

Model 4040 LI

9 A max out • 90-264 VAC input

- 3-step charge control with current detection
- Universal input voltage 90-264 VAC
- 2-pin IEC 60320 C, 3-pin C6 on request
- Output terminal: cord w. open ends
- Wake up and low current start-up of deeply discharged 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:

Desktop unit

Wall mount bracket available

With NTC input on request

2MOOP standard, 2MOPP available

Std. DC output cord:

Open ends, L 0.75m, AWG 14, Black PVC, UL 1185

Blueline



Available versions

3 cells / 9,0 A	4 cells / 7,0 A
5 cells / 5,6 A	6 cell / 4,65 A
7 cell / 4,0 A	8 cell / 3,5 A
9 cell / 3,1 A	10 cell / 2,8 A
11 cell / 2,54 A	12 cell / 2,33 A
13 cell / 2,15 A	14 cell / 2,0 A

MASCOT type 4040 Li-Ion chargers:	3-cell Li-Ion	4-cell Li-Ion	5-cell Li-Ion
Input voltage: / Line frequency	90-264Vac 47-63Hz		
Active power factor correction:	Yes		
Max output power:	113.4W	117.6W	117.6W
Charge control: Charge indication:			
Step 0 < 10min Yellow	CC 500mA ± 50mA, when battery voltage < 9V	CC 500mA ± 50mA, when batt voltage < 12V	CC 300mA ± 25mA, when battery voltage <15V.
Step 0 > 10min Red (4 blinks)	0A / 0V	0A / 0V	0A / 0V
Step 1 (Constant Current) Yellow	CC 9.0A ± 0.2A, when 9V < Vbat < 12.6V	CC 7.0A ± 0.2A, when 12V< Vbat < 16.8V	CC 5.6A ± 0.2A, when 15V < Vbat < 21.0V
Step 2 (Constant Voltage) Flashing Yellow	CV 12.6V ±0.1V < 5.9A until I charge < 450mA or max. 1h	CV 16.8V ±0.1V < 5.2A until I charge < 450mA or max. 1h	CV 21.0V ± 0.1V < 3.9A until I charge < 300mA or max. 1h.
Charge timer (step2, CV)	1h	1h	1h
Safety timer (all steps) Red (5 blinks)	72h	72h	72h
Step 3 (Charge Completed) Green	0A	0A	0A
Restart voltage	12.3V	16.4V	20.5V
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 approx. 4000)	0 – 45 °C: Normal charge. Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK.		
Ripple:	< 100mV p-p		
Efficiency (at 230V 100% load) approx.:	91 %		
Switch frequency approx.:	45-75kHz		
Leakage current from battery with mains switched off.	< 1 mA at nominal battery voltage (< 0.72 Ah/month)		
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 500mA (300mA at 5 cell) 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. Transport and short time storage: -25 to +85°C		
Derating at 40°C approx.:	6.6A	5.5A	4.1A
Safety:	Medical EN 60601-1 / Home Health care EN 60601-1-11/ Battery Charger EN 60335-2-29. A/V and Comm. tech: IEC 62368-1		
Insulation class :	Class II. (Class I on request)		
Insulation voltage: Primary – secondary:	4000VAC / 5700VDC		
EMC standards:	EN 55014-1 and -2, Emission EN 61000-6-3, Immunity EN 61000-6-1, EN 60601-1-2.		
Input terminal:	2-pins IEC 320 connector, C8 or mains cable (3pins IEC 320 connector, C6 on request)		
Output terminals:	DC connector, Battery clips, Push-on terminals or open ends.		
IP-Grade:	41		
Rec. battery capacity:	9-360Ah	7-280Ah	5.6- 224Ah
Dimensions:	203.5 × 87 × 43.5 mm		
Weight:	590g		

