Photo-electric Amplifier ISG-N14

1-channel amplifier (manual gain setting)

- Amplifier with modulated infrared light
- Range up to 35 m (115 ft)
- high immunitity to ambient light and interference from other light barriers
- Sensitivity adjustable with potentiometer
- Relay output (changeover)
- Transmitter and receiver connections are short-circuit proof
- 11-pin DIN railmounting socket for simple installion

Description

The 1-channel photo-electric Amplifier with manual gain setting from Pantron is an amplifier with an integrated analysis unit. The amplifier works with modulated infrared light, which enables a high degree of immunity to ambient light and cross talk from neighbouring photo-sensors. The manual gain setting, adjusted with a potentiometer located on the front side, enables the user to simplify the installation and work.

Ordering Guide

Supply voltage	model
230 V AC	ISG-N14/230VAC
115 V AC	ISG-N14/115VAC
24 V AC	ISG-N14/24VAC
24 V DC	ISG-N14/24VDC

Safety Instructions

The operation of infrared amplifier ISG... is not authorized for applications where safety of the person depends on the device function.

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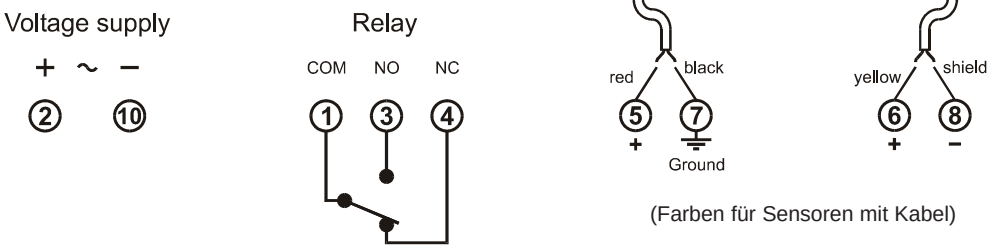
Technical Data

Operating basis	Modulated IR-light
Max. Range (through beam)	
Sensor heads Standard	25 m (83 ft)
Sensor heads High Power	35 m (115 ft)
Display:	
Switching status	LED yellow
Sensitivity	LED green
Alarm	-
Power ON	LED green
Switching function	light
Switching delay	no
Housing	Plastic
Housing protection	IP 40
Operating temperature	-25 °C ... +50 °C
Storage temperature	-40 °C ... +80 °C

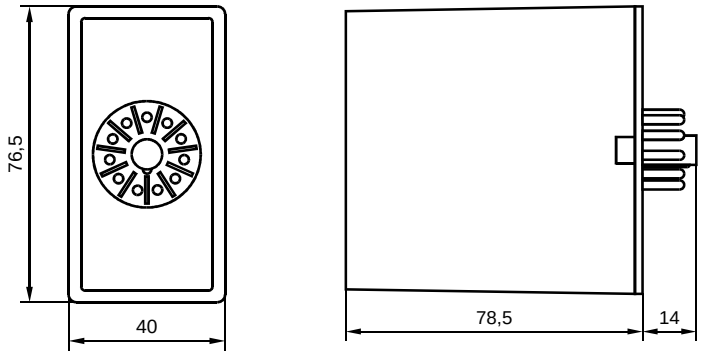
Supply voltage	230 V AC, 115 V AC,
	24 V AC, 24 V DC
Voltage tolerance	...AC: 10 %; ...DC: 20 %
Power consumption	...AC: 4,2 VA; ...DC: 1,7W
Transmit frequency (kHz)	3,5
System power	manuel adjustable
Basic transmit level	100 %
Relay output	1 change over
Switching data (max.)	5 A / 230 V AC (24 V DC)
Switching frequency	18 Hz
Test input	no
Mounting orientation	Free
Mounting	11-pin DIN-Socket
Size (mm)	40 x 76,5 x 78,5

Wiring diagram



(Farben für Sensoren mit Kabel)

Dimensions



Dimmensionen in mm

General Description

1. Principle of operation

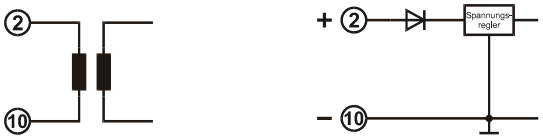
The system (consisting of one transmitter, one receiver and one amplifier) works with modulated infrared light.
According to the channel condition, the displays and outputs are set.

