

INDUCTIVE

INDUCTIVE SENSORS

SENSOR

Cylinder DC

CYLINDER



p-u-l-s-o-t-r-o-n-i-c

p-u-l-s-o-t-r-o-n-i-c

About us

In the traditional and strive industry region Chemnitz-Zwickau, directly at the freeway A72 you will find the new location of the Pulsotronic GmbH & Co.KG.

As a worldwide active company we develop and produce according to ISO 9001 proximity switches and electronic components for the following product ranges:

- > Inductive and Capacitive Sensors
- > Metal separation and Metal detection
- > Picture Processing
- > Optical Sensors
- > Magnetoresistive Sensors
- > Laser Systems
- > Colour Detection
- > Ultrasonic Sensors
- > X-Ray- Scanner

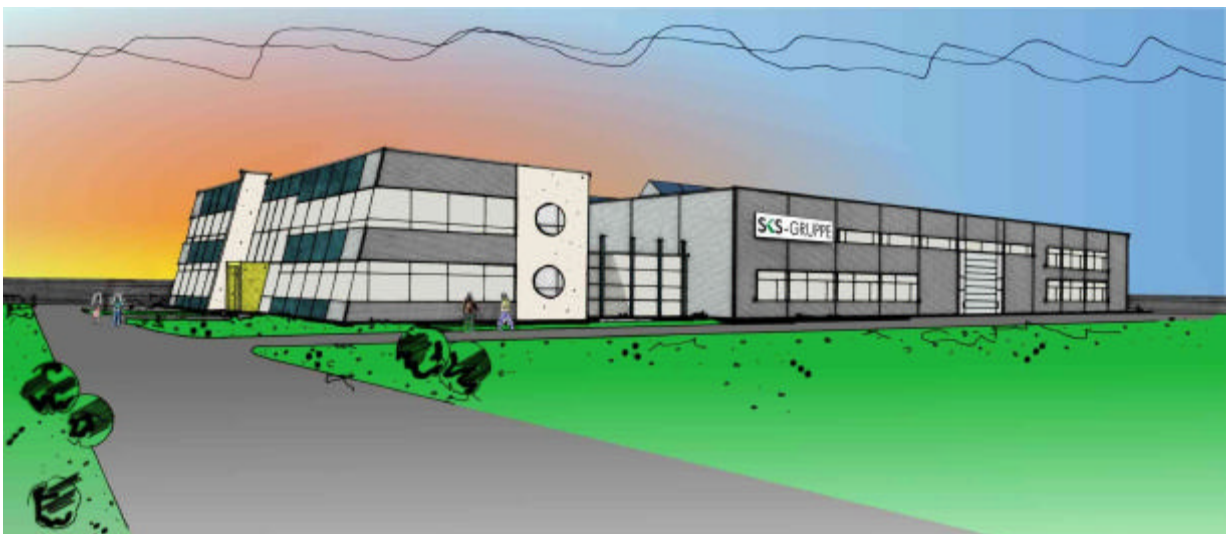
We guarantee customized solutions by our high-performance profile in the area. The available wide palette of key technologies is an ideal condition for the realization of your application.

You find the Pulsotronic everywhere there, where are to set standards and to solve task positions on the far side of well known standing types.

With innovation and individualism our competent team will advise also on place to solve your problem.

Demand us, than you will also find out:

„Pulsotronic - Here is the solution.“

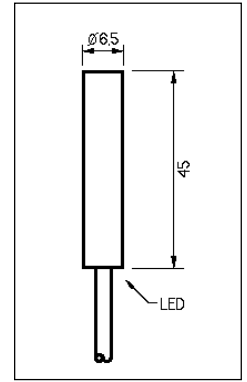
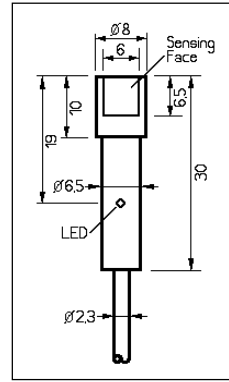
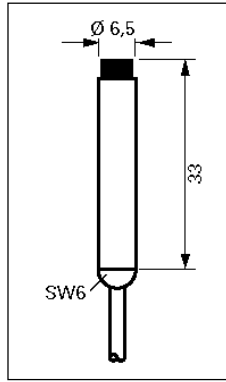
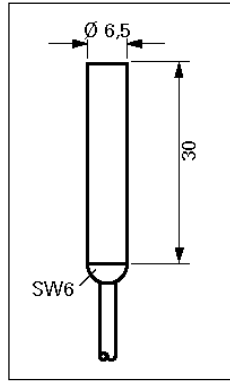


