

PRODUCT CATALOGUE

DC/DC converters • AC/DC power supplies • EMI and Current Filters • Custom Design



CONTENTS

- 4 About Company
- 6 Quick Selection Guide

- 11 **DC/DC Converters**
- 12 MDN, SIP-package converters
- 16 MDR, ultra-compact converters
- 24 MDVH, high voltage input converters
- 30 MDV, multi-purpose compact converters
- 40 MDA, pulse load power supplies

- 43 **AC/DC Power Supplies**
- 44 KAP & KAN power supply systems
- 48 KAN-D, DIN-rail mountable power supplies
- 54 MAA, low-profile power supplies

- 67 **EMI and Current Filters**
- 68 ATF Family
- 69 KKM Family
- 70 KAD Family
- 71 MDF Family

- 73 **Custom Design**

ABOUT COMPANY



ENERGY ELECTRONICS

NPO Energy Electronics, LLC is a leading Russian group with more than 15 years of experience in power electronics, specialized in design, development and production of power systems for harsh environments and most crucial applications. The company's headquarters is located in Voronezh, Russia.

We have our own R&D house, design bureau and educational center, production facilities which consist of two manufacturing sites, marketing center and distribution company.

Our company is located on privately owned 10'000 m² and has more than 400 employees in Voronezh, Moscow, Izhevsk and Saint-Petersburg. Having several independent development teams allows us to make many diverse R&D works at the same time for different customers worldwide.

The company has over 15'000 serial power supply units in its portfolio and over 100 of successfully implemented customized power supply systems.

AEDON, LLC is the biggest Russian company which is specialized in design and development of Hi-rel and compact DC/DC converters for crucial applications that are able to operate in harsh environments and meet the most demanding customer's needs. The product portfolio consists of converters with an output power range from 1 to 3000 W. The company has also a vast experience in development of custom-designed products.

KW SYSTEMS, LLC is a specialized manufacturer of a wide range of AC/DC power supplies, UPS, chargers and power systems with an output power from 25 W to 100 kW. More than 15 years of experience in power electronics and systems design allows our engineers to develop a custom-designed power product or a complete system in short terms.

Dec, 1999 – Foundation of the production company "Alexander Electric" as a manufacturer of power supply units and power converters for special purpose equipment.

Jan, 2003 – Acquisition of certificates and licenses for manufacturing products by the order of the Ministry of Defense of the Russian Federation. Product output reached 10'000 pcs/year.

Aug, 2007 – 2nd generation modules developed and brought into serial production. The contract was signed for supply of products by custom order of the Russian Railways.

Jun, 2012 – Establishment of the Scientific and Production Association "Energy Electronics" as a new holding enterprise.

May, 2013 – 3d generation modules developed and brought into serial production.

Dec, 2013 – Establishment of "KW Systems, LLC" as new project within "Energy Electronics". The main goal is design and manufacture of power supply modules for the new market segments.

Aug, 2015 – 4th generation modules developed and brought into serial production. The construction of new production facilities begins.



QUICK SELECTION GUIDE

DC/DC converters

MDN, SIP-package converters

Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
MDN5	2; 3; 5	5; 12; 24; 48	3,3; 5; 9; 12; 15	1500 VDC	80%	-55...+105°C	22,3×12,1×9,8	13
MDN10	10	12; 24; 48			85%		22,3×12,1×10	14

MDR, ultra-compact converters

Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
MDR10	6; 10	12; 28; 48	3,3; 5; 9; 12; 15; 24; 28; 48	1500 VDC	89%	-60...+125°C	24,1×14×8,5	17
MDR25	15; 25	12; 24; 28; 48	5; 9; 12; 15; 24; 28; 48		89%		30×20,2×10,25	18
MDR50	40; 50				91%		40×30,2×10,25	19
MDR100	75; 100				91%		47,5×33,2×10,25	20
MDR160	120; 160		12; 15; 24; 28; 48		91%		57,5×40,2×10,25	21
MDR300	250; 300	12; 28; 48			91%		72,5×52,7×12,85	22
MDR500	400; 500				92%		95×67,7×12,85	23

MDVH, high voltage input converters

Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
MDVH40	30; 40	110 (82...154)	5; 12; 15; 24; 48	1500 VAC	86%	-60...+125°C	72,5×52,7×12,85	25
MDVH160	80; 120; 160	270 (175...350)			88%		95×67,7×12,85	26
MDVH500	320				88%		110×84,2×12,85	27
	400		12; 15; 24; 48					
	500		15; 24; 48					
MDVH1000	1000	110 (82...154)	28; 48		93%		168×110×16	28
		270 (175...350)	24; 28; 48					

MDV, multi-purpose compact converters

Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
MDV8	3; 5; 6; 8	12; 24; 28	5; 12; 15; 24; 28	500 VAC	83%	-60...+125°C	30×20,2×10,15	31
MDV12	10; 12				86%		40×30,2×10,15	32
MDV25	15; 20; 25				87%		47,5×33,2×10,15	33
MDV50	30; 40; 50				91%		57,5×40,2×10,15	34
MDV80	60; 80	12; 28; 48			89%		72,5×52,7×12,85	35
MDV160	120; 160				89%		95×67,7×12,85	36
MDV500	320; 400		12; 15; 24; 28; 48		89%		110×84,2×12,85	37
	500		15; 24; 28; 48					
MDV1000	1000	28; 48	24; 28; 48		92%		168×110×16	38

MDA, pulse load power supplies

Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
MDA500	340	28; 54; 300	9; 12; 28; 36; 40; 50	500 VDC	90-92%	-60...+125°C	105,1×38×12,85	41
	500		28; 36; 40; 50					

AC/DC power supplies

KAP, power supply units

Models	Output Power, W	Input Voltage Range, VAC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
KAP10	10000	90..264	30 (20..30)	3000 VAC	94%	-20...+50°C	603,6×482,6×132,5	-
KAP15	15000	323...418	60 (30..60)		94%	-20...+50°C		603,6×482,6×222
KAP20	20000	323...418	250 (50...250)		94%	-20...+50°C	-	
KAP25	25000		300 (60...300)		94%	-20...+50°C	-	
KAP30	30000		94%		-20...+50°C	-		

KAN, power supply units

Models	Output Power, W	Input Voltage Range, VAC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
KAN5000	5000	90..264 323...418	30 (20..30) 60 (30..60) 250 (50...250) 300 (50...300)	3000 VAC	94%	-20...+50°C	475×145×64,5	46

KAN-D, DIN-rail mountable power supplies

Models	Output Power, W	Input Voltage Range	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
KAN-D50	50	80...264 VAC 112...372 VDC	12; 24; 48	1500 VAC	88%	-50...+70°C	132×131×33	49
KAN-D150	150				89%		132×131×40	50
KAN-D300	300				89%		132×131×45	51
KAN-D600	600				90%		132×131×90	52

MAA, low-profile power supplies

Models	Output Power, W	Input Voltage Range, VAC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page	
MAA30	30	187...242	5; 9; 12; 15; 24; 28	1500 VAC	85%	-50...+85°C	101×51×20	55	
MAA75	60, 75				94%		111×61×23,5	56	
MAA250	150; 200; 250				89%		134×84×33	57	
MAA600	500; 600		100...264 187...242		15; 24; 28; 48		91%	175×93×35	58
MAA1000	800; 1000						89%	211×117×41	59
MAA1500	1200; 1500						90%	250×140×41	60
MAA3000	3000						92%	250×140×50	61
MAA500 3ph	500	323...437	9; 12; 15; 24; 28	85%	175×93×35	62			
MAA1500 3ph	1500		24; 28; 48	88%	250×140×41	63			
MAA3000 3ph	3000		92%	250×140×50	64				

QUICK SELECTION GUIDE

EMI and Current Filters

ATF Family

Models	Throughput current, A	Input Voltage, VDC	Transient Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
ATF200	8,3	12 (9...18)	–	500 VDC	min 92%	–60...+125°C	120,9×38×12,85	68
ATF400	16,7	27 (18...36)						
		60 (36...72)						
		300 (200...340)						
				1500 VAC				

KKM Family

Models	Throughput current, A	Input Voltage, VDC	Transient Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
KKM200	0,53	220 (187...242)	176...264 @ 1 s	1500 VDC	min 92%	–60...+125°C	120,9×38×12,85	69
KKM400	1,05							

KAD Family

Models	Throughput current, A	Input Voltage, VDC	Transient Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
KAD500	2,7	220 (187...242)	176...264 @ 1 s	1500 VAC	min 98%	–60...+125°C	120,9×38×12,85	70

MDF Family

Models	Throughput current, A	Input Voltage, VDC	Transient Voltage, VDC	Isolation Voltage	Typical Efficiency	Operating Temperature	Dimensions, mm	Page
MDF1	2,5	10,5...36	10,5...40 @ 1 s	500 VAC	98%	–60...+90°C	30,2×20,2×10,2	71
MDF2	5	17...72	17...84 @ 1 s				40,2×30,2×10,2	
MDF3	10						47,7×33,2×10,2	
MDF4	20						57,7×40,2×10,2	

DC/DC CONVERTERS

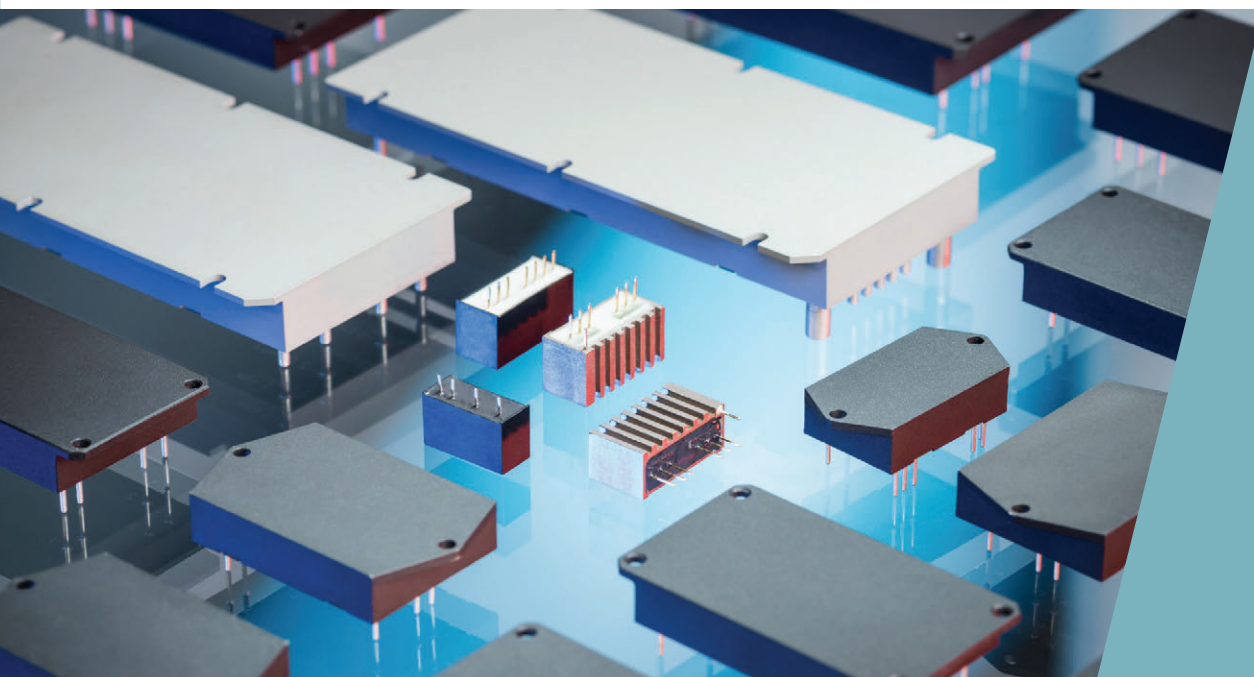
MDN, SIP-package converters

MDR, ultra-compact converters

MDHV, high voltage input converters

MDV, multi-purpose compact converters

MDA, pulse load power supplies

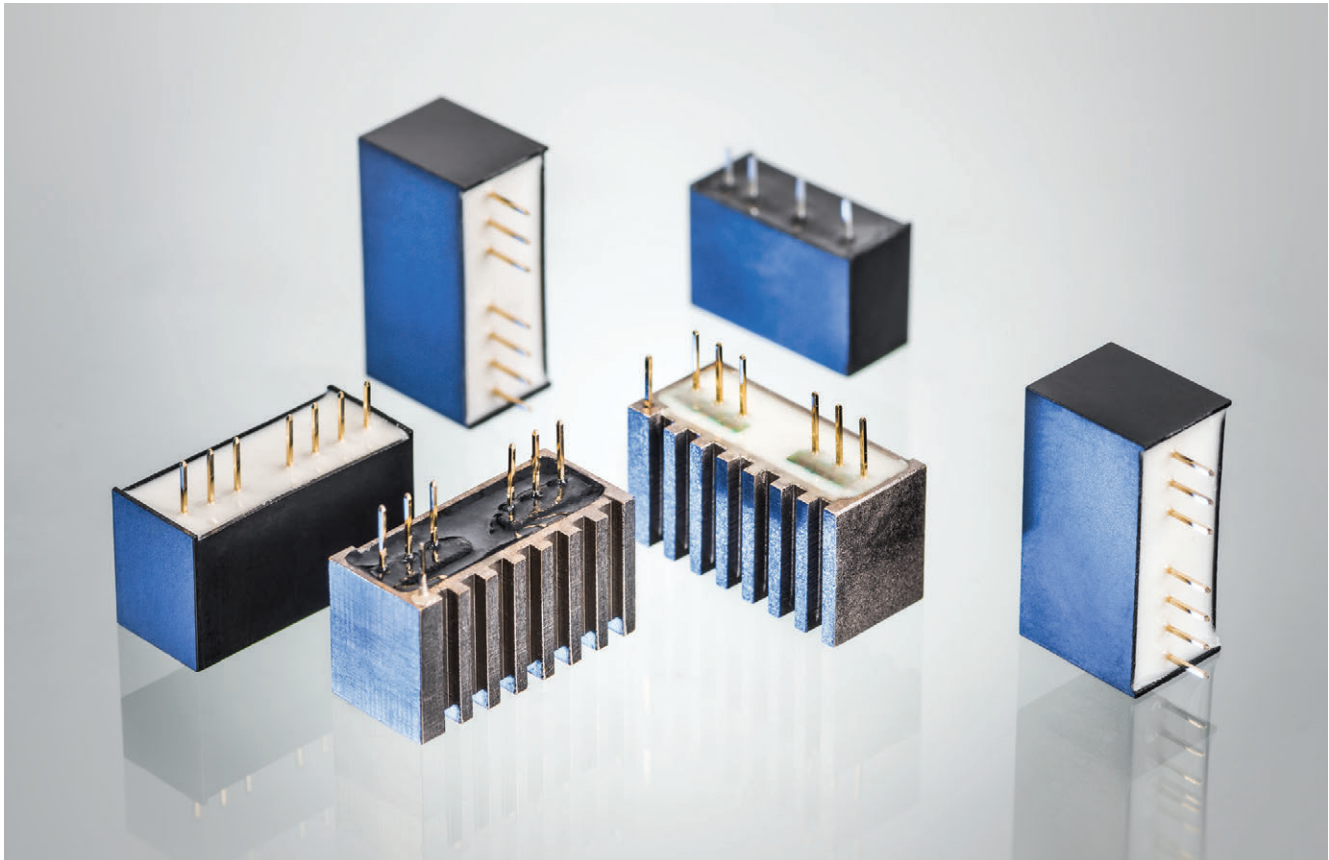


Within Energy Electronics company DC/DC converters are developed and manufactured by AEDON, LLC – the leading Russian manufacturer of modular power supply units and systems.

Product range of over 10 000 serial items and a dozen of product lines allow to implement almost any solution of high quality power supply in industrial and crucial applications.

Special attention in the company is paid to customized solutions. Extensive experience in development of customized power supply systems and quick adapting feature of serial products for individual requirements allow to create complex customized systems of power supply within very short lead time period.

MDN Family, SIP-package converters



Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency (5 VDC output)	Dimensions, mm	Status
MDN5	2; 3; 5	5; 12; 24; 48	3,3; 5; 9; 12; 15	1500 VDC	80%	22,3×12,1×9,8	serial production
MDN10	10	12; 24; 48			85%	22,3×12,1×10	under development

DESCRIPTION

MDN is a Family of isolated DC/DC converters with output power from 2 to 10 W and wide input voltage range (up to 4:1 range). These products are produced in a compact SIP-package with small footprint.

An excellent efficiency allows wide range operating temperature. These units are designed for the most crucial applications and optimized for operating in harsh environment.

FEATURES

- Compact SIP package
- Wide input voltage range
2:1 for 2 to 5 W
4:1 for 10 W
- Case temperature $-55...+105^{\circ}\text{C}$
- High efficiency
- Metal, plastic cases



Description of MDN Family
on the manufacturer's website:
eng.aedon.ru/pr-low-power.php

MDN5

FEATURES

- Compact SIP-8 package
- Wide input voltage range (2:1)
- Case temperature $-55...+105^{\circ}\text{C}$
- Remote on/off
- High efficiency
- Metal, plastic cases
- PFM topology

MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
2 W	5 (4,5...9) 12 (9...18) 24 (18...36) 48 (36...75)	4...15 @ 1 s 8,5...36 @ 1 s 17...50 @ 1 s 34...100 @ 1 s	3,3	0,6
			5	0,4
			9	0,22
			12	0,16
			15	0,13
3 W			3,3	0,9
			5	0,6
			9	0,33
			12	0,25
			15	0,2
5 W			3,3	1,5
			5	1
			9	0,55
			12	0,416
			15	0,33

GENERAL SPECIFICATIONS

Voltage set accuracy	max $\pm 2\%$
Line and load regulation	max $\pm 2\%$
Temperature regulation	max $\pm 2\%$
Total regulation	max $\pm 2,5\%$
Ripple and noise (p-p)	max 2% $U_{out. nom.}$
Remote on/off	2...4 mA to "ON" ref. to "-IN"
Case operating temperature	$-55...+105^{\circ}\text{C}$
Typical efficiency	80% @ $U_{out.}=5\text{ VDC}$
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	42°C/W
Typical MTBF	2000 kHrs
Dimensions	$22,3 \times 12,1 \times 9,8\text{ mm}$
Weight	max 9 g

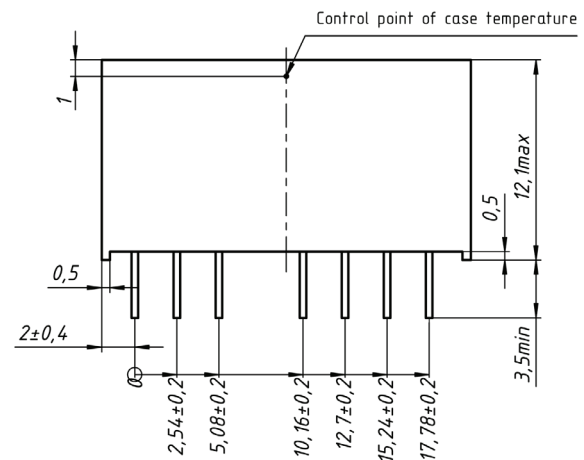
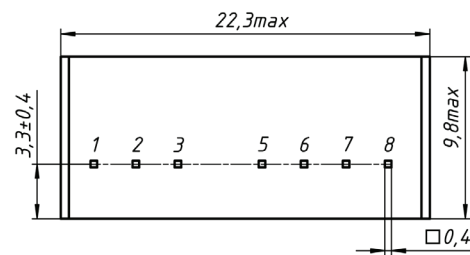


COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704E

PIN CONNECTION

PIN	Function	PIN	Function
1	-IN	5	NOT USE
2	+IN	6	+OUT
3	ON	7	-OUT
4	NO PIN	8	NOT USE

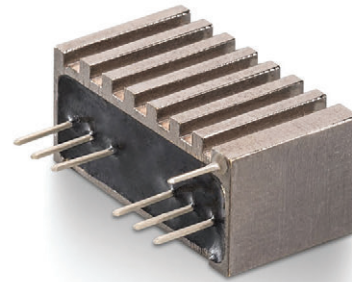


Dimensions in mm.

MDN10

FEATURES

- Compact SIP-8 package
- Ultrawide input voltage ranges (4:1) and (2:1)
- Case temperature $-55...+105^{\circ}\text{C}$
- Remote on/off
- High efficiency
- Metal Case
- Fixed switching frequency



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
10 W	12 (9...18)	8,5...36 @ 1 s	3,3	2
	12 (9...36)	9...40 @ 1 s	5	2
	24 (18...36)	17...50 @ 1 s	9	1,1
	24 (18...75)	17...84 @ 1 s	12	0,83
	48 (36...75)	34...100 @ 1 s	15	0,67

Units are under development until 09.2017.

