



Safer & quicker evacuation

From
Emergency Lighting Systems
to
Adaptive Evacuation Systems

Kai Sabla
12.07.2018



- Large buildings, housing retail, leisure, hospitality, entertainment and transport facilities
- Sophisticated layout with various exit points, which may be unknown to visitors
- High potential for congestion at busy times
- Reputational risk



Specify superior escape route management technology in complex buildings with Eaton's **adaptive emergency lighting evacuation system**

Static emergency lighting system



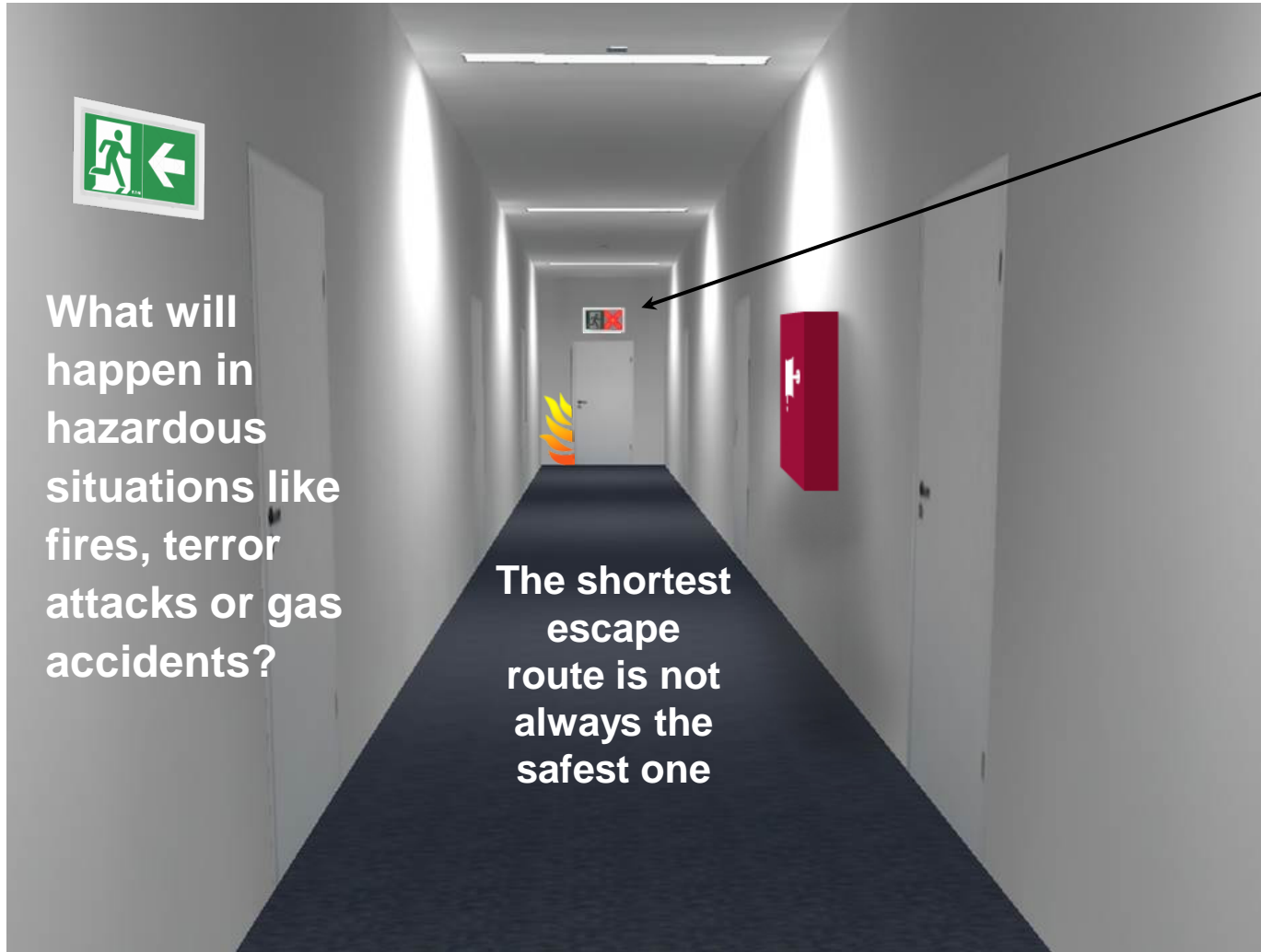
Safety luminaires
for escape route
illumination

Exit Sign luminaire

Conventional escape
route markings show
the safest escape
route in case of
emergency or during
power outages.

Power failure

Adaptive evacuation system



What will happen in hazardous situations like fires, terror attacks or gas accidents?

