



# IRC40

## Rectangular Inductive Sensor

### Market Introduction

September 2022

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# INTRODUCTION

## INTRODUCTION

### What Is It?

- ▼ A new family of DC 4-wire inductive sensors in a compact, rectangular housing to detect metal targets with:
  - ▼ **Exceptional performance** due to a long sensing range, microprocessor technology, IP69K rating, and extended temperature range.
  - ▼ **Easy & flexible installation** due to push-button mounting bracket, adjustable sensing face, and status LEDs.

### Why?

- ▼ By expanding the inductive sensor portfolio, Carlo Gavazzi expects to strengthen its position with OEMs designing for challenging industries, such as conveying systems, material handling, and escalators. The new IRC40 sensors appeal to a variety of applications due to:
  - ▼ **Exceptional performance** even in challenging applications
  - ▼ **Easy & flexible installation** to save time and fit a variety of needs



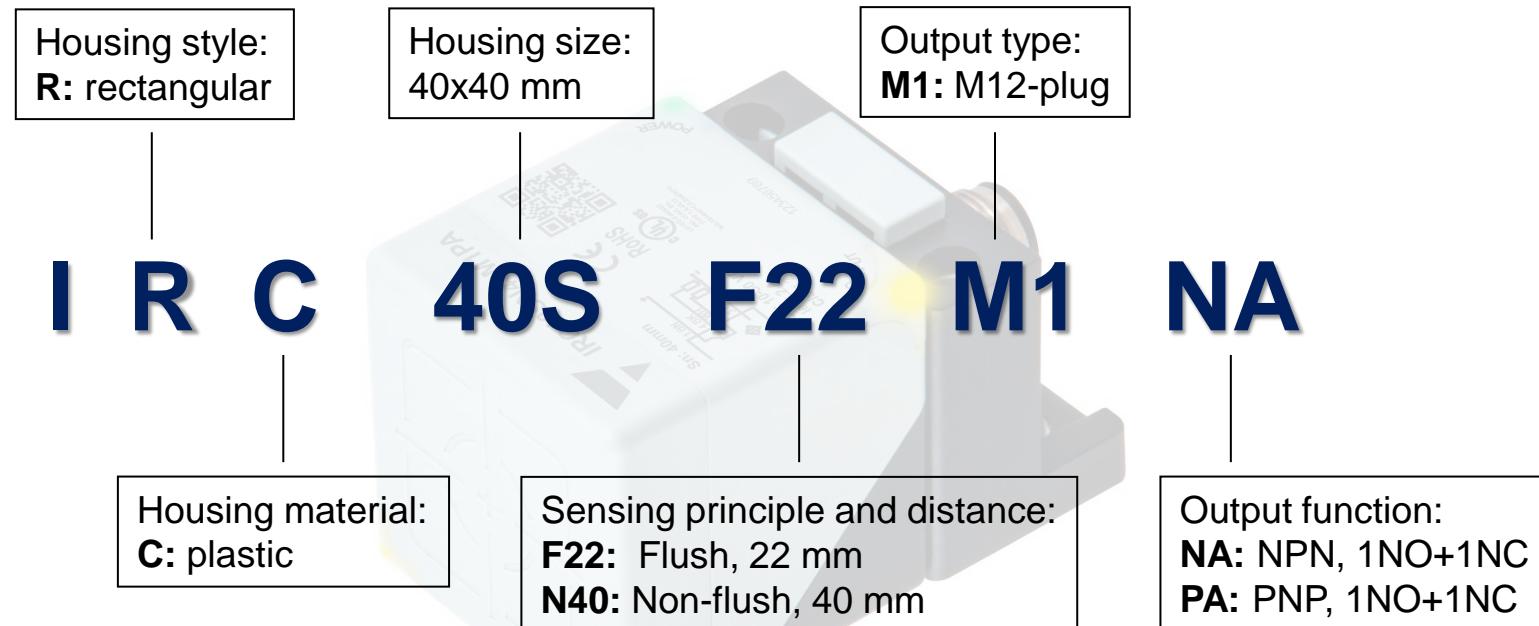
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# PRODUCT

