

Features

- Output power up to 154 W
- Operating case temperature -40 ... +90 °C
- Case dimensions:
135 x 70 x 20 (mm)
- CNC milled case
- AC input "415" 3-phase without neutral
- Aluminum case with Yellow Chromate coating (Alodine) and pin-side EM shield



Description

JETNA-MIL-150 is a 3-phase PCB mounted AC/DC isolated unit, meant for operation in harsh environmental conditions. The combination of electro-technical and mechanical parameters creates versatility for the series to be used in various application fields: both low and high altitude in unprotected equipment compartments, in all types of transport, in supercomputers, in low and high temperature environments, digital signage equipment, in radar systems. The series is an optimal fit for any environment which requires low-profile, minimized dimensions and weight, high efficiency and wide temperature range.

3ph. AC/DC custom power supply unit, 154 W					
Model part number	Input voltage	Output power	Output voltage	Output current	Typical efficiency at 70 % load
JETNA-MIL-150-415S28	3 phase 353-478 VAC (415 VAC nom.)	154 W	28 VDC	5.5 A	91.5 %

Important parameters

1.1 Input connection	Three phase with ground without neutral	
1.2 EMC compliance	MIL-STD-461F CE102 built-in filter. See graphs on page 4.	YES
1.3 Insulation	in/case 1500 VAC, in/out 2000 VAC, out/case 500 VAC	
1.4 No load consumption	typ. 2.3 W	

2.1 Ripple and noise	TARGET: <0.3 %pp (84 mVpp); ACHIEVED	YES
2.2 Regulation	TARGET: <0.5 % for Uin min-max and for Iout 10-100%; ACHIEVED: <0.2 %	YES

3.1 Case operating temp.	-40 to +90 °C, preferred cooling method via heatsink or coldplate	
3.2 Case type	Aluminum case, Yellow Chromate coating (Alodine) and pin-side EM shield	
3.2 Remote ON/OFF	Unit is shut down by applying 3-5VDC (2-10 mA) to +REM, -REM pins	YES

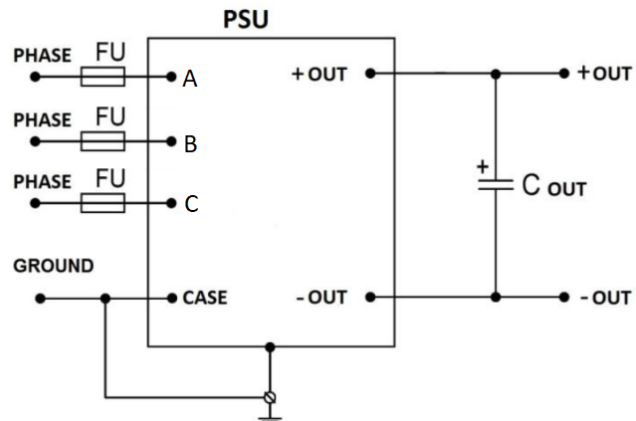
General characteristics ³		
Switching frequency		100 kHz typ. (PWM modulation)
Temperature ranges	case operating temperature	−40 °C to +90 °C
	storage temperature	−60 °C to +125 °C
Over-temperature protection		+90 °C typ., auto-recovery
Thermal mode and cooling method		conductive (to be mounted on a heatsink / coldplate)
Thermal resistance	case to ambient	-
Humidity (non-condensing)		5-95 % rel. H
Insulation	in/case	1500 VAC
	in/out	2000 VAC
	out/case	500 VAC
Isolating resistance @ 500 VDC		>20 MOhm
Thermal shock, mechanical shock & vibration		MIL-STD-810F
Safety standards		IEC/EN 60950-1
Typical MTBF	Pout = 0.7·Pout,max	350 000 hrs (Tcase = 25° C)
Weight (max)		260 g
Input characteristics ³		
Input voltage range	"415" 3 ph. and ground	3ph. 353-478 VAC without neutral, 50 Hz
Start-up input voltage	-	typ. 350 VAC
EMC standard compliance ¹	MIL-STD-461F CE102 built-in	
Output characteristics ³		
Power derating based on input voltage	-	-
Output voltage adjustment	±5 % via ADJ output (see drawing)	
Output voltage regulation ²	input variance Uin,min to Uin,max	see table "Important parameters"
	load variance 10 % to 100 %	see table "Important parameters"
Ripple and noise (peak-to-peak)	20 MHz bandwidth	see table "Important parameters"
Protection	over-current	auto-reset at 105-135 % of Iout,nom
	over-voltage	<130 % Uout
Capacitive load (max)	at 50% load	30,000 uF typ.

