KENDRION | INDUSTRIAL

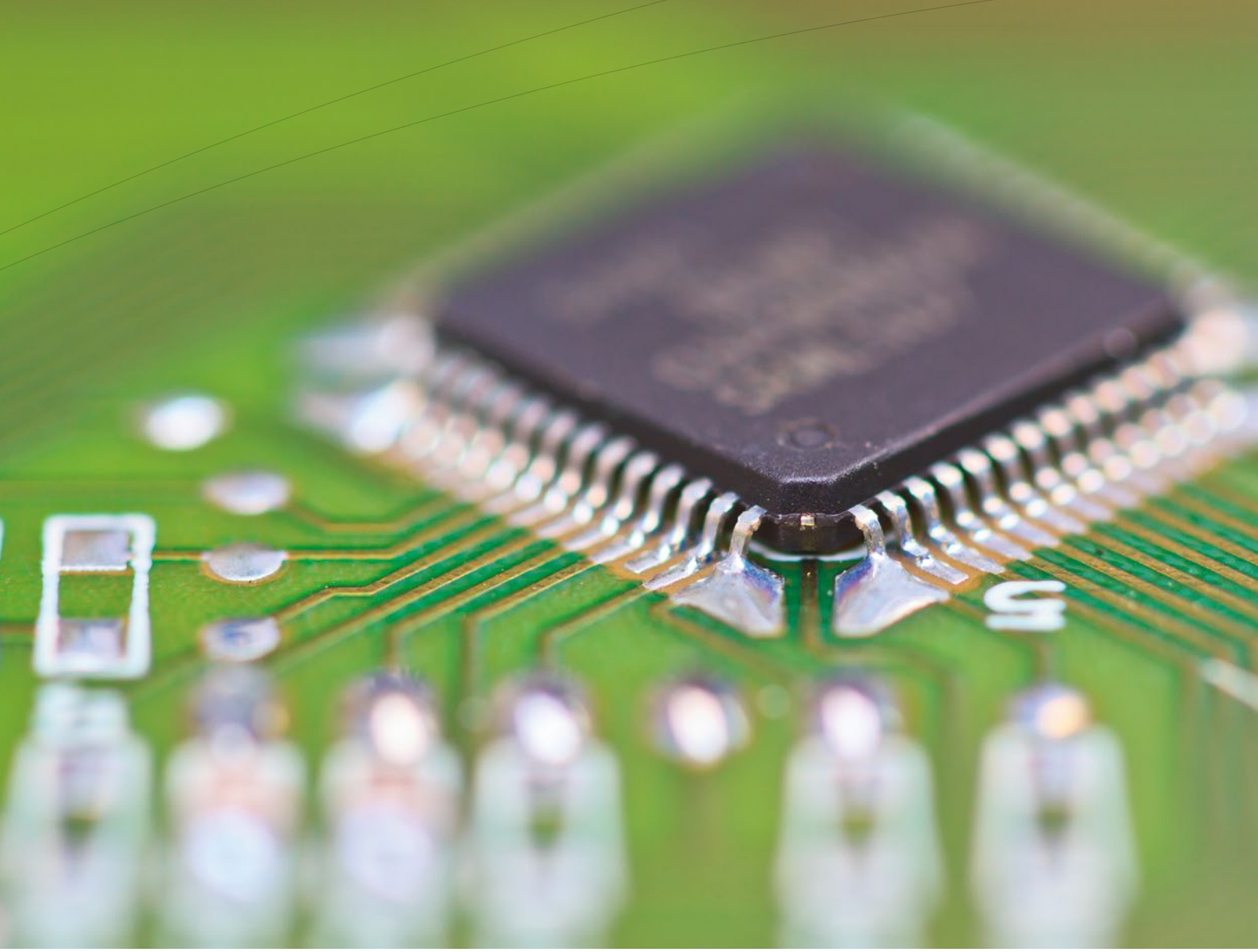
WE MAGNETISE THE WORLD

Electronic modules and components

for the control of electromagnetic actuators

INDUSTRIAL DRIVE SYSTEMS

BINDER



Rectifiers and energy-saving modules

Electronic assemblies for actuators

The product range of Kendrion contains a variety of electronic components for the control of electromagnetic actuators such as brakes and magnets. A variety of the properties of actuators can be considerably improved through the use of control modules. Reaction times are significantly optimised by over-excitation functions and fast shutdown. Lowering of the holding voltage improves the thermal behaviour of the actuator and saves energy. There are suitable electronic modules available for different classes of actuators. Depending on the mounting conditions, there are a variety of connection concepts. Kendrion as a result provides the optimum complementary control electronics for electromagnetic brakes and magnets for all applications.

Energy-saving module (ESM)

The combination of appropriate coils and ESM enables a maximum energy saving of 75%.

Intelligent electronic solutions provide energy savings

Thanks to its extremely compact design, the ESM electronic module can be installed in very restricted space. The ESM features a central bore for screw fixing inside the terminal box. It can also be installed by using an adhesive pad.

AC operation

The ESM operates as a time-controlled rectifier with integral electronic fast turn-off through voltage detection.

Brake release: During start-up, the ESM delivers bridge-rectified output voltage for a limited period of time before changing over to half-wave rectification. This provides energy savings of up to 75 %. The resulting holding force ensures that the brake is reliably kept open when exposed to vibrations and shocks, meeting the requirements of DIN EN 60721, Category 3M8.

