HADLER

Linear V LED

Data sheet

Integrated emergency unit for led lamps zone 2 Ex
For mains and battery supply
Integrated battery management

Luxtronic®

Linear V LED Emergency converter

More than 25 years of experience in the design and development of electronic lighting products, the close cooperation with test authorities and the joint research in the sector of explosion protection enable the company Hadler to develop products in accordance with market trends which will exactly meet the requirements. Function and, above all, safety will take priority over other requirements.

Furthermore, in accordance with the company philosophy, Luxtronic ballasts also reflect the “second idea”: Features offering an additional benefit and using the full competence of the company Hadler to allow for a unique position in the market. Both large-scale and small-scale series of the Luxtronic ballasts can be produced in a cost-effective way. The proximity to the market allows for short delivery times.

Michael Lamkowski
Head of Research & Development

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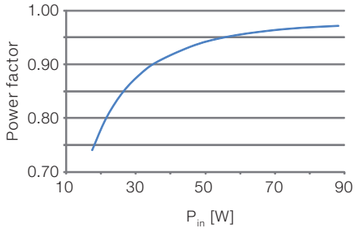
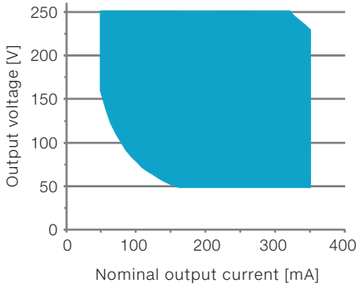
Input

Rated supply voltage	220 – 240 V
Mains frequency	50 – 60 Hz
Input voltage range a.c.	198 – 264 V
Input voltage range d.c.	n.a.
Power factor	0.98 at full load (see graph)
Total Harmonic Distortion	< 10 % at full load



Output

Output characteristic	Constant current, non-SELV
Output voltage	50 – 250 V (see graph)
Output current	50 – 350 mA
Output power	8 – 80 W
No. of output channels	1
Output current accuracy	+/- 3 %
Output current ripple	< 10 % at 100 Hz
Output dimming	n.a.
Dimming range	n.a.



Efficiency

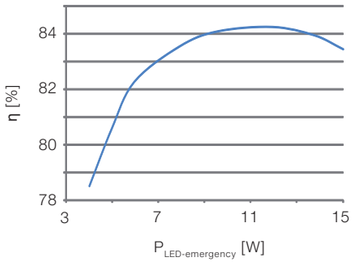
Stand-By Power consumption	n.a.
No-load Power consuption	n.a.
Electrical efficiency	> 0.90 at full load

Interface

Dimming Interface	n.a.
Interface control current	n.a.
Dimming curve	n.a.

Battery

Type	5 cells NiCd or NiMH
Charge current	40 – 400 mA
Charge voltage	4.8 – 7.8 V
Discharge current	0.5 – 3.5 A
End of discharge	5.0 V
Deep discharge current	< 1 µA
EBLF	-
Fuse	10 A fast, 50 A @ 125 V_{DC}



Temperature, Lifetime

Ambient temperature range	-40 – 65 °C
Max. case temperature T_c	75 °C

T_a	45 °C	55 °C	65 °C
T_c	55 °C	65 °C	75 °C
lifetime	> 130,000 h	100,000 h	50,000 h

Max. No. of ECG per circuit breaker

Type	B10	7 pcs.
	C10	12 pcs.
	B16	11 pcs.
	C16	19 pcs.

Wiring

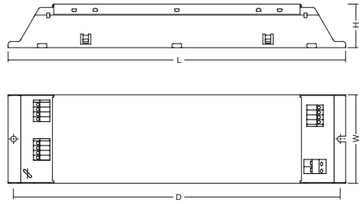
Max. output cable length	200 cm
Input wire cross-section	0.5 – 1.5 mm²
Output wire cross-section	0.5 – 1.5 mm²

The wiring should be short and without crossings for best EMC results.