# IRC40 INDUCTIVE SENSOR PRODUCT LAUNCH



## PRODUCT - PART NUMBERS



Mounting	Rated operating distance Sn	Output type	Ordering no.
Flush	22 mm	NPN, 1NO + 1NC	<b>IRC40SF22M1NA</b>
		PNP, 1NO + 1NC	<b>IRC40SF22M1PA</b>
Non-flush	40 mm	NPN, 1NO + 1NC	<b>IRC40SN40M1NA</b>
		PNP, 1NO + 1NC	<b>IRC40SN40M1PA</b>

## PRODUCT – TECHNICAL INFO

### Relevant Technical Data – IRC40

- Rotatable sensing face in 5 different positions without the need of additional tools
- Bracket with push unlock system for easy and quick mounting or replacement
- Flush or non-flush mountable
- Extended sensing distance: **22 to 40 mm**
- Antivalent output (NO+NC): NPN or PNP
- 4 corner visible LEDs with diagnostic functions
- Operating temperature: **-25°C to +80°C (-13°F to +176°F)**
- IP67, IP68 and **IP69K**



## PRODUCT - FLEXIBLE INSTALLATION

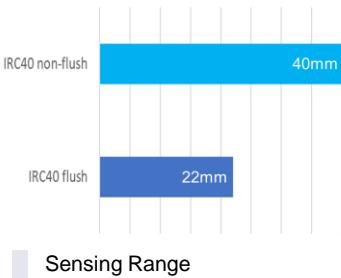
- IRC40 sensors can be quickly and easily installed without the need of any tools thanks to the push-unlock system present on the mounting bracket



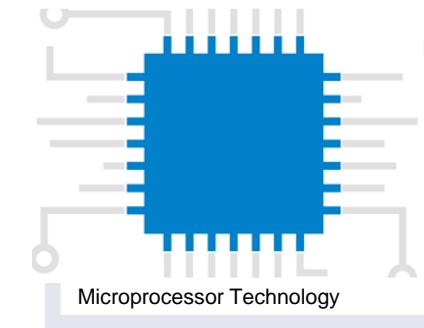
# IRC40 INDUCTIVE SENSOR PRODUCT LAUNCH



## PRODUCT - FEATURES



Long switching distance (40mm non-flush & 22mm flush) allows the sensor to be positioned farther away from the moving target reducing the risk of physical impact and damage to the sensor.

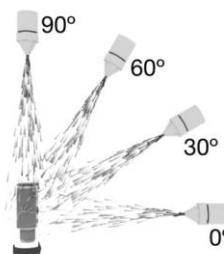


Accurate and reliable detection of the target across the entire temperature range

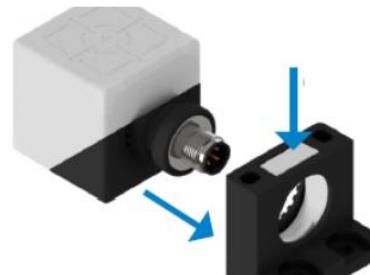


LED Visibility

2 LEDs on each side of the sensor (4 total) allow clearly visible indication from any direction



Certified IP69K protection ensures sensor is sealed from water or moisture ingress



Quick and easy installation and replacement without any tools due to push-button mounting bracket system

Green LED	Yellow LED	Output	Description
ON	OFF	OFF	Target not present
ON	ON	ON	Target present
-	Blinking f: 2Hz		Short-circuit or overload

2 green LEDs indicate operating status and 2 yellow LEDs indicate target detection and diagnostic information (overload or short circuit)



Continuous operation between -25°C to +80°C (-13F to +176F) allows consideration for many applications



Sensing Face Positioning

Rotatable head allows 5 positions of the sensing face in a single sensor for reduced variants and ease of installation



Traceability

Laser etched label permanently legible on housing

Temperature Range



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# APPLICATIONS

## APPLICATIONS - OVERVIEW

### Material Handling



To monitor  
material position

### Logistics



To monitor material position

### Escalators



To detect presence of a step

## APPLICATIONS – MATERIAL HANDLING EXAMPLE



### Customer need

In material handling production lines, installation flexibility is required due to frequent changes of target size and position. When a new setup is needed, the production line is stopped in order to adjust sensor position

### Our Solution

The possibility to rotate the sensing face in 5 different positions within a tool-free mounting system ensures fast and easy installation or replacement of the sensor in every application

### Benefits

- Easily adaptable to a variety of applications.
- Quick sensor replacement.
- Reduced machine downtime and higher efficiency.

