

Compact Servo Drive ECOMPACT® E100

Integrated Servo Technology - Motor & Amplifier as one unit



CANopen
EtherCAT



Significantly smaller cabinet

Decentralized compact servo drive



Freedom in machine design

Customer-specific realization



Integrated safety

Safety function STO (Safe Torque Off) according to EN 61800-5-2



Cost-efficient solution

Implemented sequences replace smaller controllers



High connectivity

Drive profile DS402 via CANopen / EtherCAT



Easy commissioning

Intuitive parameterization and commissioning via JAT engineering software ECOSTUDIO®

Flange size

NEMA 34 (86 mm)

Installed load:

Up to 300 W

Peak torque

Up to 8,2 Nm

Power supply:

24 ... 60 V_{DC}

I/O:

Up to 4 digital inputs

Up to 2 digital outputs

Encoder:

Incremental encoder

Absolute value encoder (multiturn or singleturn)

Sensorless motion (no encoder)

Connectors:

M8 / M12 plug connectors

Customer-specific connectors

Mechanical options:

Braking module 5 Nm

Multiple shaft designs

Gear

Further options (in preparation):

USB interface for parameterization

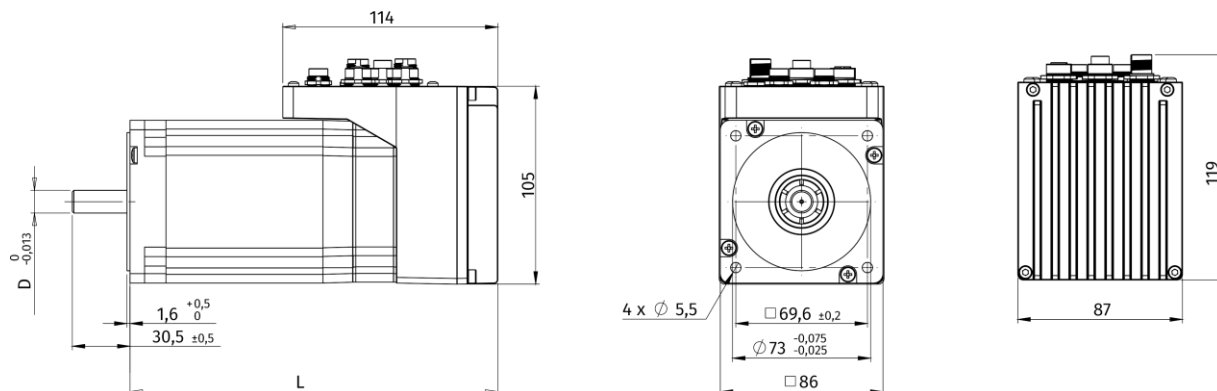
Analog I/O

Fast capture inputs

www.jat-gmbh.de/en

Compact Servo Drive ECOMPACT® E100

→ Motor specifications



Rated values		E100-34E42	E100-34E80	E100-34E90
Peak torque*	[Nm]	3,3	5,9	8,2
Stall torque*	[Nm]	3,1	5,6	5,6
Rated torque*	[Nm]	2,2	3,3	4,5
Rated speed	[min ⁻¹]	500	500	500

*) Mounting flange Ø 110 mm / thickness 10 mm.

Technical motor data				
Torque constant (measurement)	[Nm/A]	0,40	0,66	0,68
Voltage constant (EMK, 25 °C)	[V/1000min ⁻¹]	21,40	40,90	40,00
Motor inertia (without brake)	[kgm ² · 10 ⁻³]	0,14	0,27	0,40
Insulation class		B, 130°C		
Protection class		IP40 (optional IP54)		
Axial load (maximum)	[N]	180		
Radial load (maximum)	[N]	180		
Axial load assembly (maximum)	[N]	400		

Dimensions and weights				
Total length L**	[mm]	135	173	211
Weight device***	[kg]	3,0	4,6	5,9
Shaft diameter D	[mm]	12	12	14

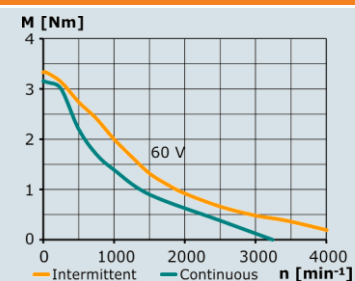
***) With braking module additional 1,5 kg

