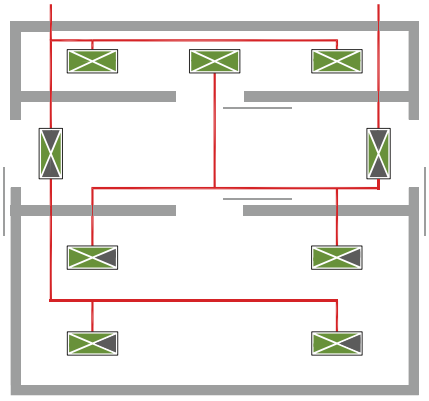
SMART – SWITCHING METHOD AND REVISION TECHNOLOGY

A conventional installation requires that the operating mode of each circuit is specified at the design stage. Subsequent modifications or errors may cause extra costs. In order to eliminate such drawbacks, AWEX has introduced a new technology with automatic monitoring and individual control of each luminaire in a system.

Switching
Method
And
Revision
Technology

or SMART for short. This technology enables installation of luminaires - in a common circuit – operating in four modes: continuous, intermittent, switched and dimmed. Programming and monitoring of the luminaires are provided via power supply cables. The applied technology does not require the use of special communication cables. It can be implemented if appropriate address modules are installed in the luminaires. The modules are fitted as standard in all luminaires designed to work within an FZLV central battery system. Each address module is assigned a unique address which enables its accurate identification in the system.

A SMART TECHNOLOGY SYSTEM LAYOUT



MAINTAINED OPERATION

NON-MAINTAINED OPERATION

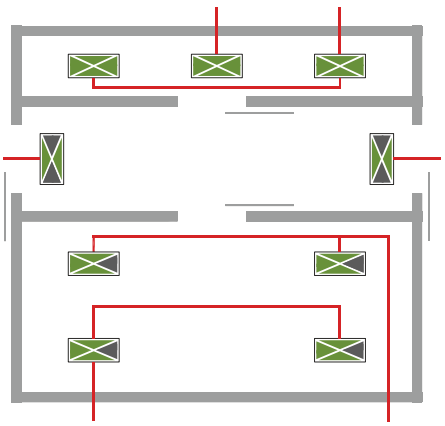
SWITCHED MODE

*DIMMED MODE

SMART advantages:

- Luminaires operating in different modes can be installed within a single circuit
- Less cable is required
- Smaller number of circuits
- Lower installation costs
- Operating modes of the luminaires can be changed at any time

A CONVENTIONAL SYSTEM LAYOUT



MAINTAINED OPERATION

NON-MAINTAINED OPERATION

SWITCHED MODE

Conventional limitations:

As compared with the SMART system, a conventional system has the following limitations:

- Only one operating mode is available in the branch circuit
- Higher installation costs
- Higher costs of subsequent changes
- Changing operating modes is more difficult

