

Model 3845 LI

1,5 A max out • 90-264 VAC input

- 3-step adaptive charge control
- Charge adapts to battery pack type automatically (RID only)
- Universal input voltage
- NTC input on request: automatic battery temp monitoring and thermal control to prevent charge of cold/warm batteries.
- Safety indication and protection: against reverse polarity, short circuit, charging battery packs with the wrong number of cells and safety timer run-out
- Approvals:
 - Medically certified
 - Safety: EN 60601-1 ed. 3.1
 - Home healthcare EN 60601-1-11
 - EMC: EN 60601-1-2 ed. 4
 - UL approved
- Custom specifications on request:
 - Charging parameters, connectors, cords, logo print, housing/open frame/IP rating and certificates. For more information: [custom design info sheet](#)

Notes:

Plug-in/desktop unit

Versions with and without RID

Exchangeable AC and DC plugs available

Order plugs & mains cord separately

Animation showing charge error indications:

<https://vimeo.com/679995332>

Blueline

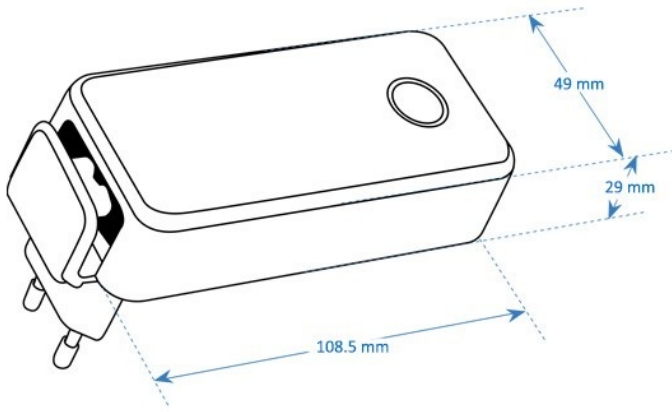


Available versions

1 cell / 1,5A

MASCOT type 3845 Li-Ion Charger:	3845045000 (Input: NTC)
Input voltage: / Line frequency	90 - 264VAC / 47 - 63Hz
Max output power	6.3 W
Charge control:	Charge indication:
Step 0 < 10min	Yellow
Step 0 > 10min	Red (4 blinks)
Step 1 (Constant Current)	Yellow
Step 2 (Constant Voltage)	Flashing Yellow
Charge timer (step2, CV)	
Safety timer (all steps)	Red (5 blinks)
Step 3 (Charge Completed)	Green
Restart voltage	4.1V
Efficiency (at 100% load) approx.:	70 %
No load consumption	< 0,5 W
Switch frequency approx.:	55kHz
Ripple Measured on PCB/Battery:	< 40mVp-p / < 25mVp-p
Rec. battery capacity:	1,5Ah (1C) to 15Ah (cut off current as EoC) or up to 60Ah (CV Timer as EoC)
Formation Charge (Step 0)	Low current start-up of deeply discharged battery.
Wake-up of deeply discharged battery.	Yes, will apply voltage which deactivates deep discharge protection in battery pack.
Indication when "Battery not connected"	Flashing Green (1s/1s)
NTC input, on request (std is 10kohm, B-value appr. 3435)	0 – 45 °C: Normal charge. Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK.
Leakage current from battery with mains switched off:	< 1.5mA at nominal battery voltage.
Protection:	Protected against reversed polarity. Error Indication: Red (2 blinks) Short circuit proof. Error Indication: Red (3 blinks) Charging of wrong lower voltage battery pack will be limited to 100mA and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.
Temperature range:	Operating: +25 to +40°C. Storage: +25 to +85°C
Safety:	Medical EN 60601-1 / Home Healthcare EN 60601-1-11 (V _{NOM} ≥110VAC) / Battery Charger EN 60335-2-29
Insulation class :	Class II
Insulation voltage: Primary – secondary:	4000VAC / 5700VDC
EMC standards:	EN 55014-1 and –2, EN 61000-6-3, EN 61000-6-1, EN 60601-1-2
Input terminal:	2-pins IEC 320 connector for exchangeable mains plug (EU, US, UK and AUS).
Output terminals:	Cord with/without plug. Exchangeable plugs available.
IP-Grade:	IP41
Dimensions:	108,5 × 49 × 29,3 mm
Weight:	150g