Dimensions

Length x Width x Height	248 x 65 x 32 mm
Mounting hole distance D	240 mm
Mounting screws	M4 max.

(see schematic view on the right)



Ordering data

Weight	0.4 kg
Packaging unit	32 pcs.
Order No.	**3 D 180 14 0**

Hardwired switch input

The integrated emergency unit can be used in maintained and non-maintained emergency luminaires. Connecting the hardwired switch input-terminal L' to mains conductor L will force the device to light up the connected LED modules.

Remote switch input

The remote switch input can be used to prevent the emergency unit from starting the emergency operation after mains failure. Emergency operation is enabled, when the remote switch is closed and disabled, when the remote switch is open.

Output current setting

The integrated emergency unit operates the connected LED modules at an adjustable nominal current value.
See clause "Index agreement" for further details.

Battery settings

Charge and discharge parameters of the attached battery are pre-configured to meet the requirements of the application. See clause "Index agreement" for further details.

Index agreement

All output and battery parameters of the integrated emergency unit are adjustable in the ranges declared in the technical data. Contact Hadler to specify the target values for your application. Hadler will determine the appropriate values and issue a 3-digit number called Index. Purchase orders have to contain the type reference as well as the corresponding index.

Emergency lighting performance

The integrated emergency unit operates the LED module(s) in emergency mode at a pre-configured power level ranging from 4 to 15 W considering battery capacity and rated duration of emergency operation. See clause "Index agreement" for further details.

The device will recharge the battery normally after abnormal operating conditions given in EN 61347-2-7 clause 22.3 (battery short-circuit).

The insulation between battery circuits and mains conductors meets the requirements for basic insulation.

The integrated emergency unit is suited for use in luminaires for high-risk task area lighting.

Status LED

The device is equipped with two output terminals to connect a red/green status LED in antiparallel topology. The driving circuitry is connected to battery potential. Nominal status LED driving current is +/- 15 mA, maximum open-circuit voltage at the status LED terminals is 6.6 V.

Charge and test mode operation is indicated by green signals, failures are displayed by different red blinking patterns. See clause "Index agreement" for further details.

Standards

- EN 50581
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 61347-1
- EN 61347-2-7
- EN 61347-2-13
- EN 60079-0:2012 + A1:2013; IEC 60079-0 Ed. 6
- EN 60079-7:2015; IEC 60079-7 Ed. 5

Markings

Wiring diagram

Safety instructions

Please carefully read these instructions prior to installation and keep them for later reference. This Integrated Emergency Unit is intended for operation of LED modules in self-contained emergency luminaires for use in explosive atmospheres. Ensure that ratings of LED modules and batteries match with output ranges of the IEU. Do not use this product for other than intended use.

II 3 G Ex ec IIC Gc U
Ex ec IIC Gc U

Hadler GmbH declares that this device is in conformity with the EU explosion protection directive 2014/34/EU (ATEX). Compliance with requirements of IEC 60079-0 Ed. 6 and IEC 60079-7 Ed. 5 is laid down in certificate number IECEx IBE 17.0007U.

The sign “U” placed after certificate number and Ex marking indicates, that the corresponding certificate is not equivalent to a Statement of Conformity for an Ex equipment or protective system.

Certificates and detailed product datasheets are available at www.hadler-gmbh.de.

Installation precautions

This control gear may be installed into housings of explosion protected luminaires with a minimum type o protection of the housing of IP54 according to IEC 60529.

Keep in mind that the LED output is NOT isolated against mains voltage. Proper insulation of the output circuits is mandatory.

Dismantled length of wires has to be between 8.5 and 9.5 mm. Permissible cross-section of wires is from 0.5 up to 1.5 mm^2. Device is equipped with push-in terminals for solid or ferruled conductors; alternatively terminations of bare fine-stranded conductors to be made via push-buttons. Careful inspection of wire connections and mounting conditions is essential to ascertain that clearance and creepage distances will meet the requirements of the appropriate type of protection.

