

AC/DC power supplies TESA1000



Features

- Class: Industrial, power density up to **1039 W/dm³**
- Without Fan
- Low profile: 39 mm design with blade solder pins; terminal blocks (optional)
- Case operating temperature ranges: -40°C...+85°C, -50°C...+85°C
- Output current up to 80 A, output power 1000 W
- Input voltage ranges: 100...242 VAC, 176...242 VAC
- Parallel operation
- Power factor correction
- Additional output for fan (12 VDC, I_{max}=200 mA)
- Over current, short circuit, overvoltage and thermal protection, remote on/off
- Output voltage adjustment
- Remote feedback
- Max capacitance 75000 µF (for U_{out}=15 VDC, 50% Output power)
- Metal case

Description

AC/DC power supplies (modules) TESA1000 are especially designed for industrial applications and harsh environment operation. This compact unit (211 x 117 x 39 mm) proven maximum output power of up to 1000 W. The units can be switched on/off by a signal, have a full protection complex against over current, short circuit and overheating; they also can be connected in parallel or in series and provide compliance to EMC standard EN55022, class A (class B with filtration and protection modules TEFA10).

TESA1000-SxN, TESA1000-SxP is part of "Industrial" line of products designed for a variety of industrial equipments and made of customized element base. They are sealed with heat-conducting potting material and could have wide operating temperature range up to -50°C...+85°C also these modules have thermal protection chip. These power supplies undergo special temperature and burn-in tests with extreme on/off modes.

Upon customers' request this module can be produced in copper case with protecting coating, allowing its installation on aluminum heatsink and providing a positive effect on the modules EMC and heat transfer.

Ordering information

TESA 1000 - 230W S 15 - S H N

1 2 3 4 5 6 7 8

- 1 - «TESA» Series
- 2 - Max output power, W
- 3 - Input voltages
 - 230W** – 230 VAC (100...242 VAC)
 - 230** – 230 VAC (176...242 VAC)
- 4 - Index of output channels quantity
 - S** – one
- 5 - Nominal output voltage, VDC (two signs for a channel)
- 6 - Index of design option
 - S** - modification with polymer potting protection
- 7 - Index of case design and outputs
 - H** - case with a cover and blade solder pins (basic version)
 - C** - case with a cover and terminal blocks
- 8 - Index of operating temperature range of the case
 - N** -40°C ...+85°C (basic version)
 - P** -50°C ...+85°C

Technical information

Standard models with one output

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
TESA1000-230WS15-XXX	~100...242 VAC*	1000 W	15 VDC / 66,6 A	84%
TESA1000-230WS24-XXX	~100...242 VAC*	1000 W	24 VDC / 41,6 A	88%
TESA1000-230WS27-XXX	~100...242 VAC*	1000 W	27 VDC / 37 A	88%
TESA1000-230WS48-XXX	~100...242 VAC*	1000 W	48 VDC / 20,8 A	89%
TESA1000-230S15-XXX	~176...242 VAC	1000 W	15 VDC / 66,6 A	84%
TESA1000-230S24-XXX	~176...242 VAC	1000 W	24 VDC / 41,6 A	88%
TESA1000-230S27-XXX	~176...242 VAC	1000 W	27 VDC / 37 A	88%
TESA1000-230S48-XXX	~176...242 VAC	1000 W	48 VDC / 20,8 A	89%

Modules with non-standard output voltage from 12 to 60 VDC with maximal output current up to 80 A, could be delivered on request.

* For input voltage 230W (wide input) maximal output power decrease at input voltage 100...176 VAC according to the derating curves.

Input specifications	
Input voltage range / Input voltage transient deviation (1 s) 230 W**	~ 100...242 VAC (=141...341 VDC)/ ~ 100...264 VAC (=141...373 VDC)
Input voltage range / Input voltage transient deviation (1 s) 230	~ 176...242 VAC (accepted=248...342V)/ ~ 176...264 VAC (accepted=248...373V)
Input frequency	47...440 Hz
Output specifications	
Output voltage adjustment	±5%
Instability of output voltage in accordance to changing of output current from 10 to 100%	±2%
Instability of output voltage in accordance to instability of input voltage	±0,5%
Ripple and noise (peak-to-peak) (20 MHz)	<2% Uout
Short circuit protection***	>150% Iout nom, auto repair
Overvoltage protection***	<125% Uout
Over current protection level***	Pout ... 1.3·Pout
Remote On/Off (inverse control – optional)	Shuts down outputs by applying 3...5VDC (≤5 mA) on "+REM", "-REM"
The maximum output power without the heatsink, Tamb=50°C	153 W
Max capacitance for Uout=15 VDC, 50% Output power	75000 µF****
General specifications	
Case temperature (operating N)	-40°C...+85°C*****
Case temperature (operating P)	-50°C ...+85°C*****
Case temperature (storage)	-50°C ...+85°C
Output power derating (natural convection)	See diagram (dashed, dash-dotted curves)
Output power with heatsink	See diagram (solid curve)
High humidity	95% @ 35 °C
Conversion frequency, fixed	130-150 kHz
Insulation voltage input/case	~1500 VAC
Insulation voltage input/output	~3000 VAC
Insulation voltage output/case	~500 VAC
Isolation resistance @ 500 VDC	20 MOhm
EMC standards	EN55022, class A (class B with filter TEFA10)
Safety standard	IEC/EN60950
Thermal resistance case – environment without heat sink	1,2 °C/W
Typical MTBF (Tcase = 50°C; Pout = 0,7 Pout max)	30 000 hrs
Cooling method	Free air convection with heat sink or forced air
Weight (max)	1900 g

