

Ultra-compact isolated DC/DC converters (modules) are especially designed for industrial applications and harsh environment operation. These compact units (30 x 20 x 10 mm) have output power up to 30 W and wide operating temperature range up to $-60\dots+130^{\circ}\text{C}$. These modules are available with one, two or three 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. Completely replace the previous generation modules TESD15, TESD10.



Features

- Class: Industrial, power density up to **3 250 W/dm³** (53 W/In³)
- **Budget version – for request !**
- High efficiency $\geq 85\%$
- Low profile 10 mm design
- Working case temperature $-40^{\circ}\text{C}\dots+110^{\circ}\text{C}$, for special request up to $-60^{\circ}\text{C}\dots+130^{\circ}\text{C}$
- Output power up to 20 W, for special order up to 30W
- One, two or three output channels (one of which is galvanically isolated from others)
- Input voltage ranges: 10,5...40 VDC, 17...80 VDC
- Output voltage adjustment, remote on/off
- Max capacitance 1000 μF (for $U_{\text{out}}=5$ VDC)
- Metal case, with mounting flanges and without flanges
- Feedback for any output channel

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

Ordering information

TESND 20 - 27W S 12 - U T

1 2 3 4 5 6 7 8

- 1 - «TESND» Series
- 2 – For request is possible budget version **B**
- 3 - Output power in the standard version, W
- 4 - Input voltages
 - 12W** - 12 VDC (10,5...40 VDC)
 - 27W** - 27 VDC (17...80 VDC)
- 5 - Index of output channels quantity
 - S** – one
 - D** – two
 - T** – three
- 6 - Nominal output voltage, VDC (two signs for a channel)
- 7 - Index of case design
 - U** – metal case with flanges
 - C** – metal case without flanges
- 8 - Index of operating temperature range of the case
 - T** $-40^{\circ}\text{C}\dots+110^{\circ}\text{C}$ (standard version), for request up to $-60^{\circ}\text{C}\dots+130^{\circ}\text{C}$

Standard models with one output

Module	Input voltage range	Output power In the standard version	Output voltage / nominal output current
TESND20-12WS3.3-XX	10,5...40 VDC	20 W	13.2 W / 3.3 VDC / 4 A
TESND20-12WS05-XX			5 VDC / 4 A
TESND20-12WS12-XX			12 VDC / 1.7 A
TESND20-12WS15-XX			15 VDC / 1.4 A
TESND20-12WS24-XX			24 VDC / 0.85 A
TESND20-12WS48-XX			48 VDC / 0.42 A
TESND20-27WS3.3-XX	17...80 VDC	20 W	13.2 W / 3.3 VDC / 4 A
TESND20-27WS05-XX			5 VDC / 4 A
TESND20-27WS12-XX			12 VDC / 1.7 A
TESND20-27WS15-XX			15 VDC / 1.4 A
TESND20-27WS24-XX			24 VDC / 0.85 A
TESND20-27WS48-XX			48 VDC / 0.42 A

Module	Input voltage range	Output power	Output voltage / nominal output current
TESBND15-27S3.3-XX	17...36 VDC	10 W	3,3 VDC / 3 A
TESBND15-27S05-XX		15 W	5 VDC / 3 A
TESBND15-27S12-XX			12 VDC / 1.25 A
TESBND15-27S15-XX			15 VDC / 1 A
TESBND15-27S24-XX			24 VDC / 0.63 A
TESBND15-27S24-XX			48 VDC / 0.31 A

Standard models with two outputs

Module	Input voltage range	Output power In the standard version	Output voltage / nominal output current
TESND20-12WD0505-XX	10,5...40 VDC	20 W	5 VDC / 2 A ; 5 VDC / 2 A
TESND20-12WD0512-XX			5 VDC / 2 A ; 12 VDC / 0,83 A
TESND20-12WD1212-XX			12 VDC / 0,83 A ; 12 VDC / 0,83 A
TESND20-12WD1515-XX			15 VDC / 0,67 A ; 15 VDC / 0,67 A
TESND20-12WD2424-XX			24 VDC / 0,42 A ; 24 VDC / 0,42 A
TESND20-12WD4848-XX			48 VDC / 0,21 A ; 48 VDC / 0,21 A
TESND20-27WD0505-XX	17...80 VDC		5 VDC / 2 A ; 5 VDC / 2 A
TESND20-27WD0512-XX			5 VDC / 2 A ; 12 VDC / 0,83 A
TESND20-27WD1212-XX			12 VDC / 0,83 A ; 12 VDC / 0,83 A
TESND20-27WD1515-XX			15 VDC / 0,67 A ; 15 VDC / 0,67 A
TESND20-27WD2424-XX			24 VDC / 0,42 A ; 24 VDC / 0,42 A
TESND20-27WD4848-XX			48 VDC / 0,21 A ; 48 VDC / 0,21 A