The shortest escape route is not always the safest one

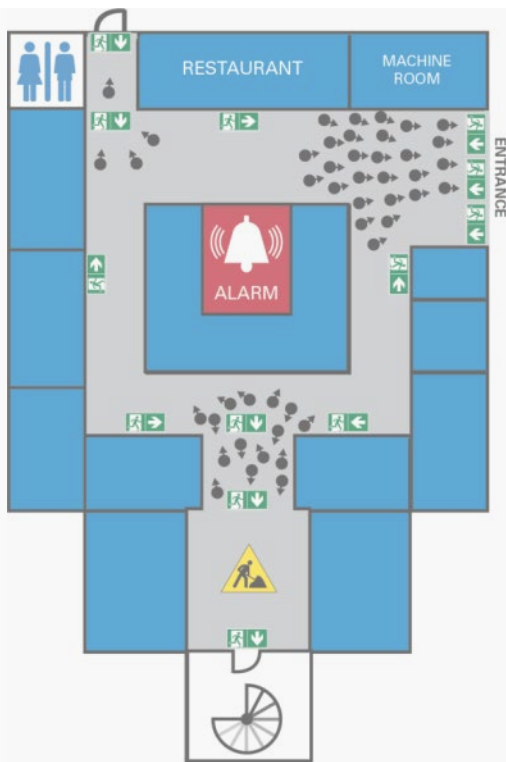
Adaptive Exit Sign Luminaire

Adaptive:

Capable of changing in
response to changes in the
environment

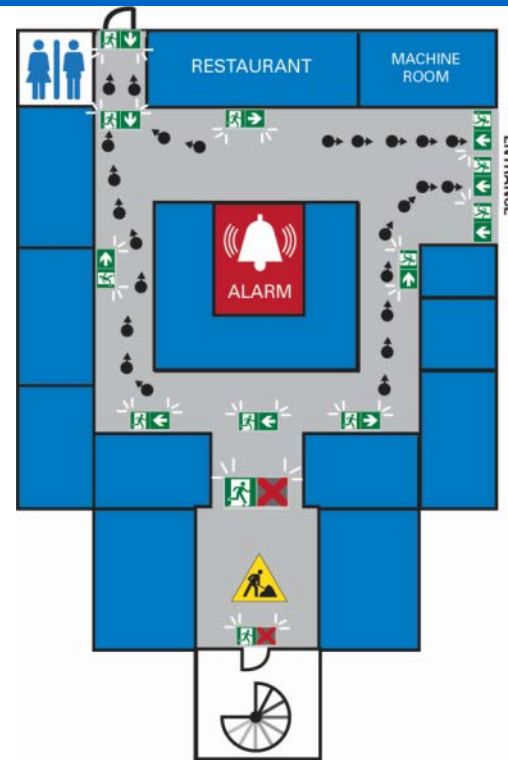
Applications of an adaptive evacuation system

1. When normal routes are blocked or parts of a building are out of order



Static Emergency Lighting:

- In an evacuation situation, people may ignore the exit signs and just get back to where they are coming from → overcrowded exit routes.
- It can not react on new situations like construction sites



Adaptive evacuation → Safer & quicker

- The system takes in account the exit blocked
- Dynamic blinking Exit signs for better visibility
- Less confusion
- Faster and safer evacuation

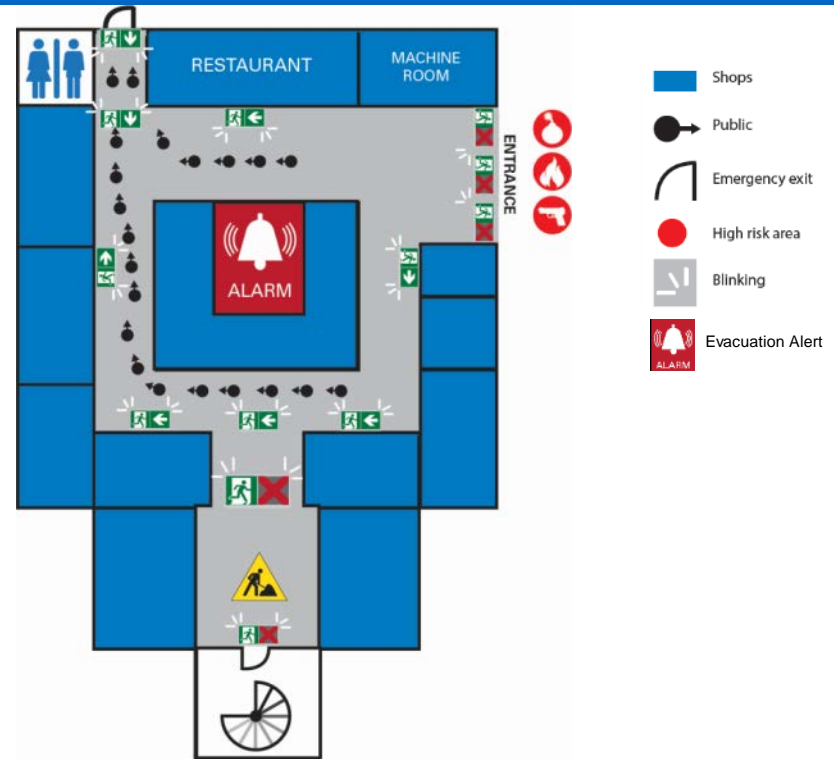
Applications of an adaptive evacuation system

2. One exit route blocked and high risk area on the other side of the building



Static Emergency Lighting:

- A static system can not react on situation with high risk e.g. in a stair case or at an exit door
- People may react with confusion and not every exit route might be found

