



Features

- ▶ Nominal torque 5 Nm
- ▶ Self-locking system for wear-free holding torque
- ▶ On-board controls and display
 - Enables on-site set-up
- ▶ Jog function
- ▶ Absolute measuring system
- ▶ Integrated CoDeSys motion solution
- ▶ Self-diagnostics
- ▶ CANopen, PROFIBUS DP, Ethernet, EtherCAT*
- ▶ Plug output
- ▶ Digital I/O's
- ▶ Robust construction
- ▶ Protection class up to IP 64
- ▶ Simple mounting
- * in preparation

Fields of application

- ▶ Packing machines
- ▶ Wood processing machines
- ▶ Book binding machines
- ▶ Plastic processing machines
- ▶ Printing machines
- ▶ Production machines
- ▶ Machine tools

General information

General

With frequent batch size and product changes it is necessary to be able to reset the system for different formats quickly. Lenord + Bauer supplies an intelligent positioning drive which can be integrated into the system and is already fully fitted with compatible components (motor, drive, control, converter and mechanics). The positioning drive developed by Lenord + Bauer enables automatic format change with a high level of reproducibility. The positioning drives can be operated as independent systems or jointly as a format adjustment system. They offer mechanical modification options and are sufficiently compact to be easily integrated into machines and substantially reduce retooling times.

Description

The intelligent adjustment drive is a compact, self-locking adjustment unit with integrated DC motor, worm drive, absolute sensor, and power and control electronics based on a PowerPC® processor. There is the option of fast adaptation to all standard field bus systems by exchanging the connection panel. Up to 16 I/O signals can be emitted via an additional socket (e.g. software limit switch).

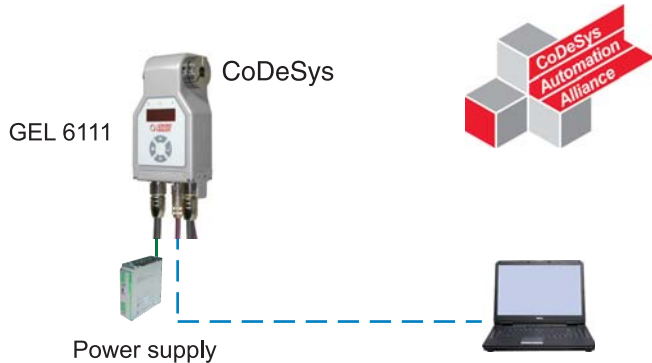
Robust construction

The cast aluminium casing is a highly wear-resistant, robust housing with excellent surface characteristics. The double bearing 20 mm hollow shaft makes light work of assembly with its clamping flange and fixing clip with torque support function.