1. -

2. -

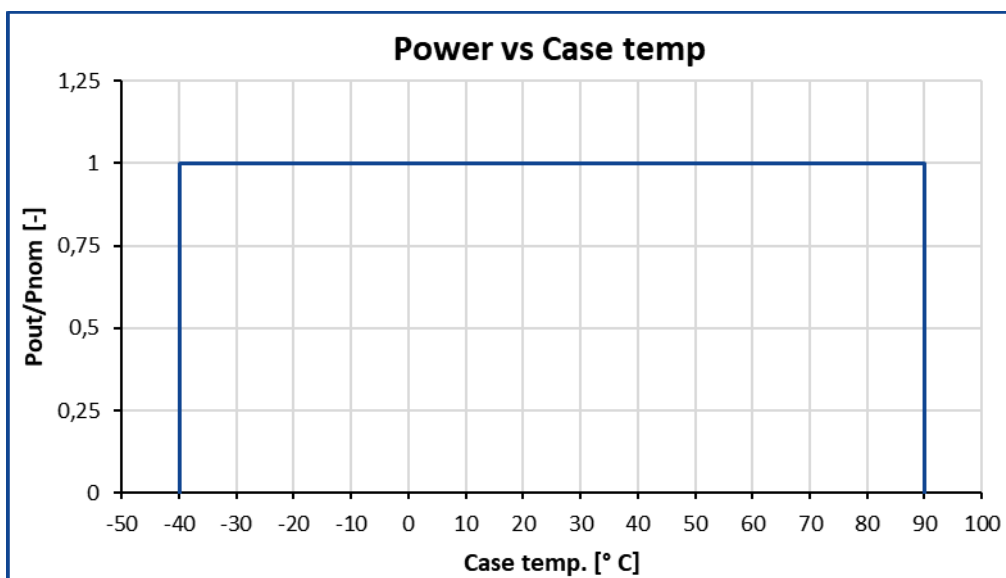
3. All specifications are valid for normal climatic conditions, nominal output voltage and current, unless stated otherwise.

