

## AC/DC power supplies

### KWant Family

### KWant30 NEW, 30 W



#### Basic specifications

Power .....	30 W
Output current .....	up to 6 A
Input voltage .....	220 (100...264) VAC
Output voltage .....	5 VDC, 12VDC, 24 VDC, 28 VDC
Efficiency.....	91,5 % typ.
Case operating temperature.....	-40...+85 °C; -50...+85 °C
Dimensions .....	101×51×20 mm
Warranty .....	2 years

#### Advantages

- ◀ MIL-STD-461E without external components
- ◀ MIL-STD-810G
- ◀ Extra low ripple-and-noise level of 40 mV (at Uout=28 VDC) without external components
- ◀ Convection cooling (without heatsink up to +40 °C ambient)



Description of KWant30 on the manufacturer's website:  
[eng.kwsystems.ru/catalog/acdc/models/1](http://eng.kwsystems.ru/catalog/acdc/models/1)

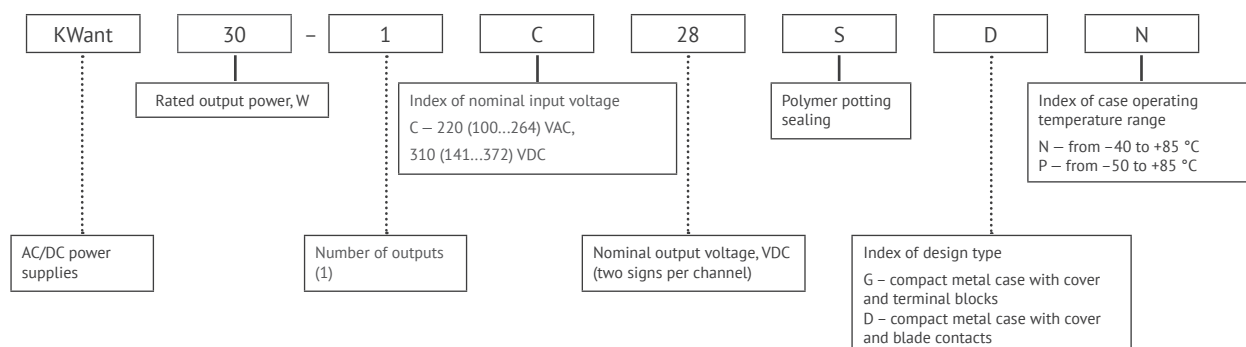
#### Order registration

+7 473 200 87 80, Global Operations Team

#### Technical support

Yuri Kazaryan, [techsupport@kwsystems.ru](mailto:techsupport@kwsystems.ru)

### Ordering information



### Input specifications\*

Parameter	Value
Input voltage range, VAC**	100...264 (141...372 VDC)
Transient deviation range, VAC	100...264
Transient time	1 s.
Mains frequency range, Hz	47...53
I <sup>2</sup> t (Joule integral) for pulse-type current	25
Pre-fuse	Slow blow 1.25 A

### Output specifications\*

Parameter	Value			
Nominal output voltage, VDC	5	12	24	28
Efficiency, %	87	90	91,5	91
Rated output current, A	6	2.5	1.25	1.07
Ripple and noise (peak-to-peak), mV	< 60		< 50	
Line and load regulation	max 1 %	max 0.5%	max 0.5 %	
Start-up time, ms	<500			
Maximum load capacity	7500 uF	2500 uF	1000 uF	830 uF

\* All specifications are valid for normal climatic conditions (ambient temp. +15...+35 °C; relative humidity 45...80 %; air pressure 8.6\*104...10.6\*104 Pa), Uin. nom., Iout. nom., unless otherwise noted.