* FZLV systems only

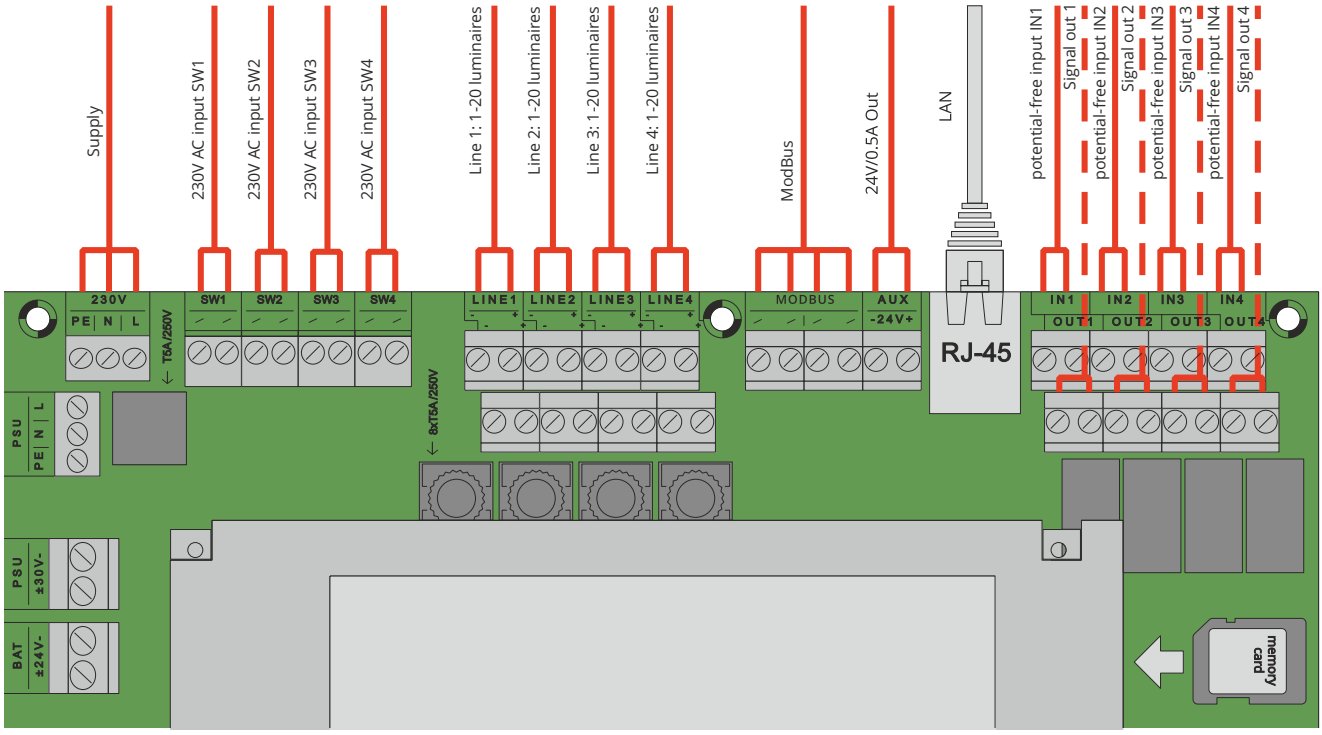
FZLV CENTRAL BATTERY SYSTEM

CONTROL MODULE

The system control module is equipped with a large touch screen panel which displays information on the current operating status of the system and luminaire circuits and enables setting up and modifying all system parameters via a graphic user interface. The statuses are displayed using text and graphics.
Each luminaire integrated within the system can be assigned a name to facilitate its identification.

Features:

- Non-volatile memory to store all events and tests results for at least 2 years
- Control menu with language selection
- Registration of system configuration parameters and events on an SD card
- Standard Ethernet interface for remote control and monitoring via a web browser
- Integrated ModBUS protocol to communicate with a BMS
- System status display
- Automatic detection and integration of new luminaires in the system
- Automatic or manual activation of short or long tests of the whole system
- Operating mode and control configuration for each luminaire
- Setting brightness and emergency duration for each luminaire separately
- Assigning names to luminaires
- Assigning design addresses to luminaires
- Adjustable daytime/nighttime operation timer
- Connection of up to 8 phase loss sensors
- Built-in clock and calendar with DST adjustment and synchronization with a time server
- Remote luminaire diagnostics
- Remote notification of the system status by e-mail



