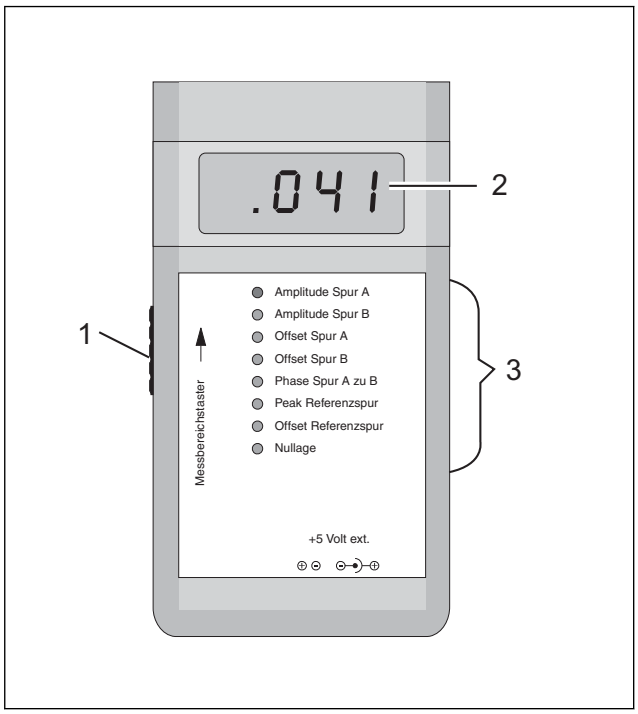
Testing device
GEL 210 Y004/Y005/Y007
for encoders with sinusoidal output 1 V_{SS}

SENSORLINE
LENORD+BAUER

Operating information ***Version 2010-10***



Field of application

- Testing of MiniCoders GEL 2432, 2442/2443 with sinusoidal output 1 V_{SS}
- Testing of various encoders with sinusoidal outputs 1 V_{SS}
- Floating measuring
- GEL 210 Y005/Y007 with position detection for reference signal (LED indicator “Nullage”, → page 4)

Design

1. Push button
2. LCD display for measuring values
3. LED indicators for measurement range (→ page 3)

Function

With the testing device the sine and cosine wave signals of the encoder are checked for admissible signal levels.
The 3½-digit LC display (background lightened) displays the following measurands:

- Amplitude of sine and cosine track (voltage)
- Offset values of both signal tracks (voltage)
- Phase deviation between signal tracks with respect to 90° (degrees)
- Correct function of reference track (voltage)

Changing the measurement range is effected by means of the push button (1) on the left side.
With each actuation the measurement range is scrolled down. The active range is indicated by the associated LED (3) being on.

Cleaning, maintenance and disposal

Only clean the housing with a damp cloth and a mild soap. The device has no parts that require maintenance. Do not attempt to repair the device yourself.
Opening the housing results in the loss of manufacturer’s warranty. Repairs may only be carried out by LENORD + BAUER or by an expressly authorized representative.
Dispose of a faulty device according to regional regulations for electrical and electronic devices.

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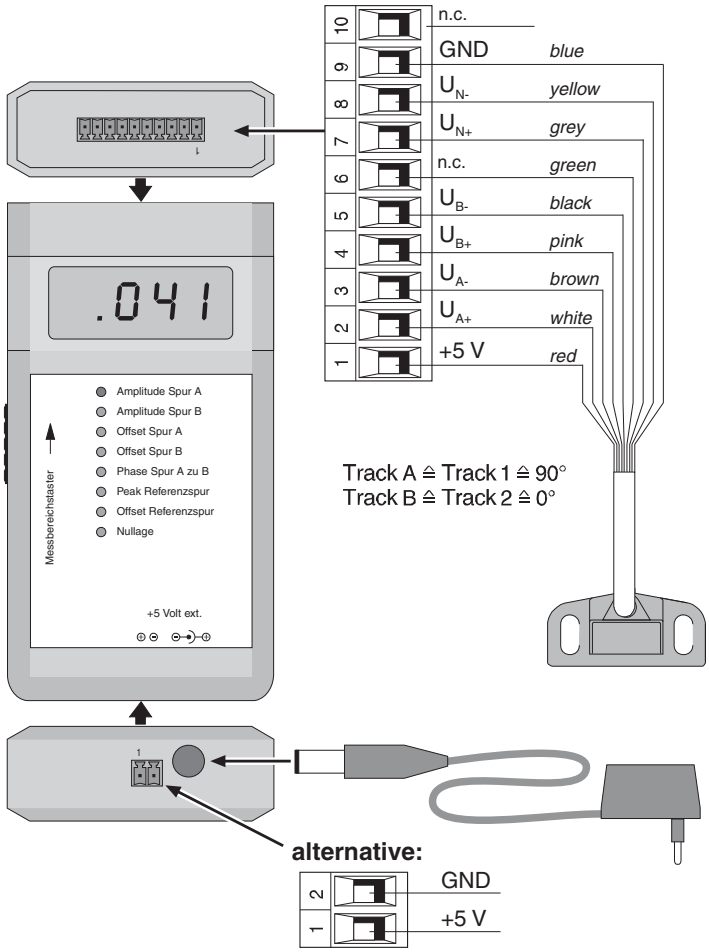
Technical Data and Connections

