

## AC/DC power supplies

### KWadr Family

### KWadr5000T, 5 kW



#### Family description

**Hi-rel universal AC/DC converters.** Suitable for operation down to -40°C and in high humidity conditions.

Output voltage up to 350 VDC, efficiency up to 95 % and EMC Class B (EN55022 (CISPR22)).

Built-in digital control allows integrating of KWadr5000 into high power platforms fulfilling different tasks thanks to wide range of adjustments and service functions.

Intelligent active cooling decreases noise pollution, increases life of fans and improves operation temperature mode.

#### Features

- ▶ Efficiency up to 95 %
- ▶ Current or voltage source
- ▶ Wide range of voltage and current adjustment
- ▶ Parallel and series operation
- ▶ Digital control and monitoring interface RS485
- ▶ 3ph w/o n active PFC
- ▶ Smart fan speed control

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#### Modular type

#### Multi-purpose application

#### Order registration

+7 473 200 87 80, Global Operations Team

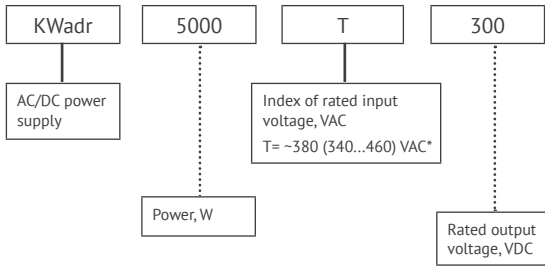
#### Technical support

[techsupport@kwsystems.ru](mailto:techsupport@kwsystems.ru)



Description of KWadr5000T on the manufacturer's website:  
[eng.kwsystems.ru/catalog/models/75](http://eng.kwsystems.ru/catalog/models/75)

### Ordering information



### Output specifications\*\*

Parameter	Value							
Unit name	KWadr5000T30	KWadr5000T60	KWadr5000T110	KWadr5000T140	KWadr5000T250	KWadr5000T300	KWadr5000T350	
Rated output voltage, VDC	30	60	110	140	250	300	350	
Output voltage range, VDC	20-30	30-60	70-110	70-140	125-250	150-300	170-350	
Efficiency, %	92	92	93	93	94,5	95	95	
Rated output current, A	166,6	83,3	45,4	35,7	20	16,7	14,3	
Output current adjustment range, %***	0... 100							
Ripple and noise (p-p)	<1% Unom.							
Ripple and noise (p-p)	20...100 % × Uout. nom.	2%	2%	2%	2%	1%		
	0...20 % × Uout. nom.	2%	2%	2%	2%	5%		
Total voltage regulation, %	Input voltage variation 340-460 VAC	max 2						
	Output current variation 0-100 %	max 2						
Output voltage transient deviation Vs 10-100-10 % load	max 5 % Uout. nom							
Transient time	20 ms							
Parallel connection	up to 10 units***							
Failure signal	dry contact, closed – OK							
Start-up time	up to 2,5-4,5 s after power on 2 s after supplying signal to Remote On/Off pins							

### Input specifications\*\*

Parameter	Value	
Mains type	380 3ph VAC	550 VDC
Input voltage range, VAC	340...460	420...640
AC mains frequency, Hz	45-65	0
PFC	active	
Power factor	≥0,95 with full load	
EMC	IEC 61000-3-12:2004	

\* For KWadr5000TXXX.

\*\* All specifications are valid for normal climatic conditions (ambient temp. +15...+35°C; relative humidity 45...80%; air pressure 8,6\*10<sup>4</sup>...10,6\*10<sup>4</sup> Pa), Uin.nom., Iout.nom., unless otherwise stated.

\*\*\* In case the output current is stabilized.

## Protections

Type of protection	380 3ph VAC	550 VDC
Overheat protection	built-in, with hysteresis +100°C in the mounting location	
Overvoltage protection, software	460 V	640 V
Overvoltage protection, varistor	460 V	615 V
Overcurrent protection	>105 % Inom	
Short-circuit protection (with Uout. less then 50 VDC)	auto recovery	

## Basic specifications

Parameter		Value
Compliance	EN60950-1	+
	EN55022, EN55024	+
Ambient temperature	operating	-20...+50°C (custom -40...+50°C) -20...+80°C with derating
	storage	-55...+70°C
Vibration		0.5...100 Hz 1 g displacement 1 mm
Single shock		30 g 18 ms
Repetitive shock		5 g up to 1.4 Hz
Operating altitude		up to 5500 m
Isolation voltage	input/case	2500 VAC
	input/output	2500 VAC
	output/case	1500 VAC
Isolation resistance		≥ 20 MOhm
Cooling		built-in forced fan, adaptive
MTBF		max 3 600 000 Hrs
Case material		metal
Dimensions		475×140×68 mm (case), 475×180×68 mm (including mounting flanges)
Weight, kg		max 6
Warranty		2 years

## Digital interface

Specifications of digital interface (option)	
Control interface	RS-485, isolated
Number of units connected to RS-485 network	up to 20, separate and group control
Control device	PC with Win XP, 7, 8, 10

## Standard functions

Inrush current limitation.

