



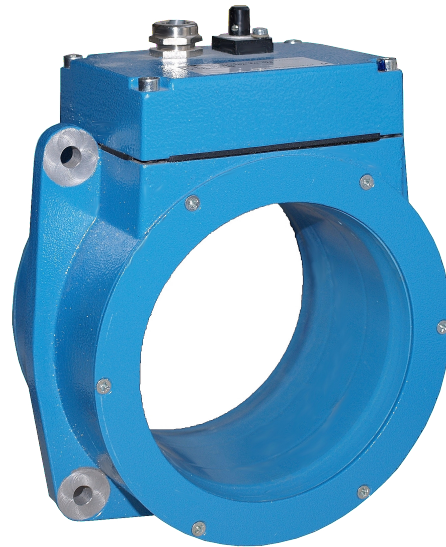
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Rev. 0901

Ring Sensors

KJR

Application

The ring sensors that are used in our metal separating systems are also applied as singular components in various branches of industry. As sensor for piece counting or for ejection control of stamping parts, for wire breakage monitoring or for the detection of metallic objects. The output signals of the ring sensors can be used for controlling, regulating, signalling or for evaluating processes. We provide a large program of ring sensors that differ in design, sensitivity or the type of the output signal.



Ring Sensors KJR

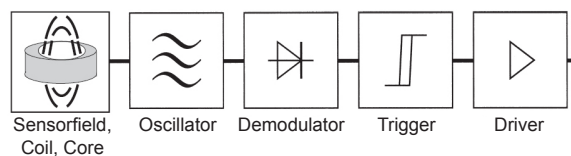
Function

A ring sensor consists of a coil with ferrite core, an oscillator, a demodulator, a signal evaluation unit and a switching amplifier (see illstr. 1). The oscillator excites a high-frequency electro-magnetic alternating field in the ring coil. Due to the ferrite core and the housing the streamlines of the field are focused and aligned in the centre of the ring. If a metallic object passes the ring sensor, turbulent flows are induced in it and thus energy is withdrawn from the field. This loss of energy causes a damping of the oscillator. The damping degree is a measure of the dimension of the metallic object. Generally there are two types of ring sensors - those with a dynamic working principle and those with a static working principle. The advantage of static sensors is their ability to detect non-moving pieces. If there is metal in the sensor range, the sensor excites a constant signal. Only when metal is removed, the signal deactivates. Static sensors serve for presence check or for the detection of large pieces. Due to their working principle their sensitivity is considerably lower than it is at dynamic sensors. Dynamic sensors only excite a short pulse when they detect metal. Metallic objects are only detected when they are moved in the sensor range. For operation normally switching amplifiers are necessary. Using them pulses can be amplified and lengthened. Large metallic objects can excite several pulses. Free-falling metallic pieces generally excite only one pulse.



Function

Similar to static sensors analog sensors excite a permanent signal. However they excite an analog voltage signal which depends on the metals' dimensions and its' position in the sensor range. Only when there is no metal left in the the sensor range, the output voltage decreases to the minimum value.



Illstr. 1: working principle of inductive ring sensors

Accessories

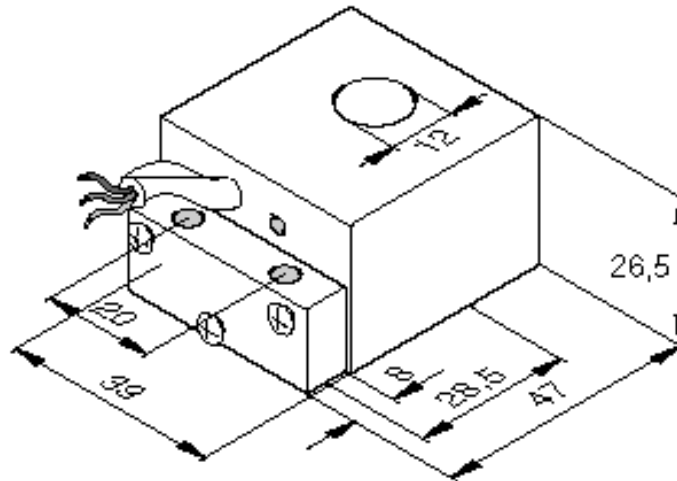
For operating the sensor the use of a control unit is recommendable. Our control units can be operated with 24V direct current or alternatively 24V line voltage. These devices do not only allow the regulation of the pulse length but also provide for relay outputs for high switching currents as well as transistor switching steps. The power supply for the sensors can also be realised via the control unit.