Module	Input voltage range	Output power	Output voltage / nominal output current
TESBND15-27D0505-XX	17...36 VDC	15 W	5 VDC / 1.5 A ; 5 VDC / 1.5 A
TESBND15-27D0512-XX			5 VDC / 1.5 A ; 12 VDC / 0.63 A
TESBND15-27D1212-XX			12 VDC / 0.63 A ; 12 VDC / 0.63 A
TESBND15-27D1515-XX			15 VDC / 0.5 A ; 15 VDC / 0.5 A
TESBND15-27D2424-XX			24 VDC / 0.32 A ; 24 VDC / 0.32 A
TESBND15-27D4848-XX			48 VDC / 0.16 A ; 48 VDC / 0.16 A

Standard models with three outputs

Module	Input voltage range	Output power	Output voltage / nominal output current
TESND20-12WT051212-XX	10,5...40 VDC	20 W	5 VDC / 2 A ; 12 VDC / 0.42 A ; 12 VDC / 0.42 A
TESND20-12WT051515-XX			5 VDC / 2 A ; 15 VDC / 0.33 A ; 15 VDC / 0.33 A
TESND20-27WT051212-XX	17...80 VDC		5 VDC / 2 A ; 12 VDC / 0.42 A ; 12 VDC / 0.42 A
TESND20-27WT051515-XX			5 VDC / 2 A ; 15 VDC / 0.33 A ; 15 VDC / 0.33 A

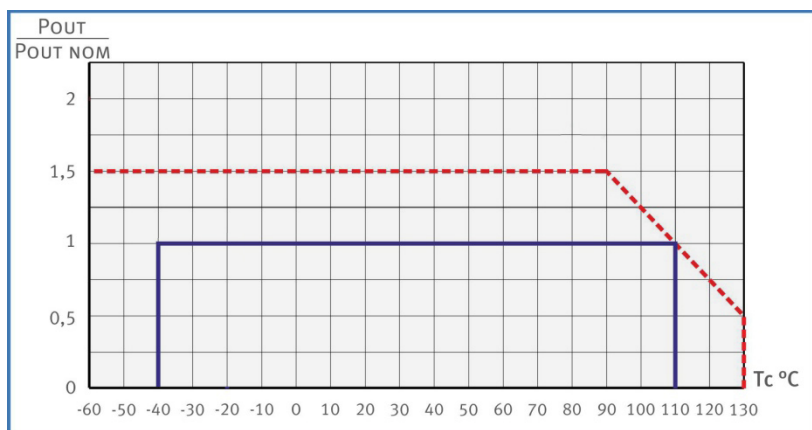
Module	Input voltage range	Output power	Output voltage / nominal output current
TESBND15-27T051212-XX	17...36 VDC	15 W	5 VDC / 1.5 A ; 12 VDC / 0.32 A ; 12 VDC / 0.32 A
TESBND15-27T051515-XX			5 VDC / 1.5 A ; 15 VDC / 0.25 A ; 15 VDC / 0.25 A

Modules with non-standard output voltage from 3 to 60 VDC.

Input specifications	
Input voltage range / transitional deviation, 1 sec 12W	=10,5...40 VDC / =9...44 VDC
Input voltage range / transitional deviation, 1 sec 27W	=17...80 VDC / =15...84 VDC
Input voltage range / transitional deviation, 1 sec 27	=17...36 VDC / =15...84 VDC
Input filter	P-type
Output specifications	
Output voltage adjustment (single-channel models only)	±5% Uout
Instability of output voltage due to input current change from 10 to 100% (for channel to which feedback is connected)	±2%
Instability of output voltage due to input current change from 30 to 100% for other channels	±12%
Instability of output voltage in accordance to changing 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...0,5 VDC or connection of output «ON» and «- IN», I≤5mA
Max capacitance for Uout=5 VDC***	1000 µF, 1300 µF for TESBND15
General specifications	
Case temperature (operating), index T	up to -60°C ...+130°C
Case temperature (storage)	-60°C ...+130°C
High humidity	100% @35 °C
Thermal resistance case — environment without heat sink	19,8 °C/W
Typical efficiency****	85%
Conversion frequency	400-500 kHz
Insulation voltage input/output	=1500 VDC
Insulation voltage input/case	=1500 VDC
Insulation voltage output/case	=1000 VDC
Insulation voltage output/output	=500 VDC
Isolation resistance @ 500 VDC	>20 MOhm
EMC standards	EN60068, MIL-STD-810F, MIL-STD-461E, EN 55022, class A; EN 55022, class VDC with additional filter
Safety standards	IEC/ EN 60950
Typical MTBF (Tcase = 50°C; Pout = 0,7 Pout max)	200 000 hrs
Cooling metod	Free air convection or forced air cooling
Weight (max)	22 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 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.
- **** Typical efficiency - for input 12 VDC (input range 12 W), 27 VDC (input range 27 W) and output 5 VDC, output power is 0.7*Pmax, Tcase +60°C.

