



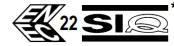
Switchmode power supply

OPEN FRAME

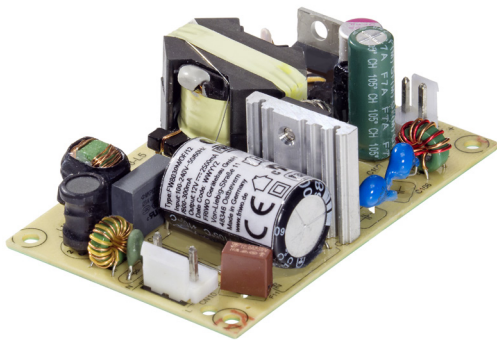
All products conform to IEC 60601-1 and IEC 62368-1.

FRIWO[®]

HERC30 MEDICAL POWER SUPPLY



*Approval in progress. Please refer to our homepage for the current approval status.



Characteristics

- High efficiency: up to 89%
- Low no load power consumption <80mW
- Low leakage current ≤10μA
- IEC 60601-1-2, 4th edition ready
- Wide operating temperature range 0 - 70°C
- Wide input voltage range 85 - 264 VAC
- Isolation 2x MOPP
- Convection cooled 30 W
- EN 55011/32 Class B conform

HERC30 30W MEDICAL POWER SUPPLY

FRIWO is revolutionizing its existing open-frame product portfolio by adding the new product line „HERC“. The product name stands for “High Efficiency and Rapid Customization” and features two essential characteristics of the compact built-in components: very high efficiency meets an easy-to adapt open design for fast customer-specific modifications. All this on market standard PCB measures of 3”x2”, 4”x2” and 5”x3” for the different power ratings – combined with minimal height of only 1”- 1.3”.

With up to 94 % efficiency, the power supplies belong to the top tier. FRIWO also sets new standards for idle power consumption: the DOE VI requirements for external power supplies are exceeded, which is quite unusual for open-frame power supplies. The first lines of the new product series include output voltages of 5 - 48 VDC for power classes of 18 W, 30 W and 175 W. Further power ratings of the new product line are still being engineered and will be launched shortly.

The new HERC series complements FRIWO’s established OF product family: compact, open-frame power supplies for the most demanding applications. Designed for maximum vibration, shock and temperature resistance, the incredible operating life of these devices sets new standards. Support also comes from their compact design, which dispenses with active fans. All the devices are purely convection cooled, which makes them far quieter in operation and avoids the need for a component that is prone to failure.

Model Selection: Output Specifications

Article no.	FW Type	Voltage	Current	Output Power	Ripple voltage*	Efficiency (typ)	No-Load Power
1899388	FW8030M/OF/5/HERC	5 V	5000 mA	25 W	150 mV pp	84.5 %	80 mW
1899389	FW8030M/OF/12/HERC	12 V	2500 mA	30 W	120 mV pp	88.5 %	80 mW
1899390	FW8030M/OF/15/HERC	15 V	2000 mA	30 W	150 mV pp	88.5 %	80 mW
1899234	FW8030M/OF/24/HERC	24 V	1250 mA	30 W	180 mV pp	88.0 %	80 mW
1899391	FW8030M/OF/48/HERC	48 V	625 mA	30 W	200 mV pp	89.0 %	90 mW

* Ripple measured with 20MHz Bandwidth Oscilloscope and 0.1uF/50V ceramic capacitor and 10uF/47V aluminum electrolytic capacitor across the output terminal.

