



Features

- Option of simultaneous operation with VAC and/or VDC networks
- Class: Industrial, power density up to **994 W/dm³**
- Low profile 13 mm design
- Case operating temperature range: $-40^{\circ}\text{C} \dots +110^{\circ}\text{C}$, for request up to $-60^{\circ}\text{C} \dots +130^{\circ}\text{C}$
- Output current up to 10 A, output power 50 W
- Input voltage ranges: 176...242 VAC; 80...140 VAC, 25...53 VAC, 110...375 VDC
- Output voltage adjustment, remote on/off
- Max capacitance 80000 μF (for $U_{\text{out}}=5$ VDC, 50% Output power)
- Metal case, with mounting flanges
- Completely replace the previous generation modules TESH50

For all special requirements placed on the last page of datasheet [please click here.](#)

Description

Ultra-compact isolated AC/DC converters with alternative inputs of double purpose are especially designed for industrial applications and harsh environment operation. These compact units (73 x 53 x 13 mm) have output power up to 50 W and operating temperature range between $-60 \dots +130^{\circ}\text{C}$. These modules are available with one or two **galvanic isolated** channels, can be switched on/off by a signal, have full protection complex against over current, shorting and overheating and can be connected in parallel or in series.

These modules are built using especially 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.

An operating unit can withstand drop of input voltage in relation to the normal input voltage, and in many cases the module is able to provide needed output power when the input voltage decreases 10-30% compared to the normative.

Ordering information

TESAV 50 - 230 D 0512 - U T

1 2 3 4 5 6 7

- 1 - «TESAV» Series
- 2 - Max output power, W
- 3 - Input voltages
 - 230 – 230 VAC (176...242 VAC)
 - 115 — 115 VAC (80...140 VAC)
 - 36 – 36 (25...53 VAC)
 - 150W – 150W (110...375 VDC)
- 4 - Index of output channels quantity
 - S – one
 - D – two
- 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 –40°C...+110°C, for request up to –60°C...+130°C

Technical information

Standard models with one output

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
TESAV50-36S05-XX	~25...53 VAC	50 W	5 VDC / 10 A	80%
TESAV50-36S12-XX			12 VDC / 4,16 A	82%
TESAV50-36S15-XX			15 VDC / 3,3 A	82%
TESAV50-36S24-XX			24 VDC / 2,08 A	84%
TESAV50-36S27-XX			27 VDC / 1,85 A	84%
TESAV50-36S48-XX			48 VDC / 1,04 A	84%
TESAV50-115S05-XX	~80...140 VAC		5 VDC / 10 A	81%
TESAV50-115S12-XX			12 VDC / 4,16 A	83%
TESAV50-115S15-XX			15 VDC / 3,3 A	83%
TESAV50-115S24-XX			24 VDC / 2,08 A	85%
TESAV50-115S27-XX			27 VDC / 1,85 A	85%
TESAV50-115S48-XX			48 VDC / 1,04 A	85%
TESAV50-230S05-XX	~176...242 VAC		5 VDC / 10 A	83%
TESAV50-230S12-XX			12 VDC / 4,16 A	85%
TESAV50-230S15-XX			15 VDC / 3,3 A	85%
TESAV50-230S24-XX			24 VDC / 2,08 A	87%
TESAV50-230S27-XX			27 VDC / 1,85 A	87%
TESAV50-230S48-XX			48 VDC / 1,04 A	87%
TESAV50-230S05-XX	= 110...375 VDC	5 VDC / 10 A	83%	
TESAV50-150WS12-XX		12 VDC / 4,16 A	85%	
TESAV50-150WS15-XX		15 VDC / 3,3 A	85%	
TESAV50-150WS24-XX		24 VDC / 2,08 A	87%	
TESAV50-150WS27-XX		27 VDC / 1,85 A	87%	
TESAV50-150WS48-XX		48 VDC / 1,04 A	87%	

