BKT 18KF-001…

Contrast sensor

INSTRUCTION MANUAL

CONTROLS

OUTPUT LED
The yellow LED on indicates that the N.O. (normally open) output status is closed.

READY/ERROR LED (bicolour)
When the bicoloured LED is continuously green, the sensor is operating in a normal condition and it is ready to function correctly (stability condition).
The red and green blinking of the LED indicates a wrong sensor setting.
Please refer to the "SETTING" paragraph to get the correct setting procedure.

Teach-in PUSHBUTTON
A long pressure on the pushbutton activates the self-setting procedure.

INSTALLATION

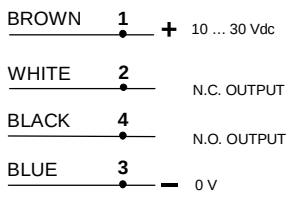
The sensor can be fixed by means of the M18x1 threaded body through a ∅ 18 mm hole, using the specific washer and the enclosed 24 mm nuts (maximum torque of tightening 1.5 Nm).
Alternatively, the sensor can be mounted through the two housing's holes using two screws (M3x22 or longer) and nuts.
Amongst the various possible solutions, we suggest to choose the combination that offers the best visibility of the signalling Leeds and the easiest access to the SET pushbutton.
22 mm nuts, h=8 mm, (2 Nm maximum tightening torque) are available to guarantee an improved torque.

Various orientable fixing brackets to ease the sensor positioning are available (please refer to the accessories listed in the general catalogue).

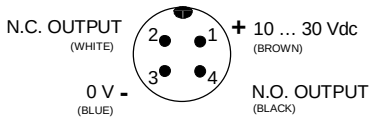
The operating distance is measured from the front surface of the sensor lens.

CONNECTIONS

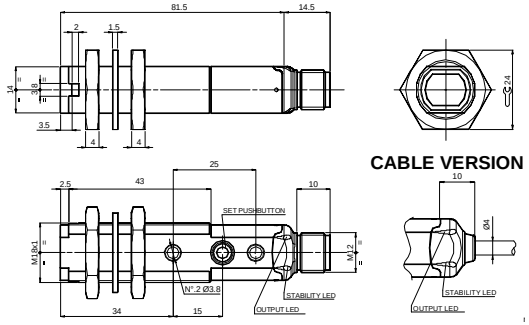
The connections are compliant to the EN 60947-5-2 standard.



M12 CONNECTOR



DIMENSIONS



TECHNICAL DATA

Power supply:	10 … 30 Vdc (limit values)
Ripple:	2 Vpp max.
Current consumption (output current excluded):	25 mA max.
Outputs:	N.O. and N.C.; PNP or NPN; 30 Vcc max. (short-circuit protection)
Output current:	100 mA max.
Output saturation voltage:	2 V max.
Response time:	100 µs
Switching frequency:	5 kHz
Indicators:	OUTPUT LED (YELLOW) / LED READY/ERROR (GREEN/RED)
Setting:	SET pushbutton
Operating mode:	LIGHT mode on N.O. output / DARK mode on N.C. output
Data retention:	non volatile EEPROM memory
Operating temperature:	-10 … 55 °C
Storage temperature:	-20 … 70 °C
Electrical shock protection:	Class 2 (TYPE 1 ENCLOSURE)
Operating distance (typical values):	10 mm ±2 mm
Minimum spot dimension:	4.5 mm
Emission type:	white light LED (400-700 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 (30 G) 6 shock for every axis (EN60068-2-27)
Housing:	PBT
Lenses:	PMMA
Mechanical protection:	IP67
Connections:	2 m cable ∅ 4 mm / M12 - 4 pole connector
Weight:	75 g. max. cable vers./25 g. max. connector vers.

SETTING

Teach-in
The sensor uses a Teach-in technology that allows a rapid and safe self-setting of the product.
Two different setting possibilities are available:
- *Standard teaching;* a long pressure of the Teach-in pushbutton allows self-setting.
- *Fine detection;* to be used only in particularly critical conditions, this setting procedure is used only when the Standard teaching is not sufficient.

Setting
To achieve a correct sensor functioning, the coloured mark or object to be detected has to be placed at the right reading distance.

- *Standard (detection in the DARK mode)*
  The Teach-in technology allows the functioning in the DARK mode (mark presents a lower light intensity respect to the background).
  The mark to detect has to be placed correctly at the right reading distance within the sensor spot.
  Press the Teach-in pushbutton until the READY/ERROR LED turns OFF.
  Release the Teach-in pushbutton and wait for the READY/ERROR LED to turn green.
  The sensor is now ready to detect the pre-set coloured mark or object (output LED turns ON when the N.O. output is closed).
- *Fine detection (DARK or LIGHT mode)*
  This mode offers an improved detection precision.
  The sensor can function either in the DARK operating or in the LIGHT operating mode (light-coloured mark ON dark background).
  The operating mode is selected automatically by the sensor.
  The mark to detect has to be placed correctly at the right reading distance within the sensor spot.
  Press the Teach-in pushbutton. The READY/ERROR LED turns OFF.
  Keep the Teach-in pushbutton pressed until the READY/ERROR LED blinks green. Place the background under the sensor spot.
  Press the Teach-in pushbutton again until the READY/ERROR LED turns OFF.
  The sensor is now ready to detect, with a very high precision, the pre-set coloured mark (output LED turns ON, READY/ERROR LED turns green).
  The output LED is ON and the N.O. output is closed, when the sensor is positioned on the pre-set coloured mark.

Note
If a setting error will occur please repeat again the Teach-in setting procedure, in order to be sure to restart the setting procedure correctly.

Balluff GmbH
Schurwaldstraße 9
73765 Neuhausen a.d.F. Deutschland
Tel.: +49 (0) 71 58/1 73-0
Fax +49 (0) 71 58/50 10
E-Mail: balluff@balluff.de
www.balluff.com

Nr./No. 839 548 D/E
Ausgabe/Edition 0412;
Änderungen vorbehalten/Subject to modification