Input Specifications

Input voltage	100-240 V +10%/-15%
Frequency	50-60 Hz
Input current	600-300 mA
Inrush current (@240V)	<50A

General Specifications

Operating temperature	-25..+70°C (above 50°C derated output power see derating curve)
Operating humidity	10..95 %
Operating altitude	≤4000 m
Storage temperature	-40°C..+85°C
Storage humidity	10..95 %
Atmospheric pressure	61-106kPa
Output voltage tolerance	±5 %
Line regulation	±0.5 %
Load regulation	±3 %
Turn-on delay	≤2 s
Hold-up time	>10ms (120 V) >50 ms (230 V)
MTBF calculation*	500.000 h acc. Mil217F (based on calculations at 120Vac/60Hz & 230Vac/50Hz, ambient 25°C and 100% load)
PCB Material	CEM1
Dimensions	76.2x50.8x31mm (3"x2"x1.22")
Weight	80 g
AC input	JST B3P2-VH
DC output	JST B2P-VH

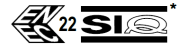
Safety

Safety standards	IEC/EN/ANSI 60601-1 Edition 3.1, IEC/EN62368:2014
Approbations	Europe, USA
Protection class	Class II configuration
Isolation	Input - Output 2xMOPP
Leakage Current	≤ 10 µA
Flame class	UL 94 V0
Electric Strength Test	4.2kV Input - Output
Overload protection	Yes
Overvoltage protection	Yes
Short circuit protection	Yes

EMC Compliance

Conducted and radiated Emmissions	EN55032 Class B, EN55011 Class B, FCC15, Class B, EN60601-1-2 4th Edition			
Immunity	EN55024, EN60601-1-2 4th Edition			
Harmonics	EN61000-3-2	Class A		
Flicker noise	EN61000-3-3	Yes		
ESD (contact / air)	EN61000-4-2	8kV / 15kV	Criteria B 100V	Criteria B 240V
Immunity against radiated field	EN61000-4-3	10V/m	Criteria A 100V	Criteria A 240V
ETF / Burst	EN61000-4-4	2kV	Criteria B 100V	Criteria B 240V
Surge	EN61000-4-5	1kV / 2kV	Criteria B 100V	Criteria B 240V
Immunity against conducted disturbances	EEN61000-4-6	10V	Criteria A 100V	Criteria A 240V
Voltage dips	EN61000-4-11	0% 0,5 Cycle	Criteria B 100V	Criteria A 240V
		40% 5 Cycle	Criteria B 100V	Criteria A 240V
		70% 25 Cycle	Criteria B 100V	Criteria A 240V
		0% 5s	Criteria B 100V	Criteria B 240V
Immunity against magnetic field	EN61000-4-8	30A/m	Criteria A 100V	Criteria A 240V

* MTBF are theoretically determined values, which does not guarantee the lifetime of the product



*Approval in progress. Please refer to our homepage for the current approval status.

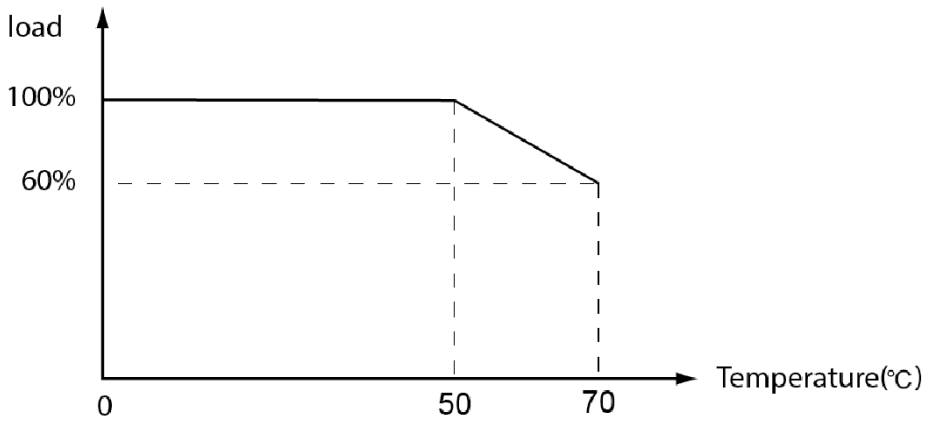
Shock Test

Standard	IEC 60068-2-27
Peak acceleration	30g
Pulse width	11 ms
Numbers of pulses (total)	18