FZLV CENTRAL BATTERY SYSTEM

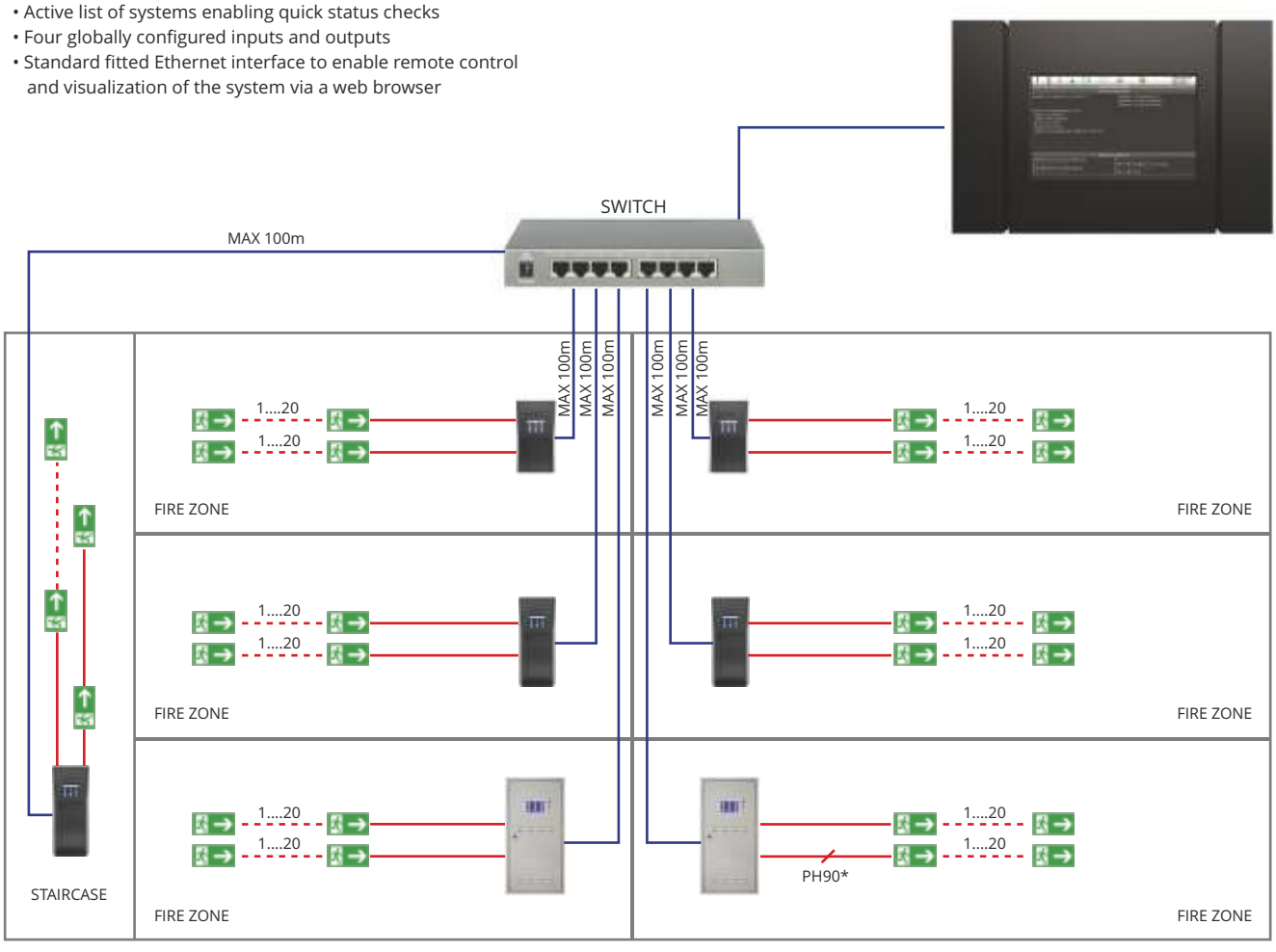
SMART TOUCH CONTROLLER

The SMART TOUCH controller enables remote control and monitoring of any number of units from a single location. The controller provides remote monitoring, configuration and reading of events for each connected FLZV unit.

SMART TOUCH control panel – sample menu

Features:

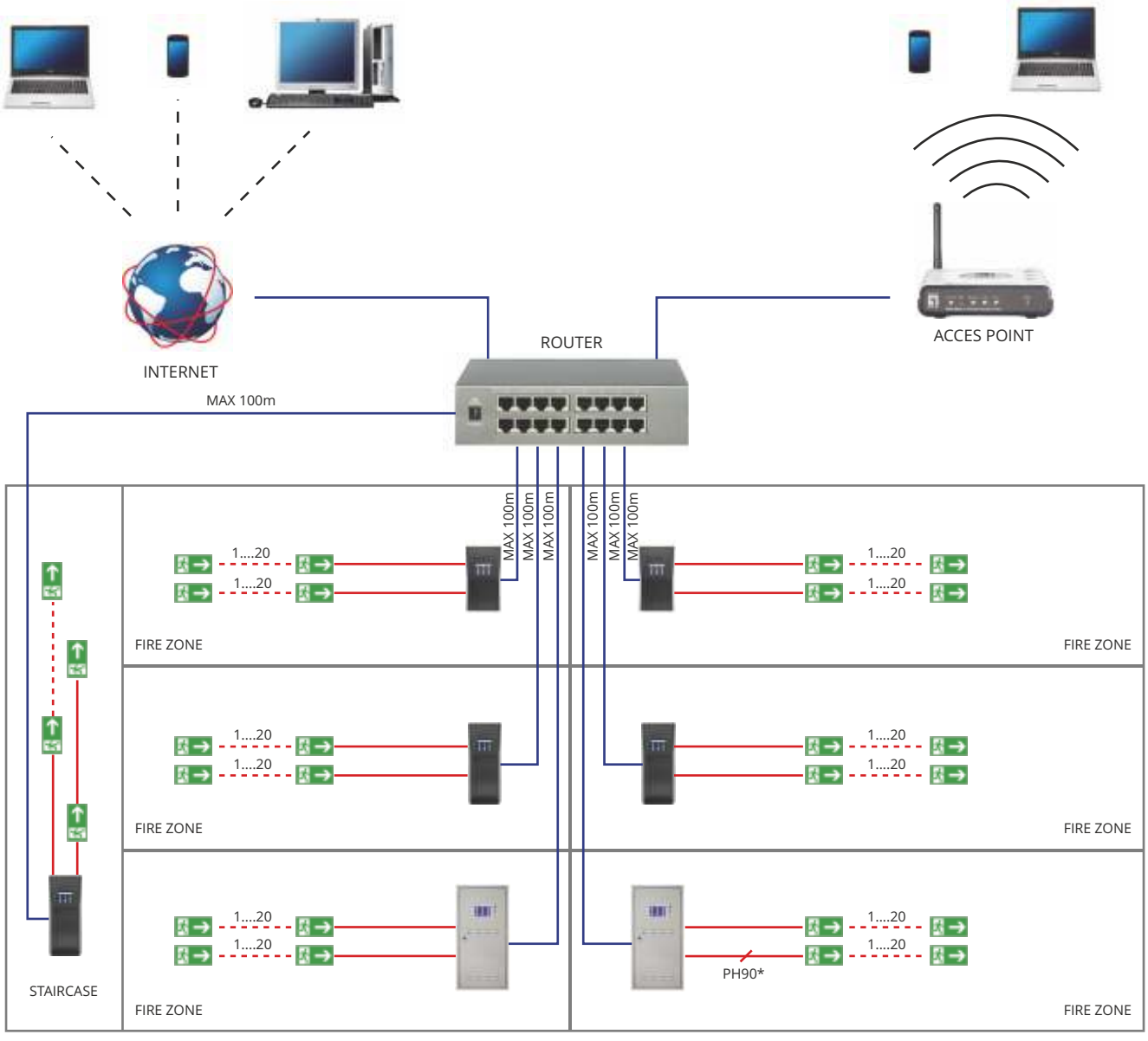
- Functional test/Battery test activation for each device
- Global system locking/unlocking
- Password-protected access to the controller
- Checking the status of individual systems
- Full remote configuration of all systems
- Active list of systems enabling quick status checks
- Four globally configured inputs and outputs
- Standard fitted Ethernet interface to enable remote control and visualization of the system via a web browser