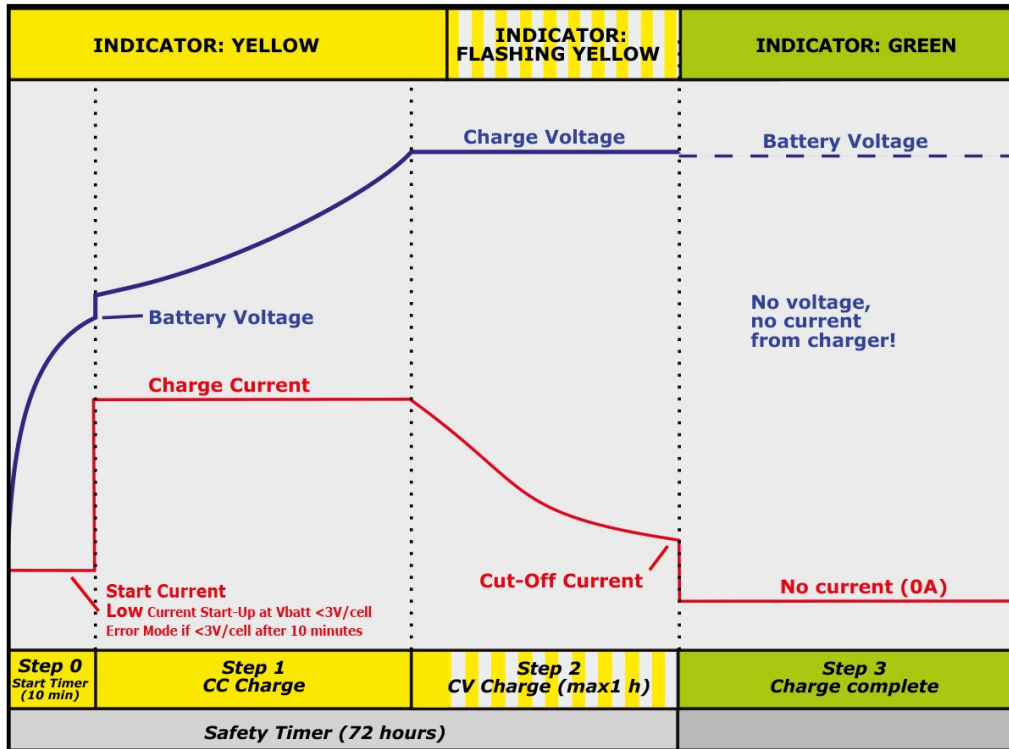
Technical drawing



Standard output cordsets

Type	Versions	Part no.	AWG	Length (M)	Notes
Female conn	1 cell	131628	16	0.75	Coax, UL 1185
Open ends	1 cell	131642	2x18 + 2x24	0.75	UL 2464

Charging characteristics and LED indication *



* an animated video of this charging progress is available on our website

BATTERY NOT CONNECTED INDICATIONS

Battery not connected is indicated by FLASHING GREEN. In this mode charger will apply short pulses attempting to wake up deeply discharged batteries.

ERROR INDICATIONS

- 2 red blinks: Battery is connected to charger with wrong polarity!
- 3 red blinks: Charger output is shorted. Check output cable connection!
- 4 red blinks: Battery voltage is low. Check battery status or voltage.
- 5 red blinks: Safety timer has run out. Check battery status or capacity.
- LED off: Battery voltage is too high. Check battery voltage.

WAIT MODE INDICATIONS

- Yellow with 1 red blink: Battery temperature is too low ($< 0^{\circ}C$)
- Yellow with 2 red blink: Battery temperature is too high ($> 45^{\circ}C$)

EU Declaration of Conformity



We, the responsible manufacturer;

Company Name:	Mascot Electronics AS				
Postal Address:	P.O.Box 177, N-1601 Fredrikstad, NORWAY				
Visiting Address:	Mosseveien 109, N-1624 Gressvik, NORWAY				
Telephone:	(+47) 69 36 43 00	E-mail:	sales@mascot.com	WEB:	www.mascot.com

declare that this Declaration is issued under our sole responsibility and belongs to the following product(s):

Product and intended purpose:	Battery Charger for 1 cell Li-Ion Batteries
Brand(s):	and/or MASCOT (may also carry additional customer name, logo or trade mark)
Type(s)/Model(s)/UDI-DI:	3845 (may also carry additional customer model name or part number)
Batch / Serial No./UDI-PI:	all CE-marked products produced from the date indicated below (for production date: see marking on the product)
Description:	Input: max. 0.25 A, 100-240 VAC 50-60 Hz, Class II Output: 4.2 VDC, max. 1.5 A / 6.3 W

The product(s) described above are in conformity with the relevant European Union harmonisation legislation:

2014/35/EU	EU Directive - Safety of electrical equipment ("Low-Voltage Directive") (LVD) recast, repealing Directives 2006/95/EC & 73/23/EEC
2014/30/EU	EU Directive - Electromagnetic Compatibility (EMC) recast, repealing Directives 2004/108/EC & 89/336/EEC
93/42/EEC	EU Directive - General Medical Devices (MDD), Risk Class I Device will from 05.05.2020 be repealed by Regulation (EU) 2017/745
2009/125/EC	EU Directive - Energy Related Products, Ecodesign (ERP) recast, repealing Directive 2005/32/EC (EUP)
2015/863/EU	EU Directive - Restriction on use of Hazardous Substances in EEE ("RoHS3") recast, repealing Directives 2002/95/EC, 2008/35/EC & 2011/65/EU

The following harmonised standards and technical specifications have been applied:

(International editions and comments indicated in brackets)

Electrical Safety (to LVD- & MDD-Directives):