Maximum power output as a function of ambient temperature



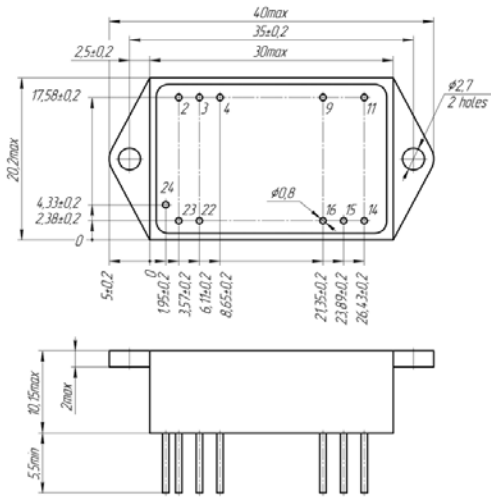
Allowed power output and case temperature range for standard version of unit.

Possible range of output power for special order.

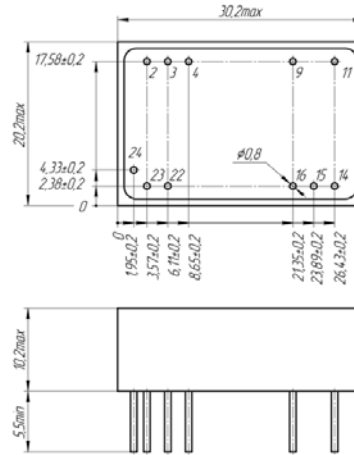
For modeling optimal heatsink and its delivery, with goal of providing allowed case temperatures, please contact us directly aeps@aeps-group.cz.

Nº Pin	2,3	4	9	11	12	13	14	15	16	18	19	22,23	24
Single output	- IN	ON	NOT USE	NOT USE	-	-	+OUT	ADJ	-OUT	-	-	+IN	CASE
Dual output	- IN	ON	+OUT2	-OUT2	+FB	-FB	+OUT1	ADJ-	-OUT1	-	-	+IN	CASE
Three output	- IN	ON	-OUT2	-OUT3	+OUT2	+OUT3	+OUT1	+OUT1	-OUT1	-FB	+FB	+IN	CASE

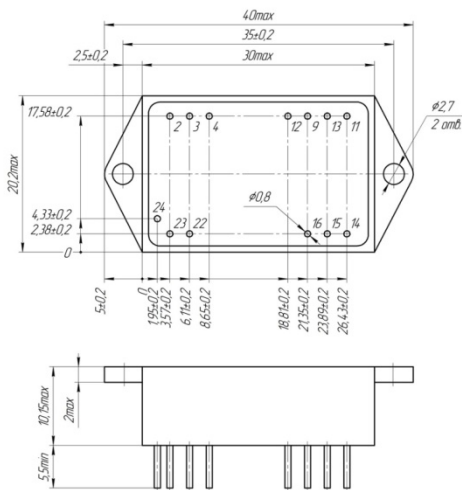
Single output model with flanges (I case type)



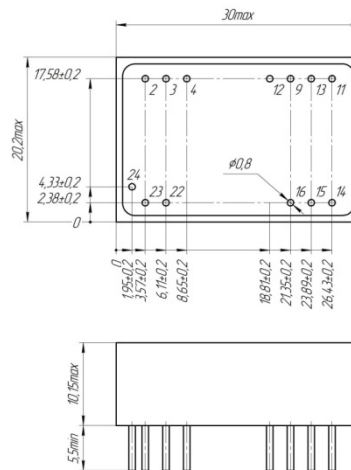
Single output model without flanges (I case type)



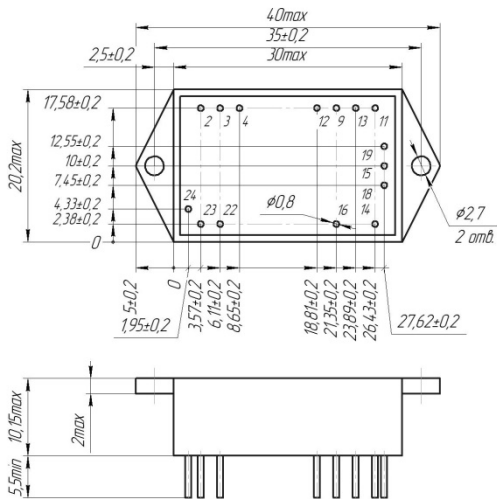
Dual output model with flanges (I case type)



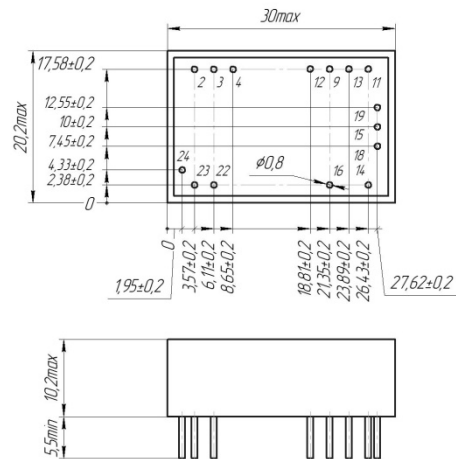
Dual output model without flanges (I case type)



Three output model with flanges (I case type)



Three output model without flanges (I 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.goncharov-jet.com>.

Contact information

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Special Requirements

