



KRTG 20

Green light contrast scanner

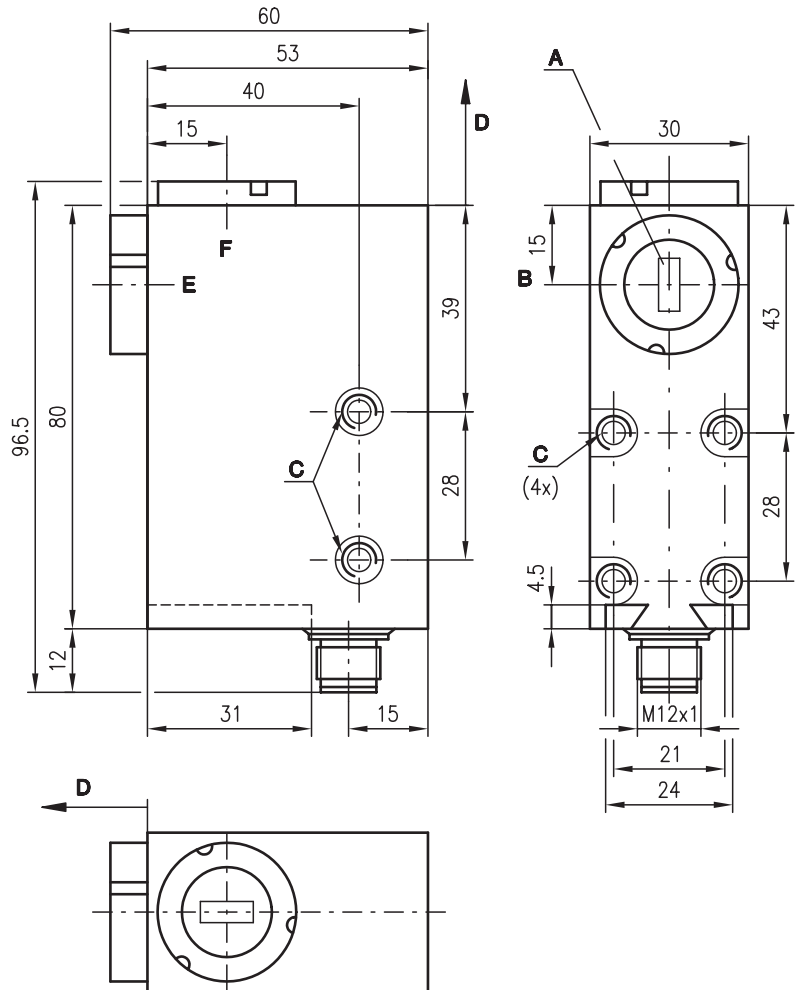


12mm
20mm
50mm



- Static teach-in procedure
- Response time digital/analogue: 20µs/ 6.25µs
- Green transmitter LED with variable brightness
- Programming by means of teach-in (via button or remote calibration)

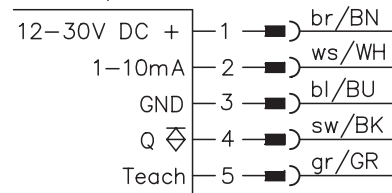
Dimensioned drawing



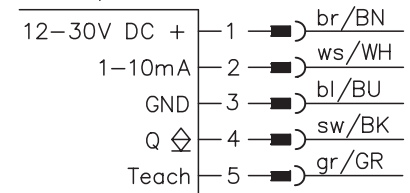
- A Light spot orientation vertical
- B Optical axis
- C M5/5.5mm deep
- D Scanning range
- E Front
- F Head

Electrical connection

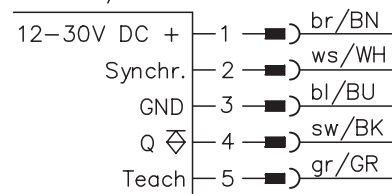
KRTG 20M/V ...-1526-S12



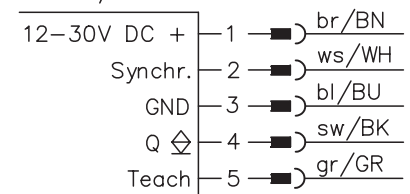
KRTG 20/V ...-1626-S12



KRTG 20M/P ...-S12



KRTG 20/N ...-S12



We reserve the right to make changes • FMT_KRTG04e.fm



Accessories:

(available separately)

- M12 connectors, 5-pin (KD ...)
- Interchangeable objectives
- Tool for changing objectives



Specifications

Optical Data

Scanning range with objective 1	12 mm ± 1 mm
Scanning range with objective 2	20 mm ± 2 mm
Scanning range with objective 3	50 mm ± 5 mm
Light spot dimensions with objective 1	2.0 mm x 1.0 mm
Light spot dimensions with objective 2	4.0 mm x 2.0 mm
Light spot dimensions with objective 3	5.0 mm x 3.0 mm
Light spot orientation	vertical
Light source	LED green, two brightness levels

Timing

Digital switching frequency	max. 25 kHz
Response time digital/analogue	min. 20 µs/6.25 µs
Delay before start-up	≤ 250 ms