GENERAL SPECIFICATIONS

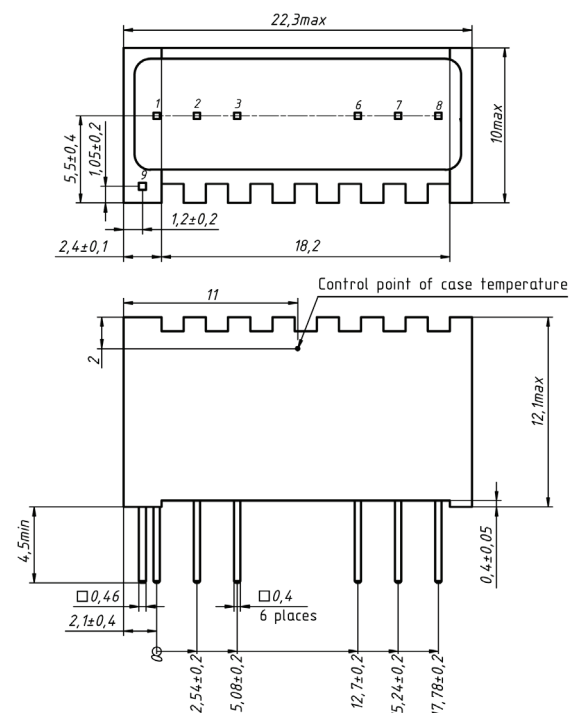
Voltage set accuracy	max $\pm 2\%$
Line and load regulation	max $\pm 2\%$
Temperature regulation	max $\pm 2\%$
Total regulation	max $\pm 2,5\%$
Ripple and noise (p-p)	max 2% U_{out} nom.
Remote on/off	2...4 mA to "ON" ref. to "-IN"
Case operating temperature	$-55...+105^{\circ}\text{C}$
Typical efficiency	85% @ $U_{out}=5$ VDC
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	$35^{\circ}\text{C}/\text{W}$
Typical MTBF	2000 kHrs
Dimensions	$22,3 \times 12,1 \times 10$ mm
Weight	max 15 g

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

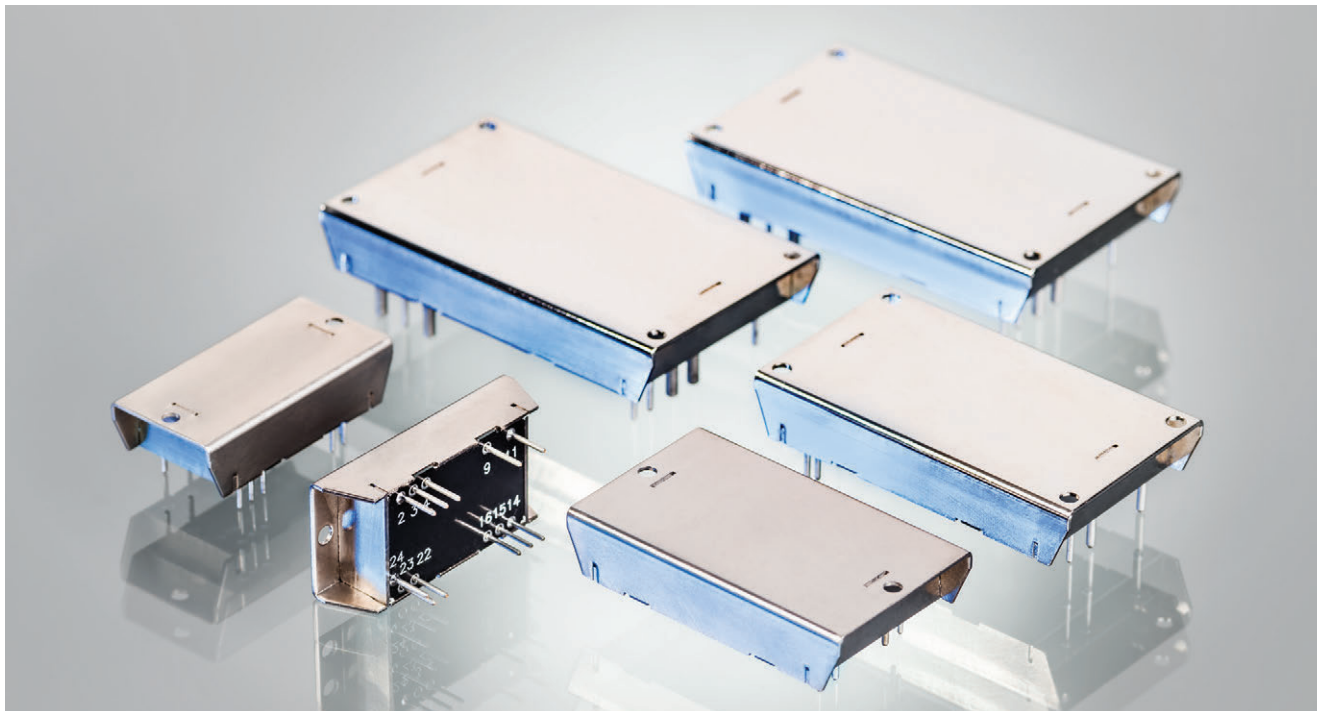
PIN CONNECTION

PIN	Function	PIN	Function
1	-IN	6	+OUT
2	+IN	7	-OUT
3	ON	8	NOT USE
4, 5	NO PIN	9	CASE



Dimensions in mm.

MDR Family, ultra-compact converters



Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Dimensions*, mm	Stage
MDR10	6; 10	12; 28; 48	3,3; 5; 9; 12; 15; 24; 28; 48	1500 VDC	89%	24,1×14×8,5	under development
MDR25	15; 25	12; 24; 28; 48	5; 9; 12; 15; 24; 28; 48		89%	30×20,2×10,25	serial production
MDR50	40; 50				91%	40×30,2×10,25	
MDR100	75; 100				91%	47,5×33,2×10,25	under development
MDR160	120; 160	12; 28; 48	12; 15; 24; 28; 48		91%	57,5×40,2×10,25	
MDR300	250; 300				91%	72,5×52,7×12,85	
MDR500	400; 500				92%	95×67,7×12,85	

DESCRIPTION

Ultra-compact isolated DC/DC converters of MDR Family have been particularly designed for harsh environments and most crucial applications. These modules can be switched on/off by a signal, have full protection complex against overcurrent, short-circuit and overtemperature and can be connected in parallel or series. Without optocouplers in the converter's circuit it can safely operate in conditions of ionizing radiation and high temperature. Polymer potting sealing protects modules from different factors: vibration, dirt, moisture and salt mist. These modules undergo special thermal and limit test including burn-in test with extreme on/off modes.

* without mounting flanges and pinouts.

FEATURES

- Case operating temperature –60...+125°C
- Low-profile design
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Parallel operation with active current sharing



Description of MDR Family
on the manufacturer's website:
eng.aedon.ru/pr-mdr.php

MDR10

FEATURES

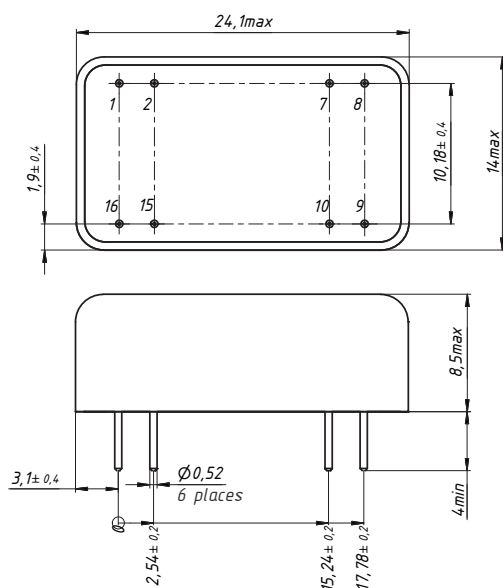
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Output current up to 2 A
- Low-profile design (8,5 mm)
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage protection
- Remote on/off
- Switching frequency 500 kHz
- Typical efficiency 89% ($U_{\text{out}}=24\text{ VDC}$)

COMPLIANCE

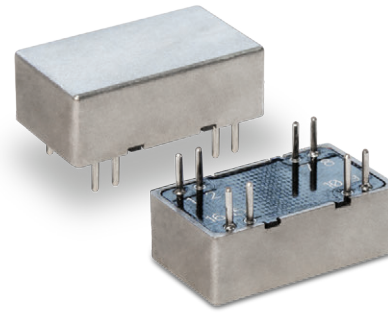
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
1	-IN	10	-OUT
2	ON	15	CASE
7,8	NOT USE	16	+IN
9	+OUT		



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
6 W	12 (9...18) 28 (17...36) 48 (36...75)	– 17...40 @ 1 s 36...84 @ 1 s	3,3	1,2
			5	1,2
			9	0,66
			12	0,5
			15	0,4
			24	0,25
			28	0,21
			48	0,125
10 W			3,3	2
			5	2
			9	1,1
			12	0,83
			15	0,66
			24	0,41
			28	0,35
			48	0,2

Units are under development until 07.2017.

Other output voltage within range 3...80 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Line and load regulation	max $\pm 6\%$ $U_{\text{out, nom}}$
Ripple and noise (p-p)	$< 2\%$ $U_{\text{out, nom}}$
Overcurrent protection level	$< 2,7 P_{\text{max}}$
Short-circuit protection	Auto recovery
Remote on/off	Off.: 0...1,1 VDC or connection of pins "ON" and "-IN"; $I \leq 5\text{ mA}$
Case operating temperature	$-60...+125^{\circ}\text{C}$
Typical efficiency	89% @ $U_{\text{out}}=24\text{ VDC}$
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	28°C/W
Typical MTBF	2000 kHrs
Dimensions*	$24,1 \times 14 \times 8,5\text{ mm}$
Weight	max 20 g

* without pinouts.

MDR25

FEATURES

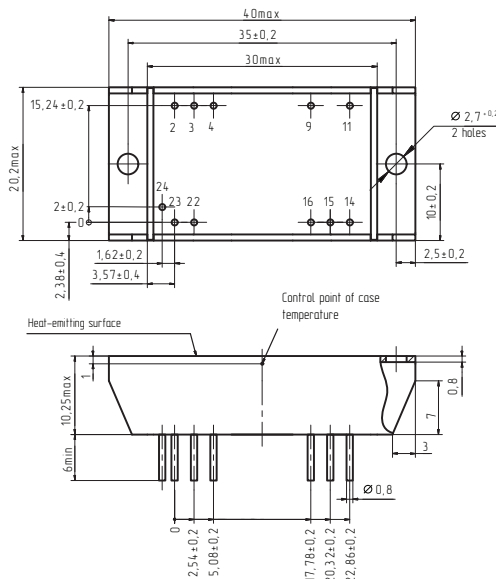
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Output current up to 5 A
- Low-profile design (10,25 mm)
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Switching frequency 800 kHz
- Typical efficiency 89% ($U_{\text{out}}=24\text{ VDC}$)

COMPLIANCE

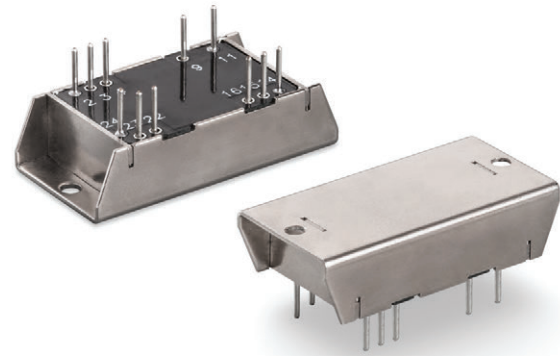
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

PIN CONNECTION

PIN	Function	PIN	Function
2, 3	-IN	15	ADJ
4	ON	16	-OUT
9, 11	NOT USE	22, 23	+IN
14	+OUT	24	CASE



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A	
15 W	12 (9...18)	–	3,3	3	
	28 (17...36)	17...40 @ 1 s	5	3	
	48 (36...75)	36...84 @ 1 s	9	1,66	
	12 (9...36)	9...40 @ 1 s	12	1,25	
	24 (18...75)	17...84 @ 1 s	15	1	
			24	0,625	
			28	0,53	
			48	0,31	
	25 W			3,3	5
				5	5
			9	2,78	
			12	2,08	
			15	1,67	
			24	1,04	
			28	0,89	
			48	0,52	

Other output voltage within range 3...80 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	$\pm 5\%$ $U_{\text{out, nom}}$
Line and load regulation	$\text{max } \pm 6\%$ $U_{\text{out, nom}}$
Ripple and noise (p-p)	$< 2\%$ $U_{\text{out, nom}}$
Overcurrent protection level	$< 2,7 P_{\text{max}}$
Short-circuit protection	Auto recovery
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", $I \leq 5\text{ mA}$
Case operating temperature	$-60...+125^{\circ}\text{C}$
Typical efficiency	89% @ $U_{\text{out}}=24\text{ VDC}$
Isolation voltage	1500 VDC
Humidity	99% / 35°C
Thermal resistance case-ambient	19,8 $^{\circ}\text{C/W}$
Typical MTBF	2000 kHrs
Dimensions*	30×20,2×10,25 mm
Weight	max 32 g

* without mounting flanges and pinouts.

MDR50

FEATURES

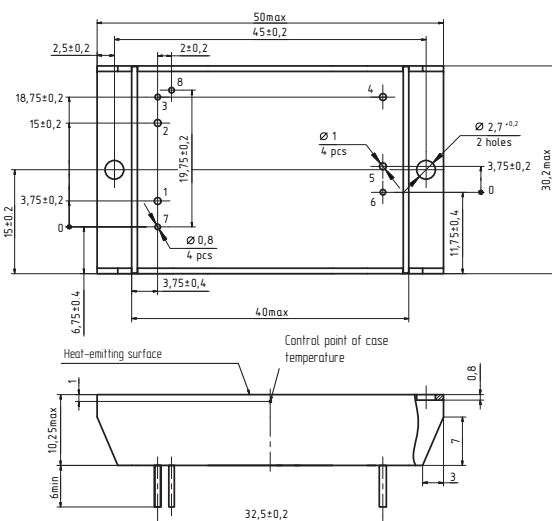
- Case operating temperature -60...+125°C
- Output current up to 10 A
- Low-profile design (10,25 mm)
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Switching frequency 440 kHz
- Clock synchronization function
- Typical efficiency 91% (Uout.=24 VDC)

COMPLIANCE

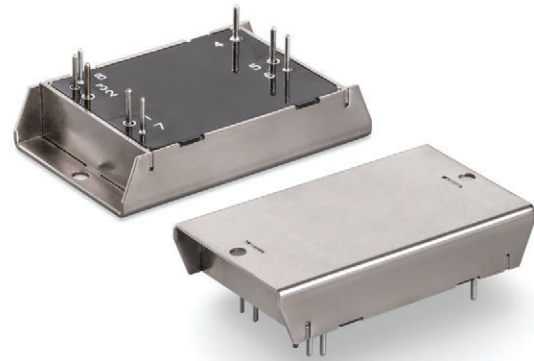
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

PIN CONNECTION

PIN	Function	PIN	Function
1	+IN	5	+OUT
2	-IN	6	ADJ
3	ON	7	CASE
4	-OUT	8	SYNC



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
40 W	12 (9...18)	-	3,3	6
	28 (17...36)	17...40 @ 1 s	5	6
	48 (36...75)	36...84 @ 1 s	9	4,44
	12 (9...36)	9...40 @ 1 s	12	3,33
	24 (18...75)	17...84 @ 1 s	15	2,67
			24	1,67
			28	1,42
			48	0,83
50 W			3,3	10
			5	10
			9	5,56
			12	4,17
			15	3,33
			24	2,08
			28	1,78
			48	1,04

Other output voltage within range 3...80 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation	max ±6% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overcurrent protection level	<2,7 Pmax
Short-circuit protection	Auto recovery
Remote on/off	Off.: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Typical efficiency	91% @ Uout.=24 VDC
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	12,5°C/W
Typical MTBF	2000 kHrs
Dimensions*	40×30,2×10,25 mm
Weight	max 43 g

* without mounting flanges and pinouts.

MDR100

FEATURES

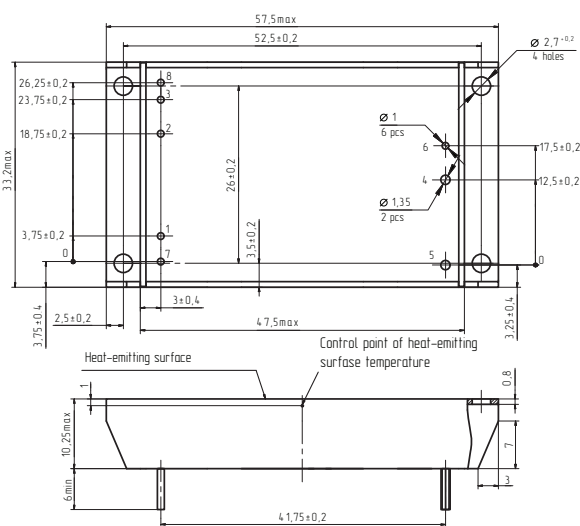
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Output current up to 20 A
- Low-profile design (10,25 mm)
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Switching frequency 350 kHz
- Clock synchronization function
- Typical efficiency 91% ($U_{\text{out}}=24\text{ VDC}$)

COMPLIANCE

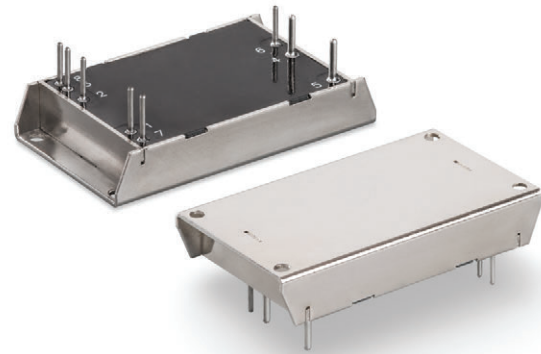
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

PIN CONNECTION

PIN	Function	PIN	Function
1	+IN	5	-OUT
2	-IN	6	ADJ
3	ON	7	CASE
4	+OUT	8	SYNC



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A	
75 W	12 (9...18)	–	3,3	15	
	28 (17...36)	17...40 @ 1 s	5	15	
	48 (36...75)	36...84 @ 1 s	9	8,3	
	12 (9...36)	9...40 @ 1 s	12	6,25	
	24 (18...75)	17...84 @ 1 s	15	5	
			24	3,1	
			28	2,6	
			48	1,5	
	100 W			3,3	20
				5	20
			9	11,1	
			12	8,3	
			15	6,6	
			24	4,1	
			28	3,5	
			48	2	

Units are under development until 09.2017.

Other output voltage within range 3...80 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	$\pm 5\%$ $U_{\text{out, nom}}$
Line and load regulation	$\max \pm 6\%$ $U_{\text{out, nom}}$
Ripple and noise (p-p)	$< 2\%$ $U_{\text{out, nom}}$
Overcurrent protection level	$< 1,5 P_{\text{max}}$
Short-circuit protection	Auto recovery
Remote on/off	Off.: 0...1,1 VDC or connection of pins "ON" and "-IN", $I \leq 5\text{ mA}$
Case operating temperature	$-60...+125^{\circ}\text{C}$
Typical efficiency	91% @ $U_{\text{out}}=24\text{ VDC}$
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	$8,7^{\circ}\text{C/W}$
Typical MTBF	2000 kHrs
Dimensions*	$47,5 \times 33,2 \times 10,25\text{ mm}$
Weight	$\max 65\text{ g}$

* without mounting flanges and pinouts.

MDR160

FEATURES

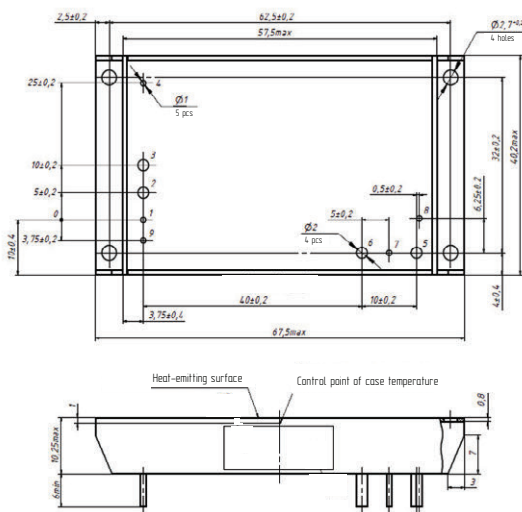
- Case operating temperature -60...+125°C
- Output current up to 40 A
- Low-profile design (10,25 mm)
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Switching frequency 280 kHz
- Clock synchronization function
- Typical efficiency 91% (Uout.=5 VDC)

COMPLIANCE

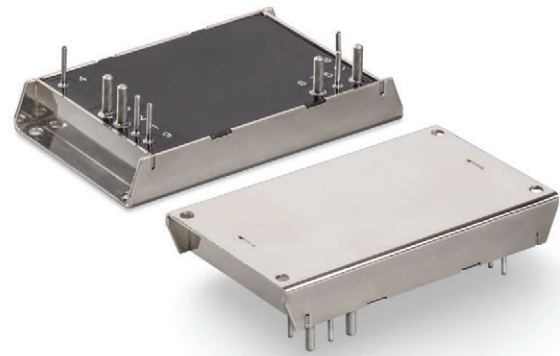
Safety Std.Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

PIN CONNECTION

PIN	Function	PIN	Function
1	CASE	6	-OUT
2	+IN	7	ADJ
3	-IN	8	PARAL
4	ON	9	SYNC
5	+OUT		



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A	
120 W	12 (9...18)	- 17...40 @ 1 s 36...84 @ 1 s 9...40 @ 1 s 17...84 @ 1 s	3,3	30	
	28 (17...36)		5	24	
	48 (36...75)		9	13,3	
	12 (9...36)		12	10	
	24 (18...75)		15	8	
			24	5	
			28	4,2	
			48	2,5	
	160 W			3,3	40
				5	32
		9	17,7		
		12	13,3		
		15	10,6		
		24	6,6		
		28	5,7		
	48	3,3			

Units are under development until 08.2017.

