

# RX Series

## PHOTOELECTRIC SENSORS

through beam ..... 16 - 32m  
diffuse reflection ..... 1 - 2m  
retro-reflective ..... 12m  
polarized retro-reflective ..... 6m  
background suppression .. 0.05-0.3 / 0.25-0.7m

# INSTALLATION MANUAL



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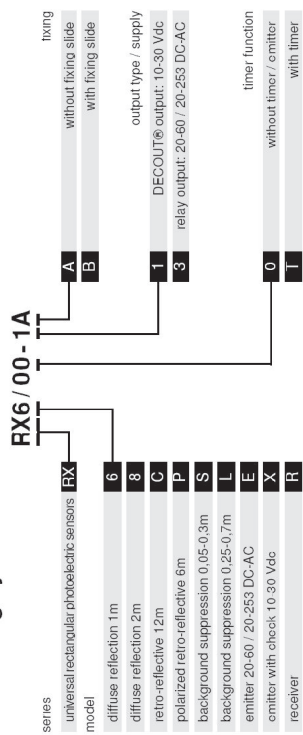
### Declaration of conformity

Declare under our sole responsibility that these products are in conformity with the following EEC directive: 2004/108/EC and successive amendments.

### General description

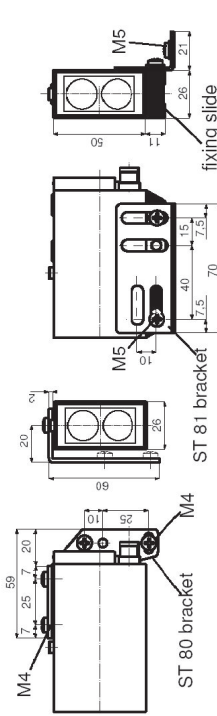
The new series of photoelectric switches RX represents an innovative generation of sensors with plastic rectangular housing and with electrical and optical features extremely advanced. The RX series is the best solution for all applications requiring high performances, reduced overall dimensions and high relation quality/price; the two mounting options (with superior bracket and with lateral bracket) allow maximum versatility for any applications. This series is provided with models of photoelectric sensors with relay output and which can be supplied in AC from 20 to 253 Vac and in DC from 10 to 30 Vdc.

### Ordering system



### Installation

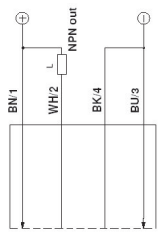
A double installation is possible:  
- with ST 80 suitable bracket (option A models)  
- with ST 81 side bracket (option B models)



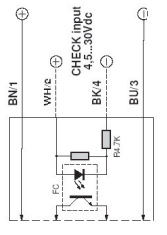
- Do not use the sensor where it may be exposed to dust, water, steam etc. which could affect detection.
- The sensor head should not be exposed to organic solvents.
- Do not allow a strong light such as sun light to radiate directly on the sensor.

### Wiring diagram

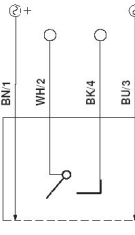
#### DECOU® output



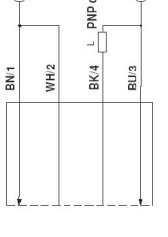
#### emitters RXE (DC)