Specific characteristics

- compact and robust
- easy Initiation and operating
- wide product range
- customized solutions
- fast and competent support, delivery and service



Induktive ring sensors - Dimension Ø 12 mm



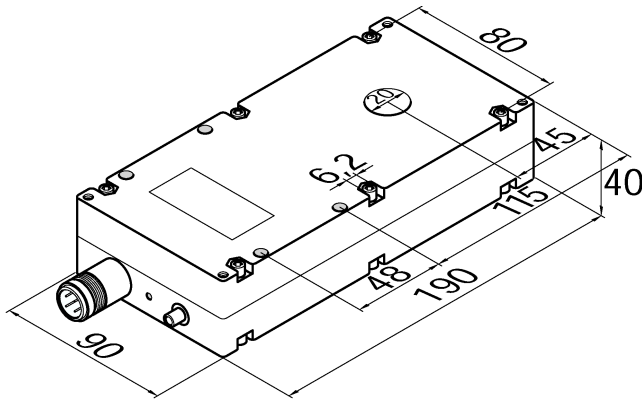
KJR-D12KN-DPS

Ring Sensors KJR

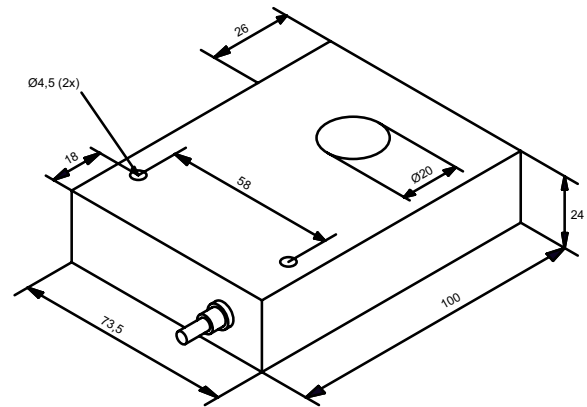
Type	KJR-D12KN-DPS
Electrical data	
Output function	Static - PNP (normally open)
Operating voltage	10 - 30 VDC
Off-state current	10 mA
Max. Load current	400 mA
Residual current	<10µA
Maximum switching frequency	800 Hz
Switching state	LED
Conditions of use	
Sensibility	FE-ball 2,5 mm
Operating temperature	-25°C .. 70°C
Protection class	IP54
Housing material	Aluminium; PUR
Electrical connection	2 m Cable; 3 x 0,34 mm²
Order information	
Order number	08317020400