Technical data incremental encoder		
Resolution	[ink/rev]	20 000 (standard), 160 000

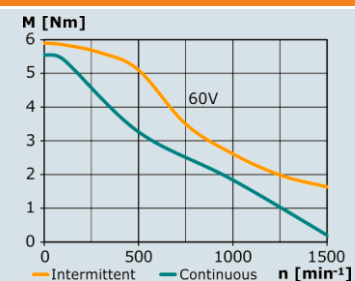
Technical data multiturn absolute value encoder		
Resolution	[Bit/rev]	17 and 12 Bit revolutions

Technical data singleturn absolute value encoder		
Resolution	[Bit/rev]	17

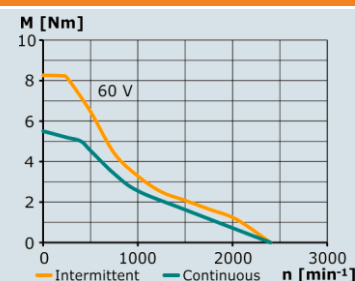
Characteristic E100-34E42



Characteristic E100-34E80



Characteristic E100-34E90



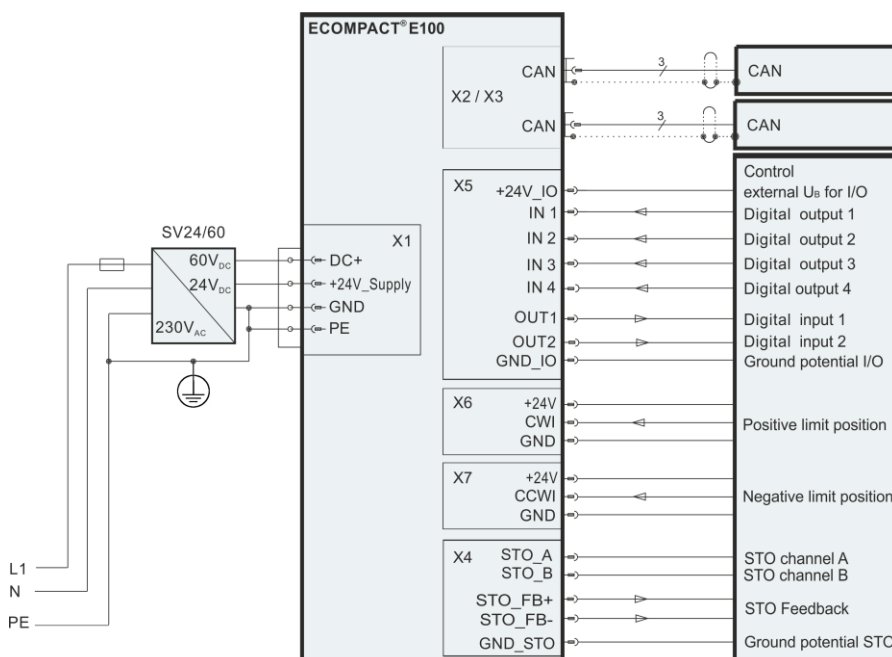
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→ Technical data

DC supply			Logic Supply		
Power supply	[V _{DC}]	24 ... 60	Logic supply	[V]	24 ± 10%
Rated connection current	[A]	3.8	Maximum input current @ 24 V _{DC}	[A]	0.2*
Rated installed load	[W]	230	*) without external loads, e.g. I/O or encoder		
DC link capacity	[μF]	440			
Ambient conditions			Digital inputs		
Storage: Class	1K4 acc. to EN 61800-2		Up to 4 digital control signal inputs (galvanically isolated)	[V]	LOW 0 ... 10, HIGH 13 ... 30
Storage temperature	[°C]	-25 ... +55		[mA]	3 (@ 24 V)
Operation: Class	3K3 acc. to EN 61800-2		Up to 2 digital control signal outputs (grounding)	[V]	24
Ambient temperature during operation with nominal load	[°C]	+5 ... +40		[A]	0.5
Degree of humidity (not condensing)	[% rel. F.]	5 .. 85	Safety function STO		
Installation altitude	[m]	< 1500 *	2 STO inputs		
Installation position	preferred position: horizontal		1 STO feedback signal (output)		
Protection class	IP40 (option: IP54)		SIL-3 (according to EN 61800-5-2); PL e (according to ISO EN 13849-1)		
Pollution degree	2 **		Standards		
Cooling	via motor flange and convection		Applied standards for CE certification	EMC according to EN 61800-3, safety according to EN 61800-5-1 Devices with the STO safety function also comply with EC Machinery Directive 2006/42/EC	
*) without restriction of power					
**) with protection class ≥ IP54 (optional), pollution degree 3					
Customs tariff number					
Customs tariff number				85013100	