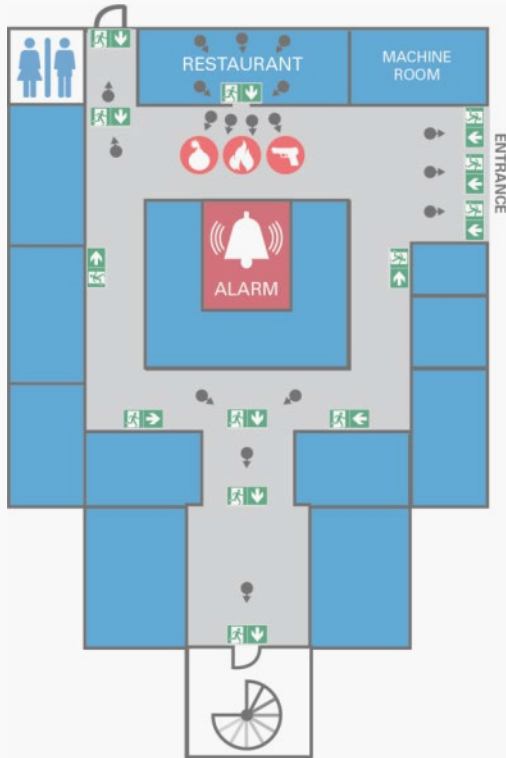


Adaptive evacuation → Safer & quicker

- The system takes in account the exit blocked by works / danger
- Dynamic blinking Exit signs for better visibility
- The system shows the safest route

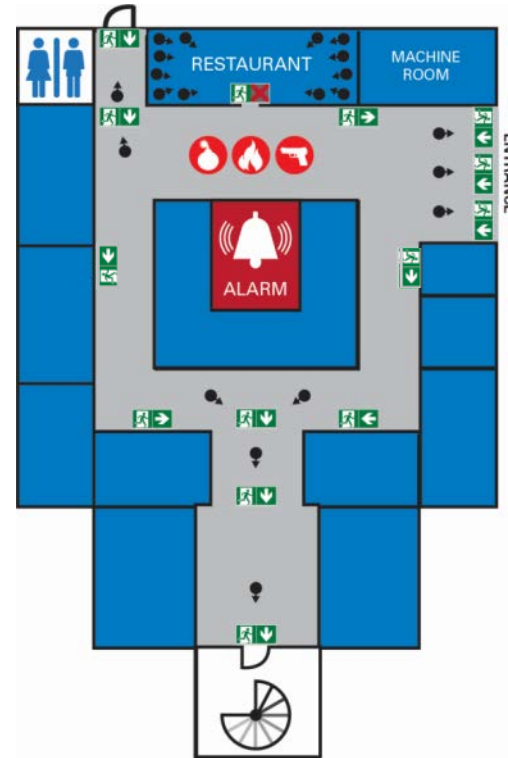
Applications of an adaptive evacuation system

3. High risk area with need to contain people in a safe room



Static Emergency Lighting:

- People inside rooms, restaurants or shops won't be aware about the situation in the corridor and won't understand it might be safer to stay inside



- Shops
- Public
- Emergency exit
- High risk area
- Blinking
- Evacuation Alert

Adaptive evacuation → Safer & quicker

- When containment measures need to be taken, the system will not only lead to but also keep people in a safe place.
- The system can block the exit from certain areas.
- All other luminaires can show the fastest way out.

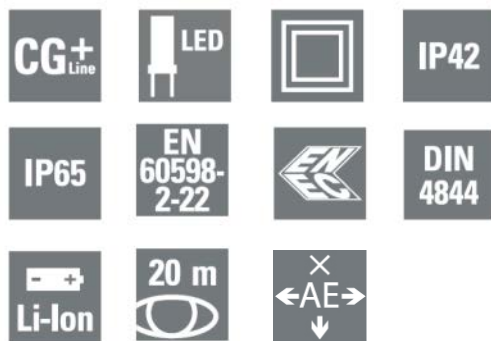


Adaptive Evacuation CGLine+ & Matrix

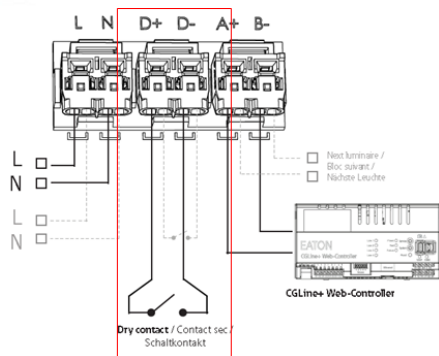
Self-contained luminaires & monitoring system

Matrix AE CGLine+

Escape sign luminaire with Matrix technology for changeable sign





















- Especially made for **Adaptive Evacuation (AE)** which means the luminaire can change its sign depending on an event. This luminaire can direct people to a safe exit route or block an unsafe route
- For connection to CGLine+ systems and of course to Adaptive Evacuation AE CGLine+.
- The signage can be changed via a **switching contact** at the luminaire connected to a smoke detector or panic switch. Or it can be freely programmed and controlled via **AE CGLine+ system**
- With selectable operating time (1h, 3h operation)
- Available with **IP42 and IP65** ingress protection
- ENEC approved: In accordance with EN60598-2-22 and EN1838