## APPLICATIONS – ESCALATOR EXAMPLE



### Customer need

Continuous operation is critical for escalator applications. The escalator must continuously run even in challenging environments such as high loads, food / beverage spills, dirt / slush from winter boots, etc. Small misalignments such as shifting during use or slight variations in each step can occur and need to be tolerated without false trips resulting in unnecessary downtime. However, if a step is broken or missing due to aging or extensive use, the conveyor drive must be stopped immediately.

### Our Solution

The possibility to rotate the sensing face in 5 different positions within a tool-free mounting system ensures fast and easy installation or replacement of the sensor in every application. Moreover, the longer sensing distance (up to 40mm) provides the sensor some physical protection from being hit by the target.

### Benefits

- Easily adaptable to a variety of applications.
- Quick sensor replacement and maintenance.
- Higher efficiency of the escalator.

## APPLICATIONS – CONVEYING EXAMPLE



### Customer need

Short circuit or overload events can occur resulting in production stoppage. Downtime is costly and therefore fast and easy identification of the problem is critical.

### Our Solution

The ICR40 inductive sensors' 4-corner LEDs (2 for power and 2 for status) allow intuitive sensor status monitoring from all positions to indicate if the sensor is operational and target presence. Furthermore, diagnostics allow quick identification of the issue due to yellow status LEDs flashing to indicate a critical event (short circuit or overload.)

### Benefits

- Fast and easy troubleshooting to minimize downtime.

## APPLICATIONS – FEATURES & BENEFITS

### Customer issue



Product dimensions/position change in production lines, new configuration is required

### Our solution – IRC40

Sensing face mountable in 5 directions, thanks to the **rotatable head** and special mounting bracket



Not easy to check the sensor status or ongoing issues such as overload / short-circuit

**4-corner LEDs**, two at the top and two at the base of the sensor for status/power/overload/short circuit



Sensors are damaged due to periodic high pressure washdown cycles

**IP69K** certifies an excellent sealing against high pressure and high temperature washing cycles



Moving parts and mechanical tolerances cause the sensors to be hit by the metal target

Extended sensing distance **up to 40 mm** allows to position the sensor further away from the moving target

### Achieved benefits

Easily **adaptable** to several application needs. Less machine downtime and higher efficiency

Clearly visible switching and operating status from any directions. Easy identification and diagnostic

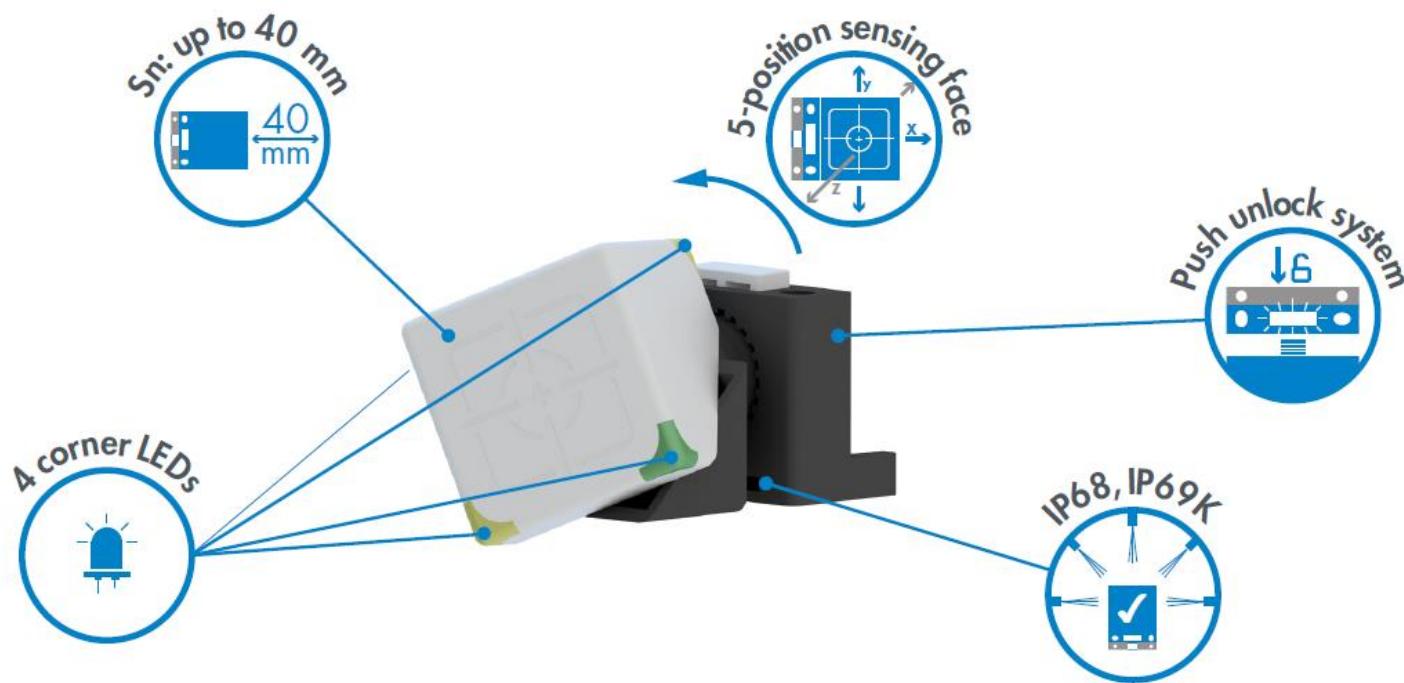
Reliable detection even with frequent washdown cycles

