

## AC/DC power supplies TESA600-LP



### Features

- Class: Industrial, power density up to **1316 W/dm<sup>3</sup>**
- **Ultra low profile:** 28 mm design with blade solder pins and screw terminals
- Case operating temperature ranges: -40°C...+85°C, -50°C...+85°C
- Output current up to 50 A, output power 600 W
- Input voltage ranges: 100...242 VAC, 176...242 VAC
- Parallel operation
- Power factor correction
- Galvanic isolated output channels
- Additional output for fan (12 VDC, I<sub>max</sub>=200 mA)
- Over current, short circuit, overvoltage and thermal protection
- Output voltage adjustment
- Remote feedback
- Max capacitance 110000 µF (for U<sub>out</sub>=12 VDC, 50% Output power)
- Metal case

### Description

**AC/DC power supplies (modules) TESA600-LP** are especially designed for industrial applications and harsh environment operation. This compact unit (175 x 93 x 28 mm) proven maximum output power of up to 600 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 TEFA5).

## Ordering information

### TESA 600 - 230 S 12 - S H K - LP

1 2 3 4 5 6 7 8 9

- 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 blade solder pins (basic version)
  - C - case with terminal blocks
- 8 - Index of operating temperature range of the case
  - N -40°C ...+85°C (basic version)
  - P -50°C ...+85°C
- 9 - Index of low profile design
  - LP – low profile design

## Technical information

### Standard models with one output

| Module                 | Input voltage range | Output power | Output voltage / nominal output current | Typical efficiency |
|------------------------|---------------------|--------------|---|--------------------|
| TESA600-230WS12-XXX-LP | ~100...242 VAC*     | 600 W        | 12 VDC / 50 A                           | 82%                |
| TESA600-230WS15-XXX-LP | ~100...242 VAC*     | 600 W        | 15 VDC / 40 A                           | 82%                |
| TESA600-230WS24-XXX-LP | ~100...242 VAC*     | 600 W        | 24 VDC / 25 A                           | 86%                |
| TESA600-230WS27-XXX-LP | ~100...242 VAC*     | 600 W        | 27 VDC / 22,2 A                         | 86%                |
| TESA600-230WS48-XXX-LP | ~100...242 VAC*     | 600 W        | 48 VDC / 12,5 A                         | 87%                |
| TESA600-230S12-XXX-LP  | ~176...242 VAC      | 600 W        | 12 VDC / 50 A                           | 82%                |
| TESA600-230S15-XXX-LP  | ~176...242 VAC      | 600 W        | 15 VDC / 40 A                           | 82%                |
| TESA600-230S24-XXX-LP  | ~176...242 VAC      | 600 W        | 24 VDC / 25 A                           | 86%                |
| TESA600-230S27-XXX-LP  | ~176...242 VAC      | 600 W        | 27 VDC / 22,2 A                         | 86%                |
| TESA600-230S48-XXX-LP  | ~176...242 VAC      | 600 W        | 48 VDC / 12,5 A                         | 87%                |

Modules with non-standard output voltage from 12 to 60 VDC with maximal output current up to 50 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.

## Specifications for AC/DC power supplies TESA600-LP\*

| <b>Input specifications</b>   |   |
|---|---|
| Input voltage range / Input voltage transient deviation (1 s) 230 W**   | ~ 100...242 VAC (accepted=140...342V)/<br>~ 100...264 VAC (accepted=140...373V) |
| Input voltage range / Input voltage transient deviation (1 s) 230   | ~ 176...242 VAC (accepted=248...342V)/<br>~ 176...264 VAC (accepted=248...373V) |
| Input frequency   | 47...440 Hz   |
| <b>Output specifications</b>  |   |
| Instability of output voltage in accordance to changing of output current from 10 to 100% for single output model | ±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"               |
| Max capacitance for Uout=12 VDC, 50% Output power   | 110000 µF****   |
| <b>General specifications</b>   |   |
| 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  |
| Insulation voltage output/output  | =500 VDC  |
| Isolation resistance @ 500 VDC  | 20 MOhm   |
| EMC standards   | EN55022, class A (class B with filter TEFA5)                                    |
| Safety standard   | IEC/EN60950   |
| Typical MTBF (Tcase = 50°C; Pout = 0,7 Pout max)  | 40 000 hrs  |
| Cooling method  | Free air convection with heat sink or forced air                                |
| Weight (max)  | 1100 g  |

