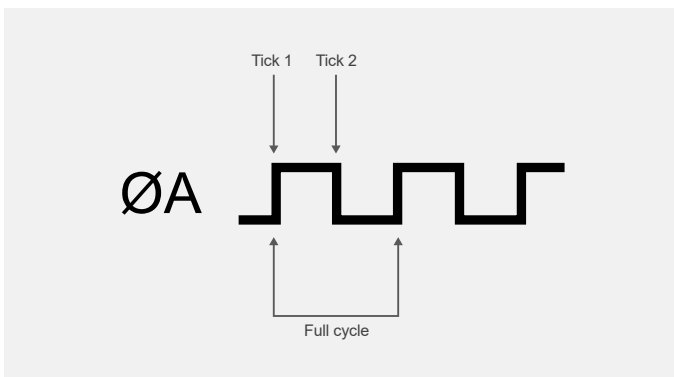


## In-Sight L38 Series Encoder

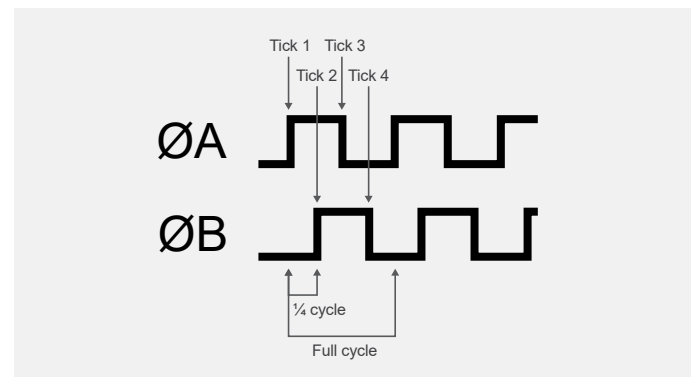
Encoders synchronize line acquisition in 2D and 3D area scan cameras to the movement of a conveyor belt. Connected directly to the camera, the encoder generates pulses that trigger line acquisition. The acquired lines are then used to form an image.



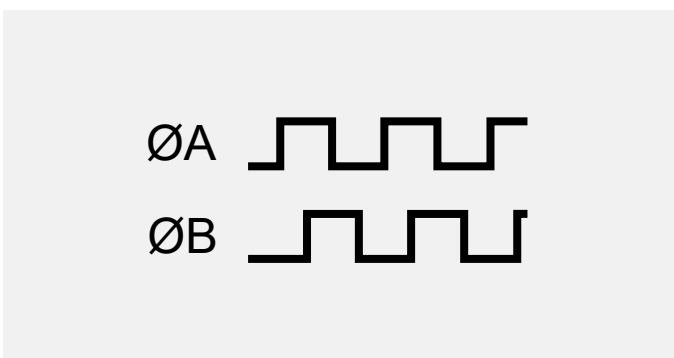
An encoder is categorized by the number of output channels:



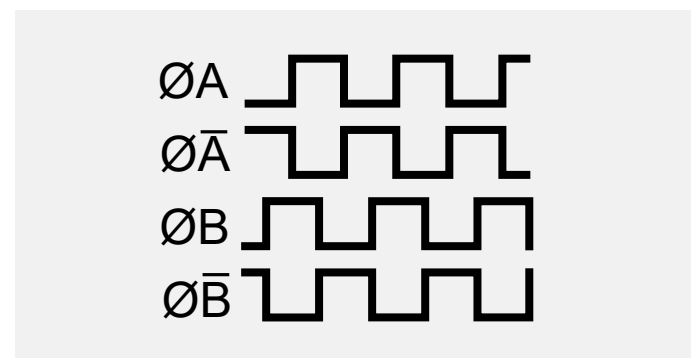
A **single-channel encoder** provides one pulse channel (A) and does not indicate the direction of motion. When paired with this type of encoder, a vision system is triggered 2 times, one for each signal transition (low to high and high to low).



A **quadrature encoder** provides two channels (A and B) and indicates the direction of motion. The channels are offset by a quarter of a cycle, meaning the vision system is triggered 4 times. There are two types of outputs for quadrature encoders: single-ended encoder and differential encoder.



A **single-ended encoder** produces a single voltage signal per channel, typically 0-5 V( TTL) or 0-24 V(HTL), and has two output channels (A and B).



A **differential encoder** produces two voltage signals per channel — one being inverted from the other one — and has four output channels (A, A-, B and B-).

## Recommended Models

The In-Sight® L38 series of 3D vision systems supports different modes of acquisition depending on the wiring between the vision system and the encoder.

### Basic features:

- Up to 5,000 pulses per revolution
- High signal accuracy
- Protection class up to IP65
- Synchro flange
- Operating temperature up to 70 °C

The following table shows which encoders are compatible with each L38 variant:

Encoder Product ID	L38-33	L38-50	L38-100	L38-300	L38-500
LS-Encoder-5000-00	✓ Recommended	✓ Suitable for high resolution			
LS-Encoder-2500-00	✓ Not suitable for high resolution	✓ Recommended	✓ Recommended	✓ Recommended	✓ Not suitable for high speed
LS-Encoder-1000-00				✓ Suitable for high speed	✓ Recommended

## Ordering Information

In-Sight L38 Series 3D Encoder	
Encoder Product ID	Description
LS-Encoder-5000-00	Rotatory incremental encoder 5000 ppr, Synchro flange with 6 mm solid shaft, RS422 output, 5 meter output cable with flying leads
LS-Encoder-2500-00	Rotatory incremental encoder 2500 ppr, Synchro flange with 6 mm solid shaft, RS422 output, 5 meter output cable with flying leads
LS-Encoder-1000-00	Rotatory incremental encoder 1000 ppr, Synchro flange with 6 mm solid shaft, RS422 output, 5 meter output cable with flying leads

