

Encoders

optical Encoder, digital outputs, 3 channels,
250 - 500 lines per revolution, Line Driver

For combination with
Brushless DC-Motors
DC-Micromotors

Series IERS3-500 L

		IERS3-250 L	IERS3-500 L	
Lines per revolution	N	250	500	
Frequency range, up to ¹⁾	f	55	110	kHz
Signal output, square wave		2+1 Index and complementary outputs		Channels
Supply voltage	U_{DD}	4,5 ... 5,5		V
Current consumption, typical ²⁾	I_{DD}	typ. 17, max. 25		mA
Index Pulse width	P_0	90 ± 15		°e
Phase shift, channel A to B	Φ	90 ± 20		°e
Inertia of code disc	J	0,14		gcm ²
Operating temperature range		-20 ... +85		°C
Accuracy, typ.		0,3		°m
Repeatability, typ.		0,05		°m
Hysteresis		0,05		°m
Edge spacing, min.		600		ns
Mass, typ.		8		g

¹⁾ Velocity (min⁻¹) = f (Hz) x 60/ N

²⁾ U_{DD} = 5 V: with unloaded outputs

Note: The output signals are TIA-422 compatible.
Examples of Line Driver Receivers: ST26C32AB (STM), AM26C32 (TI).

For combination with Motor

Dimensional drawing A	<L1 [mm]	Dimensional drawing D	<L1 [mm]
2214 ... BXT H	26,8	3863 ... CR - 2016	82,6
3216 ... BXT H	28,7	3890 ... CR - 2016	108,6
4221 ... BXT H	34,0		
Dimensional drawing B			
	<L1 [mm]		
2237 ... CXR	52,5		
2264 ... BP4	79,1		
3274 ... BP4	90,8		
Dimensional drawing C			
	<L1 [mm]		
2342 ... CR	60,5		
2642 ... CXR	60,5		
2642 ... CR	60,5		
2657 ... CXR	75,5		
2657 ... CR	75,5		
2668 ... CR	86,5		
3242 ... CR	60,5		
3257 ... CR	75,5		
3272 ... CR	90,5		

Characteristics

These incremental encoders with 3 output channels, in combination with the FAULHABER Motors, are used for the indication and control of both shaft velocity and direction of rotation as well as for positioning.

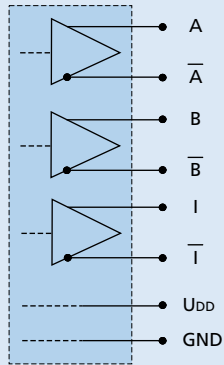
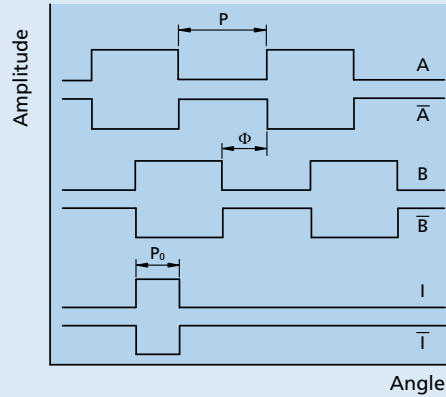
With a reflective code disc two square wave signals with 90° phase shift with up to 500 lines per revolution and one index impulse per motor revolution are generated.
The optical measurement principle allows high accuracy and repeatability for positioning applications.

The Line Driver version has differential signal outputs (TIA-422). Differential signals reduce ambient interference and are suitable for applications with high ambient interference.

The Line Driver amplifies the encoder signal which means that long cables can be used without signal degradation.
Differential signal outputs must be decoded by the appropriate receiver module. In addition, a suitable line termination resistance (100 ohm) is possibly useful.

The encoder is connected via a ribbon cable. The pins are compatible to the FAULHABER Encoder IE3 L.

To view our large range of accessory parts, please refer to the "Accessories" chapter.

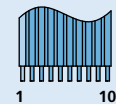
Circuit diagram / Output signals
Output circuit

Output signals with clockwise rotation as seen from the shaft end

Connector information / Variants

 Example product designation: **3863H024CR IERS3-250L 3806**

Option	Type	Description
3806	Connector 	for combination with DC-Motors series CR, CXR and with Brushless DC-Motor series BP4 and BXT H. Connector variants AWG 28 / PVC ribbon cable with connector EN 60603-13 / DIN-41651.

