### TECHNICAL INFORMATION

#### TECHNICAL DATA

- **Sensing range**: 50 mm to 800 mm
- **Adjustable range**: 100 mm to 800 mm

#### TECHNICAL INFORMATION

- **Sensing range**: 50 mm to 800 mm
- **Adjustable range**: 100 mm to 800 mm
- **Reference object**: Standard white 100 mm x 100 mm
- **B/W difference**: 5% at 800 mm
- **Type of light**: Red LED, PowerBeam
- **Diameter of the light spot**: 25 mm at 800 mm
- **Opening angle**: ±2.0°
- **Ambient light limit**: 20,000 Lux
- **LED indicators**: Green: power on, short circuit/undervoltage; Yellow: Switching state
- **Operating controls**: Detection range adjustment
- **Operating voltage**: 10 V DC to 30 V DC
- **Operating mode**: Light on mode, switchable
- **Signal output**: 2 push-pull outputs
- **Switching frequency**: 200 Hz
- **Response time**: 2.5 ms
- **Ambient temperature**: -30 °C to 50 °C
- **Degree of protection**: IP67
- **Connection**: 4-pin, M12 plug or 2 m fixed cable

#### MOUNTING ACCESSORIES

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Female cordset, straight, M12, 4-pin, PVC cable, length: 2 m</td>
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#### CONNECTING CABLE

- **Connecting cable**: 4-pin, M12 plug or 2 m fixed cable

#### ID-Link Parameterization Accessories

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<td>Version with M12 connecting plug, 4-pin</td>
</tr>
<tr>
<td>RL31-8-H-800-RT-IO/59/115/136</td>
<td>Version with fixed cable connection, 2 m</td>
</tr>
</tbody>
</table>

#### Connect to the Internet

- **Website**: www.pepperl-fuchs.com
- **E-mail**: fa-info@pepperl-fuchs.com

#### Functional Principle

**Diffuse mode sensor based on the triangulation principle with measuring functionality:**
- A row of photodiodes as sensor:
- μ Processor and software provide the measuring principle
- IO-Link interface for diagnosis and parameterization
- Distance information accessible via IO-Link

#### Contact

- **Pepperl+Fuchs GmbH**: Lilienthalstraße 200, 68307 Mannheim · Germany
- **Tel.**: +49 621 776-4411 · Fax: +49 621 776-27-4411
- **E-mail**: fa-info@pepperl-fuchs.com
  
#### Worldwide Headquarters

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  - E-mail: fa-info@pepperl-fuchs.com
- **USA Headquarters**: Pepperl+Fuchs Inc., Twinsburg, OH · USA
  - E-mail: fa-info@us.pepperl-fuchs.com
- **Asia Pacific Headquarters**: Pepperl+Fuchs Singapore Pte Ltd., Singapore
  - Company Registration No.: 199003130E
  - E-mail: fa-info@sg.pepperl-fuchs.com

#### Technical Data

- **Sensor**: Multipixel array
- **Distance**: 50 mm to 800 mm
- **Lens**: PowerBeam
- **Target object**: Model number

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**Further accessories available on request**

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**www.pepperl-fuchs.com**
FLEXIBLE COST SAVER: MEASURING PHOTOELECTRIC SENSOR
- Triangular measurement sensor with discrete output bridges the gap between distance sensors and photoelectric sensors
- One-measuring principle enables various switching functionality in one device
- Optimal to the application using IO-Link parameterisation
- Durable switching functionality
  - Background suppression
  - Background evaluation
  - Window operating mode (background and foreground suppression)
  - Hysteresis mode

RELIABLE DETECTION: FOR ALL OBJECTS
- Large adjustment range can be precisely defined and low sensitivity to target color enable flexible adaptation to your application
- Reliable object detection, even with dark object surfaces without compromising accuracy or repeatability

COMMUNICATION SKILLS: IO-LINK INCLUDED
- Standard IO-Link interface for diagnosis and parameterisation tasks
- Essential and efficient interface for off-line and in-line communication
- Standard connection – existing wiring does not need to be changed for this purpose

