

Encapsulated Switch-Mode Power Supply Modules: Product Overview

2017

Encapsulated Switch-Mode Power Supply Modules

<http://www.zettlermagnetics.com/encapsulated-switch-mode-modules/>



A series of cost effective and reliable AC-DC power modules with a wide universal input range in a compact, plug & play package. Ideal for a variety of smart energy solutions such as low power lighting controls, audio or thermostat controls and other smart home electronics applications, as well as industrial controls.

For a more comprehensive **engineering guide** to Zettler Magnetics SMPS Modules please refer to :

<http://www.zettlermagnetics.com/encapsulated-switch-mode-power-modules/product-program/>

Why Zettler's Encapsulated SMPS Modules ?



Key Benefits

- Easy Plug & Play solution for control board applications
- Long life: MTBF >1 million hours*
- Compact encapsulated design
- High Efficiency
- Customizable

Key Features

- Universal Input Range 85VAC-305VAC*
- Wide ambient temperature capability - 25°C to +85°C*, full power output w/o derating
- Low standby power consumption <0.1W
- Protection Capability: OVP, OSP, OCP, OPP.
- Compliance with UL/IEC standards
- EMC compatible

* Available on HP series

Applications for Encapsulated SMPS Modules

- **Building Automation Control Boards**

- Smart Home applications
- Wireless switching
- Lighting Controls (including LED Driver boards)
- HVAC control boards (including Thermostats)
- Motorized Blinds & Shades
- Smart Energy applications



- **White Goods/ Appliances**

- Washing Machines
- Refrigerators
- Microwaves
- Coffee machines and other small appliances



- **Test & Measurement Devices**

- Smart Meters
- Scientific Instruments
- Smart power outlets/Smart power strips



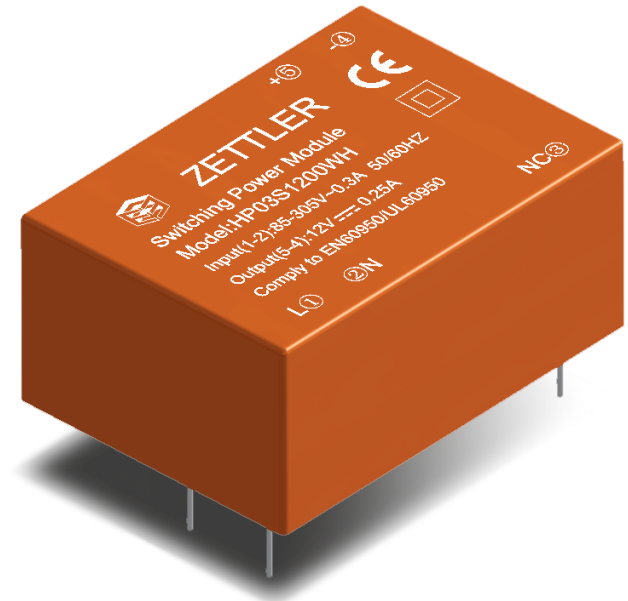
High Performance HP Series

[HP01/HP02/HP03](#) Series

- Output Power: 1W, 2W & 3W available
- Various output voltages available
- Extended wide input voltage range: 85VAC-305VAC
 - DC input voltage available as well
- High operating temperature w/o derating: 85C
- Compact size: 33.7mm/22.2mm/15mm (1W)
 - 37mm/24mm/15mm (2W & 3W)
- Long lifetime: MTBF > 1 million hours
- UL/VDE Pending

[HP01/HP02/HP03 -X](#) Series (zero cross detection)

- Subset of HP series, Patent Pending
- Isolated output synchronous to main zero crossing
- Mains phase, frequency and zero-cross detection and monitoring
- Suitable to minimize losses in power Thyristor/TRIAC circuits
- Allow operating the relay or Thyristor at zero crossing to extend life and reduce the switching power losses
- Timing applications, A/D converter to mains synchronization
- Mains dropout detection



