



EDLM
(3 color LED)



EDWM
(5 color LED)

Model: EDLM & EDWM

Explosion-Proof LED Signal Towers

PATLITE, established in 1947, is the world leader in the design, development, manufacture, and application of visual and audible signaling alarms for industrial and process automation, as well as for potentially explosive atmospheres and harsh industrial environments.

The EDLM (3 color LED) and EDWM (5 color LED) are innovative LED signaling towers with pressure and flame-proof housing designed specifically for use in potentially flammable and explosive atmospheres such as chemical, petrochemical, production of mineral/natural gas, and even in food industries and combustible dusts.

- Standards : Compliance to ATEX and NEC standards.
- Connection : Easy wiring for parallel connection to another interlocking device through 2 lead-in ports.
- Terminal Block : Easy connection to the signal tower by opening the back.
- Body : Made of aluminum alloy.
- Light Source : Long life, maintenance-free LED.
- Mount-type : Wall mount, flush mount and horizontal mount. See below. (Photo shows the model EDWM.)



LED

IP66

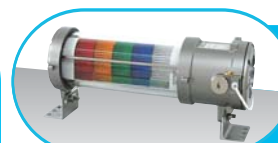
NPN/PNP
Open collector



Wall Mount



Flush Mount



Horizontal
Mount



Terminal block

• Brackets included.

Model: EDLM & EDWM

Explosion-Proof Signal LED Tower



Testing Authority
PTB



Testing Authority
NEC Article 505



EDLM
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EDWM
(5 color LED)

EDLM & EDWM cover the specifications below.

Common in Europe

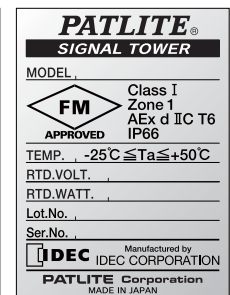
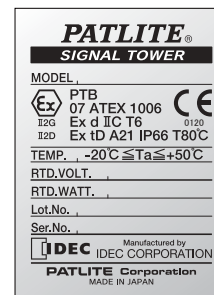
• ATEX directive is CENELEC standard.

Classification	Standard	PATLITE Models	Present Continuously	Present Intermittently	Present Abnormally
ATEX, IEC/EU Directive 94/9/EC	IEC 60079-10 EN 60079-10	EDLM, EDWM	Zone 0	Zone 1	Zone 2

Common in the USA

• NEC standard is National Electrical Code.

Classification	Standard	PATLITE Models	Present Continuously	Present Intermittently	Present Abnormally
NEC Article 505	ANSI/NFPA 71	EDLM, EDWM	Zone 0	Zone 1	Zone 2
NEC Article 500	ANSI/NFPA 70	—	Division 1		Division 2