Inductive ring sensors - Dimension Ø 20 mm



KJR-D20AN-DNIA-VE

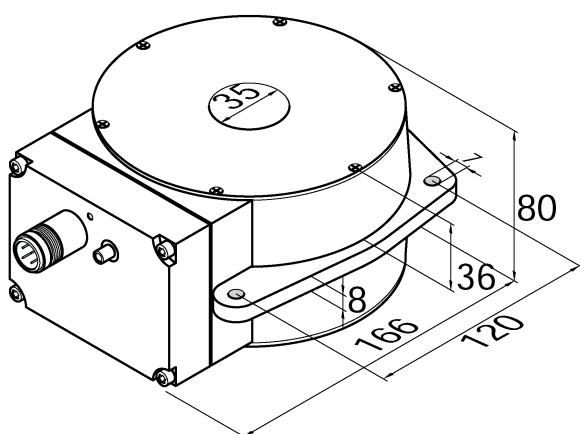


KJR-D20KN-xxx

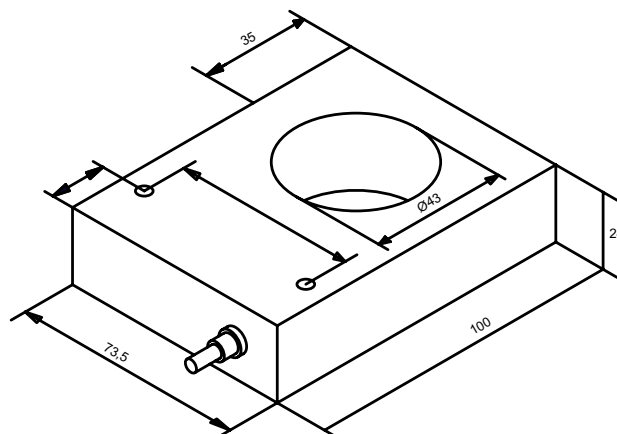
Type	KJR-D20AN-DNIA-VE	KJR-D20KN-DPS	KJR-D20KN-ANU
Electrical data			
Output function	Dynamic - NPN (changeover)	Static - PNP (normally open)	Analog [0 .. 10V]
Operating voltage	20 - 30 VDC	10 - 30 VDC	18 - 30 VDC
Off-state current	25 mA	10 mA	5 mA
Max. Load current	50 mA	200 mA	
Residual current	<50µA	<10µA	-
Maximum switching frequency	100 Hz	1000 Hz	50 Hz
Switching state	LED		
Linearity error	-		≤ ±5%
Conditions of use			
Sensibility	FE-ball 0,5 mm (adjustable)	FE-ball 6,0 mm	FE-stick 5,0 - 6,0 mm
Operating temperature	-25°C .. 70°C		
Protection class	IP54		
Housing material	Aluminium	ABS	
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector	2 m Cable; 3 x 0,34 mm²	
Order information			
Order number	08317020259	08317020500	08317142000



Inductive ring sensors - Dimension Ø 35 mm & Ø 43 mm



KJR-D35AN-DNIA-VE



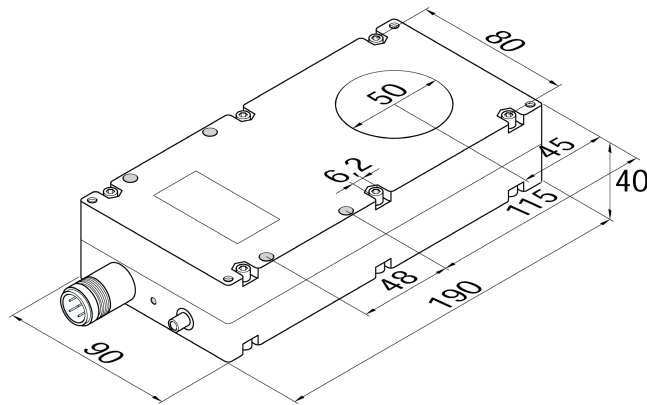
KJR-D43KN-xxx

Ring Sensors KJR

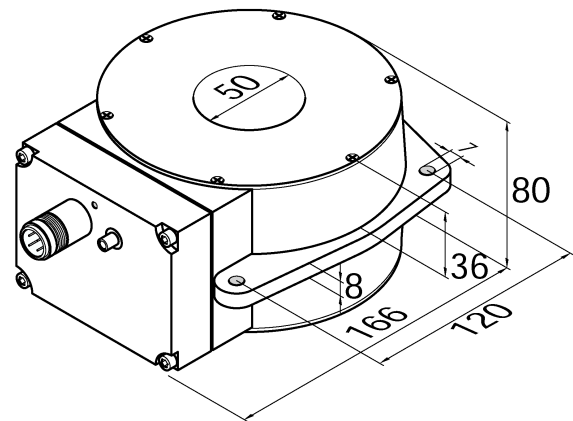
Type	KJR-D35AN-DNIA-VE	KJR-D43KN-DPS	KJR-D43KN-ANU
Electrical data			
Output function	Dynamic - NPN (changeover)	Static - PNP (normally open)	Analog [0 .. 10V]
Operating voltage	20 - 30 VDC	10 - 30 VDC	18 - 30 VDC
Off-state current	25 mA	10 mA	1 mA
Max. Load current	50 mA	200 mA	5 mA
Residual current	<50µA	<10µA	<1µA
Maximum switching frequency	100 Hz	500 Hz	50 Hz
Switching state	LED		
Conditions of use			
Sensibility	FE-ball 0,5 mm (adjustable)	FE-ball 9,0 mm	FE-stick 1,0 - 20 mm
Operating temperature	-25°C .. 70°C		
Protection class	IP54		
Housing material	Aluminium	ABS	
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector	2 m Cable; 3 x 0,34 mm²	
Order information			
Order number	08317130059	08317050500	08317144300



