

PSM00803 80W Plug-In DC Power Supply

19-Inch DIN41494 3U 8HP, 8kV Burst Immunity, triple output



Specification:

- 19-Inch plug-in module
- AC Power fail signal
- Soft start & auto-recovery
- Electronic inrush current limiter 15Apeak
- Overload and short circuit protection
- Zero load compatible
- Precise dynamic response to load change
- Designed for long life under full stress
- Strong input filters
- Hold up time 100ms
- High reliability, shock & vibration proof
- EMC meets CE norm class B

Models	Voltage 1	Voltage 2	Voltage 3
PSM00803.5.12.12	+5,15V	+12V	-12V
PSM00803.5.15.15	+5,15V	+15V	-15V



Technical Concept

The Camtec PSM series is a high precision switch mode power supply for an upscale demand. It is engineered and manufactured by CAMTEC in Germany. The power supply provides a low ripple-noise, a precise load-regulation, a static current limiting. High-end long-life capacitors guarantee an extended hold-up-time and an extraordinary lifetime. The internal control circuit manages illegal operating conditions to prevent your system from damages. The PSM series features a high input transient resistance with suppressor diodes, X2-capacitors and varistors and has an extended burst immunity of 8kV. All inputs, outputs and feature connections are galvanic isolated. The design rules set value on extended interference immunity and safety. The unit is designed in accordance with the EN61010-1, EN61010-2-201, EN62368-1, EN60950-1 and the EMC-compatibility with EN55032.

Technical Data Table

AC Input Range	90 – 264Vac , 47 – 63Hz					
DC Input Range	110Vdc – 300Vdc					
AC Input Rated	100 – 240Vac 115Vac<1,6 230Vac<1,0A					
DC Input Rated	110Vdc<1,0A 300Vdc<0,35A					
Model	PSM00803.5.12.12			PSM00803.5.15.15		
DC Voltage Rated	V1= +5,15Vdc	V2= +12Vdc	V3= -12Vdc	V1= +5,15Vdc	V2= +15Vdc	V3= -15Vdc
DC Voltage Setting	5,0 – 5,3Vdc	-	-	5,0 – 5,3Vdc	-	-
DC Current Rated	14,0A	2,0A	2,0A	14,0A	1,8A	1,8A
Over Voltage Protection	6,25Vdc	-	-	6,25Vdc	-	-
Over Current Protection	18,0A	3,2A	3,2A	18,0A	3,2A	3,2A
Ripple Noise 230Vac 20MHz	20mVpp	10mVpp	10mVpp	20mVpp	10mVpp	10mVpp
Total Power Rated	80W load sharing, 90-264Vac					
Power Fail Signal	Open Collector I _{max} =5mA, V _{LOW} ≤0,6V, V _{MAX} =30V, return is V1 GND					
Derating	+55°C...+70°C 2.5%/°C					
Load Regulation	< ± 0,5% V1, < ± 0,2% V2 & V3, 0-100%					
Response to Load Change	<1ms 10-90%, 90-10%					
Efficiency AC Rated	83% @ 230Vac					
Switching Frequency	70kHz fix					
Short Circuit Protection	Continuous					
Open Circuit Proof	Continuous					
Zero Load Proof	Yes					
Output Regulation	Independent from each other					
Temperature Control	Yes, thermal shutdown with auto recovery (+70°C, metering distance 10mm)					
Hold Up Time	>100ms @ 230Vac full load					
Inrush Current	<10,6Arms < 15Apeak, active inrush current limiter					
Soft Start	10ms typical					
Cooling	Natural convection					
Ambient Operating Temp.	- 20°C...+70°C					
Ambient Storage Temp.	- 40°C...+85°C					
Environment	Humidity 95% non-condensing @ +25°C, climate class 3K3, pollution degree 2					
ROHS	2011/65/EU, (EU)2015/863					
REACH	EG No. 1907/2006					
EMI	EN55032 class B, EN61000-6-3					
EMS	EN61000-6-2					
Safety	EN61010-1, EN61010-2-201, EN62368-1, EN60950-1, EN60204-1					
Protection Class I	PE connection required					
Creepage Distance	> 8mm					
Input to Output Isolation	3000Vac					
Input to Case Isolation	2500Vac					
Output to Case Isolation	500Vdc					
Meantime By Failure (MTBF)	450000h (IEC61709)					
Meantime To Failure (MTTF)	178312h (IEC61709)					
Dimensions DIN41494	3U 8HP D=160mm					
Weight	0,6kg					
Connector Input/Output	H15 DIN41612 IEC60603-2 male plug-in connector					

Manual and Technical Details

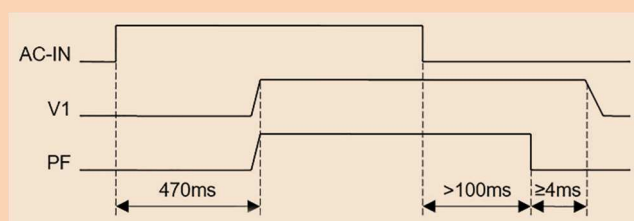
DC Voltage Setting

The DC voltage can be set with a potentiometer. The factory adjustment is set to the rated voltage. The potentiometer can be accessed from the side of the power supply to prevent it from owner manipulations during operations in a machine. The potentiometer is not marked as a voltage trimmer. This shall ensure the setting will be done by trained staff only.