FZLV CENTRAL BATTERY SYSTEM

The FZLV system is equipped with an Ethernet port as standard. The connection enables remote checking of the status and setting up of the system via a dedicated website. This solution provides the user with the ability to control and monitor the system from a computer with a web browser installed. To check the system status using a computer, the user only needs to log in to the structural network of the facility or building where the CBS is installed. Each unit, circuit and luminaire can be monitored via the Internet. The access to the dedicated website is password protected.

Remote control – example menu screens



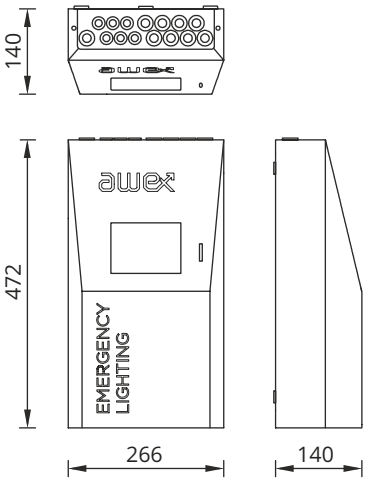
FZLV CENTRAL BATTERY SYSTEM

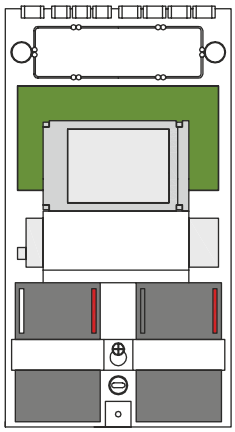
COMPARISON OF FZLV SYSTEMS

Technical specifications - FZLV

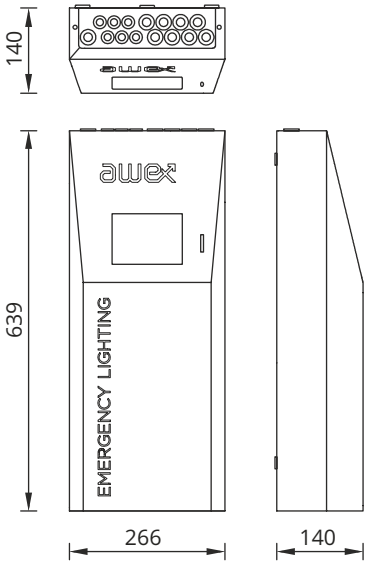
Technical specifications		FZLV – 12 Ah	FZLV – 24 Ah
Supply voltage		AC: 1-phase 230V ± 10%, 50/60Hz or DC: 216V ± 20%	AC: 1-phase 230V ± 10%, 50/60Hz or DC: 216V ± 20%
Protection class		I	I
Ingress protection		IP20	IP20
Output voltage		24V DC ±30%	24V DC ±30%
Operating temperature range		-5°C to 30°C	-5°C to 30°C
Battery capacity		12Ah	24Ah
Number of circuits		4	4
Max. circuit load		76W	76W
Cable glands		9 x M20	9 x M20
		6 x M16	6 x M16
Part No.	1h	WCB 0000011	WCB 0000021
	2h	WCB 0000012	WCB 0000022
	3h	WCB 0000013	WCB 0000023
	8h	WCB 0000014	WCB 0000024

