BOS 72K-..-RA10-…

FIBER OPTIC AMPLIFIER
WITH NO DISPLAY

INSTRUCTION MANUAL

CONTROLS

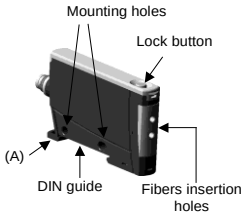
OUTPUT LED
The yellow LED on indicates that the NO output is closed.

READY/ERROR LED
The permanently green LED indicates that the received signal guarantees a stable output status.
The alternating green and red blinking of the LED indicates a wrong setting condition.
Please refer to the "SETTING" paragraph for correct detection and setup procedure indications.

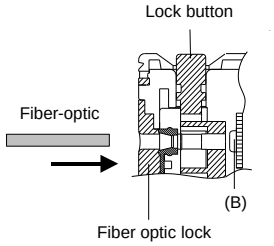
SET PUSHBUTTON
A long push on the pushbutton activates the self-setting procedure.
The REMOTE input allows the external SET control.

INSTALLATION

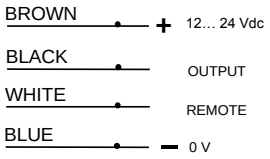
The transparent command protection cover rotates more than 130° in order to have an easy access.
The cover can be removed opening it completely and pulling it slightly.
With a slight pressing it can be replaced back.
Mount the sensor on a DIN rail or use the mounting holes and screws (M3x20 or longer).
For mounting on DIN rail, insert first part (A).



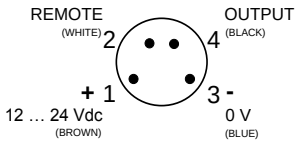
Installation of the fiber optics:
Press the lock pushbutton and keep it pressed until all the fibers have been completely inserted.
Insert the fibers in the corresponding holes as described in the dimension drawing.
The transparent fiber optic fixing block allows you to easily check that the fibers are correctly inserted.
The insertion resistance is due to the O-ring seal; please insert the fibers about 6mm deeper until they touch the stop (B).



