

## AC/DC converters

### KAP Family KAP15, 15 kW



#### Family description

**AC/DC power supplies of high power (15 kW)** with 3-phase input for mounting into 19" rack is a modular solution based on digitally controlled KAN5000 converters. Depending on application KAP15 can have different output turnkey solutions: AC/DC converter, UPS or a charger.

Unit's digital control ensures wide functionality: stabilization and output voltage and current adjustment, adaptive cooling, RS-485 control interface, and ability to operate in parallel.

#### Features

- ◀ Input voltage: 380 VAC 50 Hz (3 phase + neutral)
- ◀ Efficiency up to 95%
- ◀ Output voltage up to 300 VDC
- ◀ Output voltage adjustment 1...100 %
- ◀ Output current adjustment 0...100 %
- ◀ Digital control interface RS-485
- ◀ Programmable operation mode: source of current or source of voltage

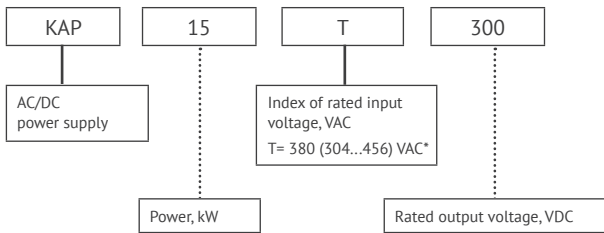
**Hot swap**

**Modular design**

**Multifunctional performance**



### Ordering information



### Output specifications\*\*

| Parameter  | Value                               |          |           |           |
|--|-------------------------------------|----------|-----------|-----------|
| Unit name  | under development                   |          |           |           |
|  | KAP15T30                            | KAP15T60 | KAP15T250 | KAP15T300 |
| Rated output voltage, VDC                              | 30                                  | 60       | 250       | 300       |
| Output voltage range, VDC                              | 15–33                               | 30–66    | 1–250     | 1–300     |
| Efficiency, %  | 93                                  | 93       | 95        | 95        |
| Rated output current, A                                | 500                                 | 250      | 60        | 50        |
| Output current adjustment range, %***                  | 0... 100                            |          |           |           |
| Output voltage adjustment range, %                     | 20...100                            |          |           |           |
| Ripple and noise (p-p)                                 | <1% Uout. nom                       |          |           |           |
| Total voltage regulation, %                            | Input voltage variation 304–456 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 µs                               |          |           |           |
| Start-up time  | up to 10 s after power on           |          |           |           |

### Input specifications\*\*

| Parameter                      | Value                                     |
|--------------------------------|---|
| Mains type                     | triple-phase 380 VAC with neutral         |
| Input voltage range, VAC       | 155...484 ****                            |
| Rated input voltage range, VAC | 304...456 without derating                |
| AC mains frequency, Hz         | 45–65                                     |
| PFC                            | active                                    |
| Power factor                   | >0.98 with full load                      |
| EMC                            | IEC 61000-3-12:2004<br>MIL-STD-461E CE102 |
| EMI                            | IEC 61000-6-4:2006<br>MIL-STD-461E RE102  |

\* For KAP15TXXX

\*\* 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.

\*\*\*\* In case the input voltage decreases from 304 down to 155 VAC, the output power linearly drops down to 6000 W.

## Protections

### Type of protection

|  |                                    |
|--|------------------------------------|
| Overheat protection                                    | internal with hysreresis at +100°C |
| Overvoltage protection, software                       | 300 V with regards to the neutral  |
| Overvoltage protection, vriable resistor               | 320 V with regards to the neutral  |
| Overcurrent protection                                 | >105 % Inom                        |
| Short-circuit protection (with Uout. less then 50 VDC) | auto recovery                      |

## Basic specifications

### Parameter

| Parameter            |                               | Value                            |
|----------------------|-------------------------------|----------------------------------|
| Compliance           | EN60950-1<br>EN55022, EN55024 | +<br>+                           |
| Ambient temperature  | operating                     | -20...+50°C (custom -40...+50°C) |
|                      | storage                       | -55...+70°C                      |
| Isolation voltage    | input/case                    | 3000 VAC                         |
|                      | input/output                  | 3000 VAC                         |
|                      | output/case                   | 1500 VAC                         |
| Isolation resistance |                               | ≥ 20 MOhm                        |
| Cooling              |                               | built-in forced fan, adaptive    |
| MTTF                 |                               | max 90000 hours                  |
| Case material        |                               | metal                            |
| Dimensions           |                               | 566×482,6×132,5 mm               |
| Weight               |                               | max 33 kg                        |
| 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 10, 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