Inductive ring sensors - Dimension Ø 50 mm



KJR-D50FAN-DNIA-VE
KJR-D50AN-DxA-Vx



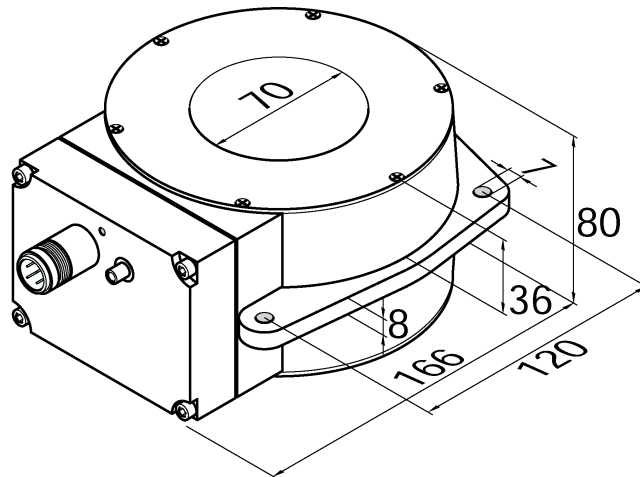
KJR-D50AN-DNIA-Vx

Ring Sensors KJR

Type	KJR-D50AN-DNA-Vx	KJR-D50AN-DPA-Vx	KJR-D50AN-DNIA-Vx	KJR-D50FAN-DNIA-VE
Electrical data				
Output function	Static - NPN (changeover)	Static - PNP (changeover)	Dynamic - NPN (changeover)	Dynamic - NPN (changeover)
Operating voltage	10 - 30 VDC		20 - 30 VDC	
Off-state current	15 mA		25 mA	
Max. Load current	200 mA		50 mA	
Residual current	<10µA		<50µA	
Maximum switching frequency	500 Hz		100 Hz	
Switching state	LED			
Conditions of use				
Sensibility	FE-ball 3,0 mm		FE-ball 0,6 mm	FE-ball 1,0 mm
Operating temperature	-25°C .. 70°C			
Protection class	IP54			
Housing material	Aluminium			
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector			Euchner plug connector
Order information				
order number (M12)	on request	on request	08317010765	-
order number (Euchner)	08317050259	08317050659	08317010759	08317010259