EATON
Powering Business Worldwide

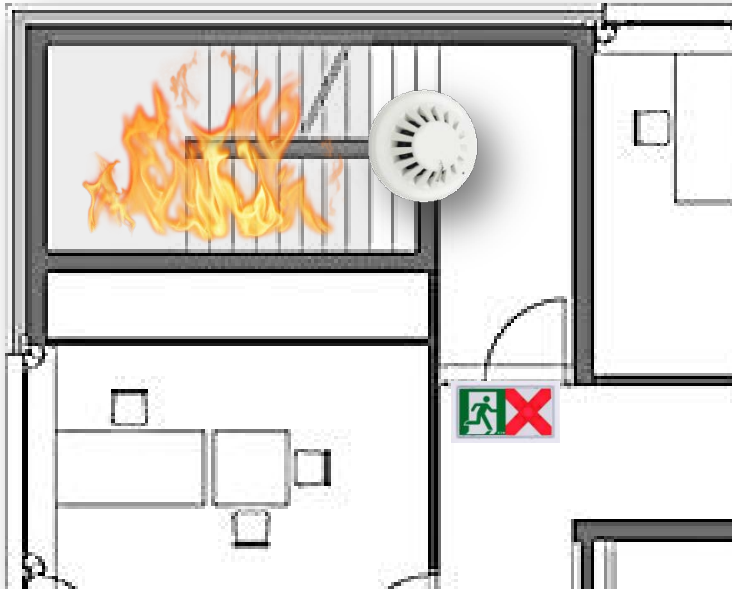
Options using the switching contact

Default mode	0	1	2	3	4	5					
											

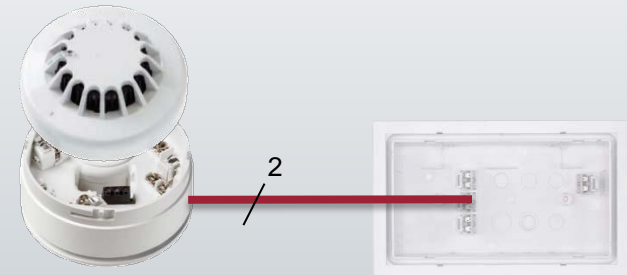
Options "Scenario active"							Arrows animated (IA functionality)*			
Scenario active	0	1	2	3	4	5	6	7	8	9
										

Matrix AE CGLine+

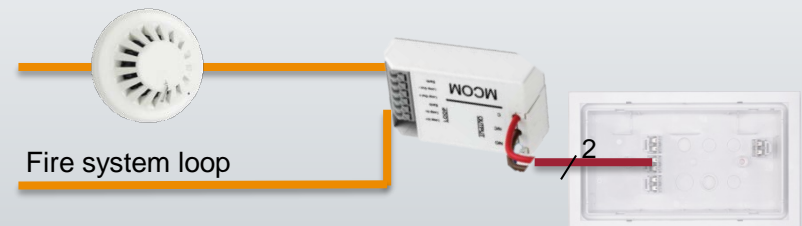
Application with fire sensor connected to switching contact



Local solution for blocking of exit routes.