Standard models with two outputs

Module	Input voltage range	Output power	Output voltage / nominal output current	Typical efficiency
TESAV50-36D0505-XX	~25...53 VAC	50 W	5 VDC / 5 A ; 5 VDC / 5 A	79%
TESAV50-36D0512-XX			5 VDC / 5 A ; 12 VDC / 2,08 A	81%
TESAV50-36D1212-XX			12 VDC / 2,08 A ; 12 VDC / 2,08 A	81%
TESAV50-36D1515-XX			15 VDC / 1,6 A ; 15 VDC / 1,6 A	83%
TESAV50-36D2727-XX			27 VDC / 0,92 A ; 27 VDC / 0,92 A	83%
TESAV50-115D0505-XX	~80...140 VAC		5 VDC / 5 A ; 5 VDC / 5 A	80%
TESAV50-115D0512-XX			5 VDC / 5 A ; 12 VDC / 2,08 A	82%
TESAV50-115D1212-XX			12 VDC / 2,08 A ; 12 VDC / 2,08 A	82%
TESAV50-115D1515-XX			15 VDC / 1,6 A ; 15 VDC / 1,6 A	84%
TESAV50-115D2727-XX			27 VDC / 0,92 A ; 27 VDC / 0,92 A	84%
TESAV50-230D0505-XX	~176...242 VAC		5 VDC / 5 A ; 5 VDC / 5 A	82%
TESAV50-230D0512-XX			5 VDC / 5 A ; 12 VDC / 2,08 A	84%
TESAV50-230D1212-XX			12 VDC / 2,08 A ; 12 VDC / 2,08 A	84%
TESAV50-230D1515-XX			15 VDC / 1,6 A ; 15 VDC / 1,6 A	86%
TESAV50-230D2727-XX			27 VDC / 0,92 A ; 27 VDC / 0,92 A	86%
TESAV50-150WD0505-XX	=110...375 VDC	5 VDC / 5 A ; 5 VDC / 5 A	82%	
TESAV50-150WD0512-XX		5 VDC / 5 A ; 12 VDC / 2,08 A	84%	
TESAV50-150WD1212-XX		12 VDC / 2,08 A ; 12 VDC / 2,08 A	84%	
TESAV50-150WD1515-XX		15 VDC / 1,6 A ; 15 VDC / 1,6 A	86%	
TESAV50-150WD2727-XX		27 VDC / 0,92 A ; 27 VDC / 0,92 A	86%	

Modules with non-standard output voltage from 5 to 60 VDC with maximal output current up to 10 A, could be delivered on request.

¹ - Typical efficiency is stated for module which was set to an aluminum test heat sink (120x120x6 mm) through a heat-conducting paste.