## Protections

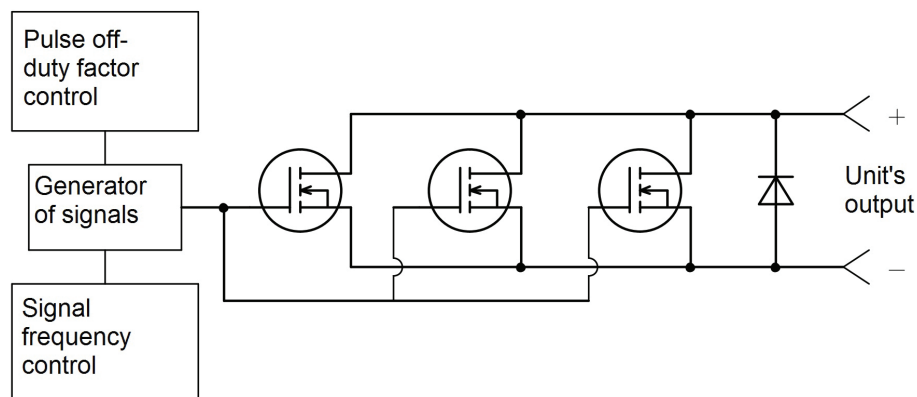
Type of protection	
Short-circuit protection	auto recovery
Overload protection	$P_{max} < 1.8 P_{nom}$
Overvoltage protection level	$< 125 \% U_{out nom.}$
Overheat protection	triggers at case temperature $> 100\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

## Basic specifications

Parameter		5	12	24	28
Type of connection		screw terminals and blade contacts			
Protection level		IP20			
Case temperature, operating	«N»	−40...+85 °C			
	«P»	−50...+85 °C			
Ambient temperature, storage		−60...+70 °C			
Humidity		95 % / +25 °C			
Isolation voltage	in /case	1500 VAC			
	in /out	1500 VAC			
	out /case	500 VAC			
Isolation resistance @ 500 VDC		≥ 20 MOhm min			
Cooling		convective			
Environmental influence standards		design to meet MIL-STD-810G			
Operational altitude		up to 35 000 m / 115 000 ft			
EMC standards		MIL-STD-461E			
Typical MTBF		20 000 hrs		60 000 hrs	
Case material		metal			
Dimensions, mm (W×D×H)		101×51×20			
Weight, kg		0.15			
Warranty		2 years			

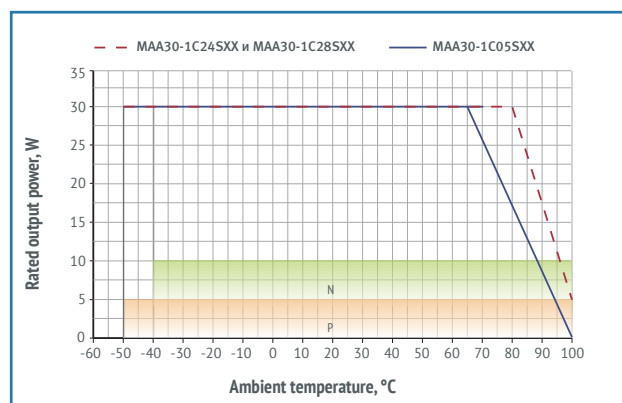
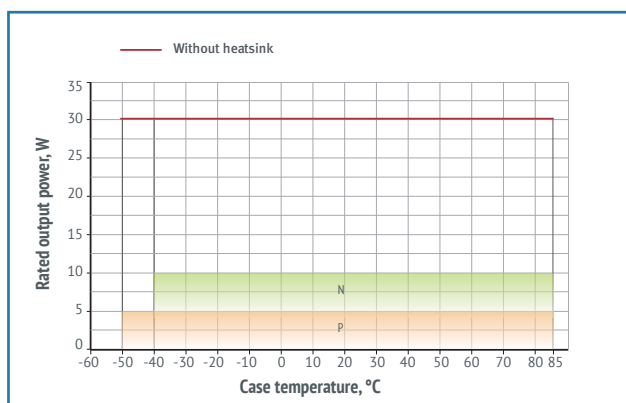
Terminal specification, input/output	
Cross section of the flexible conductor, mm <sup>2</sup> (max)	0.5...1.5
Cross section of AWG conductor, min	28
Cross section of AWG conductor, max	12
Strip length, mm	6

