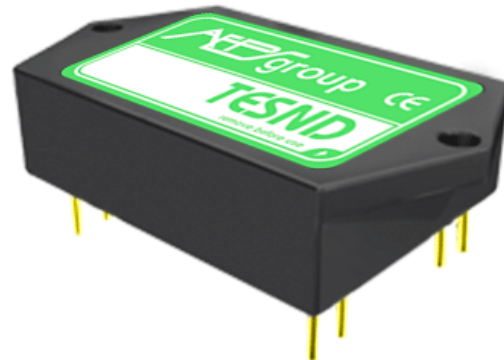


## Features

- Up to 20 W nominal output power
- 30x20x10 (mm) metal aluminum case (size is without flanges)
- Versions with/without mounting holes
- Low Profile version (LP) of 8.5 mm height available on request
- Case operating temp. range up to -60° to +130° C on request
- Efficiency up to 89 %
- Adjustable output voltage
- No minimal load required, low input no-load current
- Remote on/off



## Description

**TESND20-F1** are the series of isolated DC/DC converters meant to work under both heavy electrical and environmental conditions. **Up to 20 Watts** of power packed in **30x20x10 (mm) case** offers you flexibility of wide input range with both extremely low and high case temperatures of **-40° to +110° C**. The units feature a system of over-current and short-circuit protection and over-voltage protection. Standard functions include remote on/off, energy-saving zero-load operation. The units maintain high efficiency across broad load range. Its versatility allows you to implement the converter in a vast number of industrial applications, supplying capacitive, constant-power and impulse load.

## Models specification

10 W					
Model	Input voltage range*	Power nom.**	Output voltage nom.***	Output current nom.	Efficiency typ.
TESND10 - 27W S3.3-F1	15-50 VDC (80 VDC transient)	6.6 W	3.3 V	2.00 A	84 %
TESND 10 - 27W S05-F1		10 W	05 V	2.00 A	85 %
TESND 10 - 27W S12-F1		10 W	12 V	0.83 A	88 %
TESND 10 - 27W S15-F1		10 W	15 V	0.67 A	88 %
TESND 10 - 27W S24-F1		10 W	24 V	0.42 A	88 %
TESND 10 - 27W S0505-F1		10 W	±05 V	1.00 A	84 %
TESND 10 - 27W S1212-F1		10 W	±12 V	0.42 A	84 %
TESND 10 - 27W S1515-F1		10 W	±15 V	0.33 A	84 %
TESND 10 - 27W S2424-F1		10 W	±24 V	0.21 A	84 %
TESND 10 - 27W S0505-F1		10 W	±05 V	1.00 A	84 %

# TESND20-F1, LP

15 W					
Model	Input voltage range*	Power nom.**	Output voltage nom.***	Output current nom.	Efficiency typ.
TESND 15 - 27W S3.3-F1	15-50 VDC (80 VDC transient)	9.9 W	3.3 V	3.00 A	85 %
TESND 15 - 27W S05-F1		15 W	05 V	3.00 A	88 %
TESND 15 - 27W S12-F1		15 W	12 V	1.25 A	89 %
TESND 15 - 27W S15-F1		15 W	15 V	1.00 A	89 %
TESND 15 - 27W S24-F1		15 W	24 V	0.63 A	89 %
TESND 15 - 27W S0505-F1		15 W	±05 V	1.50 A	85 %
TESND 15 - 27W S1212-F1		15 W	±12 V	0.63 A	85 %
TESND 15 - 27W S1515-F1		15 W	±15 V	0.50 A	85 %
TESND 15 - 27W S2424-F1		15 W	±24 V	0.31 A	85 %
20 W					
Model	Input voltage range*	Power nom.**	Output voltage nom.***	Output current nom.	Efficiency typ.
TESND 20 - 27W S3.3-F1	15-50 VDC (80 VDC transient)	13.2 W	3.3 V	4.00 A	85 %
TESND 20 - 27W S05-F1		20 W	05 V	4.00 A	88 %
TESND 20 - 27W S12-F1		20 W	12 V	1.67 A	89 %
TESND 20 - 27W S15-F1		20 W	15 V	1.33 A	89 %
TESND 20 - 27W S24-F1		20 W	24 V	0.83 A	89 %
TESND 20 - 27W S0505-F1		20 W	±05 V	2.00 A	85 %
TESND 20 - 27W S1212-F1		20 W	±12 V	0.83 A	85 %
TESND 20 - 27W S1515-F1		20 W	±15 V	0.67 A	85 %
TESND 20 - 27W S2424-F1		20 W	±24 V	0.42 A	85 %

\* Models with custom input voltage range may be provided on request.

\*\* Units with output power up to 30 W may be provided on request.

\*\*\* Models with custom output voltage may be provided on request.