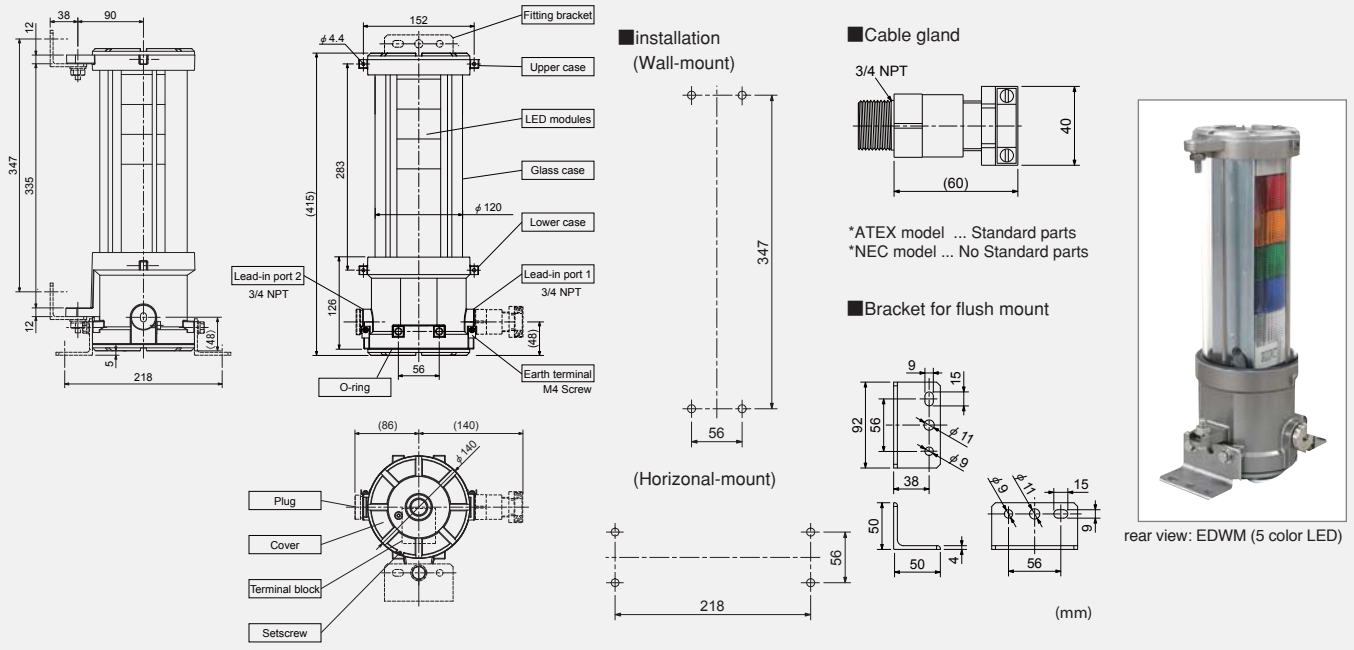
Specifications (ATEX)

Type	EDLM-302FE	EDLM-312FE	EDLM-323FE	EDWM-502FE	EDWM-5M2FE
Rated voltage	AC/DC 24V	AC 120V	AC 230V	AC/DC 24V	AC 90~250V
Signal line current (Per a LED module)	Red/Amber: 52.5mA Green: 20.0mA			Red: 22.6mA, Amber: 26.6mA, Green: 17.5mA Blue/White: 38.9mA	
Explosion Protection ratings	Ⓜ II2G Ex d IIC T6 (Zone1,2) Ⓜ II2D Ex tD A21 IP66 T80°C (Zone21,22)				
Operating temp.	-20°C~+50°C (no ice)				
Operating humidity	45%~85%RH (Keep from dew condensation)				
Ambient pressure	80~110kpa				
Lighting pattern	Flashing (60±12 flashes per minute) / Continuous light				
IP	IP66				
Vibration resistance	9.8m/s ²				
Mounting type	Outdoor & Indoor Upright			Outdoor & Indoor Upright & Sideways	
Luminosity	Red: 350mcd or more, Amber: 580mcd or more Green: 1300mcd or more			Red/Green/White: 1000mcd or more Amber: 700mcd or more, Blue: 300mcd or more	
Mass(Main body)	4.3kg			4.7kg	
Material	Upper & Lower case : Aluminum alloy (Housing finish: Melamine baking finish) Glass case : Borosilicate glass Fitting bracket : Stainless Steel(sus 316) Cable gland : Brass				

Specifications (NEC)

