

General

Incremental rotary encoders convert rotary motion into electrical signals. Lenord + Bauer's rotary encoders combine the advantages of a magnetic measuring system with a robust and innovative mechanical construction. They have proven themselves in the widest variety of applications the world over, even under the most rugged industrial conditions. And of course, these absolute rotary encoders offer superlative reliability coupled with a long service life.

Features

- High resolution up to 1024 pulses
- Reference signal
- Solid shaft 10 x 20 mm
- Stainless steel housing 1.4305
- IP 67
- High EMC

Advantages

- Suitable for all standard applications and real heavy-duty use
- Withstands powerful shocks and vibration
- Unaffected by dirt or oil spray
- Long-term stable temperature behaviour
- Fully functional even in the presence of condensation: unaffected by the dew point
- Magnetic sensor technology is not subject to ageing
- Also resisted aggressive media

Fields of application

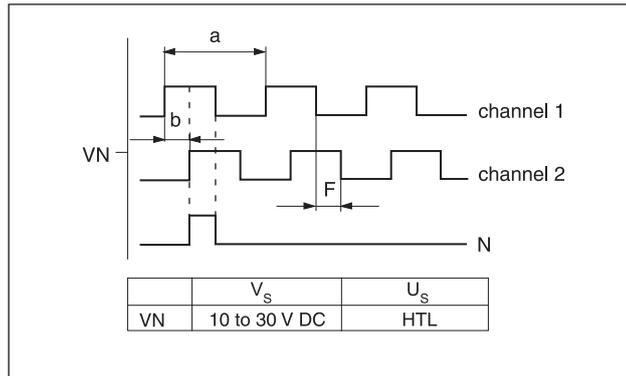
- Food industry
- Composting plants
- Offshore technology



Output signals

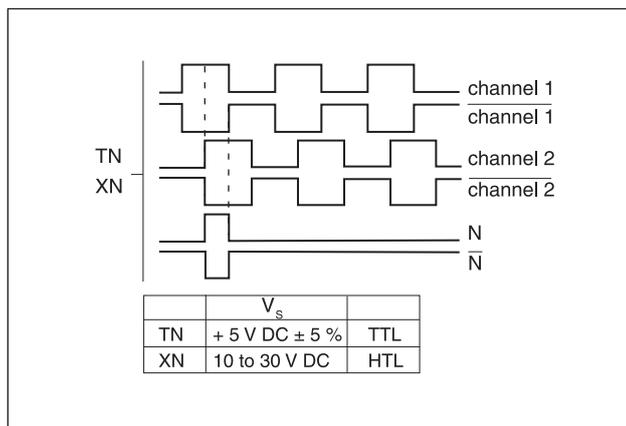
Signal pattern VN

The signal pattern "VN" designates two tracks with 90° offset square-wave signals. The third track N emits a reference signal of a defined length once per revolution.



Signalmuster TN, XN

Both pulse outputs and the zero signal are output additionally as inverse signals.



Key

V_s = supply voltage

U_s = signal voltage

a = 360° electrical

b = 90° phase shift

F = edge distance (for an output frequency of 200 kHz the edge distance is $F > 0.6 \mu\text{s}$)

Signal pattern= shown for clockwise rotation (view on top of the encoder shaft)

Output level

Signal patterns VN and XN have HTL levels; signal patterns TN and UN have TTL levels (for output voltage, see electrical data). All outputs have push-pull power amplifiers and are sustained short circuit-proof.

