

BK MIKRO 5-RL



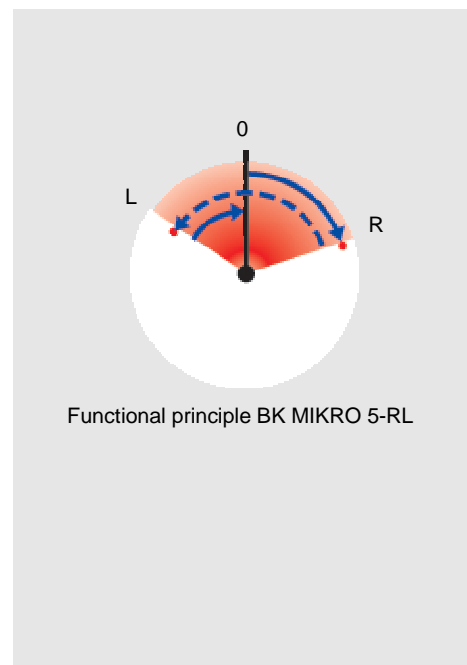
Tool monitoring system for scanning applications in both directions

BK MIKRO 5-RL is especially suitable for use in double spindle machines or other paired scanning applications:

- **Monitoring of two scanning positions** whose precise locations have been previously entered by "Teach-in", e.g. to carry out tool checks.
- **Scanning in both directions**, i.e. the scanner will travel in clockwise and counter-clockwise direction.

Scanner, control unit and a connection cable – that is the complete BK MIKRO 5-RL monitoring system.

For installing the scanner no aids are necessary.



Functional principle BK MIKRO 5-RL



Operating Mode

The wand of the scanner scans tools, objects or critical process spaces free of potential, in line with machine cycles.

A control unit equipped with a micro-computer triggers the movement of the wand upon an external signal and passes the scanning result to the machine control via relay contacts.

The galvanically isolated inputs and outputs guarantee a high degree of operational safety and protection against interferences.

Further Features

- Scanning in both directions
- Scanning in clockwise or counter-clockwise direction
- Two steps for scanning intensity
- Output relay contacts selectable as NCC or NOC
- Automatic detection of zero position (in the center between scanning points) or high-handed fixation of zero position
- Indication of the scanning result by two LEDs "O.K." and "K.O." on the control unit
- Detection of cable breaks

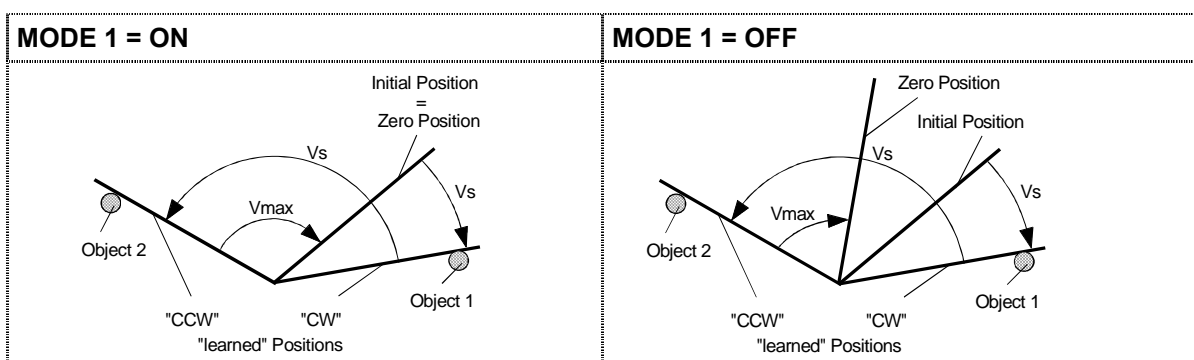
Connection Cable

- 6-wire PUR-cable
- Small circular connector to DIN 45322 at the control unit end
- Molded plug at the scanner end
- Length 5 m, can be extended to a maximum length of approximately 25 m with extension cables

Scanning in both directions

By clockwise and then counter-clockwise travel of the wand the presence of both objects is determined. If at least one scanning procedure is negative, a fault message will be generated.