Performance ZP Series

ZP01/ZP02/ZP03/ZP05/ZP10 Series

- Output power 1W, 2W, 3W, 5W & 10W available
- Various output configurations and voltages
- Wide input voltage range: 85VAC – 264VAC
- Input voltage frequency up to 400Hz
- High module efficiency of typically > 80%
- Compact Dimensions and light weight, due to high switching frequency of up to 100kHz
- Complete set of protection features:
 - output short protection
 - over voltage protection
 - over current protection
 - over power protection



Links to Data sheets

Series	Datasheet
1 Watt Mini Series, UL Recognized	BP01XXXXXW
1 Watt Series Single Output	ZP01SXX00WE
1 Watt High Performance Series, UL Pending	HP01SXX00WI
1 Watt High Performance Series with Zero Crossing, UL Pending1	HP01SXX00WI-X
2 Watt High Performance Series, UL Pending	HP02SXX00WJ
3 Watt High Performance Series, UL Pending	HP03SXX00WJ
3 Watt Series Single Output w/ Fuse, UL Recognized	ZP03SXX00WA
3 Watt Mini Series Single Output w/o Fuse, UL Recognized	ZP03SXX00WE
5 Watt Single Output Precision Series, TUV/CE Recognized	ZP05SXX00W
5 Watt Mini Series Single Output, TUV/CE Recognized	ZP05SXX00WB
10 Watt Series Single Output	ZP10SXX00W
10 Watt Mini Series Single Output	ZP10SXX00WB

ZETTLER MAGNETICS

Output Power	1W			2W			3W			
Series	HP01XXXXXWI	HP01XXXXXWI-X	ZP01XXXXXWE	HP02XXXXXWJ	HP02XXXXXWJ-X	ZP02XXXXXWF	HP03SXX00WJ	HP03SXX00WJ-X	ZP03SXX00WE	ZP03SXX00WH
Features	Extra wide input	Extra wide input & 0-cross output	Compact size	Extra wide input	Extra wide input	Low height & Compatibility bias pin	Extra wide input	Extra wide input & 0-cross output	Economical type	Economical
Dimension	33.7/22.2/15	33.7/22.2/15	22.9/22/18	37/24/15	37/24/15	27.9/23.2/13.9	37/24/15	37/24/15	23.9/23/18	25.4/25.4/15.2
(L/W/H) [mm]										
Input Voltage [VAC]	85 - 305	85 - 305	85 - 264	85 - 305	85 - 305	100~277	85 - 305	85 - 305	85 - 264	85~264
Ambient Temperature [°C]	85	85	85	85	85	80	85	85	70	50
No-Load Power Consumption	0.1W	0.3W	0.3W	0.1W	0.3W	0.15W	0.1W	0.3W	0.3W	0.3W
Insulation	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated
Certification	UL	UL	pending	UL	UL	TUV	UL	UL	UL	pending

Output Power	5W					10W	
Series	ZP05SXX00WB	ZP05SXXXXW(A)	ZP05DXXXXW-NC	ZP05DXXXXW	ZP05SXXXXWH	ZP10SXXXXW	ZP10SXXXXWA
Features	Single output	Single output	Dual output (isolated)	Dual output	Single output	Single output	Single output
Dimension	32.1/27.1/19.3	45.2/30.2/23.8	45.2/30.2/23.8	45.2/30.2/23.8	25.4/25.4/15.2	55.2/35.2/25.5	45.2/30.2/23.8
(L/W/H) [mm]							
Input Voltage [VAC]	85~264	85~264	85~264	85~264	85~264	85~264	85~264
Ambient	50	70	70	70	50	70	50
Temperature [°C]							
No-Load Power Consumption [W]	0.15W	0.3W	0.3W	0.3W	0.3W	0.3W	0.3W
Insulation	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated	Pri/Sec Isolated
			Sec/Sec Isolated	Sec/Sec non-isolated			
Certification	UL	UL/TUV/CE	pending	TUV	pending	TUV	pending

For more information, please visit

Zettler Magnetics

www.zettlermagnetics.eu –EMEA

www.zettlermagnetics.com –North America

www.zettlermagneticshk.com –Asia