BEST AVAILABLE LIGHT: POWERBEAM
- Best visibility due to extremely bright transverse LED
- Simple alignment and commissioning over the whole detection range
- Use of the latest LED technology: PowerBeam
- Uniform light spot, excellent visibility, no central bond spot

GENERAL FEATURES
- Diffuse mode sensor with 6 adjustable operating modes
- Large adjustable sensing range up to 800 mm
- Dual push-pull output
- Simple operating concept
- Flexible mounting options with hex retainers
- Visible mounting set available
- Highly visible status LEDs

WINDOW OPERATING MODE (BACKGROUND AND FOREGROUND SUPPRESSION)
- Detection of objects irrespective of type and color in a defined sensing range. Reliable detection when leaving the defined sensing range – Applications: e.g., web break monitoring

BACKGROUND SUPPRESSION OPERATING MODE
- Detection of objects irrespective of type and color in a defined sensing range. Objects in the background are reliably suppressed. Applications: e.g., presence checks, triggers, stacking height detection
- Background suppression with 2 switching points. Applications: e.g., tension checks, stroke height monitoring, fill level monitoring, collision avoidance

BACKGROUND EVALUATION OPERATING MODE
- Detection of objects irrespective of type and color in front of a defined background. Reliable detection of objects at close range (detection range ≥ 0 mm). The background serves as reference. Applications: e.g., presence checks, front edge detection

HYSTERESIS OPERATING MODE
- Detection of objects irrespective of type and color between a defined switch-on and switch-off point. Applications: e.g., tension checks, stroke height monitoring, fill level monitoring

ACTIVE SENSING RANGE
- Output
  - 5 Vdc = 0 mA
  - 0 Vdc = 400 mA

BACKGROUND SUPPRESSION
- Output
  - 5 Vdc = 0 mA
  - 0 Vdc = 400 mA

BACKGROUND EVALUATION
- Output
  - 5 Vdc = 0 mA
  - 0 Vdc = 400 mA

HYSTERESIS
- Output
  - 5 Vdc = 0 mA
  - 0 Vdc = 400 mA
BACKGROUND SUPPRESSION OPERATING MODE

- Detection of objects irrespective of type and color in a defined sensing range. Objects in the background are reliably suppressed. Applications: e.g. presence checks, triggers, stacking height detection.
- Background suppression with 3 switching points. Applications: e.g. tension checks, stroke height monitoring, fill level monitoring, collision avoidance.

BACKGROUND EVALUATION OPERATING MODE

- Detection of objects irrespective of type and color in front of a defined background. Reliable detection of objects at close range (detection range ≥ 0 mm). The background serves as reference. Applications: e.g. presence checks, front edge detection.

HYSTERESIS OPERATING MODE

- Detection of objects irrespective of type and color between a defined switch-on and switch-off point. Applications: e.g. tension checks, stroke height monitoring, fill level monitoring.

FLEXIBLE AND ADAPTABLE TO YOUR APPLICATION

- Triangular measurement sensor with discrete output bridges the gap between distance sensors and photometric sensors.
- Flexible measuring principle enables various switching functionalities in one device.
- Optimal adaptation to the application using IO-Link parameterization.
- Triangular switching functionality.
- Background suppression.
- Background evaluation.
- Background suppression with 2 switching points.
- Window operating mode (background and foreground suppression).
- Hysteresis mode.

RELIABLE DETECTION: FOR ALL OBJECTS

- Large adjustment range can be precisely defined and fine-tuned to target color enable flexible adaptation to your application.
- Reliable object detection, even with dark object surfaces without compromising accuracy or repeatability.

COMMUNICATION SKILLS: IO-LINK INCLUDED

- Standard IO-Link interface for diagnosis and parameterization tasks.
- Essential and efficient interface for off-line and in-line communication.
- Standard connection – existing wiring does not need to be charged for this purpose.

BEST AVAILABLE LIGHT: POWERBEAM

- Best visibility due to extremely bright transmitter LED.
- Simple alignment and commissioning over the whole detection range.
- Use of the latest LED technology: PowerBeam.
- Uniform light spot, excellent visibility, no central bond spot.

