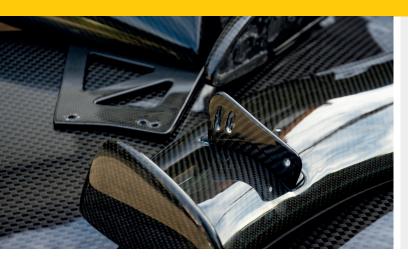




BI7C | BI20C | NI40C Carbon Fiber Detection Sensors





Detecting Carbon Fibers Inductively Your Benefits

Turck has developed the world's first inductive sensors for detecting carbon fibers. The sensor series detects both carbon fibers and pressed carbon parts. It is based on advanced uprox technology and therefore offers maximum switching distances and maximum installation flexibility - for manufacturers and suppliers of products such as carbon, cars, wind turbines or sporting equipment.

A comparison with the solutions used to date in this area demonstrates the advantages that the new sensors offer to users: They are less susceptible to contamination than optical or capacitive sensors while also being significantly more economical than ultrasonic sensors.

The sensors are now available in three initial designs: a threaded barrel version in M18 stainless steel housing with a rugged Duroplast front cap (BI7C) and as rectangular versions with a height of either 20 mm (BI20C) or 40 mm (NI40C). Protection class IP68 and the extended temperature range from 0 to 100 °C guarantee the long-term reliable use of the devices, which Turck offers as PNP changeover contacts with M12 connectors.

- Reliable detection of all carbon fiber composites
- Wide application range from 0 to 100 °C
- Less susceptible to contamination than optical or capacitive sensors
- More cost-effective than ultrasonic sensors
- High resilience thanks to IP68 protection class



Inductive Sensors for Detecting Carbon Fiber Composites



- Protection class IP68
- Magnetic field immune
- Extended temperature range
- DC 4-wire, 10...30 VDC
- Changeover contact, PNP output
- M12 × 1 male connector

Туре	BI20C-QR20-VP6X2-H1141	NI40C-CK40-VP6X2-H1141	BI7C-EM18H-VP6X-H1141
Ident-No.	100015717	100015716	100015715
Rated switching distance	20 mm*	40 mm*	7 mm*
Mounting condition	Flush	Non-flush	Flush
Secured operating distance	≤ (0.81 x Sn) mm		
Repeatability	≤ 2 % full scale		
Temperature drift	≤ ± 10 %		
Hysteresis	315 %		
Ambient temperature	0+100 °C		
Operating voltage	1030 VDC		
Residual ripple	≤ 10 % Uss		
DC rated operational current	≤ 100 mA		
No-load current	≤ 20 mA		
Residual current	≤ 0.1 mA		
Isolation test voltage	≤ 0.5 kV		
Short-circuit protection	Yes/cyclic		
Voltage drop at le	≤ 1.8 V		
Wire breakage/reverse polarity protection	Yes/complete		
Output function	Four-wire, changeover contact, PNP		
Switching frequency	0.25 kHz	0.25 kHz	1.5 kHz
Design	Rectangular, QR20	Rectangular, CK40	M18 × 1 threaded barrel
Dimensions	71.3 x 64 x 20 mm	65 x 40 x 40 mm active face, variable orientation in 5 directions	52 mm
Housing material	Plastic, Ultem	Plastic, PBT-GF20-V0, black	Stainless steel, V2A (1.4301)
Active face material	Plastic, Ultem	Plastic, PA12-GF30, yellow	Plastic, Duroplast
Max. tightening torque of housing nut	-	-	25 Nm
Electrical connection	M12 × 1 male connector		
Vibration resistance	55 Hz (1 mm)		
Shock resistance	30 g (11 ms)		
Protection class	IP68		
MTTF	874 years acc. to SN 29500 (ed. 99) 40 °C		
Operating voltage display	LED, green	2x LEDs, green	-
Display switching status	LED, yellow	2x LEDs, yellow	LED, yellow
Included in delivery	-	Mounting bracket BS4-CK40	_

^{*}The rated switching distance refers to a standard steel target. The switching distance can vary depending on the composition of the CFRP material

