CONTRINEX
IO-Link

OUTSTANDING RELIABILITY AND EASE OF ADJUSTMENT

TRANSPARENT OBJECT

PHOTOELECTRIC SENSORS

KEY ADVANTAGES

C23 Transparent UV

- ✓ Extremely reliable detection thanks to strong absorption of UV light by plastic and glass material
- ✓ Easy sensor set-up, even for thinnest transparent objects
- ✓ Low environmental sensitivity minimizes threshold adjustments and maximizes uptime
- ✓ Sensing range up to 1200 mm
- ✓ IO-Link

C23 Transparent Standard

- ✓ Sensing range up to 5000 mm
- ✓ Red polarized light
- ✓ IO-Link

RANGE OVERVIEW	Series	Reflex, UV light	Reflex, red light
TRANSPARENT OBJECT	C23 (20x30x10)	p. 245	p. 246-247

TRANSPARENT OBJECT

C23

PHOTOELECTRIC SENSORS

ADVANTAGES

C23 Transparent UV

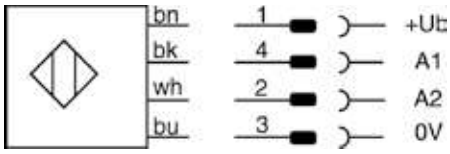
- ✓ Extremely reliable detection thanks to strong absorption of UV light by plastic and glass material
- ✓ Easy sensor set-up, even for thinnest transparent objects
- ✓ Low environmental sensitivity minimizes threshold adjustments and maximizes uptime
- ✓ Autocollimated, polarized UV light beam eliminates blind zone, allowing detection of targets close to the sensor or through a small notch
- ✓ Sensing range up to 1200 mm
- ✓ Adjustment by teach button or IO-Link
- ✓ Mutual interference immunity
- ✓ Enclosure rating IP 67, Ecolab approved

C23 Transparent Standard

- ✓ Sensing range up to 5000 mm
- ✓ Red polarized light
- ✓ Suitable for thicker or larger transparent objects
- ✓ Adjustment by potentiometer or by teach button or IO-Link
- ✓ Enclosure rating IP 67, Ecolab approved

WIRING DIAGRAM

PNP or NPN, 2 outputs

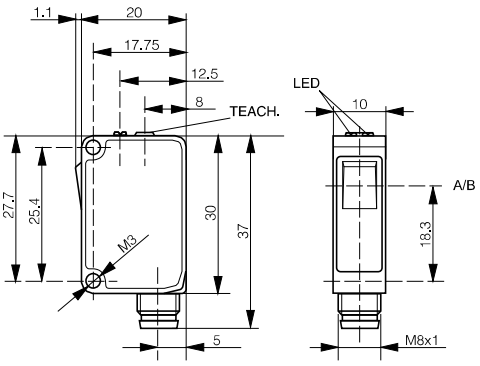


OVERVIEW	C23 TRANSPARENT UV	C23 TRANSPARENT STANDARD
Housing material	ABS / PMMA	ABS / PMMA
Degree of protection	IP 67	IP 67
Supply voltage range	15 ... 30 VDC	10 ... 30 VDC
Ambient temperature range	-25 ... +55°C / -13 ... +131°F	-25 ... +65°C / -13 ... +149 °F
Output current (total both outputs)	≤ 100 mA	≤ 100 mA
Compatible reflectors	See pages 304-305	See pages 303-304
Compatible mounting bracket	See pages 296-297	See pages 296-297

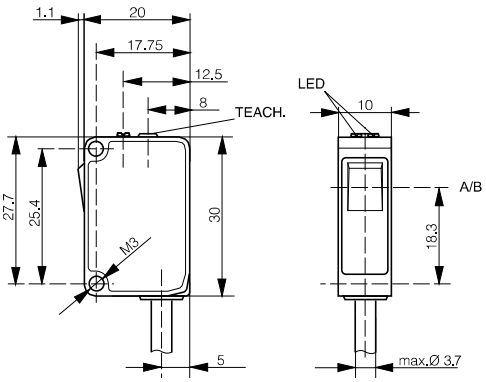
C23 UV LIGHT

PHOTOELECTRIC

HOUSING SIZE MM	☐ 20 X 30 X 10	☐ 20 X 30 X 10
OPERATING PRINCIPLE	TRANSPARENT REFLEX	TRANSPARENT REFLEX
SENSING RANGE MM	1200	1200