Overcurrent protection.

Remote sense cut-off protection (overvoltage >105 % Uout. max).

Remote on/off.

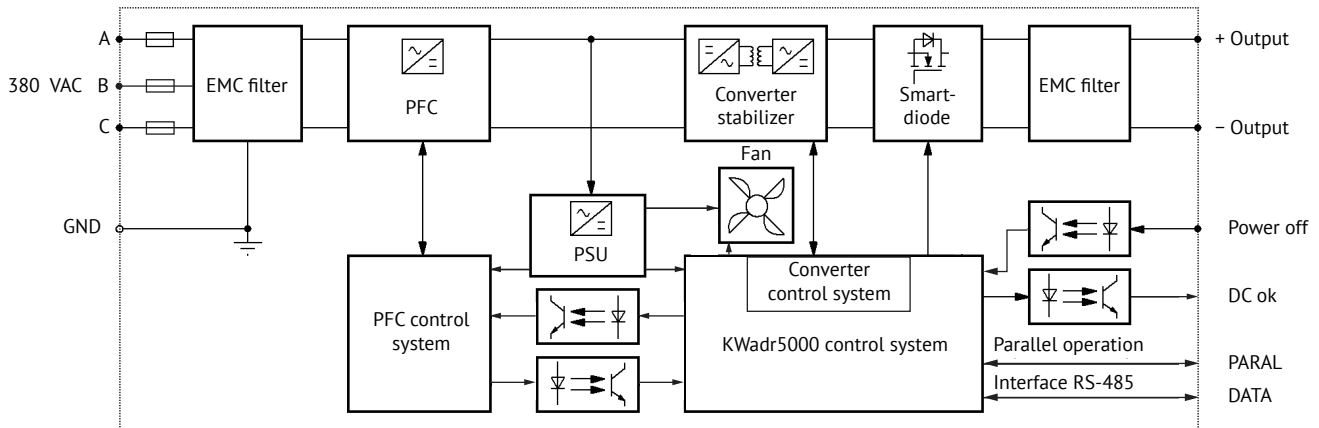
Mounting flanges.

## Optional functions

Customized output voltage.

Different algorithms of thermal protection.

### Block diagram

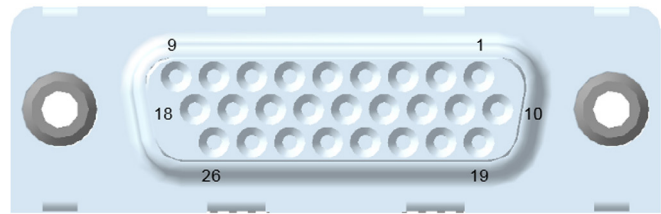


### External connector

Connector type (block section): DHR-26F

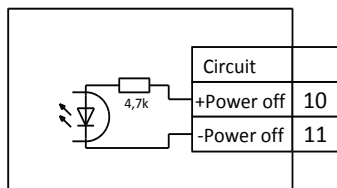
Mating connector type: DHS-26M

1	+DC ok	8	DATA-A	15	Common	21	Addr.2
2	-DC ok	9	DATA-B	16	NC	22	Addr.3
3	NC	10	+Power off	17	-NC	23	Addr.4
4	Contr.	11	-Power off	18	-RS	24	Addr.0
5	Paral.	12	NC	19	Addr.0	25	Addr.1
6	Common	13	Common	20	Addr.1	26	Addr.2
7	NC	14	Common				

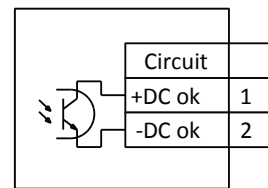


### Discrete control circuit layouts

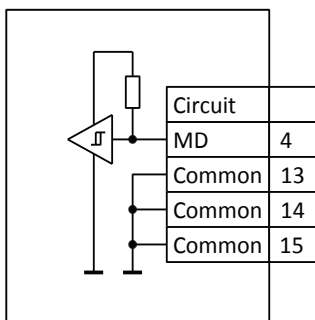
#### Remote power off signal



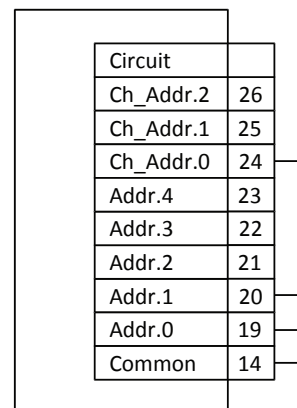
#### Module operation condition DC-OK signal