# TESND20-F1, LP

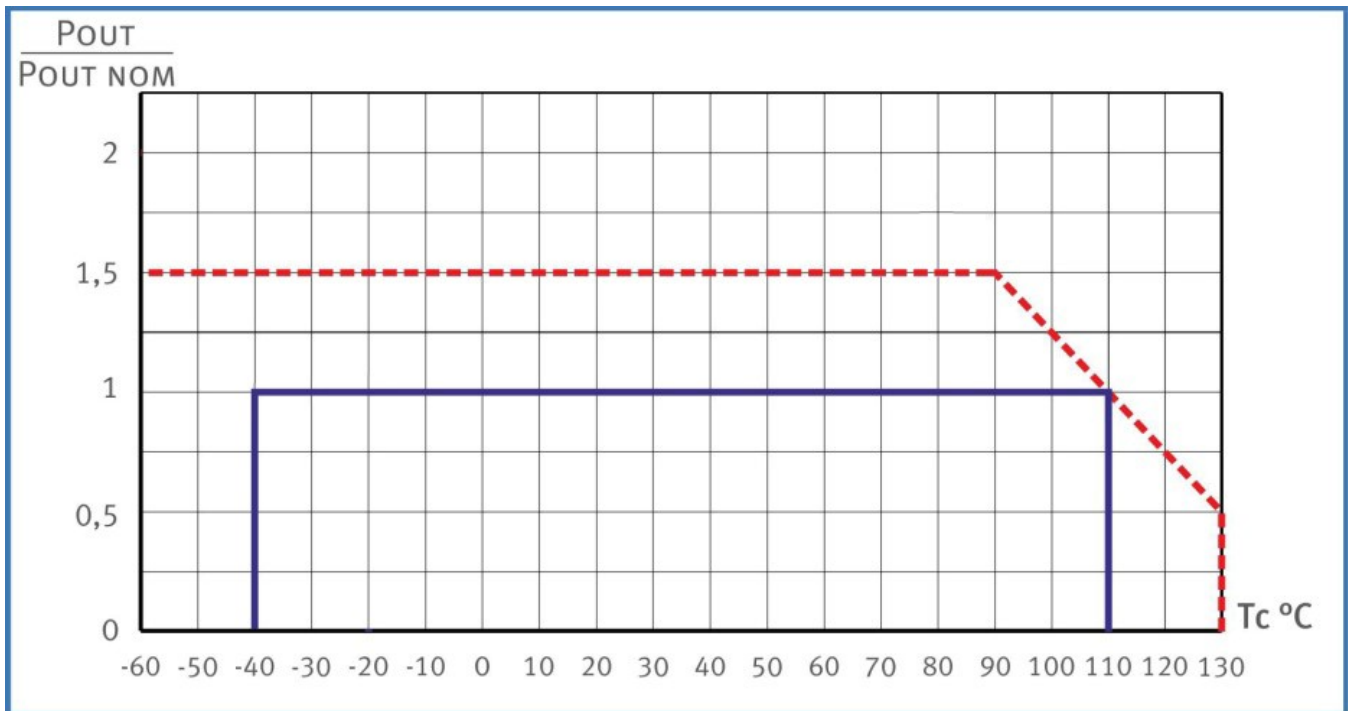
General specifications		
Switching frequency		500 kHz typ. (PWM modulation)
Temperature ranges	operating case temp.	-40° C to +110° C (up to -60° C to +130° C on request)
	storage temp.	-60° C to +130° C
Over-temperature protection		+115° C typ.
Cooling method		Natural convection or forced air cooling
Thermal resistance	natural convection without heatsink	19.8 K/W typ.
Humidity (non-condensing)		5-95 % rel. H
Insulation	input/output	1500 VDC
	input/case	1500 VDC
	output/case	1000 VDC
Isolating resistance @ 500 VDC		>20 MOhm
Thermal shock, mechanical shock & vibration		MIL-STD-810F
Safety standards		IEC/EN 60950-1
Typical MTBF (Tcase = 50° C; Pout = 0.7·Pout,max)		190 000 h
Weight (max)		22 g

Input specifications		
Input voltage range - standard**	27W	15-50 VDC (1s transient 80 VDC)
Start-up voltage for 27W input range		Start-up at <15 VDC
EMC standard compliance*		MIL-STD-461F, EN 55022 - class A (class B with JETDF10 filter)

Output specifications		
Output voltage adjustment	range	±5 %
Output voltage regulation	input variance Uin,min to Uin,max	±0.5 %
	load variance 10 % to 100 %	±2 %
Ripple and noise (peak-to-peak)	20 MHz bandwidth	<2 %
Protection	over-load	<130 % of Pout,nom
	short-circuit	>150 % of Iout,nom with automatic recovery
	over-voltage	<130 % Uout
Capacitive load (max)	12 VDC model:	typ. 4 500 uF
Minimum load		Not required
Remote On/Off	method	Connect ON to -IN or apply 0-0.5 VDC to ON

\* See product page for DC/DC filters at [www.aeps-group.com](http://www.aeps-group.com). \*\* Units with custom input voltage ranges may be provided on request; Please contact the tech. team at [aeps@aeps-group.cz](mailto:aeps@aeps-group.cz) for more information. All specifications are valid for normal climatic conditions, nominal output voltage and current, unless otherwise stated.

## Maximum output power based on case temperature



—— Standard maximum power output based on case temperature.