Larger installation tolerances and better protection. Longer life-time and lower downtime

# CONCLUSIONS

## CONCLUSION

### Excellent Performance & Flexible Installation





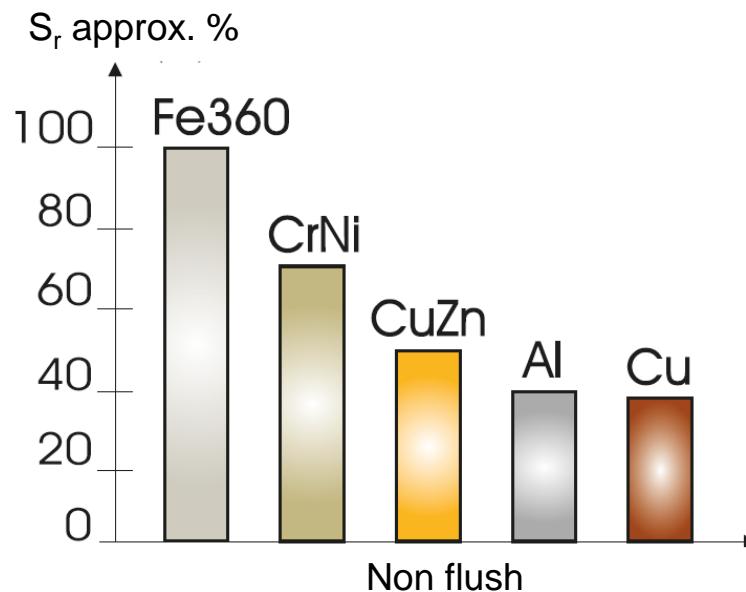
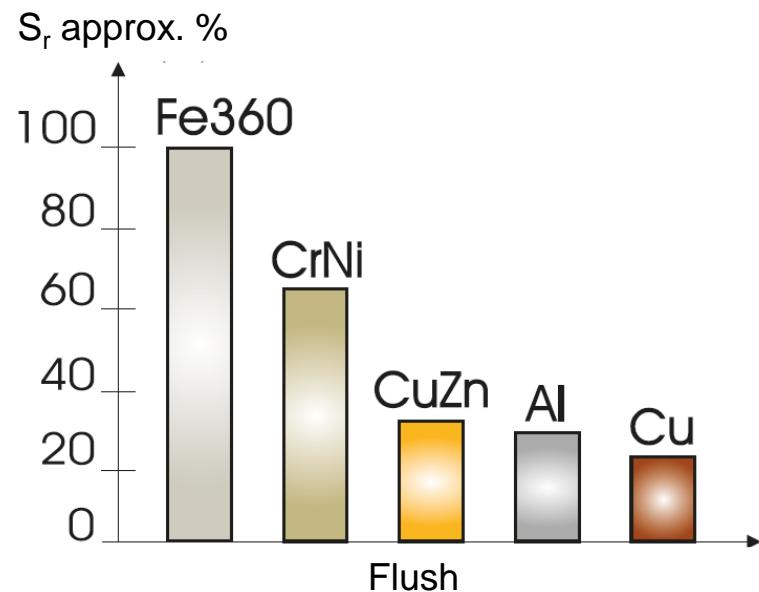
**Thank you for your attention!**