### Block diagram for short-circuit debugging



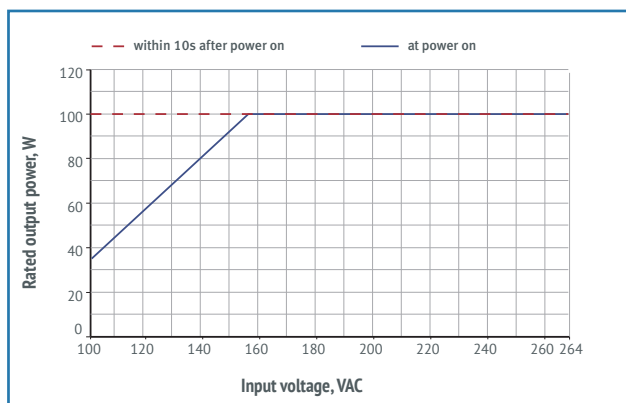
### Derating

vs Temperature

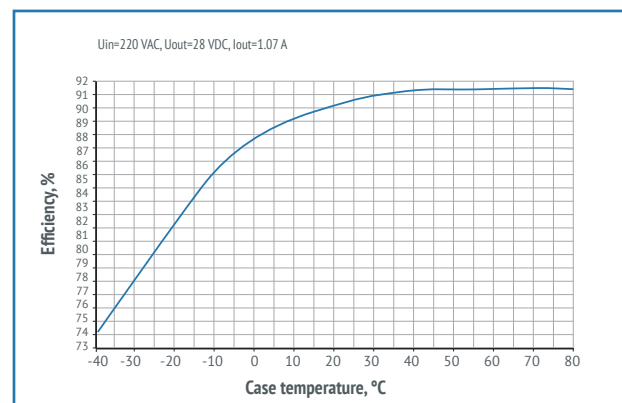


Decreasing parts of the dashed and dash-dotted curves correspond to the maximum case temperature (+85 °C for models with index «N» and «P»). Output power must not exceed the values limited by curve for a given ambient temperature.

