Managing DC Link Energy

Dynamic Energy Supply

KEV
for drive controllers up to 230V
Dynamic Energy Supply KEV
for drive controllers up to 230V

Companies place special value on two factors when it comes to electrical energy: guarantee of supply and low prices. Both are called into question with the implementation of the withdrawal of atomic energy. Broken down on electrical drives power failures present a special challenge even today in developed nations. With the Dynamic Energy Supply KEV for converters and drive controllers short-term power failures can be bridged and their consequences minimised.

Active support module for DC links
> for single and multiple systems
> no keys, displays, other control elements
> supports in case of power failure or interruptions

Short-term UPS for drives
The Dynamic Energy Supply KEV acts as a short-term uninterruptable power supply for drives and servo controllers. The active capacity extension for the DC link of the inverter stores an amount of energy that is defined according to the technical design. It serves to keep the voltage level of the DC link at a level which bridges over the downtime without trouble and/or brings the machine to the defined stop state in case of power failure. In each case, the objective is that the drive and all systems supplied by it either do not perceive the power failure at all or are brought into a defined state from which a restart is possible without any effort.

Gentle on the power grid and drives
The energy supply is charged after switching on the inverter for each charging routine, which acts very carefully not to overload the charging circuit and not to generate any negative circuit feedback either.

The KEV is fully ready for use after only eight seconds. It then supports the DC link every time its voltage falls below 270 VDC.

With digital interface
The Dynamic Energy Supply KEV is equipped with a digital interface with 24 Volt input to monitor its function. The control of the machine takes over the evaluation of the signal as well as the initiation of the established measures.

Technical specifications KEV

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful energy approx.</td>
<td>1,600 Ws</td>
</tr>
<tr>
<td>Continuous voltage of the DC link</td>
<td>540 VDC max.</td>
</tr>
<tr>
<td>Cycle time of use</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Working voltage</td>
<td>270 VDC (other possible)</td>
</tr>
<tr>
<td>Output</td>
<td>10.4 kW max.</td>
</tr>
<tr>
<td>Digital interface</td>
<td>24 VDC (for function monitoring)</td>
</tr>
<tr>
<td>Built-in PTC discharge resistor</td>
<td>+</td>
</tr>
<tr>
<td>Dimensions H x W x D</td>
<td>300 x 100 x 201 mm</td>
</tr>
<tr>
<td>Weight approx.</td>
<td>6.9 kg</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 20</td>
</tr>
</tbody>
</table>

Voltage curve of the DC link with KEV
--- without KEV --- with KEV

Simple connection I (Bottom side)
The KEV is extremely easy to connect with two cables. And it works.
1. Negative terminal of the DC link
2. Discharge resistor
3. Positive terminal of the DC link
4. Connection of the RS422 interface (optional)

Simple connection II (Top side)
1. Interface secured against polarity reversal for connecting extension modules and NEV
2. Digital interface for function monitoring
3. Safety-relevant LED: Flashes, as long as the storage unit is charged

Installation dimensions and mounting-holes (mm)

Simple connection I (Bottom side)
The KEV is extremely easy to connect with two cables. And it works.
1. Negative terminal of the DC link
2. Discharge resistor
3. Positive terminal of the DC link
4. Connection of the RS422 interface (optional)
Extension module
KEV + KEM

When the storage capacity of the Dynamic Energy Supply KEV is insufficient extension modules can then be used. They can easily be connected via the accompanying cables with reverse-polarity protected plugs with the KEV. Done!

The storage is safely discharged via the discharge resistor built into the extension modules before the connection. The number of connected extension modules and thus the level of the stored energy is adapted to the requirements of the application.

Storage extension for the KEV

> Multiplying the stored energy
> simple connection using plugs
> neither configuration nor commissioning effort
> Discharge resistor on board

Accompanying energies can very easily be implemented by the combinatorics with the extension modules

If the power of a KEV of max. 10.4 kW is not sufficient by itself, Dynamic Energy Storage can also be connected in parallel. The power is multiplied according to the number of devices connected in parallel.

The ideal addition to the KEV: NEV

The 24 Volt emergency power supply (NEV) ensures stable supply of a 24 V DC network to be secured as an option in combination with the KEV.

Control cabinet solutions

The Dynamic Energy Supplys required for the application are also offered as equipped ready-to-assemble and prewired, standardised control cabinets with the type designation KTS, which can take on up to ten devices.