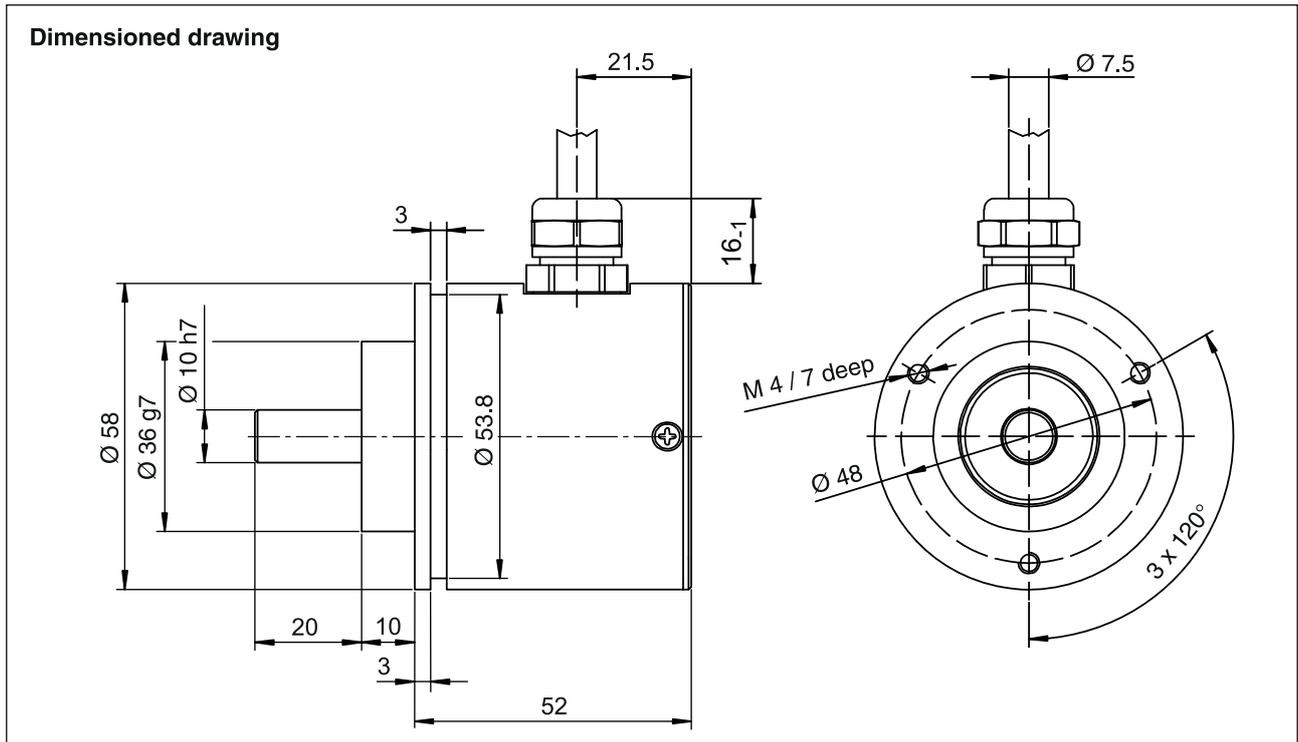
Technical data

Signal pattern	TN	VN	XN
General			
Resolution	see "Realizable pulse numbers"		
Repeatability	< 1°		
Electrical data			
Supply voltage V_S	5 V	10 to 30 V DC	
Power consumption	< 1.0 W		
Output frequency max.	see "Realizable pulse numbers"		
Output level high	Logic level TTL $\geq V_S - 1.00 \text{ V}$ at $I = 10 \text{ mA}$; $\geq V_S - 1.20 \text{ V}$ at $I = 30 \text{ mA}$	Logic level HTL $\geq V_S - 1.80 \text{ V}$ at $I = 10 \text{ mA}$; $\geq V_S - 2.20 \text{ V}$ at $I = 30 \text{ mA}$	
Output level low	Logic level TTL $\leq 0.75 \text{ V}$ at $I = 10 \text{ mA}$; $\leq 1.00 \text{ V}$ at $I = 30 \text{ mA}$	Logic level HTL $\leq 1.15 \text{ V}$ at $I = 10 \text{ mA}$; $\leq 1.55 \text{ V}$ at $I = 30 \text{ mA}$	
Number of reference signals	1		
Mechanical data			
Weight	400 g		
Moment of inertia of rotor	$14.5 \times 10^{-6} \text{ kgm}^2$		
Permissible operating speed max.	$6,000 \text{ min}^{-1}$ ($10,000 \text{ min}^{-1}$ short time)		
Permissible shaft load (Distance contact point at shaft end $6,000 \text{ min}^{-1}$)	50 N axial, 100 N radial		
Bearing life	10^5 h		
Ambient data			
Working temperatur	-20°C to 70°C		
Storage temperature	-40°C to 85°C		
Protection class	IP 67		
Vibration resistance (DIN IEC 60068, Part 2-6)	200 m/s^2 , 10 to 2000 Hz		
Shock resistance (DIN IEC 60068, Part 2-27)	2000 m/s^2 , 11 ms		
EMC	EN 61000-6-1 to 4		
Insulation strength	$R_i > 1 \text{ M}\Omega$ at insulation test voltage of 500 V AC		
Relative humidity of air max.	100 %		
Condensation	permissible		
Cable			
Number of cable cores	8		
Cable type	halogen-free cable with additional temperature range		
Bending radius static	40 mm		

Realizable pulse numbers

2, 4, 8, 16, 20, 32, 40, 50, 64, 80, 100, 128, 160, 200, 250, 256, 400, 500, 512, 800, 1000, 1024

Dimensioned drawing



Cable assignment

Cable assignment

Signal	Cable colour	Description
V_S	red	Supply voltage
GND	blue	Ground
N	pink	Reference signal
\bar{N}	grey	Reference signal, invers
Channel 2	yellow	Channel 2
$\bar{\text{Channel 2}}$	green	Channel 2, invers
Channel 1	white	Channel 1
$\bar{\text{Channel 1}}$	brown	Channel 1, invers

Type code GEL 2010

		Signal pattern	
		TN	Signal pattern TN
		VN	Signal pattern VN
		XN	Signal pattern XN
		Impulse numbers	
		Impulse numbers per revolution	
		Flange / Shaft	
		A	Clamping flange 10 x 20 mm shaft
		Electrical interface	
		B	1 m cable, open cable end
		C	3 m cable, open cable end
		D	5 m cable, open cable end
		E	10 m cable, open cable end
		Position outlet	
		R	Radial
		Option	
		0	None option
2010			

Customer-specific types

Customer-specific tailoring of mechanical and electrical properties is possible.

Notices:



Lenord, Bauer & Co. GmbH
Dohlenstraße 32
46145 Oberhausen, Germany
Phone: +49 208 9963-0
Fax: +49 208 676292
Internet: www.lenord.com
E-Mail: info@lenord.de

Right to technical changes and errors reserved.