A: emitter axis B: receiver axis



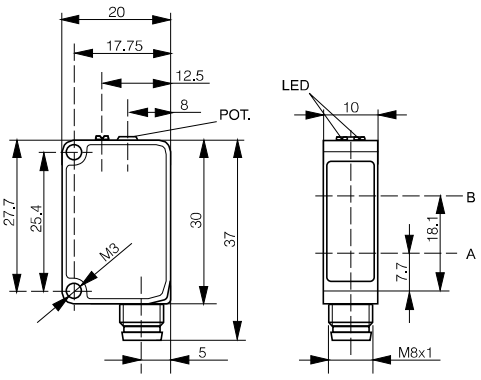
A: emitter axis B: receiver axis

DATA	IO-Link	IO-Link
Light source	LED UV 275 nm, Risk Group 2	LED UV 275 nm, Risk Group 2
Switching frequency (normal mode)	≤ 1000 Hz	≤ 1000 Hz
Setup	Teach button or IO-Link	Teach button or IO-Link
PNP Light-ON + Dark-ON	**TRU-C23PA-TMS-603**	**TRU-C23PA-TMK-603**
PNP Dark-ON + stability alarm	**TRU-C23PA-TMS-60D**	**TRU-C23PA-TMK-60D**
NPN Light-ON + Dark-ON	**TRU-C23PA-TMS-101**	**TRU-C23PA-TMK-101**
NPN Dark-ON + stability alarm	**TRU-C23PA-TMS-10B**	**TRU-C23PA-TMK-10B**
Other types available		

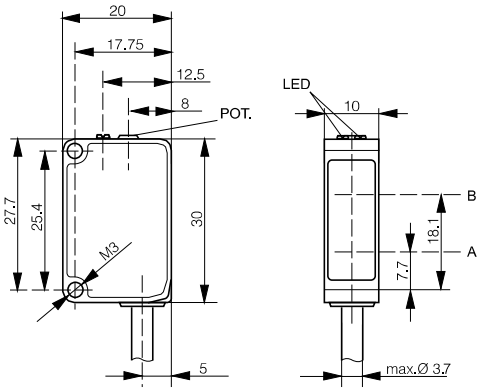
TRANSPARENT

PHOTOELECTRIC

HOUSING SIZE MM	☐ 20 X 30 X 10	☐ 20 X 30 X 10
OPERATING PRINCIPLE	TRANSPARENT REFLEX	TRANSPARENT REFLEX
SENSING RANGE MM	5000	5000



A: emitter axis B: receiver axis



A: emitter axis B: receiver axis

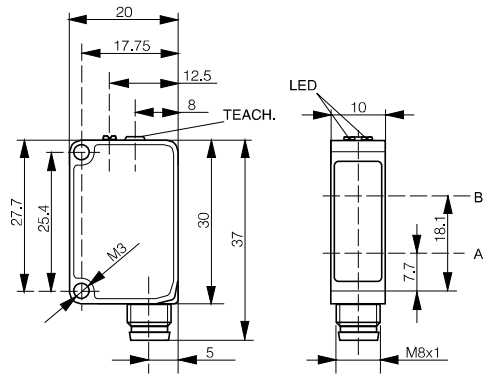
DATA	IO-Link	IO-Link
Light source	LED red polarized 630 nm	LED red polarized 630 nm
Switching frequency (normal mode)	≤ 1500 Hz	≤ 1500 Hz
Setup	Potentiometer	Potentiometer
PNP Light-ON + Dark-ON	**TRR-C23PA-PMS-603**	**TRR-C23PA-PMK-603**
PNP Dark-ON + stability alarm	**TRR-C23PA-PMS-60D**	**TRR-C23PA-PMK-60D**
NPN Light-ON + Dark-ON	**TRR-C23PA-PMS-101**	**TRR-C23PA-PMK-101**
NPN Dark-ON + stability alarm	**TRR-C23PA-PMS-10B**	**TRR-C23PA-PMK-10B**
Other types available		

C23 RED LIGHT

☐ 20 X 30 X 10

TRANSPARENT REFLEX

5000



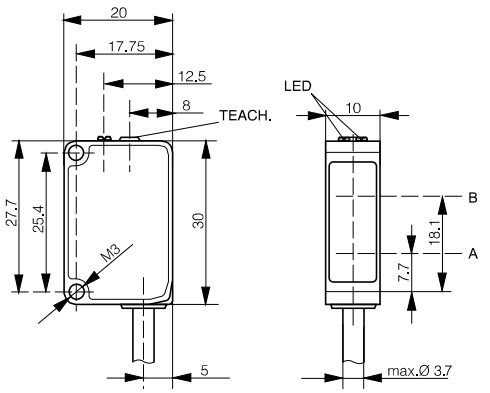
A: emitter axis B: receiver axis

IO-Link
LED red polarized 630 nm
≤ 1500 Hz
Teach button or IO-Link
TRR-C23PA-TMS-603
TRR-C23PA-TMS-60D
TRR-C23PA-TMS-101
TRR-C23PA-TMS-10B