Minimal connection scheme

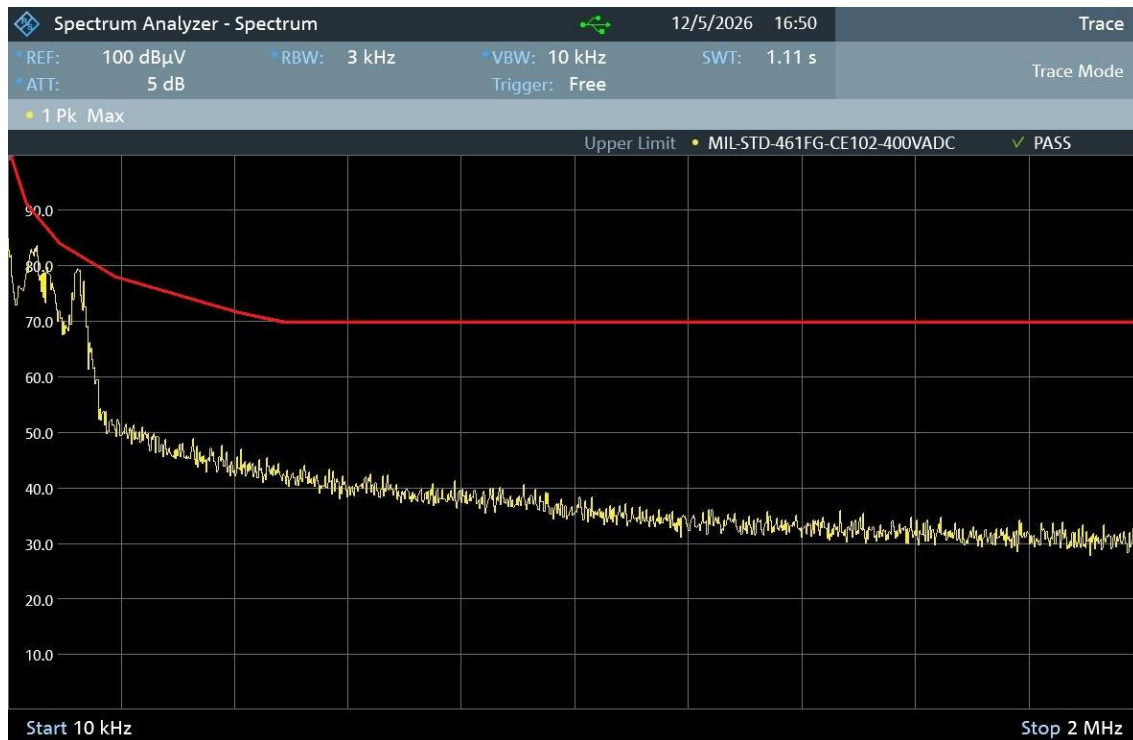


In any system application it's necessary to use protection fuses.