2. Connections

The amplifier is connected with an 11-pin DIN mounting socket.

a) Power supply (POWER)[1]

The power supply will be connected on PIN 2 and PIN 10. For devices with direct current, PIN 2 is positive and PIN 10 is neutral (see picture 1).



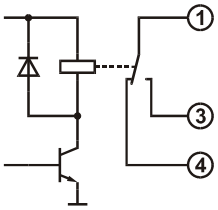
picture 1: left: AC-connection; right: DC-connection

CAUTION!

The AC-supply devices are isolated from main. A grounded connection on the low voltage side is required (PIN 7).

b) Relay output (RELAY)[1]

The amplifier has one relay (changeover) with the maximum allowable current of 5 A. A contact arrangement in which PIN 1 opens its connection to PIN 4, and then closes its connection to PIN 3 (see picture 2).



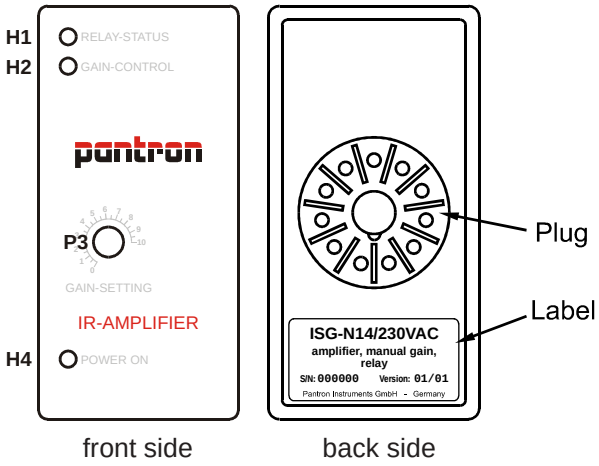
picture 2: Relay output

[1] *Inscription side label*
[2] *Inscription front label*

Operating Instructions

Display contents:

H1: Output status indicator (yellow)
H2: Sensitivity indicator (green)
H4: Power ON display (green)
P3: Gain setting



1. Choose the sensor heads

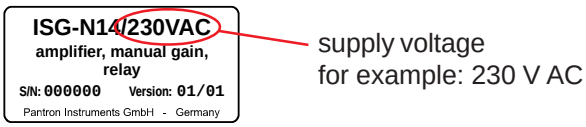
Before you turn on the amplifier, select the transmitter and receiver for your application. This includes choosing the sensor heads body style and cable length or quick disconnect that meets your requirements.

2. Connect wiring to the socket

The amplifier is designed for simple installation. An 11-pin socket must be used for installation. Do not cover the ventilation slots of the multiplexer. The air circulation stopped in the multiplexer and neighboring devices will be extra heated. Therefore, the minimum distance should be at a vertical installation (on a horizontal DIN mounting rail) 10 mm and at a horizontal installation (on a vertical DIN mounting rail) 15 - 20 mm. The wiring diagram is printed on the side label from the amplifier or see **Wiring diagram**. For more information see **General Description** point 3 **Connections**.

4. Check the supply voltage

Before starting check if the supply voltage value is the same as the connection value. On the bottom of the amplifier is the type plate. The supply voltage is the last two or three numbers of the part number.



5. Operating procedure

Plug the amplifier into the socket and switch the power supply on. The Power ON indicator H4 (POWER ON)[2] lights green. To guarantee the regular operation of the infrared amplifier, the sensitivity must be adjusted manually. For this, turn the potentiometer P3 (GAIN-SETTING)[2] from the left side to the right side until the green sensitivity indicator H2 (GAIN-CONTROL)[2] is lit constantly. As the potentiometer is adjusted to the right side, the amplifier will become less sensitive. For description of how the switching output works, see table 1.
After adjustment, the sensitivity display serves as an indicator for the correct adjustment of the amplifier. After many work days the sensor heads polluted slowly. The sensitivity display will begin to flash and eventually go out if the sensor heads become contaminated. For optimal working conditions, the sensitivity must be increased or sensor heads must be cleaned.

Note: If the sensitivity display H2 (GAIN-CONTROL)[2] is not lit, the contact between the transmitter and receiver is interrupted, polluted, adjusted incorrectly, or the distance between the sensor heads is too far.

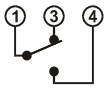
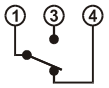
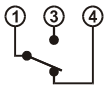
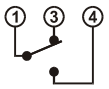
Beam status	Switching mode	Output status indicator H1	Relay output
	light		
	dark		
	light		
	dark		

Table 1: Schwitching logic

[1] *Inscription side label*
[2] *Inscription front label*