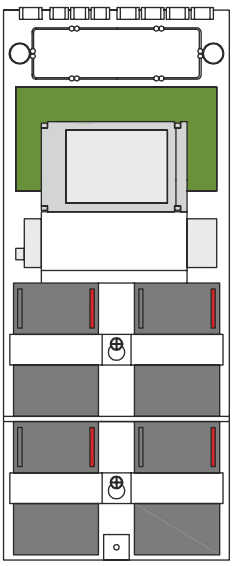
Cabinet dimensions [mm]: FZLV – 12Ah





Cabinet dimensions [mm]: FZLV – 24Ah



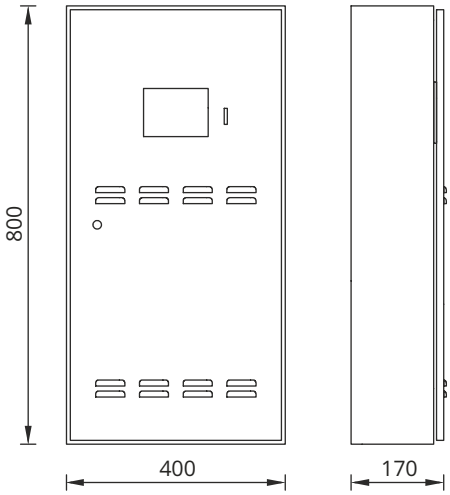


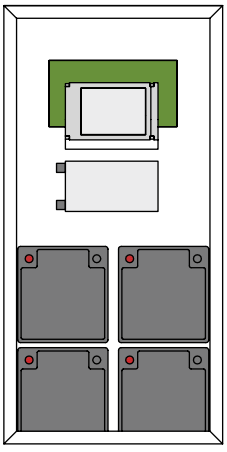
FZLV CENTRAL BATTERY SYSTEM

Technical specifications – FZLV MAX

Technical specifications		FZLV MAX – 33 Ah	FZLV MAX – 52 Ah
Supply voltage		AC: 1-phase 230V ± 10%,50/60Hz or DC: 216 V ± 20%	AC: 1-phase 230V ± 10%,50/60Hz or DC: 216 V ± 20%
Protection class		I	I
Ingress protection		IP20	IP20
Output voltage		24V DC ±30%	24V DC ±30%
Operating temperature range		-5°C to 30°C	-5°C to 30°C
Battery capacity		33Ah	52Ah
Number of circuits		4	4
Max. circuit load		76W	76W
Cable glands		1 x M25	1 x M25
		9 x M20	9 x M20
		6 x M16	6 x M16
Part No.	1h	WCB 0000031	WCB 0000041
	2h	WCB 0000032	WCB 0000042
	3h	WCB 0000033	WCB 0000043
	8h	WCB 0000034	WCB 0000044

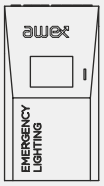
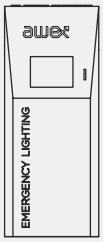
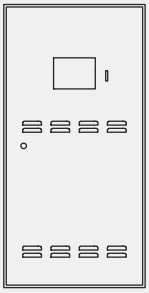
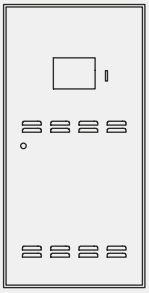
Cabinet dimensions [mm]: FZLV MAX – 33/52Ah