☐ 20 X 30 X 10

TRANSPARENT REFLEX

5000

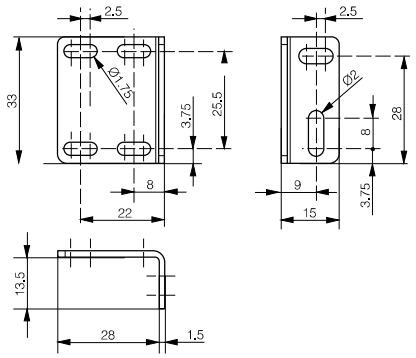


A: emitter axis B: receiver axis

IO-Link
LED red polarized 630 nm
≤ 1500 Hz
Teach button or IO-Link
TRR-C23PA-TMK-603
TRR-C23PA-TMK-60D
TRR-C23PA-TMK-101
TRR-C23PA-TMK-10B

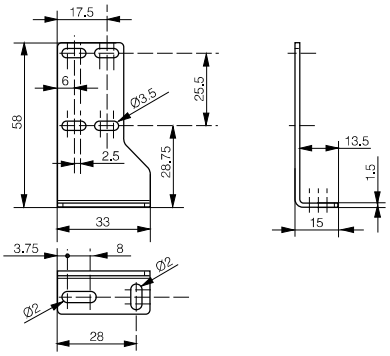
UNIVERSAL MOUNTING BRACKET

For C23PA series
Material: stainless steel V2A
Part reference: **LXW-C23PA-000**



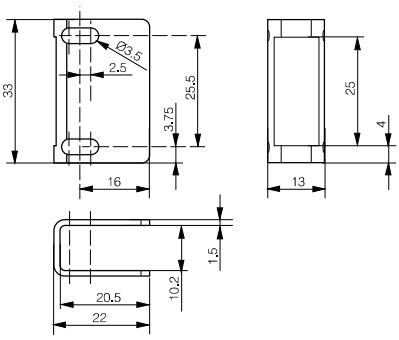
UNIVERSAL MOUNTING BRACKET

For C23PA series
Material: stainless steel V2A
Part reference: **LXW-C23PA-001**



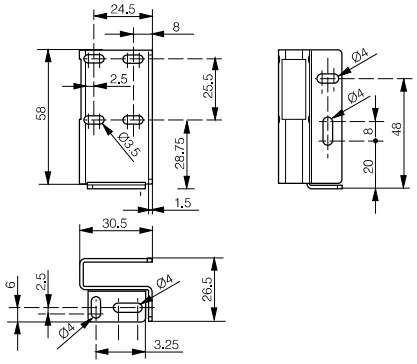
UNIVERSAL MOUNTING BRACKET

For C23PA series
Material: stainless steel V2A
Part reference: **LXW-C23PA-002**



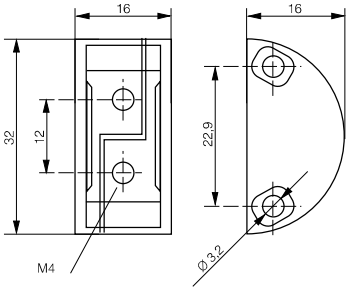
UNIVERSAL MOUNTING BRACKET

For C23PA series
Material: stainless steel V2A
Part reference: **LXW-C23PA-003**



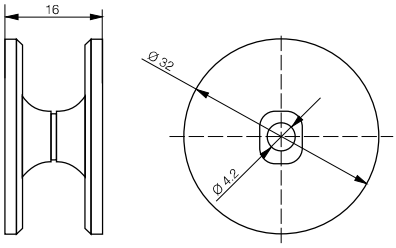
UNIVERSAL MOUNTING BRACKET

For C23PB distance sensors
Material: aluminum anodised
Part reference: **LXW-C23PB-000**



UNIVERSAL MOUNTING BRACKET

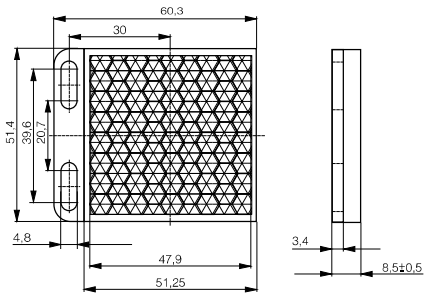
For C23PB distance sensors
Material: aluminum
Part reference: **LXW-C23PB-001**