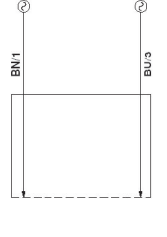
#### relay output AC-DC



#### emitters RXE (AC-DC)



#### M12 connectors



### Specifications

MODELS	RX600-1 RX800-1 RXS00-1 RXL00-1	RXC00-1 RXP00-1 RXL00-1	RXX00-1 RXX00-1 RXL00-1	RX600-3 RX800-3 RXS00-3 RXL00-3	RXC00-3 RXP00-3 RXL00-3	AC-DC
Differential travel	2.....10%Sn	10%Sn	5%	2.....10%Sn	2.....10%Sn	10%Sn
Repeat accuracy	10-30Vdc	10-30Vdc	≤10%	20-253Vac / 20-60Vdc	20-253Vac / 20-60Vdc	
Operating voltage	25mA 40mA (RXS-RXL)	35mA 25mA	25mA 25mA	25mA 30mA (RXS-RXL) 3A-250Vdc / 3A-30Vdc (750VA / 90W)	25mA 25mA	15mA 25mA
No-load supply current	100mA					
Load current	<10µA					
Leakage current	static (DECOU®)					relay
Voltage drop	500Hz	250Hz				25Hz
Output type	polarity reversal, transient					transient (AC), over voltages (DC)
Switching frequency	short circuit (with hold)					
Supply electrical protections	temperature range					
Output electrical protections	temperature drift					
Temperature range	interference to external light					
Temperature drift	Protection degree					
Interference to external light	LED indicators					
Protection degree	Emitter LED indicators					
LED indicators	Housing material					
Emitter LED indicators	Lenses material					
green (check), red (dist.x2)						
green (supply), red (dist.x2)						
polycarbonate (glass fiber reinforced)						
PMMA						

### Alignment

The following instructions are referred to NO modality. Please refer to the following operation mode table:

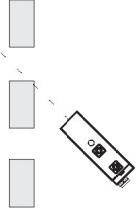
#### (1) - Through beam models RXR-RXR and RXE-RXR (sensing distance Sn = 16-32m)

Adjustment	State
1 Using the supplied mounting bracket, place emitter and receiver in face to face within the sensing distance (select X1, 16 m or X2, 32m on emitter) by eye and fix them tentatively.	
2 Shift the emitter upward, downward and sideways to find the point where the alignment LED (red) on the receiver goes on.	
3 Shift the receiver upward, downward and sideways to find the point where the stability LED (green) goes on. Fix emitter and receiver firmly and proceed to sensitivity adjustment.	

#### (2) - Retro-reflective RXC (Sn=12m) and polarized models RXP (Sn=6m)

Adjustment	State
1 Place the sensor and the reflector in face to face within the sensing distance by eye measure and fix them tentatively.	
2 Shift the sensor upward, downward and sideways to find the point where the alignment LED (red) and the stability LED (green) go on. Fix the sensor firmly and proceed to sensitivity adjustment.	

When the detected target is glossy or has a high reflection factor please use the polarized retro-reflective models (RXP). In the case of using the retro-reflective models (RXC), tilt the sensor optical axis to avoid the high reflection factor.



### Reflectors table

Models	HL100D	HL104	HL106	HL110	HL111G	HL112G	HL113G	HL116
Distance % RXC	50%	45%	55%	100%	50%	45%	95%	90%
Distance % RXP	46%	42%	53%	100%	39%	32%	95%	85%

### Sensitivity adjustment (through beam, retro-reflective, polarized models)

Adjustment description	trimmer position
Without the target, the alignment LED (red) and the stability LED (green) are in on-state. Rotate the sensitivity adjustment trimmer counterclockwise until the stability LED (green) goes off. Next, rotate the sensitivity adjustment trimmer clockwise until the stability LED (green) goes on. This point (position A) gives the best sensitivity and allow to detect the presence or absence of target with the equal precision and good safety margins. If the target is detectable without problems it is possible rotate the trimmer clockwise over A position to obtain further safety margins.	
Place the target along the optical axis and by moving check that the alignment LED (red) and the stability LED (green) go off. Next, fix the plastic cover with the fixing screw verifying the right gasket position to maintain the IP65 protection degree.	