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# TECHNICAL INFO

## Reduction factor

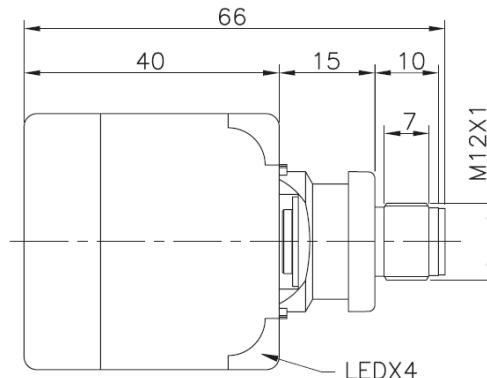
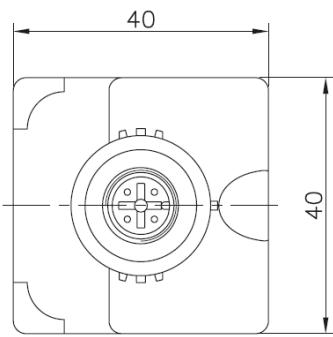
- The specific operating distance  $S_n$  refers to defined measuring conditions
- The following approximate reduction factors must be considered. The operating distance is **reduced by the use of metals and alloys** other than Fe360



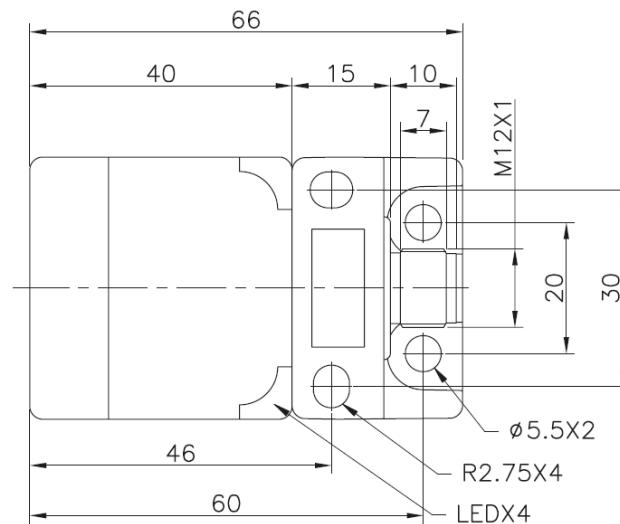
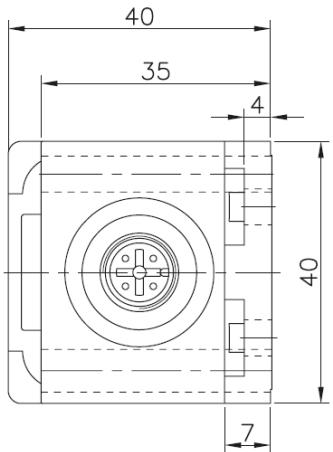
**Fe360:** Steel; **CrNi:** Chrome(20%)-nickel(80%); **CuZn:** Brass; **Al:** Aluminium; **Cu:** Copper  
**S<sub>r</sub>:** Effective operating distance

## Drawings – IRC40

Sensors dimensions

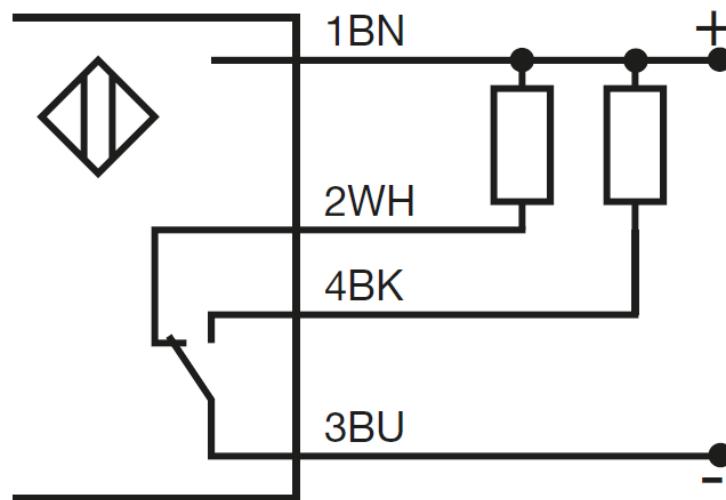


Dimensions with bracket



## Connection diagrams

NPN, 1NO + 1NC



PNP, 1NO + 1NC