- - - Possible range of output power for customized product.

### Note:

Before attaching a heatsink, the product label on converter has to be removed for optimal performance. Thermal paste or a thermal pad must be placed between the unit surface and a heatsink for quality contact. Please contact us for choosing these components and their application.

For volume orders we can supply the converters with heatsink already mounted.

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

## Dimensions

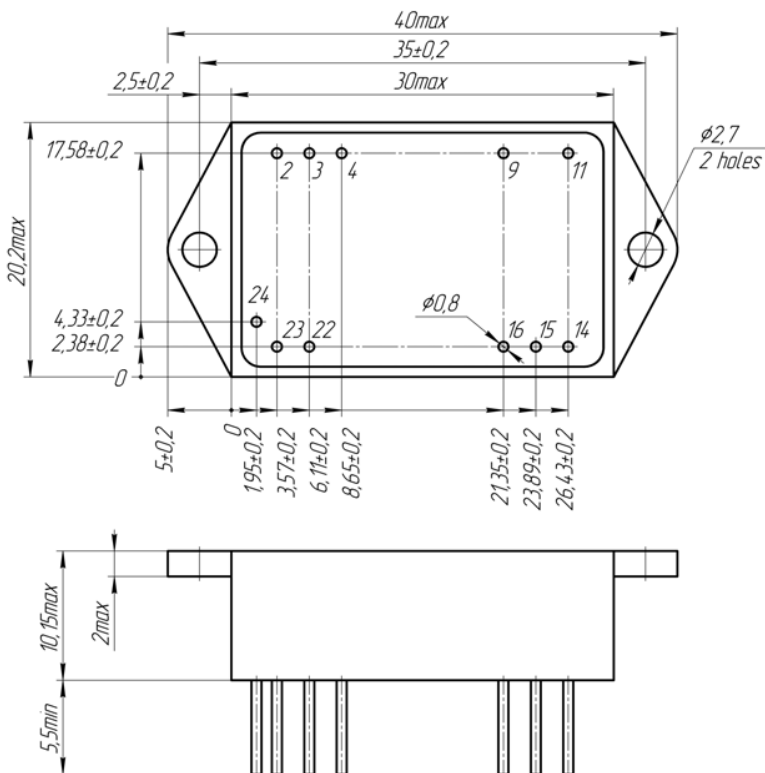
Case dimensions (without flanges)	
<b>L</b>	30,2 max
<b>W</b>	20,2 max
<b>H</b>	10,15 max (LP 8,5)

Single Output									
<b>Pin #</b>	<b>2,3</b>	<b>4</b>	<b>9</b>	<b>11</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>22,23</b>	<b>24</b>
<b>Pin name</b>	-Vin	On/Off	N.C.	N.C.	+Vout	Trim	-Vout	+Vin	GND

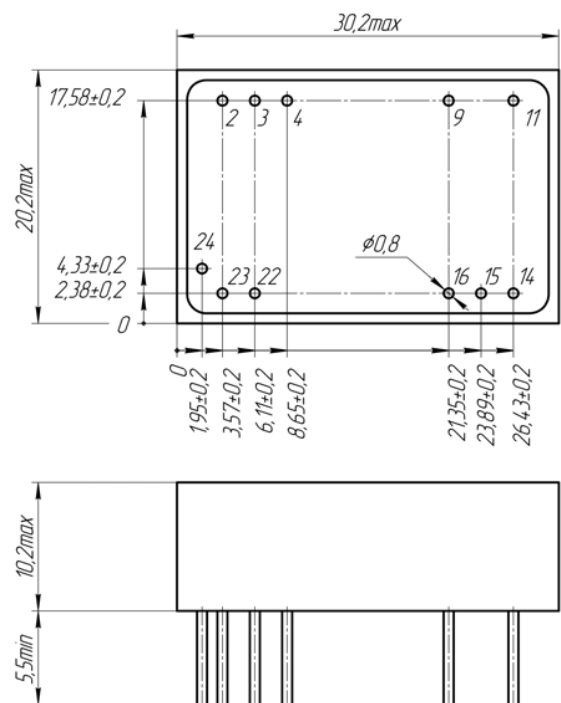
Dual Output									
<b>Pin #</b>	<b>2,3</b>	<b>4</b>	<b>9</b>	<b>11</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>22,23</b>	<b>24</b>
<b>Pin name</b>	-Vin	On/Off	+Vout2	-Vout2	+Vout1	Trim	-Vout1	+Vin	GND

- 1) Dimensions in mm.
- 2) Pin diameter  $\phi 0,8$ .
- 3) Flanges mounting holes: 2 x  $\phi 2,7$ .

(1) With flanges



(2) Without flanges



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## Additional information

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 at <http://www.aeps-group.com> or provided via an email request at [aeps@aeps-group.com](mailto:aeps@aeps-group.com).

According to company’s policy in view of constant improvements of the production design the manufacturer reserves the right to change the contents of specifications and promotional materials without prior notice! Make sure you are using the latest documentation downloadable at <http://www.aeps-group.com>.

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