* All specifications are valid for normal climatic conditions, Uin.nom., Iout.nom., unless otherwise stated.

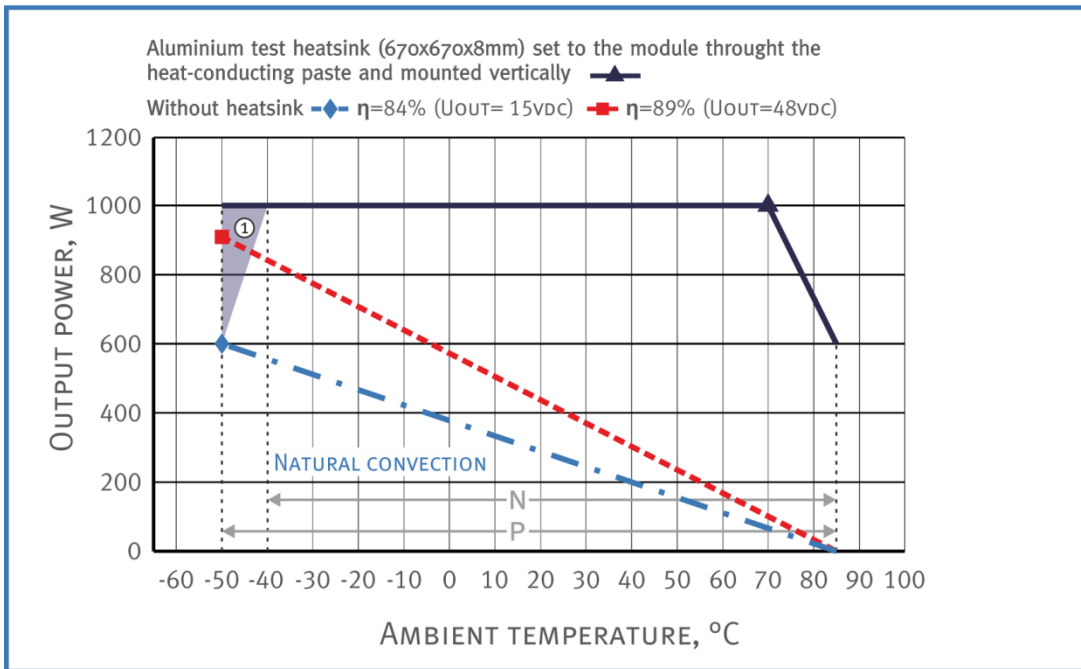
** For input voltage 230W (wide input) maximal output power decrease at input voltage 100...176 VAC according to the derating curves.

*** Parameters are stated for the information purposes and could not be used at long term work, exceeding maximum output current, at work outside of a range of working temperatures, at module's work with the output voltage over a range of adjustment.

**** For other output voltages the maximum output capacity is calculated from the fact that $\frac{C_{max} \times U_{out}^2}{2}$ is a constant.