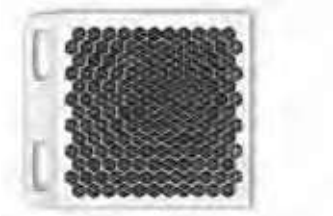


PHOTOELECTRIC ACCESSORIES

REFLECTOR 60 X 51 MM

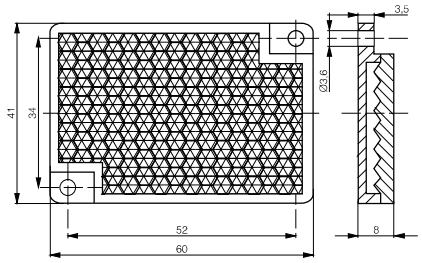
Part reference: **LXR-0001-065**

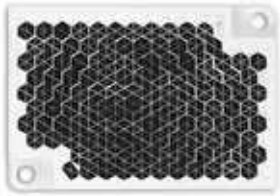




REFLECTOR 60 X 41 MM

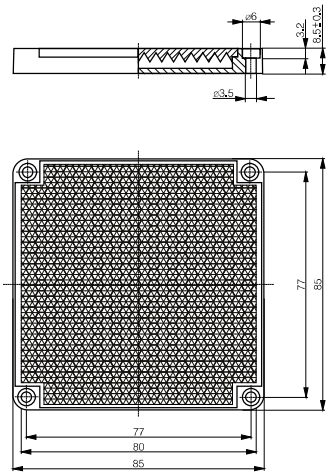
Part reference: **LXR-0001-064**

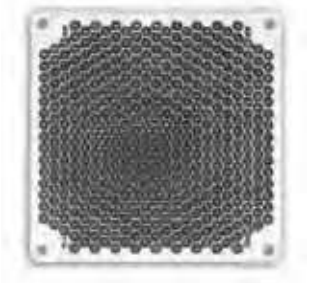




REFLECTOR 85 X 85 MM

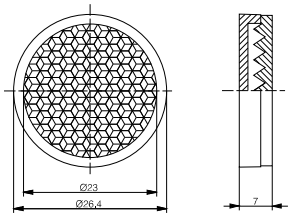
Part reference: **LXR-0001-088**





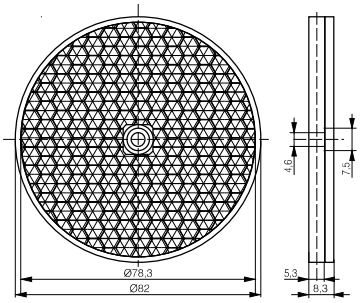
REFLECTOR Ø 26 MM FOR UV

Part reference: **LXU-0000-025**



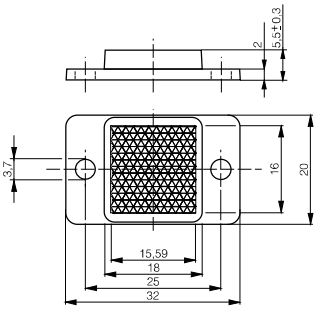
REFLECTOR Ø 82 MM FOR UV

Part reference: **LXU-0000-084**



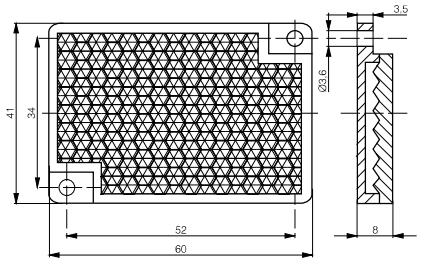
REFLECTOR 32 X 20 MM FOR UV

Part reference: **LXU-0001-032**



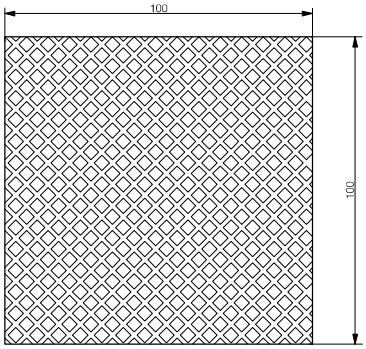
REFLECTOR 60 X 41 MM FOR UV

Part reference: **LXU-0001-064**



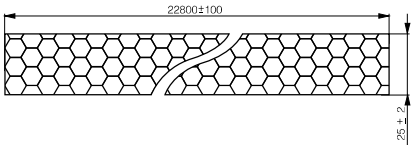
REFLECTIVE FOIL 100 X 100 MM

Part reference: **LXR-0002-100**



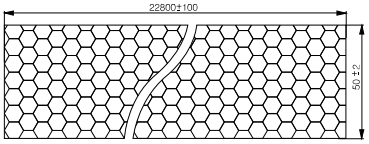
REFLECTIVE ROLL 25 MM X 22.8 M

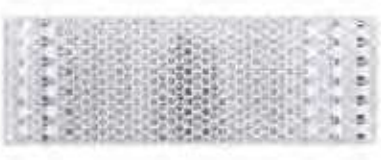
Part reference: **LXR-0003-025**



REFLECTIVE ROLL 50 MM X 22.8 M

Part reference: **LXR-0003-050**





INTRODUCTION

TRANSPARENT OBJECT

Outstanding reliability and ease of adjustment

The Contrinex **TRU-C23** photoelectric sensor is ideally suited for the presence control of transparent objects. Its patented technology uses **UV light**. Since transparent materials like plastic or glass absorb large amounts of polarized UV light, it is very easy to set the threshold at which the sensor switches. The shape or thickness of the target has no influence on detection. In addition, sensor performance is unaffected by dirt, water drops or aging.

The sensor system comprises an LED that emits polarized UV light and a UV reflector. Overall, the sensor's operating range is around **1200 mm**. Special optics with autocollimation ensure reliable detection and no blind zone, even close to the sensor or through a small notch.
For applications requiring the detection of thicker or larger transparent objects, the **C23 Transparent Standard** can be the ideal solution. It operates with polarized, red light and has a maximum operating range up to **5000 mm**. Typical fields of application can be found in the food, pharmaceutical and packaging industries. Both sensor types include an IO-Link interface (see page 186).

FIBER-OPTIC SENSORS AND FIBERS

Reliable short and long-range sensing

The highly versatile **Fiber-Optic** range includes the self-contained **3030** and **4040** series (30 mm x 30 mm x 15 mm and 40 mm x 40 mm x 19 mm) and the DIN-rail mounted **3060** series (31 mm x 60 mm x 10 mm), suitable for multiple-sensor applications. **Synthetic fibers** are available for general use and **glass fibers** for high temperatures and aggressive environments.