Specifications *

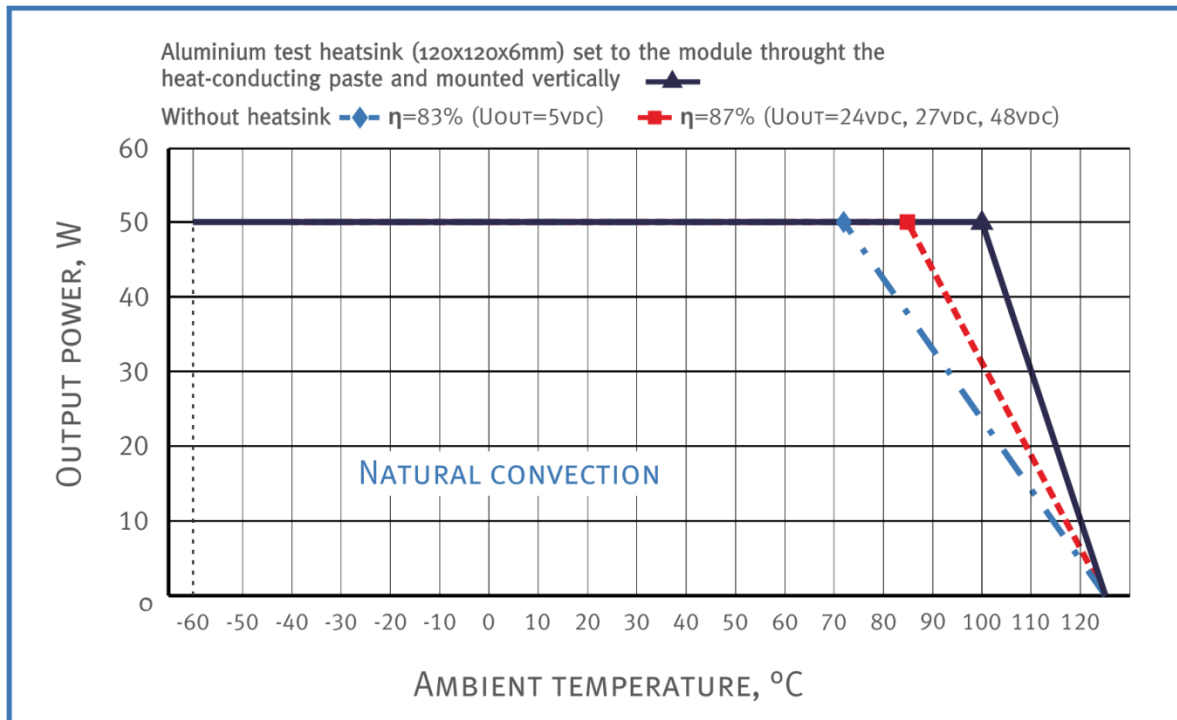
Input specifications	
Input voltage range / transitional deviation, 1 sec 36	~25...53 VAC/~25...53 VAC; accepted =36...75V
Input voltage range / transitional deviation, 1 sec 115	~80...140 VAC/~80...140 VAC; accepted =82...198V
Input voltage range / transitional deviation, 1 sec 230	~176...242 VAC/~176...264 VAC; accepted =175...350V
Input voltage range / transitional deviation, 1 sec 150 W	=110...350 VDC/=110...375 VDC;
Input frequency	47...440 Hz
Input filter	absent
Output specifications	
Output voltage adjustment (single-channel models only)	±5% Uout
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 changing of output current from 10 to 100% for dual output model	±2% for chan.1, ±7% for chan.2
Instability of output voltage in accordance to changing of output current for dual output model with a voltage value ≥20%	±2% for chan.1, ±12% for chan.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**	<130 % Uout
Over current protection level**	Pout ... 1.3·Pout
Remote On/Off	Shuts down outputs by applying 0...1,1 VDC or connection of output «ON» and «- IN», I≤5mA
The maximum output power without the heatsink, Tamb=50°C	50 W
Max capacitance for Uout=5 VDC, 50% Output power***	80000 µF
General specifications	
Case temperature (operating)	-40°C...+110°C, for request
Case temperature (storage)	up to -60°C...+130°C
Case temperature power decrease (natural convection)	See diagram (dashed, dash-dotted curve)
Case temperature without power decrease with heat sink	See diagram (solid curve)
High humidity	100% @35 °C
Thermal resistance case — environment without heat sink	5,3 °C/W
Insulation voltage input/output	~3000 VAC
Insulation voltage input/case	~1500 VAC
Insulation voltage output/case	~500 VAC
Insulation voltage output/output	=500 VAC
Isolation resistance @ 500 VDC	>20 MOhm
EMC standards	EN 55022, class A with additional filter
Safety standards	IEC/ EN 60950
Typical MTBF (Tcase = 50°C; Pout = 0,7 Pout max)	100000 hrs
Cooling metod	Free air convection with heat sink or forced air
Weight (max)	110 g

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

** Parameters are stated for the information purposes and could not be used at long term work, exciding 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.

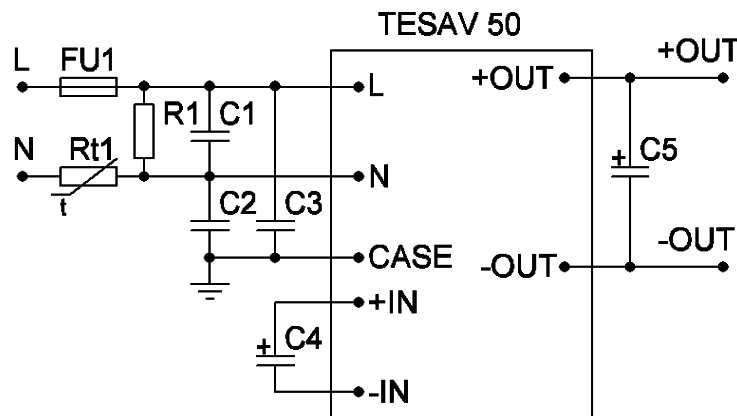
Output power vs an ambient temperature at input voltage



Dropping parts of the dashed and dash-dotted curves are in accordance with the **maximum temperature of the case**. Output power must not exceed the values which are limited by corresponding curve for a given ambient temperature.

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.

