Switchmode Chargers

Chargers

Conform to IEC 60335 and IEC 60601-1

Applications

- Medical applications
- Electrical vehicles
- Stair lifts/patient lifts
- Mobile lighting
- Cleaning machines
- Professional photographic technology
- Mobile measuring technology
- Starter batteries
- Diving lamps

Characteristics

- Universal input 100-240 V AC (DTC 60 only 230 V)
- Constant voltage, current limited
- Exchangeable primary adapters (MPP and GPP system)
- Low leakage current
- Low standby power
- LED charge indication
- Continuously short circuit proof
- Reverse polarity protection (not MPP 15 Li-Ion and PP 8 Lead Acid)

Technical data

Input voltage	100 to 240 V (± 10%), (DTC 60 230 V)
Input current	PP 8 (0.13 – 0.2 A), MPP 15 (0.25 – 0.3 A), DTC 60 (0.45 A), MPP 30 (0.4 – 0.5 A), GPP 36 (0.18 – 0.45 A)
Frequency	50 to 60 Hz
Efficiency	75 % at full load, resp. 80 % (NiCd/NiMH and GPP 36)
EMC	Conforms to EN 55011 EN 55014, EN 55022/B, FCC 47 part 15, EN 61000-3-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11
Output current tolerance (NiCd/NiMH)	± 10%

Environmental specification

Operating temperature	0 to 40° C at maximum load
Storage temperature	-40 to 70° C resp. -25 to 70° C (DTC 60)
Humidity	5 % to 95 % non condensing
Input transient susceptibility	Complies with IEC 61000 requirements

Safety specification

Standards	Fulfils Class II SELV for the following applications: IEC 60601-1 (NiCd/NiMH only MPP 15) UL 60601-1 (only Lead Acid), IEC 60335-2-29, UL 1310 (only NiCd/NiMH), UL 2601-1 (only Li-Ion), VDE, CE label, CSA (only Li-Ion)

Reliability specification

MTBF calculation	200.000 hours resp. 100.000 hours (NiCd/NiMH) at maximum load and an ambient temperature of 25° C (in accordance with MIL-HDBK-217)

Mechanical specification

Weight	PP 8 (approx. 80 g), PP 8 Li-Ion (approx. 125 g), MPP 15 (approx. 140 g), MPP 30 (approx. 278 g), DTC 60 (approx. 450 g), GPP 36 (approx. 320 g)
Plug connector	AC input: (MPP/GPP) FRIWO exchangeable mains plug system, PP 8 (Euro, USA/Japan, UK) DTC 60 (C8-socket) DC output: Universal output plug system (partially with stripped and tinned ends)

For primary adapters see page 26

Li-Ion

NiCd/NiMH

Lead Acid

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Output data						Worldwide	EURO	USA/Japan	UK
Voltage	Current	No. of cells	Capacity*	Characteristics	Housing	Order No.	Order No.	Order No.	Order No.
4.1 V	1000 mA*	1	0.8 – 10 Ah	IU0U	PP 8		1890124	1891148	1891149
4.1 V	600 mA*	1	0.8 – 10 Ah	IU0U	PP 8		1828253	1891150	1891151
4.2 V	1000 mA*	1	0.8 – 10 Ah	IU0U	PP 8		1829906	1891161	1891162
4.2 V	600 mA*	1	0.8 – 10 Ah	IU0U	PP 8		1829804	1891159	1891160
8.4 V	800 mA	2	0.8 – 10 Ah	I0IU	MPP 15	1826003			
12.6 V	800 mA	3	0.8 – 10 Ah	I0IU	MPP 15	1826004			
16.8 V	800 mA	4	0.8 – 10 Ah	I0IU	MPP 15	1826006			
with NTC									
8.4 V	800 mA	2	0.8 – 10 Ah	I0IU	MPP 15	1826458			
12.6 V	800 mA	3	0.8 – 10 Ah	I0IU	MPP 15	1826459			
16.8 V	800 mA	4	0.8 – 10 Ah	I0IU	MPP 15	1826460			
4.2 V	4000 mA	1	20 Ah	IU0	GPP 36	1830714			
8.4 V	3500 mA	2	20 Ah	IU0	GPP 36	1830720			
12.6 V	2500 mA	3	20 Ah	IU0	GPP 36	1830721			
16.8 V	1600 mA	4	20 Ah	IU0	GPP 36	1830722			
21.0 V	1400 mA	5	20 Ah	IU0	GPP 36	1830723			

Output data				Switch-off criteria			Worldwide	EURO	UK
Capacity	Current	No. of cells	Housing	Time	T. grad	-delta-U	Order No.	Order No.	Order No.
1.0 – 20.0 Ah	2600 mA	4 – 12	DTC 60	·	·	·		1890704	1890704
1.0 – 20.0 Ah	1800 mA	10 – 20	DTC 60	·	·	·		1890132	1890132
3.5 – 7.0 Ah	950 mA	10 – 20	MPP 30	·	·		1811894		
2.8 – 7.0 Ah	1000 mA	10 – 12	MPP 30	·		·	1812609		
2.5 – 4.5 Ah	1400 mA	8 – 12	MPP 30	·	·		1880408		
2.5 – 10.0 Ah	2000 mA	5 – 6	MPP 30	·		·	1818681		
1.0 – 10.0 Ah	800 mA	4 – 10	MPP 15	·	·	·	1826002		
1.0 – 10.0 Ah	800 mA	4 – 10	MPP 15	·		·	1890127		
0.8 – 1.6 Ah	550 mA	5 – 8	PP 8	·		·		1824466	1824468
2.0 – 35.0 Ah*	1.6–4.0 A**	2 – 12	GPP 36	·	·	·	1890131		

Output data						
Voltage	Current	No. of cells	Capacity	Characteristics	Housing	Order No.
6 V	900 mA	3	2.4 – 16.0 Ah	IU0U	PP 8 EU	1890125
6 V	900 mA	3	2.4 – 16.0 Ah	IU0U	PP 8 UK	1824106
6 V	900 mA	3	2.4 – 16.0 Ah	IU0U	PP 8 US	1824107
6 V	1600 mA	3	4.8 – 32.0 Ah	IU0U	MPP 15	1890126
6 V	3000 mA	3	9.0 – 60.0 Ah	IU0U	MPP 30	1890129
12 V	500 mA	6	1.5 – 10.0 Ah	IU0U	PP 8 EU	1824396
12 V	500 mA	6	1.5 – 10.0 Ah	IU0U	PP 8 US	1825090
12 V	1000 mA	6	3.0 – 20.0 Ah	IU0U	MPP 15	1890240
12 V	2000 mA	6	6.0 – 40.0 Ah	IU0U	MPP 30	1890243
24 V	500 mA	12	1.5 – 10.0 Ah	IU0U	MPP 15	1890241
24 V	1000 mA	12	3.0 – 20.0 Ah	IU0U	MPP 30	1890130
24 V	1500 mA	12	4.5 – 30.0 Ah	IU0U	MPP 30	1890222

* please observe accu specification
** without NTC 1.6 A

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