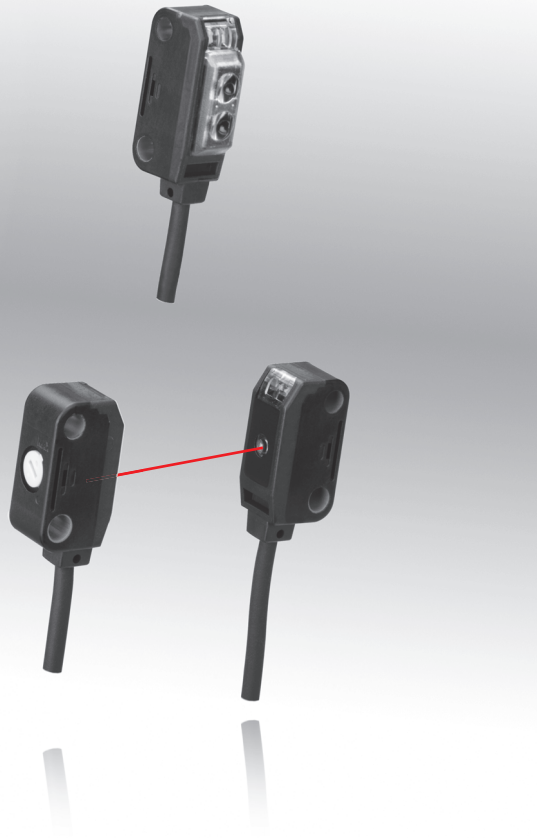
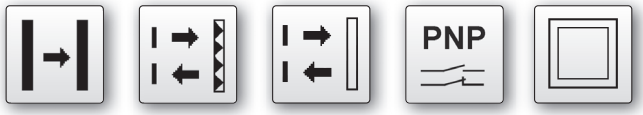
through-beam, retro-reflective, dif. reflection sensors 1600

design		**8.2 x 19 x 10.5mm** **8.2 x 22 x 12.3mm**
through-beam sensors	operating distance	**2m**
retro-reflective sensors	operating distance	**30mm to 200mm**
diffuse reflection sensors	sensing range	**5mm to 160mm**



- ✓ **short response time thanks to high sampling frequency**
- ✓ **adjustable sensitivity via potentiometer directly at the sensor**
- ✓ **status display by LED (orange) and stand-by function by dual-LED (green)**
- ✓ **high system of protection thanks to connection with compound-filled cables**
- ✓ **easy alignment with visible red light**
- ✓ **industry-suited and easy to install**
- ✓ **robust plastic housing with metal ring sockets for M3-mounting**

miniature design with integrated amplifier



description

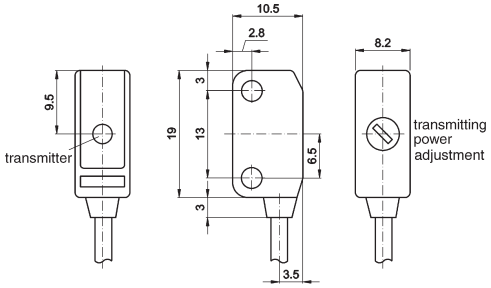
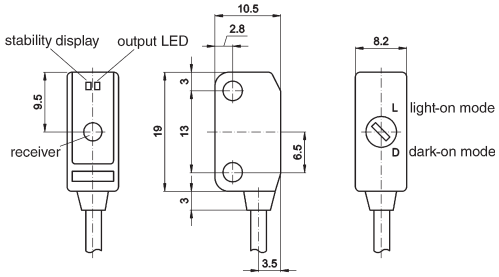
The devices of the design **Q8** are counted among the smallest optical sensors worldwide. Their extremely compact dimensions make them suitable for applications, which in the past had been reserved for fiber optics. The sensors have such a high repeat accuracy that they may be compared to laser sensors. The devices operate with a visible red light, which simplifies the setting and adjustment.
The **Q8** design offers two so-called fix focus light sensors. Their light beam is characterized by very low diffusion, so that very small, even transparent objects may be detected. The smallest light spot diameter is found exactly in the centre of the nominal sensing range.
All these devices are adjustable in their light sensitivity. A specialty is the through-beam sensor with adjustable transmitting power. A selection can be made at the receiver between the light-on/dark-on mode.