Typical connection diagram



For input 230 VAC

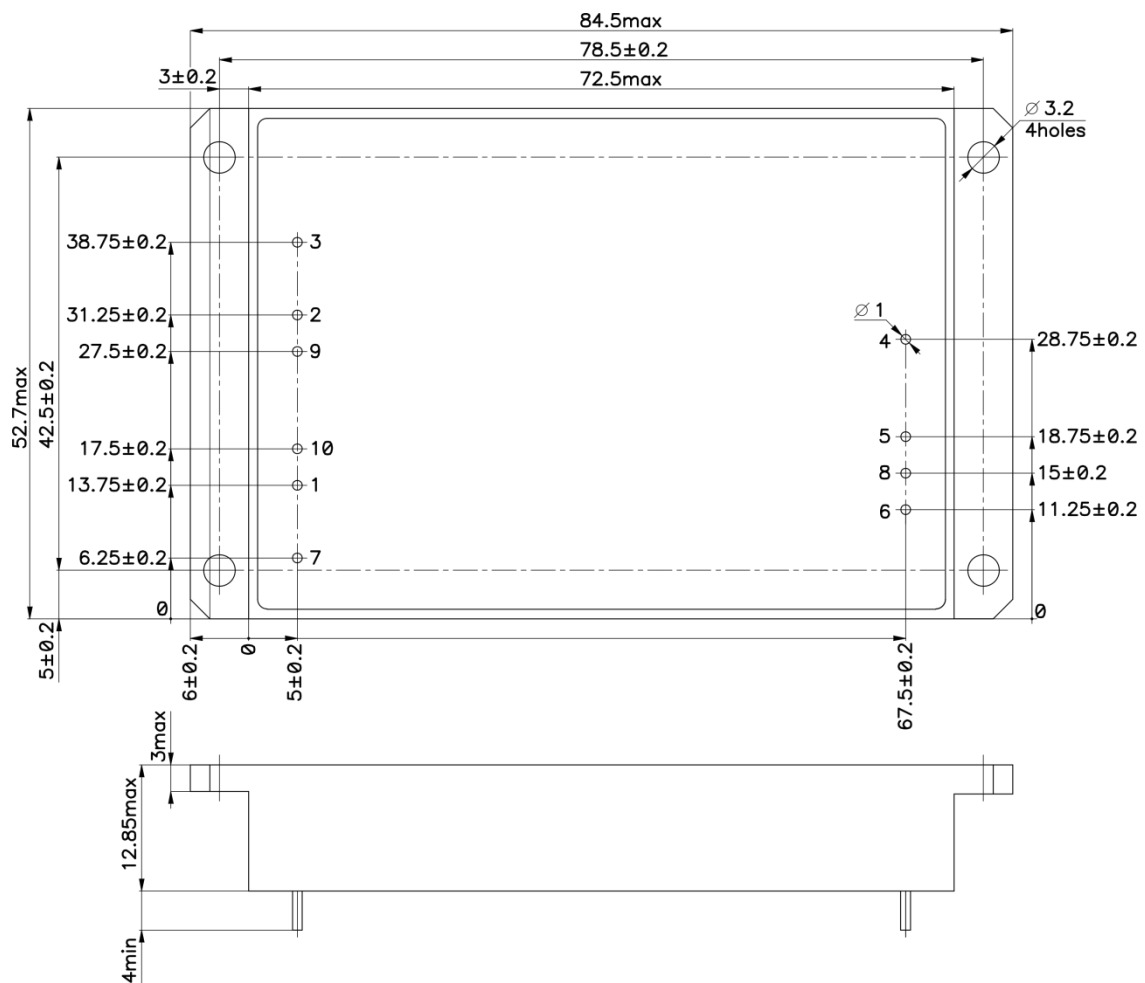
C1	0.1uF 275VAC, X2 class
C2, C3	2200pF 250VAC, Y2 class
C4	68 uF 400 V for normal climatic conditions & 100% Output power
C5	Tantalum, Low ESR
R1	470kOhm 0.5W
Rt1	NTC 20Ω 1A
FU1	3A 250V

Pin out

Nº Pin	1	2	3	4	5	6	7	8	9	10	11
Single output	+IN	-IN	ON	+OUT	-OUT	CASE	CASE	ADJ	L*	N*	-
Dual output	+IN	-IN	ON	+OUT1	-OUT1	+OUT2	-OUT2	CASE	CASE	N*	L*

* for modules marked TESH, these pins are not installed

Single output model with flanges (V case size)



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 goncharov-jet.om.

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Special requirements