

## DC/DC converters TESD500



### Features

- Class: Industrial, power density up to **3608 W/dm<sup>3</sup>**
- Low profile 15 mm design
- Working case temperature  $-60^{\circ}\text{C} \dots +110^{\circ}\text{C}$ , for special order – up to  $125^{\circ}\text{C}$
- Output power up to 500 W
- Input voltage ranges: 18...75 VDC
- Parallel operation
- Feedback from load
- Output voltage adjustment, remote on/off
- Max capacitance up to 15000  $\mu\text{F}$  (for  $U_{\text{out}}=24$  VDC, 50% Output power)
- Metal case, with mounting flanges

### Description

**Ultra-compact isolated DC/DC converters (modules)** are specially designed for industrial applications and harsh environment operation. These compact units (110 x 84 x 15 mm) have output power up to 500 W and wide operating temperature range between  $-60^{\circ}\text{C} \dots +110^{\circ}\text{C}$ , for special order – up to  $125^{\circ}\text{C}$ .

These modules have full protection complex against over current, shorting and overheating, can be switched on/off by a signal and be connected in parallel or in series.

These modules are built using specially designed electronic components and sealed with heat-conducting potting material. They have wide operating temperature range and thermal protection chip. These modules undergo special thermal and limit tests, including burn-in-tests with extreme on/off modes. They are available in metal cases with mounting flanges.

## Ordering information

### TESD 500 - 24 S 12 - U T

1 2 3 4 5 6 7

- 1 - «TESD» Series
- 2 - Max output power, W
- 3 - Input voltage  
24W - 24 VDC (18...75 VDC)
- 4 - Index of output channels quantity  
S – one
- 5 - Nominal output voltage, VDC (two signs for a channel)
- 6 - Index of case design  
U – metal case with flanges
- 7 - Index of operating temperature range of the case  
T –60°C...+110°C (standard version), for special order –60°C...+125°C

## Technical information

### Standard models with one output

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency <sup>1</sup>
TESD500-24WS12-XX	18...75 VDC	400 W	12 VDC / 33,33 A	88%
TESD500-24WS15-XX		500 W	15 VDC / 33,3 A	89%
TESD500-24WS24-XX			24 VDC / 20,83 A	91%
TESD500-24WS27-XX			27 VDC / 18,52 A	91%
TESD500-24WS48-XX			48 VDC / 10,42 A	90%

Modules with non-standard output voltage from 12 to 60 VDC, could be delivered on request.

<sup>1</sup> - Typical efficiency values are given at nominal input voltage under normal climatic conditions