Basic functions

- ✓ Digital current, speed and position control with position, speed and torque limits
- ✓ Digital filtering functions to dampen vibrations in the overall system
- ✓ Parameterizable jerk filters optimize the motion profiles and improve the machine's longevity
- ✓ Short circuit, voltage, temperature, encoder, following error and i²t monitoring
- ✓ Evaluation of limit switches and reference sensor, multiple homing modes
- ✓ Output stage enable via digital inputs. Ready status communication by digital output.
- ✓ Intelligent holding brake control with automatic voltage reduction



ECOSTUDIO® - Easy Commissioning

- ✓ Intuitive user interface, parameterization via wizards
- ✓ Displays actual performance parameters
- ✓ Integrated motor, encoder and axis database
- ✓ Extensive oscilloscope function for analysis and diagnosis
- ✓ Easy graphical sequence programming

Compact Servo Drive ECOMPACT® E100

→ Ordering key

ECOMPACT® E100-34E42/80/90-qrr-stt-uvvv - wx - yyy - zzz

qrr	stt	uvvv	wx	yyy-zzz
q: Brake	s: Hardware options	u: Power supply	w: Field bus type	yyy: Firmware number (three digits)
0 No brake (default)	0 None	A 1 or 3 phases, AC or DC	C CAN	zzz: Parameter set number (three digits)
L Braking module 5 Nm	B Drilling	B DC	P EtherCAT®*	
rr: Encoder type	G Gear	vvv: Option card features		x: Approvals
0M Option <i>sensorless motion</i> without encoder	K Customer-specific version		A CE	
IM Incremental encoder 20.000 inc/rev (default)	P Feather key according to DIN 6885		B CE, EC Machine Directive (STO)	
5P Incremental encoder 160.000 inc/rev	S Special feather key	000 x x x IP40		
DW Multiturn absolute value encoder 17 Bit/rev und 12 Bit revolutions	W Other shaft option	001 x x IP40		
ES / JS Singleturn absolute value encoder 17 Bit/rev	tt: Consecutive numbers or letters	002 x IP40		
		003 x x x IP54		
		004 x x IP54		
		005 x IP54		

*) in preparation

→ Accessories

Power supply

SV24	1-phase power supply 24 V _{DC} / 5 A
SV24/60	1-phase power supply 24 V _{DC} / 2 A, 60 V _{DC} / 5 A
SV60	1-phase power supply 60 V _{DC} / 5 A

Further details regarding the power supplies can be found in the separate data sheet *Power supplies*.

Examples of appropriate cables (not provided by Jenaer Antriebstechnik GmbH)

Connector	Assignment	Required mating connector	Example of appropriate cable type
X1	Power supply (max. 60 V) + Logic supply (24 V)	M12 female, 4-pole, S- coded	e. g. Phoenix Contact SAC-4P-FRS ...
X2 / X3	CAN bus interface CANin CAN bus interface CANout	M12 female, 5-pole A-coded M12 male, 5-pole, A-coded	e. g. Phoenix Contact SAC-5P-M12MS/ 2,0-920/M12FS (Patch cable input/output)
X4	STO function	M12 male, 5-pole, B-coded	e. g. SAC-5P-MSB/ ...
X5	Digital inputs and outputs	M12 male, 8-pole, A-coded	e. g. Phoenix Contact SACC-M12MS-8CON-PG11-M (mating connector without cable) e. g. Phoenix Contact SAC-8P- 1,5-PVC/M12FR
X6/X7	Sensor connectors	M8 male, 3-pole, A-coded	e. g. SAC-3P-M8MR/ ...

If you need cables specially tailored to your application, please do not hesitate to contact us.