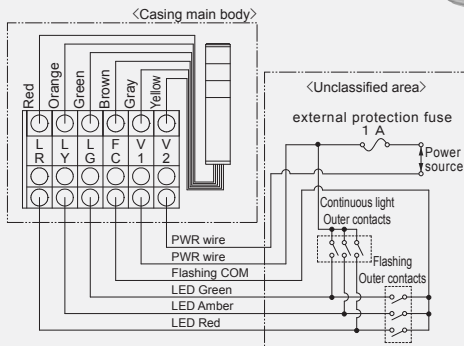
Type	EDLM-302FA	EDLM-312FA	EDLM-323FA	EDWM-502FA	EDWM-5M2FA
Rated voltage	AC/DC 24V	AC 120V	AC 230V	AC/DC 24V	AC 90~250V
Signal line current (Per a LED module)	Red/Amber: 52.5mA Green: 20.0mA			Red: 22.6mA, Amber: 26.6mA, Green: 17.5mA Blue/White: 38.9mA	
Explosion Protection ratings	Class I, Zone 1 AEx d IIC T6				
Operating temp.	-25°C~+50°C (no ice)				
Operating humidity	45%~85%RH (Keep from dew condensation)				
Ambient pressure	80~110kpa				
Lighting pattern	Flashing (60±12 flashes per minute) / Continuous light				
IP	IP66				
Vibration resistance	9.8m/s ²				
Mounting type	Outdoor & Indoor Upright			Outdoor & Indoor Upright & Sideways	
Luminosity	Red: 350mcd or more, Amber: 580mcd or more Green: 1300mcd or more			Red/Green/White: 1000mcd or more Amber: 700mcd or more, Blue: 300mcd or more	
Mass(Mainbody)	4.3kg			4.7kg	
Material	Upper & Lower case : Aluminum alloy (Housing finish: Melamine baking finish) Glass case : Borosilicate glass Fitting bracket : Stainless,Steel(sus316)				

Dimensions (EDLM,EDWM)

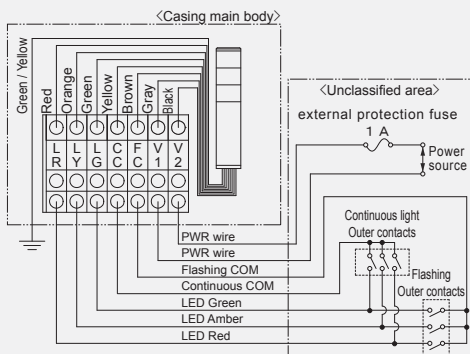


Wiring Diagram EDLM (3 color LED)

EDLM-302FE/FA

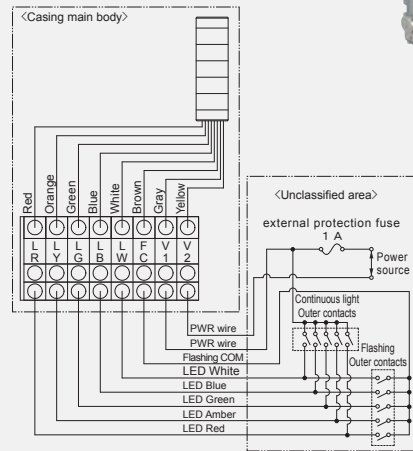


EDLM-312FE/FA EDLM-323FE/FA

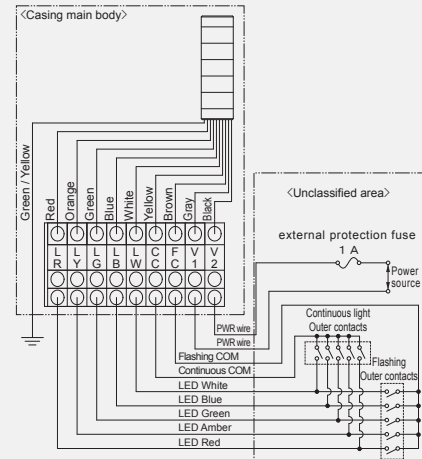


Wiring Diagram EDWM (5 color LED)