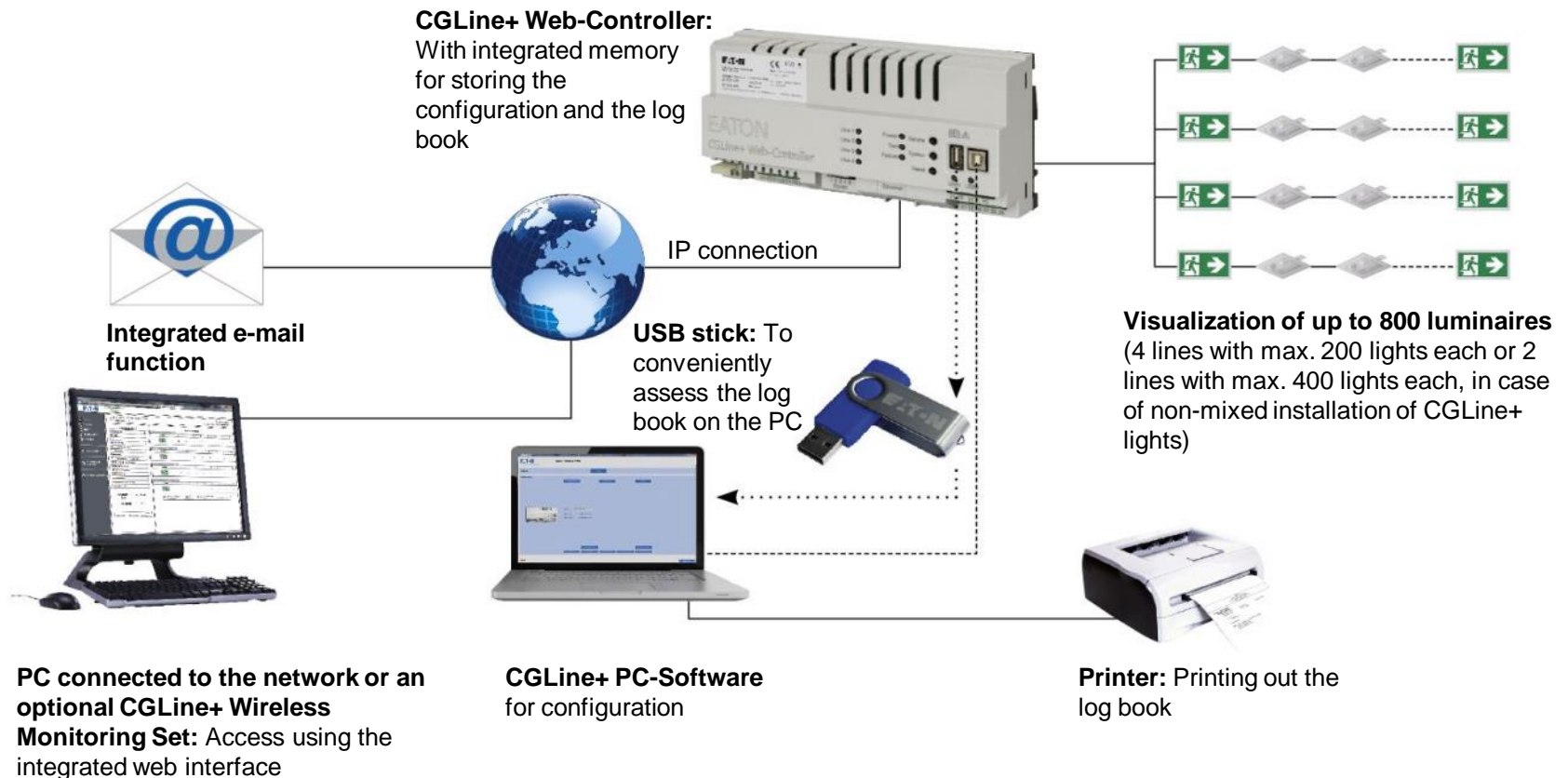


Fire sensor with relay socket which closes a contact in case of fire.



An output sensor within the fire loop closes the contact in case of fire.

CGLine+ Self-contained luminaires monitoring system

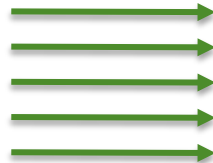


Adaptive Evacuation System CGLine+

System triggers



Universal inputs
(Dry contact)

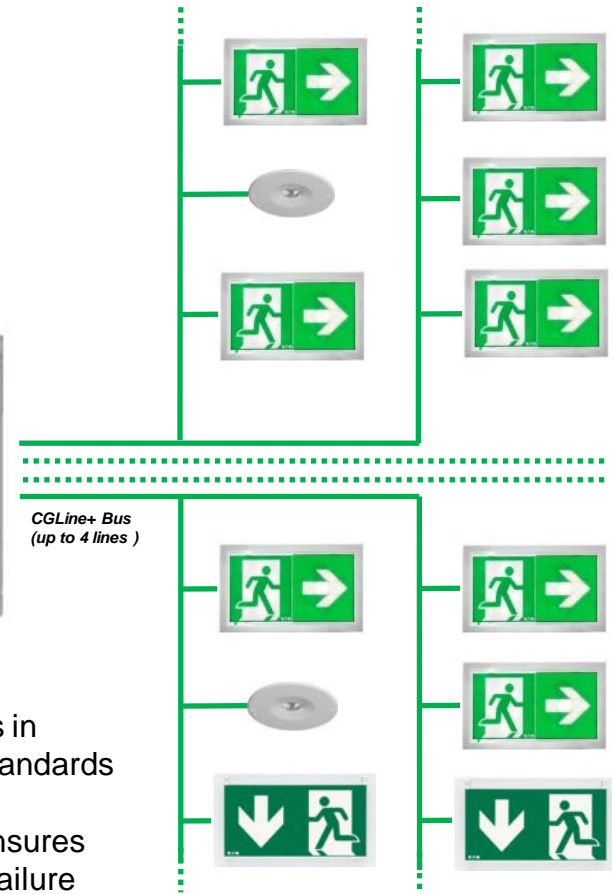


10 inputs in standard
Optional up to 30 inputs

Webserver for
Monitoring of installation



Ethernet



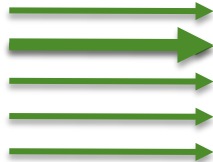
- Monitoring of up to 800 luminaires in accordance with all Emergency standards
- Activation of AE scenarios
- Included back-up power supply ensures readiness even in case of mains failure
- One system for all – standard CGLine+ luminaires, IA and AE luminaires can be easily mixed

Adaptive Evacuation System CGLine+

System triggers



Universal inputs
(Dry contact)