- Switch "MODE 1" = ON:
The initial position before "Teach-in" will become zero position of the wand.
- Switch "MODE 1" = OFF:
Using this two positions the system will calculate the new zero position of the wand as the center between the two tools.



Monitoring range = learned (defaulted) position \pm tolerance

V_{max} = max. speed of scanning wand

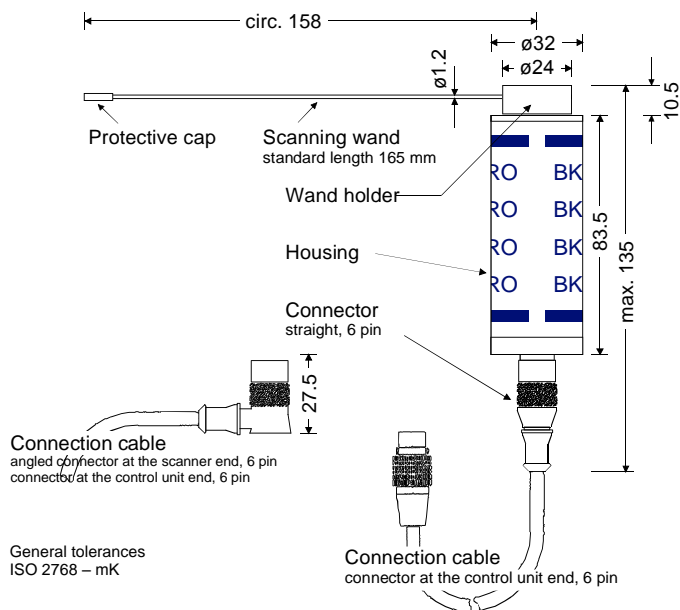
V_s = speed of scanning wand preset by "Scanning intensity"

Scanner

Technical Data

Housing	Anodized aluminum
Protection type	IP 67
Wand length	165 mm (standard), exchangeable wand
Scanning angle	max. 360°
Connection (control unit)	Small circular connector M12x1, 6 pin
Ambient temperature	0°C to +80°C
Storage temperature	-25°C to +80°C
Scanning cycles	> 5 million at minimum scanning intensity

Scanner TK5K

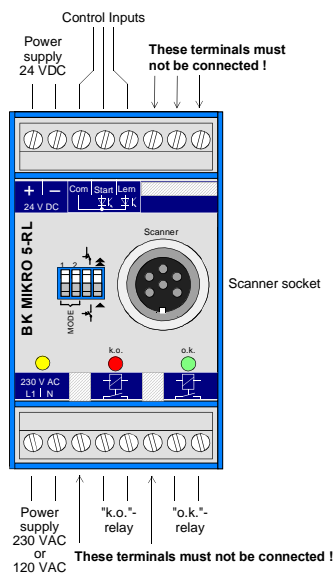


Control Unit

Technical Data

Housing / protection type	Insulating material housing, protection class II, built-in unit, IP 20
Dimensions (WxHxD)	40 x 75 x 107.5 mm
Case mountings	Sectional rail, 35 mm, to DIN EN 50022
Power supply voltage	230 VAC, 120 VAC, 24 VDC (depending on model)
Power consumption	6 VA max.
Control voltage	24 VDC (internal/external)
Inputs	Galvanically isolated, Input current 5 mA approx., Pulse duration 6 ms min.
Switched outputs	2 x 250 VAC / 30 VDC, 2 A
Making/breaking capacity	500 VA / 60 W (max.) – min. 10 mA at 10 V
Operational life of relay	5 x 10 ⁷ switching cycles
Connections	Plug-in screw terminals for connecting - power supply, relay outputs, control inputs Scanner socket to DIN 45322, 6 pin
Climatological conditions	Classification 3K3 according to EN 50178
Ambient temperature	0°C to +50°C
Storage temperature	-25°C to +80°C

Control Unit BK MIKRO 5-RL



Characteristics

Features	
Number of toggle switches	4
"O.K." message at "Object"	X

© Copyright MSC Tuttlingen GmbH,
Tuttlingen, 2006
Subject to change without notice.
Issue 3.00