



2001-03-15

PRODUKTINFORMATION

Vi reserverar oss mot fel samt förbehåller oss rätten till ändringar utan föregående meddelande

ELFA artikelnr

69-413-55 Blyladdare 2040 12V/4A

69-413-71 Blyladdare 2040 24V/2A

MODEL 2040

DESK TOP - 3-STEP BATTERY CHARGER

PRODUCT Information

Mascot A/S
Postboks 177
N-1601 Fredrikstad
Norway

www.mascot.no

- **Universal input voltage (90-264 VAC)**
- **Ideal for "World Wide Use"**
- **LED indicator with 3 different colours**
- **3-pin IEC 320 input connector**
- **Meets the safety standard for medical equipment - EN 60601 UL-approved**



Data	Version	12 V	24 V
Input voltage	(VAC)	90-264	90-264
Output voltage			
* Cycle mode	(V)	14,7 ± 0,2	29,5 ± 0,2
* Standby mode	(V)	13,8 ± 0,3	27,6 ± 0,3
Max. output power	(W)	60	
Load regulation			
(20 mA, 230 V mains)	(mV)	< 200	
Line regulation			
(Mains variation 90-264 V, full load)	(mV)	< 100	
Switch frequency, approx.	(kHz)	40	
Leakage current with mains disconnected	(uA)	< 100	< 200
Temperature range	(°C)	-10 - +40	
Ripple	(mV p-p)	< 100	
Efficiency (at 100% load)		> 80 %	
Current limit	(A)	4 ± 0,3	2 ± 0,2
Protection		Mains fuse. Current fuse or automatically resetable fuse protects the charger against wrong polarity	
Insulation class		Class I	Class I
Electrical safety		EN 60601-1, EN 60950, EN 60335-2-29	
EMC standards			
* Medical		EN 60601-1-2	
* Emission		EN 50081-1	
* Immunity		EN 50082-1	
Mains connection		3 pins IEC 320 connector. Also available with fixed mains cable (class 2)	
Indicator			
* Orange (constant current)	(A)	4	2
* Yellow (constant voltage)	(V)	14,7	29,5
* Green (constant voltage)	(V)	13,8	27,6
Timer		2h ± 30 min. Also available with other values for optimum battery lifetime	
Dimensions (LxWxH)	(mm)	135 x 80 x 44	
Weight	(g)	350	

Diagram on the reverse.

pi2040New-e / 260400 / s.1/2

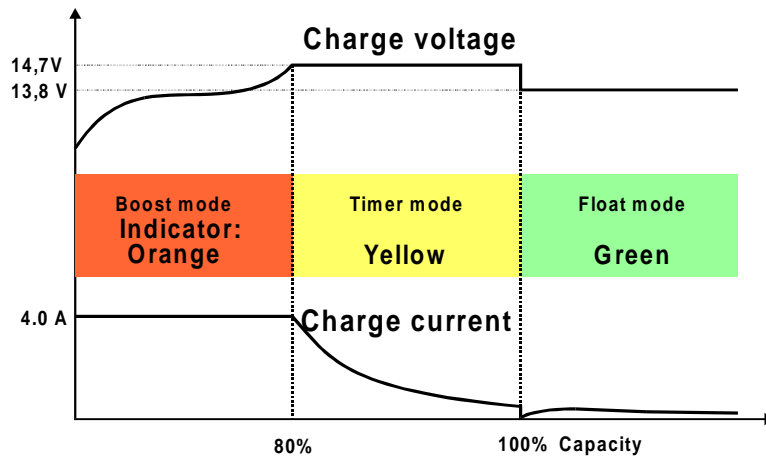
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Charging diagram for model 2040 - 12V version



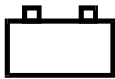
The charger works in three different modes. An LED-indicator with three different colours shows the mode that the charger is in. Unlike the so called “taper chargers”, this model charges with a constant current in the first mode. When the battery voltage during charging rises to the maximum cycle voltage 14,7V, the charger does not immediately change to standby mode as a single stage charger does. Instead, the charger starts a timer and remains in constant voltage mode 14,7V until the selected time 2h has elapsed. When the timer starts, the battery is already charged to 80 -90% of full capacity and can be used at this point if desired. If this is repeated several times the cycle lifetime might be reduced. The time boost period ensures, however, that the battery will receive the remaining 10 to 20% capacity in a very short time compared to chargers which do not have this feature. This timer period is necessary to ensure fully charged batteries.

The LED-indicator changes from red to yellow when the timer starts, and changes to green when the timer period is out. At this point the constant voltage level is reduced to a safe value where the battery can be left without risk of overcharge ie 13,8V. This is the float charge or standby mode. The level is adjusted to max float charge level because these cells are more sensitive to undercharge than overcharge.

A primary switch mode technology based on a high efficiency (>80%) flyback topology, allows an output power as high as 60 W. The low leakage current (<200 uA) makes it also possible to leave the battery connected to the charger, without mains connected.

A new charging cycle starts when the charging current rises to the constant current level (4.0 A). This will incur if the battery voltage drops because of a load on the battery. The charger will therefore automatically recharge batteries used in backup systems to their maximum capacity.

LED indications



RED

Boost Charge

The charger is in constant current mode.
 Charge current is maximum (4.0A).
 The battery capacity is something between 0 and 80%.
 The battery voltage is lower than the cycle voltage level (<14,7V).



YELLOW

Absorption Charge

The charger is in timer/constant cycle voltage mode.
 The battery capacity is something between 80 and 90% fully charged when the LED-indicator changed to yellow.
 The battery voltage is equal to the cycle voltage level (14,7V).
 The charger stays in this mode until the timer has run out.



GREEN

Float Charge

Charge current is normally very low.
 The battery is fully charged.
 The charge voltage is at float/standby level (13,8V).
 The battery can be left with the charger connected for years or months. This is float charge.
 A new cycle starts if the battery is loaded.