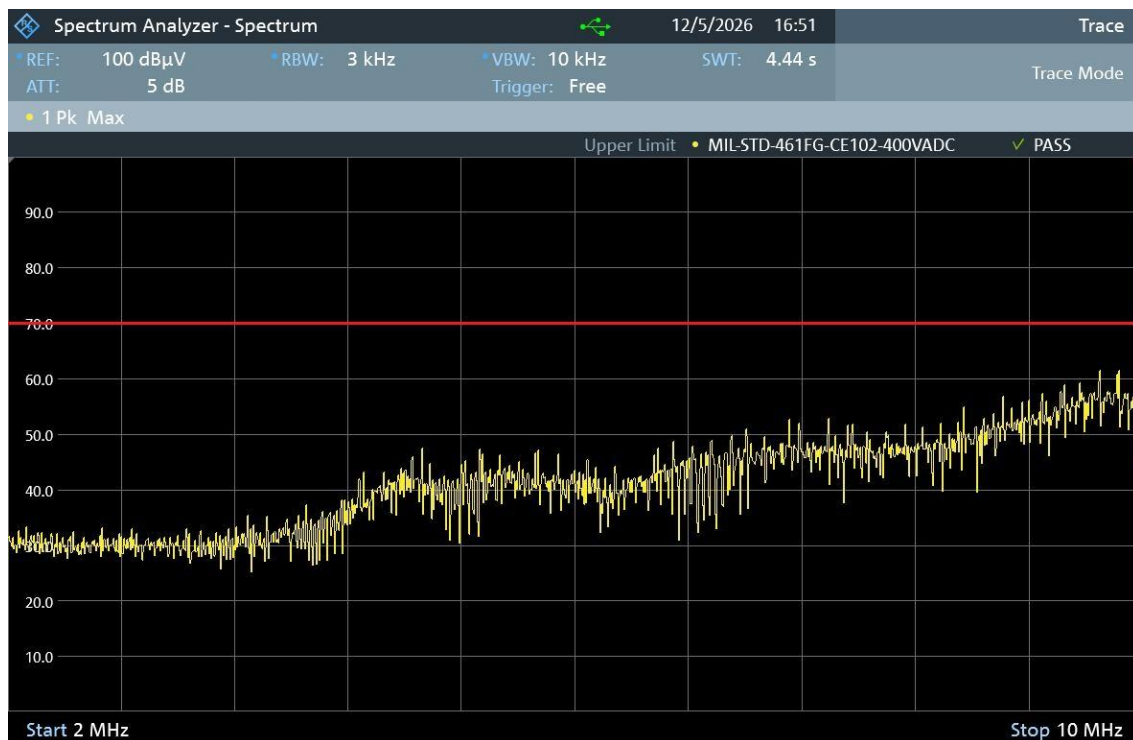
Power-temperature relationship



CE102 EMC compliance, measured in-house



CE102 measurement – 10 kHz to 2 MHz



CE102 measurement – 2 MHz to 10 MHz

Additional application information

1. Value of case temperature

The case temperature is measured at the middle of the long side of the case base. When using a thermocouple, it is necessary to attach the thermocouple conductors to the base surface at a distance of at least 20 mm from thermocouples head. **The thermocouple measuring end and its conductors must be covered with a layer of heat-conducting paste 2-3 mm thick to provide correct measurements.**

2. Possible cooling methods

The product must be mounted on an aluminum (or copper) **heatsink or coldplate, with base at least 4 mm thick.**

To use the units without a heatsink it's necessary to consult with the producer.

Most of the unit's dissipated heat (93-95 %) is concentrated **on the BOTTOM SIDE of the unit (fully metal surface)** which must be attached to the heatsink-coldplate or ribbed heatsink surface. Requirements for the heatsink surface (preferably CNC milled) - flatness tolerance of the heatsink surface must be lower than 0.1 mm per 100 mm of length.

3. Unit heatsink fixation

If 4 mounting holes are available, then first one pair of diagonally located holes is connected with screws, then a second pair. First installation of the screws should be done without force. Then all the screws should be tightened with the recommended torque.

For quality contact between the unit and a heatsink - it's necessary to use thermal conductive paste with thickness less than 0.1 mm, with thermal conductivity **greater than 2 W/K.m**. The paste must be applied with mesh stencil in a pattern of squares (i.e. 2x2 mm to 4x4 mm squares mm with 0.5-1 mm spacing between the squares). This allows paste to be evenly spread in a thin layer and excess air to escape when tightening screws during unit mounting.

4. Short-term unit operation

If it's necessary to shortly turn on the unit for 3-5 minutes (for example for input-control testing), an aluminium (copper) coldplate must be used as a heatsink. Its width and length must be not less than of the unit itself, with thickness at least 12 mm. The unit must be placed on coldplate through a thin (0.15-0.3 mm) silicone-based heat-conducting sheet.

5. Thermal protection tripping

When internal unit's thermal protection is tripped the unit is turned off (until automatic restart) and "OGOOD" outputs state becomes high-resistance (where available). **Such state should lead to measures of forced heatsink cooling, for example via fans turn-on.** Time before automatic restart of the unit after thermal protection tripping can last from several seconds up to several minutes depending on thermal inertia of the heatsink. **For units meant to operate in airtight equipment** - on request it's possible to include **additional thermal sensor** to monitor ambient temperature of air closest to the unit's surfaces.