application examples

- ▶ detection and positioning tasks in manifold fields of application
- ▶ presence check of several and smallest objects
- ▶ monitoring and angle detection of objects and stacking heights
- ▶ contactless position recognition of small and large objects
- ▶ color independent detection

optical sensors

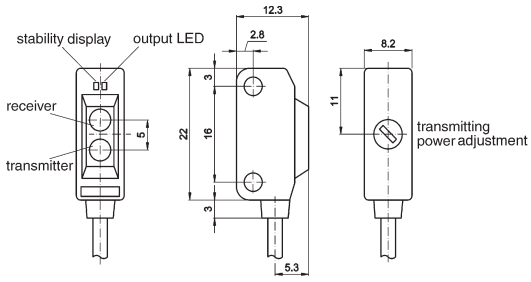
1600 through-beam, retro-reflective, dif. reflection sensors

article-no.	**OYQ80300**	**OYQ80300**
version	**through-beam sensor/ transmitter**	**through-beam sensor/ receiver**
operating distance	**0 ... 2000mm**	**0 ... 2000mm**
		
TECHNICAL DATA		
operating distance (limit)	2000mm	2000mm
minimum object size	Ø3mm	Ø3mm
output signal	-	pnp, light-on/dark-on mode
operating voltage	12 ... 24V DC ± 10%	12 ... 24V DC ± 10%
current consumption	≤ 10mA	≤ 15mA
output current (max. load)	-	50mA
voltage drop	-	1V DC
transmitting element	red light LED, pulsed	-
wave length	680nm	-
hysteresis	-	-
repeat accuracy	-	< 0.05mm
norm object	metal, matt black	metal, matt black
object character	non-transparent	non-transparent
response time	-	< 0.5msec
display (signal)	-	orange LED
display (stable operation)	-	green LED
setting	potentiometer: transmitting power	switchover: light-on/dark-on mode
short-circuit protection	-	+
reverse polarity protection	+	+
design	8.2x19x10.5mm	8.2x19x10.5mm
housing material	ABS	ABS
lens material	plastic	plastic
operating temperature	-25 ... +55°C	-25 ... +55°C
storage temperature	-30 ... +70°C	-30 ... +70°C
system of protection (EN 60529)	IP67	IP67
connection	2m cable, PUR, 2-wire	2m cable, PUR, 3-wire
connection accessories	-	-
mounting accessories	see page 5	see page 5

The **OY...** article numbers include a transmitter and receiver.

through-beam, retro-reflective, dif. reflection sensors 1600

article-no.	**ORQ80100**	**ORQ81100**
version	**retro-reflective sensor/ pnp-output**	**retro-reflective sensor/ npn-output**
operating distance	**30 ... 200mm**	**30 ... 200mm**



TECHNICAL DATA

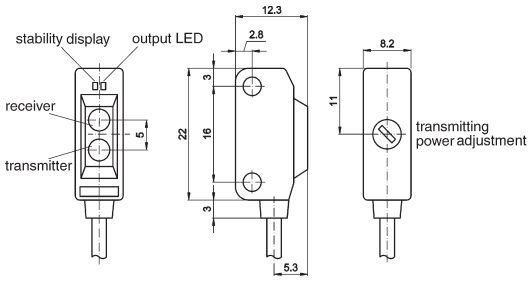
operating distance (limit)	200mm	200mm
minimum object size	Ø15mm	Ø15mm
output signal	pnp, dark-on mode	npn, dark-on mode
operating voltage	12 ... 24V DC ± 10%	12 ... 24V DC ± 10%
current consumption	≤ 20mA	≤ 20mA
output current (max. load)	50mA	50mA
voltage drop	1V DC	1V DC
transmitting element	red light LED, pulsed	red light LED, pulsed
wave length	-	-
hysteresis	≤ 0.5mm	≤ 0.5mm
repeat accuracy	≤ 0.5mm	≤ 0.5mm
norm object	metal, matt black	metal, matt black
object character	non-transparent, half-transparent	non-transparent, half-transparent
response time	< 0.5msec	< 0.5msec
display (signal)	orange LED	orange LED
display (stable operation)	green LED	green LED
setting	potentiometer: transmitting power	potentiometer: transmitting power
short-circuit protection	+	+
reverse polarity protection	+	+
design	8.2x22x12.3mm	8.2x22x12.3mm
housing material	ABS	ABS
lens material	plastic	plastic
operating temperature	-25 ... +55°C	-25 ... +55°C
storage temperature	-30 ... +70°C	-30 ... +70°C
system of protection (EN 60529)	IP67	IP67
connection	2m cable, PUR, 3-wire	2m cable, PUR, 3-wire
connection accessories	-	-
mounting accessories	e.g. angle bracket **AO000075** - see page 5	e.g. angle bracket **AO000075** - see page 5
other accessories	e.g. reflector **AO000088** - see page 5	e.g. reflector **AO000088** - see page 5

The reflector **AO000088** is included in the scope of delivery.