Inductive ring sensors - Dimension Ø 70 mm



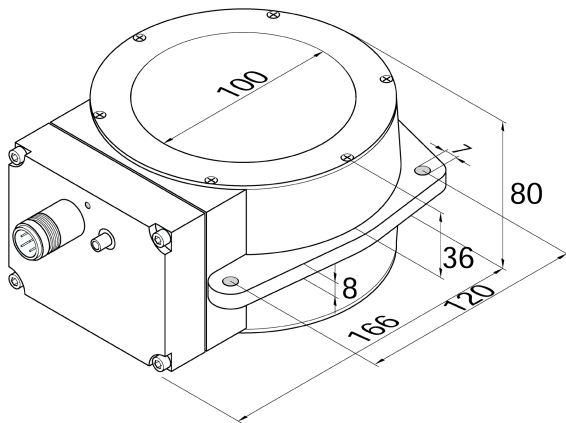
KJR-D70AN-DNIA-VE

Ring Sensors KJR

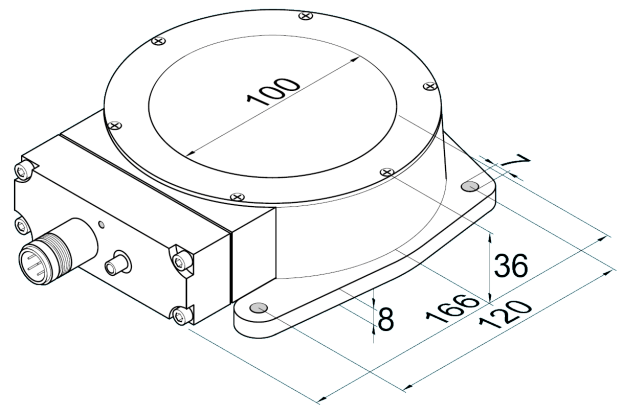
Type	KJR-D70AN-DNIA-VE
Electrical data	
Output function	Dynamic - NPN (changeover)
Operating voltage	20 - 30 VDC
Off-state current	25 mA
Max. Load current	50 mA
Residual current	<50µA
Maximum switching frequency	100 Hz
Switching state	LED
Conditions of use	
Sensibility	FE-ball 1,0 mm (adjustable)
Operating temperature	-25°C .. 70°C
Protection class	IP54
Housing material	Aluminium
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector
Order information	
Order number	08317110059



Inductive ring sensors - Dimension Ø 100 mm



KJR-D100AN-DxA-Vx

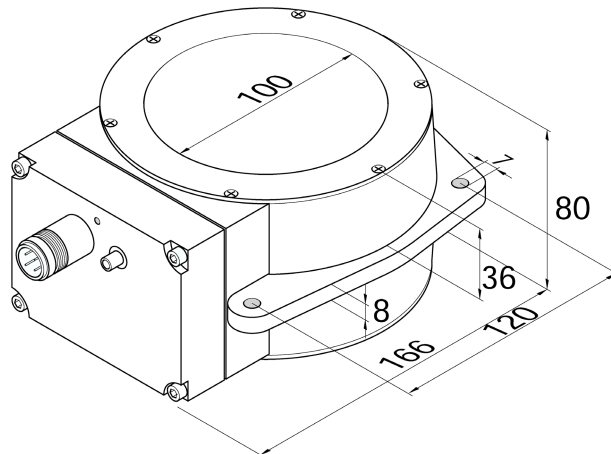


KJR-D100FAN-DxA-VE

Type	KJR-D100FAN-DNA-Vx	KJR-D100FAN-DPA-Vx	KJR-D100AN-DNA-Vx	KJR-D100AN-DPA-Vx
Electrical data				
Output function	Static - NPN (changeover)	Static - PNP (changeover)	Static - NPN (changeover)	Static - PNP (changeover)
Operating voltage	18 - 30 VDC		10 - 30 VDC	
Off-state current	15 mA		10 mA	
Max. Load current	200 mA			
Residual current	<10µA			
Maximum switching frequency	500 Hz			
Switching state	LED			
Conditions of use				
Sensibility (adjustable)	FE-ball 8,0 mm		FE-ball 6,0 mm	
Operating temperature	-10°C .. 60°C			
Protection class	IP54			
Housing material	Aluminium			
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector			
Order information				
Order number (M12)	on request	on request	on request	on request
Order num. (Euchner)	08317080059	08317080559	08317080159	08317080659



Inductive ring sensors - Dimension Ø 100 mm (continuation)