EN 60950-1	EN 60950-1:2006 + /A1:2010, + /A11:2009, + /AC:2011, + /A12:2011 + /A2:2013 (IEC 60950-1:2005 modified + /A1:2009 modified + /A2:2013 modified, Edition 2.2) (will from 20.06.2019 be replaced by standard EN 62368-1:2014 + /AC:2015, Edition 2.0 (IEC 62368-1:2014, Edition 2.0)	IT-equipment (ITE), Edition 2.2 A/V, ITE & COMM. Equipm.)
EN 60335-1	EN 60335-1:2012 + /AC:2014 + /A11:2014 (IEC 60335-1:2010 modified, Edition 5.0)(also IEC 60335-1:2010 modified + /A1:2013 + /A2:2016, Edition 5.2)	Household and similar appliances-General requirements, Edition 5.0
EN 60335-2-29	EN 60335-2-29:2004 + /A2:2010 (IEC 60335-2-29:2002 + /A1:2004 + /A2:2009, Edition 4.2) (also IEC 60335-2-29:2016, Edition 5.0)	Household and similar appliances-Requirements for battery chargers, Edition 4.2
EN 60601-1	EN 60601-1:2006 + /AC:2010 + /A1:2013 (IEC 60601-1:2005 + /A1:2012)	Medical electrical equipment, Edition 3.1

EU Declaration of Conformity



Electromagnetic Compatibility (to EMC- & MDD-Directives):

EN 61000-6-1	EN 61000-6-1:2007 (IEC 61000-6-1:2005, Edition 2.0) (also IEC 61000-6-1:2016, Edition 3.0, not yet an EN-norm)	Immunity-residential, comm. & light-industrial environment, Edition 2.0
EN 61000-6-3	EN 61000-6-3:2007 + /A1:2011 & /AC:2012 (IEC 61000-6-3:2007 + /A1:2010)	Emission-residential, comm. & light-industrial environment, Edition 2.1
EN 55014-1	EN 55014-1:2006 + /A1:2009 & /A2:2011 (CISPR 14-1:2005 + /A1:2008 & /A2:2011, Edition 5.2) (also CISPR 14-1:2016, Edition 6.0, but not yet an EN-norm)	Emission-household appliances, Edition 5.2
EN 55014-2	EN 55014-2:1997 + /AC:1997, /A1:2001, /A2:2008 (CISPR 14-2:1997 + /A1:2001 & /A2:2008, Edition 1.2) (also CISPR 14-2:2015, Edition 2.0, but not yet an EN-norm)	Immunity-household appliances, Edition 1.2
EN 55022	EN 55022:2010 + /AC:2011 (CISPR 22:2008 modified, Edition 6.0)(Note: CISPR 22 is now replaced by CISPR 32:2012)	Emission-IT-Equipment, Edition 6.0
EN 55024	EN 55024:2010 (CISPR 24:2010, Edition 2.0) (also CISPR 24:2010 + /Corr.1:2011 + /A1:2015, Edition 2.1, but not yet an EN-norm)	Immunity-IT-Equipment, Edition 2.0
EN 55032	EN 55032:2012 + /AC:2013 (CISPR 32:2012 + /Corr.1:2012 + /Corr 2:2012, Edition 1.0) (also CISPR 32:2015, Edition 2.0, but not yet an EN-norm)	Emission-Multimedia Equipment, Edition 1.0
EN 60601-1-2	EN 60601-1-2:2007 from 31/12/2018: EN 60601-1-2:2015 (IEC 60601-1-2:2007 modified, Edition 3.0)(Note: for IEC: Edition 3.0 is replaced by IEC 60601-1-2:2014, Edition 4.0)	Medical equipment, EMC - Requirements and tests, Edition 3.0 Medical equipment, EMC - Requirements and tests, Edition 4.0

Ecodesign (to ERP-Directive):

Commission Regulation (EC) No 278/2009	implementing Directive 2005/32/EC with regard to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies (Note: not applicable to Battery Chargers, ref. Article 1.2 item c)
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Additional Information:

Compliance with harmonised standards and technical specifications may have been verified by the manufacturer, by third party testing or by a Certification Body (NCB).

The products are considered Risk Class I devices according to the General Medical Devices Directive.

The product(s) may be produced at production sites (for specific product: see "Made in"-marking on the product):

Mascot Electronics AS P.O.Box 177, N-1601 Fredrikstad, NORWAY	Mascot Baltic OÜ Taevakivi 15 EE-13619 Tallinn ESTONIA	Mascot Power Supplies (Ningbo) Co.,Ltd No.128 Jinchuan Road, Zhenhai Ningbo 315221 CHINA
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The production sites are certified to standard EN 29001:2015 (ISO 9001:2015):

Mascot Electronics AS: Kiwa Teknologisk Institutt certificate ref. 044	Mascot Baltic OÜ: Metrosert certificate ref. K-144	Mascot Power Supplies (Ningbo) Co.,Ltd: DNV-GL certificate ref. 179027-2015
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The most recent issue of this Declaration is available at www.mascot.com.

Fredrikstad, Norway

Place of issue

2018-06-25

Date of issue

Signed on behalf of Mascot Electronics AS


Finn-Erik Wailin, Compliance Manager

Name, function, signature