K J 10 - M 30 M B 45 - D P S - V1 - X000
T T T T T T T T T T T T
1 2 3 4 5 6 7 8 9 10 11 12

1= Working principle:	J	inductive	JR	inductive ring
			JF	inductive surface
			JG	inductive slot
			JD	full metal
	C	capacitive		
	M	magneto-resistive		
2= Switching distance / range				
3= Design:	M	cylindrical housings with metrical thread		
	G	cylindrical housings without thread		
	Q	square housings		
	D	ring housings		
4= Housing diameter / edge length				
5= Housing material:	M	brass, nickel plated	11= Kind of Connection:	V1 M8 screw / snap in
	E	stainless steel 1.4305		V2 M12 metal
	K	plastic		V2/1 M12 plastic
	A	aluminium		V3 M5 metal
				V4 Amphenol Tuchel
				V6 Brad Harrison
6= installation type:	B	shielded		V7 valve connector type A
	N	non shielded		V8 M8 only snap in
				V9 M12 only snap in
7= Tube length:		for cylindrical devices in mm		V10 valve connector type C
				V11 AC-connector 1/2" UNF
				V12 M18 plastic
8= Operating voltage:	D	DC direct-current voltage		VE Euchner connector
	AZ	AC alternating-current voltage		ZW termination box 90°
	VZ	AC/DC all voltages		RS232 data interface
				PG thread joint PG
				Mxx thread joint metrical
9= Type of the output signal:	P	PNP		more at inquiry
	N	NPN		
	Z	two-wire		
	AN	analog	ANI	current output
			ANU	voltage output
	NA	Namur		
10= Function:	S	N.O.		
	Ö	N.C.		
	A	changeover		
	U	switchable		
	I	impulse output		
	D	data interface		
12= Addition mark:	SF	weld field immune		
	T	high temperature		
	FE	reduction 1 to steel/iron		
	NF	reduction 1 to aluminium		
	X	customized design		
	W	angled sensing face / angled cable exit		
	AM	middle sensing face		

Proximity switch - Connection pictures

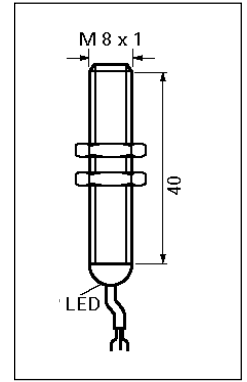
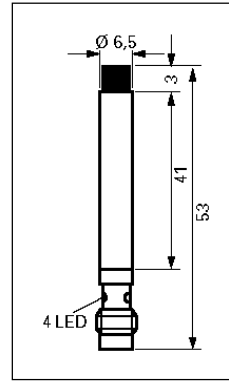
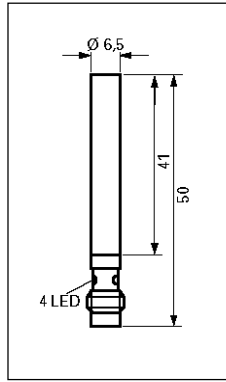
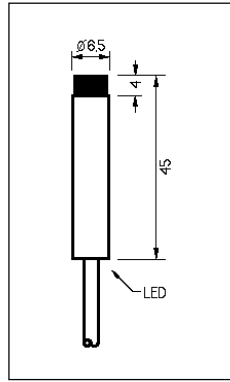
wiring diagrams	cable- / clampconnection	connector V1 ... V9
DPS DC PNP N.O.		
DPÖ DC PNP N.C.		
DPA DC PNP changeover		
DPU DC NO/NC switchable		
DNS DC NPN N.O.		
DNÖ DC NPN N.C.		
DNA DC NPN changeover		
DNU DC NO/NC switchable		
NA Namur DIN 19234		
DZS DC 2-wire N.O.		
DZÖ DC 2-wire N.C.		
AZS / VZS AC/DC 2-wire N.O.		
AZÖ / VZÖ AC/DC 2-wire N.C.		
Analog		