#### Disconnection detection layout



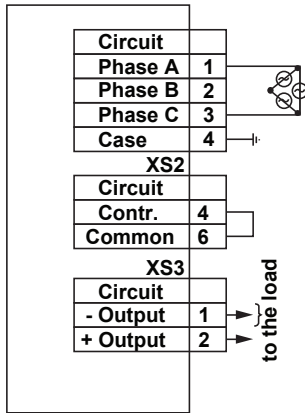
#### Example of converter address set-up



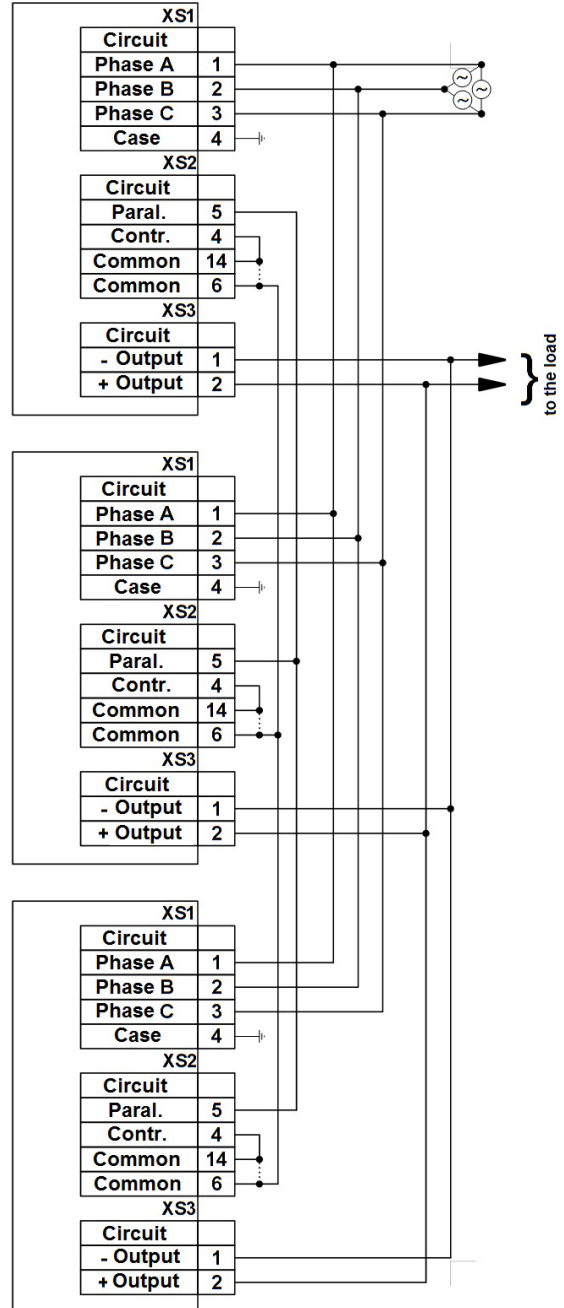
Address: 11011100b-DCh-220

## Connection diagrams

### Single type connection

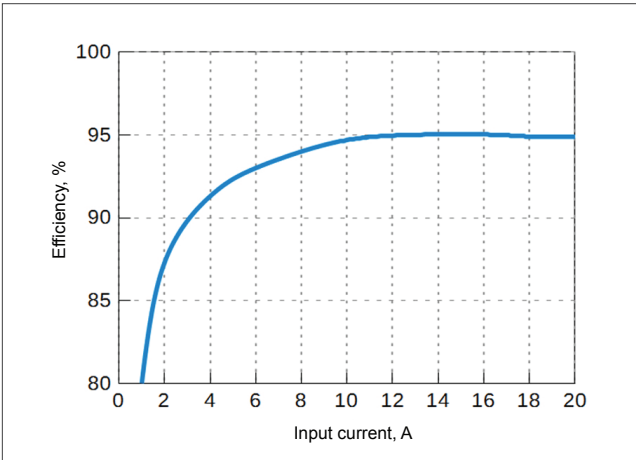


### Parallel operation of several units

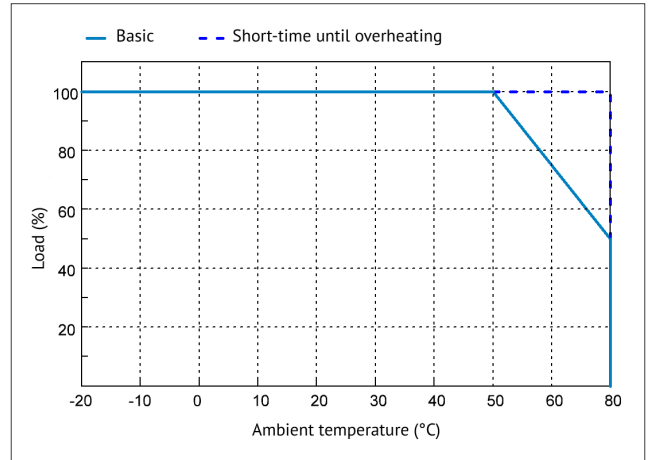


## Derating

vs output current for KWadr5000T250

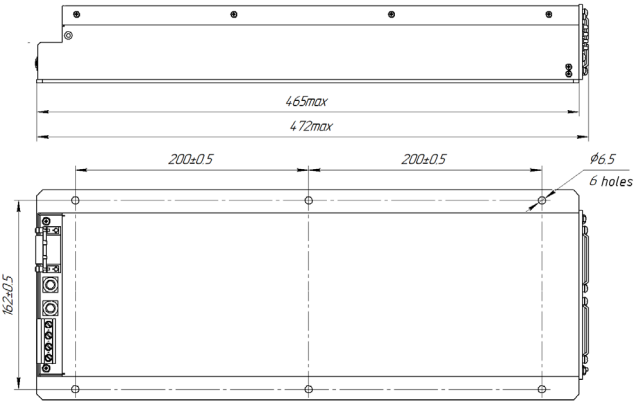


vs Temperature

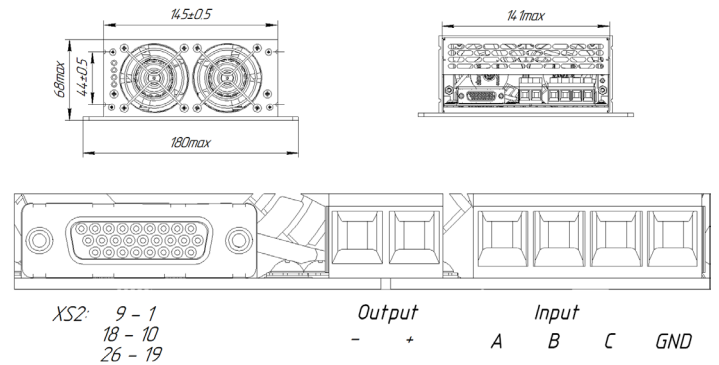
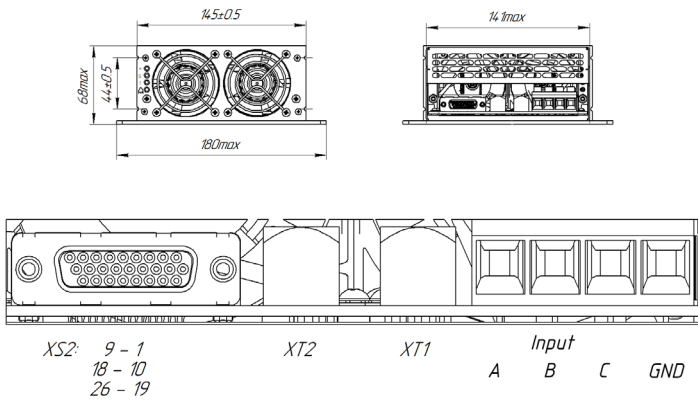
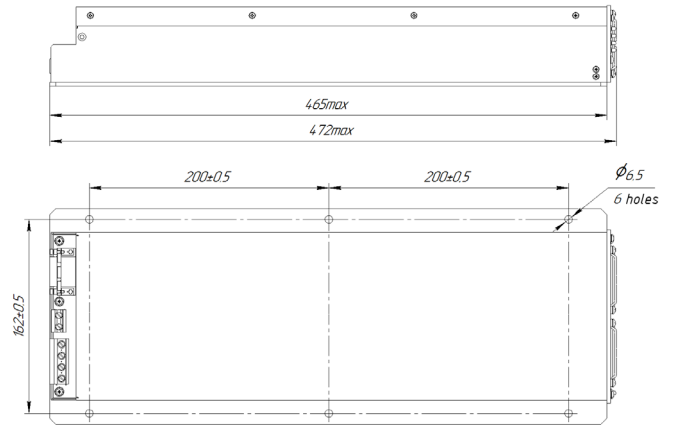


## Dimensions

KWadr5000T30(60)



KWadr5000T250(300)



## LED meaning

Symbol	LED	Meaning	Permanent	Blinking	PSU condition
≈	green	MAINS	●		mains voltage within rated range (340-460 VAC)
U	green	Ustab.	●		output voltage stabilization
I	green	Ustab.	●	●	power-off command received
				●	output current stabilization / overload
				●	power-off command received
🔔	red	error	●		failure, mains is out of operating range, overheating, overvoltage
				●	fan failure



[www.kwsystems.ru](http://www.kwsystems.ru) info@kwsystems.ru

KW Systems, LLC is the leading Russian developer and manufacturer of AC/DC converters and power supply systems for mission critical applications.

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