Photoelectric Sensor Amplifier

ISM-1800

Product Features

- Photoelectric sensor with modulated infrared light
- High immunity to ambient light, spurious pulses, and interference from other light barriers
- Range of up to 25 m
- Automatic Transmit Power Adjustment
- Continuous sensor monitoring
- Test function
- Potential-free switching output: 60 V / 100 mA
- Alarm output for power limit
- Test input for external test equipment
- Transmitter and receiver connections are short-circuit proof.
- DIN rail mounting in accordance with EN 60715

Brief Description

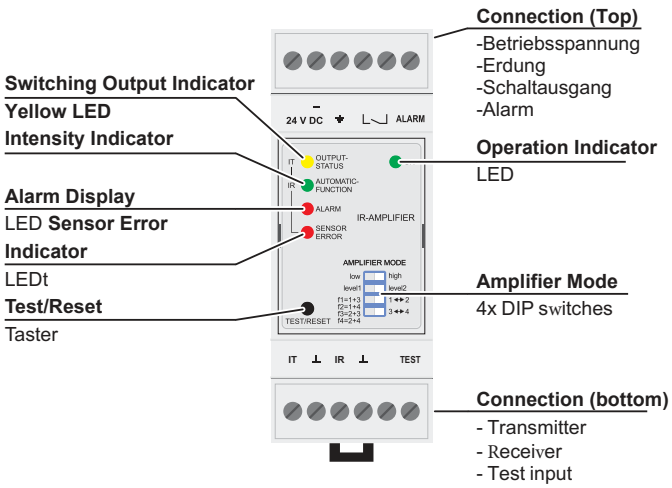
These photoelectric amplifiers are used for object detection in machinery and production facilities. When paired with an infrared transmitter and receiver, they form a high-performance photoelectric barrier capable of operating effectively in environments requiring long detection ranges or involving high levels of contamination—conditions under which other photoelectric sensors would have long since exceeded their performance limits.
The modulation of the infrared light provides the system with additional immunity to ambient light, electrical interference, and interference from other photoelectric sensors.
The ISM-1800 amplifier is specifically tailored for applications in the car wash industry. It features four power levels, allowing the automatic power adjustment to be optimally configured for specific tasks, such as contour detection or wheel detection.
To enhance operational reliability, a continuous sensor monitoring function is integrated into the system; this feature detects sensor faults and signals them to the operator. Additionally, the photoelectric system's functional integrity can be verified via a dedicated test input.
The status of the light path is transmitted to a downstream evaluation unit via a floating, short-circuit-proof switching output.
Infrared transmitters and receivers—available in various highly compact and robust housing designs—are described in the "Sensors" data sheet.

Safety Notice

Warning!

The ISM-... photoelectric amplifiers are not safety systems and must not be used as such. The use of these devices is not permitted in applications where personal safety depends on the device's functionality.

Device Overview



Order Table

Type	Order Designation
ISM-1800 pluggable	ISM-1800/24VDC
Accesories	
Power Supply 95...265 V AC	PSU-1000S/95-265VAC
Protective Enclosure	PanBox 1x1

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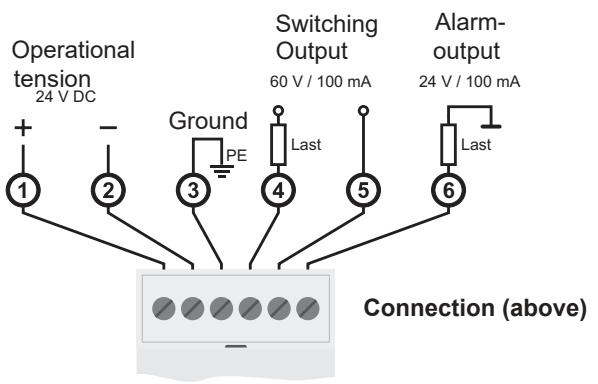
Technical Data (at 20 °C, 24 V DC)

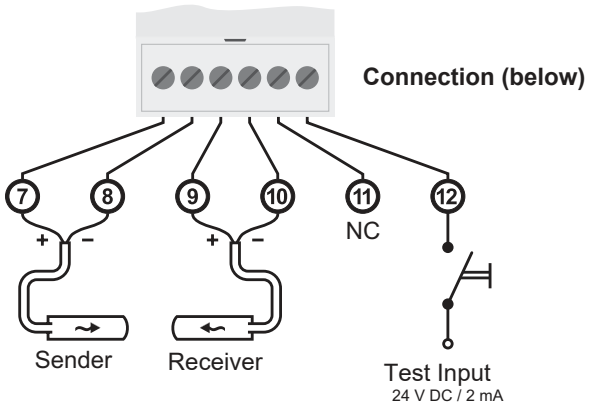
Operating voltage	24 V DC / ±20%
Power consumption (max.) 1	2,4 W
Power dissipation (max.) [1] (EN 61439)	not specified
Measurement Method	modulated infrared light
Transmission frequency [kHz]	3,5 / 3,9 / 4,2 / 4,5
Transmit power	automatically
Basic Service	low 1 / low2 / high1 / high2
Switching Behavior	light-switching
Multiplexing Speed	—
[illegible]	—
MTBF (IEC 61709)	$2{,}2 \cdot 10^6$ h (T_a = 40 °C)
[illegible]	-25 °C ... 50 °C
[illegible]	-40 °C ... 80 °C
Housing material	NORYL (self-extinguishing)
Protection class (EN 60529)	IP20
Assembly	DIN rail EN 60715
Electrical Connection	Pluggable screw terminal 0,14 - 2,5 mm²

Switching output	[illegible]
[illegible] (max.)	100 mA / 60 V AC (DC)
Reaction time	24 ms
Alarm Output	pnp, 24 V DC
Current-carrying capacity (max.)	100 mA
Error Output	—
Current-carrying capacity (max.)	—
Test Input	max. 30 V DC / 2 mA
Pickup voltage	Low < 5 V DC; High > 15 V DC
Analog output	—
COM interface	—
max. reach (Disposable)	Recipient IR-..., IRH-...
Sender IT-..., ITL-...	10 m
Sender IT-...HP, ITH-...	25 m

1. Without loads at the outputs

Connection Diagram





Dimensional Drawing (in mm)