## Specifications for DC/DC converters TESD500\*

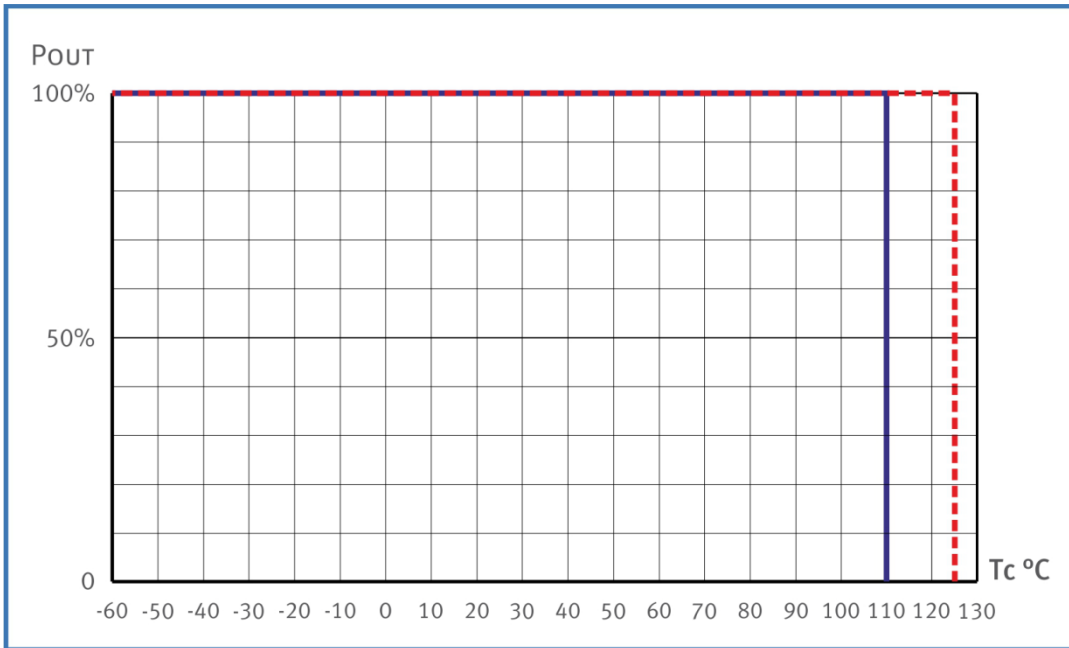
<b>Input specifications</b>	
Input voltage range / transitional deviation, 1 sec 24W	=18...75 VDC / =17...84 VDC
Input filter	P-type
<b>Output specifications</b>	
Output voltage adjustment	±5% U <sub>out</sub>
Instability of output voltage in accordance to changing of output current from 10 to 100%	±2%
Instability of output voltage in accordance to changing of input voltage	±0,5%
Ripple and noise (peak-to-peak) (20 MHz)	<2% U <sub>out</sub>
Short circuit protection**	>150% I <sub>out nom</sub> , auto repair
Overvoltage protection**	<130 % U <sub>out</sub>
Over current protection level**	P <sub>out</sub> ... 1.3·P <sub>out</sub>
Remote On/Off	Shuts down outputs by applying 0...0,5VDC or connection of output «ON» and «- IN», I ≤5mA
Max capacitance for U <sub>out</sub> =24 VDC, 50% Output power***	up to 15000 µF
<b>General specifications</b>	
Case temperature (operating), index T	-60°C ...+110°C, for order – up to 125°C
Case temperature (storage)	-60°C ...+125°C
High humidity	100% @35 °C
Thermal resistance case — environment without heat sink	2,3 °C/W
Conversion frequency	200 kHz typ.
Insulation voltage input/output	=1500 VDC
Insulation voltage input/case	=1500 VDC
Insulation voltage output/case	=1000 VDC
Isolation resistance @ 500 VDC	>20 MOhm
EMC standards	EN 55022, class A; EN 55022, class B with additional filter
Safety standards	IEC/ EN 60950
Typical MTBF (T <sub>case</sub> = 50°C; P <sub>out</sub> = 0,7 P <sub>out max</sub> )	50 000 hrs
Cooling metod	Free air convection or forced air cooling
Weight (max)	250 g

\* All specifications are valid for normal climatic conditions, U<sub>in.nom.</sub>, I<sub>out.nom.</sub>, unless otherwise stated.

\*\* Parameters are stated for the information purposes and could not be used for long term operation, exceeding maximum output current, for operation out of a range of operating temperatures.

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

### Maximum output power vs ambient temperature



- Allowed power output and case temperature range for standard version of unit.
- - - Possible range of output power and case temperature up to 125°C for special order.