Customers requiring intrinsically safe photoelectric sensors with DIN-rail-mounted electronics need not look beyond the Contrinex **3060** series of fiber-optic amplifiers. In a Crastin® housing, every model combines ease of set-up with market-leading features, including **IO-Link** (see page 186). With switching times as low as 0.1 millisecond, 3060 fiber-optic amplifiers are ideal for sensing fast-moving targets in demanding environments, including robotics, precision handling systems and printed circuit board production.

Distance setting is accomplished either by adjustment of a multi-turn potentiometer or by use of a teach-in function with manual fine adjustment. An optional digital display (model 3066) is also available. Using blue-light sources (model 3360), detecting glass is possible at distances up to 100 mm.
Fiber-optic sensors are common in explosive environments or in the presence of strong electromagnetic fields, but also in confined spaces. With bend-radii as small as 2 mm, reliable, accurate sensing is possible even in the most inaccessible areas.

DISTANCE

High precision and direct digital transmission

DTR-C23 and **DTL-C23** sensors use a triangulation method for highly accurate distance measurement at short range. Types with red light (DTR-C23) measure distances of **20 to 80 mm** or **30 to 200 mm**, while the measurement range for laser types (DTL-C23) is **20 to 100 mm**. Applications include small-part detection, position or height checking and monitoring material thickness on winding rolls.

For ranges up to **5000 mm**, **DTL-C55** sensors use the optical time-of-flight (TOF) method. In the **IO-Link** version, measurements are passed directly to the control system as millimeter values in digital form, with no need for an analog-to-digital converter and no signal drop for long lines. In addition, IO-Link provides diagnostic and other functions (see page 186). With two virtual switching points settable either via teach-in or direct parameter write-in, this sensor is ideal for use in mobile logistics, such as forklift trucks.

With both methods, distance measurement is largely independent of target color or surface characteristics. Detected distances can be output via an adjustable analog output and, for a digital output, a switching window of acceptance may be configured by teach-in.

The housings of **DTR-C23** and **DTL-C23** sensors (20 mm x 34 mm x 12 mm) and **DTL-C55** sensors (50 mm x 50 mm x 23 mm) have an **IP67/IP69K** enclosure rating. DTL-C55 sensors have **Ecolab** certification.