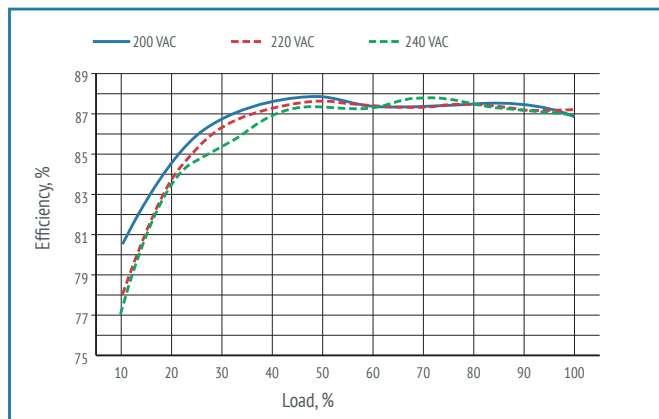
vs Input Voltage



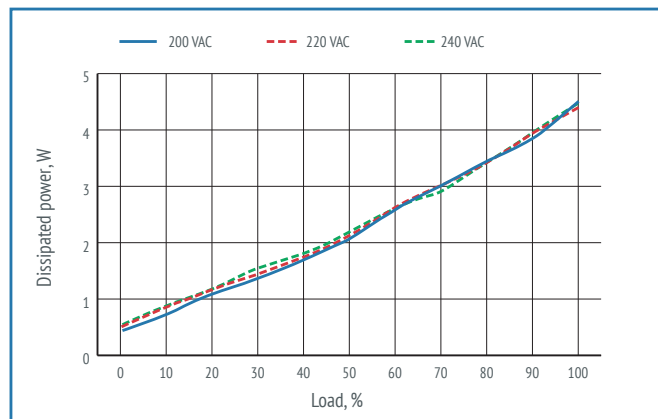
Efficiency



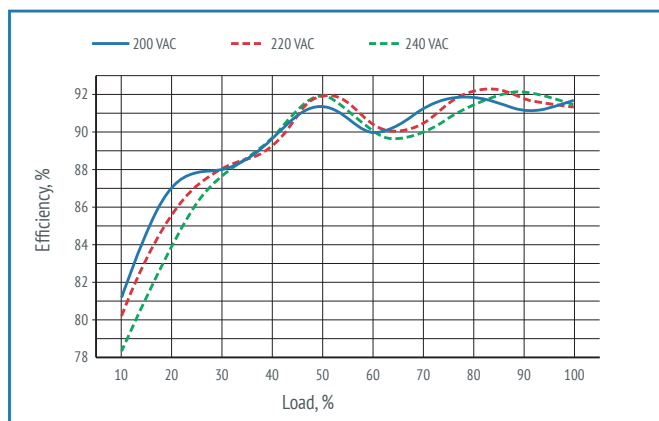
## Efficiency



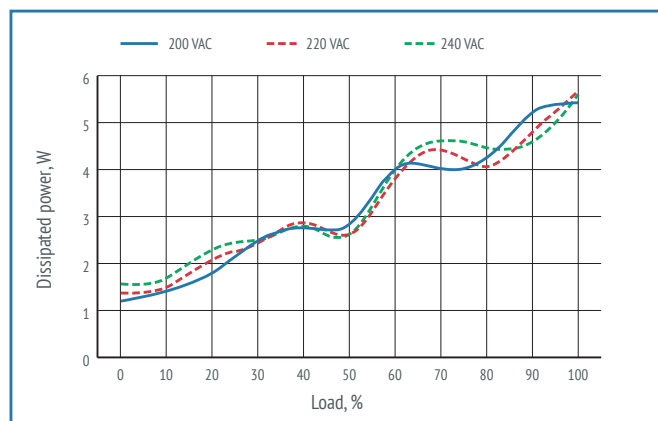
Efficiency vs load for KWant30-1C05SXX



Dissipated power vs load for KWant30-1C05SXX



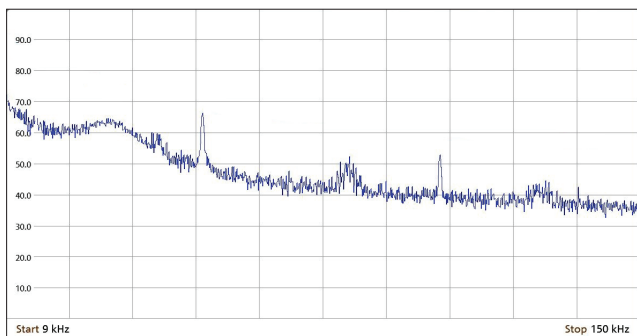
Efficiency vs load for KWant30-1C24SXX and KWant30-1C28SXX.



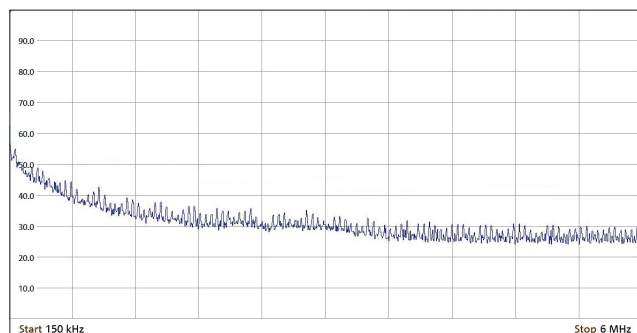
Dissipated power vs load for KWant30-1C24SXX and KWant30-1C28SXX

## EMC spectrograms

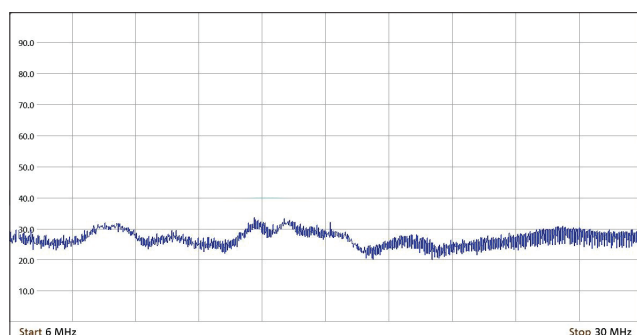
### MAA30-1C05SXX



EMI for MAA30-1C05SXX at 9 kHz-150 kHz within 300 Hz step at Max Peak mode.