Electrical data

Operating voltage U_B	12 ... 30 VDC (incl. residual ripple)
Residual ripple	≤ 15% of U_B
Switching output	PNP, NPN
Function	light or dark switching, reversible via button
Analogue output	1 ... 10 mA
Signal voltage high/low	≥ ($U_B - 2V$)/≤ 2V
Output current	max. 100 mA
Bias current	≤ 60 mA

Indicators

LED green 1	ON "ready"
LED green 2	"ON/OFF" delay
LED green 3	L/D "light/dark switching"
LED yellow	Q/T "object detected"
LED yellow flashing	Q/T "device error, teach error"

Mechanical data

Housing	diecast zinc
Optics cover	glass
Weight	300 g
Connection type	M12 connector, stainless steel, 5-pin

Environmental data

Ambient temp. (operation/storage)	-25 °C ... +60 °C/-40 °C ... +70 °C
Protection class	IP 67
LED class	1 (acc. to EN 60825-1:1994 +A1:2002 +A2:2001)
VDE safety class	II
Protective circuit ¹⁾	2, 3
Standards applied	IEC 60947-5-2

Options

Synchronous input

PNP: Stop/Start measurement	$U_B/0V$ or not connected
NPN: Stop/Start measurement	$0V/U_B$ or not connected
Synchronisation delay	≤ 0.5 ms

Teach input

PNP: active/not active	$U_B/0V$ or not connected
NPN: active/not active	$0V/U_B$ or not connected
Teach delay	≤ 10 ms

Pulse stretching

20 ms, can be activated via button

1) 2=polarity reversal protection, 3=short-circuit protection for all outputs

Order guide

see section Preferred types

Tables

Diagrams

Remarks

- With shiny objects, the sensor is to be mounted at an angle to the object surface.
- The objectives and objective covers must not be removed.
- The transmission power (light spot brightness) is adapted automatically.

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Function principle of the contrast scanner

These contrast scanners are devices which, with the aid of a green LED transmitter, can differentiate between extremely small differences in contrast (gray scale values). Their dynamic range is much wider compared to known devices. This is made possible by automatic amplifier adaptation and use of several transmission levels (brightnesses).

In this way any number of marker/background combinations can be detected with remarkably increased functional safety. Shiny markers can be safely detected. By continuously measuring and regulating the emitted light, the devices are able to function in a very temperature-stable manner. The marker does not, as a result, need to be retaught.

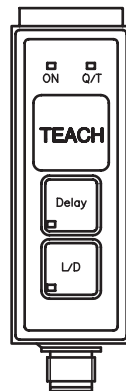
The diaphragm mounted in front of the receiver and the extremely bright light spot guarantee a high reproducibility and precision in positioning.

With this teaching type, background and marker must be placed statically below the light spot. Using the synchronisation input, the switching output can be activated or deactivated.

Controls and indicators

LED ON (green) for "Ready"

LED Delay (green) for pulse stretching
20ms (LED=ON)



LED Q/T (yellow) for "Object detected"
and "Error display" (flashing)

LED L/D (green) for dark switching
(LED=ON)

Switching threshold with preset dark markers



Teach process

The teach process is performed with the aid of the teach button or external teach lines. The two processes work in the same way.

Operation	Transmitter	Indicator LED
Position the light spot on the background	Green light spot visible	
Press the teach button approx. 1 s or set the teach line to high level	Green light spot visible	All LEDs flash
Position the light spot on the marker	All colors on White light spot visible	All LEDs flash
Press the teach button approx. 1 s or set the teach line to low level	Green light spot visible	ON (green) illuminated Q/T (yellow) off Q/T (yellow) flashing (error)
Teaching error start new teaching process	No light spot visible	ON (green) illuminated Q/T (yellow) flashing (error)



Preferred types

Selection table		KRTG 20MP-12-1320-S12 Part No. 500 32791	KRTG 20MN-12-1320-S12 Part No. 500 32795	KRTG 20MP-20-1320-S12 Part No. 500 32792	KRTG 20MN-20-1320-S12 Part No. 500 32796	KRTG 20MV-20-1526-S12 Part No. 500 34928	KRTG 20MV-20-1626-S12 Part No. 500 34929	KRTG 20MP-50-1320-S12 Part No. 500 32793	KRTG 20MN-50-1320-S12 Part No. 500 32797				
Equipment ↓		Order code →											
Scanning range	12 mm	●	●										
	20 mm			●	●	●	●						
	50 mm							●	●				
Transmitter colour	RGB												
	green	●	●	●	●	●	●	●	●				
Light spot orientation	vertical	●	●	●	●	●	●	●	●				
	horizontal												
	round												
Optical outlet	front												
	head	●	●	●	●	●	●	●	●				
Output wiring	PNP	●		●		●		●					
	NPN		●		●		●		●				
	analogue current					●	●						
Other features	static teach-in	●	●	●	●	●	●	●	●				
	dynamic teach-in, standard												
	dynamic teach-in with marker preselection												
	teach-in, background												
	synchronous input	●	●	●	●				●	●			

Additional types on request