With at most 6 Amperes (150 VA), the self-learning device is strong enough to support control units and other peripheral devices of the drive. Simply plugged into a basic device and connected via plugs, the NEV keeps the 24 Volt appliance active even with voltage fluctuations or power failure.

Technical specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>KEM 2.0B16</th>
<th>KEM 2.0B1616</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usable storage capacity approx.</td>
<td>1,600 Ws</td>
<td>3,200 Ws</td>
</tr>
<tr>
<td>Built-in PTC discharge resistor</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Dimensions H x W x D</td>
<td>300 x 100 x 201</td>
<td>300 x 100 x 201</td>
</tr>
<tr>
<td>Weight approx.</td>
<td>4.1 kg</td>
<td>6.2 kg</td>
</tr>
<tr>
<td>Protection Class</td>
<td>IP 20</td>
<td>IP 20</td>
</tr>
</tbody>
</table>

KEV + extension module

<table>
<thead>
<tr>
<th>Required energy [kWs]</th>
<th>KEV 2.0</th>
<th>Module KEM2.0 B16</th>
<th>Module KEM2.0 B1616</th>
<th>Space requirement/total width [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>3.2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>4.8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>6.4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>300</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>300</td>
</tr>
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</table>

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<tr>
<th>Required energy [kWs]</th>
<th>KEV 2.0</th>
<th>Module KEM2.0 B16</th>
<th>Module KEM2.0 B1616</th>
<th>Space requirement/total width [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.6</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>400</td>
</tr>
<tr>
<td>11.2</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>400</td>
</tr>
<tr>
<td>12.8</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>500</td>
</tr>
<tr>
<td>14.4</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>500</td>
</tr>
</tbody>
</table>

Parameter

<table>
<thead>
<tr>
<th>KEM 2.0B16</th>
<th>KEM 2.0B1616</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.60 Ws</td>
<td>3.20 Ws</td>
</tr>
<tr>
<td>300 x 100 x 201</td>
<td>300 x 100 x 201</td>
</tr>
<tr>
<td>4.1 kg</td>
<td>6.2 kg</td>
</tr>
<tr>
<td>IP 20</td>
<td>IP 20</td>
</tr>
</tbody>
</table>

Weight approx. 6.9 kg
Dimensions H x W x D 300 x 100 x 201 mm
Built-in PTC discharge resistor +
Digital interface 24 VDC (for function monitoring)
Output 10.4 kW max.
Continuous voltage of the DC link 540 VDC max.
Restart is possible without any effort.

Digital interface II

Power failure

Required
3 KEM 2.0B16
Value
4 KEM 2.0B16

Simple connection I

1. Interface secured against polarity reversal
2. Discharge resistor
3. Positive terminal of the DC link
4. Connection of the RS422 interface (optional)
5. Negative terminal of the DC link

Simple connection II

1. Interface secured against polarity reversal
2. Discharge resistor
3. Safety-relevant LED: Flashing, as long as the storage unit is charged
4. Parameter
5. Module

Useful energy 1,600 Ws
Capacity extension for the DC link
Power failure.

ZK

Voltage curve of the DC link
Weight approx. 4.1 kg
6.2 kg
Dimensions H x W x D 500 x 400 x 400 mm

Gentle on the power grid and drives
Short-term UPS for drives power failures

Breakdown on electrical drives power failures present a special challenge
Companies place special value on two factors when it comes to electrical energy: guarantee of supply and low prices. Both are called into question with the implementation of the withdrawal of atomic energy.

Breakdown on electrical drives power failures present a special challenge
Managing DC Link Energy

Energy storage solutions and safe brake resistors in wire-wound and PTC technology

We offer:

- **Tested product quality**
- **Certified processes**
  - we undergo regular inspections by third parties
- **Individual application support**
  - owing to our modular system we can offer more than 60,000 solutions
- **Machine-specific implementation**
  - we match our products with your machines
- **High reaction rate**
  - we provide you with a suitable offer in the shortest possible time
- **Short delivery times**
  - all components are in stock
- **On-time deliveries every time**
  - we deliver on schedule in optimal lot sizes
- **Reliable partner**
  - we strive for long-term business relationships
- **Direct customer relationships**

www.brakeenergy.com

We look forward to hearing from you!

KOCH

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