Switching Distance	2,0mm	3,0 mm	1,5 mm	1,5 mm
Mounting	Shielded	Non - Shielded	Shielded	Shielded
Type				
PNP Normally Open	KJ2-G6,5MB30-DPS <i>9981-6000</i>	KJ3-G6,5MN33-DPS <i>9981-6200</i>		
PNP Normally Close				
NPN Normally Open				
NPN Normally Close				
PNP Changeover			SJ1,5W-G6,5EB30-DPA	SJ1,5-G6,5EB45-DPA
NPN Changeover			SJ1,5W-G6,5EB30-DNA	SJ1,5-G6,5EB45-DNA
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Voltage Drop U_d	≤ 2,4 V	≤ 2,4 V	≤ 1,0 V	≤ 1,0 V
Max. Load Current I_o	200 mA	200 mA	200 mA	200 mA
Off-State Current I_o	≤ 10mA	≤ 10 mA	≤ 10 mA	≤ 10 mA
Leakge Current I_r	≤ 10 µA	≤ 10 µA	≤ 10 µA	≤ 10 µA
Switching Frequency f	3000 Hz	2500 Hz	2000 Hz	2000 Hz
Hysteresis H	typ. 5% ≤ 10 %	typ. 5% ≤ 10 %	≤ 15 %	≤ 15 %
Operating Temperature T_a	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Repeat Accuracy R	≤ 2 %	≤ 2 %	≤ 1 %	≤ 1 %
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Stainless Steel	Stainless Steel
Front Cap	PCP	PCP	POM	POM
Termination	Cable 3 x 0,14	Cable 3 x 0,14	Cable 4 x 0,15	Cable 4 x 0,15

More special versions by separate inquiries!

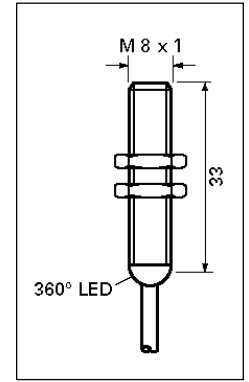
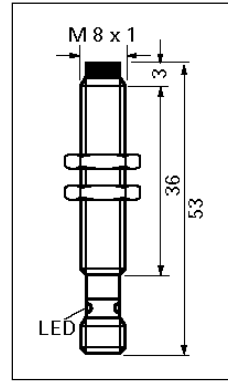
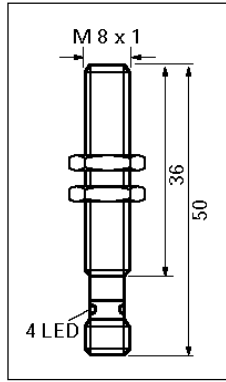
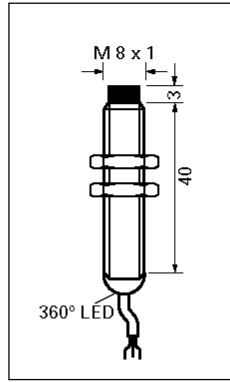
Connection and Termination picture at page 3.



Switching Distance	2,5mm	2,0 mm	3,0mm	1,5 mm
Mounting	Non - Shielded	Shielded	Non - Shielded	Shielded
	Type	Type	Type	Type
PNP Normally Open		KJ2-G6,5MB50-DPS-V1 <i>9981-6064</i>	KJ3-G6,5MN53-DPS-V1 <i>9981-6264</i>	KJ1,5-M8MB40-DPS <i>9961-0200</i>
PNP Normally Close				
NPN Normally Open				KJ1,5-M8MB40-DNS <i>9961-0300</i>
NPN Normally Close				
PNP Changeover	SJ2,5-G6,5EN45-DPA			
NPN Changeover	SJ2,5-G6,5EN45-DNA			
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 1,0 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$
Max. Load Current I_o	200 mA	200 mA	200 mA	200 mA
Off-State Current I_o	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	2000 Hz	3000 Hz	2500 Hz	2000 Hz
Hysteresis H	$\leq 15 \%$	typ. $5\% \leq 10 \%$	typ. $5\% \leq 10 \%$	$\leq 15 \%$
Operating Temperature T_a	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 1 \%$	$\leq 2 \%$	$\leq 2 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Stainless Steel	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	POM	PCP	PCP	PCP
Termination	Cable 3 x 0,15	M8 3-pol. Connector	M8 3-pol. Connector	Cable 3 x 0,14

More special versions by separate inquiries!