Other output voltage within range 3...80 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation	max ±6% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overcurrent protection level	<1,5 Pmax
Short-circuit protection	Auto recovery
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Typical efficiency	91% @ Uout.=5 VDC
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	7,8°C/W
Typical MTBF	2000 kHrs
Dimensions*	57,5×40,2×10,25 mm
Weight	max 95 g

* without mounting flanges and pinouts.

MDR300

FEATURES

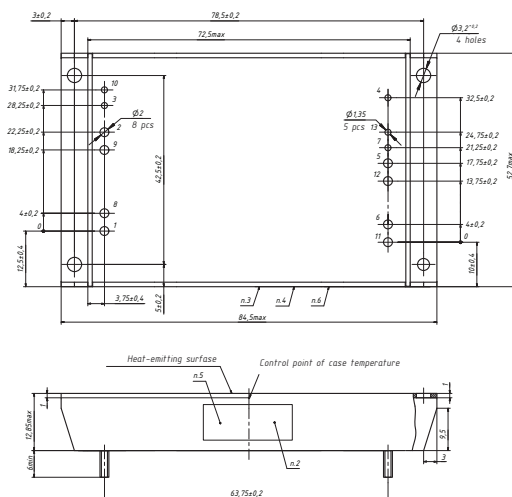
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Output current up to 40 A
- Low-profile design (12,85 mm)
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Switching frequency 250 kHz
- Clock synchronization function
- Typical efficiency 91% ($U_{\text{out}}=24\text{ VDC}$)
- Parallel operation

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
1,8	+IN	6,11	-OUT
2,9	-IN	7	ADJ
3	ON	10	SYNC
4	CASE	13	PARAL
5,12	+OUT		



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
250 W	12 (9...18) 28 (17...36) 48 (36...75)	- 17...40 @ 1 s 36...84 @ 1 s	3,3	40
			5	40
			9	27,7
			12	20,8
			15	16,6
			24	10,4
			28	8,9
			48	5,2
300 W			3,3	40
			5	40
			9	33,3
			12	25
			15	20
			24	12,5
			28	10,7
			48	6,25

Units are under development until 09.2017.

Other output voltage within range 3...80 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	$\pm 5\%$ $U_{\text{out, nom}}$
Line and load regulation	max $\pm 6\%$ $U_{\text{out, nom}}$
Ripple and noise (p-p)	$< 2\%$ $U_{\text{out, nom}}$
Overcurrent protection level	$< 1,5 P_{\text{max}}$
Short-circuit protection	Auto recovery
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", $I_{\text{S}} 5\text{ mA}$
Case operating temperature	$-60...+125^{\circ}\text{C}$
Typical efficiency	91% @ $U_{\text{out}}=24\text{ VDC}$
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	$5,3^{\circ}\text{C/W}$
Typical MTBF	2000 kHrs
Dimensions*	72,5×52,7×12,85 mm
Weight	max 160 g

* without mounting flanges and pinouts.

MDR500

FEATURES

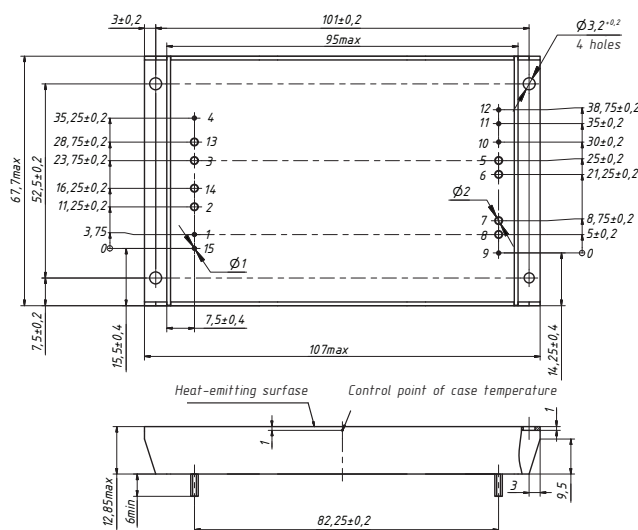
- Case operating temperature -60...+125°C
- Output current up to 50 A
- Low-profile design (12,85 mm)
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, undervoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Switching frequency 200 kHz
- Clock synchronization function
- Typical efficiency 92% (Uout.=24 VDC)
- Parallel operation

COMPLIANCE

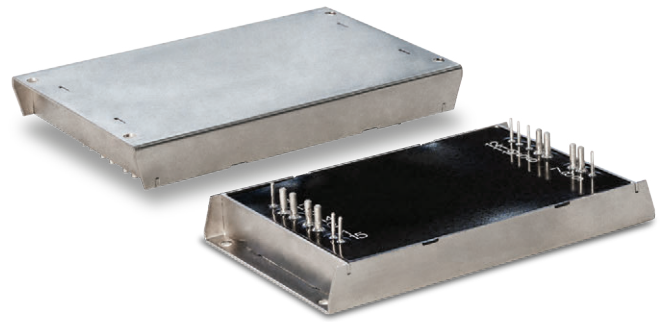
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
1	ON	9	+RS
2,14	-IN	10	-RS
3,13	+IN	11	ADJ
4	CASE	12	PARAL
5,6	-OUT	15	SYNC
7,8	+OUT		



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A			
400 W	12 (9...18) 28 (17...36) 48 (36...75)	- 17...40 @ 1 s 36...84 @ 1 s	3,3	40			
			5	40			
			9	40			
			12	33,3			
			15	26,6			
			24	17,7			
			28	14,2			
			48	8,3			
			500 W			3,3	50
						5	50
9	50						
12	41,6						
15	33,3						
24	20,8						
28	17,8						
48	10,4						

Units are under development until 09.2017.

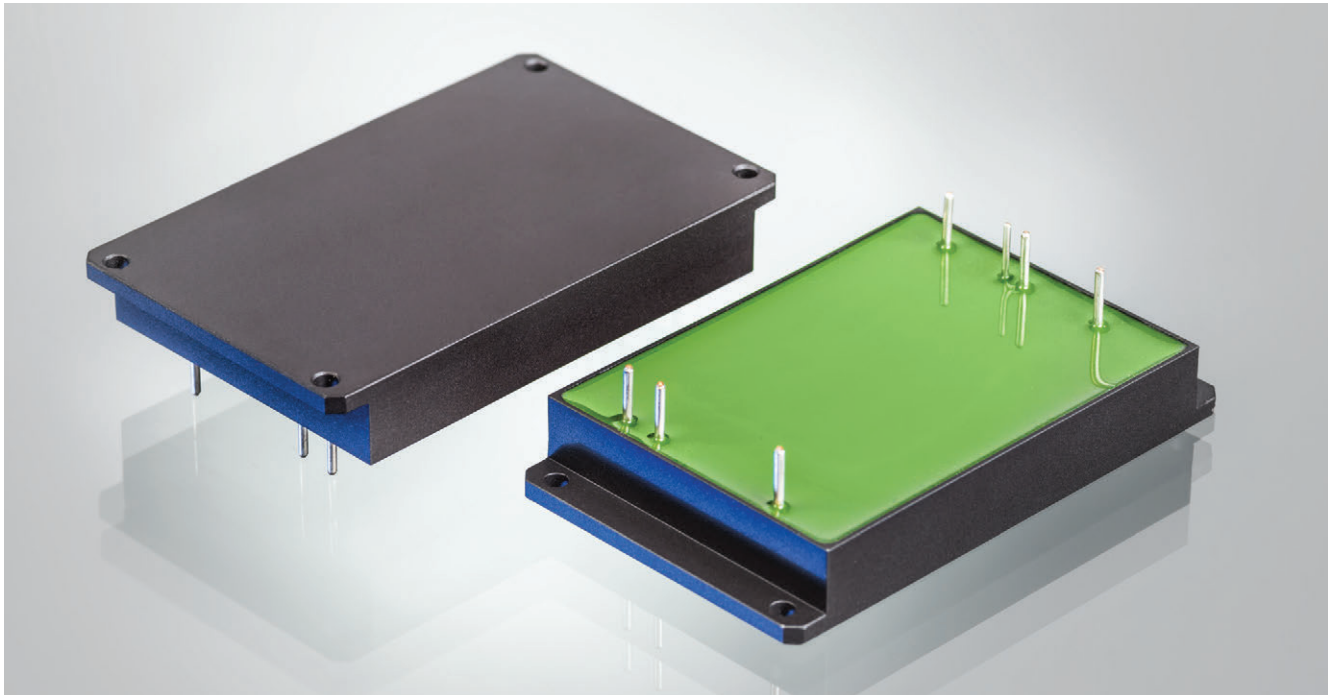
Other output voltage within range 3...80 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout. nom
Line and load regulation	max ±6% Uout. nom
Ripple and noise (p-p)	<2% Uout. nom
Overcurrent protection level	<1,5 Pmax
Short-circuit protection	Auto recovery
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", Is5 mA
Case operating temperature	-60...+125°C
Typical efficiency	92% @ Uout.=24 VDC
Isolation voltage	1500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	3,3°C/W
Typical MTBF	2000 kWhrs
Dimensions*	95×67,7×12,85 mm
Weight	max 270 g

* without mounting flanges and pinouts.

MDVH Family, high voltage input converters



Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Dimensions*, mm	Status
MDVH40	30; 40	110 (82...154)	5; 12; 15; 24; 48	1500 VAC	86%	72,5×52,7×12,85	serial production
MDVH160	80; 120; 160	270 (175...350)			88%	95×67,7×12,85	
MDVH500	320		12; 15; 24; 48		88%	110×84,2×12,85	
	400		15; 24; 48				
	500						
MDVH1000	1000	110 (82...154)	28; 48		93%	168×110×16	
		270 (175...350)	24; 28; 48				

DESCRIPTION

Compact isolated DC/DC converters of MDHV Family for harsh environments and most crucial applications. These modules can have single, dual or triple galvanically isolated output, remote on/off, short-circuit, overcurrent and thermal protection and can operate in parallel and series modes. Without optocouplers in the converter's circuit it can safely operate in conditions of ionizing radiation and high temperature. Power supplies have various protections from different factors: vibration, dirt, moisture fog and salt mist. These modules undergo special thermal and limit test including burn-in test with extreme on/off modes.

FEATURES

- Low-profile design
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Case operating temperature –60...+125°C
- Output voltage adjustment
- Parallel operation
- Remote feedback
- Polymer potting sealing



Description of MDHV Family
on the manufacturer's website:
eng.aedon.ru/pr-hv.php

* without mounting flanges.

MDVH40

FEATURES

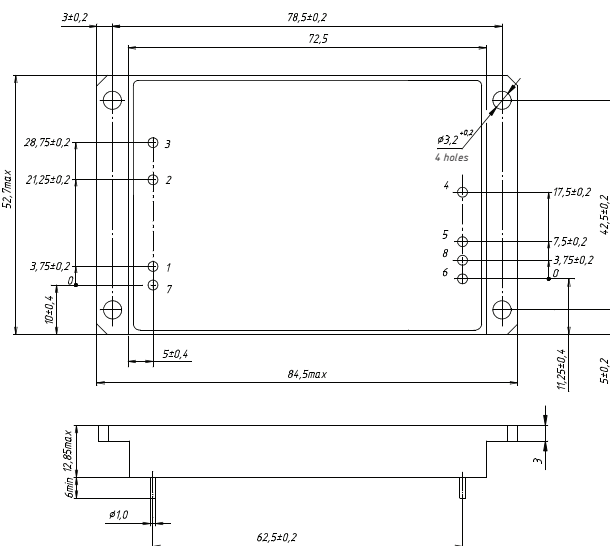
- Output current up to 8 A
- Low-profile design (12,85 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Single and dual output models
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment in single channel models
- Typical efficiency 86%
- Polymer potting sealing

COMPLIANCE

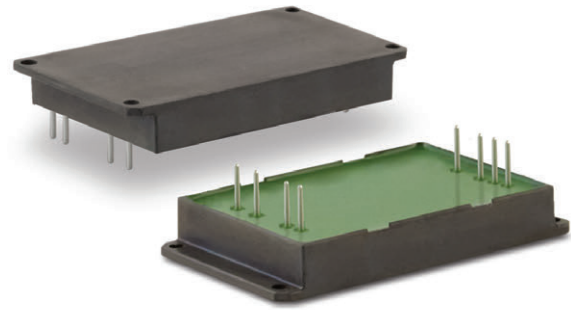
Safety Std.Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704F

PIN CONNECTION

PIN	Function	PIN	Function
1	+IN	5	-OUT
2	-IN	6, 7	CASE
3	ON	8	ADJ
4	+OUT	9	-



Dimensions in mm. This dimensional layout refers to single-output version. Dual-output model is also available. Detailed information can be found in technical documentation on the manufacturer's website.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
30 W	110 (82...154) 270 (175...350)	52...170 @ 1 s 175...400 @ 1 s	5	6
			12	2,5
			15	2
			24	1,25
			28	1,07
40 W			5	8
			12	3,33
			15	2,67
			24	1,67
			28	1,42

Other output voltage within range 3...70 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<2,2 Pmax for 40 W
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off.: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Switching frequency	120-140 kHz
Typical efficiency	86% @ Uout.=15 VDC
Isolation voltage (IN/OUT)	1500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	5,3°C/W
Typical MTBF	2000 kHrs
Dimensions*	72,5×52,7×12,85 mm
Weight	110 g

* without mounting flanges and pinouts.

MDVH160

FEATURES

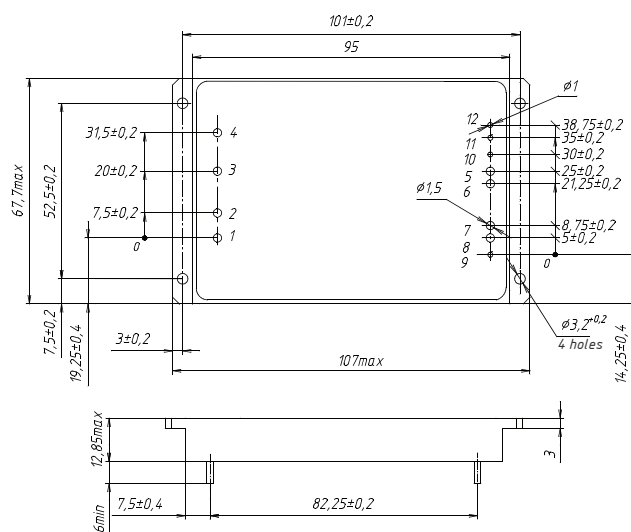
- Output current up to 30 A
- Low-profile design (12,85 mm)
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Typical efficiency 88%
- Polymer potting sealing

COMPLIANCE

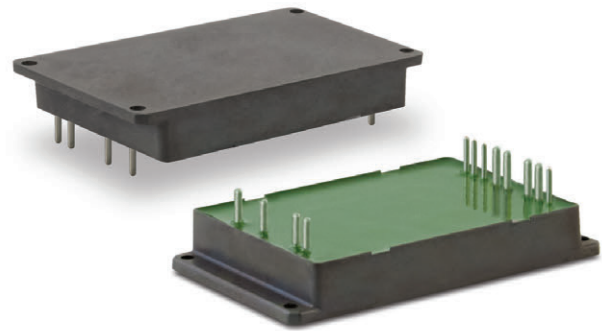
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704F

PIN CONNECTION

PIN	Function for 80, 160 W	PIN	Function for 80, 160 W
1	ON	7,8	+OUT
2	-IN	9	+RS
3	+IN	10	-RS
4	CASE	11	ADJ
5,6	-OUT	12	PARAL



Dimensions in mm. This dimensional layout refers to units of 80 W and 160 W. Dimensional layout of 120 W model can be found in technical documentation on the manufacturer's website.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
80 W	110 (82...154) 270 (175...350)	52...170 @ 1 s 175...400 @ 1 s	5	16
			12	6,67
			15	5,3
			24	3,3
120 W			28	2,85
			5	24
			12	10
			15	8
160 W			24	5
			28	4,28
			5	30
			12	13,3
			15	10,6
			24	6,67
			28	5,7

Other output voltage within range 3...70 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Output voltage adjustment	$\pm 5\%$ Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	$\pm 10\%$ Uout.nom
Ripple and noise (p-p)	$< 2\%$ Uout.nom
Overload protection level	$< 2,2$ Pmax for 160 W
Short-circuit protection	Auto recovery
Overvoltage protection level	$\geq 1,5$ Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", $I \leq 5$ mA
Case operating temperature	$-60...+125^{\circ}\text{C}$
Switching frequency	120-140 kHz
Typical efficiency	88% @ Uout.=28 VDC
Isolation voltage (IN/OUT)	1500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	$3,3^{\circ}\text{C/W}$
Typical MTBF	2000 kHrs
Dimensions*	$95 \times 67,7 \times 12,85$ mm
Weight	184 g

* without mounting flanges and pinouts.

MDVH500

FEATURES

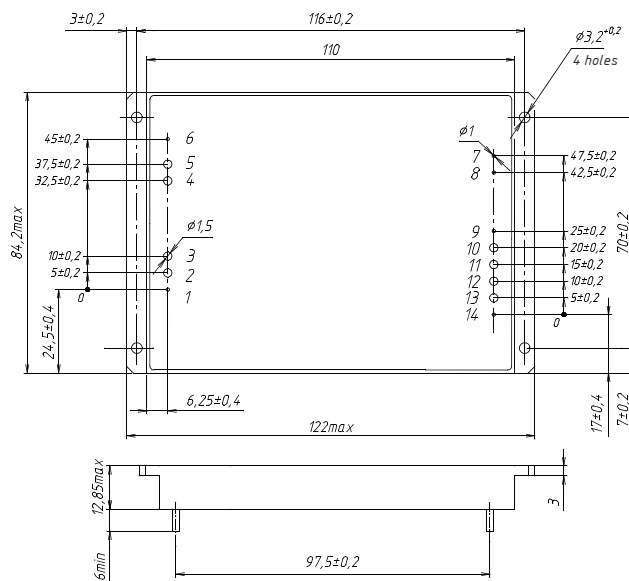
- Output current up to 30 A
- Low-profile design (12,85 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Typical efficiency 88%
- Polymer potting sealing

COMPLIANCE

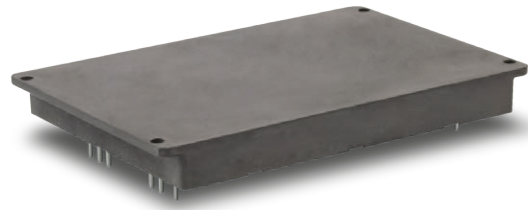
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704F

PIN CONNECTION

PIN	Function	PIN	Function
1	ON	8	ADJ
2,3	-IN	9	-RS
4,5	+IN	10,11	-OUT
6	CASE	12,13	+OUT
7	PARAL	14	+RS



Dimensions in mm.



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
320 W	110 (82...154) 270 (175...350)	52...170 @ 1 s 175...400 @ 1 s	5	30
			12	26,6
			15	21,3
			24	13,3
400 W			28	11,2
			12	30
			15	26,7
			24	16,7
500 W			28	14,2
			15	30
			24	20,8
			28	17,8

Other output voltage within range 3...70 VDC is also available upon special request.

GENERAL SPECIFICATIONS

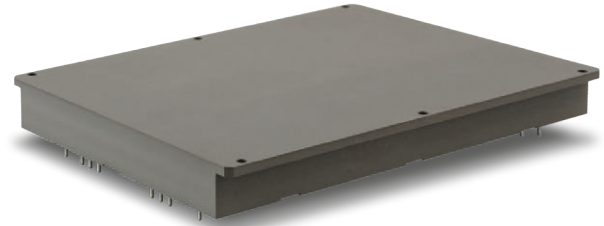
Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<1,8 Pmax for 500 W
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", I≤5 mA
Case operating temperature	-60...+125°C
Switching frequency	120-140 kHz
Typical efficiency	88% @ Uout.=24 VDC
Isolation voltage (IN/OUT)	1500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	3°C/W
Typical MTBF	2000 kHrs
Dimensions*	110×84,2×12,85 mm
Weight	250 g

* without mounting flanges and pinouts.