***** Turn-on delay of power supply at subzero temperatures can reach up to 5s at -40°C, 15...20s at -50°C.

Output power vs an ambient temperature for 230, 230W Inputs

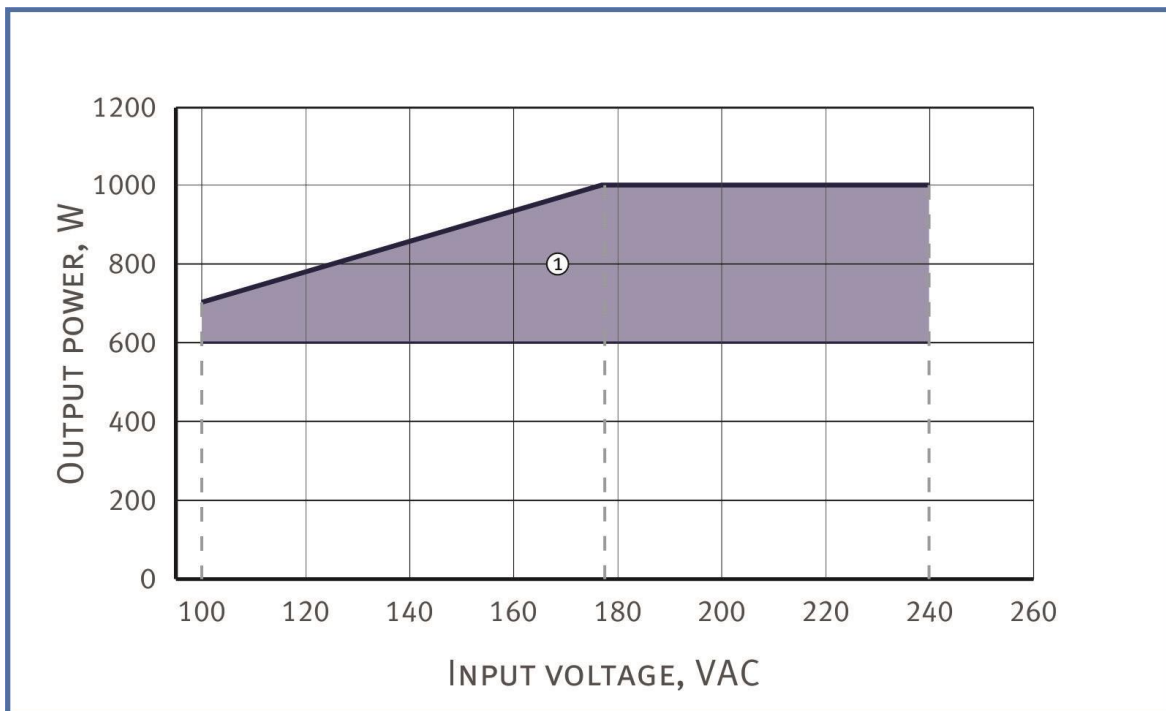


Dropping parts of the dashed and dash-dotted curves are in accordance with the **maximum temperature of the case** (for modules with index «N», «P» equal to +85 °C). Output power must not exceed the values which are limited by corresponding curve for a given ambient temperature.

Modules can be used without a heat sink only when screwing them heat conductive plate with thermal paste and with the length and width not less than case size and thickness of not less than 6 mm.

At point \blacktriangle , \blacklozenge and \blacksquare simultaneously present several extreme worst-case conditions, such as the combination of maximum case temperature and maximum output power. Continuous module operation at these points should be avoided.

Output power vs input voltage for 230, 230W



① - For ambient temperature -50°C...-40°C in gray areas of diagrams some specification parameters may not be met.

Pin out (models with blade solder pins)

Nº Pin	1	2	3	4	5	6	7
Single output	L	N	⊕	-REM	+REM	+RS	-RS

Nº Pin	8	9	10	11	12	13	14	15
Single output	PARAL	+U FAN	-U FAN	NOT USE	+OUT1	+OUT1	-OUT1	-OUT1

Pin out (models with the terminal blocks)

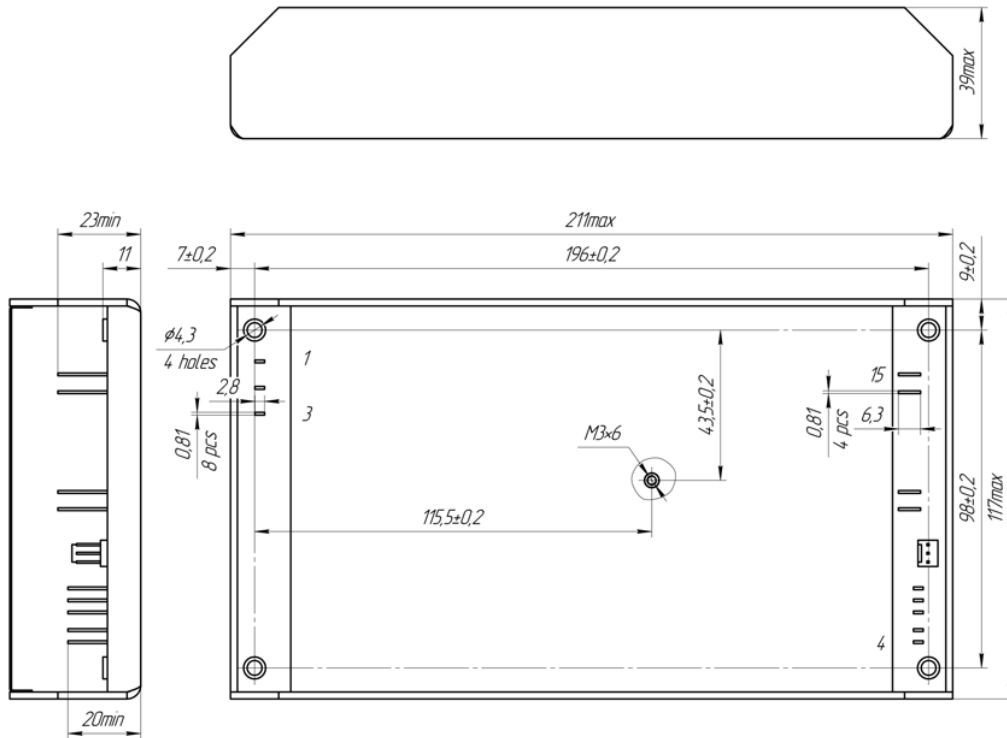
Nº Pin	X1.1	X1.2	X1.3	X2.1	X2.2	X2.3	X2.4	X3.1
Single output	L	N	⊕	+OUT1	-OUT1	—	—	+U FAN