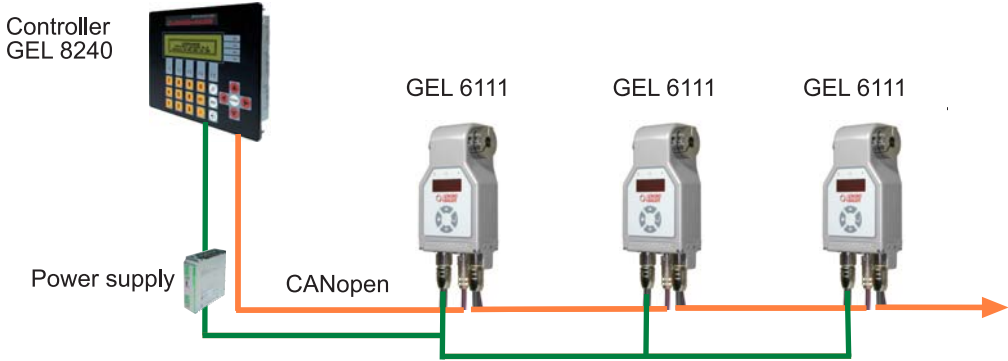


Our three solutions

Programmable logic drive

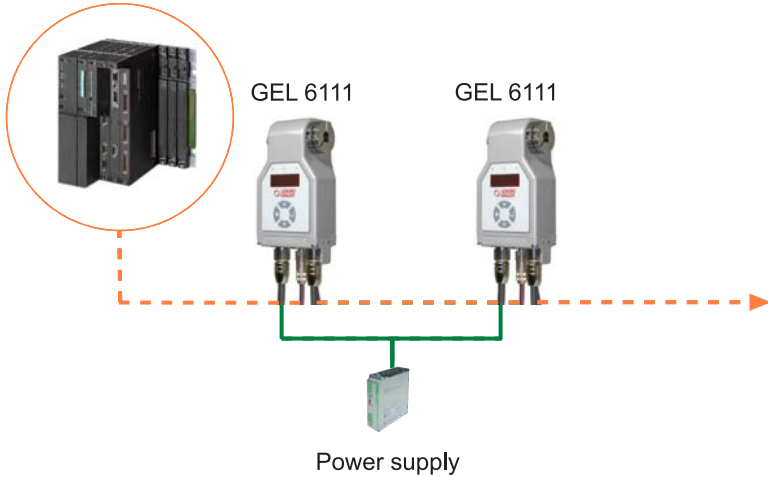


Format adjustment system in combination with the MotionController GEL 8240 /45



Fieldbus positioning drives

Controller (e. g. PLC)



PLC programming environment

Lenord + Bauer uses CoDeSys for PLC programming system. CoDeSys is based on the IEC 61131-3 standard, which is an international standard for programming languages used in memory-programmable control units. The programming languages implemented in CoDeSys comply with the standard's requirements. They can be mixed freely and, in part, converted into each other.

The advantages of CoDeSys

General

- ▶ The CoDeSys programming languages are standardized
- ▶ The CoDeSys programming languages can be freely mixed with one another
- ▶ Fast compiler
- ▶ One file per project

Convenient editor

- ▶ Automatic declaration of variables (auto declare)
- ▶ Automatic formatting of variables (auto format)
- ▶ Input assistance
- ▶ Global find-and-replace function
- ▶ Context-sensitive help
- ▶ Context-sensitive menu

Convenient online debugging

- ▶ Online tracing of variables and their graphical representation
- ▶ Setting of breakpoints
- ▶ Single step
- ▶ Visible online variables without the need of creating a list
- ▶ Changing the variables while the control system is running
- ▶ Changing the program while the control system is running

The CoDeSys programming languages

CoDeSys supports all five languages as per IEC 61131-3.

- ▶ Instruction List (IL)
- ▶ Ladder Diagram (LD)
- ▶ Functions Block Diagram (FBD)
- ▶ Structured Text (ST)
- ▶ Sequential Function Chart (SFC)
- ▶ Continuous Function Chart (CFC)

GEL 6111 function libraries

In addition to the PLC standard modules available in CoDeSys, Lenord + Bauer offers further function libraries for the GEL 6111 which are supplied with the device. Among other things, they offer the following advantages:

- ▶ Complete, comprehensive and complex technology functions for quick and economic solutions
- ▶ Simple, comfortable, self-explaining function blocks
- ▶ Comfortable display control
- ▶ Integrated in the GEL 6111 operating system, therefore no utilization of PLC resources

The GEL 6111 function libraries include the most important function modules for:

- ▶ Positioning of axes
- ▶ Reading and writing out of digital signals
- ▶ Display control and device information

The function library GEL 611.lib available for the GEL 6111.

Integrated positioning controller

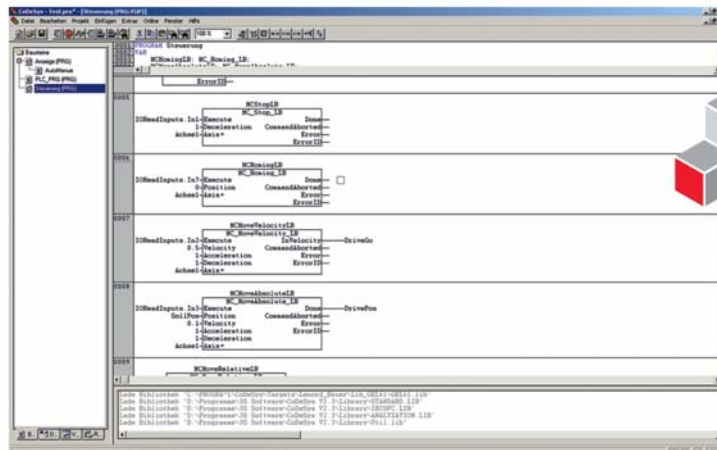
For the positioning of axes, the GEL 6111 function library offers the following group of modules:

- ▶ Jogging commands
- ▶ Homing commands
- ▶ Positioning commands
- ▶ Stop commands
- ▶ Commands for setting and reading information such as the axis status

PLCopen

- ▶ Functional blocks for axis control according to the PLCopen standard
- ▶ Compatibility with 3S soft motion library
- ▶ Simple migration of existing projects that comply with to PLCopen

The screenshot below shows a section of the CoDeSys library manager.