MDVH1000

FEATURES

- Output current up to 40 A
- Low-profile design (16 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Power good signal
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Typical efficiency 93%
- Polymer potting sealing



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704F

MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
1000 W	110 (82...154)	52...170 @ 1 s	28	35
			48	20
	270 (175...350)	175...400 @ 1 s	24	40
			28	35
			48	20

Other output voltage within range 3...70 VDC is also available upon special request.

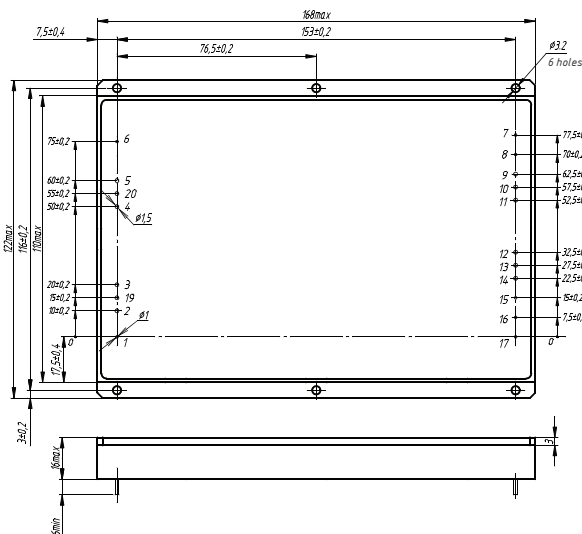
PIN CONNECTION

PIN	Function	PIN	Function
1	ON	9, 10, 11	+OUT
2, 3, 19	-IN	12, 13, 14	-OUT
4, 5, 20	+IN	15	-RS
6	CASE	16	ADJ
7	PGOOD	17	PARAL
8	+RS		

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<1,8 Pmax
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", Is5 mA
Case operating temperature	-60...+125°C
Switching frequency	240-260 kHz
Typical efficiency	93% @ Uout=28 VDC
Isolation voltage (IN/OUT)	1500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	2,7°C/W
Typical MTBF	2000 kHrs
Dimensions*	168×110×16 mm
Weight	690 g

* without mounting flanges and pinouts.



Dimensions in mm.

MDV Family, multi-purpose compact converters



Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Dimensions*, mm	Status
MDV8	3; 5; 6; 8	12; 24; 28	5; 12; 15; 24; 28	500 VAC	83%	30×20,2×10,15	serial production
MDV12	10; 12				86%	40×30,2×10,15	
MDV25	15; 20; 25				87%	47,5×33,2×10,15	
MDV50	30; 40; 50				91%	57,5×40,2×10,15	
MDV80	60; 80				89%	72,5×52,7×12,85	
MDV160	120; 160				89%	95×67,7×12,85	
MDV500	320; 400	12; 28; 60(48)	12; 15; 24; 28; 48	89%	110×84,2×12,85		
	500		15; 24; 28; 48				
MDV1000	1000	28; 60(48)	24; 28; 48	92%	168×110×16		

DESCRIPTION

Compact isolated DC/DC converters of MDV Family for harsh environments and most crucial applications. These modules can have single or dual galvanically isolated output, remote on/off, short-circuit, overcurrent and thermal protection and can operate in parallel and series modes. Without optocouplers in the converter's circuit it can safely operate in conditions of ionizing radiation and high temperature. Power supplies have various protections from different factors: vibration, dirt, moisture and salt mist. These modules undergo special thermal and limit test including burn-in test with extreme on/off modes.

* without mounting flanges.

FEATURES

- Low-profile design
- Magnetic feedback without optocouplers
- Single, dual and triple output models
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Case operating temperature –60...+125°C
- Output voltage adjustment
- Polymer potting sealing



Description of MDV Family on the manufacturer's website:
eng.aedon.ru/pr-universal.php

MDV8

FEATURES

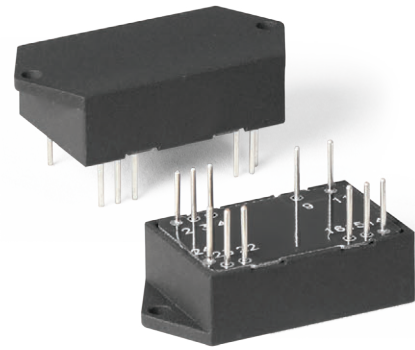
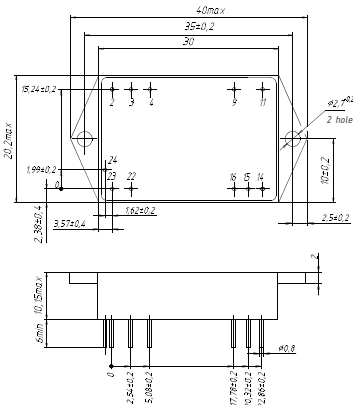
- Output current up to 1,6 A
- Low-profile design (10,15 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Single and dual output models
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing

MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
3 W	12 (9...36) 28 (9...36) 24 (18...75)	9...40 @ 1 s 8...80 @ 10 s 17...84 @ 1 s	5	0,6
			12	0,25
			15	0,2
			24	0,125
			28	0,11
5 W			5	1
			12	0,42
			15	0,33
			24	0,21
			28	0,18
6 W			5	1,2
			12	0,5
			15	0,4
			24	0,25
			28	0,21
8 W			5	1,6
			12	0,67
			15	0,53
			24	0,33
			28	0,28

Other output voltage within range 3...70 VDC is also available upon special request.

Dimensions in mm.
This dimensional layout refers to single-output version.
Dual-output models are also available. Detailed information can be found in technical documentation on the manufacturer's website.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704A

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<1,8 Pmax for 8 W
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", Is≤5 mA
Case operating temperature	-60...+125°C
Switching frequency	290-310 kHz
Typical efficiency	83% @ Uout.=28 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	19,8°C/W
Typical MTBF	2000 kHrs
Cooling	convectonal with heatsink or forced fan
Dimensions*	30×20,2×10,15 mm
Weight	22 g

* without mounting flanges and pinouts.

PIN CONNECTION

PIN	Single channel	PIN	Single channel
2, 3	-IN	15	ADJ
4	ON	16	-OUT
9, 11	NOTE USE	22, 23	+IN
14	+OUT	24	CASE

MDV12

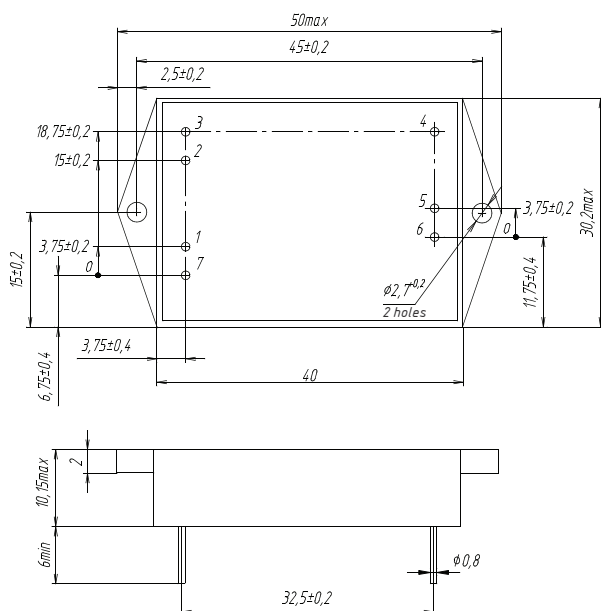
FEATURES

- Output current up to 2,4 A
- Low-profile design (10,15 mm)
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Magnetic feedback without optocouplers
- Single, dual and triple output models
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing

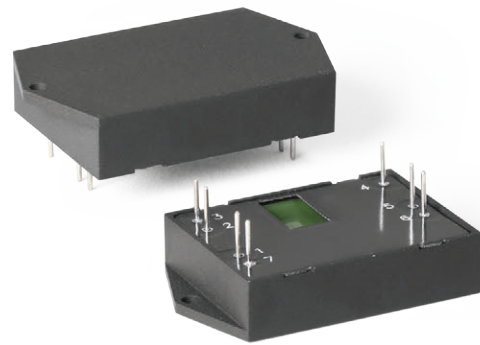
MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
10 W	12 (9...36)	9...40 @ 1 s	5	2
	28 (9...36)	8...80 @ 10 s	12	0,83
	24 (18...75)	17...84 @ 1 s	15	0,67
			24	0,42
			28	0,35
12 W			5	2,4
			12	1
			15	0,8
			24	0,5
			28	0,43

Other output voltage within range 3...70 VDC is also available upon special request.



Dimensions in mm. This dimensional layout refers to single-output version with flanges. Dual- and triple-output models are also available. Detailed information can be found in technical documentation on the manufacturer's website.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704A

GENERAL SPECIFICATIONS

Output voltage adjustment	$\pm 5\%$ Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	$\pm 10\%$ Uout.nom
Ripple and noise (p-p)	$< 2\%$ Uout.nom
Overload protection level	$< 1,8$ Pmax for 12 W
Short-circuit protection	Auto recovery
Overvoltage protection level	$\geq 1,5$ Uout.nom
Remote on/off	Off.: 0...1,1 VDC or connection of pins "ON" and "-IN", I ≤ 5 mA
Case operating temperature	$-60...+125^{\circ}\text{C}$
Switching frequency	290-310 kHz
Typical efficiency	86% @ Uout.=24 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	12,5°C/W
Typical MTBF	2000 kHrs
Cooling	convective with heatsink or forced fan
Dimensions*	40x30,2x10,15 mm
Weight	30 g

* without mounting flanges and pinouts.

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	+IN	5	+OUT
2	-IN	6	ADJ
3	ON	7	CASE
4	-OUT		

MDV25

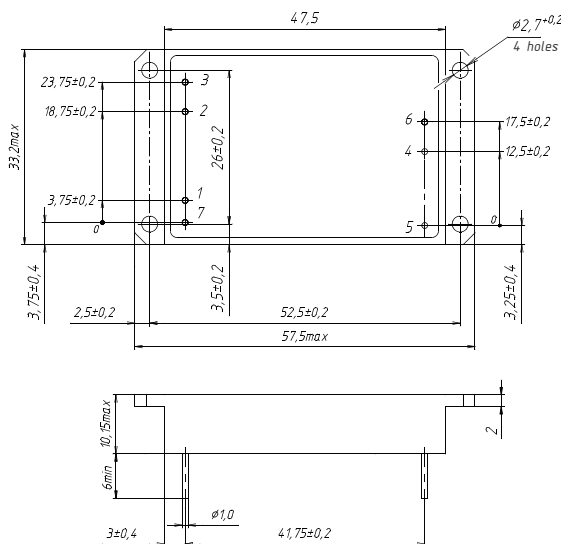
FEATURES

- Output current up to 5 A
- Low-profile design (10,15 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Single and dual output models
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing

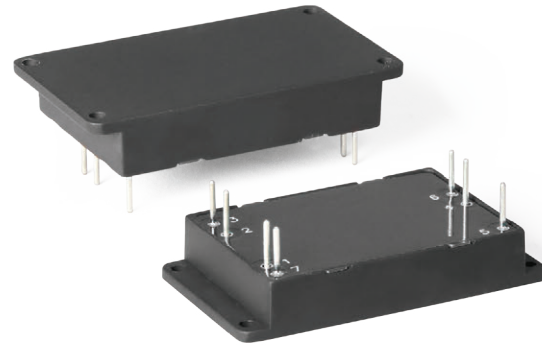
MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
15 W	12 (9...36) 28 (9...36) 24 (18...75)	9...40 @ 1 s 8...80 @ 10 s 17...84 @ 1 s	5	3
			12	1,25
			15	1
			24	0,63
			28	0,53
20 W			5	4
			12	1,67
			15	1,33
			24	0,83
			28	0,71
25 W			5	5
			12	2,1
			15	1,6
			24	1,04
			28	0,89

Other output voltage within range 3...70 VDC is also available upon special request.



Dimensions in mm. This dimensional layout refers to single-output version with flanges. Dual-output models are also available. Detailed information can be found in technical documentation on the manufacturer's website.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704A

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<2,2 Pmax for 20 W
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Switching frequency	290-310 kHz
Typical efficiency	87% @ Uout.=24 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	8,7°C/W
Typical MTBF	2000 kHrs
Cooling	convectional with heatsink or forced fan
Dimensions*	47,5×33,2×10,15 mm
Weight	45 g

* without mounting flanges and pinouts.

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	+IN	5	-OUT
2	-IN	6	ADJ
3	ON	7	CASE
4	+OUT		

MDV50

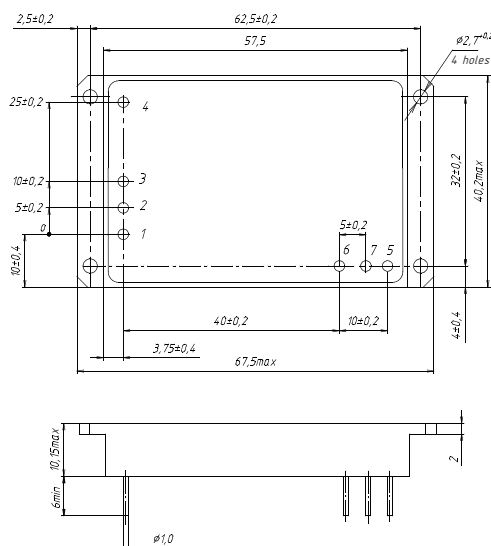
FEATURES

- Output current up to 10 A
- Low-profile design (10,15 mm)
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Magnetic feedback without optocouplers
- Single and dual output models
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing

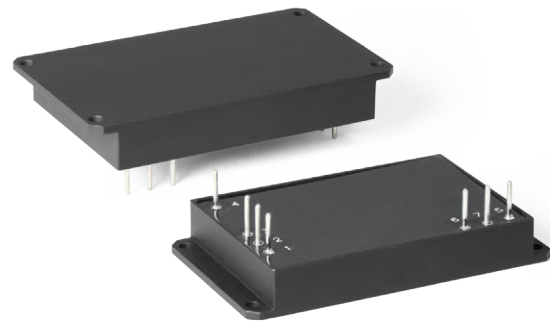
MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
30 W	12 (9...36) 28 (9...36) 24 (18...75)	9...40 @ 1 s 8...80 @ 10 s 17...84 @ 1 s	5	6
			12	2,5
			15	2
			24	1,25
			28	1,07
40 W			5	8
			12	3,33
			15	2,67
			24	1,67
			28	1,42
50 W			5	10
			12	4,16
			15	3,3
			24	2,1
			28	1,8

Other output voltage within range 3...70 VDC is also available upon special request.



Dimensions in mm. This dimensional layout refers to single-output version with flanges. Dual-output models are also available. Detailed information can be found in technical documentation on the manufacturer's website.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	MIL-STD-704A

GENERAL SPECIFICATIONS

Output voltage adjustment	$\pm 5\%$ Uout.nom
Line and load regulation (0,1–1–0,1) Pmax load step @ 500 us front time	$\pm 10\%$ Uout.nom
Ripple and noise (p-p)	$< 2\%$ Uout.nom
Overload protection level	$< 2,2$ Pmax for 40 W
Short-circuit protection	Auto recovery
Overvoltage protection level	$\geq 1,5$ Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", I _s ≤ 5 mA
Case operating temperature	$-60...+125^{\circ}\text{C}$
Switching frequency	290–310 kHz
Typical efficiency	91% @ Uout.=24 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	7,8°C/W
Typical MTBF	2000 kHrs
Cooling	convectional with heatsink or forced fan
Dimensions*	57,5×40,2×10,15 mm
Weight	65 g

* without mounting flanges and pinouts.

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	CASE	5	+OUT
2	+IN	6	-OUT
3	-IN	7	ADJ
4	ON		

MDV80

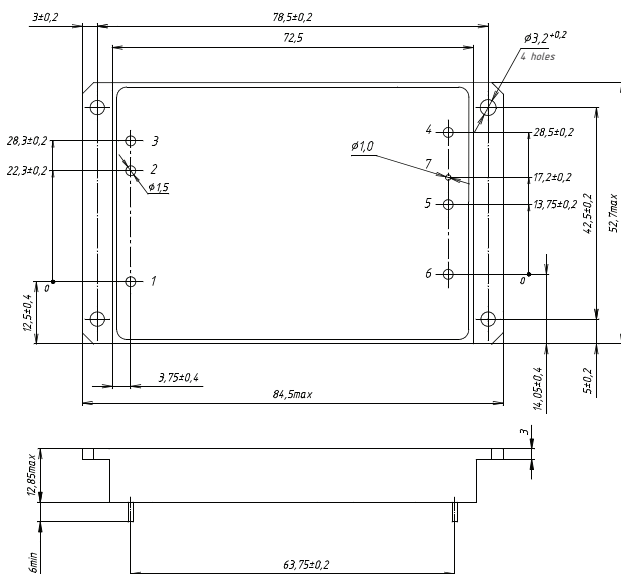
FEATURES

- Output current up to 16 A
- Low-profile design (12,85 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Typical efficiency 89%
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing

MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
60 W	12 (10,5...18) 28 (17...36) 48 (36...75)	- 17...80 @ 1 s 36...84 @ 1 s	5	12
			12	5
			15	4
			24	2,5
			28	2,14
80 W			5	16
			12	6,7
			15	5,3
			24	3,33
			28	2,85

Other output voltage within range 3...70 VDC is also available upon special request.



Dimensions in mm.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<2,2 Pmax for 80 W
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Switching frequency	120-140 kHz
Typical efficiency	89% @ Uout.=28 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	5,3°C/W
Typical MTBF	2000 kWhrs
Cooling*	convectional with heatsink or forced fan
Dimensions	72,5×52,7×12,85 mm
Weight	110 g

* without mounting flanges and pinouts.

PIN CONNECTION

PIN	Function	PIN	Function
1	+IN	5	+OUT
2	-IN	6	-OUT
3	ON	7	ADJ
4	CASE		

MDV160

FEATURES

- Output current up to 30 A
- Low-profile design (12,85 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Typical efficiency 89%
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing

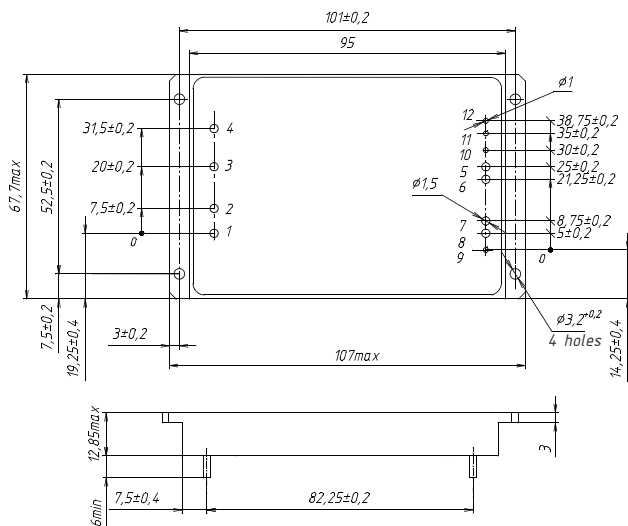
COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
120 W	12 (10,5...18) 28 (17...36) 48 (36...75)	- 17...80 @ 1 s 36...84 @ 1 s	5	24
			12	10
			15	8
			24	5
			28	4,3
160 W			5	30
			12	13,3
			15	10,6
			24	3,7
			28	5,7

Other output voltage within range 3...70 VDC is also available upon special request.



Dimensions in mm.



GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<2,2 Pmax for 160 W
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off.: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Switching frequency	120-140 kHz
Typical efficiency	89% @ Uout.=28 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	3,3°C/W
Typical MTBF	2000 kHrs
Cooling	convectonal with heatsink or forced fan
Dimensions*	95×67,7×12,85 mm
Weight	184 g

* without mounting flanges and pinouts.