FZLV CENTRAL BATTERY SYSTEM

TECHNICAL SPECIFICATIONS – FZLV

Technical specifications		FZLV – 12 Ah	FZLV – 24 Ah	FZLV MAX – 33 Ah	FZLV MAX – 52 Ah
Protection class: I **Ingress protection: IP20 DC** **Voltage: 24 V ± 30%** **Operating temperature range: -5°C to 30°C**					
Supply voltage		AC: 1-phase 230V ± 10%, 50/60Hz or DC: 216V ± 20%	AC: 1-phase 230V ± 10%, 50/60Hz or DC: 216V ± 20%	AC: 1-phase 230V ± 10%, 50/60Hz or DC: 216V ± 20%	AC: 1-phase 230V ± 10%, 50/60Hz or DC: 216V ± 20%
Battery capacity		12Ah	24Ah	33Ah	52Ah
Max. power output	1h	123W	219W	304W	304W
	2h	70W	142W	195W	301W
	3h	49W	102W	140W	219W
	8h	21W	47W	66W	106W
Number of circuits		4	4	4	4
Maximum circuit load		76W	76W	76W	76W
Cable connection – max wire size [mm²]					
Power supply		2,5	2,5	2,5	2,5
Circuit		2,5	2,5	2,5	2,5
RS485 bus		2,5	2,5	2,5	2,5
24V power out		2,5	2,5	2,5	2,5
Switch monitoring		2,5	2,5	2,5	2,5
Potential free input		2,5	2,5	2,5	2,5
Signal out		2,5	2,5	2,5	2,5
Cable glands		9 x M20 6 x M16	9 x M20 6 x M16	1 x M25 9 x M20 6 x M16	1 x M25 9 x M20 6 x M16
Weight [kg]		15,5 kg	24,3 kg	39,2 kg	48,3 kg
Dimensions [mm]		472x266x140	639x266x140	800x400x170	800x400x170

* loss of power in luminaire supply cables is not considered

FZLV CENTRAL BATTERY SYSTEM

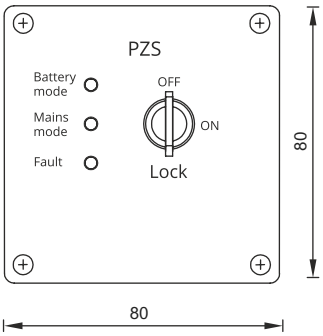
ACCESSORIES

REMOTE STATUS INDICATION PANEL: PZS

This panel enables remote checking of some basic operating statuses of the system, such as: stand-by, battery operation or fault. Continuous operation can be locked using a built-in key.

This prevents the system from unauthorized tampering.

Technical specifications	PZS
Connection (max wire size)	1,5mm²
Max. dimensions (HxWxD)	80x80x55mm
Mounting	Wall-mounted
Part No.	WCB 0000006C

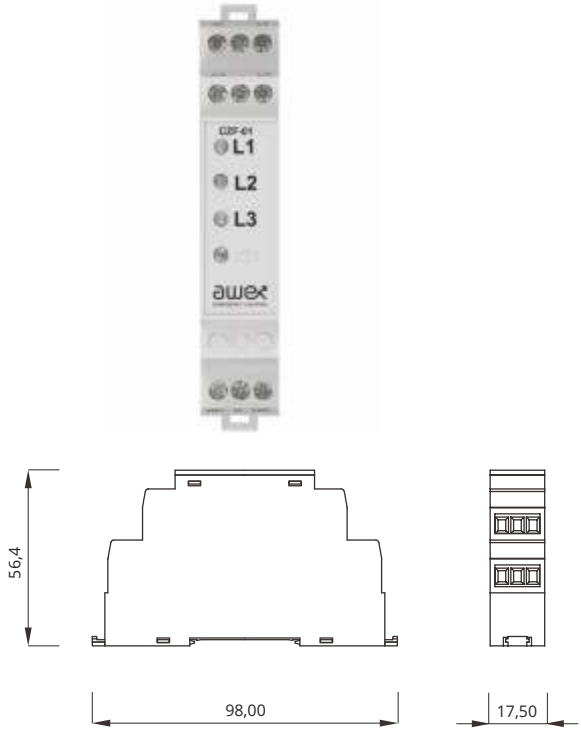


PHASE LOSS SENSOR: CZF-01

The quick-acting phase loss sensor is used to monitor the voltage in primary lighting switchboards to ensure that specific circuits or the whole system are energized for emergency operation.

The voltage changeover threshold is as per PN-EN 60598-2-22.