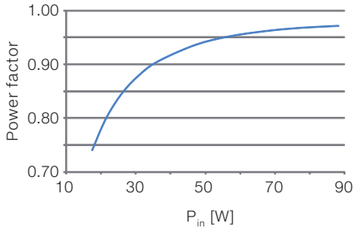
Maximum temperature rise at internal components is 50 K at full load and with reference to tc.

Devices contain no field-serviceable parts. In case of malfunction, contact the manufacturer.

Custom settings for different OEMs are comprehensively codified in a so-called Index. In case of replacement orders, please specify the correct Index as well as the order number. Both are given on the product code label in the data fields [P] and [I].

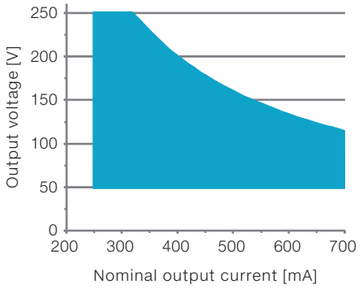
Input

Rated supply voltage	220 – 240 V
Mains frequency	50 – 60 Hz
Input voltage range a.c.	198 – 264 V
Input voltage range d.c.	n.a.
Power factor	0.98 at full load (see graph)
Total Harmonic Distortion	< 10 % at full load



Output

Output characteristic	Constant current, non-SELV
Output voltage	50 – 250 V (see graph)
Output current	250 – 700 mA
Output power	12.5 – 80 W
No. of output channels	1
Output current accuracy	+/- 3 %
Output current ripple	< 10 % at 100 Hz
Output dimming	n.a.
Dimming range	n.a.



Efficiency

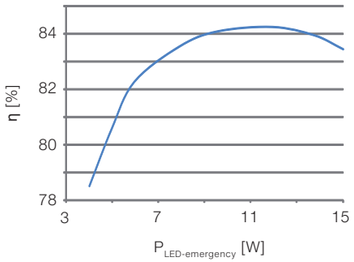
Stand-By Power consumption	n.a.
No-load Power consuption	n.a.
Electrical efficiency	> 0.90 at full load

Interface

Dimming Interface	n.a.
Interface control current	n.a.
Dimming curve	n.a.

Battery

Type	5 cells NiCd or NiMH
Charge current	40 – 400 mA
Charge voltage	4.8 – 7.8 V
Discharge current	0.5 – 3.5 A
End of discharge	5.0 V
Deep discharge current	< 1 µA
EBLF	-
Fuse	10 A fast, 50 A @ 125 V_{DC}



Temperature, Lifetime

Ambient temperature range	-40 – 50 °C
Max. case temperature T_c	60 °C

T_a	30 °C	40 °C	50 °C
T_c	40 °C	50 °C	60 °C
lifetime	> 130,000 h	> 130,000 h	100,000 h

Max. No. of ECG per circuit breaker

Type	B10	7 pcs.
	C10	12 pcs.
	B16	11 pcs.
	C16	19 pcs.

Wiring

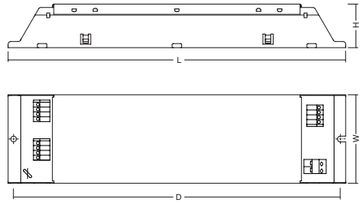
Max. output cable length	200 cm
Input wire cross-section	0.5 – 1.5 mm²
Output wire cross-section	0.5 – 1.5 mm²

The wiring should be short and without crossings for best EMC results.

Dimensions

Length x Width x Height	248 x 65 x 32 mm
Mounting hole distance D	240 mm
Mounting screws	M4 max.

(see schematic view on the right)



Ordering data

Weight	0.4 kg
Packaging unit	32 pcs.
Order No.	**3 D 180 24 0**

Hardwired switch input

The integrated emergency unit can be used in maintained and non-maintained emergency luminaires. Connecting the hardwired switch input-terminal L' to mains conductor L will force the device to light up the connected LED modules.