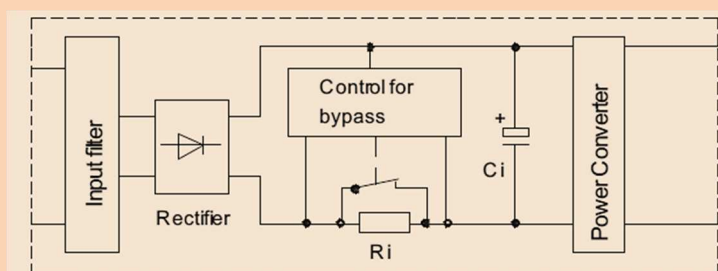
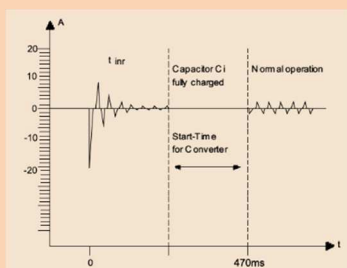
Power Fail Signal

The power fail signal will be activated when at least a 100ms period of a continued AC power failure will exceed (at 230Vac, $P_{OUT}=80W$). The hold-up time of the power supply will remain another $\geq 4ms$ to allow controlled system shutdown. Power fail signal can only be used with an input voltage of $\geq 105Vac$ (105...110Vac at $P_{OUT}=60W$, $>110Vac$ at $P_{OUT}=80W$). The power fail signal is an open collector with return V1 GND, $I_{MAX}=5mA$, $V_{LOW}\leq 0,6V$, $V_{MAX}=30V$.



Inrush Current Limiter

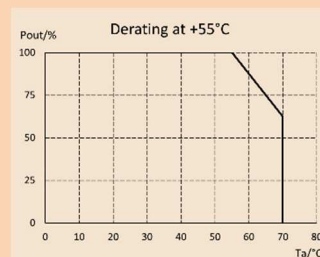
The unit is featured with an electronic inrush current limiter (10,6Arms / 15Apeak). The built-in circuit is a very precise limiter and no simple NTC thermistor solution. The circuit works with an accuracy of $\pm 10\%$. The accuracy is independent from the ambient temperature and from the number of switch-on sequences. The quickest recommended MCB is B-type 4A. The smallest power relay or a contactor in front of the PSM must cope 15A peak current. The inrush duration is 460ms and the overall power up time of the unit is 470ms. See the below drawings for technical information.



Overtemperature Thermal Shutdown, Over Voltage Protection & Derating

OT Over Temperature The maximum ambient temperature is $+70^{\circ}C$. If the power supply exceeds this value (over temperature protection) it completely shuts down (metering point 10mm from outside device). The device restarts automatically into operation when the temperature drops to a normal value.

OVP Over Voltage Protection Exceeding the OVP results in a locked shutdown mode. The unit automatically restarts after being disconnected from the AC for 60s.



Coating Option

We offer the PSM series with an optional coating. It is to be used in dusty, dirty, high humidity area or in awaiting quick temperature changes. Short circuit and corrosion at print board lines and at solder points can be prevented. The coat itself is a transparent acrylic resin.

Peters SL 1306 N-FLZ (transparent) IEC60216-1 2001, IPC-CC-830B, UL listed as permanent coating File-No.: E80315 , UL94V-0

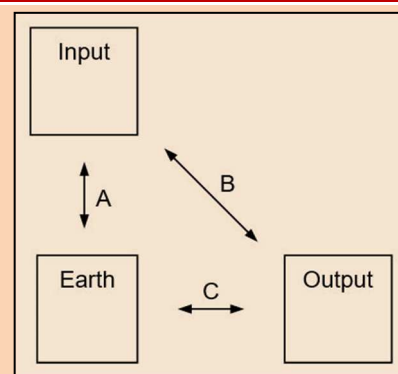
Ordering Information: add the extension **C** to the model's name (example): PSM00803.5.12.12**C**

Electrical Safety (Factory-Test / Field-Test Owner)

	T	A	B	C
Type Test	60s	2500Vac	3000Vac	500Vdc
Factory Test	5s	2000Vac	2000Vac	500Vdc
Field Test	2s	2000Vac	2000Vac	500Vdc
Cut-off current setting	>10mA	>10mA	>10mA	>1mA

Type and factory test are the manufacturer. While repeating damage can happen to the power supply unit. For the field test (owner) follow the below instruction:

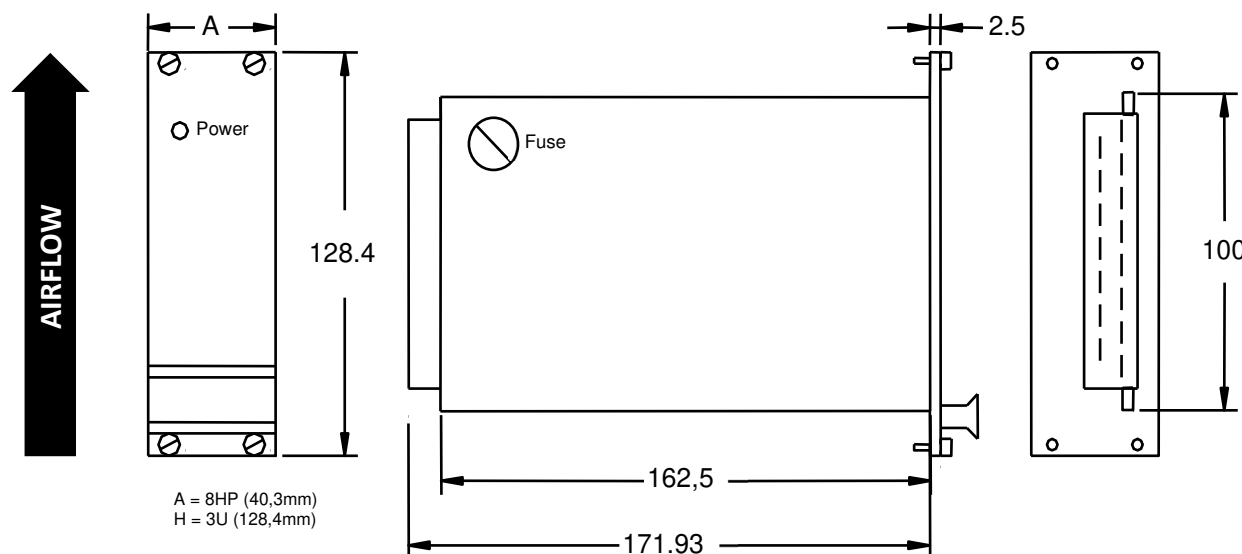
- Use suitable test equipment, raising the voltage slowly.
- Short circuit L1 and N, and all the DC output terminals.
- Use only test voltages of 50/60Hz. The outputs are unearthed and therefore they have no resistance to GND/PE.
- If the residual voltage is $\geq 60\text{Vdc}$, observe the safety standards. Use only specially insulated screwdriver to trim the V1.



Mechanics

Mechanics

Stable aluminium housing IP20. To allow adequate convection, a free air space of 40mm (top/bottom) and 5mm from the sidewalls is required. For free air convection it is necessary to allow a straight airflow from the bottom to the top vents as shown in the below drawing direction. Make sure the vents are never blocked and take the heat emission of below mounted devices into consideration.



DIN41612 IEC60603-2 H15 male connector

Pin-Connections

4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
V1+	V1+	V1 GND	V1 GND	NC	NC	Power Fail	V2+	V2/V3 GND	V3-	NC	NC	N	L	PE

Premating contact at position 32, PIN12/14/24/26 NC = not connected

Ordering Information

Ordering Codes

Product Code	Information	Article Number
PSM00803.5.12.12(R2)	+5V, +/-12V	3041041004CA
PSM00803.5.15.15(R2)	+5V, +/-15V	3041041003CA

Safety regulations: Please read these instructions completely before using the equipment. Keep these instructions on to hand. The device may only be operated by trained specialist staff.

Installation:

- 1) The device is designed for devices and systems that meet the standard requirements for hazardous voltages, power, and fire prevention.
- 2.) Installation and service only by trained persons. The AC power must be switched off. The work is to be labelled; accidental reconnection of the system must be prevented.
- 3.) Opening the device, its modification, loosening bolts, or operation outside the specified herein specification or in an unsuitable environment, has the immediate loss of warranty to follow. We disclaim any responsibility for any resulting damage to persons or things.
- 4.) The power supply is equipped with an input fuse. For changes the fuse the power supply must be disconnected from the supply network. When the fuse is broken the unit must services by the manufacturer. The fuse is only to be changed by appropriately qualified personnel and must be replaced by the same model and same rating. If the fuse is not changed by Camtec we take no responsibility for safe operation, and this leads to caveat emptor.
- 5.) Attention! The input fuse of the device is in the neutral line. Therefore, the device must be operated with an upstream circuit breaker (CB). We recommend the use of B-Type 4A. It is prohibited to use the unit without PE. It may be necessary upstream device has a power switch.

Warning:

Non-compliance these warnings can result in fire and serious injury or death.

1. Never operate device without PE connection.
2. Before connecting the device to the AC mains, de-energize the lines and prevent accidental power-up.
3. Allow neat and professional cabling.
4. Never open nor try to repair the unit. Inside are dangerous voltages that can cause electrical shock hazard.
5. Avoid metal pieces or other conductive material to fall into the item.
6. Do not operate the device in damp or wet conditions
7. Do not operate the unit under EX-conditions.