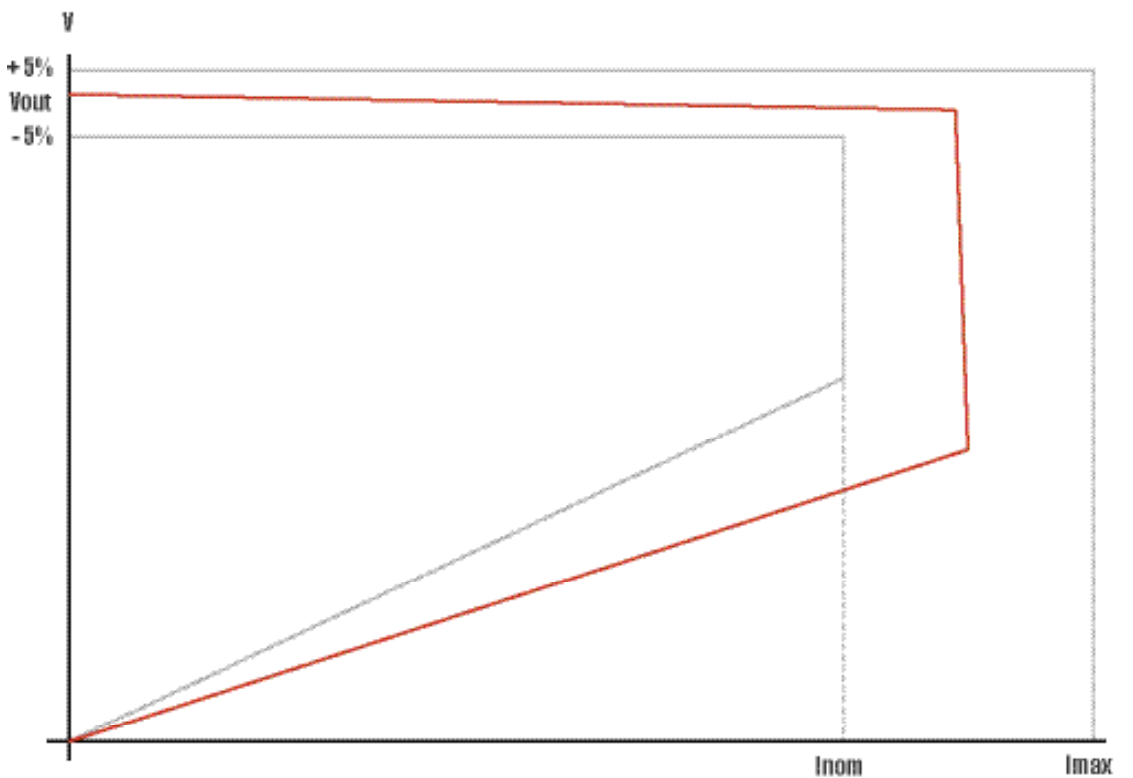
Vibration

Standard	IEC 60068-2-6
Frequency range	10 – 500 Hz
Cross-over-frequency	58 – 62 Hz
Displacement amplitude	0.2 mm
Peak acceleration	3 g
Number of cycles	10 per axis

