

## Model 2945 LA

20 A max out • 230 VAC input

- 3-step charge control w. microprocessor
- Low current start up of deeply discharged batteries (step 0)
- Protected against reversed polarity and short circuit proof
- Unaffected by fluctuations in mains voltage
- Smart temperature control: silent temp contr. fan w fan speed regulation
- Waterproof (IP67) version available
- Pulsing float charge

### Notes:

Desktop unit  
Heat-sink casing  
Fixed cord



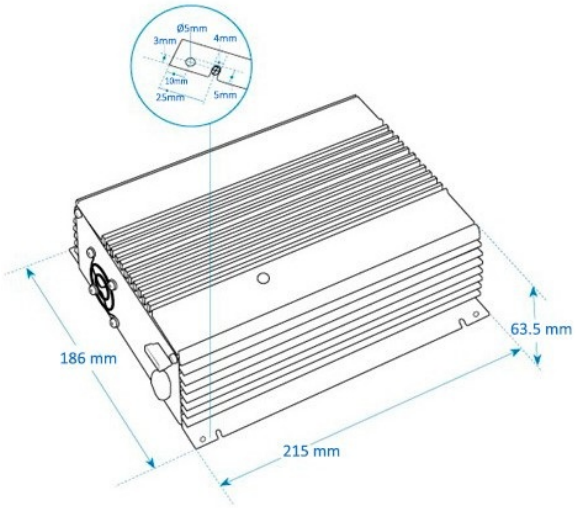
### Available versions

12V / 20A

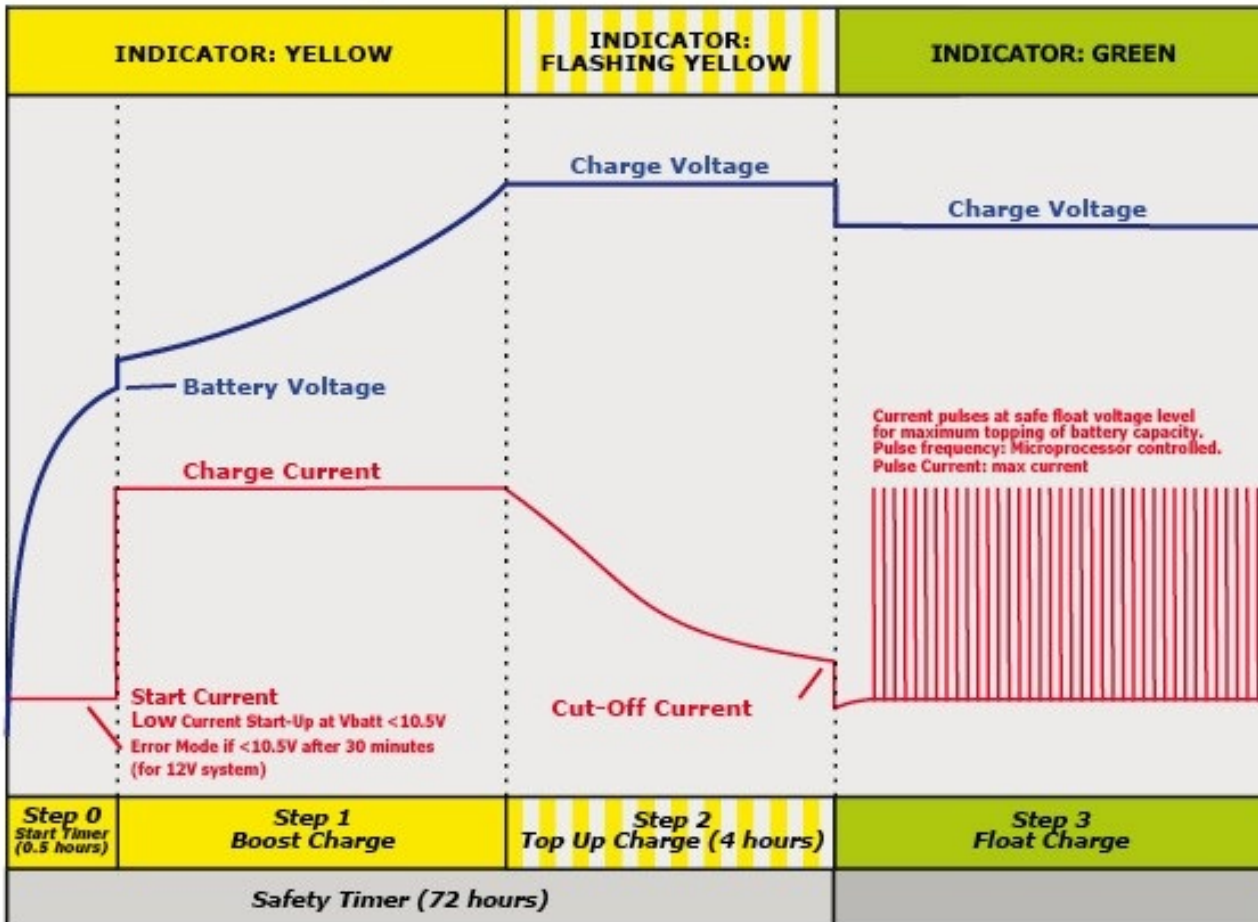
DATE 06.09.11

SPECIFICATIONS FOR TYPE 2945 LA Charger:		12V
Input voltage: / Line frequency:		198 - 264VAC / 47 - 63Hz
Max output power:		294W
Charge control:	Charge indication:	
Step 0 < 30min	Yellow	2.5A ± 0.3A, when battery voltage < 10.5V
Step 0 > 30min	Red (Error-mode)	< 0.2A
Step 1 (until Vbat = 14.7V)	Yellow	20A ± 0.5A, when battery voltage >10.5V.
Step 2 (until I charge < 2.5A or > 4h)	Flashing Yellow	14.7V ± 0.1V and charge current is tapering.
Step 3 (until I charge > 20A)	Green	13.7V ± 0.2V, supply current up to maximum 20A for possible parallel load.
Charge timer (step2):		4h
Safety timer:		72h
Restart charge current:		20A
Temperature coefficient:		-3 to -4mV/C pr. cell
Formation Charge:		Low current start up of deeply discharged battery.
Float charge:		20A pulses at safe float voltage level for maximum topping of battery capacity.
Indication when "Battery not connected"		Flashing Green (1s/1s)
Ripple:		< 100mV p-p
Efficiency (at 100% load, 230V) approx.:		> 85%
Switch frequency approx.:		67kHz
Leakage current from battery with mains switched off:		< 0.6mA at 13V battery voltage (0.43Ah/month)