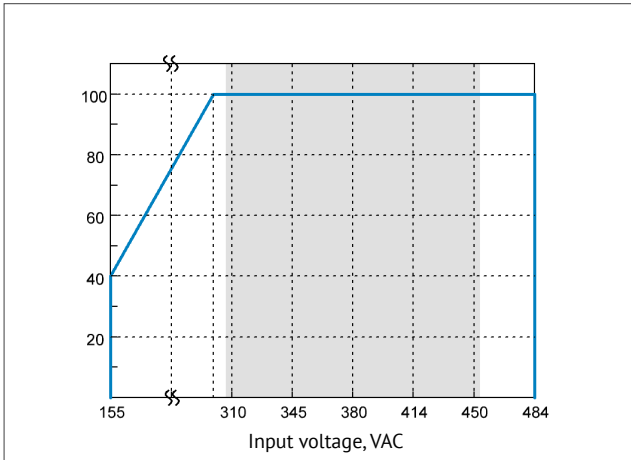
## Optional functions

Customized output voltage

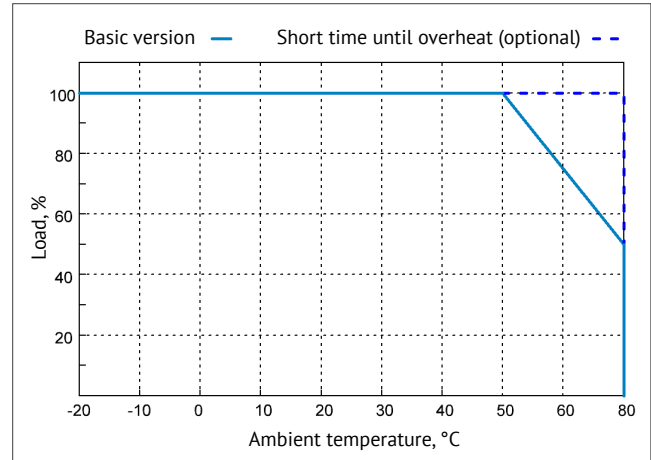
Different algorithms of thermal protection

## Derating

vs Input Voltage

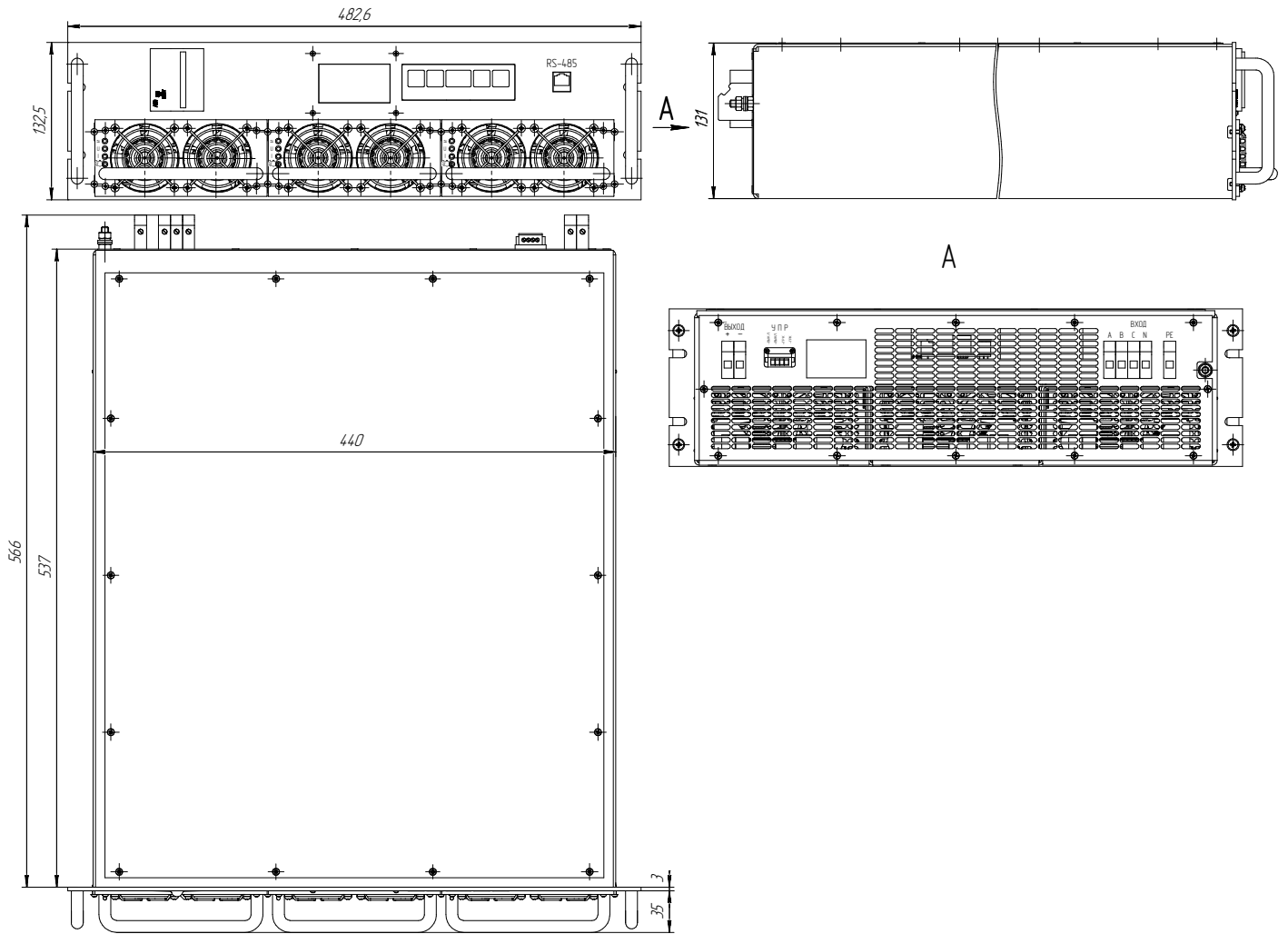


vs Temperature



Diagrams show results of testing KAP15T300, vertical axis relates to the Load (%).

Dimensions





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