

1) Output function/Error, 2) Power/setting mode, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter, 6) rotatable 270°



IND. CONT. EQ
 77HA
 for use in the secondary of
 a class 2 source of supply



Basic features

Approval/Conformity	Ecolab CE cULus EAC WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	23K
Style	Square Connection can be rotated

Display/Operation

Adjuster	button
Display	Output function- LED yellow LED green: Power Teach - LED yellow+green, alt. Setting NO/NC - LED green, flashing Error - LED yellow, flashing
Setting	Light-on/dark-on Rated switching distance (Sn)

Electrical connection

Connection	Connector, M12x1-Male, 4-pin
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

Electrical data

Input function	Key disable on/off Same function as button
No-load current I_{o max.} at U_e	30 mA
Operating voltage U_b	10...30 VDC
Protection class	II
Rated insulation voltage U_i	75 V DC
Rated operating current I_e	100 mA
Rated operating voltage U_{e DC}	24 V
Ready delay t_{v max.}	300 ms
Residual current I_{r max.}	50 µA
Ripple max. (% of U_e)	10 %
Switching frequency	600 Hz
Turn-off delay t_{off max.}	0.83 ms
Turn-on delay t_{on max.}	0.83 ms
Utilization category	DC -13
Voltage drop U_{d max.} at I_e	2 V

Environmental conditions

Ambient temperature	-20...60 °C
EN 60068-2-27, Shock	Half-sinus, 30 gn, 11 ms, 3x6
EN 60068-2-6, Vibration	10...55 Hz, amplitude 0.5 mm, 3x30 min
IP rating per DIN 40050	IPx9K
Protection degree	IP6x

Functional safety

MTTF (40 °C)	494 a
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Remarks

For additional information, refer to user's guide.
 Order accessories separately.
 The sensor is functional again after the overload has been eliminated.
 Do not press key using a pointed tool.
 Teach-in also possible when object is in motion.
 Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.
 For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

Material

Housing material	PC ABS
Material sensing surface	PMMA

Mechanical data

Dimension	23 x 51 x 52.4 mm
Mounting	Screw M4
Tightening torque max.	1.5 Nm

Optical features

Ambient light max.	5000 Lux
Beam characteristic	Focus, typical at 500 mm
LED group per IEC 62471	Exempt Group
Light spot size	15 x 15 mm at focal point
Light type	LED, red light
Principle of optical operation	Diffuse sensor, energetic
Switching function, optical	Light/dark switching
Wave length	640 nm

Output/Interface

Switching output	PNP normally open/normally closed (NO/NC)
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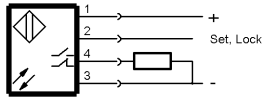
Range/Distance

Hysteresis H max. (% of Sr)	8.0 %
Range	0...2000 mm
Rated operating distance S_n	2 m Adjustable

Connector Drawings



Wiring Diagrams



Opto Symbols