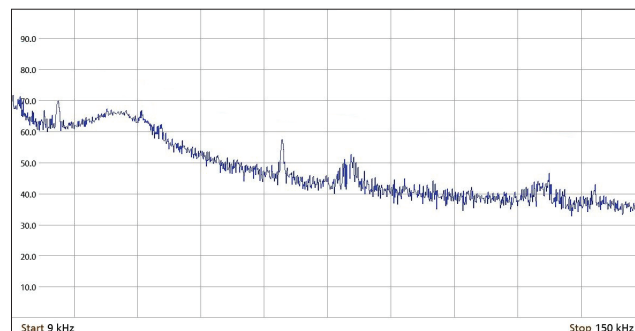


EMI for MAA30-1C05SXX at 150 kHz-6 MHz within 10 kHz step at Max Peak mode.

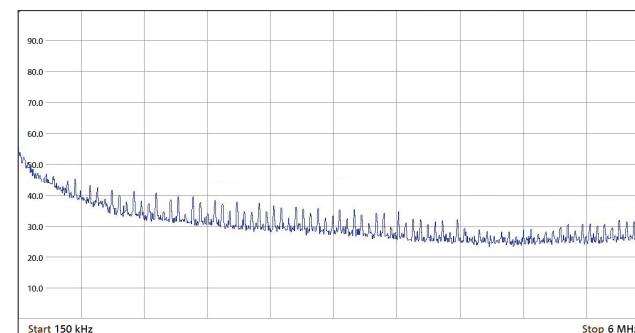


EMI for MAA30-1C05SXX at 6 MHz-30 MHz within 10 kHz step at Max Peak mode.

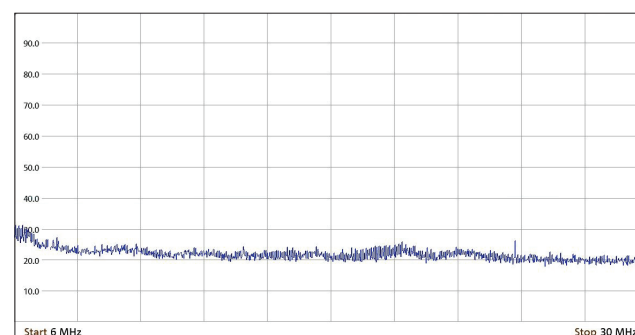
### MAA30-1C24SXX, MAA30-1C28SXX



EMI for MAA30-1C2427XX & MAA30-1C28XX at 9 kHz-150 kHz within 300 Hz step at Max Peak mode.

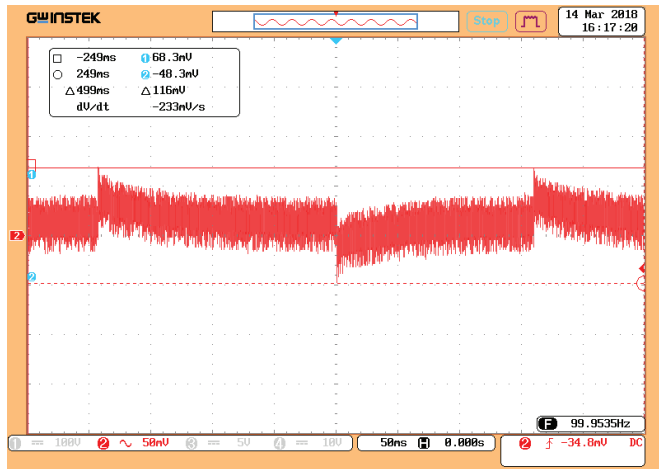


EMI for MAA30-1C24SXX & MAA30-1C28SXX at 150 kHz-6 MHz within 10 kHz step at Max Peak mode.