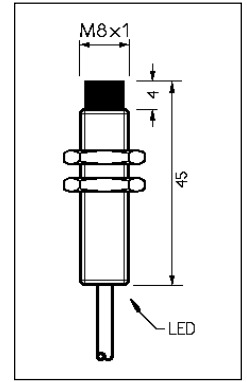
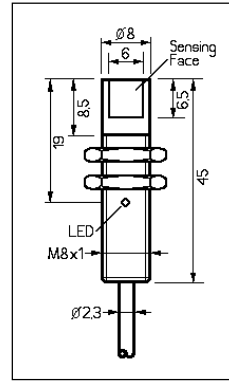
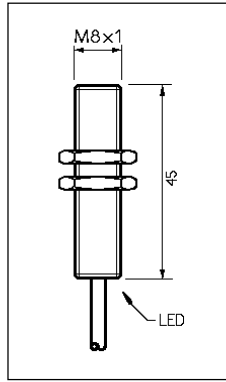
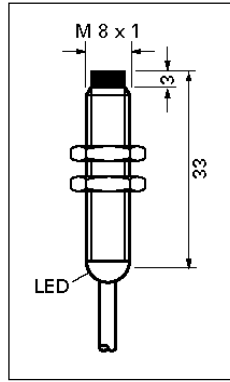
Connection and Termination picture at page 3.



Switching Distance	2,0mm	1,5 mm	2,0mm	2,0 mm
Mounting	Non - Shielded	Shielded	Non - Shielded	Shielded
Type				
PNP Normally Open	KJ2-M8MN40-DPS <i>9961-0400</i>	KJ1,5-M8MB50-DPS-V1 <i>9961-0264</i>	KJ2-M8MN50-DPS-V1 <i>9961-0464</i>	KJ2-M8MB33-DPS <i>9981-1000</i>
PNP Normally Close				KJ2-M8MB33-DPÖ <i>9981-1400</i>
NPN Normally Open	KJ2-M8MN40-DNS <i>9961-0500</i>	KJ1,5-M8MB50-DNS-V1 <i>9961-0364</i>	KJ2-M8MN50-DNS-V1 <i>9961-0564</i>	KJ2-M8MB33-DNS <i>9981-1100</i>
NPN Normally Close				KJ2-M8MB33-DNÖ <i>9981-1500</i>
PNP Changeover				
NPN Changeover				
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$
Max. Load Current I_o	200 mA	200 mA	200 mA	200 mA
Off-State Current I_o	$\leq 10\text{mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	2000 Hz	2000 Hz	2000 Hz	3000 Hz
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$	typ. $5 \% \leq 10 \%$
Operating Temperature Temperature T_j	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$	$\leq 2 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	Cable 3 x 0,14	M8 3-pol. Connector	M8 3-pol. Connector	Cable 3 x 0,14

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance
Mounting

3,0mm
Non - Shielded

1,5 mm
Shielded

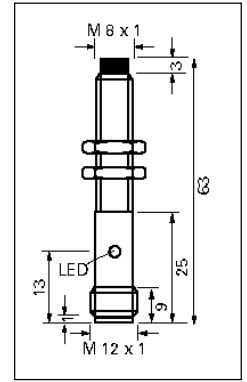
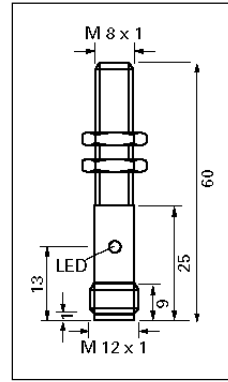
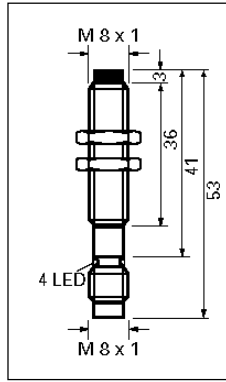
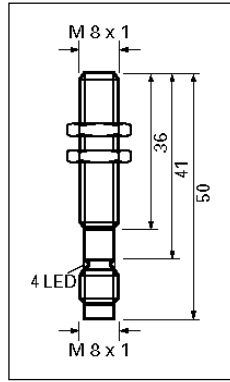
1,5mm
Shielded