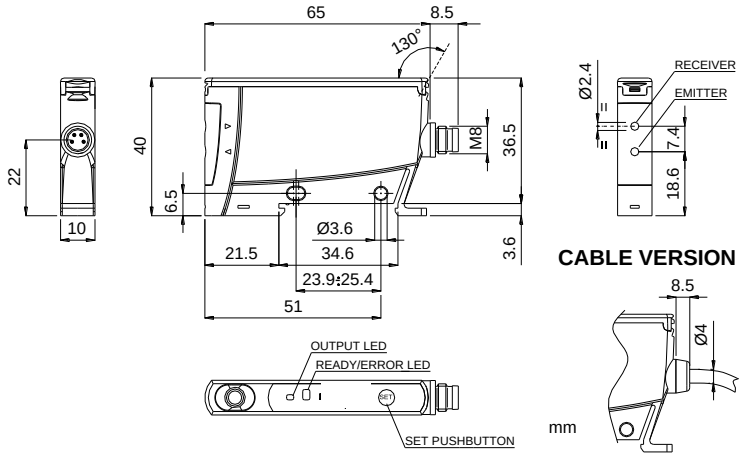
CONNECTIONS



M8 CONNECTOR



DIMENSIONS



CABLE VERSION

mm

TECHNICAL DATA

Power supply:	12 … 24 Vdc ±10% (reverse polarity protection)
Ripple:	2 Vpp max.
Consumption (Output current excluded):	40 mA
Outputs:	NPN (BOS 72K-NU-RA10-…) or PNP (BOS 72K-PU-RA10-…)
Output current:	100 mA max. at 25°C derating –2mA/°C
Output saturation voltage:	1.2 V max.
Response time:	500 µs max.
Indicators:	OUTPUT LED (YELLOW) and READY/ERROR LED (GREEN/RED)
Setting:	1 SET pushbutton
Data retention:	non volatile EEPROM memory
Operating temperature:	-10 … 55 °C
Storage temperature:	-25 … 70 °C
Electrical protection:	Class 2
Emission type:	red (670 nm)
Ambient light rejection:	according to EN 60947-5-2
Vibrations:	0.5 mm amplitude, 10 … 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (approx. 30 G) 6 shock for every axis (EN60068-2-27)
Housing material:	ABS
Mechanical protection:	IP65 (TYPE 1 ENCLOSURE)
Connections:	2 m ∅ 4 mm cable (BOS 72K-..RA10-02) M8 4-pole connector (BOS 72K-..RA10-S75)
Weight:	115 g. max. cable vers. / 30 g. max. connector vers.

DELAY FUNCTION

Press the SET pushbutton until the READ/ERROR LED turns off. Keep the SET pushbutton pressed until the READ/ERROR LED begins to blink green and release it after it turns off.
If the delay function *is not activated* the READY/ERROR LED begins to blink green with two fast pulses.
If the function *is activated* the READY/ERROR LED begins to blink green with four fast pulses.
Press the SET pushbutton to change the function status and check that the blinking mode has changed.
If the SET pushbutton is not pressed for at least ten seconds, the sensor will exit automatically from the delay function.
The delay function adds 20ms to the sensor's ON pulse duration.

SETTING

One touch set-up
Two different setting possibilities are available:
- *One touch set-up* – a long push of the SET pushbutton allows self-setting.
- *FINE DETECTION;* to be used only in particularly critical conditions.

This setting procedure is used only when the one touch is not sufficient.

BOS 72K-..-RA10-… setting
The one touch setting defaults in the LIGHT operating mode.
When using proximity fibers, the output is closed and the output LED is ON when the object is detected.
When using thru-beam fibers, the output is closed and the output LED is ON when the object does not interrupt the beam (i.e. the object is not detected).

- *One Touch (standard detection)*
  Place the object to detect either in front of the proximity fibers within the operating range, or in the middle of the thru-beam fibers.
  Press the SET pushbutton and keep the pushbutton pressed until the signaling LED turns green and the READY/ERROR LED turns OFF.
  Release the SET pushbutton. The sensor is now ready to detect the object.
- *Fine detection*
  This mode offers an improved detection precision. The sensor can function either in the DARK operating or in the LIGHT operating mode.
  1) Place the object to detect in front of the proximity fibers within the operating distance, or in the middle of the thru-beam fibers.
     Press the SET pushbutton and keep it pressed until the READY/ERROR LED turns ON.
     Keep it pressed until the LED turns off and maintain the pressure until the signaling LED begins to blink green. The sensor is now ready for the second setting.
  2) Remove the object to detect and press the SET pushbutton again until the READY/ERROR LED turns green.
     The sensor is now ready to detect the object very precisely.
     If the READY/ERROR LED begins to blink red and green, the setting has failed, as the contrast is insufficient. Thus the setting procedure has to be repeated.

  Following this setting procedure, the sensor functions in the LIGHT mode with proximity fibers and in the DARK mode with thru-beam fibers. To set the sensor in the DARK mode for proximity or LIGHT mode for thru-beam, invert the sequence given above.
  The operative DARK/LIGHT mode is automatically selected by the sensor when it is used as contrast sensor.

REMOTE FUNCTION

The REMOTE wire connected to +Vdc is equal to pressing the SET pushbutton. The *keyboard block* is activated if the sensor powering the REMOTE wire is connected to +Vdc, and thus the SET pushbutton is no longer active. To deactivate the *keyboard block* the sensor has to be turned off and then turned on with the REMOTE wire not connected.

WARRANTY
Balluff Inc warrants its products to be free from defects.
Balluff Inc will repair or replace, free of charge, any product found to be defective during the warranty period of 36 months from the manufacturing date.
This warranty does not cover damage or liability deriving from the improper application of Balluff products.

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