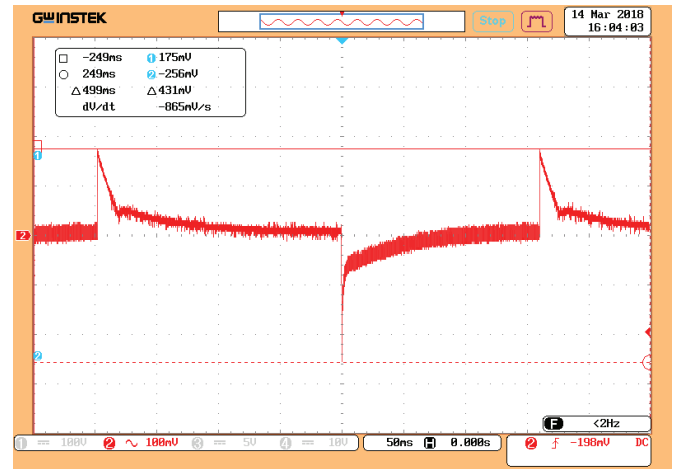


EMI for MAA30-1C24SXX & MAA30-1C28SXX at 6 MHz-30 MHz within 10 kHz step at Max Peak mode.

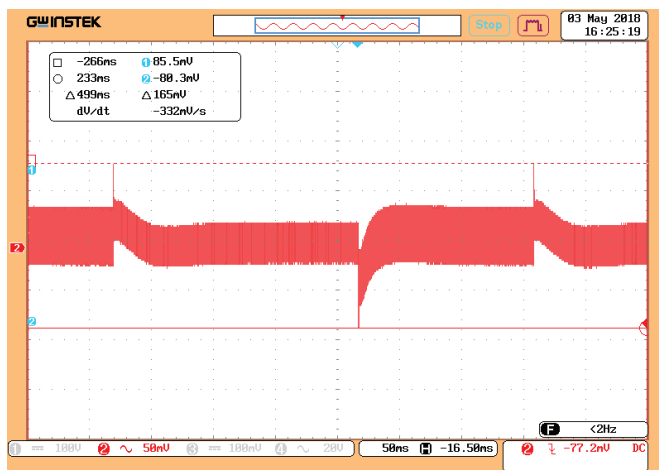
### Oscillograph charts



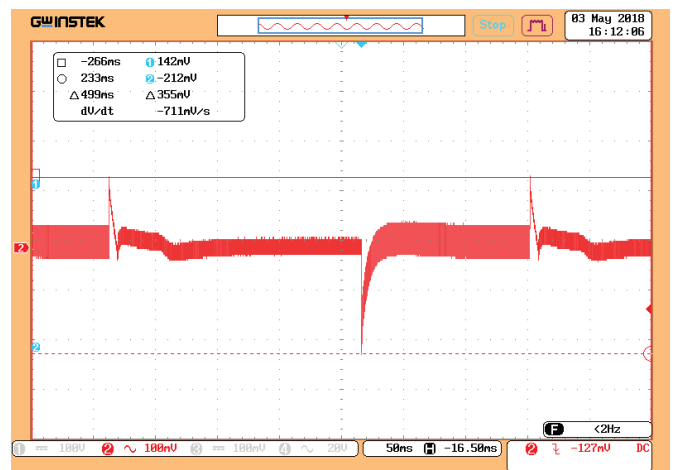
Wavechart of transient deviations of output voltage for KWant30-1C24SXX at dropping and surge of load 50-75-50 %. Rate of current rise  $dI/dt = 2.1$ .