Protection:		Protected against reversed polarity and short circuit proof. Safety timer. Charging of wrong lower voltage battery pack (e.g. 6V) will be limited to 2.5A and terminated after 30min.
Temperature range:		Operating: +25 to +40°C. Storage: +25 to +85°C
Safety:		EN 60335-2-29
Insulation class :		Class I
Insulation voltage: Primary – secondary:		3750VAC / 5300 VDC
EMC standards:		EN 55014-1 and -2, Emission EN 61000-6-3, Immunity EN 61000-6-1
Input terminal		Mains Cord
Output terminals:		Leads with battery clips
IP-Grade:		20 (PCB with components are protected with coating)
Rec. battery capacity:		100 - 1000Ah
Temperature control:		Temperature controlled fan.
Dimensions:		215 x 186 x 63.5 mm
Weight:		2,36kg

# Technical drawing



# Lead Acid charger diagram D



## STEP 1 - BOOST CHARGE LED-Indicator: YELLOW

The charger is in constant current mode (CC), charging with the maximum current until battery voltage reach Top-Up level.



## STEP 2 – TOP-UP CHARGE

The charger is in constant voltage mode. The LED-indication will be FLASHING YELLOW during Top-up charge. The charger stays in this mode until the charge current decreases to charge termination level or the Top-Up Charge Timer runs out. The battery is charged to its full capacity at the end of this step



## STEP 3 – FLOAT CHARGE

The LED-indication on the charger is GREEN and the battery is fully charged. The charger is in standby mode. The charge voltage is at standby level and the charger may remain connected to the battery. The charger will return to boost charge if the battery is used. A load larger than the cut-off current will initiate a new charge cycle.