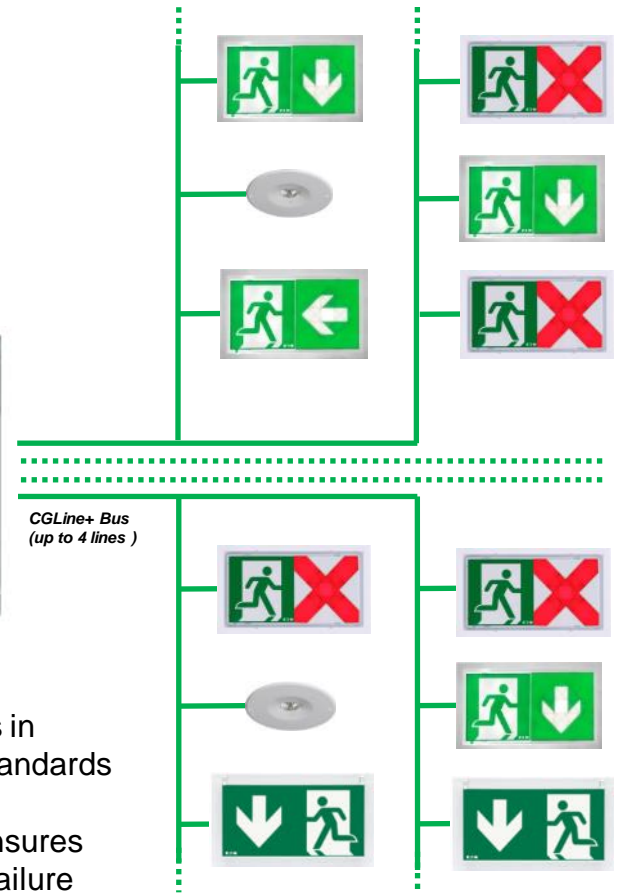


10 inputs in standard
Optional up to 30 inputs

Webserver for
Monitoring of installation



Ethernet



- Monitoring of up to 800 luminaires in accordance with all Emergency standards
- Activation of AE scenarios
- Included back-up power supply ensures readiness even in case of mains failure
- One system for all – standard CGLine+ luminaires, IA and AE luminaires can be easily mixed

Adaptive Evacuation System CGLine+

System triggers



Universal inputs
(Dry contact)

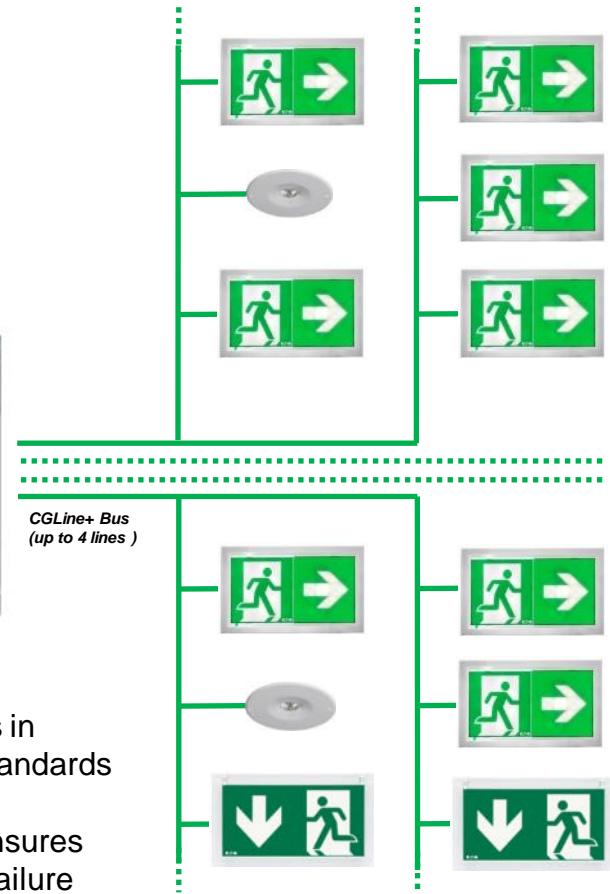
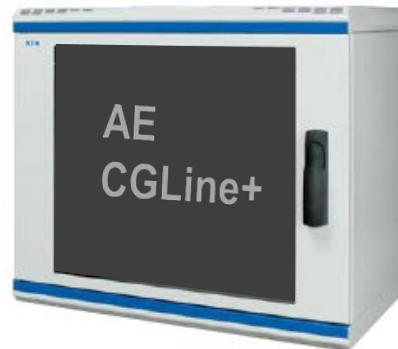


10 inputs in standard
Optional up to 30 inputs

Webserver for
Monitoring of installation



Ethernet



- Monitoring of up to 800 luminaires in accordance with all Emergency standards
- Activation of AE scenarios
- Included back-up power supply ensures readiness even in case of mains failure
- One system for all – standard CGLine+ luminaires, IA and AE luminaires can be easily mixed

System AE CGLine+ - Standard configuration



Includes:



Input module(s)
and connectors
for trigger
inputs



Advanced CGLine+
Web-Controller



Power Backup

- **10 to 30 inputs** for activation of AE scenarios
- Monitoring of up to 800 luminaire
- Mix of standard and AE luminaires possible
- Power backup **for up to 3 h duration**

	10 inputs	20 inputs	30 inputs
Part number	40071777991	40071777992	40071777993

System AE CGLine+ - Without power backup



Includes:



Input module with
power supply

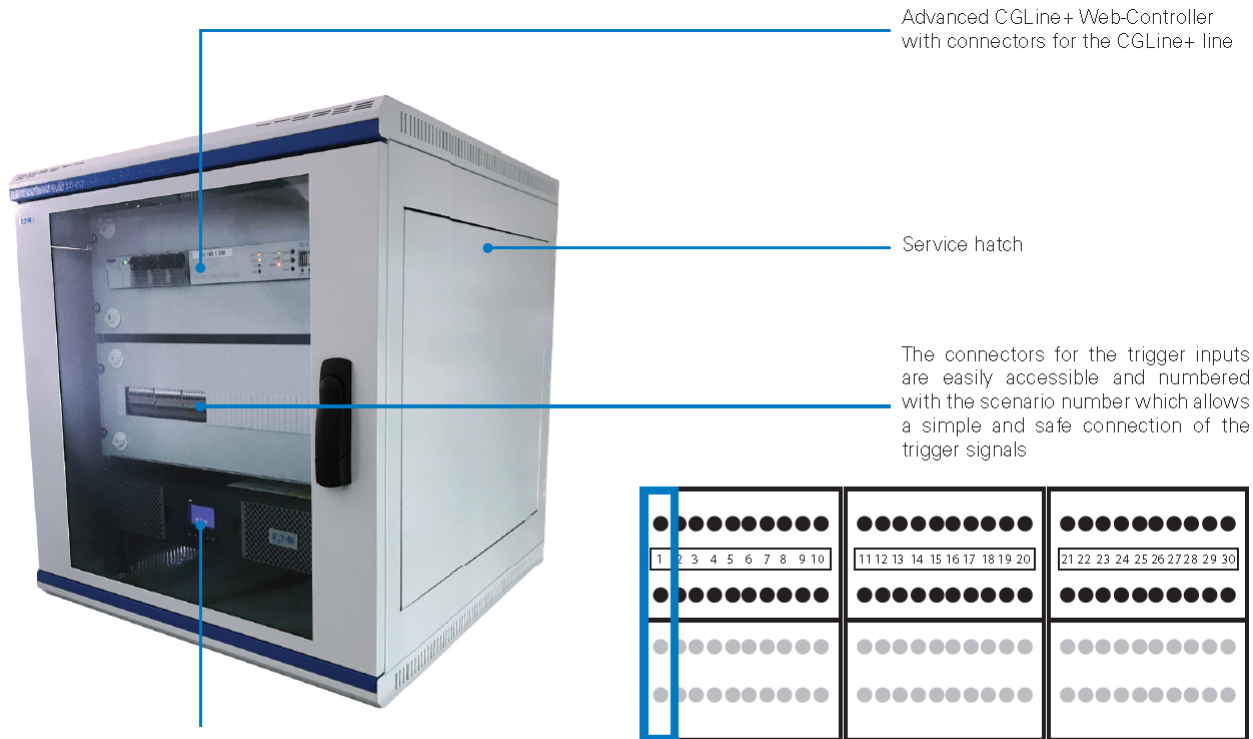


Advanced CGLine+
Web-Controller

Part Number: 40071777994

- 10 Inputs for activation of AE scenarios
- Monitoring of up to 800 luminaire
- Mix of standard and AE luminaires possible
- **For secured mains grids**

System AE CGLine+ - Overview and trigger connection

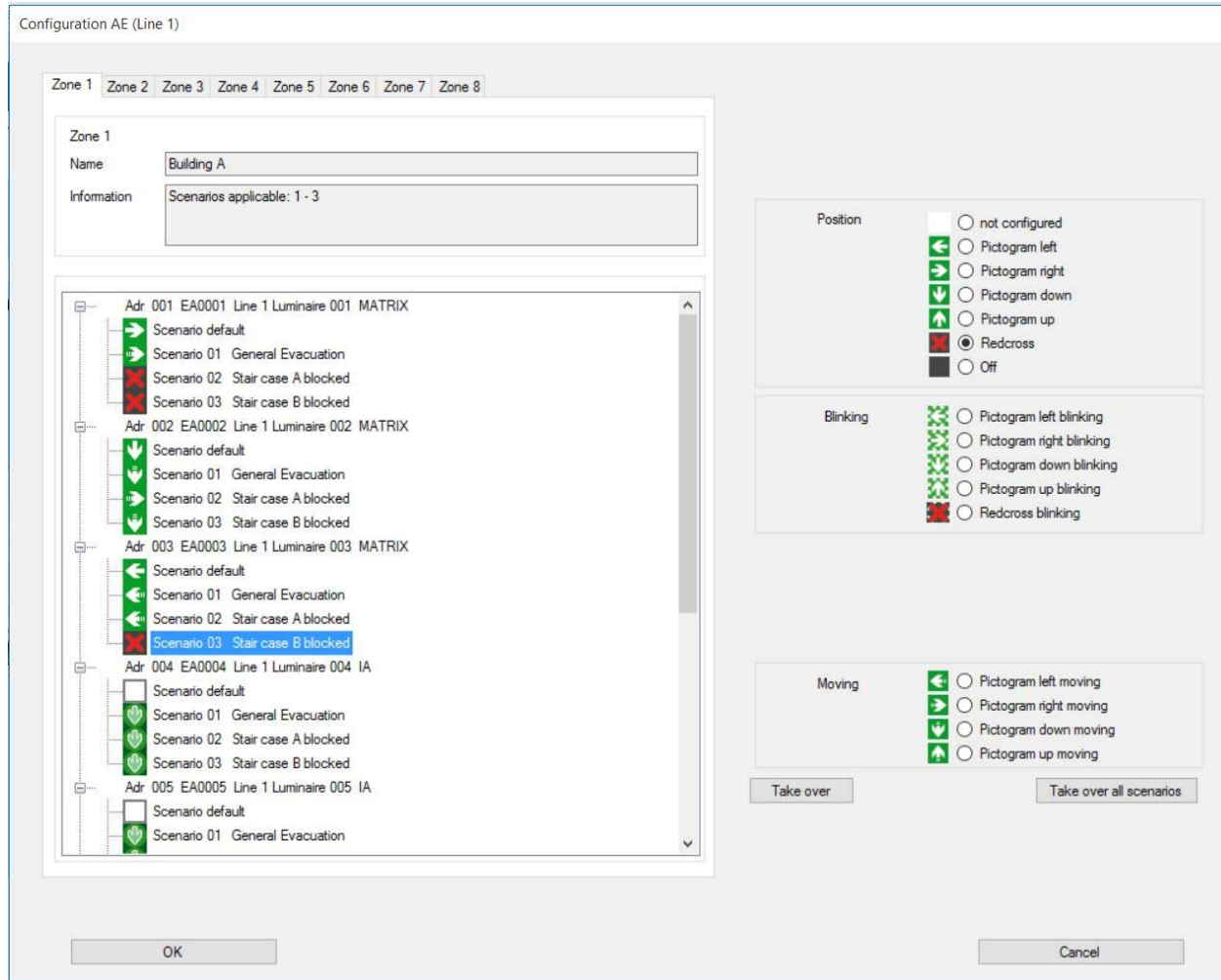


High range back-up

The back-up supply is designed to keep the controller working for at least 3 hours with the maximum possible 800 luminaires connected to the 4 lines.