GENERAL FEATURES

- Diffuse mode sensor with 4 adjustable operating modes.
- Large adjustable sensing range up to 800 mm.
- Dual push-pull output.
- Simple operating concept.
- Flexible mounting options with hex retainers.
- Various mounting sets available.
- Highly visible status LEDs.

FLEXIBLE COST SAVER: MEASURING PHOTOELECTRIC SENSOR

- Triangular measurement sensor with discrete output bridges the gap between distance sensors and photometric sensors.
- Flexible measuring principle enables various switching functionalities in one device.
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- Triangular switching functionality.
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- Background suppression with 2 switching points.
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RELIEF DETECTION: FOR ALL OBJECTS

- Large adjustment range can be precisely defined and fine-tuned to target color enable flexible adaptation to your application.
- Reliable object detection, even with dark object surfaces without compromising accuracy or repeatability.

COMMUNICATION SKILLS: IO-LINK INCLUDED

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BEST AVAILABLE LIGHT: POWERBEAM

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- Background suppression with 2 switching points. Applications: e.g. tension checks, stroke height monitoring, fill level monitoring, collision avoidance

BACKGROUND EVALUATION OPERATING MODE

- Detection of objects irrespective of type and color in front of a defined background. Reliable detection of objects at close range (detection range ≥ 0 mm). The background serves as reference. Applications: e.g. presence checks, front edge detection

HYSTERESIS OPERATING MODE

- Detection of objects irrespective of type and color between a defined switch-on and switch-off point. Applications: e.g. tension checks, stroke height monitoring, fill level monitoring

WINDOW OPERATING MODE (BACKGROUND AND FOREGROUND SUPPRESSION)

- Detection of objects irrespective of type and color in a defined sensing range. Reliable detection when leaving the defined sensing range - Applications: e.g. web break monitoring

RELIABLE DETECTION: FOR ALL OBJECTS

- Large adjustment range can be precisely defined and fast sensitivity to target color enable flexible adaptation to your application
- Reliable object detection, even with dark object surfaces without compromising accuracy or repeatability

COMMUNICATION SKILLS: IO-LINK INCLUDED

- Standard IO-Link interface for diagnosis and parameterization tasks
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BEST AVAILABLE LIGHT: POWERBEAM

- Best visibility due to extremely bright transmitter LED
- Simple alignment and commissioning over the whole detection range
- Use of the latest LED technology: PowerBeam
- Uniform light spot, excellent visibility, no central blind spot

IO-LINK INCLUDED

- Standard IO-Link interface for diagnosis and parameterization tasks
- Essential and efficient interface for off-line and in-line communication
- Standard connection – existing wiring does not need to be charged for this purpose

GENERAL FEATURES

- Diffuse mode sensor with 6 adjustable operating modes
- Large adjustable sensing range up to 800 mm
- Dual push-pull output
- Simple operating concept
- Flexible mounting options with hex retainers
- Modular mounting set available
- Highly visible status LEDs

FLEXIBLE AND ADAPTABLE TO YOUR APPLICATION

- Triangulation measurement sensor with discrete output bridges the gap between distance sensors and photoelectric sensors
- Advanced measuring principle enables various switching functionalities in one device
- Optimally adapts to the application using IO-Link parameterization
- Triangulation switching functionality
  - Background suppression
  - Background evaluation
  - Window operating mode (background and foreground suppression)
  - Hysteresis mode

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- Dual push-pull output
- Simple operating concept
- Flexible mounting options with hex retainers
- Modular mounting set available
- Highly visible status LEDs
### TECHNICAL INFORMATION

#### TECHNICAL DATA

- **Sensing range**: 50 mm to 800 mm
- **Adjustable range**: 100 mm to 800 mm
- **Target size**: 100 mm x 100 mm
- **BW/BW difference**: 5% at 800 mm
- **Type of light**: Red LED, PowerBeam
- **Diameter of the light spot**: 25 mm at 800 mm
- **Ambient light limit**: 20,000 Lux
- **Operating controls**: Detection range adjustment
- **LED indicators**: Green: power on, short circuit/undervoltage
- **Operating voltage**: 10 V DC to 30 V DC
- **Switching frequency**: 200 Hz
- **Response time**: 2.5 ms
- **Operating mode**: Light on mode, switchable
- **Switching frequency**: 200 Hz
- **Opening angle**: ±2.0°
- **Operating controls**: Detection range adjustment
- **Degree of protection**: IP67
- **Ambient temperature**: -30 °C to 50 °C
- **Connection**: 4-pin, M12 plug or 2 m fixed cable