PIN CONNECTION

PIN	Function	PIN	Function
1	ON	7,8	+OUT
2	-IN	9	+RS
3	+IN	10	-RS
4	CASE	11	ADJ
5,6	-OUT	12	PARAL

MDV500

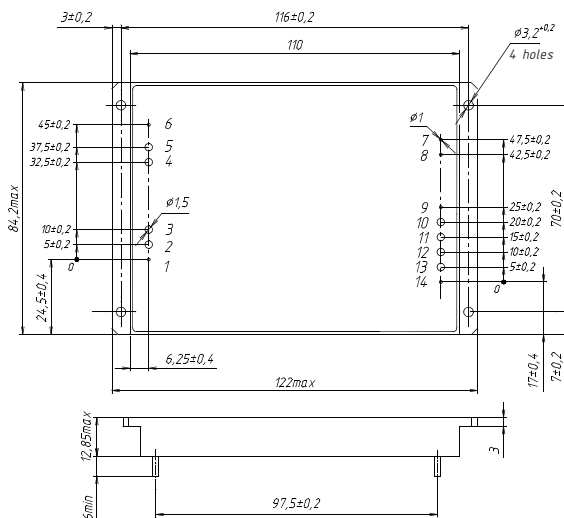
FEATURES

- Output current up to 30 A
- Low-profile design (12,85 mm)
- Case operating temperature -60...+125°C
- Magnetic feedback without optocouplers
- Typical efficiency 89%
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing

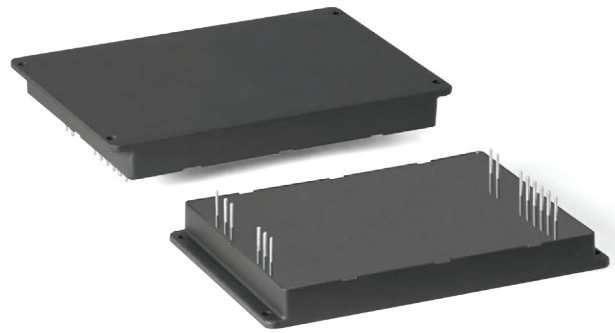
MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
320 W	12 (10,5...18) 28 (17...36) 48 (36...75)	- 17...80 @ 1 s 36...84 @ 1 s	12	26,6
			15	21,3
			24	13,3
			28	11,4
400 W			48	6,6
			12	30
			15	26,6
			24	16,7
500 W			28	14,2
			48	8,3
			15	20,8
			24	18,5
			28	17,8
			48	10,4

Other output voltage within range 3...70 VDC is also available upon special request.



Dimensions in mm.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<1,8 Pmax for 500 W
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Switching frequency	120-140 kHz
Typical efficiency	89% @ Uout.=24 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	3°C/W
Typical MTBF	2000 kHrs
Cooling	convectonal with heatsink or forced fan
Dimensions*	110×84,2×12,85 mm
Weight	290 g

* without mounting flanges and pinouts.

PIN CONNECTION

PIN	Function	PIN	Function
1	ON	8	ADJ
2,3	-IN	9	-RS
4,5	+IN	10,11	-OUT
6	CASE	12,13	+OUT
7	PARAL	14	+RS

MDV1000

FEATURES

- Output current up to 40 A
- Low-profile design (16 mm)
- Case operating temperature –60...+125°C
- Magnetic feedback without optocouplers
- Typical efficiency 92%
- Short-circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Polymer potting sealing



MODELS

Power	Input Voltage Range, VDC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
1000 W	27 (17...36)	17...80 @ 1 s	24	40
	48 (36...75)	36...84 @ 1 s	28	35,7
			48	20,8

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

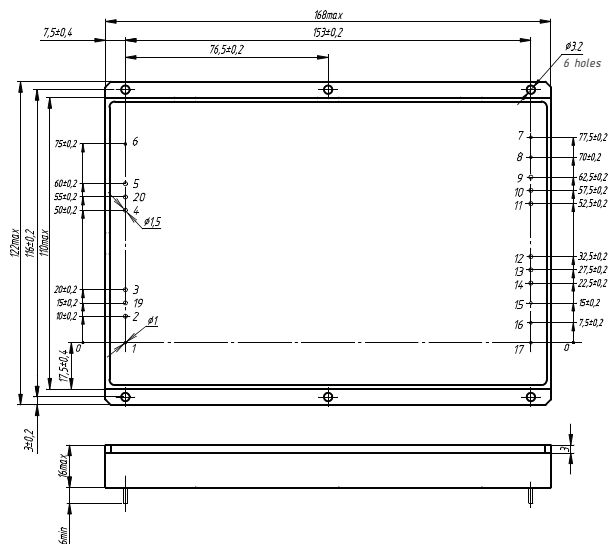
GENERAL SPECIFICATIONS

Output voltage adjustment	±5% Uout.nom
Line and load regulation (0,1-1-0,1) Pmax load step @ 500 us front time	±10% Uout.nom
Ripple and noise (p-p)	<2% Uout.nom
Overload protection level	<1,8 Pmax
Short-circuit protection	Auto recovery
Overvoltage protection level	≥1,5 Uout.nom
Remote on/off	Off.: 0...1,1 VDC or connection of pins "ON" and "-IN", I<5 mA
Case operating temperature	-60...+125°C
Switching frequency	130-150 kHz
Typical efficiency	92% @ Uout.=24 VDC
Isolation voltage (I/O, I/C, O/C)	500 VAC
Humidity	98% / 35°C
Thermal resistance case-ambient	2,7°C/W
Typical MTBF	2000 kHrs
Cooling	convectonal with heatsink or forced fan
Dimensions*	168×110×16 mm
Weight	690 g

* without mounting flanges and pinouts.

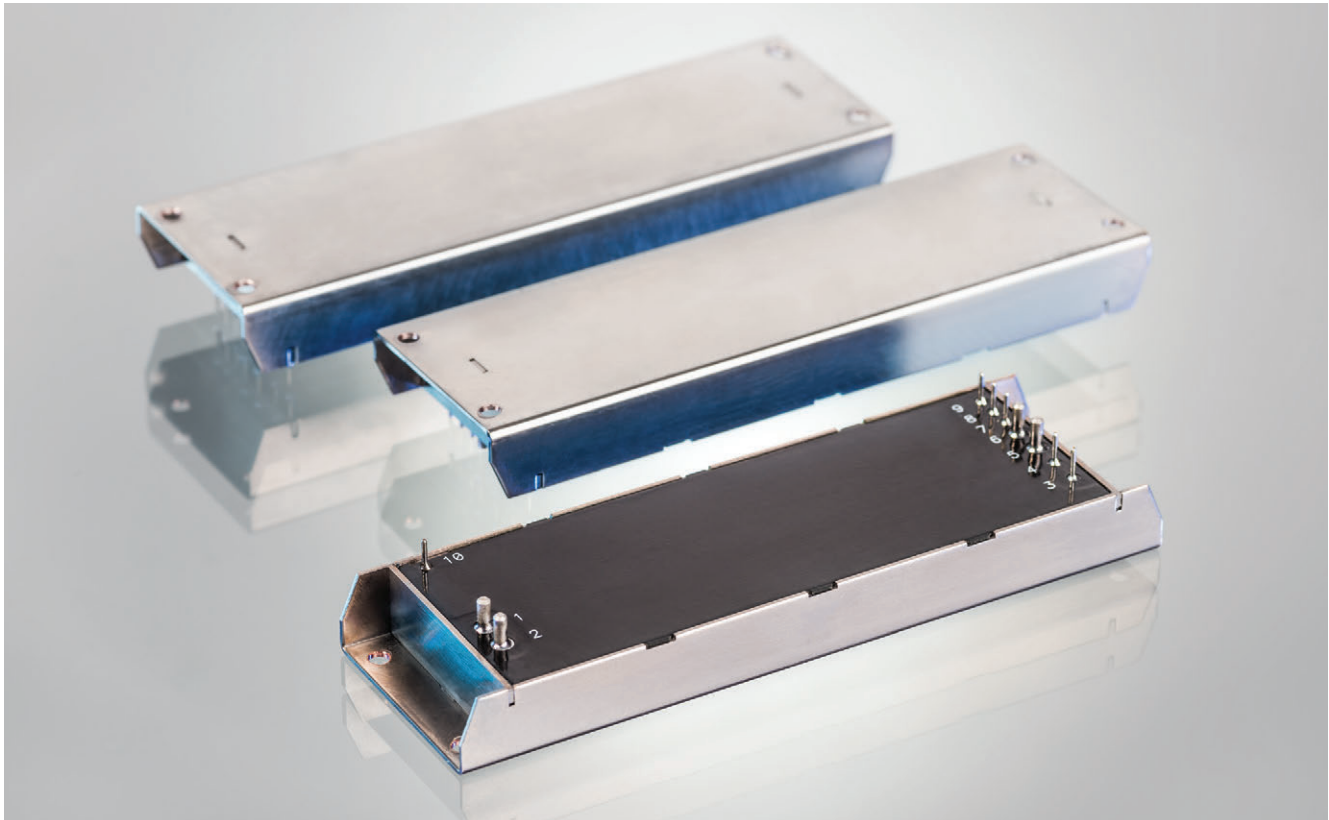
PIN CONNECTION

PIN	Function	PIN	Function
1	ON	9, 10, 11	+OUT
2, 3, 19	-IN	12, 13, 14	-OUT
4, 5, 20	+IN	15	-RS
6	CASE	16	ADJ
7	PGOOD	17	PARAL
8	+RS		



Dimensions in mm.

MDA Family, pulse load power supplies



Models	Output Power, W	Input Voltage, VDC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency (28 VDC output)	Dimensions*, mm	Status
MDA500	340	28; 54; 300	9; 12; 28; 36; 40; 50	500 VDC	90-92%	105,1×38×12,85	Under development
	500		28; 36; 40; 50				

DESCRIPTION

Low-profile isolated DC/DC converters for pulse current load are optimized for using in decentralized power systems such as transceiver modules and other similar power supply systems with pulse load, for example in AESA.

The compact size allows to install it as close as possible to the point of load and reduce the load regulation. Galvanically isolated differential input allows to synchronize switching frequency and to provide reliable hardware or software filtering of EMI.

High-speed voltage feedback allows to use smaller output capacitor or sometimes omit it and thus reduce the overall dimensions of the system.

FEATURES

- For pulse load
- Output voltage adjustment
- Remote ON/OFF
- Power good signal
- Low-profile design
- Case operating temperature –60...+125°C
- Minimum load not required
- Frequency synchronization



Description of MDA Family on the manufacturer's website:
eng.aedon.ru/pr-pulse.php

* without mounting flanges.

MDA500

FEATURES

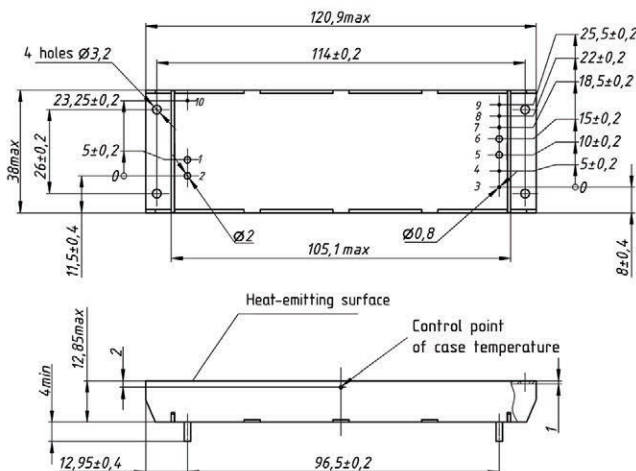
- Output current up to 30 A
- Switching frequency 450...530 kHz, external synchronization
- Typical efficiency 90–92% ($U_{out}=28$ VDC)
- Case operating temperature $-60...+125^{\circ}\text{C}$
- No minimum load
- Ultrafast voltage feedback

COMPLIANCE

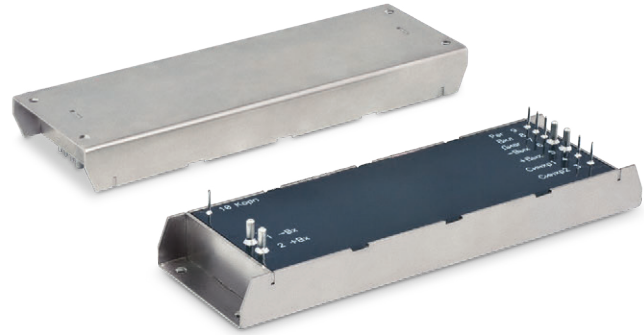
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
1	-IN	6	-OUT
2	+IN	7	DIAG
3	SYNC2	8	ON
4	SYNC1	9	ADJ
5	+OUT	10	CASE



Module with vertical pin out, case with flanges "U" type. Dimensions in mm. Case version with "D" type flanges is also available. Detailed information can be found in technical documentation on the manufacturer's website.



MODELS

Output Power	Input Voltage Range, VDC	Output Voltage, VDC	Rated Output Current, A
340 W	28 (22...33) 54 (44...66) 300 (270...330)	9	30
		12	28,3
		28	12,1
		36	9,44
		40	8,5
500 W		50	6,8
		28	17,9
		36	13,9
		40	12,5
		50	10

Units are under development.

GENERAL SPECIFICATIONS

Output voltage adjustment	$\pm 5\%$ $U_{out, nom}$
Line and load regulation	$\max \pm 4\%$ $U_{out, nom}$
0...100%...0 load step	
Ripple and noise (p-p)	$< 2\%$ $U_{out, nom}$
Overcurrent protection level	$< 1,5$ P_{max}
Short-circuit protection	Auto recovery
Internal switching frequency	450...470 kHz
Synchronization frequency	470...530 kHz
Synchronization off-duty factor	1,25...5
Synchronization amplitude	2,4...5,5 V
Case operating temperature	$-60...+125^{\circ}\text{C}$
Typical efficiency	90–92% @ $U_{out}=28$ VDC
Isolation voltage	500 VDC
Humidity	98% / 35°C
Thermal resistance case-ambient	$6,4^{\circ}\text{C}/\text{W}$
Typical MTBF	2000 kWhrs
Cooling	Conductive
Dimensions*	105,1×38×12,85 mm
Weight	$\max 190$ g

* without mounting flanges and pinouts.

AC/DC POWER SUPPLIES

KAP & KAN power supply systems

KAN-D, DIN-rail mountable power supplies

MAA, low-profile power supplies



AC/DC power supplies are developed and manufactured by KW Systems, LLC, part of Energy Electronics group. First power supplies of this type were developed in 1999. For the past 17 years they have been upgraded several times and optimized for modern standards in different fields of industry, including crucial applications.

The third generation of AC/DC power supplies is now in serial production and new product lines are under development. We will soon have the following serial products:

- multi-purpose scaling controlled platform of high power (up to 30 kW) designed to provide high quality uninterrupted power supply for telecommunications, industry and automated workstations (based on serial 5 kW unit KAN5000);
- highly effective solutions of industry automation;
- modular low-profile power supplies of forth generation distinguished by higher efficiency and optimized heat emission.

KAP & KAN Families, power supplies systems



Models	Output Power, W	Input Voltage Range, VAC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Form Factor	Dimensions, mm	Status
KAP15	15000	90..264 323...418	30 (20..30) 60 (30..66)	3000 VAC	94%	19", 3U	603,6×482,6×132,5	see product description
KAP10	10000		250 (50...250) 300 (60...300)		94%			under development
KAP20	20000	323...418			94%	19", 5U	603,6×482,6×222	
KAP25	25000				94%			
KAP30	30000				94%			
KAN5000	5000	323...418			94%	1U	475×145×64,5	serial production
		90..264						

DESCRIPTION

Flexible and programmable high power platform. Depending on the task it can be used for various turn-key solutions: AC/DC converters, UPS or chargers. Single- or three-phase, 19" rack compatible, equipped with different functions and output parameters. As most our products these units are able to operate in a wide temperature range and have rich selection of available settings – current and voltage stabilization, output current adjustment 0–100%, high efficiency and power factor with active corrector, parallel operation, three- or single-phase mains. Scaling and back-up solutions are available for increasing general system reliability.

FEATURES

- Rated output power up to 30 kW
- Input voltage 380 VAC (3p+n; 3p w/o n) or 220 VAC (1ph)
- Output voltage up to 300 VDC
- Voltage adj. range (20...100%)
- Digital interface
- Ambient operating temperature –20...+50°C
- High reliability



Description of KAP Family on the manufacturer's website: eng.kwsystems.ru/catalog/series/8



Description of KAN5000: eng.kwsystems.ru/catalog/models/33

KAP15

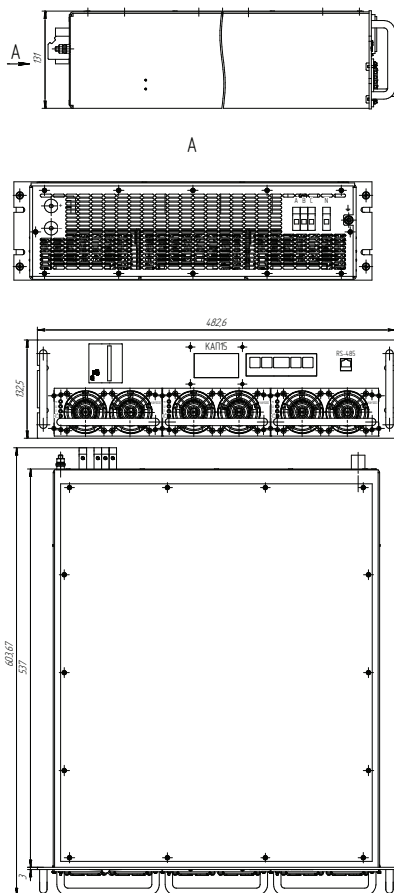
FEATURES

- Rated output power up to 15 kW
- Input voltage 380 VAC (3p+n; 3p w/o n)
- Output voltage up to 300 VDC
- Voltage adj. range (20...100%)
- Output current up to 500 A
- Digital interface
- Ambient operating temperature -20...+50°C
- Efficiency up to 94%
- High reliability
- 19", 3U rack power unit

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
15000 W	90...264 (1ph) 323...418 (3p+n; 3p w/o n*)	— 304...456 @ 1 s	30 (20...30)*	500
			60 (30...33)*	250
			250 (50...250)	60
			300 (50...300)	50

Units with output range 250 and 300 VDC (380 V 3p+n) are available for order.
*The models are under development.



Dimensions in mm.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
EMC Std.	MIL-STD-461E

GENERAL SPECIFICATIONS

Output voltage adjustment	20...100% Uout. nom
Ripple and noise (p-p)	<1% Uout. nom
Setup, rise time	max 5 s
Transient time	20 ms
Overcurrent protection	>120% Inom
Output current adjustment range	0... 100%
Ambient operating temperature	-20...+50°C
Typical efficiency	94% @ Uout.=48 VDC
Isolation voltage (IN/OUT)	3000 VAC
Cooling	forced air adaptive cooling
Housing material	metal
Digital interface	RS-485
Quantity of network operating units	up to 10
Dimensions	603,6×482,6×132,5 mm
Weight	max 33 kg

STANDARD FUNCTIONS

Limit of in-rush current threshold

Overcurrent protection

Overvoltage protection

Remote on/off

Mounting flanges

OPTIONS

Custom design output voltages

Different algorithms of thermal protection

Indication of operation mode

Indication of output parameters

Output current stabilization mode

Battery charger

Control and monitoring digital interface

Parallel mode

KAN5000

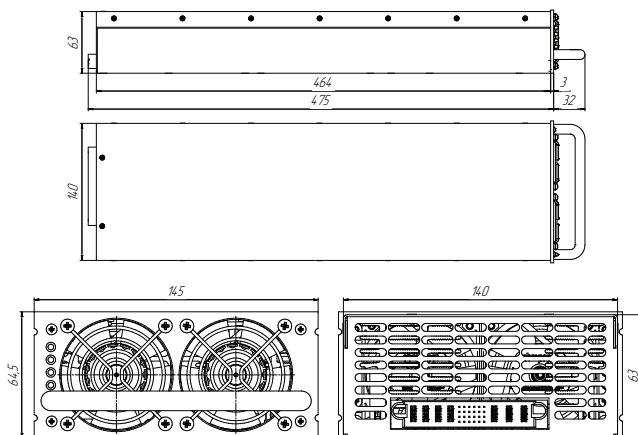
FEATURES

- Designed for stand-alone usage or as a component of KAP unit
- Rated output power 5 kW
- Input voltage 220 VAC (single-phase), three-phase 380 VAC (3p+n; 3p w/o n)
- Output voltage up to 300 VDC
- Wide output voltage adjustment range
- Output current up to 166 A
- Digital interface
- High efficiency up to 94%
- High reliability
- Power density up to 1,2 kW/dm³
- Programmed voltage/current stabilization mode

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
5000 W	90...264 (1ph) 323...418 (3p+n; 3p w/o n)	—	30 (20...30)	166
			60 (30...60)	83
			250 (50...250)	20
			300 (60...300)	16.6

Units with input range 90...264 VAC and output 250 and 300 VDC are available for order. Units with output 30 and 60 VDC are under development until November, 2017; with 380 VAC (3ph) are under development until July, 2017.