### (3) - Diffuse reflection models RX6 (Sn=1m), RX8 (Sn=2m)

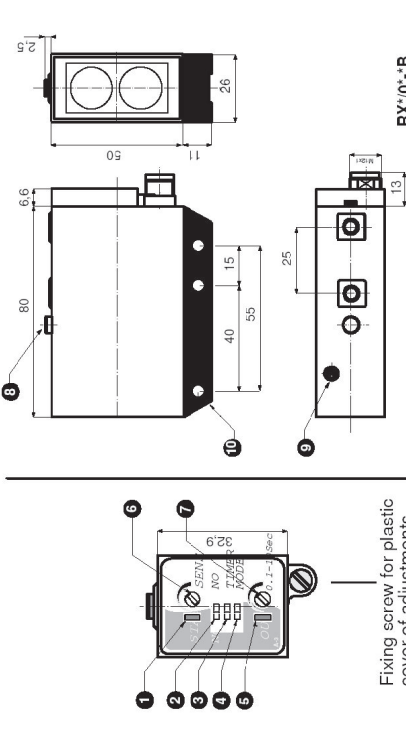
Adjustment	State
1 Keep the optical axis perpendicular to the target direction of movement. Fix the sensor definitively at a distance ≤ Sn.	
2 With the target, the alignment LED (red) and the stability LED (green) are in on-state. Rotate the sensitivity adjustment trimmer counterclockwise until the stability led (green) goes off. Next, rotate the sensitivity adjustment trimmer clockwise until the stability LED (green) goes on. This point (position A) allow to work in optimal conditions.	
3 Remove the target from the optical axis and check that the alignment LED (red) and the stability LED (green) go off. Next, fix the plastic cover with the fixing screw verifying the right gasket position to maintain the IP65 protection degree.	

### (4) - Background suppression models RXS (Sn=0.05-0.3m) and RXL (Sn=0.25-0.7m)

Adjustment	State
1 Keep the optical axis perpendicular to the target direction of movement. Fix the sensor definitively at a distance ≤ Sn.	
2 Rotate the optical adjustment screw till the maximum clockwise position. Consider the worst operating conditions: darkest target placed as close as possible to the background. Place the target in front to the sensor; turn the optical adjustment screw counterclockwise till the alignment LED (red) and the stability LED (green) go on.	
3 Remove the target from the optical axis and check that the alignment LED (red) and the stability LED (green) go off. Next, fix the plastic cover with the fixing screw verifying the right gasket position to maintain the IP65 protection degree.	

Timing functions are available for all models (see timing chart).

### Dimensions



Fixing screw for plastic cover of adjustments

1 Green Led: stability (RX6, RX8, RXC, RXP, RXS, RXL, RXR) - check off (RXX), supply voltage (RXE)
2 NO/NO selection switch (RX6, RX8, RXC, RXP, RXS, RXL, RXR) - Distance x1/x2 (RXX, RXE)
3 Switch selecting timer function Delay on (models with timer function only)
4 Switch selecting timer function Delay off (models with timer function only)
5 Red Led: output state (RX6, RX8, RXC, RXP, RXS, RXL, RXR) - Distance x2 (RXX, RXE)
6 Sensitivity adjustment trimmer (not available for RXX, RXE, RXS and RXL models)
7 Trimmer for timer function adjustment 0, 1-10s (not available for RXX and RXE)
8 Alignment red Led (not available for RXX and RXE)
9 Screw for optic adjustment (available only for background suppression models RXS and RXL)
10 Plastic slide for mounting with ST81 bracket (not available for option A models)

### Plug connectors

Use preferably the following types of connectors:  
CD12M/0B-\*\*\*A1 - M12 axial plug connectors with tang, 4 poles, CEI 2022 II, 2, 5, 7 and 10 metres - (\*\*\*)=020 for 2m, 050 for 5m, 070 for 7m and 100 for 10m)  
CD12M/0B-\*\*\*C1 - M12 right angle plug connectors with tang, 4 poles, CEI 2022 II, 2, 5, 7 and 10 metres.

**N.B.** - It's very important to lock the connector nut to maintain IP65 protection degree of the sensor.

### Accessories

Use preferably **ST 82** screwdriver supplied with the sensors to adjust the trimmers or to remove protection screws.  
**ST80** bracket - Supplied for sensors without plastic slide (option A models).  
**ST81** bracket - Supplied for sensors with plastic slide (option B models).