Nº Pin	X3.2	X3.3	X4.1	X4.2	X5.1	X5.2	X5.3	X5.4
Single output	- U FAN	NOT USE	-REM	+REM	+RS	-RS	PARAL	NOT USE

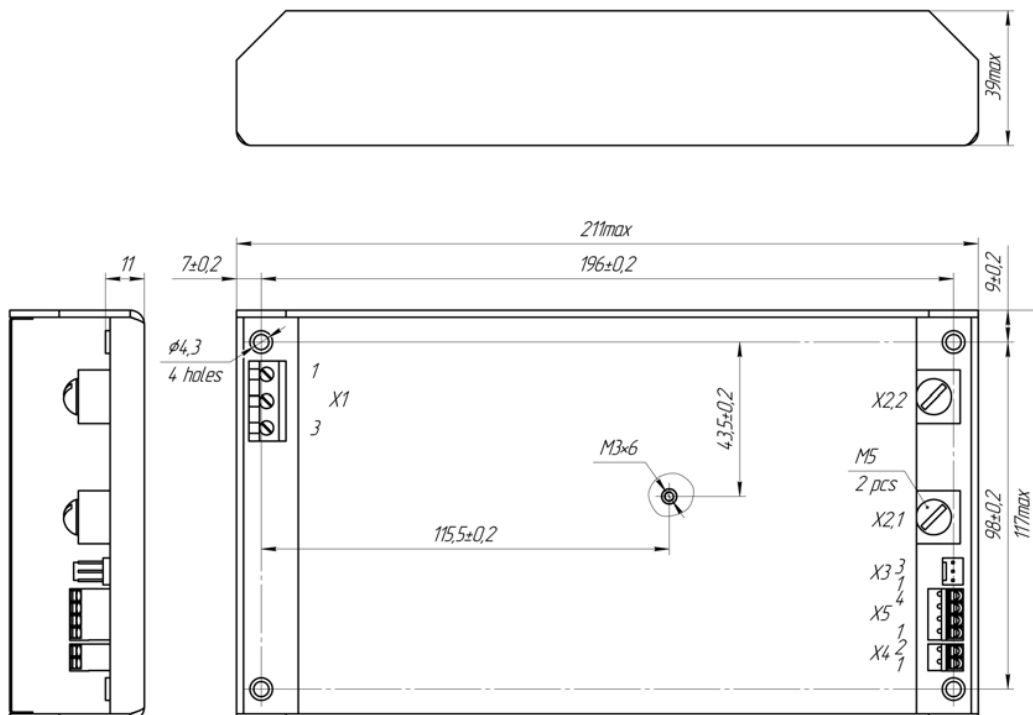
The use of a central socket for attaching the module to the heatsink is required , whereas the fastening screw must enter the module body to a depth of no more than 6 mm.

Violation of these requirements may result in damage to the module, its failure and entails waivering of the warranty.

Single output model with blade pins (V A case size)



Single output model with terminal blocks (V A case size)



Certificates

Certificate ISO 9001*
CE conformity declaration

* Management system and R&D of Alexander Electric is ISO certified

Note

The input, output and service pins connections of these power supplies are made through blade solder pins either by using standard female terminals or soldering.
The module's connection to the equipment with screw terminals allows the possibility to organize fast installation and easy change of modules during tests or operation in equipments that are not influenced by vibration or aggressive environments.
The module's connection to the equipment by soldering the blade solder pins of flexible wires ensures maximum reliability and minimum voltage drop under effect of adverse mechanical, climatic and chemical factors.
Blade solder pins' modules do not require service of connections (commonly known as periodic tightening of screw terminals) during module's entire life time. This provides more convenience during operation and is a major advantage of these products.

Please, note that all information in this material is for reference only. Further detailed information (including: additional requirements, manuals and circuit schemes) is found on our website <http://www.aeps-group.ru>.

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