Dimensions in mm.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
EMC Std.	MIL-STD-461E

GENERAL SPECIFICATIONS

Ripple and noise (p-p)	<1% Uout.nom
Setup, rise time	max 5 s
Transient time	20 ms
Overcurrent protection	>120% Inom
Output current adjustment range	0.. 100%
Short-circuit protection	automatic repair
Overvoltage protection	105% Uout.max
Case operating temperature	-20...+50°C
Thermal protection	Internal with hyseresis at +100°C
Typical efficiency	94% @ Uout.=48 VDC
Isolation voltage (IN/OUT)	3000 VAC
Cooling	forced air adaptive cooling
Housing material	metal
Digital interface	RS-485, isolated
Quantity of units connected to network	up to 30, each unit controlled separately
Control device	workstation with installed operating system Win x-, 7, 8
Dimensions	475×145×64,5 mm
Weight	max 6 kg

STANDARD FUNCTIONS

- Constraint of in-rush current threshold
- Overcurrent protection
- Overvoltage protection
- Remote on/off

OPTIONS

- Customer design output voltages
- Different algorithms of thermal protection

KAN-D Family, DIN-rail mountable power supplies



Models	Output Power, W	Input Voltage Range	Output Voltage, VDC	Isolation Voltage	Typical Efficiency (48 VDC output)	Dimensions, mm	Status
KAN-D50	50	80...264 VAC	12; 24; 48	1500 VAC	94%	132×131×33	serial production
KAN-D150	150	112...372 VDC			89%	132×131×40	
KAN-D300	300				90%	132×131×45	
KAN-D600	600				92%	132×131×90	under development

DESCRIPTION

DIN-rail compatible AC/DC converters. Convectional cooling of all models of the series. These units are ready to operate in extreme conditions (–50°C, 98% humidity, in dust and corrosive gases) due to protection coating of the PCB. They have high efficiency and EMC (EN55022, Class B (CISPR22)).

Wide range of powers (from 50 to 600 W) and input voltage (80...264 VAC), compact dimensions, active PFC from 150 W, good pricing and high quality from a Russian manufacturer.

FEATURES

- DIN-rail mounting
- Wide operating temperature range –50...+70°C
- Wide voltage adj. range (up to –50...+10%)
- Convective cooling
- Low level of EMI noise EN55022 (CISPR22), Class B
- PFC
- Remote feedback



Description of KAN-D Family on the manufacturer's web-site: eng.kvsystems.ru/catalog/series/4

KAN-D50

FEATURES

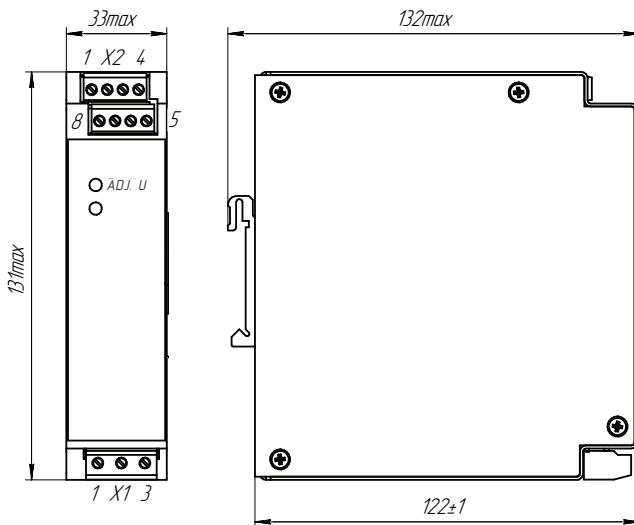
- DIN-rail mounting
- Wide operating temperature range -50...+70°C
- High efficiency up to 94%
- Wide voltage adj. range (-15...+10%)
- DC-OK and “dry contact” outputs
- Convective cooling
- Low level of EMI noise EN55022 (CISPR22), Class B
- Built-in diode isolation
- PFC

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
X1.1	L	X2.4	-OUT
X1.2	N	X2.5	+OUT
X1.3	CASE	X2.6	+OUT
X2.1	1	X2.7	ADJ. U
X2.2	2	X2.8	PGOOD
X2.3	-OUT		



Dimensions in mm.



MODELS

Power	Input Voltage Range	Output Voltage, VDC	Rated Output Current, A
50 W	80...264 VAC 112...372 VDC	12	6,15
		24	2,08
		48	1,04

GENERAL SPECIFICATIONS

Ripple and noise (p-p)	<2% Uout.nom
Input Frequency	47-440 Hz
Output voltage adjustment	-15...+10% Uout.nom
Output voltage setpoint accuracy	max 2%
Max load capacity	6000 µF
Short-circuit Protection	auto recovery
Overload Protection	Pmax...2 Pmax
Overvoltage Protection	<125% Uout.nom
Overheating protection	trigger point at case temperature >85°C
Connection Type	pluggable screw connection
Power derating	-2% / °C after +60°C
Degree of protection	IP20
Humidity	98% on t° +40°C
Operating temperature	-50...+70°C
Typical efficiency	94% @ Uout.=48 VDC
Isolation voltage (IN/OUT)	1500 VAC
Cooling	convective
Housing material	metal
Dimensions	132×131×33 mm
Weight	max 500 g

KAN-D150

FEATURES

- DIN-rail mounting
- Wide operating temperature range $-50...+70^{\circ}\text{C}$
- High efficiency 90% or more
- Wide voltage adj. range $(-50...+10\%)$
- Output current up to 12,5 A
- Convective cooling
- Low level of EMI noise EN55022 (CISPR22), Class B
- Active PFC
- DC-OK and “dry contact” outputs

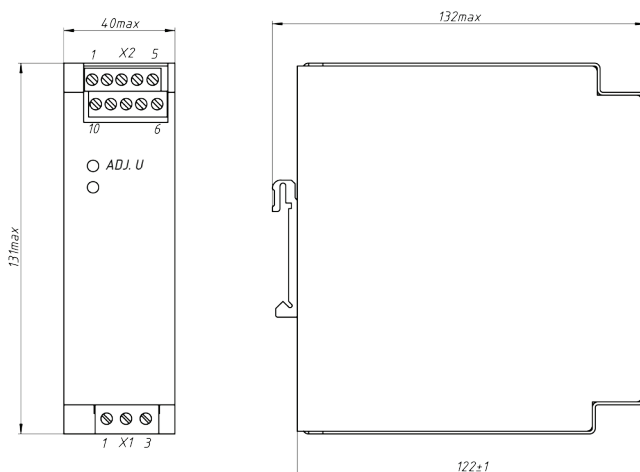


COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
X1.1	L	X2.5	-OUT
X1.2	N	X2.10	PGOOD
X1.3	\oplus	X2.9	ADJ. U
X2.1	DRY CONTACT	X2.8	+RS
X2.2	DRY CONTACT	X2.7	+OUT
X2.3	-RS	X2.6	+OUT
X2.4	-OUT		



Dimensions in mm.

MODELS

Power	Input Voltage Range	Output Voltage, VDC	Rated Output Current, A
150 W	80...264 VAC 112...372 VDC	12	12,5
		24	6,25
		48	3,12

GENERAL SPECIFICATIONS

Ripple and noise (p-p)	<2% Uout.nom
Input Frequency	47-440 Hz
Output voltage adjustment	$-50...+10\%$ Uout.nom
Output voltage setpoint accuracy	max 2%
Short-circuit Protection	auto recovery
Overload Protection	Pmax...1,2 Pmax
Overvoltage Protection	<125% Uout.nom
Overheating protection	trigger point at case temperature $>85^{\circ}\text{C}$
Connection Type	pluggable screw connection
Power derating	$-2\% / ^{\circ}\text{C}$ after $+60^{\circ}\text{C}$
Degree of protection	IP20
Humidity	98% on $t^{\circ} +40^{\circ}\text{C}$
Operating temperature	$-50...+70^{\circ}\text{C}$
Typical efficiency	89% @ Uout=48 VDC
Isolation voltage (IN/OUT)	1500 VAC
Cooling	convective
Housing material	metal
Dimensions	132×131×40 mm
Weight	max 900 g

KAN-D300

FEATURES

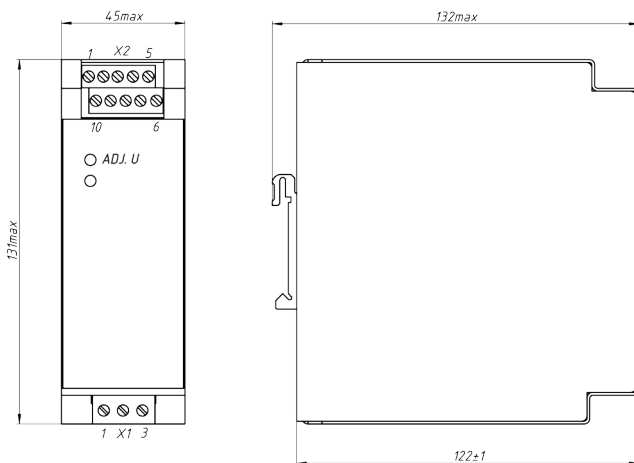
- DIN-rail mounting
- Wide operating temperature range -50...+70°C
- High efficiency 90% or more
- Wide voltage adj. range (-50...+10%)
- Output current up to 25 A
- Convective cooling
- Low level of EMI noise EN55022 (CISPR22), Class B
- Active PFC
- DC-OK and “dry contact” outputs

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
X1.1	L	X2.5	-OUT
X1.2	N	X2.10	PGOOD
X1.3	⊕	X2.9	ADJ. U
X2.1	DRY CONTACT	X2.8	+RS
X2.2	DRY CONTACT	X2.7	+OUT
X2.3	-RS	X2.6	+OUT
X2.4	-OUT		



Dimensions in mm.



MODELS

Power	Input Voltage Range	Output Voltage, VDC	Rated Output Current, A
300 W	80...264 VAC 112...372 VDC	12	25
		24	12,5
		48	6,25

GENERAL SPECIFICATIONS

Ripple and noise (p-p)	<2% Uout.nom
Input Frequency	47-440 Hz
Output voltage adjustment	-50...+10% Uout.nom
Output voltage setpoint accuracy	max 2%
Max load capacity	6000 µF
Short-circuit Protection	auto recovery
Overload Protection	Pmax...1,2 Pmax
Overvoltage Protection	<125% Uout.nom.
Overheating protection	trigger point at case temperature >85°C
Connection Type	pluggable screw connection
Power derating	-2% / °C after +60°C
Degree of protection	IP20
Humidity	98% on t° +40°C
Operating temperature	-50...+70°C
Typical efficiency	89% @ Uout.=48 VDC
Isolation voltage (IN/OUT)	1500 VAC
Cooling	convective
Housing material	metal
Dimensions	132×131×45 mm
Weight	max 1100 g

KAN-D600

FEATURES

- DIN-rail mounting
- Wide operating temperature range $-50...+70^{\circ}\text{C}$
- High efficiency 92%
- Wide voltage adj. range $(-50...+10\%)$
- Output current up to 50 A
- Convective cooling
- Low level of EMI noise EN55022 (CISPR22), Class B
- Active PFC
- Remote feedback

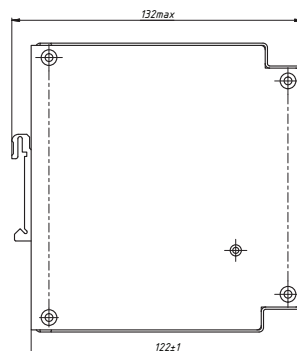
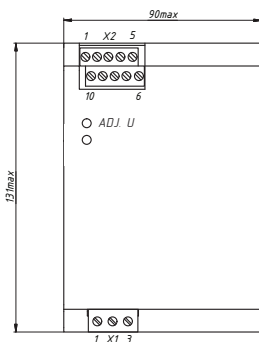


COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Function	PIN	Function
X1.1	L	X2.5	-OUT
X1.2	N	X2.6	+OUT
X1.3	⊕	X2.7	+OUT
X2.1	DRY CONTACT	X2.8	+RS
X2.2	DRY CONTACT	X2.9	ADJ. U
X2.3	-RS	X2.10	PGOOD
X2.4	-OUT		



Dimensions in mm.

MODELS

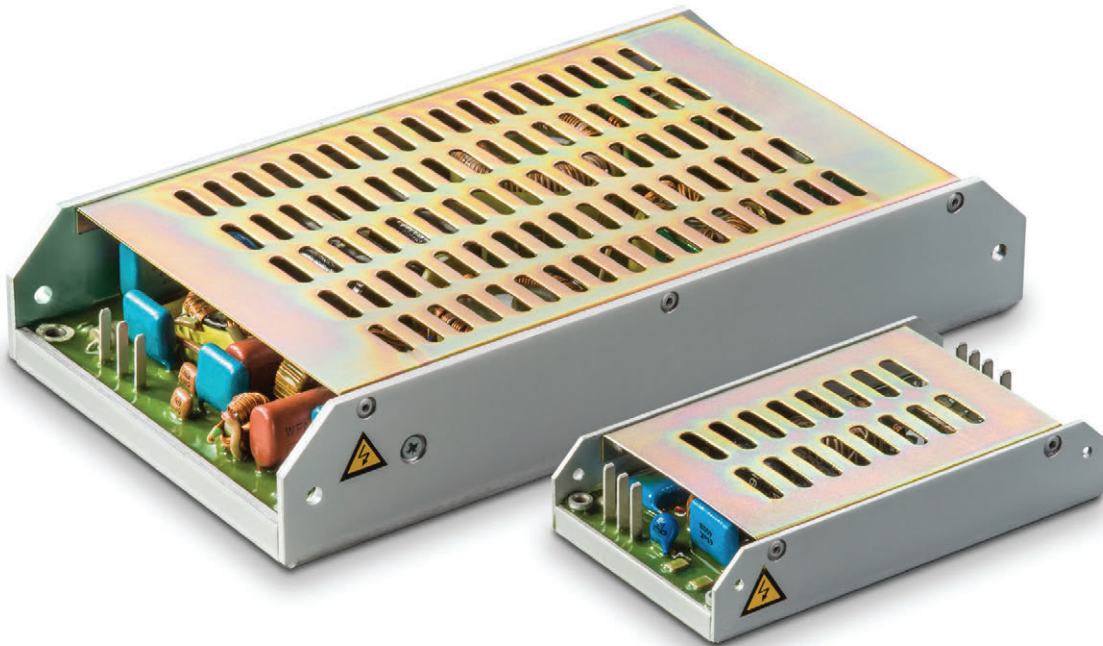
Power	Input Voltage Range	Output Voltage, VDC	Rated Output Current, A
600 W	80...264 VAC 112...372 VDC	12	50
		24	25
		48	12,5

Units are under development until 09.2017.

GENERAL SPECIFICATIONS

Ripple and noise (p-p)	<2% Uout.nom
Input Frequency	47-440 Hz
Output voltage adjustment	$-50...+10\%$ Uout.nom
Output voltage setpoint accuracy	max 2%
Short-circuit Protection	auto recovery
Overload Protection	$P_{max}...1,2 P_{max}$
Overvoltage Protection	$<125\%$ Uout.nom
Overheating protection	trigger point at case temperature $>85^{\circ}\text{C}$
Connection Type	pluggable screw connection
Power derating	-2% / $^{\circ}\text{C}$ after $+60^{\circ}\text{C}$
Degree of protection	IP20
Humidity	98% on $t^{\circ} +40^{\circ}\text{C}$
Operating temperature	$-50...+70^{\circ}\text{C}$
Typical efficiency	92% @ Uout.=48 VDC
Isolation voltage (IN/OUT)	1500 VAC
Cooling	convective
Housing material	metal
Dimensions	132×131×90 mm
Weight	max 1500 g

MAA Family, low-profile power supplies



Models	Output Power, W	Input Voltage Range, VAC	Output Voltage, VDC	Isolation Voltage	Typical Efficiency	Dimensions, mm	Status	
MAA30	30	187...242	5; 9; 12; 15; 24; 28	1500 VAC	85%	101×51×20	see product description	
MAA75	60, 75*				94%	111×61×23,5		
MAA250	150; 200; 250				89%	134×84×33		
MAA600	500; 600				100...264 187...242	91%		175×93×35
MAA1000	800; 1000					89%		211×117×41
MAA1500	1200; 1500				90%	250×140×41		
MAA3000	3000				92%	250×140×50		
MAA500 3ph	500	323...437	9; 12; 15; 24; 28	1500 VAC	85%	175×93×35		
MAA1500 3ph	1500				88%	250×140×41		
MAA3000 3ph	3000				92%	250×140×50		

DESCRIPTION

Multi-channel low-profile AC/DC converters featured by the ability to operate in extreme conditions (-50...+85°C, high humidity, vibration). Wide range of powers (30...3000 W) and input/output voltage, up to 3 output galvanically isolated channels. Variety of additional functions: parallel operation, remote feedback, remote power on/off, etc.

FEATURES

- Case operating temperature range -50...+85°C
- Potential free output
- Overvoltage, short-circuit and thermal protection
- Remote off/on
- Voltage output adjustment
- Parallel operation, external feedback
- Polymer potting sealing



Description of MAA Family on the manufacturer's website: eng.kwsystems.ru/catalog/series/1

* 75 W power supply units support input ranges 100...264 and 187...242 VAC

MAA30

FEATURES

- Power density max 612 W/dm³ (10 W/in³)
- Output current max 6 A
- Low-profile design (20 mm) with blade contacts or connector block
- DIN-rail mount (optional)
- Galvanic isolation output/output, input/case
- Overvoltage, short-circuit and thermal protection
- Polymer potting sealing
- Maximum load capacity 22500 µF (Uout.=5 VDC)

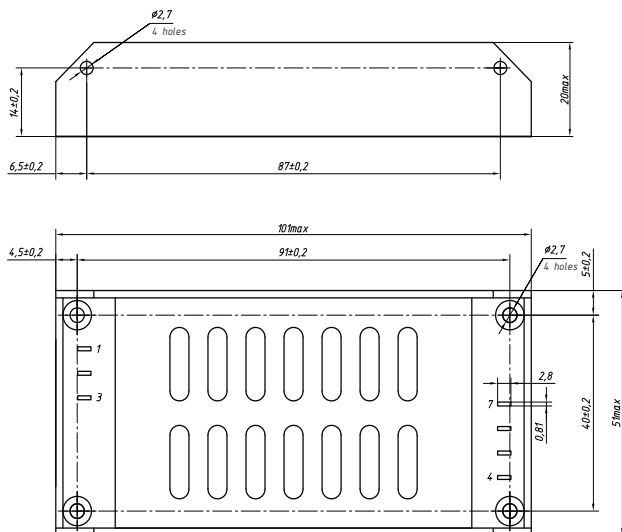


COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	⊕	4	+OUT1
2	L	5	-OUT1
3	N		



Dimensions in mm. Single channel design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
30 W	187...242, 50 Hz	176...264 @ 1 s	5	6
			9	3,33
			12	2,5
			15	2
			24	1,25
			28	1,11

Serial production.

Other output voltage within range 5...60 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1, 2, 3
Line and load regulation	max 4% for first channel max 10% for second (third) channel
Ripple and noise (p-p)	<2% Uout.nom
Short-circuit protection	automatic recovery
Overcurrent protection	Pout...1,8 Pmax
Overload protection level	<125% Uout.nom
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	84% @ Uout.=24 VDC
Switching frequency, constant	200 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	convective (baseplate-cooled)
Thermal resistance case-ambient	6,8°C/W
Dimensions	101×51×20 mm
Weight	max 180 g

MAA75

FEATURES

- Power density max 560 W/dm³ (9,2 W/in³)
- Output current max 15 A
- Low-profile design (23,5 mm) with blade contacts or connector block
- DIN-rail mount (optional)
- Potential free output
- Overvoltage, short-circuit and thermal protection
- Polymer potting sealing
- Maximum load capacity 45000 µF (Uout.=5 VDC)

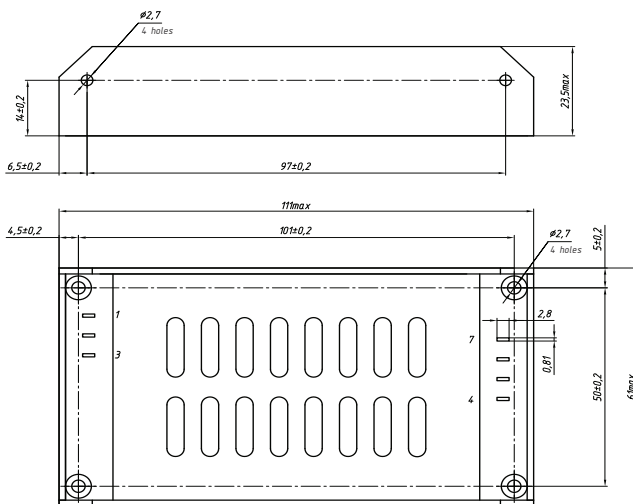


COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1		4	+OUT1
2	L	5	-OUT1
3	N		



Dimensions in mm. Single channel design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
60 W	187...242, 50 Hz	176...264 @ 1 s	5	12
			9	6,67
			12	5
			15	4
			24	2,25
75 W	100...264, 50 Hz 187...242, 50 Hz	- 176...264 @ 1 s	5	15
			9	8,3
			12	6,25
			15	5
			24	3,12
			28	2,78

75 W unit with input range 100...264 VAC is under development until June 2017.

Other output voltage within range 5...60 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1, 2, 3
Line and load regulation	max 4% for first channel max 10% for second (third) channel
Ripple and noise (p-p)	<2% Uout.nom
Short-circuit protection	automatic recovery
Overcurrent protection	Pout...1,8 Pmax
Overload protection level	<125% Uout.nom
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	94% @ Uout.=24 VDC
Switching frequency, constant	200 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	convective (baseplate-cooled)
Thermal resistance case-ambient	4,8°C/W
Dimensions	111×61×23,5 mm
Weight	max 270 g

MAA250

FEATURES

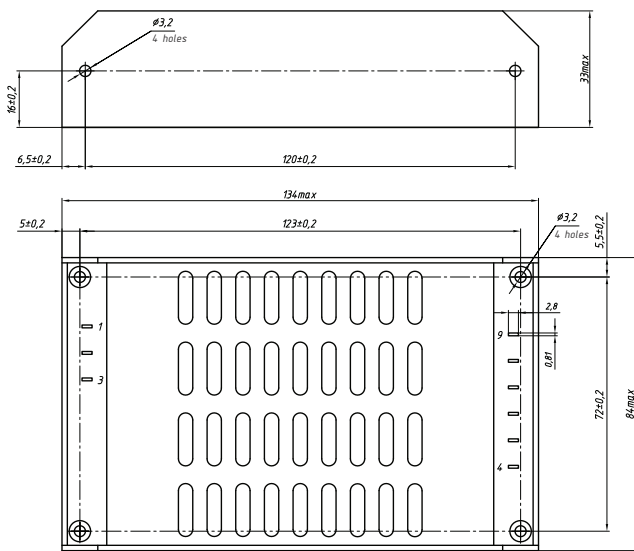
- Power density max 724 W/dm³ (11,9 W/in³)
- Output current max 30 A
- Low-profile design (33 mm) with blade contacts or connector block
- DIN-rail mount (optional)
- Potential free output
- Overvoltage, short-circuit and thermal protection
- Polymer potting sealing
- Maximum load capacity 135000 µF (Uout.=5 VDC)

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1		4, 5	remote on/off
2	L	6, 7	-OUT1
3	N	8, 9	+OUT1



Dimensions in mm. Single channel design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.



MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
150 W	100...264, 50 Hz	-	5	30
			9	16,7
			12	12,6
			15	10
			24	6,3
200 W			28	5,56
			9	22,2
			12	16,6
			15	13,3
250 W			24	8,33
			28	7,4
			9	27,7
			12	20,8
			15	16,6
			24	10,4
			28	9,25

Units are under development until 12.2017.

Other output voltage within range 5...68 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1, 2
Line and load regulation	max 4% for first channel max 10% for second channel
Ripple and noise (p-p)	<2% Uout.nom
Short-circuit protection	automatic recovery
Overvoltage protection	<125% Uout.nom
Overload protection level	Pout...1,8 Pmax
Output voltage adjustment	±10% is done with preset resistor
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	89% @ Uout.=27 VDC
Switching frequency, constant	140 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	2,7°C/W
Dimensions	101×51×20 mm
Weight	max 600 g

MAA600

FEATURES

- Power density max 916 W/dm³ (15 W/in³)
- Output current max 60 A
- Low-profile design (35 mm) with blade contacts or connector block
- Remote off/on
- Potential free output
- Overvoltage, short-circuit and thermal protection
- Polymer potting sealing
- Maximum capacity 1800 µF (Uout.=5 VDC)

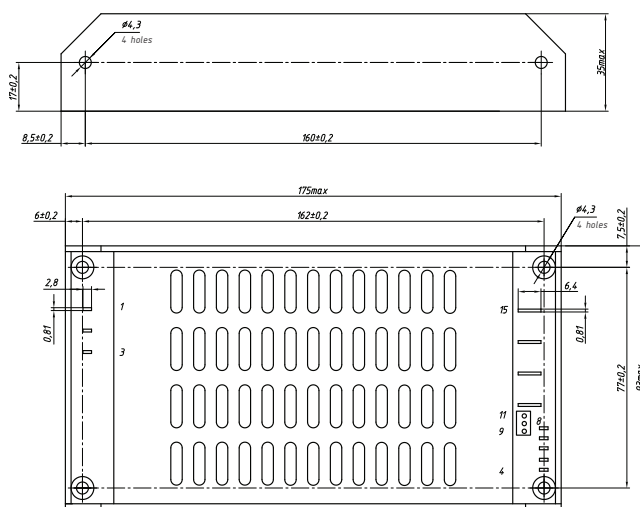


COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	L	8	PARAL
2	N	9	NOT USE
3	⊕	10	-U FAN
4, 5	remote on/off	11	+U FAN
6	+RS	12, 13	+OUT1
7	-RS	14, 15	-OUT1



Dimensions in mm. Single channel design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
500 W	100...264, 50 Hz	-	9	55,5
			12	41,6
			15	33,3
			24	20,8
			28	18,5
600 W	187...242, 50 Hz	176...264 @ 1 s	9	60
			12	50
			15	40
			24	25
			28	22,2

Units are under development until 09.2017.

Other output voltage within range 5...60 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1, 2
Line and load regulation	max 4% for first channel max 10% for second channel
Ripple and noise (p-p)	<2% Uout. nom
Short-circuit protection	automatic recovery
Overcurrent protection	Pout...1,8 Pmax
Overload protection level	<125% Uout. nom
Output voltage adjustment	±10% is done with preset resistor
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	91% @ Uout.=24 VDC
Switching frequency, constant	140 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	1,8°C/W
Dimensions	175×93×35 mm
Weight	max 1100 g

MAA1000

FEATURES

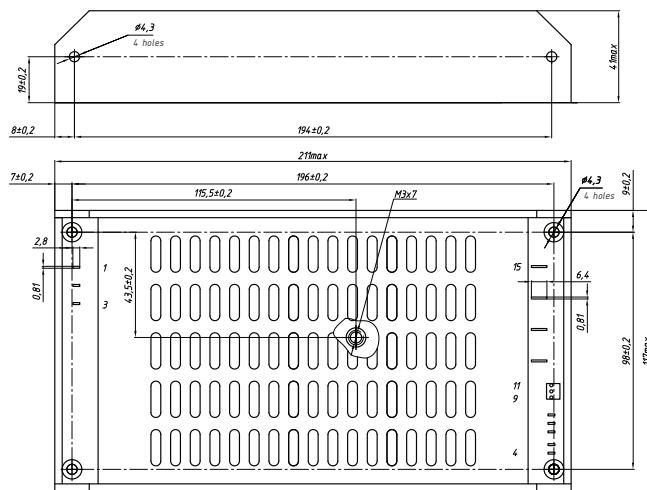
- Power density max 1034 W/dm³ (16,9 W/in³)
- Output current max 66,7 A
- Low-profile design (41 mm) with blade contacts or connector block
- Remote off/on
- Potential free output
- Overvoltage, short-circuit and thermal protection
- Parallel operation
- Maximum capacity 78000 μF (Uout.=15 VDC)

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	L	8	PARAL
2	N	9	+U FAN
3	⊕	10	-U FAN
4, 5	remote on/off	11	NOT USE
6	+RS	12, 13	+OUT1
7	-RS	14, 15	-OUT1



Dimensions in mm. Single channel design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.



MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
800 W	100...264, 50 Hz 187...242, 50 Hz	- 176...264 @ 1 s	15	53,3
			24	33,3
			28	29,6
			48	16,6
1000 W			15	66,7
			24	41,6
			28	37
			48	20,8

Units with input range 100...264 VAC are available for pre-order. Units with input range 187...242 VAC are serial.

Other output voltage within range 5...68 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1, 2
Line and load regulation	max 4% for first channel max 10% for second channel
Ripple and noise (p-p)	<2% Uout. nom
Short-circuit protection	automatic recovery
Overcurrent protection	Pout...1,8 Pmax
Overload protection level	<125% Uout. nom
Output voltage adjustment	±10% is done with preset resistor
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	89% @ Uout.=48 VDC
Switching frequency, constant	100 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	1,2°C/W
Dimensions	211×117×41 mm
Weight	max 1900 g

MAA1500

FEATURES

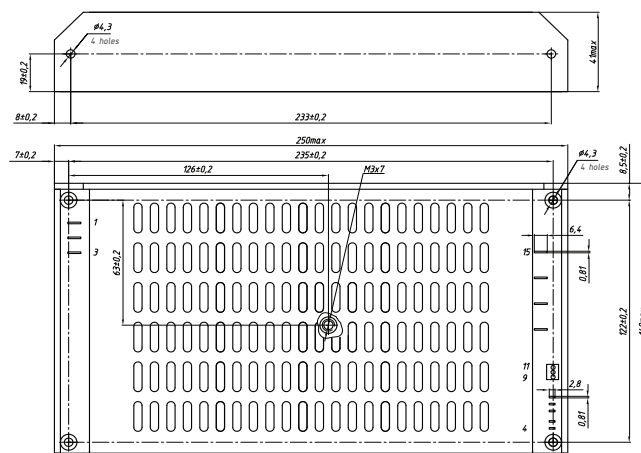
- Power density max 1084 W/dm³ (17,8 W/in³)
- Output current max 80 A
- Low-profile design (41 mm) with blade contacts or connector block
- Remote off/on
- Potential free output
- Overvoltage, short-circuit and thermal protection
- Parallel operation
- Maximum capacity 99000 µF (Uout.=15 VDC)

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	L	8	PARAL
2	N	9	+U FAN
3	⊕	10	-U FAN
4, 5	remote on/off	11	NOT USE
6	+RS	12, 13	+OUT1
7	-RS	14, 15	-OUT1



Dimensions in mm. Single channel design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.



MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
1200 W	100...264, 50 Hz	- 176...264 @ 1 s	24	50
	187...242, 50 Hz		28	44,4
			48	25
1500 W			24	62,5
			28	55,5
			48	31,25

Units with input range 187...242 VAC are serial. Units with input range 100...264 VAC are under development.

Other output voltage within range 5...68 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1, 2
Line and load regulation	max 4% for first channel max 10% for second channel
Ripple and noise (p-p)	<2% Uout.nom
Short-circuit protection	automatic recovery
Overcurrent protection	Pout...1,8 Pmax
Overload protection level	<125% Uout.nom
Output voltage adjustment	±10% is done with preset resistor
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	90% @ Uout.=48 VDC
Switching frequency, constant	100 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	0,8°C/W
Dimensions	250×140×41 mm
Weight	max 2400 g

MAA3000

FEATURES

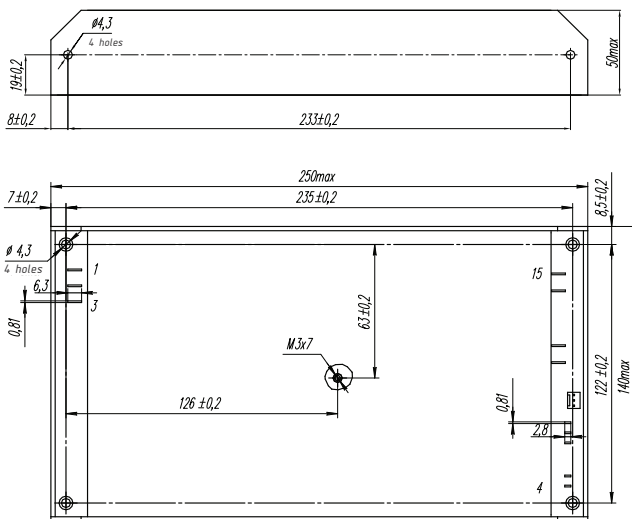
- Power density max 1714 W/dm³ (28,1 W/in³)
- Output current max 125 A
- Low-profile design (50 mm) with blade contacts or connector block
- Remote off/on
- Power factor corrector
- Overvoltage, short-circuit and thermal protection
- Parallel operation
- Maximum load capacity 36500 µF (Uout.=27 VDC)

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	L	8	PARAL
2	N	9	+U FAN
3	⊕	10	-U FAN
4, 5	remote on/off	11	NOT USE
6	+RS	12, 13	+OUT1
7	-RS	14, 15	-OUT1



Dimensions in mm. Design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.



MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
3000 W	100...264, 50 Hz 187...242, 50 Hz	-	24	125
			28	111
			48	62,5

Units with input range 100...264 VAC are under development. Units with input range 187...242 VAC are serial.

Other output voltage within range 5...68 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1
Line and load regulation	max 4%
Ripple and noise (p-p)	<2% Uout. nom
Short-circuit protection	automatic recovery
Overcurrent protection	Pout...1,8 Pmax
Overload protection level	<125% Uout. nom
Output voltage adjustment	±10% is done with preset resistor
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	92% @ Uout.=48 VDC
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	0,8°C/W
Dimensions	250×140×50 mm
Weight	max 2900 g

MAA500 3ph

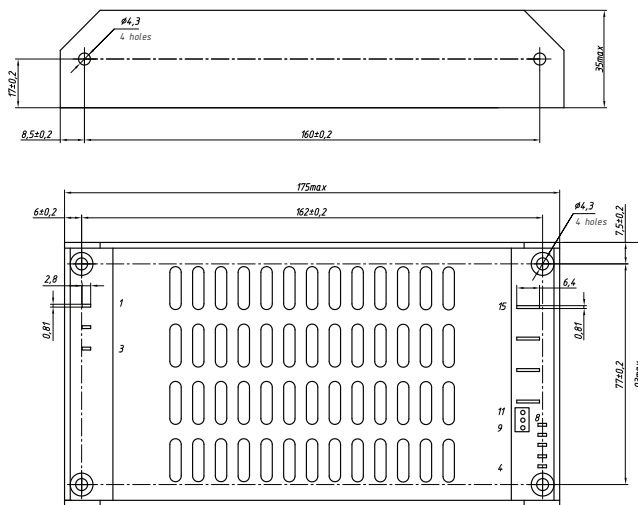
FEATURES

- Power density max 916 W/dm³ (15 W/in³)
- Output current max 60 A
- Low-profile design (35 mm) with blade contacts or connector block
- Remote off/on
- Parallel operation, external feedback
- Overvoltage, short-circuit and thermal protection
- Polymer potting sealing
- Maximum capacity 6700 µF (Uout.=27 VDC)



PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	C	9	PARAL
2	B	10	ADJ
3	A	11	NOT USE
4,	⊕	12	-U FAN
5,6	remote on/off	13	+U FAN
7	+RS	14,15	+OUT1
8	-RS	16,17	-OUT1



Dimensions in mm. Single channel design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
500 W	323...437, 50 Hz	304...456 @ 1 s	9	55,5
			12	41,6
			15	33,3
			24	20,8
			28	18,5

Units are available for pre-order.

Other output voltage within range 5...60 VDC is also available upon special request.

GENERAL SPECIFICATIONS


Quantity of output channels	1, 2
Line and load regulation	max 4% for first channel max 10% for second channel
Ripple and noise (p-p)	<2% Uout. nom
Short-circuit protection	automatic recovery
Overload protection level	<125% Uout. nom
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	85% @ Uout.=27 VDC
Switching frequency, constant	100 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	1,8°C/W
Dimensions	175×93×35 mm
Weight	max 180 g

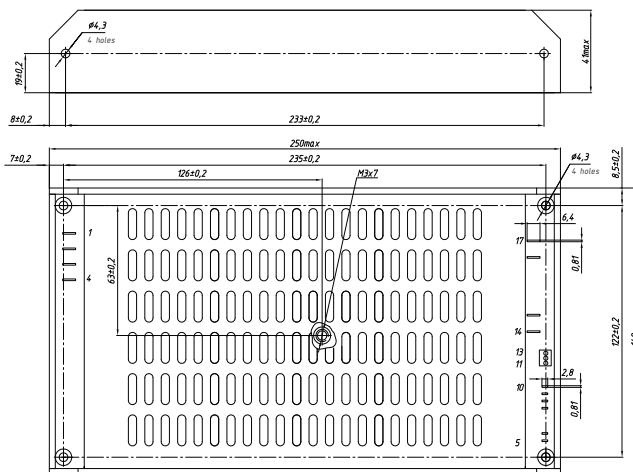
MAA1500 3ph

FEATURES

- Power density max 1084 W/dm³ (17,8 W/in³)
- Output current max 80 A
- Low-profile design (41 mm) with blade contacts or connector block
- Remote off/on
- Parallel operation, external feedback
- Overvoltage, short-circuit and thermal protection
- Polymer potting sealing
- Maximum load capacity 33000 μF (Uout.=27 VDC)

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	C	9	PARAL
2	B	10	ADJ
3	A	11	+U FAN
4,		12	-U FAN
5,6	remote on/off	13	NOT USE
7	+RS	14, 15	+OUT1
8	-RS	16, 17	-OUT1



Dimensions in mm. Design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.



COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
1500 W	323...437, 50 Hz	304...456 @ 1 s	24	62,5
			28	55,5
			48	31,25

Upgrading of units until 09–12.2017.

Other output voltage within range 5...68 VDC is also available upon special request.

GENERAL SPECIFICATIONS

Quantity of output channels	1
Line and load regulation	max 4%
Ripple and noise (p-p)	<2% Uout. nom
Short-circuit protection	automatic recovery
Overload protection level	<125% Uout. nom
Humidity	93–95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	88% @ Uout.=48 VDC
Switching frequency, constant	100 kHz
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	0,8°C/W
Dimensions	250×140×41 mm
Weight	max 2400 g

MAA3000 3ph

FEATURES

- Power density max 1714 W/dm³ (27,1 W/in³)
- Output current max 125 A
- Low-profile design (50 mm) with blade contacts or connector block
- Remote off/on
- Galvanic isolation output/output, input/case
- Overvoltage, short-circuit and thermal protection
- Parallel operation, remote feedback
- Maximum load capacity 1800 µF (Uout.=5 VDC)

PIN CONNECTION

PIN	Single channel	PIN	Single channel
1	A	9	PARAL
2	B	10	+U FAN
3	C	11	-U FAN
4,	⊕	12	NOT USE
5,6	remote on/off	13,14	+OUT
7	+RS	15,16	-OUT
8	-RS		



COMPLIANCE

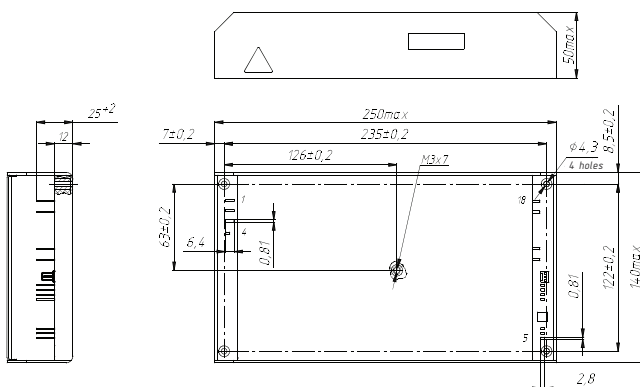
Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, V	Output Voltage, VDC	Rated Output Current, A
3000 W	323...437, 50 Hz	304...456 @ 1 s	24	125
			28	111
			48	62,5

Upgrading of units until 03-04.2017.

Other output voltage within range 5...80 VDC is also available upon special request.



Dimensions in mm. Design with blade contacts. Other versions can be found in technical documentation on the manufacturer's website.