EDWM-502FE/FA

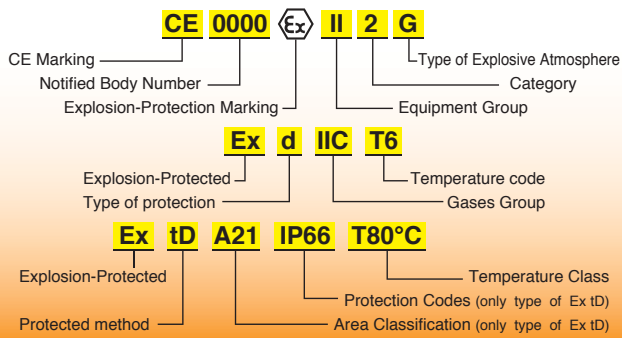


EDWM-5M2FE/FA

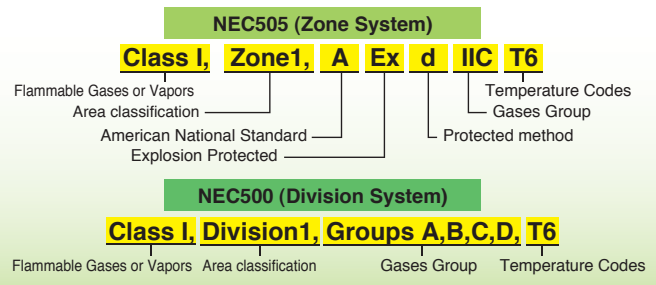


Constructional Requirements for Explosion Protected Electrical Equipment.

Marking for ATEX directive (CENELEC standard)

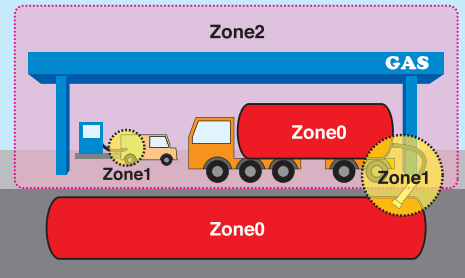


Marking for North America (NEC standard)

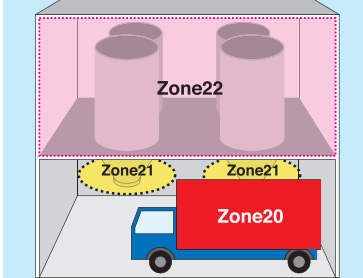


Classification of the hazardous areas

Gases/Vapors



Dusts



Zone classification

	CENELEC IEC	NEC505	Classification of the hazardous areas
Gases Vapors	Zone 0	Class I Zone 0	An area where the mixture of explosive gas is constantly present.
	Zone 1	Class I Zone 1	An area where the mixture of explosive gas can be present during the normal operation of the plant.
	Zone 2	Class I Zone 2	An area where the mixture of explosive gas is not normally present, but if it is, only for brief periods of time.
Dusts	Zone 20	—	An area where the mixture of explosive dust is constantly present.
	Zone 21	—	An area where the mixture of explosive dust can be present during the normal operation of the plant.
	Zone 22	—	An area where the mixture of explosive dust is not normally present, but if it is, only for brief periods of time.

Explosion-proof protection

Protection method	Europe (ATEX Directive / (CENELEC) International (IEC)			North America Class I					
	Protection	Zone	CENELEC ATEX	IEC IECEx	Protection	Zone	US	Division	US
Explosion-proof Flame-proof	Exd	1, 2	EN60079-1	IEC60079-1	AExd	1, 2	ANSI/ISA 60079-1	1, 2	FM3615 UL1203
Increased Safety	Exe	1, 2	EN60079-7	IEC60079-7	AExe	1, 2	ANSI/ISA 60079-7	—	—
Intrinsic Safety (2 faults)	Exia	0, 1, 2	EN60079-11	IEC60079-11	AExia	0, 1, 2	ANSI/ISA 60079-11	1, 2	FM3610 UL913
Intrinsic Safety (1 faults)	Exib	1, 2	EN60079-11	IEC60079-11	AExib	1, 2	ANSI/ISA 60079-11	—	—
Purged Pressurized	Exp	1, 2	EN60079-2	IEC60079-2	AExp	1, 2	ANSI/ISA 60079-2	1, 2	FM3620 NFPA496
Encapsulation	Exm	1, 2	EN60079-18	IEC60079-18	AExe	1, 2	ANSI/ISA 60079-18	—	—
Non-incendiary	—	—	—	—	—	—	—	2	FM3611 UL1604
Type-n	Exn	2	EN60079-15	IEC60079-15	AExn	2	ANSI/ISA 60079-15	—	—