Brake engagement: The built-in voltage sensor ensures that the DC side output voltage is turned off electronically when AC input voltage is removed. This enables very fast brake switching operations.

Type 32..	Rated input voltage U_e (40 – 60Hz) VAC (±10%)	Max. output current switching/holding underexcitation ADC	Rated excitation time $T_{ÜE}$ (±15%)	Pause until ready for restart T_P / s	Output voltage U_a holding excitation VDC
77101A00	100…240	1.4/ 0.7	0.2 s	0.3	U_a = 0.89/ 0.445 x U_e
77101A01	220…400	1.0/ 0.5	0.2 s	0.5	U_a = 0.89/ 0.445 x U_e

DC operation

The ESM operates as a time-controlled PWM amplifier (pulse width modulation).

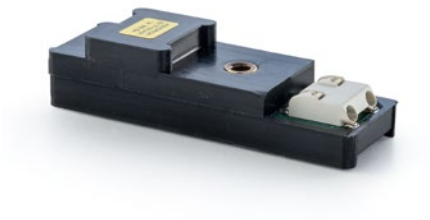
Brake release: During start-up, the full operating voltage is applied for a limited period of time before the ESM changes over to 50 % operating voltage. This provides energy savings of up to 75 %. The resulting holding force ensures that the brake is reliably kept open when exposed to vibrations and shocks, meeting the requirements of DIN EN 60721, Category 3M8.

Brake engagement: The ESM is turned off at the voltage input. The switching times depend on the energy stored in the brake coil (no fast turn-off).

Optionally, the module can be factory-programmed to different holding voltage settings according to specific customer requirements. This may be necessary to further reduce the intrinsic heating of the brake for temperature-sensitive applications.

Type 34..	Rated input voltage U_e VDC (±10%)	Max. output current switching/holding underexcitation ADC	Rated excitation time $T_{ÜE}$ (±15%)	Pause until ready for restart T_P / s	Output voltage U_a holding excitation VDC
10125B02	18…40	2.0/ 1.0	0.2 s	0.3	U_a = 1/ 0.5 x (U_e-0.5 V)