Thermal Derating Curve



Output Characteristics



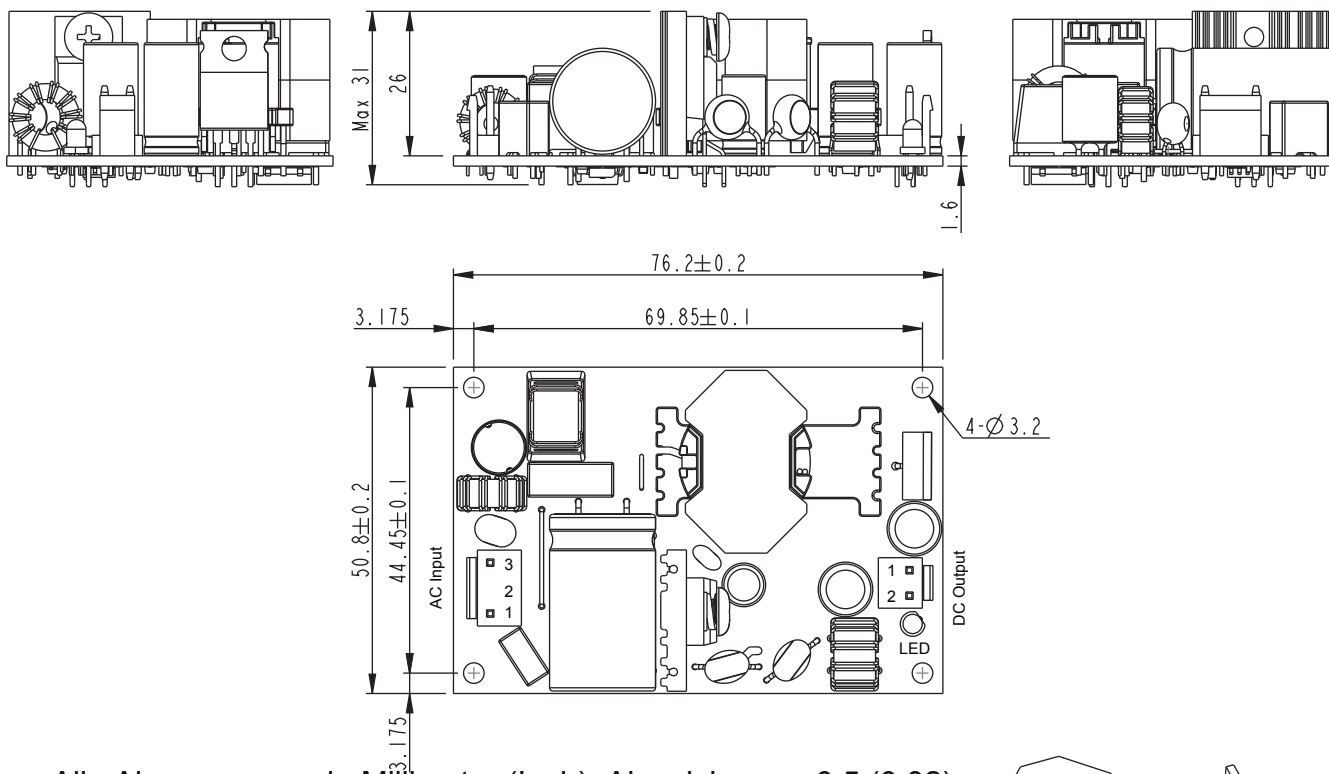


FRIWO Gerätebau GmbH
 Von-Liebig-Straße 11 · 48346 Ostbevern · Germany
 Tel. +49 2532 81-0 · sales@friwo.com · www.friwo.com

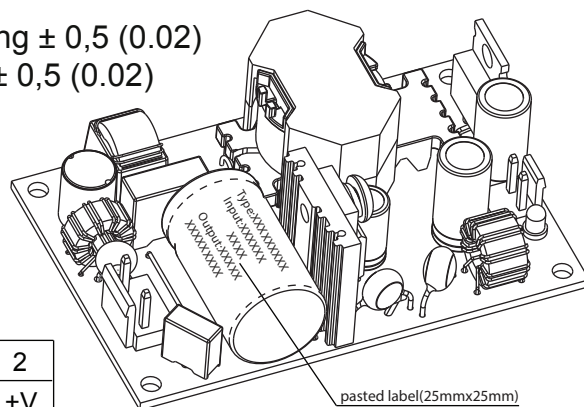
Do you already know our free newsletter?



Mechanical Drawings



Alle Abmessungen in Millimeter (Inch), Abweichung ± 0,5 (0.02)
 All Dimensions in Millimeter (Inch), Deviation ± 0,5 (0.02)



Input pin	1	2	3	Output pin	1	2
	AC/L	No Pin	AC/N		-V	+V

Item	JST Connector type or equivalent	Mating connector JST type or equivalent
Input	JST B2P3 or equivalent	JST VHR or equivalent
Output	JST B2P or equivalent	JST VHR or equivalent