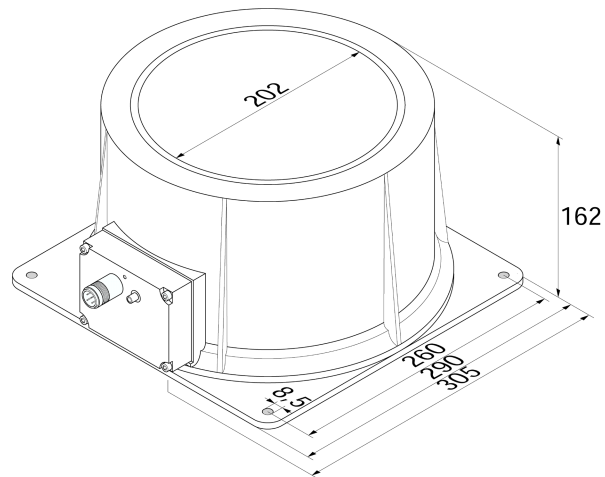
Ring Sensors KJR

KJR-D100AN-DNIA-Vx

Type	KJR-D100AN-DNIA-Vx
Electrical data	
Output function	Dynamic - NPN (changeover)
Operating voltage	20 - 30 VDC
Off-state current	25 mA
Max. Load current	50 mA
Residual current	<50µA
Maximum switching frequency	100 Hz
Switching state	LED
Conditions of use	
Sensibility	FE-ball 1,3 mm (adjustable)
Operating temperature	-25°C .. 70°C
Protection class	IP54
Housing material	Aluminium
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector
Order information	
Order number (M12)	08317000165
Order num. (Euchner)	08317000159



Inductive ring sensors - Dimension Ø 200 mm

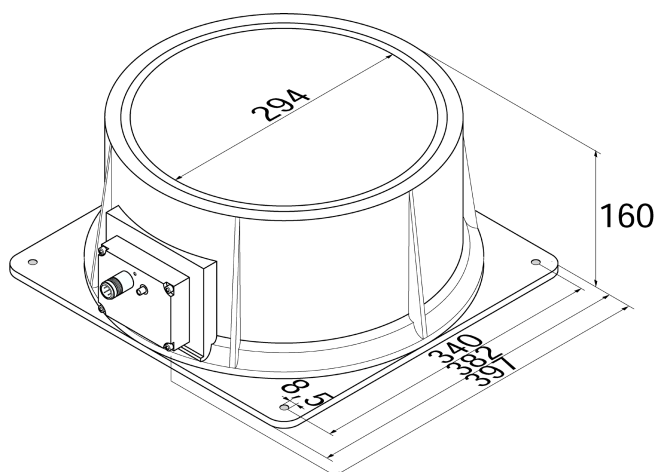


KJR-D200AN-xxx

Type	KJR-D200AN-DNA-Vx	KJR-D200AN-DPA-Vx	KJR-D200AN-DNIA-VE
Electrical data			
Output function	Static - NPN (changeover)	Static - PNP (changeover)	Dynamic - NPN (changeover)
Operating voltage	10 - 30 VDC		20 - 30 VDC
Off-state current	10 mA		25 mA
Max. Load current	200 mA		50 mA
Residual current	<10µA		<50µA
Maximum switching frequency	300 Hz		100 Hz
Switching state	LED		
Conditions of use			
Sensibility	FE-Kugel - 15 mm		FE-Kugel - 3,0 mm
Operating temperature	-10°C .. 60°C		-25°C .. 70°C
Protection class	IP54		
Housing material	Aluminium		
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector		
Order information			
Order number (M12)	on request	08317160665	-
Order num. (Euchner)	08317060159	08317060659	08317030159