Innovative and cost-cutting



Series	Energy-saving module (ESM)	
Types	Version DC	Version AC
	34 10125B 0X	32 77101 A00 32 77101 A01
Features	▪ Over-excitation rectifier with adjustable holding voltage for high performance ▪ Pluggable screw terminals enable simple electrical connection	
Application examples	▪ Small and cost-effective ▪ Customer-specific holding voltage / current ▪ Suitable for retrofitting	
Rated input voltage	DC 18 to 40 V (24 to 48 V)	AC 100 ~ 240 V 220 ~ 400 V
Excitation	Yes	
Fast shutdown	Optional	
Standards	CE | ROHS | IP 00	
Options and accessories	▪ Open circuit board ▪ Circuit board shrunk ▪ Screw terminal housing	

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MERIDIAN
KL200 CE

	Small and cost-effective	Universal and compact
Series	Lean Collection	Universal Collection
Types	32 0710.B.. | 32 0730.B.. 32 0731.B..	32 07.2.B.. | 32 17.2.B.. 32 4730.B.. | 32 57303B.. 32 67.04B.. | 32 77303B..
Features	▪ Very small design ▪ Cost-effective ▪ A wide range of options for installation and connection	▪ All types of rectifiers and switches can be combined in one housing unit ▪ A wide range of options for installation and connection
Application examples	▪ For use with brakes from the Slim Line, Compact Line and Vario Line up to size 16 ▪ For applications with low requirements on the dynamics ▪ Installation in small connection boxes	▪ Universally suitable for all brakes up to size 16 depending on power consumption ▪ Drives with cycle rates ▪ Operating brakes with longer maintenance cycles and less heating ▪ Installation in Classic Line ▪ Separate use with brakes and magnets
Rated input voltage	Max. AC 500 V	Max. AC 500 (575) V
Max. output current ADC	One-way: 1.0 A Bridge: 2.0 A	One-way: 0.7 to 2.0 A Bridge: 0.7 to 2.0 A Excitation: 1.4/0.7 to 3.0/1.5 A
Excitation	No	Depending on type 2:1
Fast shutdown	Depending on type external	External or internal with voltage or current detection
Standards	CE | ROHS | IP 00	CE | ROHS | IP 00 | UL
Options and accessories	▪ Mounting rail clip ▪ Adhesive pad ▪ Strands for motor connection M4	▪ Mounting rail clip ▪ Adhesive pad, mounting clip ▪ Strands for motor connection M4

Intelligent and flexible	High-performance and variable	Flexible and energy-saving
Standard Line	Power Line	PhaseControlledRectifier PCR
32 47124A00 | 32 57123A00 32 67124A00 | 32 77123A00	33 433 1.A..	33 97325A00
▪ Intelligent rectifier with fast shutdown ▪ Over-excitation function	▪ Over-excitation rectifier with adjustable holding voltage for high performance ▪ Pluggable screw terminals enable simple electrical connection	▪ Rectifier with controlled output voltage – both during overexcitation and during the holding phase ▪ Very wide input voltage range
▪ For brakes with higher performance from size 14 ▪ Simple installation due to circuitry in motor terminal box	▪ For use with large brakes and large magnets ▪ Holding power can be optimised ▪ Fast shutdown ▪ Rail mounting	▪ AC constant voltage controller for optimum brake control ▪ Suitable for all common AC power systems
Max. AC 500 V	Max. AC 415 V	AC 110 to 415 V
One-way: to 1.2 A Bridge: to 1.2 A Excitation: 2.4/1.2 A	Excitation: 4 to 12 A Holding excitation: 2 to 9 A	Excitation: to 3 A Holding excitation: to 1.5 A
Depending on type 2:1	Yes	Ja
External or internal with voltage or current detection	External	External
CE | ROHS | IP 00 | UL	CE | ROHS | IP 00	CE | ROHS | IP 00
▪ Carrier rail mounting upon request ▪ Screw connection housing ▪ Strands for motor connection M4	▪ Carrier rail mounting ▪ Open circuit board ▪ Pluggable screw terminals	▪ Carrier rail mounting upon request ▪ Screw connection housing ▪ Strands for motor connection M4

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