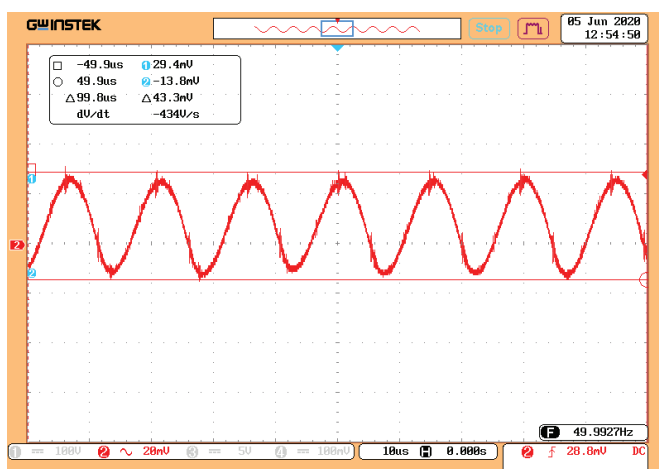
Wavechart of transient deviations of output voltage for KWant30-1C24SXX & KWant30-1C28SXX at dropping and surge of load 0-100-0 %. Rate of current rise  $dI/dt = 2.1$ .



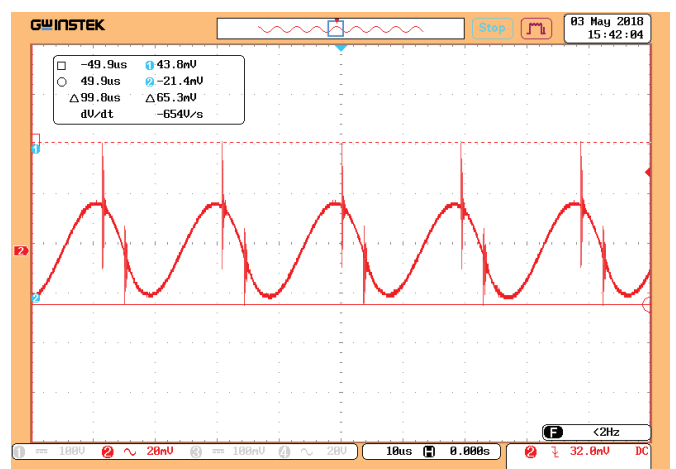
Wavechart of transient deviations of output voltage for KWant30-1C05SXX at dropping and surge of load 50-75-50 %.



Wavechart of transient deviations of output voltage for KWant30-1C05SXX at dropping and surge of load 0-100-0 %.



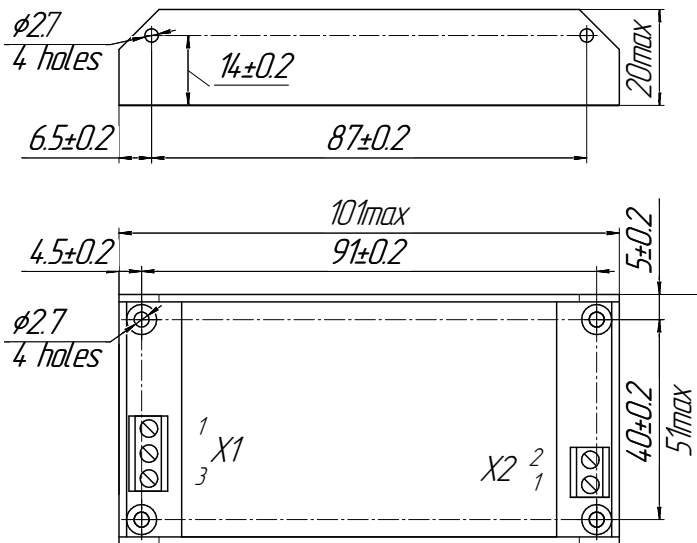
Wavechart of output voltage ripple for KWant30-1C24SXX & KWant30-1C28SXX at bandwidth 20 MHz and 100 % load.



Wavechart of output voltage ripple for KWant30-1C05SXX at bandwidth 20 MHz and 100 % load.