optical sensors

1600 through-beam, retro-reflective, dif. reflection sensors

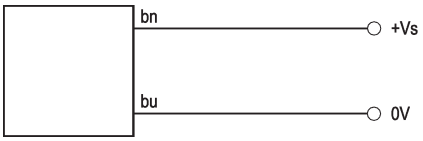
article-no.	OTQ80100	OTQ80103	OTQ80106
version	dif. reflection sensor	dif. reflection sensor	dif. reflection sensor
operating distance	6 ... 14mm	45 ... 115mm	5 ... 160mm



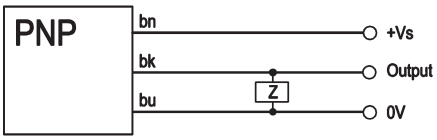
TECHNICAL DATA			
sensing range (limit/Sn)	14mm	115mm	160mm
minimum object size	Ø0.1mm	Ø1mm	Ø15mm
output signal	pnp, light-on mode	pnp, light-on mode	pnp, light-on mode
operating voltage	12 ... 24V DC ± 10%	12 ... 24V DC ± 10%	12 ... 24V DC ± 10%
current consumption	≤ 20mA	≤ 20mA	≤ 20mA
output current (max. load)	50mA	50mA	50mA
voltage drop	1V DC	1V DC	1V DC
transmitting element	red light LED, pulsed	red light LED, pulsed	red light LED, pulsed
wave length	680nm	680nm	680nm
hysteresis	≤ 15% Sn	≤ 15% Sn	≤ 15% Sn
repeat accuracy	< 0.05mm	< 0.3mm	< 0.3mm
norm object	copper wire	copper wire	copper wire
object character	non-transparent	non-transparent, transparent	non-transparent, transparent
response time	< 0.5msec	< 0.5msec	< 0.5msec
display (signal)	orange LED	orange LED	orange LED
display (stable operation)	green LED	green LED	green LED
setting	potentiometer: sensitivity	potentiometer: sensitivity	potentiometer: sensitivity
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
design	8.2x22x12.3mm	8.2x22x12.3mm	8.2x22x12.3mm
housing material	ABS	ABS	ABS
lens material	plastic	plastic	plastic
operating temperature	-25 ... +55°C	-25 ... +55°C	-25 ... +55°C
storage temperature	-30 ... +70°C	-30 ... +70°C	-30 ... +70°C
system of protection (EN 60529)	IP67	IP67	IP67
connection	2m cable, PUR, 3-wire	2m cable, PUR, 3-wire	2m cable, PUR, 3-wire
connection accessories	-	-	-
mounting accessories	e.g. angle bracket **AO000075** see page 5	e.g. angle bracket **AO000075** see page 5	e.g. angle bracket **AO000075** see page 5

connection

transmitter

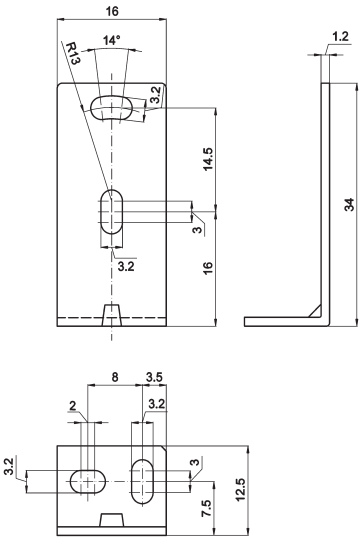


receiver, retro-reflective sensor and dif. reflection sensor

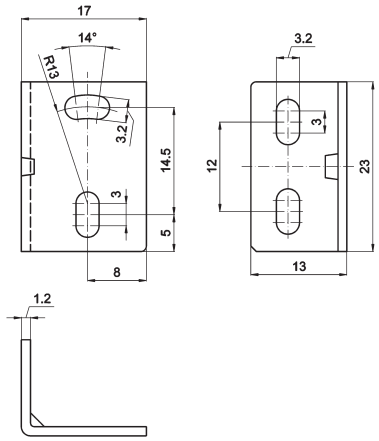


wire colors: bn = brown, bu = blue, bk = black

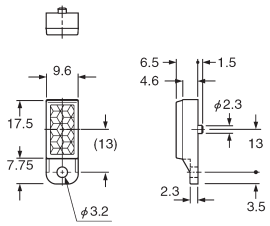
AO0000075 angle bracket, lengthwise mounting



AO0000076 angle bracket, crosswise mounting



AO0000088 reflector



ACCESSORIES

article-no.	decription	material
AO0000075	angle bracket, lengthwise mounting	zinced steel plate
AO0000076	angle bracket, crosswise mounting	zinced steel plate
AO0000088	reflector	plastic

This data sheet contains the standard versions only. Kindly request the availability of other output- and connection functions.

Warning: Never use these devices in applications where the safety of a person depends on their functionality.

notes

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