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

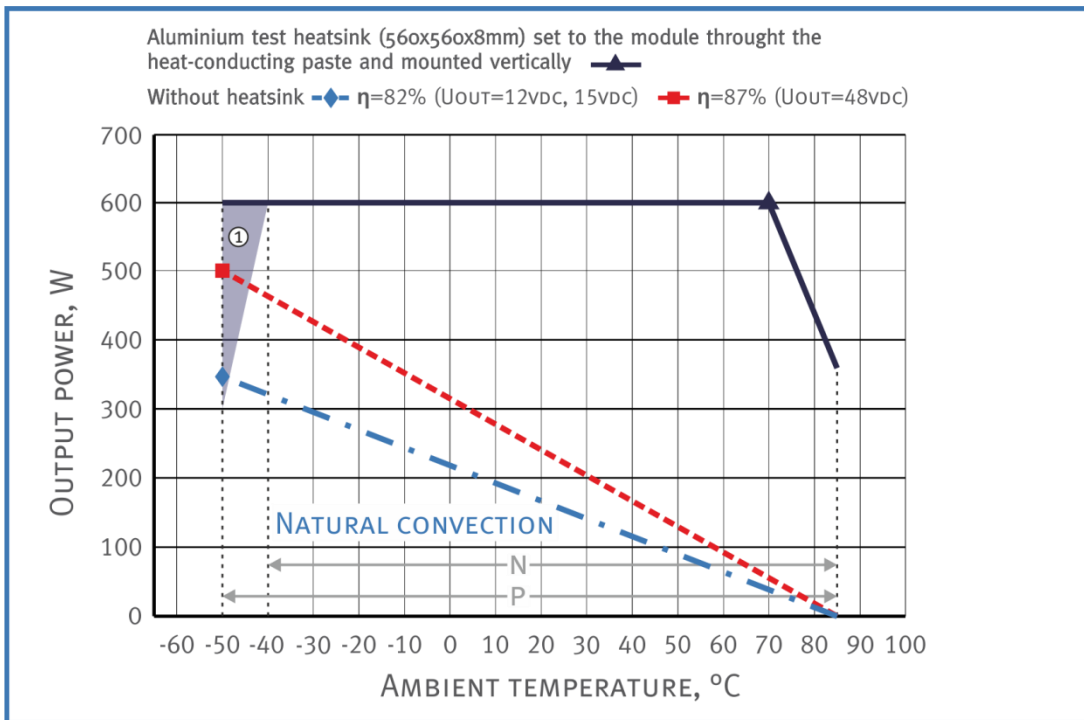
\*\* For input voltage 230W (wide input) maximal output power decrease at input voltage 100...176 VAC according to the derating curves.