Remote switch input

The remote switch input can be used to prevent the emergency unit from starting the emergency operation after mains failure. Emergency operation is enabled, when the remote switch is closed and disabled, when the remote switch is open.

Output current setting

The integrated emergency unit operates the connected LED modules at an adjustable nominal current value.
See clause "Index agreement" for further details.

Battery settings

Charge and discharge parameters of the attached battery are pre-configured to meet the requirements of the application. See clause "Index agreement" for further details.

Index agreement

All output and battery parameters of the integrated emergency unit are adjustable in the ranges declared in the technical data. Contact Hadler to specify the target values for your application. Hadler will determine the appropriate values and issue a 3-digit number called Index. Purchase orders have to contain the type reference as well as the corresponding index.

Emergency lighting performance

The integrated emergency unit operates the LED module(s) in emergency mode at a pre-configured power level ranging from 4 to 15 W considering battery capacity and rated duration of emergency operation. See clause "Index agreement" for further details.

The device will recharge the battery normally after abnormal operating conditions given in EN 61347-2-7 clause 22.3 (battery short-circuit).

The insulation between battery circuits and mains conductors meets the requirements for basic insulation.

The integrated emergency unit is suited for use in luminaires for high-risk task area lighting.

Status LED

The device is equipped with two output terminals to connect a red/green status LED in antiparallel topology. The driving circuitry is connected to battery potential. Nominal status LED driving current is +/- 15 mA, maximum open-circuit voltage at the status LED terminals is 6.6 V.

Charge and test mode operation is indicated by green signals, failures are displayed by different red blinking patterns. See clause "Index agreement" for further details.

Standards

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- EN 60079-0:2012 + A1:2013; IEC 60079-0 Ed. 6
- EN 60079-7:2015; IEC 60079-7 Ed. 5

Markings

Wiring diagram

Safety instructions

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Installation precautions

This control gear may be installed into housings of explosion protected luminaires with a minimum type o protection of the housing of IP54 according to IEC 60529.

Keep in mind that the LED output is NOT isolated against mains voltage. Proper insulation of the output circuits is mandatory.

Dismantled length of wires has to be between 8.5 and 9.5 mm. Permissible cross-section of wires is from 0.5 up to 1.5 mm^2. Device is equipped with push-in terminals for solid or ferruled conductors; alternatively terminations of bare fine-stranded conductors to be made via push-buttons. Careful inspection of wire connections and mounting conditions is essential to ascertain that clearance and creepage distances will meet the requirements of the appropriate type of protection.

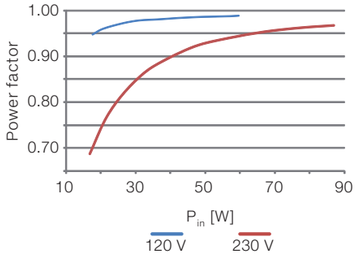
Maximum temperature rise at internal components is 50 K at full load and with reference to tc.

Devices contain no field-serviceable parts. In case of malfunction, contact the manufacturer.

Custom settings for different OEMs are comprehensively codified in a so-called Index. In case of replacement orders, please specify the correct Index as well as the order number. Both are given on the product code label in the data fields [P] and [I].

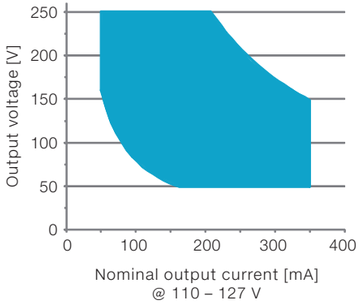
Input

Rated supply voltage	110 – 127 V, 220 – 240 V
Mains frequency	50 – 60 Hz
Input voltage range a.c.	99 – 264 V
Input voltage range d.c.	n.a.
Power factor	0.97 at full load (see graph)
Total Harmonic Distortion	< 10 % at full load



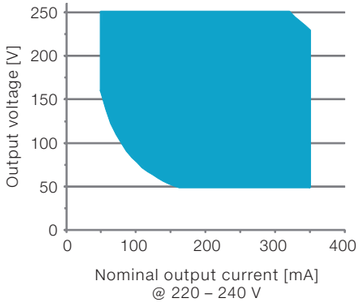
Output

Output characteristic	Constant current, non-SELV
Output voltage	50 – 250 V (see graph)
Output current	50 – 350 mA
Output power	8 – 52 W @ 110 – 127 V, 8 – 80 W @ 220 – 240 V
No. of output channels	1
Output current accuracy	+/- 3 %
Output current ripple	< 10 % at 100 Hz
Output dimming	n.a.
Dimming range	n.a.