MASCOT type 4040 Li-ion chargers:	6-cell Li-Ion	7-cell Li-Ion	8-cell Li-Ion
Input voltage: / Line frequency	90-264Vac 47-63Hz		
Active power factor correction:	Yes		
Max output power:	117.2W	117.6W	117.6W
Charge control: Charge indication:			
Step 0 < 10min Yellow	CC 300mA ± 25mA, when batt voltage < 18V. 0A / 0V	CC 300mA ± 25mA, when batt voltage < 21V. 0A / 0V	CC 300mA ± 25mA, when batt voltage < 24V. 0A / 0V
Step 0 > 10min Red (4 blinks)	CC 4.65A ± 0.2A, when 18V < Vbat < 25.2V	CC 4.0A ± 0.2A, when 21V < Vbat < 29.4V	CC 3.5A ± 0.2A, when 24V < Vbat < 33.6V
Step 1 (Constant Current) Yellow	CV 25.2V ± 0.2V < 3.2A until I charge < 270mA or max. 1h.	CV 29.4V ± 0.2V < 2.8A until I charge < 270mA or max. 1h	CV 33.6V ± 0.2V < 2.5A until I charge < 270mA or max. 1h.
Step 2 (Constant Voltage) Flashing Yellow			
Charge timer (step2, CV)	1h	1h	1h
Safety timer (all steps) Red (5 blinks)	72h	72h	72h
Step 3 (Charge Completed) Green	0A	0A	0A
Restart voltage	24.6V	28.7V	32.8V
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 approx. 4000)	0 – 45 °C: Normal charge. Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK.		
Ripple:	< 100mV p-p		
Efficiency (at 100% load) approx.:	91 %		
Switch frequency approx.:	45-75kHz		
Leakage current from battery with mains switched off:	< 1.0 mA at nominal battery voltage (< 0.72 Ah/month)		
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 300mA 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. Transport and short time storage: -25 to +85°C		
Derating at 40°C approx.:	3.8A	3.1A	2.5A
Safety:	Medical EN 60601-1 / Home Health care EN 60601-1-11/ Battery Charger EN 60335-2-29. A/V and Comm. tech: IEC 62368-1		
Insulation class :	Class II (Class I on request)		
Insulation voltage: Primary – secondary:	4000VAC / 5700VDC		
EMC standards:	EN 55014-1 and -2, Emission EN 61000-6-3, Immunity EN 61000-6-1, EN 60601-1-2		
Input terminal:	2-pins IEC 320 connector, C8. (3pins IEC 320 connector, C6 on request)		
Output terminals:	DC connector, Battery clips, Push-on terminals or open ends.		
IP-Grade:	41		
Rec. battery capacity:	4.65 -186Ah	4.0 -160Ah	3.5-140Ah
Dimensions:	203.5 × 87 × 43.5 mm		
Weight:	590g		

MASCOT type 4040 Li-Ion chargers:	9-cell Li-Ion	10-cell Li-Ion	11-cell Li-Ion
Input voltage: / Line frequency	90-264Vac 47-63Hz		
Active power factor correction:	Yes		
Max output power	117.2W	117.4W	117.4W
Charge control: Charge indication:			
Step 0 < 10min Yellow (4 blinks)	CC 200mA ± 25mA, when batt voltage < 27V. 0A / 0V	CC 200mA ± 25mA, when batt voltage < 30V. 0A / 0V	CC 200mA ± 25mA, when batt voltage < 33V. 0A / 0V
Step 0 > 10min Red (5 blinks)	CC 3.1A ± 0.2A, when 27V < Vbat < 37.8V	CC 2.8A ± 0.2A, when 30V < Vbat < 42V	CC 2.54A ± 0.2A, when 33V < Vbat < 46.2V
Step 1 (Constant Current) Yellow	CV 37.8V ± 0.2V < 2.2A until I charge < 200mA or max. 1h	CV 42.0V ± 0.2V < 1.7A until I charge < 200mA or max. 1h	CV 46.2V ± 0.3V < 1.5A until I charge < 200mA or max. 1h.
Step 2 (Constant Voltage) Flashing Yellow	1h	1h	1h
Charge timer (step2, CV)	72h	72h	72h
Safety timer (all steps) Red (5 blinks)	0A	0A	0A
Step 3 (Charge Completed) Green	36.9V	41V	45.1V
Restart voltage	Low current start-up of deeply discharged battery.		
Formation Charge (Step 0)	Yes, will apply voltage which deactivates deep discharge protection in battery pack.		
Wake-up of deeply discharged battery:	Flashing Green (1s/1s)		
Indication when "Battery not connected"	0 - 45 °C: Normal charge.		
NTC input, on request (std is 10kohm, B-value approx. 4000)	Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK.		
Ripple:	< 100mV p-p		
Efficiency (at 100% load) approx.:	91 %		
Switch frequency approx.:	45-75kHz		
Leakage current from battery with mains switched off:	< 1.0 mA at nominal battery voltage (< 0.72 Ah/month)		
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 200mA 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. Transport and short time storage: -25 to +85°C		
Derating at 40°C approx.:	2.5A	1.8A	1.5A
Safety:	Medical EN 60601-1 / Home Health care EN 60601-1-11/ Battery Charger EN 60335-2-29. A/V and Comm. tech: IEC 62368-1		
Insulation class :	Class II (Class I on request)		
Insulation voltage: Primary – secondary:	4000VAC / 5700VDC		
EMC standards:	EN 55014-1 and -2, Emission EN 61000-6-3, Immunity EN 61000-6-1, EN 60601-1-2		
Input terminal:	2-pins IEC 320 connector, C8. (3pins IEC 320 connector, C6 on request)		
Output terminals:	DC connector, Battery clips, Push-on terminals or open ends.		
IP-Grade:	41		
Rec. battery capacity:	3.1 - 124Ah	2.8 - 112Ah	2.54 - 101Ah
Dimensions:	203.5 × 87 × 43.5 mm		
Weight:	590g		

