

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

Input current

100 to 240 V ($\pm 10\%$), (DTC 60 230 V)
 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

Efficiency

50 to 60 Hz
 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)

$\pm 10\%$

Environmental specification

Operating temperature

Storage temperature

Humidity

Input transient susceptibility

0 to 40° C at maximum load
 -40 to 70° C resp. -25 to 70° C (DTC 60)
 5 % to 95 % non condensing
 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

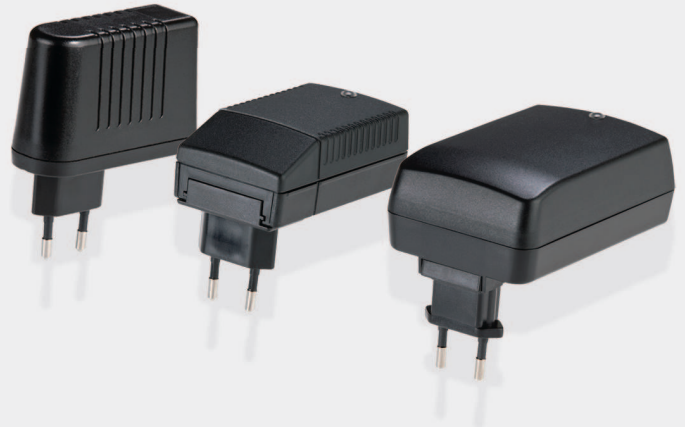
PP 8 (approx. 80 g), PP 8 Li-Ion (approx. 125 g),
 MPP 15 (approx. 140 g), MPP 30 (approx. 278 g),
 DTC 60 (approx. 450 g), GPP 36 (approx. 320 g)

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



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	IOIU	MPP 15	1826003			
12.6 V	800 mA	3	0.8 – 10 Ah	IOIU	MPP 15	1826004			
16.8 V	800 mA	4	0.8 – 10 Ah	IOIU	MPP 15	1826006			
with NTC									
8.4 V	800 mA	2	0.8 – 10 Ah	IOIU	MPP 15	1826458			
12.6 V	800 mA	3	0.8 – 10 Ah	IOIU	MPP 15	1826459			
16.8 V	800 mA	4	0.8 – 10 Ah	IOIU	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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