Efficiency

Stand-By Power consumption	n.a.
No-load Power consuption	n.a.
Electrical efficiency	> 0.90 at full load

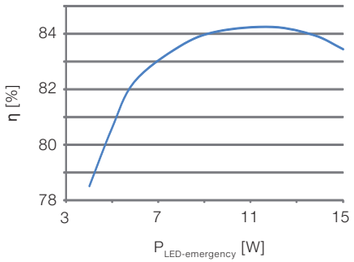


Interface

Dimming Interface	n.a.
Interface control current	n.a.
Dimming curve	n.a.

Battery

Type	5 cells NiCd or NiMH
Charge current	40 – 400 mA
Charge voltage	4.8 – 7.8 V
Discharge current	0.5 – 3.5 A
End of discharge	5.0 V
Deep discharge current	< 1 µA
EBLF	-
Fuse	10 A fast, 50 A @ 125 V_{DC}



Temperature, Lifetime

Ambient temperature range	-40 – 65 °C		
Max. case temperature T_c	70 °C		
T_a	45 °C	55 °C	65 °C
T_c	50 °C	60 °C	70 °C
lifetime	> 130,000 h	100,000 h	50,000 h

Max. No. of ECG per circuit breaker

Type	B10	7 pcs.
	C10	11 pcs.
	B16	11 pcs.
	C16	18 pcs.

Wiring

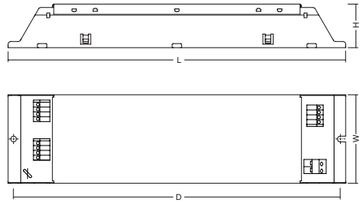
Max. output cable length	200 cm
Input wire cross-section	0.5 – 1.5 mm²
Output wire cross-section	0.5 – 1.5 mm²

The wiring should be short and without crossings for best EMC results.

Dimensions

Length x Width x Height	248 x 65 x 32 mm
Mounting hole distance D	240 mm
Mounting screws	M4 max.

(see schematic view on the right)



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Weight	0.4 kg
Packaging unit	32 pcs.
Order No.	**3 G 180 14 0**

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Output current setting

The integrated emergency unit operates the connected LED modules at an adjustable nominal current value.
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Battery settings

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Emergency lighting performance

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Markings

Wiring diagram

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Installation precautions

This control gear may be installed into housings of explosion protected luminaires with a minimum type o protection of the housing of IP54 according to IEC 60529.

Keep in mind that the LED output is NOT isolated against mains voltage. Proper insulation of the output circuits is mandatory.

Dismantled length of wires has to be between 8.5 and 9.5 mm. Permissible cross-section of wires is from 0.5 up to 1.5 mm^2. Device is equipped with push-in terminals for solid or ferruled conductors; alternatively terminations of bare fine-stranded conductors to be made via push-buttons. Careful inspection of wire connections and mounting conditions is essential to ascertain that clearance and creepage distances will meet the requirements of the appropriate type of protection.

Maximum temperature rise at internal components is 50 K at full load and with reference to tc.

Devices contain no field-serviceable parts. In case of malfunction, contact the manufacturer.