Technical specifications	CZF
Supply voltage	230/400V 50Hz
Switchover threshold	as per PN-EN 60598-2-22
Mounting	DIN-3 (TH35)
Delay time	< 200 ms
Connection (wire size)	2,5 mm²
Contact	230V/50Hz 0.5A
Dimensions (HxWxD)	98,0 x 17,5 x 56,4
Part No.	WCB 0000007



FZLV CENTRAL BATTERY SYSTEM

EMERGENCY ESCAPE LUMINAIRES

AXN FZLV series

Luminaire type	Surface-mounted, ceiling, wall, C, R, O, U, A optics
Light source	PowerLED 1W, 2W, 3W or 6W (SE)
IP Rating	IP42 or IP65

AXNC, AXNR, AXNO, AXNU, AXNA

24V DC | LED | IP42 | IP65

AXP FZLV series

Luminaire type	Recessed-mounted, ceiling, wall, C, R, O, U, A optics
Light source	PowerLED 1W, 2W, 3W
IP Rating	IP20 or IP65/20

AXPC, AXPR, AXPO, AXPU, AXPA

24V DC | LED | IP20 | IP65/20

LOVATO II FZLV series

Luminaire type	Surface-mounted, ceiling, C, R, O, U, A optics
Light source	PowerLED 1W, 2W, 3W
IP Rating	IP41

LV2C, LV2R, LV2O, LV2U, LV2A

24V DC | LED | IP41

LOVATO P FZLV series

Luminaire type	Recessed-mounted, ceiling, C, R, O, U, A optics
Light source	PowerLED 1W, 2W, 3W
IP Rating	IP20

LVPC, LVPR, LVPO, LVPU, LVPA

24V DC | LED | IP20

EYE LED FZLV series

Luminaire type	Recessed-mounted, ceiling, R and U optics
Light source	PowerLED 1W, 2W, 3W
IP Rating	IP20

EY, EYR, EYU, EYK, EYKR, EYKU

24V DC | LED | IP20

SPY FZLV series

Luminaire type	Inside the primary luminaire
Light source	PowerLED 1W, 2W, 3W
IP Rating	IP20

SP2

24V DC | LED | IP20

MICRO SPOT FZLV series

Luminaire type	Inside the primary luminaire
Light source	PowerLED 1W, 2W, 3W
IP Rating	IP20

SP2

24V DC | LED | IP20

OUTDOOR LED FZLV series

Luminaire type	Surface-mounted, wall
Light source	LED 3x1W
IP Rating	IP66

ODB

24V DC | LED | IP66

EXIT FZLV series

Luminaire type	Surface/Recessed-mounted, ceiling, wall
Light source	LED 1W, 2W, 3W
IP Rating	IP65

ETS, ETE, ETL

24V DC | LED | IP65

HELIOS FZLV series

Luminaire type	Surface-mounted, ceiling, wall
Light source	LED 3W, 3x1W, 6x1W
IP Rating	IP42/IP65

HL, HHP, HW

24V DC | LED | IP42 | IP65

TIGER FZLV series

Luminaire type	Surface/Recessed-mounted, ceiling, wall
Light source	LED 3W
IP Rating	IP22

TL

24V DC | LED | IP22

SK–8 FZLV series

Luminaire type	Surface-mounted,ceiling, wall
Light source	LED 1W, 2W, 3W
IP Rating	IP44

SK–8

24V DC | LED | IP44

INFINITY II FZLV series

Luminaire type	Surface-mounted, wall
Light source	LED 3W
IP Rating	IP40

IF2BWD

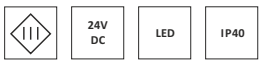
24V DC | LED | IP40

FZLV CENTRAL BATTERY SYSTEM

ARROW N FZLV series

Luminaire type	Surface-mounted, ceiling, O or C optics
Light source	LED 1W, 2W, 3x1W
IP Rating	IP40

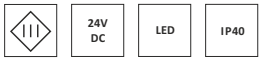
ARNO, ARNC, ARNS



ARROW P FZLV series

Luminaire type	Recessed-mounted,ceiling, O or C optics
Light source	LED 1W, 2W, 3x1W
IP Rating	IP40

ARPO, ARPC, ARPS



*current list of CNBOP fire protection approvals is available at www.awex.eu
**current list of products with Kitemark and ENEC is available at www.awex.eu

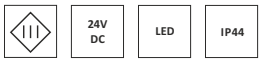
FZLV CENTRAL BATTERY SYSTEM

ESCAPE ROUTE LUMINAIRES

SK–8 FZLV series

Luminaire type	Surface-mounted, ceiling
Light source	LED 1W, 2W
IP Rating	IP44

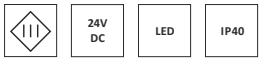
SK–8



ARROW N FZLV series

Luminaire type	Surface-mounted, wall, ceiling
Light source	LED 1W, 2W
IP Rating	IP40