## In-Sight L38 Series 3D Encoder Specifications

### Mechanical

Housing Diameter	58 mm
Shaft diameter	6 mm solid shaft
Flange	Synchro flange
Protection class shaft input	IP65
Protection class housing	IP65
Moment of inertia	Approx. 14 gcm <sup>2</sup>
Vibration resistance	100 m/s <sup>2</sup> (10 – 2000Hz)
Shock resistance	100 m/s <sup>2</sup> (6 ms)
Operation temperature	-10 °C – 70 °C
Storage temperature	-25 °C – 70 °C
Material shaft	Stainless Steel
Material Housing	Aluminum
Weight	Approx. 360 g
Connection	PVC cable, axial

### Electrical

Supply Voltage <sup>1</sup>	RS422 + Alarm: ± 10% DC 5V or DC 10 – 30V
Current w/o load typ.	40 mA (DC 5V), 60 mA (DC 10V), 30 mA (DC 24V)
Max. pulse frequency	RS422: 300 kHz
Standard output	RS422 + Alarm (R): A, B, N, $\bar{A}$ , $\bar{B}$ , $\bar{N}$ , $\overline{\text{Alarm}}$
Pulse width error	± max. 25° electrical
Number of pulses	1000, 2500, and 5000 (see part number table)
Pulse shape	Square wave
Pulse duty factor	1:1

<sup>1</sup> Pole protection with supply voltage DC 10 - 30 V

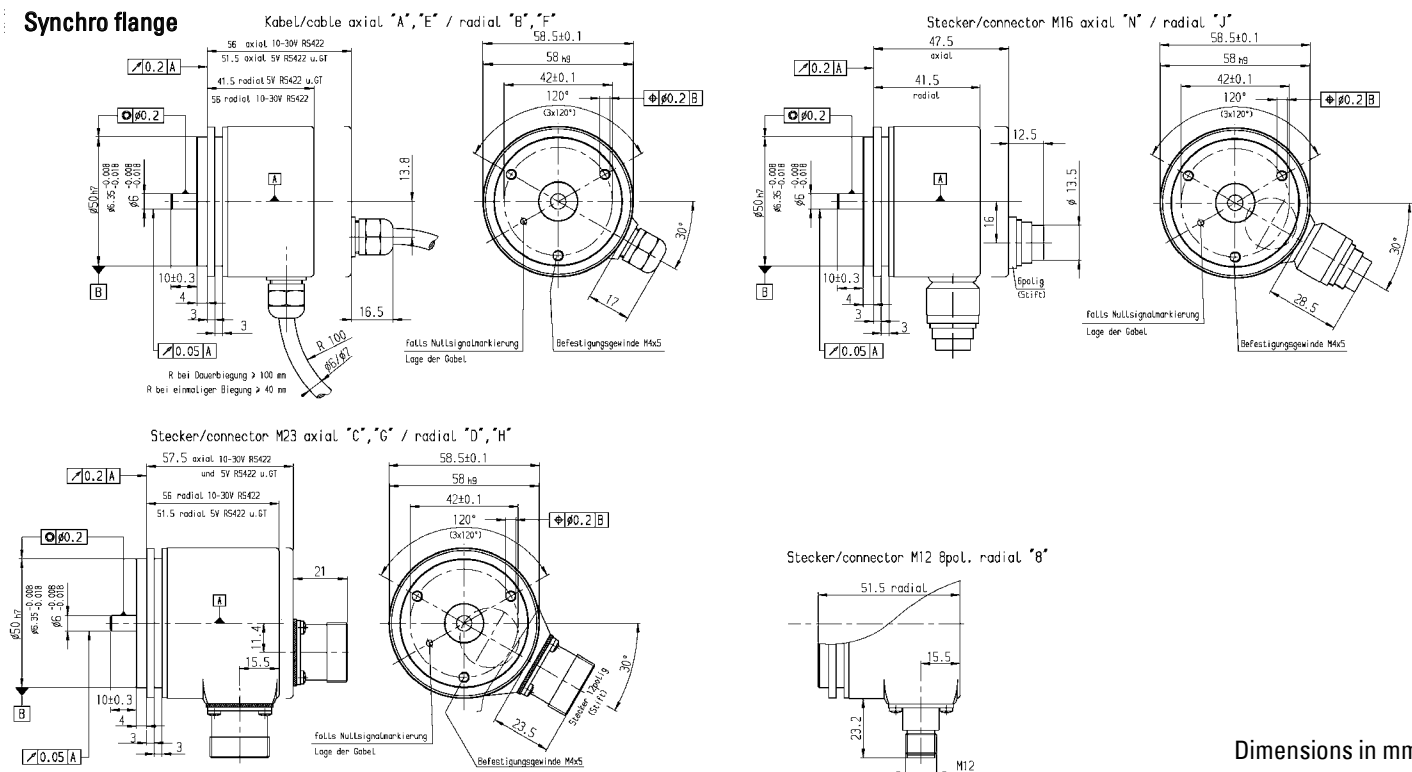
## Electrical Connections

### Cable PVC (A, B)

Color	RS422 + Alarm (R)
White	Channel A
White/Brown	Channel $\bar{A}$
Green	Channel B
Green/Brown	Channel $\bar{B}$
Yellow	Channel N
Yellow/Brown	Channel $\bar{N}$
Yellow/Black	$\overline{\text{Alarm}}$
Yellow/Red	Sense V cc
Red	DC 5/10 - 30V
Black	GND

# Dimensions

## Synchro flange



# COGNEX

Companies around the world rely on Cognex vision and barcode reading solutions to optimize quality, drive down costs, and control traceability.

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