\*\*\* 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

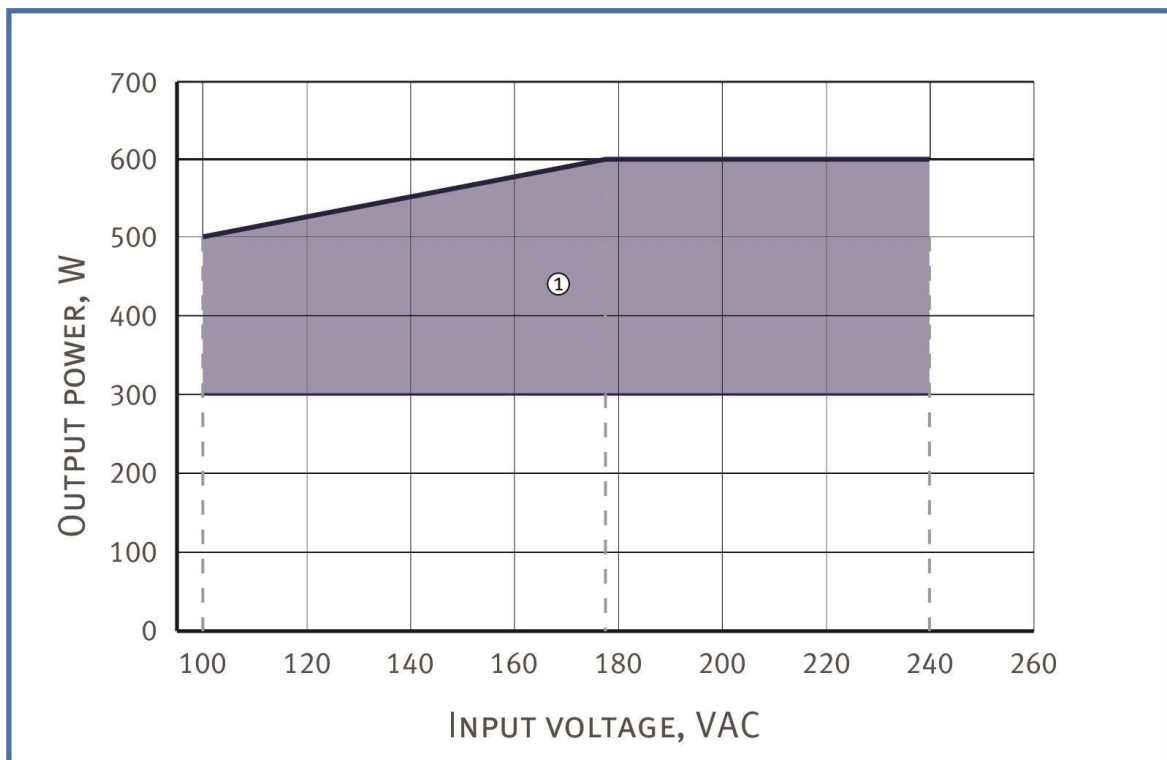


Dropping parts of the dashed and dash-dotted curves are in accordance with the **maximum temperature of the case** (for modules with index «N», «P» equal to +85 °C). Output power must not exceed the values which are limited by corresponding curve for a given ambient temperature.

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 4 mm.

At point ▲, ◆ and ■ 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.

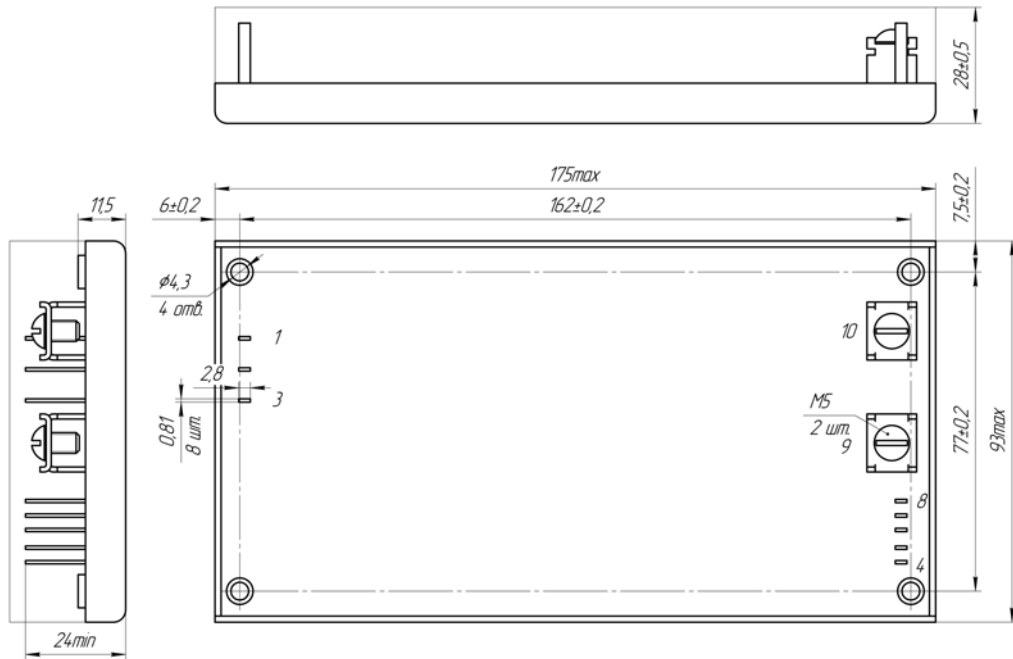
### Pin out (models with blade solder pins)