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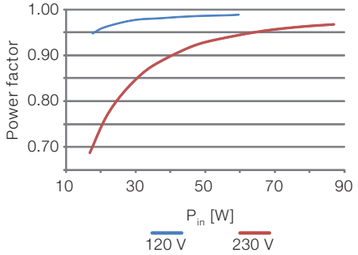
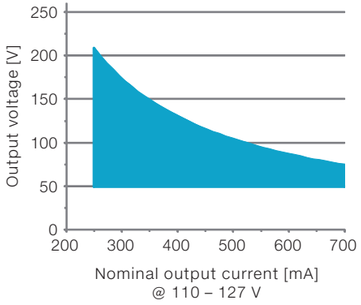
Input

Rated supply voltage	110 – 127 V, 220 – 240 V
Mains frequency	50 – 60 Hz
Input voltage range a.c.	99 – 264 V
Input voltage range d.c.	n.a.
Power factor	0.97 at full load (see graph)
Total Harmonic Distortion	< 10 % at full load



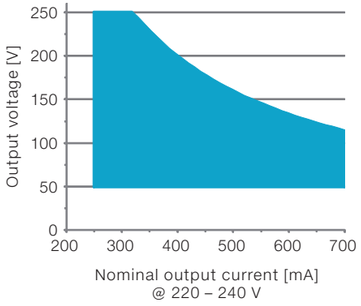
Output

Output characteristic	Constant current, non-SELV
Output voltage	50 – 250 V (see graph)
Output current	250 – 700 mA
Output power	12.5 – 52 W @ 110 – 127 V, 12.5 – 80 W @ 220 – 240 V
No. of output channels	1
Output current accuracy	+/- 3 %
Output current ripple	< 10 % at 100 Hz
Output dimming	n.a.
Dimming range	n.a.



Efficiency

Stand-By Power consumption	n.a.
No-load Power consuption	n.a.
Electrical efficiency	> 0.90 at full load

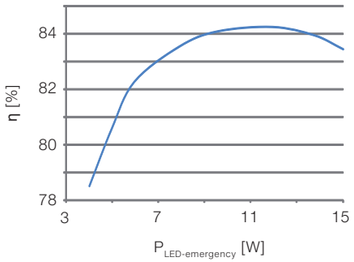


Interface

Dimming Interface	n.a.
Interface control current	n.a.
Dimming curve	n.a.

Battery

Type	5 cells NiCd or NiMH
Charge current	40 – 400 mA
Charge voltage	4.8 – 7.8 V
Discharge current	0.5 – 3.5 A
End of discharge	5.0 V
Deep discharge current	< 1 µA
EBLF	-
Fuse	10 A fast, 50 A @ 125 V_{DC}



Temperature, Lifetime

Ambient temperature range	-40 – 50 °C
Max. case temperature T_c	60 °C

T_a	30 °C	40 °C	50 °C
T_c	40 °C	50 °C	60 °C
lifetime	> 130,000 h	> 130,000 h	100,000 h

Max. No. of ECG per circuit breaker

Type	B10	7 pcs.
	C10	11 pcs.
	B16	11 pcs.
	C16	18 pcs.

Wiring

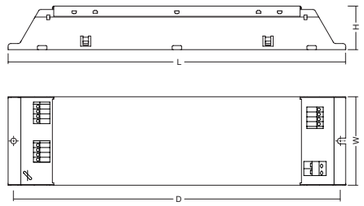
Max. output cable length	200 cm
Input wire cross-section	0.5 – 1.5 mm²
Output wire cross-section	0.5 – 1.5 mm²

The wiring should be short and without crossings for best EMC results.

Dimensions

Length x Width x Height	248 x 65 x 32 mm
Mounting hole distance D	240 mm
Mounting screws	M4 max.

(see schematic view on the right)



Ordering data

Weight	0.4 kg
Packaging unit	32 pcs.
Order No.	**3 G 180 24 0**

Hardwired switch input

The integrated emergency unit can be used in maintained and non-maintained emergency luminaires. Connecting the hardwired switch input-terminal L' to mains conductor L will force the device to light up the connected LED modules.

Remote switch input

The remote switch input can be used to prevent the emergency unit from starting the emergency operation after mains failure. Emergency operation is enabled, when the remote switch is closed and disabled, when the remote switch is open.