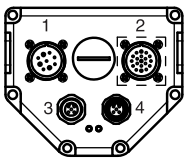
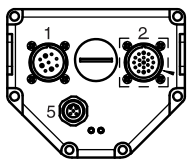

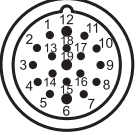
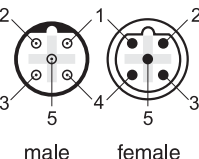
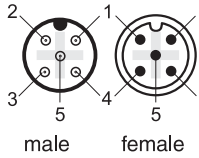
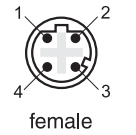
Technical data

Electrical data	
Nominal voltage, control	24 V DC \pm 10 %
Nominal voltage, motor	24 to 40 V DC
Nominal current, control (without process I/O)	200 mA
Nominal current, motor	5 A
Max. current, motor	12 A
Switch on / pause time (load dependent)	5 Nm: 1 minute / 3 minutes 4 Nm: 1.5 minutes / 3 minutes 3 Nm: 2 minutes / 2 minutes 2 Nm: 3 minutes / 2 minutes
Resolution	1000 increments per 360°
Precision of positioning	\pm 1.8°
Digital control outputs (option)	8 x 24 V / 100 mA; 350 mA /channel; 500 mA total
Digital control outputs (option)	8, low 0 to +5 V, high +15 to 30 V
Fuse protection of control outputs	1 A self-resetting; 500 mA with inputs
Interface	CANopen (DS-402) PROFIBUS DP (V0/V1) EtherCAT (in preparation) Ethernet DeviceNet (in preparation)
Insulation test according to EN 60439-1	500 V AC
EMC ⁽¹⁾	Electromagnetic immunity: EN 61000-6-1 and -2 Electromagnetic emissions: EN 61000-6-4 ⁽²⁾
Mechanical data	
Nominal torque	5 Nm
Nominal speed at 5 Nm	40 min ⁻¹
Hollow shaft diameter	20 mm
Hollow shaft material	Brass / steel
Max. shaft load (axial)	30 N
Max. shaft load (radial)	50 N
Life time	3000 h at nominal operation
Weight	3.4 kg
Housing material	Diecast aluminium
Protection class according to DIN EN 60529	IP 64
Shock protection according to IEC 60068-2-27	150 m/s ²
Vibrations protection according to IEC 60068-2-6	5 m/s ² , 10 to 200 Hz
Environmental data	
Working temperature range	+10 to +60 °C
Operating temperature range	0 to + 60 °C
Storage temperature range	-20 to +70 °C
Max. relative humidity	90%, not dewing
Condensation	none

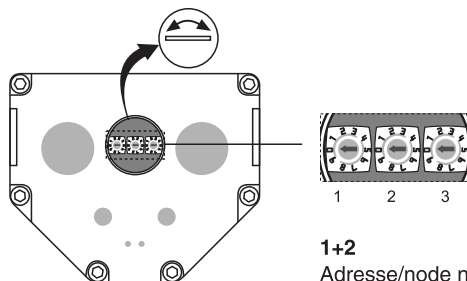
(1) Use shielded cables only.

(2) When using the device in residential areas or commercial environments the requirements as to electromagnetic emission defined in EN 61000–6–3 can be complied with by applying additional shielding and filter steps.