Inductive ring sensors - Dimension Ø 300 mm



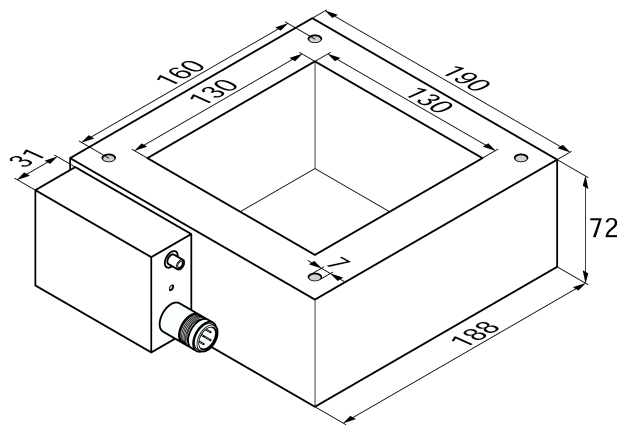
KJR-D300AN-xxx

Ring Sensors KJR

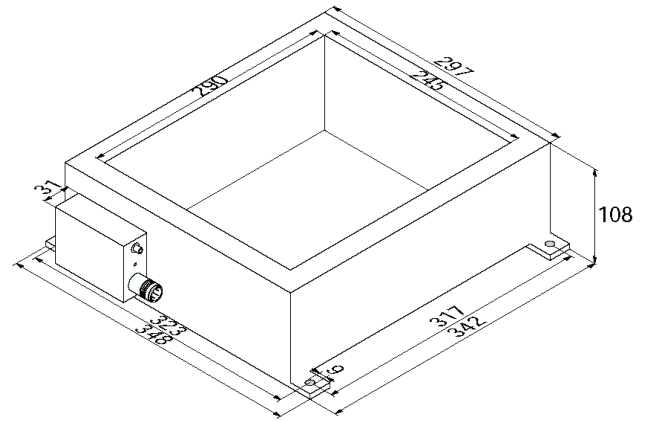
Type	KJR-D300AN-DNA-VE	KJR-D300AN-DPA-Vx	KJR-D300AN-DNIA-VE
Electrical data			
Output function	Static - NPN (changeover)	Static - PNP (changeover)	Dynamic - NPN (changeover)
Operating voltage	10 - 30 VDC		20 - 30 VDC
Off-state current	10 mA		25 mA
Max. Load current	200 mA		50 mA
Residual current	<10µA		<50µA
Maximum switching frequency	300 Hz		100 Hz
Switching state	LED		
Conditions of use			
Sensibility	FE-ball - 30 mm		FE-ball - 4,0 mm
Operating temperature	-10°C .. 60°C		-25°C .. 70°C
Protection class	IP54		
Housing material	Aluminium		
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector		
Order information			
Order number (M12)	-	08317070665	-
Order num. (Euchner)	08317070159	08317070659	08317040159



Inductive square sensors - Dimensions 130 mm & 290 mm



KJR-Q130AN-DxA-VE
KJR-Q130AN-DNIA-VE



KJR-Q290AN-DNIA-VE

Type	KJR-Q130AN-DNA-VE	KJR-Q130AN-DPA-VE	KJR-Q130AN-DNIA-VE	KJR-Q290AN-DNIA-VE
Electrical data				
Output function	Static - NPN (changeover)	Static - PNP (changeover)	Dynamic - NPN (changeover)	Dynamic - NPN (changeover)
Operating voltage	10 - 30 VDC		20 - 30 VDC	
Off-state current	10 mA		25 mA	
Max. Load current	50 mA			
Residual current	<10µA		<500µA	
Maximum switching frequency	300 Hz		100 Hz	
Switching state	LED			
Conditions of use				
Sensibility (adjustable)	FE-ball 12 mm		FE-ball 5,0 mm	FE-ball 12 mm
Operating temperature	-10°C .. 60°C		-25°C .. 70°C	
Protection class	IP54			
Housing material	Aluminium			
Electrical connection	Plug connector M12; 4-pin or Euchner plug connector			
Order information				
Order number	08317090159	08417090659	08317090359	08317090259



Remarks

As long as there are no other specifications all sensors from Pulsotronic have the following characteristics:

- switching outputs with short circuit protection and overload protection
- reverse voltage protection of all connections
- EMV-conformity according to EN 60947-5-2; 2004

Accessories

Designation	Article number
Control unit	
	230 VAC; 24 VDC
	115 VAC; 24 VDC
Connecting cable	
	connecting cable 2 m f. connection to M12
	connecting cable 5 m f. connection to M12
	connecting cable 2 m f. connection to M12 (right-angle plug)
	connecting cable 5 m f. connection to M12 (right-angle plug)
	connecting cable 2 m f. connection to Euchner
	connecting cable 5 m f. connection to Euchner



Notes

Ring Sensors KJR