NEC500 Division classification

	Division	Description
Class I Gases Vapors	Division 1	An area where the mixture of explosive gas is constantly present or it can be present during the normal operation of the plant.
	Division 2	An area where the mixture of explosive gas is not normally present, but if it is, only for brief periods of time.
Class II Dusts	Division 1	An area where the mixture of explosive dust is constantly present or it can be present during the normal operation of the plant.
	Division 2	An area where the mixture of explosive dust is not normally present, but if it is, only for brief periods of time.
Class III Fibers	Division 1	An area where the mixture of explosive fiber is constantly present or it can be present during the normal operation of the plant.
	Division 2	An area where the mixture of explosive fiber is not normally present, but if it is, only for brief periods of time.

AREA Classification (gases/vapors)

	Constant	Occasional	Rare and temporary
ATEX	EC60079-10 Zone 0 (Category 1)	Zone 1 (Category 2)	Zone 2 (Category 3)
IEC	IEC60079-10 Zone 0	Zone 1	Zone 2
US	NEC505 Zone 0 (class I)	Zone 1 (class I)	Zone 2 (class I)
	NEC500	Division 1 (Class I) Division 2 (Class I)	

AREA Classification (dusts)

	Constant	Occasional	Rare and temporary
ATEX	EC61241-10 Zone20 (Category 1)	Zone21 (Category 2)	Zone22 (Category 3)
IEC	IEC61241-10 Zone 20	Zone 21	Zone 22
US	NEC505	—	—
	NEC500	Division 1 (Class II) Division 2 (Class II)	

ATEX Directive (CENELEC)

Equipment Group	Category and protection level	Explosive atmosphere	Flammable Substances	Hazardous areas
I-mines	M1-very high level of protection	Constant	Methane, Coal Dusts	—
	M2-high level of protection	Rare and temporary	—	—
II-other areas	1-very high level of protection	Constant	Gas,	Zone 0 (Gas Zone 20 (Dust)
	2-high level of protection	Occasional	Vapors,	Zone 1 (Gas Zone 21 (Dust)
	3-normal level of protection	Rare and temporary	Mist, Dust	Zone 2 (Gas Zone 22 (Dust)

Classification of gases & Temperature code (for ATEX/IEC)

	T1 (450°C)	T2 (300°C)	T3 (200°C)	T4 (135°C)	T5 (100°C)	T6 (85°C)
I	Methane	—	—	—	—	—
IIA	Acetone ethane Propane	Ethyl Alcohol Cyclohexane n-butane	Gasoline Aircraft fuel Dieael fuel	Acetaldehyde	—	—
IIIB	Lighting gas Acrylonitrile	Ethylene Ethylene oxide	Ethylene glyco Hydrogen sulphide	Ethyl-ether	—	—
IIC	Hydrogen	Acetylene	—	—	Carbon Bisulfide	Coal disulphide

IP codes

protection against solid body	protection against water
0 no protection	0 no protection
1 objects greater than 50mm	1 vertically dripping
2 objects greater than 12.5mm	2 angled dripping
3 objects greater than 2.5mm	3 spraying
4 objects greater than 1.0mm	4 splashing
5 dust-protected	5 jetting
6 dust-tight	6 powerful jetting
—	7 temporary immersion
—	8 continuous immersion

Protected method (ATEX/IEC)



Flame-proof enclosure type "d"
In flame-proof enclosures an explosion is contained.



Type of protection "tD"
Dust-protected flame-proof enclosures.

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CAUTION

To ensure correct use of these products, read the "Instruction Manual" prior to use. Failure to follow all safeguards can result in fire, electric shock, or other accidents. Specifications are subject to change without notice.



PATLITE ECO PROJECT

For the benefit of mankind and the earth, Patlite is committed to developing environmentally friendly products.