Pin assignment

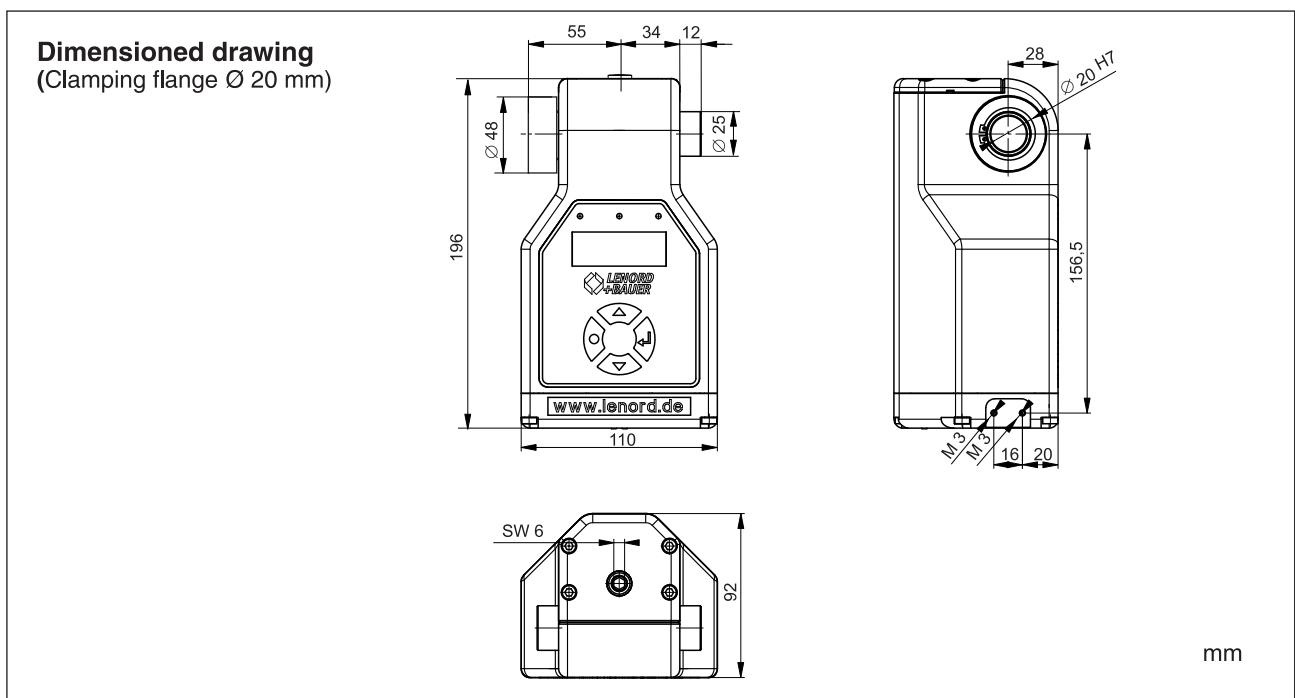
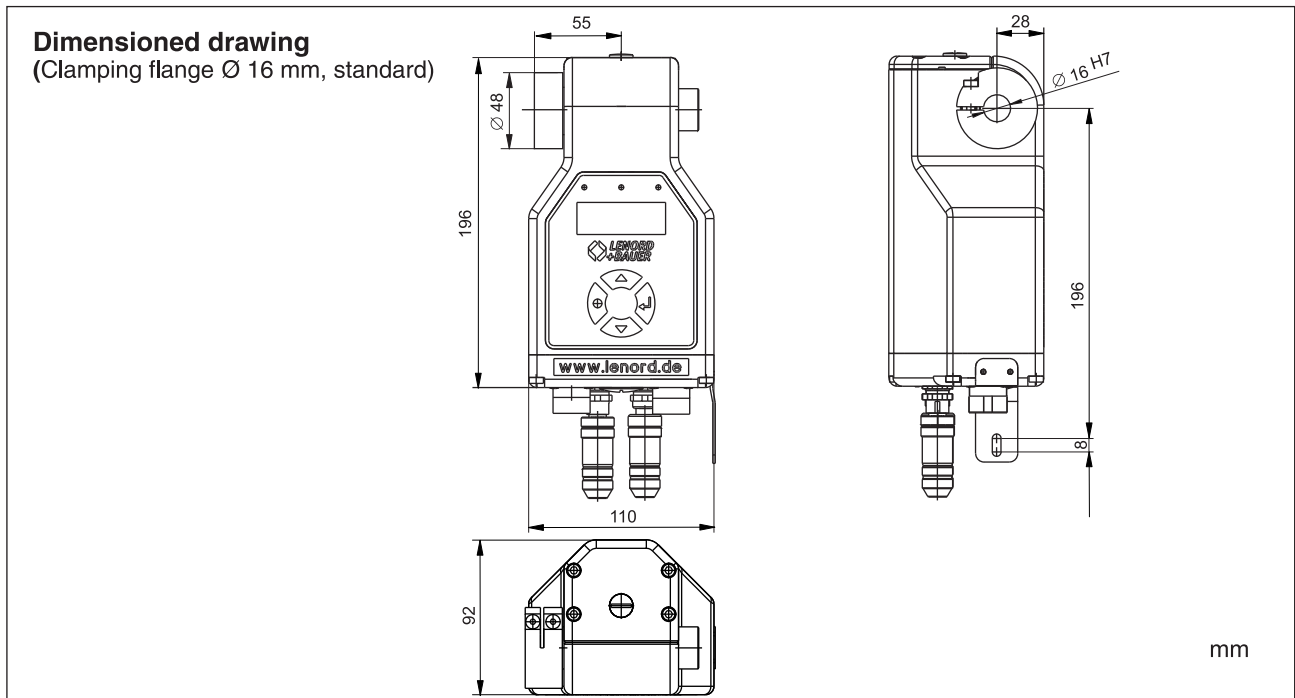
	CANopen	PROFIBUS DP	DeviceNet	Ethernet
				