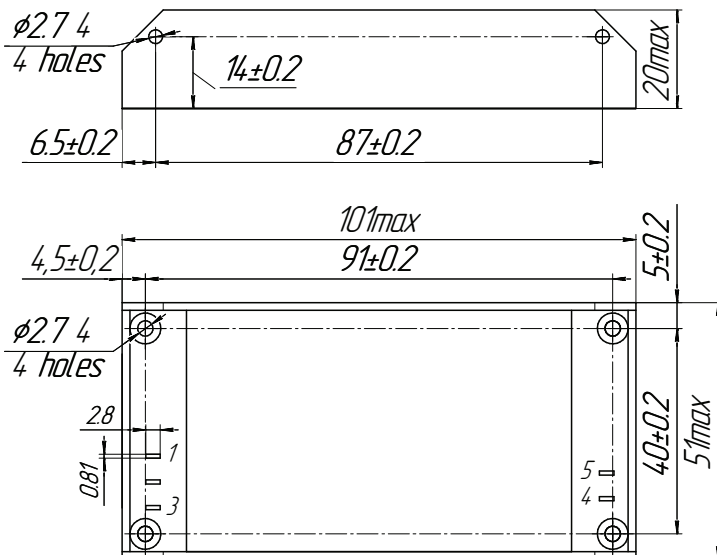
### Dimensions

#### Single-channel design with terminal blocks



PIN #	X1.1	X1.2	X1.3	X2.1	X2.2
SINGLE-CHANNEL	L	N	⊕	+OUT 1	-OUT 1

#### Single-channel design with blade contacts

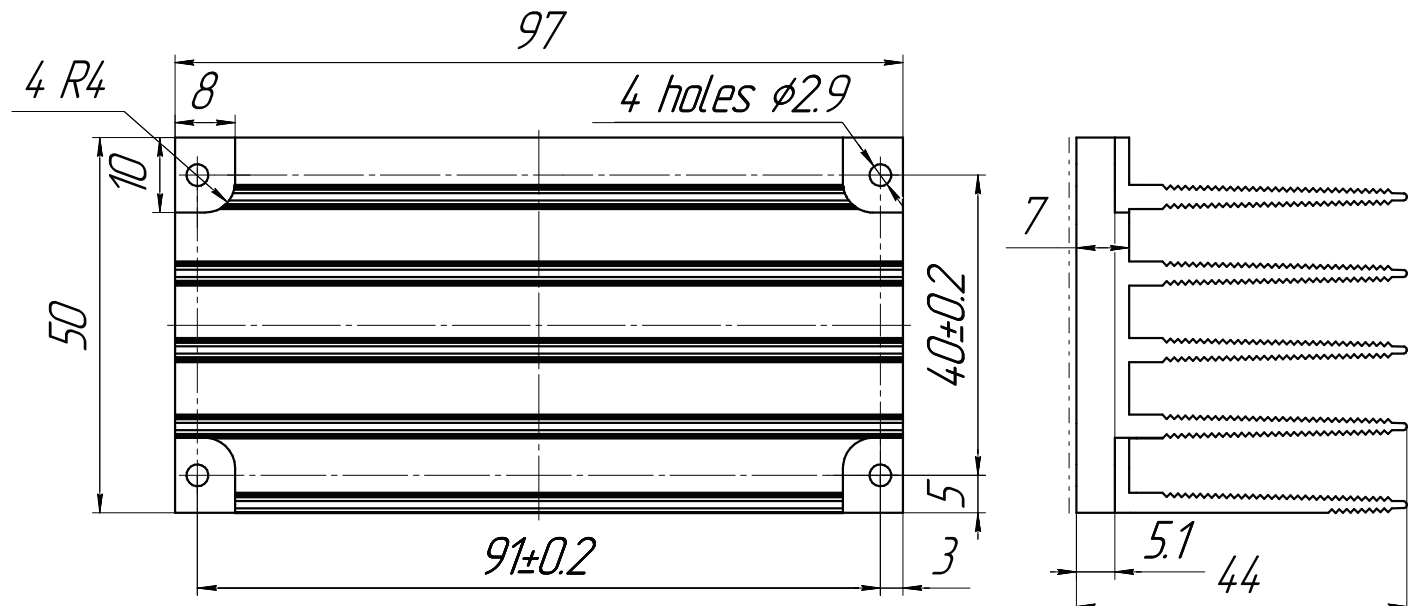


PIN #	1	2	3	4	5
SINGLE-CHANNEL	L	N	⊕	+OUT 1	-OUT 1



## Heatsink drawing

Lengthwise ribbed heatsink



\* Must be ordered separately if required



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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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