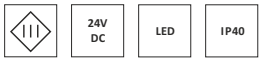
ARN



ARROW P FZLV series

Luminaire type	Recessed-mounted, ceiling
Light source	LED 1W, 2W
IP Rating	IP40

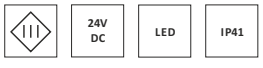
ARP



TWINS FZLV series

Luminaire type	Surface-mounted, wall, ceiling
Light source	LED 1W
IP Rating	IP41

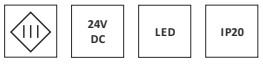
TW



PLEXI LED FZLV series

Luminaire type	Recessed-mounted, ceiling
Light source	LED 1W
IP Rating	IP20

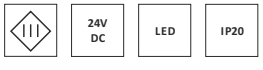
PL



ESCAPE FZLV series

Luminaire type	Surface-mounted, ceiling
Light source	LED 1W
IP Rating	IP20

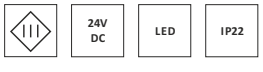
E



TIGER FZLV series

Luminaire type	Surface/Recessed-mounted, ceiling
Light source	LED 1W
IP Rating	IP22

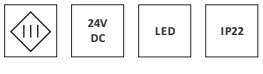
TL



TIGER P FZLV series

Luminaire type	Surface/Recessed-mounted, ceiling
Light source	LED 1W
IP Rating	IP22

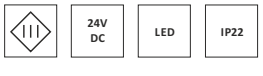
TPL



TIGER DS FZLV series

Luminaire type	Surface/Recessed-mounted, ceiling
Light source	LED 1W
IP Rating	IP22

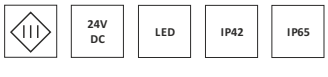
TSL



HELIOS FZLV series

Luminaire type	Surface-mounted, ceiling
Light source	LED 1W
IP Rating	IP42/IP65

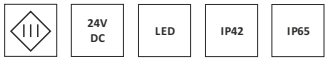
HL



HELIOS P FZLV series

Luminaire type	Surface-mounted, ceiling
Light source	LED 1W
IP Rating	IP42/IP65

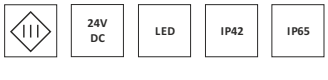
HPL



HELIOS DS FZLV series

Luminaire type	Surface-mounted, ceiling
Light source	LED 1W
IP Rating	IP42/IP65

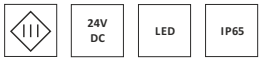
HDL



EXIT FZLV series

Luminaire type	Surface/Recessed-mounted*, wall, ceiling**
Light source	LED 1W, 2W
IP Rating	IP65

ETE



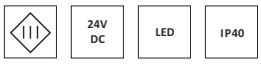
*requires an accessory for recessed mounting
**requires an accessory – plexi glass

FZLV CENTRAL BATTERY SYSTEM

SCREEN FZLV series

Luminaire type	Surface-mounted, wall
Light source	LED 3x1W, 3.2W, 2x3.2W
IP Rating	IP40

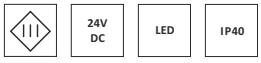
SC30, SC40, SC60



SCREEN DS FZLV series

Luminaire type	Surface-mounted, ceiling
Light source	LED 3x1W,3.2W, 2x3.2W
IP Rating	IP40

SCS30, SCS40, SCS60

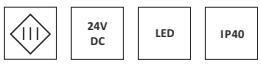


INFINITY II A FZLV series

Luminaire type	Surface/Recessed-mounted*, ceiling
Light source	LED 1W, 2W
IP Rating	IP40

*requires an accessory for recessed mounting

IF2ACS

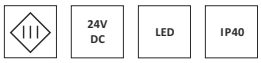


INFINITY II A FZLV series

Luminaire type	Surface/Recessed-mounted*, wall
Light source	LED 1W, 2W
IP Rating	IP40

*requires an accessory for recessed mounting

IF2AWS

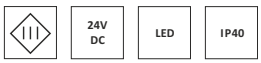


INFINITY II A FZLV series

Luminaire type	Surface/Recessed-mounted*, ceiling
Light source	LED 1W, 2W
IP Rating	IP40

*requires an accessory for recessed mounting

IF2ALS

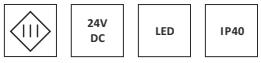


INFINITY II B FZLV series

Luminaire type	Surface/Recessed-mounted*, wall
Light source	LED 1W, 2W
IP Rating	IP40

*requires an accessory for recessed mounting

IF2BWS



*current list of CNBOP fire protection approvals is available at www.awex.eu
**current list of products with Kitemark and ENEC is available at www.awex.eu