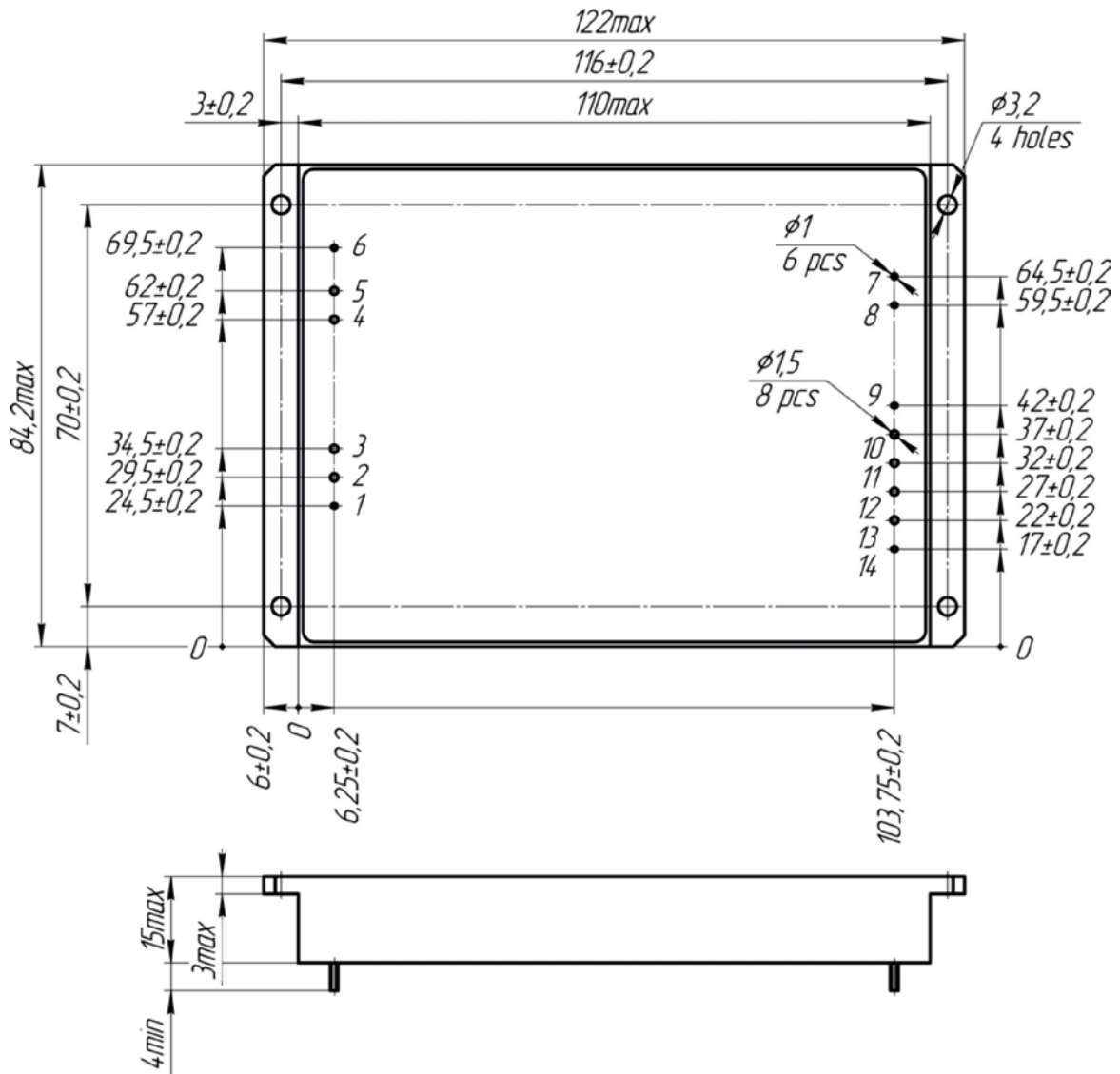
For modeling optimal heatsink and its delivery, with goal of providing allowed case temperatures, please contact us directly [aeps@aeps-group.cz](mailto:aeps@aeps-group.cz)

When using without heatsink, it's necessary to attach heat-distributing aluminum or copper plate with thickness not less than 4 mm.

Pin out

Nº Pin	1	2,3	4,5	6	7	8	9	10,11	12,13	14
Single output	ON	-IN	+IN	CASE	PARAL	ADJ	-RS	-OUT	+OUT	+RS

Single output model with flanges (VII case type)



## Certificates

Certificate ISO 9001\*  
CE conformity declaration

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

## Note

The label with sign "remove before use" can be placed on the top surface of the module and must be removed before installation.

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.teslaelectric-eu.com>.

## Contact information

<http://www.teslaelectric-eu.com>, e-mail: [aeps@aeps-group.cz](mailto:aeps@aeps-group.cz), phone/fax: +420 281 001 341

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