Pos. 1  male	1 2 4 6	+24 V control GND control +24 40 V drive GND drive <i>Reference note:</i> The two GND lines are connected internally.		
Pos. 2 (Option)  female	1 - 5, 13, 14, 18 6, 12 7 - 11, 15 - 17 19	Output 7, 6, 4, 2, 1, 5, 3, 8 GND control Input 2, 3, 5, 7, 8, 1, 4, 6 + 24 V DC		
Pos. 3, 4  male female		1 n. c. / 5 V bus voltage 2 A-wire 3 n. c. / GND bus voltage 4 B-wire 5 screen		
Pos. 3, 4  male female	1 n. c. 2 n. c. 3 CAN_GND 4 CAN_H 5 CAN_L		1 screen 2 V+ 3 V- 4 CAN_H 5 CAN_L	
Pos. 5  female				1 Tx+ 2 Rx+ 3 Tx- 4 Rx-

Setting the device address



- 1+2**
 Adresse/node number ID
3
 Commissioning aid – adjust before for switch
 0 = bus operation
 3 = set-up mode

Dimensioned drawings



Type code GEL 6111, Accessories

Type code GEL 6111

6111	Nominal torque	
	1	5 Nm
	Shaft type	
	0 No clamping flange	
	A Clamping flange, diameter 10 mm ⁽¹⁾	
	B Clamping flange, diameter 11 mm ⁽¹⁾	
	F Clamping flange, diameter 13 mm ⁽¹⁾	
	G Clamping flange, diameter 14 mm ⁽¹⁾	
	H Clamping flange, diameter 15 mm ⁽¹⁾	
	I Clamping flange, diameter 17 mm	
J Clamping flange, diameter 18 mm		
K Clamping flange, diameter 16 mm (standard)		
L Clamping flange, diameter 20 mm		
M Clamping flange, diameter 12 mm ⁽¹⁾		
N Clamping flange, diameter 19 mm		
Keypad		
0 without		
1 with		
Bus systems		
C CANopen		
D DeviceNet (under preparation)		
E EtherCAT (under preparation)		
N Ethernet (requires Pcess I/O)		
P PROFIBUS DP		
Process I/O		
0 without		
1 with (8/8)		
Protection class		
1 IP 64		
Extension 1		
0 none		
1 CoDeSys 2.3 (with Ethernet interface only)		
Extension 2		
0 none		

Accessories

Description	Articel No.
Mating connector, PROFIBUS DP, B-coded input (female)	FS 3016
Mating connector, PROFIBUS DP, B-coded output (male)	FS 3017
Mating connector, CANopen, A-coded input (female)	FS 3020
Mating connector, CANopen, A-coded output (male)	FS 3021
Mating connector, Ethernet, D-coded, 4-pole (male)	FS 3039

Included in delivery:

Clamping flange, torque support, mating connector voltage supply

⁽¹⁾ upon request