#### MODEL NUMBER

<table>
<thead>
<tr>
<th>Designation</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Version with M12 connecting plug, 4-pin</td>
</tr>
<tr>
<td>RL31-8-H-800-RT-IO/59/115/136</td>
<td>Version with fixed cable connection, 2 m</td>
</tr>
</tbody>
</table>

#### FUNCTIONAL PRINCIPLE

- **Diffuse mode sensor based on the triangulation principle with measuring functionality:**
  - Row of photodiodes as receiver
  - µ processor and software provide the measuring principle
  - IO-Link interface for diagnosis and parameterization
  - Distance information accessible via IO-Link

### MOUNTING ACCESSORIES

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### CONNECTING CABLE

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<th>Designation</th>
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<tbody>
<tr>
<td>IO-LINK-4-PIN</td>
<td>4-pin, M12 plug or 2 m fixed cable</td>
</tr>
<tr>
<td>IO-LINK-2-PIN</td>
<td>2-pin, M12 plug or 2 m fixed cable</td>
</tr>
<tr>
<td>IO-LINK-2-PIN-1.5M</td>
<td>2-pin, M12 plug or 1.5 m fixed cable</td>
</tr>
</tbody>
</table>

### ID-Link ID-LINK PARAMETERIZATION ACCESSORIES

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</thead>
<tbody>
<tr>
<td>RL31-8-H-800-RT-IO/59/115/136</td>
<td>Parameterization tool IO-Link Reader, incl. power supply, USB cable</td>
</tr>
</tbody>
</table>

Further accessories available on request

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**Contact**

Pepperl+Fuchs GmbH
Lilienthalstraße 200
68337 Mannheim · Germany
Tel. +49 621 776-4411 · Fax +49 621 776-27-4411
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USA Headquarters:
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E-mail: fa-info@us.pepperl-fuchs.com

Asia Pacific Headquarters:
Pepperl+Fuchs Asia Pacific · Singapore
Company Registration No. 199003130E
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www.pepperl-fuchs.com

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TECHNICAL INFORMATION

Sensing range
50 mm to 800 mm
Adjustable range
100 mm to 800 mm
Distance resolution
0.5 mm at 800 mm
Licensed distance
25 mm at 800 mm
Operating angle
±2.0°
Exposure time
5.0 ms
Green channel
150 mm to 50°C
Power supply
5 V DC to 30 V DC
Power on
Green LED
Switching state
Yellow LED
Operating voltage
10 V DC to 30 V DC
Operating mode
Light on mode, switchable
Size of light spot
25 mm at 800 mm
Opening angle
±2.0°
Ambient light limit
20,000 Lux
LED indicators
Green: power on, short circuit/undervoltage
Yellow: Switching state
Operating controls
Detection range adjustment
Ambient temperature
-30 °C to 50 °C
Degree of protection
IP67
Connection
4-pin, M12 plug or 2 m fixed cable

TECHNICAL DATA

Sensor
Multipixel array
Distance
Distance
Lens
PowerBeam
Target object
MODEL NUMBER
Designation Version
RL31-8-H-800-RT-IO/59/73c/136
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FUNCTIONAL PRINCIPLE
Diffuse mode sensor based on the triangulation principle with measuring functionality:
■ Row of photodiodes as receiver
■ µProcessor and software provide the measuring principle
■ IO-Link interface for diagnosis and parameterization
■ Distance information accessible via IO-Link

CONTACT
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ID-Link PARAMETERIZATION ACCESSORIES
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<tbody>
<tr>
<td>IO-Link-Master01-USB</td>
<td>Parameterization tool IO-Link-Master, incl. power supply, USB cable</td>
</tr>
<tr>
<td>IODD</td>
<td>See download area <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a></td>
</tr>
<tr>
<td>PactWare 4.0</td>
<td>See download area <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a></td>
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