The function of the back-up is monitored and failure information will be submitted to the Controller and sent per e-mail if maintenance is required.

System AE CGLine+ - Programming



Programming with CGLine + PC-Software

- New release of Software contains standard and AE programming
- General Commissioning of the system like a standard CGLine+
- In a tree structure all luminaires with AE and Increased Affordance (IA) capability are shown
- For the currently selected luminaire it can be chosen which arrow direction will be displayed per scenario or if the luminaire will display a red cross

Product Overview and Availability



Ordering details

Type	Order No.	Scope of supply
AE CGLine+ System, 3 h backup, 10 inputs	40071777991	Including Advanced CGLine+ Web-Controller and power back-up for up to 3 h emergency duration, connectors and input module for 10 trigger inputs, wall mount housing made from sheet metal
AE CGLine+ System, 3 h backup, 20 inputs	40071777992	Including Advanced CGLine+ Web-Controller and power back-up for up to 3 h emergency duration, connectors and input modules for 20 trigger inputs, wall mount housing made from sheet metal
AE CGLine+ System, 3 h backup, 30 inputs	40071777993	Including Advanced CGLine+ Web-Controller and power back-up for up to 3 h emergency duration, connectors and input modules for 30 trigger inputs, wall mount housing made from sheet metal
AE / IA CGLine+ System, 10 inputs *), (without power back-up)	40071777994	Including Advanced CGLine+ Web-Controller, input module for 10 trigger inputs, wall mount housing (plastic), for AE systems with an existing secured mains supply on site and for advanced IA system

Order N°	Product	viewing Distance	Duration	Consumption
40071777002	Matrix 1-3h CGLine+ IP42	20m	1/3h	6.6 W / 13.8 VA
40071777003	Matrix 1-3h CGLine+ IP65	20m	1/3h	6.6 W / 13.8 VA

All AE products are produced in Riom (France) and can be ordered there from July 2018.

Adaptive Evacuation

FAQs

Adaptive Evacuation - FAQs

- ***Is this in line with regulations?***

The EATON AE solutions are all in line with the relevant Emergency Lighting standards. The luminaires metrics are always within the rules in terms of brightness, contrast and colour.

For all AE und IA luminaires we are in the process of ENEC certification at 3rd party institutes for independent scrutiny.

For an AE solution itself there are only white papers and drafts standards but no regulations in place. In one of the white paper from the ZVEI it is stated that it is possible or actually recommended to use innovative solutions even they are not fully standardised if they increase the safety.

For security products, which are being addressed here, of course determinations and standards are needed in order to guarantee high reliability of elements and entire systems. Due to this reason, at the same time, the development of standards which define rules for product requirements (product standards) but also specify requirements regarding their application (application standards) is essential next to the development of technological products. Therefore EATON is supporting the current activities to set up those standards.

Adaptive Evacuation - FAQs

- ***Why change from traditional systems? Why not use Voice Alarms?***

It is not a decision between Adaptive Evacuation or Voice Alarm or other existing solutions. It is a solution to increase the safety by amending the existing emergency lighting by the adaptive functions. The combination of AE with VoiceAlarm is a great step in direction of the two-sense-principle.

- ***Who is responsible for defining scenarios / cause and effect?***

Effective evacuation is reliant upon a combination of factors including procedural planning, route mapping, training and technology. To determine these factors, a comprehensive and regularly reviewed risk assessment should be the foundation of evacuation planning. This has to be performed by the experts: specialized planners, public authorities and fire brigades. EATON would not take over this planning but will support to supply the right technology.

Adaptive Evacuation - FAQs

- ***How can be ensured the system works?***

Generally all emergency lighting systems must be checked regularly. The EATON systems AE CU CG-S (Central Power System) and the AE CGLine+ are both fully automatic test systems performing tests in accordance with the relevant rules and standards while the information can be monitored centrally. Any luminaire failure will visible soon and the responsible person can react accordingly. The systems where AE is based on are both Emergency lighting systems EATON delivers since many years to our customers with long term experience and high reliability.

Of course for the Adaptive Evacuation technology we added further control mechanisms. For example any communication failure -between input modules and the control unit and between controller and luminaire - will be monitored and will be visible at the controller. With AE CGLine+ in this case an automatic e-mail will be sent to the relevant person(s) which allows to directly react on any failure within the system.



Powering Business Worldwide

AUCKLAND +64 9 5705267
WELLINGTON +64 21 531 514
CHRISTCHURCH +64 3 3668608
> info@ellis.co.nz > www.ellis.co.nz

ELLISCO

Your Partner for Global Technology