# 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:	Battery Charger for Lead-Acid Batteries																															
Brand(s):	and/or <b>MASCOT</b> (may also carry additional customer name, logo or trade mark)																															
Type/Model/UDI:	2044, 2045, 2944, 2945 & 2745																															
Description:	<b>Input: 230VAC (model 2745: 100-120VAC auto range), max.3.6A, 50-60Hz, Class I</b> <table border="0"> <tr> <td><b>Output for Lead-Acid Batteries:</b></td> <td><b>Output for Li-Ion Batteries (2044 &amp; 2045 only):</b></td> </tr> <tr> <td>12V-version: max.14.7VDC max.20A</td> <td>1 cells-version: max.4.2VDC max.20A</td> </tr> <tr> <td>12V-version: max.14.7VDC max.25A</td> <td>2 cells-version: max.8.4VDC max.20A</td> </tr> <tr> <td>24V-version: max.29.4VDC max.10A</td> <td>3 cells-version: max.12.6VDC max.20A</td> </tr> <tr> <td>36V-version*: max.44.1VDC max.6.7A</td> <td>4 cells-version: max.16.8VDC max.15A</td> </tr> <tr> <td>48V-version*: max.58.8VDC max.5.0A</td> <td>5 cells-version: max.21.0VDC max.12A</td> </tr> <tr> <td></td> <td>6 cells-version: max.25.2VDC max.10A</td> </tr> <tr> <td></td> <td>7 cells-version: max.29.4VDC max.10A</td> </tr> <tr> <td></td> <td>8 cells-version: max.33.6VDC max.8.5A</td> </tr> <tr> <td></td> <td>9 cells-version: max.37.8VDC max.7.5A</td> </tr> <tr> <td></td> <td>10 cells-version: max.42.0VDC max.7.0A</td> </tr> <tr> <td></td> <td>11 cells-version*: max.46.2VDC max.6.0A</td> </tr> <tr> <td></td> <td>12 cells-version*: max.50.4VDC max.5.5A</td> </tr> <tr> <td></td> <td>13 cells-version*: max.54.6VDC max.5.3A</td> </tr> <tr> <td></td> <td>14 cells-version*: max.58.8VDC max.5.0A</td> </tr> </table>		<b>Output for Lead-Acid Batteries:</b>	<b>Output for Li-Ion Batteries (2044 &amp; 2045 only):</b>	12V-version: max.14.7VDC max.20A	1 cells-version: max.4.2VDC max.20A	12V-version: max.14.7VDC max.25A	2 cells-version: max.8.4VDC max.20A	24V-version: max.29.4VDC max.10A	3 cells-version: max.12.6VDC max.20A	36V-version*: max.44.1VDC max.6.7A	4 cells-version: max.16.8VDC max.15A	48V-version*: max.58.8VDC max.5.0A	5 cells-version: max.21.0VDC max.12A		6 cells-version: max.25.2VDC max.10A		7 cells-version: max.29.4VDC max.10A		8 cells-version: max.33.6VDC max.8.5A		9 cells-version: max.37.8VDC max.7.5A		10 cells-version: max.42.0VDC max.7.0A		11 cells-version*: max.46.2VDC max.6.0A		12 cells-version*: max.50.4VDC max.5.5A		13 cells-version*: max.54.6VDC max.5.3A		14 cells-version*: max.58.8VDC max.5.0A
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\* NOTE: Versions with output voltage >42.4 VDC are not within scope of standard EN 60335-2-29 Ed.4 (ref. Cl.10.101).

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
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:

**Electrical Safety (to LVD- & MDD-Directives)** (International standards and comments are indicated in brackets):

EN 60335-1	EN 60335-1:2012 + /AC:2014 + /A11:2014 Household and similar appliances-General requirements, Edition 5.0 (IEC 60335-1:2010 modified, Edition 5.0) (also IEC 60335-1:2010 modified + /A1:2013 + /A2:2016, Edition 5.2)
EN 60335-2-29	EN 60335-2-29:2004 + /A2:2010 Household and similar appliances-Requirements for battery chargers, Edition 4.2 (IEC 60335-2-29:2002 + /A1:2004 + /A2:2009, Edition 4.2) (also IEC 60335-2-29:2016, Edition 5.0)

**Electromagnetic Compatibility (to EMC- & MDD-Directives)** (International standards and comments are indicated in brackets):

EN 61000-6-1	EN 61000-6-1:2007 Immunity-residential, comm. & light-industrial environment, Edition 2.0 (IEC 61000-6-1:2005, Edition 2.0) (also IEC 61000-6-1:2016, Edition 3.0, not yet an EN-norm)
EN 61000-6-3	EN 61000-6-3:2007 + /A1:2011 & /AC:2012 Emission-residential, comm. & light-industrial environment, Edition 2.1 (IEC 61000-6-3:2006 + /A1:2010)
EN 55014-1	EN 55014-1:2006 + /A1:2009 & /A2:2011 Emission-household appliances, Edition 5.2 (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)
EN 55014-2	EN 55014-2:1997 + /AC:1997, /A1:2001, /A2:2008 Immunity-household appliances, Edition 1.2 (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)

# EU Declaration of Conformity



## 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 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](http://www.mascot.com).

Fredrikstad, Norway

Place of issue

2018-10-26

Date of issue

Signed on behalf of Mascot Electronics AS

  
Finn-Erik Wailin, Compliance Manager  
Name, function, signature