Connection Encoder
No. Function

- 1 N.C.
- 2 U_{DD}
- 3 GND
- 4 N.C.
- 5 Channel \bar{A}
- 6 Channel A
- 7 Channel \bar{B}
- 8 Channel B
- 9 Channel \bar{I}
- 10 Channel I


Standard cable

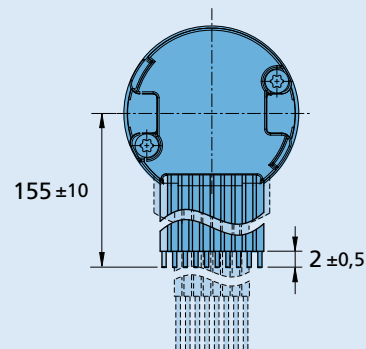
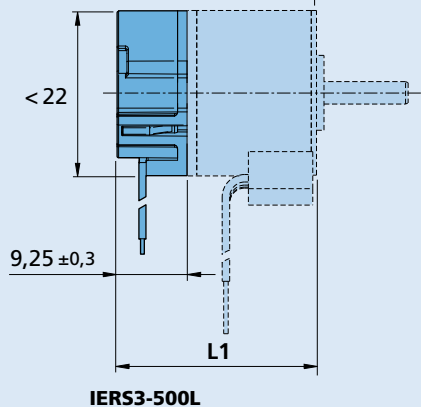
PVC-ribbon cable, 10-AWG 28, 1,27 mm

Caution:

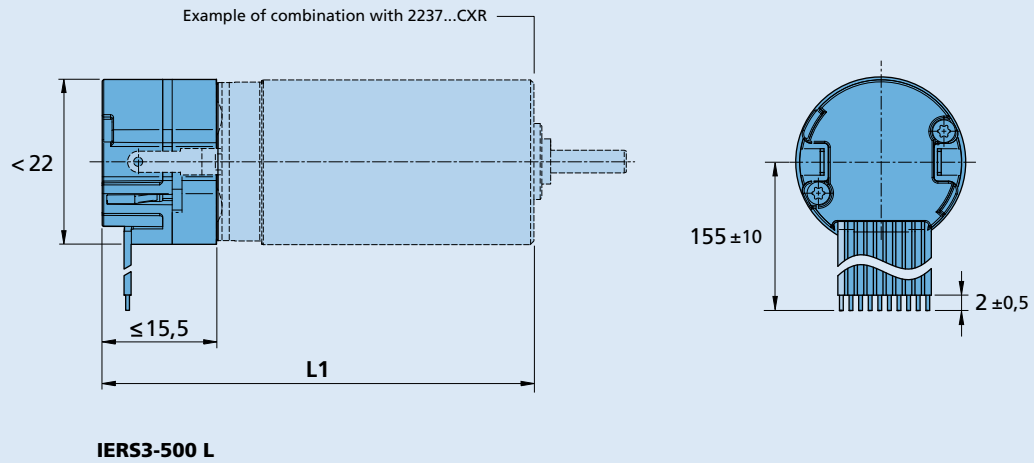
Incorrect lead connection will damage the motor electronics!

Dimensional drawing A

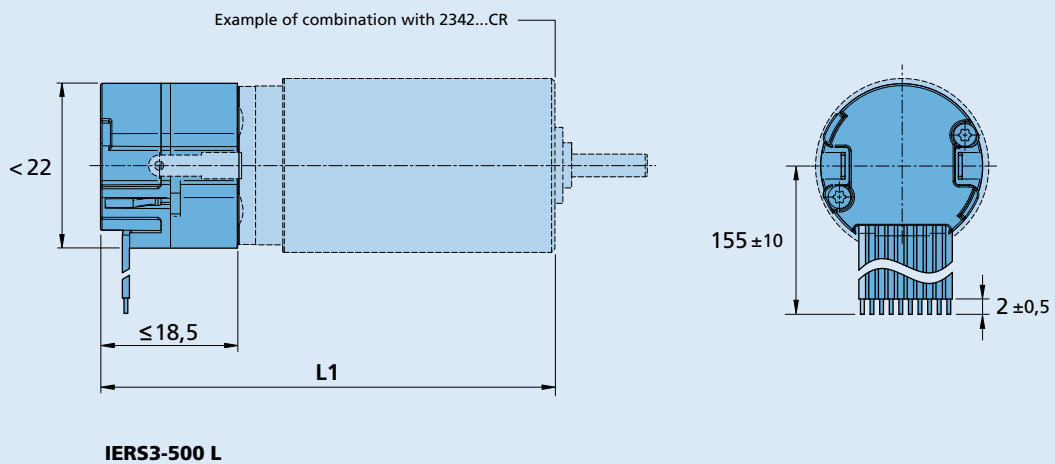
Example of combination with 2214...BXTH



Dimensional drawing B



Dimensional drawing C



Dimensional drawing D

