KOCH

Active Energy Management Systems and Safe Dynamic Braking Resistors

Reduce peak loads

Power Supply

Use energy resources

Managing regen energy

Energy compensation

Reduce losses

Benefits

for Electric Drives

1. Managing Braking Energy – Solutions for too much Energy in the Drive

a) now and then or again and again: ensuring functionality.
Benefits in the event of an emergency stop, in the discharge of voltage peaks, in the event of longer cycle times or rare braking processes, in the protection of single-axis or multi-axis systems.

Application examples
- Crane drives – safely dissipating regenerative energy
- Printing machines – rapid standstill in the event of an emergency stop

Solution:
Immediate dissipation of braking energy with a safe dynamic braking resistor specifically cutomized to the application

b) frequently: increasing energy efficiency.
Benefits in the event of short cycle times (usually <5 seconds), in single-axis or multi-axis systems.

Application examples
- Robots – reduced energy consumption
- Servo press – increasing energy efficiency

Solution:
Reusing the recuperated braking energy using an individually dimensioned active energy management system

2. Ensure Power Supply – always sufficient Energy for the Drive

a) random: minimization of failure and restart costs.
Benefits in the event of power failures (brownouts) or interruptions (blackouts).

Application examples
- Textile machine - controlled system stoppage
- Injection molding machine - good parts despite power failure
- Die casting machine - opening the mold despite power failure

Solution:
Emergency energy thanks to active energy management system optimized for performance and energy quantity

b) planned: minimization of infrastructure costs.
Benefits in the event of planned power interruptions (e.g. transition from power supply disconnection points). Or: benefits of a generally network-independent energy supply.

Application examples
- Automated Guided Vehicles - drive AGVs out of the danger zone in the event of a power failure
- Storage and retrieval machine - drive from one aisle to the next disconnected from mains power

Solution:
Additional energy source thanks to active energy management system optimally sized to the required energy quantity and performance

3. Balance Energy - minimize Stress caused by sharp Speed and Direction Changes

Benefits by minimizing the extremely high loads on the drive electronics caused by sharp speed and direction changes with continuous start/stop movements.
Extension of the service life of the drive electronics and thus no unplanned failures, which directly leads to increased productivity.

Application examples
- Robots - with direction changes every second
- Punching Machine - punching operations every second

Solution:
Optimally designed active energy management system determined by simulating the process sequences, which significantly reduces voltage amplitudes in the DC link

4. Reduce Heat Generation - Energy Storage instead of Dynamic Braking Resistor

Benefits by minimizing heat generation and air conditioning costs by minimizing the losses of the drive system. This also reduces germ formation.

Application examples

- Fish processing machines - avoiding heat generation
- Deep-freeze high-bay warehouse - minimizing air conditioning costs

Solution:
Suitable active energy management system as a replacement for dynamic braking resistor

5. Make additional Energy available - increase Productivity

a) Benefits from higher performance, i.e. shorter cycle times or higher clock rates, made possible by energy balancing. In addition, the drive electronics are protected by dampening the voltage amplitudes.

Application examples

- Portion cutter - higher speeds
- Robot - higher clock rate

Solution:
Active energy management system optimized for short cycles and power requirements

b) Benefits from more dynamic acceleration, made possible by higher voltage level of the drive.

Application examples

- Carbon brush production - increase in dynamics

Solution:
Active energy management system optimized for short cycles and power requirements

6. Make additional Power available - Reduction of Grid-side Power Peaks

Benefits of maximum utilization of the to be limited or restricted grid access while simultaneously minimizing infrastructure costs through safe, current-limited energy collection from the grid during the process of supplying recurring power peaks.

Application examples

- Hydraulic lift - reduction of connected load and energy savings
- Robot - reduction of connected load and energy savings

Solution:
Active energy management system optimally designed for power peak reduction in connection with energy requirements, either
a) controlled by the drive system or
b) independently via plug & play with freely definable, ampere-accurate grid current limitation

7. Ensuring high Power Grid Quality

Benefits of high power grid quality, thus a "clean network", by minimizing negative network effects of electric drives due to the technical separation between network and application.

Application examples

- All applications

Solution:
Use of an individually designed active energy management system

8. Our full Support - Tools, Advice, Plug & Play

- Minimizing your effort
- Powerful tools
- Personal contact with know-how and experience
- Maintenance-free plug & play systems with the highest reliability
- Application engineering
- Best references, worldwide

Solution: Get in touch with us!

What we offer:

- Tested product quality
- Certified processes
- Individual application support
- Machine specific design and sizing
- Rapid reaction
- Quick delivery times / On-time delivery
- Reliable partner
- Long-term business relationship
- Direct customer relations

Use our communication channels:

Your specialist for:

- Active energy management devices and systems
- Safe brake resistors

for electric drive technology

We look forward
to hearing from you!

KOCH

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