6. Operation with shorted outputs

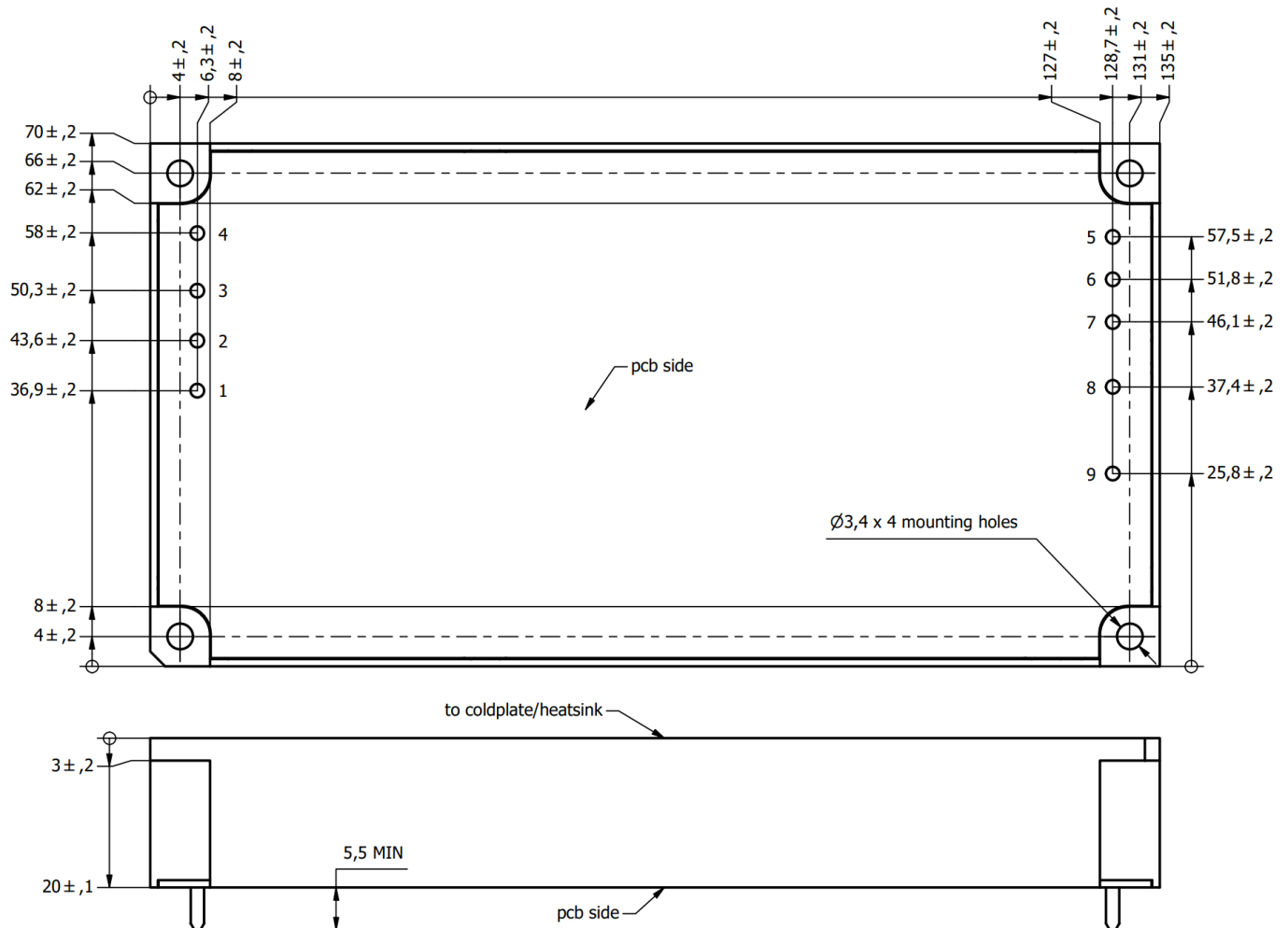
The units have a short-circuit output protection. **The protection is for emergency only, not for long-term operation. It's prohibited to use the units with shorted outputs (the units have the special detectors inside).**

If you have any questions, please contact us directly at aeps@aeps-group.cz.

Dimensions

1	2	3	4	5	6	7	8	9
A	B	C	CASE	+REM	-REM	ADJ	+OUT	-OUT

Dimensions in millimeters, 4 installation holes, PCB mounting only.



Additional information

After ordering the product - the customer is fully responsible for applying the product in strict compliance with mentioned rules and principles of use in the product datasheet and reference technical material (RTM) which is downloadable at www.aeps-group.com.

Please, note that all information in this material is for reference only. Further detailed information (including: additional requirements, manuals and circuit schemes, etc.) is found at www.aeps-group.com or provided via an email request at aeps@aeps-group.cz. All pictures shown are for illustration purpose only, actual product appearance may vary, incl. inner components choice and placement and connectors placement.

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