| Nº Pin        | 1 | 2 | 3 | 4    | 5    | 6   | 7   | 8     | 9    | 10   |
|---------------|---|---|---|------|------|-----|-----|-------|------|------|
| Single output | L | N | ⊕ | -REM | +REM | +RS | -RS | PARAL | +OUT | -OUT |

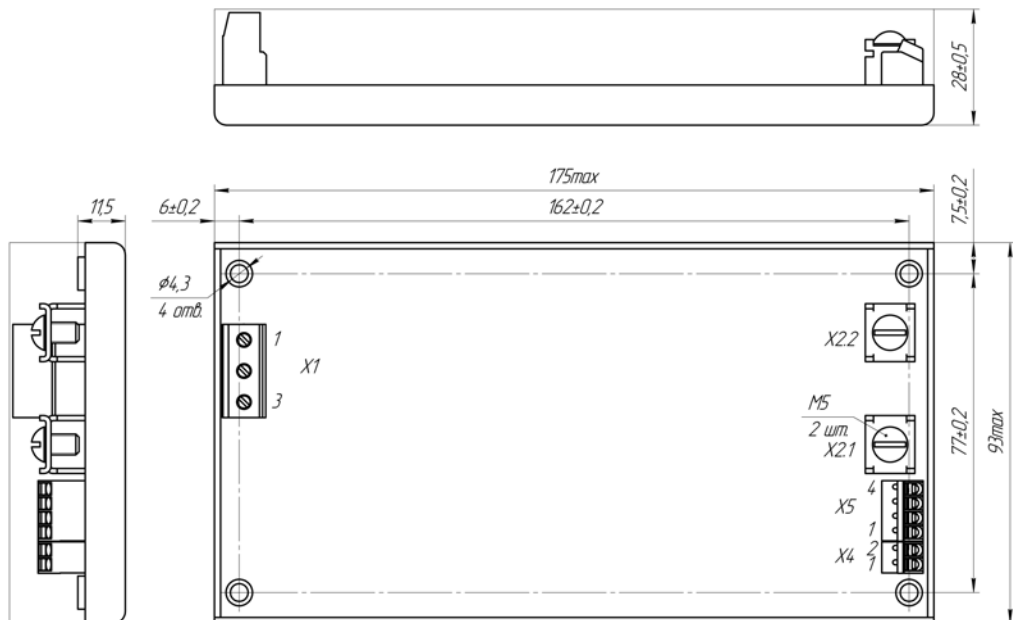
### Pin out (models with the terminal blocks)

| Nº Pin        | X1.1 | X1.2 | X1.3 | X2.1 | X2.2 | X4.1 | X4.2 | X5.1 | X5.2 | X5.3  | X5.4    |
|---------------|------|------|------|------|------|------|------|------|------|-------|---------|
| Single output | L    | N    | ⊕    | +OUT | -OUT | -REM | +REM | +OC  | -OC  | PARAL | NOT USE |

**Single output model with blade solder pins (IVA-LP case size)**



**Single output model with terminal blocks (IVA-LP 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>.

## Contact information

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