MASCOT type 4040 Li-Ion chargers:	12-cell Li-Ion	13-cell Li-Ion	14-cell Li-Ion
Input voltage: / Line frequency	90-264Vac 47-63Hz		
Active power factor correction:	Yes		
Max output power	117.5W	117.4W	
Charge control: Charge indication:			
Step 0 < 10min Yellow	CC 200mA ± 25mA, when batt voltage < 36V.	CC 200mA ± 25mA, when batt voltage < 39V.	CC 200mA ± 25mA, when batt voltage < 42V.
Step 0 > 10min Red (4 blinks)	0A / 0V	0A / 0V	0A / 0V
Step 1 (Constant Current) Yellow	CC 2.33A ± 0.2A, when 36V < Vbat < 50.4V	CC 2.15A ± 0.2A, when 39V < Vbat < 54.6V	CC 2.0A ± 0.2A, when 42V < Vbat < 58.8V
Step 2 (Constant Voltage) Flashing Yellow	CV 50.4V ± 0.3V < 1.6A until I charge < 200mA or max. 1h.	CV 54.6V ± 0.3V < 1.5A until I charge < 200mA or max. 1h.	CV 58.8V ± 0.3V < 1.3A until I charge < 200mA or max. 1h.
Charge timer (step2, CV)	1h	1h	1h
Safety timer (all steps) Red (5 blinks)	72h	72h	72h
Step 3 (Charge Completed) Green	0A	0A	0A
Restart voltage	49.2V	53.3V	57.4V
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 approx. 4000)	0 – 45 °C: Normal charge. Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK.		
Ripple:	< 100mV p-p		
Efficiency (at 100% load) approx.:	91 %		
Switch frequency approx.:	45-75kHz		
Leakage current from battery with mains switched off:	< 1.0 mA at nominal battery voltage (< 0.72 Ah/month)		
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 200mA 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. Transport and short time storage: -25 to +85°C		
Derating at 40°C approx.:	1.7A	1.4A	1.3A
Safety:	Medical EN 60601-1 / Home Health care EN 60601-1-11/ Battery Charger EN 60335-2-29. AV and Comm. tech: IEC 62368-1		
Insulation class :	Class II (Class I on request)		
Insulation voltage: Primary – secondary:	4000VAC / 5700VDC		
EMC standards:	EN 55014-1 and -2, Emission EN 61000-6-3, Immunity EN 61000-6-1, EN 60601-1-2		
Input terminal:	2-pins IEC 320 connector, C8. (3pins IEC 320 connector, C6 on request)		
Output terminals:	DC connector, Battery clips, Push-on terminals or open ends.		
IP-Grade:	41		
Rec. battery capacity:	2.33 – 93Ah	2.15 – 86Ah	2 – 80Ah
Dimensions:	203.5 × 87 × 43.5 mm		
Weight:	590g		

Technical drawing