Technical data

General Data	
Operating voltage	5 V DC ± 5% Mains adapter 5 V, stabilised
Current consumption (without encoder)	< 100 mA
Frequency range	0.1 to 4 kHz
Operating temperature	+10°C to +40 °C
Weight (without mains adapter)	200 g
Dimensions (WxLxD)	84 mm x 157 mm x 30 mm
Measuring accuracy	
Measuring error for amplitude (peak to peak) tracks A, B	± 2% (0.1 to 2 kHz)
Measuring error for reference signal (peak)	± 10% (0.1 to 2 kHz)
Offset tracks A, B and reference signal	± 0.2%
Phase deviation from 90°	± 0.2°

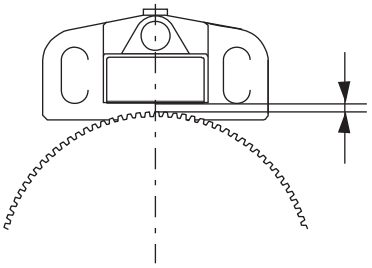
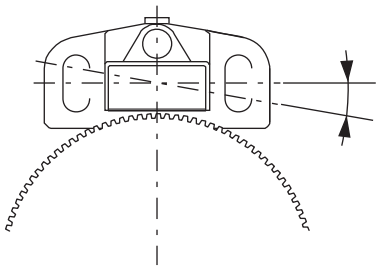
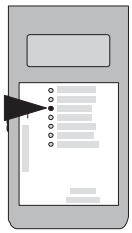
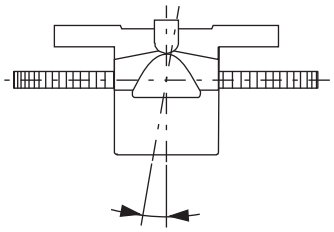
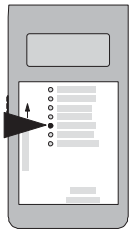
Connection



☑ Connect the encoder to a 10-pole terminal strip with screw contacts and unique orientation. Plug-in the terminal strip on the top side of the testing device.

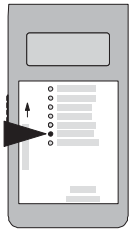
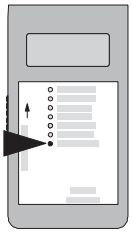
☑ Plug in the included mains adapter on the bottom of the test device.
Alternative: Connect the 5 Volts power supply to a 2-pole terminal strip with screw contacts and plug it on the bottom side of the device.

Overview of measurement ranges

Measurement range	Indicator	Measuring values and tolerance range[1)]	
Air gap measurement Amplitude (peak to peak) 	U_{A+}, U_{A-} 	Amplitude track **A**	1 V_{SS} ± 0.2 V_{SS}
	U_{B+}, U_{B-} 	Amplitude track **B**	1 V_{SS} ± 0.2 V_{SS}
Offset measurement 	U_{A+}, U_{A-} 	Offset track **A**	0 ± 0.02 V DC
	U_{B+}, U_{B-} 	Offset track **B**	0 ± 0.02 V DC
Phase measurement 	U_{A+}, U_{B+} 	Phase track **A** to track **B** (deviation from 90°)	< 1°

1) The measuring values and tolerance ranges depend on the control used. Please observe the manufacturer's specifications.

Measurements

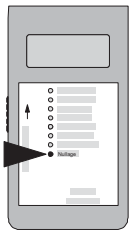
Measurement range	Indicator	Measuring values and tolerance range[1)]	
Reference signal	U_{A+}, U_{B+} 	Amplitude (Peak)	> 0.2 V
	U_{A+}, U_{B+} 	Offset	-0.1 to -0.4 V DC

1) The measuring values and tolerance ranges depend on the control used. Please observe the manufacturer's specifications.

Zero position detection of GEL 210 Y005 and Y007

NOTICE Zero position detection is always active and cannot be switched off by means of the push button.

With rotating target wheel, the correct orientation of the reference signal (N) is signalled by the 'Nullage' LED being on continuously.



Once the reference track is detected the LED is on for about 10 seconds.

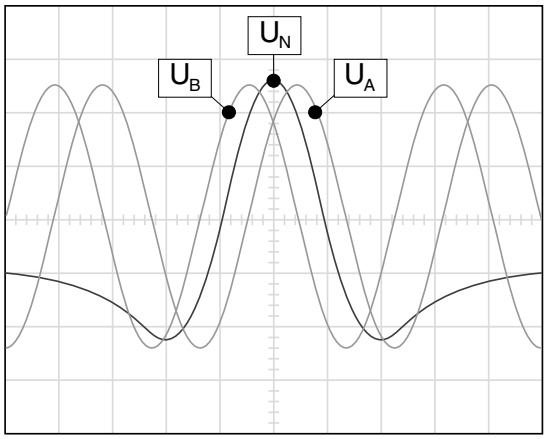
Orientation of the reference signal

The correct orientation of the reference signal in relation to the track signal $U_A = (U_{A+} - U_{A-})$ depends on the testing device:

GEL 210Y005 135° ± 45°

GEL 210Y007 135° ± 90°

Ideally, the reference signal U_N is centered between the peaks of the track signals U_A and U_B.



Ideal position of the reference signal U_N

Subject to technical modifications and typographical errors.