GENERAL SPECIFICATIONS

Quantity of output channels	1
Line and load regulation	max 4%
Ripple and noise (p-p)	<2% Uout. nom
Short-circuit protection	automatic recovery
Overcurrent protection	Pout...1,8 Pmax
Overload protection level	<125% Uout. nom
Output voltage adjustment	±10% is done with preset resistor
Humidity	93-95% on t° +25°C
Case operating temperature	-50...+85°C
Typical efficiency	92% @ Uout.=48 VDC
Isolation voltage (IN/OUT)	1500 VAC
Cooling	conductive (baseplate-cooled) or active cooling
Thermal resistance case-ambient	0,8°C/W
Dimensions	250×140×50 mm
Weight	max 2900 g

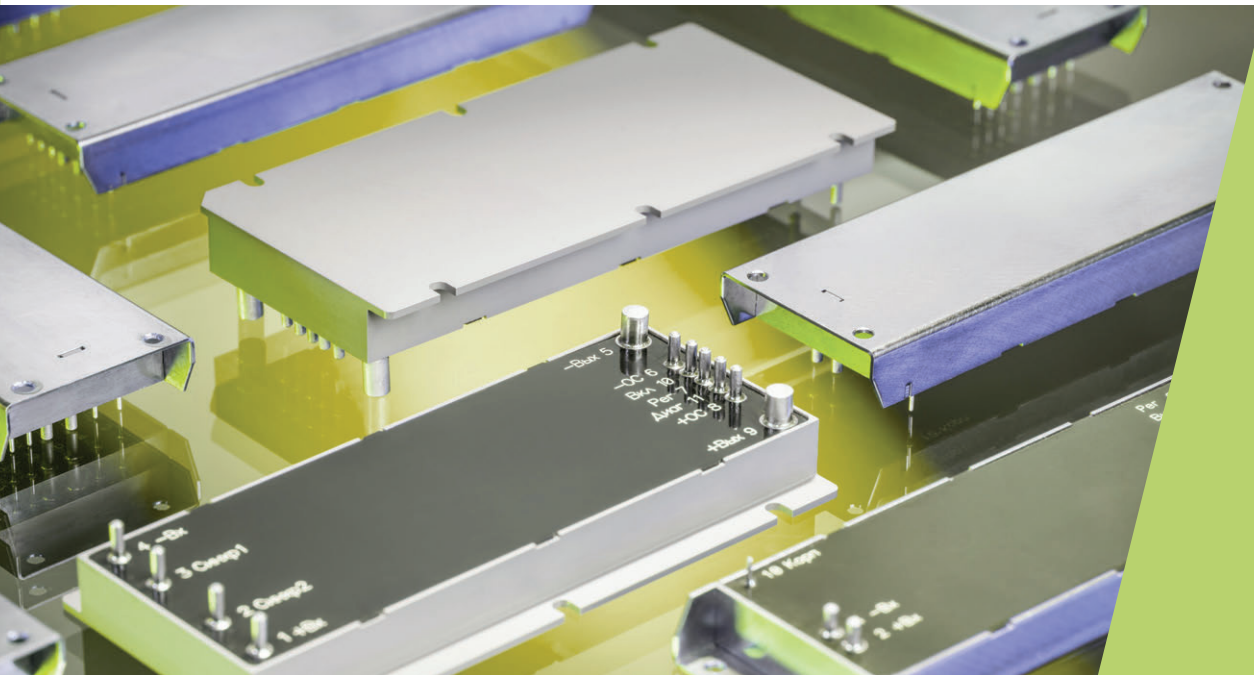
EMI AND CURRENT FILTERS

ATF Family

KKM Family

KAD Family

MDF Family



 **AEDON**

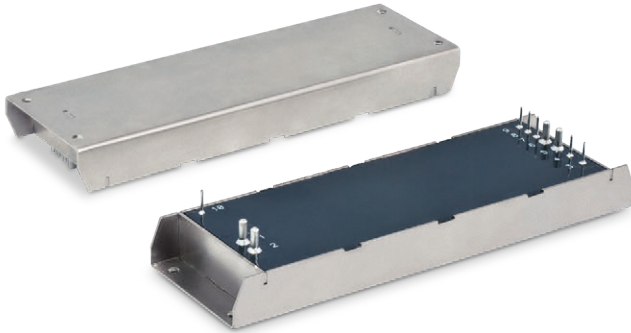
EMI and current filters are step-up DC/DC converters without galvanic isolation designed for elimination of harmonic and nonlinear current distortions of the primary mains. Correctors help reducing the pulse component of the current consumed from the mains and allow to achieve high power factor over 0,95.

 **KWsystems**

Protection and EMI suppressing filters are designed for power supply systems with strict EMI compliance requirements. Application of filters helps reducing conducted emissions with suppression ratio up 60dB for DC mains and up to 40 dB for AC mains.

The products of this type are manufactured by both factories and are optimized for various power supply systems based on PSUs made by AEDON and KW Systems.

ATF Family



FEATURES

- Derating of impulse load on the input network
- Low-profile design, compact dimensions compared with conventional capacitive storage
- Output power 200 W, 400 W
- Input voltage of 9...18, 18...36, 36...72, 200...340 VDC
- Switching frequency 470...530 kHz, external synchronization
- Typical efficiency 92...95%
- Operating temperature –60...+125°C

MODELS

Power	Input Voltage Range, VDC	Output Voltage, VDC	Rated Output Current, A
200 W	12 (9...18) 27 (18...36) 60 (36...72) 300 (200...340)	24	8,3
		27	7,4
		48	4,1
		60	3,3
		96	2,1
		110	1,8
		380	0,53
		400	0,5
400 W		24	16,7
		27	14,8
		48	8,3
		60	6,7
		96	4,2
		110	3,6
		380	1,05
		400	1

Units are under development.

See dimensional layout at page 69.

DESCRIPTION

Compact modular active current filter (ATF) is designed to reduce the pulse component of the current consumed from the input network in systems featuring pulsed load current. ATF is optimized for joint use with power sources of MDA series to provide power supply of transmit-receive units of active electronically scanned arrays (AESA). Apart from this it can be used in other power systems with load of pulse nature.

ATF is a step-up DC/DC converter without galvanic isolation. The pulse current consumed by the load is filtered by limiting charging current of the storage capacitor connected between ATF and the subsequent cascade of the power supply system.

The floating galvanically isolated synchronization entry allows to synchronize the conversion frequency of the ATF and ensure reliable hardware or software filtration of its electromagnetic interference.

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

GENERAL SPECIFICATIONS

Input filter	none
Ripple amplitude of the input current under dynamic load	max ±10%
Line and load regulation	max ±10%
Ripple and noise (p-p)	max 2% of Uout.nom
Overload protection	110–130% Pnom
Short-circuit protection	none
Overvoltage protection at output	max 115% Uout.nom
Synchronization frequency	470...530 kHz
Synchronization off-duty factor	1,25...5
Synchronization amplitude	2,4...5,5 V
Case operating temperature	–60...+125°C
Efficiency at constant rated power load	min 92%
Isolation voltage	500 VDC
Humidity	98% / 25°C
Thermal resistance housing-ambient	6,4°C/W
Typical MTBF	2000 kHrs
Cooling	convectonal with heatsink or forced fan
Dimensions	120,9×38×12,85 mm
Weight	max 190 g

KKM Family

DESCRIPTION

Compact modular power factor corrector is a DC/DC converter without galvanic isolation, designed for providing high power factor in power supply systems with single-phase AC input voltage.

Compact size and low-profile allow integration of KKM units into compact power supply systems. With external bridge rectifier and isolated DC/DC converter it can be used to make ultralow-profile AC/DC converter with case operation temperature range $-60...+125^{\circ}\text{C}$.

Galvanically isolated differential input allows to synchronize switching frequency and provide reliable hardware or software filtration of electromagnetic noises.

KKM unit is equipped with remote power off and overload and overvoltage protection.



FEATURES

- Power factor min 0,96; low level of input current harmonics
- Low-profile package, small size
- Case operation temperature -60 to $+125^{\circ}\text{C}$
- Rated output power 200 W, 400 W
- Input voltage 187...242 VAC (with external bridge rectifier) or 260...342 VDC
- Switching frequency 470 to 530 kHz, external synchronization

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

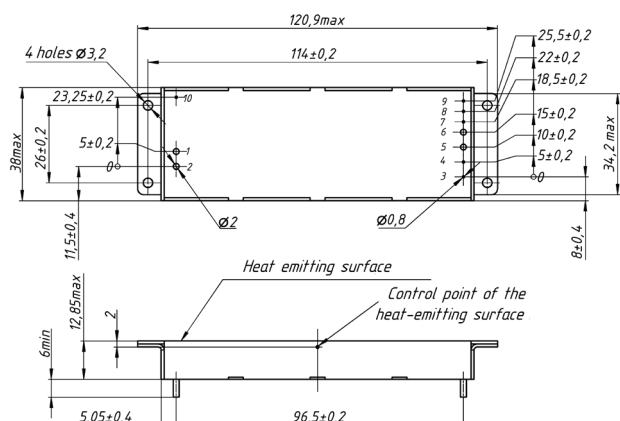
GENERAL SPECIFICATIONS

Input filter	none
Nominal power factor	min 0,96
Overall output regulation	max $\pm 10\%$
Ripple and noise (p-p)	max 2% of $U_{out.nom}$
Overload protection	110–130% P_{nom}
Short-circuit protection	none
Overvoltage protection at output	max 115% $U_{out.nom}$
Synchronization frequency	470...530 kHz
Synchronization off-duty factor	1,25...5
Synchronization amplitude	2,4...5,5 V
Case operating temperature	$-60...+125^{\circ}\text{C}$
Efficiency at constant rated power load	min 92%
Isolation voltage	1500 VDC
Humidity	98% / 25°C
Thermal resistance housing-ambient	$6,4^{\circ}\text{C/W}$
Typical MTBF	2000 kHrs
Cooling	convexional with heatsink
Dimensions	120,9 \times 38 \times 12,85 mm
Weight	max 190 g

MODELS

Power	Input Voltage Range, VAC	Output Voltage, VDC	Rated Output Current, A
200 W	220 (187...242)	380	0,53
		400	0,5
400 W	220 (187...242)	380	1,05
		400	1

Units are under development.



Dimensions in mm. Description of pins can be found in manufacturer's engineering documentation.

KAD Family

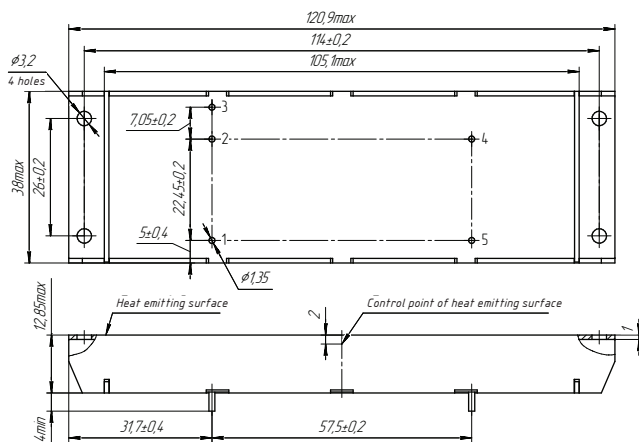


FEATURES

- AC input voltage
- Insertion loss up to 80 dB
- Pulse overvoltage protection
- Load of up to 500 W
- Output current up to 2,7 A
- Typical efficiency 98%
- Low-profile case with mounting flanges
- Heat conduction polymer sealing
- Operating case temperature $-60...+125^{\circ}\text{C}$

MODELS

Power	Input Voltage Range, VAC	Transient Voltage, VAC	Throughput current, A
500 W	187...242	176...264 @ 1 s	up to 2,7
Serial production.			



Dimensions in mm. Description of pins can be found in manufacturer's engineering documentation.

DESCRIPTION

Compact filter-rectifier designed for rectifying single-phase AC voltage, as well as for protection of the connected load from input surge and for filtering conductive interference emitted by the load into the input network.

With compact dimensions (120,9×38×12,85 mm) max power of the load connected to the filter-rectifier is 500 W. This unit can operate in a wide case operating temperature range. Polymer sealing potting ensures reliable protection from external impacts and eliminates damages caused by vibration, dirt, humidity or salt mist.

This product combined with isolated DC/DC converter and an electrolytic capacitor allows you to create a low-profile AC/DC power supply system operating in temperature range $-60...+125^{\circ}\text{C}$.

COMPLIANCE

Safety Std. Approval (Pending)	EN60950-1
Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E

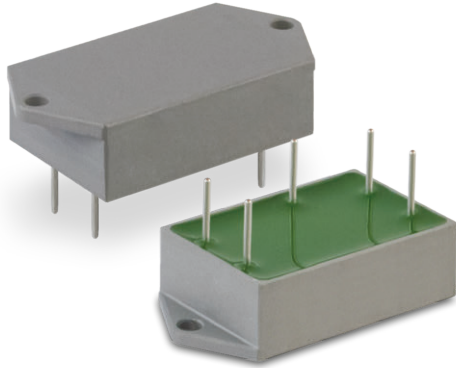
GENERAL SPECIFICATIONS

Power frequency	47–440 Hz
Limiting voltage ($I=1\text{ mA}$)	430 V
Maximum energy	35 J @ (10/1000 mks)
Maximum surge current for overvoltage	1,2 kA @ (8/20 mks)
Throughput current	up to 2,7 A
Power load	up to 500 W
Voltage drop	max 2 %
Insertion loss in the frequency range	
0,15...0,3 MHz	≥25 dB
0,3...1 MHz	≥40 dB
1...10 MHz	≥55 dB
10...30 MHz	≥50 dB
Case operating temperature	$-60...+125^{\circ}\text{C}$
Efficiency	min 98%
Isolation voltage	1500 VAC
Humidity	98% / 25°C
Thermal resistance housing-ambient	6,4 $^{\circ}\text{C}/\text{W}$
Typical MTBF	2000 kHrs
Cooling	convectional with heatsink or forced fan
Dimensions	120,9×38×12,85 mm
Weight	max 190 g

MDF Family

DESCRIPTION

Unified filtering DC/DC units of MDF-series are designed to improve EMI performance of power supply units in the equipment highly sensitive to electromagnetic interference. Despite small dimensions the max throughput current can reach up to 20A. These filters are able to operate in a wide operating temperature range and significantly extend the performance of power supply units. Pin outputs make this filter suitable for PCB or 3D mounting. The best performance can be achieved with DC/DC converters made by AEDON.



COMPLIANCE

Environmental Test Std.	MIL-STD-810G
EMC Std.	MIL-STD-461E
Aircraft Electric Spec.	Survives 80 V transients / MIL-STD-704A

GENERAL SPECIFICATIONS

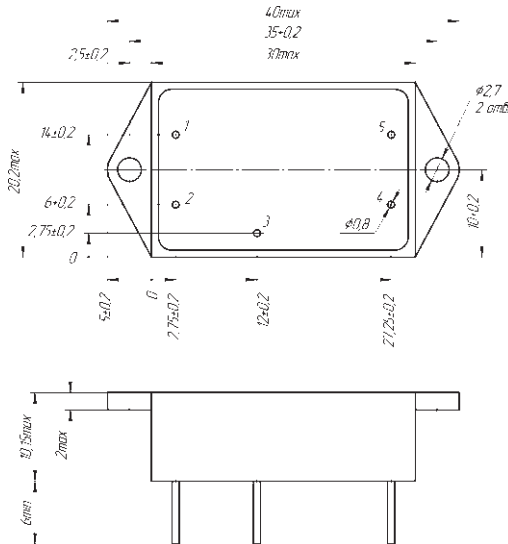
Insertion loss in the frequency range	0,15...0,3 MHz	≥30 dB
	0,3...1 MHz	≥40 dB
	1...10 MHz	≥60 dB
	10...30 MHz	≥55 dB
Voltage drop	≤3% U _{in} . nom	
Pulse voltage protection	Max 1000 V, duration max 16 μs	
Case operating temperature	-60...+90°C	
Isolation voltage	500 VDC	
Humidity	98% / 35°C	
Typical MTBF	2000 kHrs	
Cooling	convectional with heatsink or forced fan	
Dimensions	MDF1	57,7×40,2×10,2 mm
Weight	MDF1	30 g
	MDF2	35 g
	MDF3	40 g
	MDF4	55 g

FEATURES

- For DC/DC mains
- Insertion loss up to 60 dB
- Case operating temperature -60...+90°C
- High reliability
- Pulse voltage protection

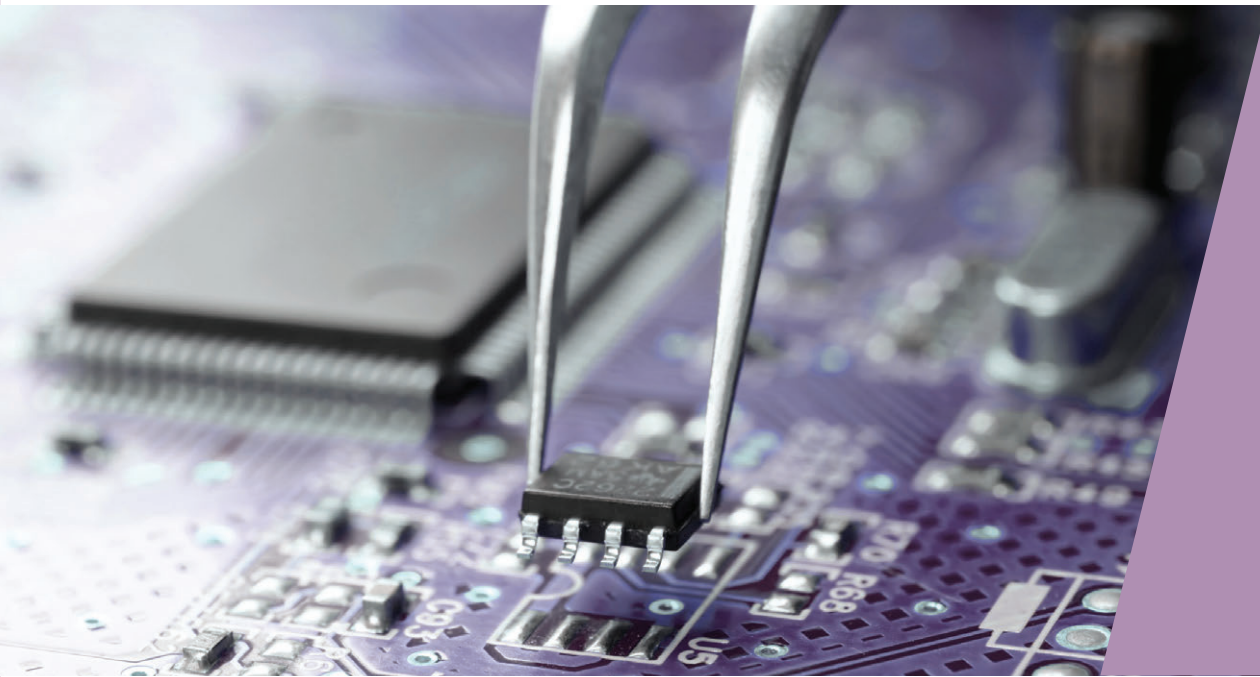
MODELS

Type	Input voltage, VDC	Transient deviation, VDC	Max throughput current, A
MDF1	10,5...36	10,5...40 @ 1 s	2,5
MDF2	17...72	17...84 @ 1 s	5
MDF3			10
MDF4			20



MDF1. Dimensions in mm. Pin description can be found in technical documentation on the manufacturer's web-site.

CUSTOM DESIGN



Custom designed power systems, made according to customer's requirements.

Apart from unified modular power supplies AEDON and KW Systems develop customized projects, including those, which require special approach to design, electric and mechanical parameters.


Customized multi-channel power systems are featured by the following advantages.

- **Quality.** These products are designed by the best engineers with rich experience in power electronics.
- **Lead time.** Wide range of modular power supplies and various components reduces development time and launching of serial production stage.
- **Cost.** Development at executor's expense allows the customer to optimize the costs and make the project commercially attractive.
- **Flexibility.** Weight and size parameters corresponding to the world level are realized by application of over 20 solutions patented by AEDON.

Custom designed power system

DESCRIPTION

Complete 48-channel power supply system for on-board AESA with 115 V, 400 Hz input main. Active filtration of input current, special control and telemetry probing algorithm. The system has built-in RFI filters, capacitive storage and forced fan cooling. This solution engages 5 AEDON's patents.

 810×430×285 mm


APPLICATION

- Radar equipment
- Lead time of development – 12 weeks
- Status – sample testing



DESCRIPTION

Modular 19-channel DC/DC power supply with pulse output power over 3000 W with built-in RFI filters, capacitive storage and telemetry probing system.

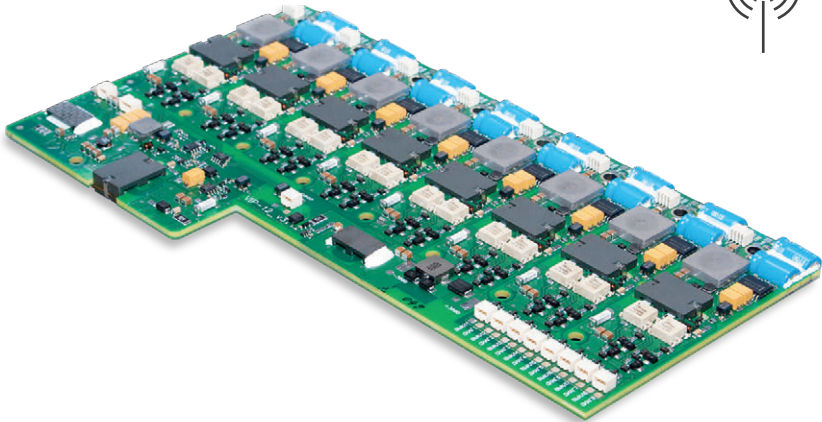
 260,5×231×183 mm

APPLICATION

- Power supply of transceiver module of AESA from on-board mains of airborne vehicles
- Lead time of development – 12 weeks
- Status – field testing




made according to customer's requirements



DESCRIPTION

8-channel DC/DC power unit designed for stabilized power supply of AESA transceivers with total pulse power of 1410 W. This system is featured by very quick voltage feedback. Storage capacitors are integrated into the structure. Patented heat removal system.

 269,2×151,2×11 mm


APPLICATION

- Radar equipment
- Lead time of development – 10 weeks
- Status – serial production



DESCRIPTION

Five-channel built-in power supply unit for ground radar equipment with supply from three-phase 380 V, 50 Hz mains. Pulse output power of the main PSU's channel is 380 W; total output power of all channels is 580 W. Includes power factor corrector and effective RFI filter. The power supply unit is equipped with a set of protection features and telemetry probing.

 266×100×55 mm

APPLICATION

- Radar equipment
- Lead time of development – 6 weeks
- Status – sample testing at customer's facilities

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