Output current setting

The integrated emergency unit operates the connected LED modules at an adjustable nominal current value.
See clause "Index agreement" for further details.

Battery settings

Charge and discharge parameters of the attached battery are pre-configured to meet the requirements of the application. See clause "Index agreement" for further details.

Index agreement

All output and battery parameters of the integrated emergency unit are adjustable in the ranges declared in the technical data. Contact Hadler to specify the target values for your application. Hadler will determine the appropriate values and issue a 3-digit number called Index. Purchase orders have to contain the type reference as well as the corresponding index.

Emergency lighting performance

The integrated emergency unit operates the LED module(s) in emergency mode at a pre-configured power level ranging from 4 to 15 W considering battery capacity and rated duration of emergency operation. See clause "Index agreement" for further details.

The device will recharge the battery normally after abnormal operating conditions given in EN 61347-2-7 clause 22.3 (battery short-circuit).

The insulation between battery circuits and mains conductors meets the requirements for basic insulation.

The integrated emergency unit is suited for use in luminaires for high-risk task area lighting.

Status LED

The device is equipped with two output terminals to connect a red/green status LED in antiparallel topology. The driving circuitry is connected to battery potential. Nominal status LED driving current is +/- 15 mA, maximum open-circuit voltage at the status LED terminals is 6.6 V.

Charge and test mode operation is indicated by green signals, failures are displayed by different red blinking patterns. See clause "Index agreement" for further details.

Standards

- EN 50581
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 61347-1
- EN 61347-2-7
- EN 61347-2-13
- EN 60079-0:2012 + A1:2013; IEC 60079-0 Ed. 6
- EN 60079-7:2015; IEC 60079-7 Ed. 5

Markings

Wiring diagram

Safety instructions

Please carefully read these instructions prior to installation and keep them for later reference. This Integrated Emergency Unit is intended for operation of LED modules in self-contained emergency luminaires for use in explosive atmospheres. Ensure that ratings of LED modules and batteries match with output ranges of the IEU. Do not use this product for other than intended use.

II 3 G Ex ec IIC Gc U
Ex ec IIC Gc U

Hadler GmbH declares that this device is in conformity with the EU explosion protection directive 2014/34/EU (ATEX). Compliance with requirements of IEC 60079-0 Ed. 6 and IEC 60079-7 Ed. 5 is laid down in certificate number IECEx IBE 17.0007U.

The sign “U” placed after certificate number and Ex marking indicates, that the corresponding certificate is not equivalent to a Statement of Conformity for an Ex equipment or protective system.

Certificates and detailed product datasheets are available at www.hadler-gmbh.de.

Installation precautions

This control gear may be installed into housings of explosion protected luminaires with a minimum type o protection of the housing of IP54 according to IEC 60529.

Keep in mind that the LED output is NOT isolated against mains voltage. Proper insulation of the output circuits is mandatory.

Dismantled length of wires has to be between 8.5 and 9.5 mm. Permissible cross-section of wires is from 0.5 up to 1.5 mm^2. Device is equipped with push-in terminals for solid or ferruled conductors; alternatively terminations of bare fine-stranded conductors to be made via push-buttons. Careful inspection of wire connections and mounting conditions is essential to ascertain that clearance and creepage distances will meet the requirements of the appropriate type of protection.

Maximum temperature rise at internal components is 50 K at full load and with reference to tc.

Devices contain no field-serviceable parts. In case of malfunction, contact the manufacturer.

Custom settings for different OEMs are comprehensively codified in a so-called Index. In case of replacement orders, please specify the correct Index as well as the order number. Both are given on the product code label in the data fields [P] and [I].

http://www.hadler-gmbh.de/en/luxtronic/all-products/

Hadler GmbH
Fritzlarer Straße 19
34587 Felsberg-Neuenbrunslar
Tel.: +49 5662 9399-0
Fax: +49 5662 9399-29
E-Mail: info@hadler-gmbh.de

Luxtronic®