

Fact sheet

AX8820 universal regenerative unit

Intelligent energy management for machines and systems

Industrial machines and systems need to run sustainably and cost-effectively in daily operation. A key factor in this is their energy efficiency, which can be increased by effectively storing excess energy from braking processes temporarily or feeding it back into the grid, instead of letting it be converted into heat due to braking resistance, as it was previously.

Regenerative power supply modules have been standard on the market for this purpose for a long time. With the AX8820 regenerative unit from Beckhoff Automation, you benefit from a module that sets new standards in several respects and delivers

crucial advantages in terms of both technology and handling.

Optimized for your requirements

To achieve this, we focused primarily on the requirements you face in practice when developing our new regenerative power supply module, such as the work involved in integration – which is why the AX8820 comes ready to install. All the functions and components you need are pre-integrated at the factory, so all you have to do is connect the regenerative power supply and start the module with a few clicks in TwinCAT Drive Manager.

Advantages at a glance

- + **grid-optimized:** regenerated energy is fed back into the grid sinusoidally
- + **buffer:** energy is stored in the intermediate circuit and used again immediately when required
- + **straightforward:** TwinCAT Drive Manager simplifies installation and commissioning
- + **informative:** energy data can be analyzed and used for process optimization
- + **universal:** AX8820 is compatible with the AX8000 multi-axis servo system, AX5000 servo drive, and third-party products



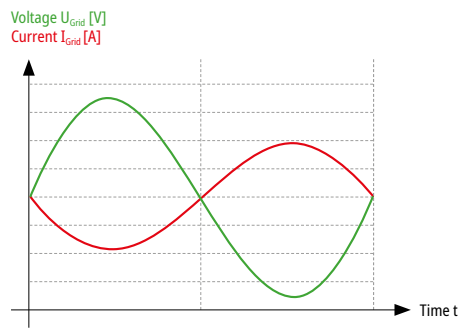
AX8820 regenerative power supply module: Effectively increasing energy efficiency

Technologies designed to improve sustainability and energy efficiency have long been key differentiators in global machine and system engineering. By integrating the AX8820 regenerative power supply module from Beckhoff Automation into your machinery and systems, you can effectively increase energy efficiency, meet the most stringent technical requirements, and assure easy handling. The facts at a glance:

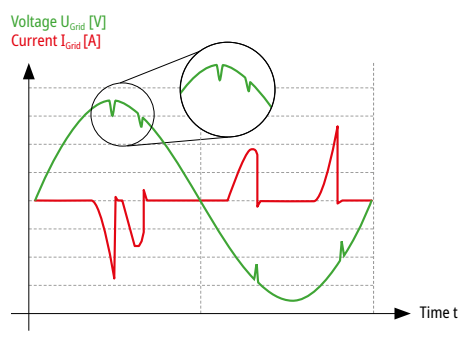
Sinusoidal energy regeneration

Conventional regenerative modules feed the regenerated energy back into the grid with a square wave. This leads to significant distortions in the supply network, which can result in undesirable voltage fluctuations – but this challenge becomes a thing of the past with the Beckhoff AX8820 module. This is achieved via sinusoidal energy regeneration, which is reliably constant.

Sinusoidal feedback into the grid with the AX8820 universal regenerative unit



Square wave feedback into the grid



Internal buffer

For effective energy management, the regenerated energy is initially stored in the DC link. From here, it is available for dynamic machine processes on demand at any time. Regeneration into the supply grid starts before the capacity of the DC link is exhausted or the overvoltage threshold of the connected devices is reached. The threshold value at which regeneration starts can be individually defined, meaning it can be adapted to the requirements of the machine.

Straightforward integration

The AX8820 is optimized for devices such as the AX8000 multi-axis servo system and the AX5000 servo drive from Beckhoff. However, this innovative regenerative unit is also compatible with standard third-party products. TwinCAT Drive Manager is available as a powerful software tool for easy integration and commissioning.

New insights

The AX8820 regenerative module not only improves the energy efficiency of your machines and systems; with the option of EtherCAT, it can also provide valuable data for advanced energy regeneration diagnostics. The insights gained from this can be used to optimize processes and further increase the efficiency of individual machines.

Highly scalable

The AX8820 is prepared for serial operation at the factory, so you can match the regenerative power to the requirements of the machine or system as effectively as possible. So if you need more regenerative power, all you need to do is install and operate several modules in parallel.

Technical data

Rated supply voltage:

400–480 V AC

Rated power:

7 kW

DC link voltage:

max. 848 DC

System bus:

EtherCAT (optional, only required for parameterization and diagnostic data)

Drive profile:

CiA 402 in accordance with IEC 61800-7-201 (CoE)

Approvals/markings:

CE, UL/CSA



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If you want to use surplus energy as effectively as possible, you should store it where it is generated and needed again: in the systems and machines themselves. It is only worth feeding the energy back into the grid once the voltage capacity has been exhausted. With our AX8820 unit, we provide the right conditions for both storage and feeding into the grid.”

Dirk Hansen, Product Management Motion, Beckhoff Automation

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more:



► www.beckhoff.com/ax8820