2,5 mm
Non - Shielded

	Type	Type	Type	Type
PNP Normally Open	KJ3-M8MN33-DPS <i>9981-1200</i>			
PNP Normally Close	KJ3-M8MN33-DPÖ <i>9981-1600</i>			
NPN Normally Open	KJ3-M8MN33-DNS <i>9981-1300</i>			
NPN Normally Close	KJ3-M8MN33-DNÖ <i>9981-1700</i>			
PNP Changeover		SJ1,5-M8EB45-DPA	SJ1,5W-M8EB45-DPA	SJ2,5-M8EN45-DPA
NPN Changeover		SJ1,5-M8EB45-DNA	SJ1,5W-M8EB45-DNA	SJ2,5-M8EN45-DNA
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 2,4 \text{ V}$	$\leq 1,0 \text{ V}$	$\leq 1,0 \text{ V}$	$\leq 1,0 \text{ V}$
Max. Load Current I_f	200 mA	200 mA	200 mA	200 mA
Off-State Current I_f	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakage Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	2500 Hz	2000 Hz	2000 Hz	2000 Hz
Hysteresis H	typ. $5 \% \leq 10 \%$	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$
Operating Temperature T_a	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$	$-25^\circ\text{C} \dots +70^\circ\text{C}$
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 1,0 \%$	$\leq 1,0 \%$	$\leq 1,0 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Stainless Steel	Stainless Steel	Stainless Steel
Front Cap	PCP	POM	POM	POM
Termination	Cable 3 x 0,14	Cable 3 x 0,15	Cable 3 x 0,15	Cable 4 x 0,15

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance

2,0mm

3,0 mm

2,0mm

3,0 mm

Mounting

Shielded

Non - Shielded

Shielded

Non - Shielded

Type

Type

Type

Type

PNP Normally Open

KJ2-M8MB50-DPS-V1
9981-1064

KJ3-M8MN50-DPS-V1
9981-1264

KJ2-M8MB58-DPS-V2
9981-1050

KJ3-M8MN58-DPS-V2
9981-1250

PNP Normally Close

KJ2-M8MB50-DPÖ-V1
9981-1464

KJ3-M8MN50-DPÖ-V1
9981-1664

KJ2-M8MB58-DPÖ-V2
9981-1450

KJ3-M8MN58-DPÖ-V2
9981-1650

NPN Normally Open

KJ2-M8MB50-DNS-V1
9981-1164

KJ3-M8MN50-DNS-V1
9981-1364

KJ2-M8MB58-DNS-V2
9981-1150

KJ3-M8MN58-DNS-V2
9981-1350

NPN Normally Close

KJ2-M8MB50-DNÖ-V1
9981-1564

KJ3-M8MN50-DNÖ-V1
9981-1764

KJ2-M8MB58-DNÖ-V2
9981-1550

KJ3-M8MN58-DNÖ-V2
9981-1750

PNP Changeover

NPN Changeover

Operating Voltage U_b

10 - 30 V DC

10 - 30 V DC

10 - 30 V DC

10 - 30V DC

Ripple Voltage U_b

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

Voltage Drop U_d

$\leq 1,0 \text{ V}$

$\leq 2,4 \text{ V}$

$\leq 2,4 \text{ V}$

$\leq 2,4 \text{ V}$

Max. Load Current I_o

200 mA

200 mA

200 mA

200 mA

Off-State Current I_o

$\leq 10 \text{ mA}$

$\leq 10 \text{ mA}$

$\leq 10 \text{ mA}$

$\leq 10 \text{ mA}$

Leakge Current I_r

$\leq 10 \mu\text{A}$

$\leq 10 \mu\text{A}$

$\leq 10 \mu\text{A}$

$\leq 10 \mu\text{A}$

Switching Frequency f

3000 Hz

2500 Hz

3000 Hz

2500 Hz

Hysteresis H

typ. $5 \% \leq 10 \%$

typ. $5 \% \leq 10 \%$

typ. $5 \% \leq 10 \%$

typ. $5 \% \leq 10 \%$

Operating Temperature T_a

$-25^\circ\text{C} \dots +70^\circ\text{C}$

$-25^\circ\text{C} \dots +70^\circ\text{C}$

$-25^\circ\text{C} \dots +70^\circ\text{C}$

$-25^\circ\text{C} \dots +70^\circ\text{C}$

Temperature Drift

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

Repeat Accuracy R

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

Protection Class

IP 67

IP 67

IP 67

IP 67

Switching State

LED

LED

LED

LED

EMC-Standard

IEC 60947-5-2

IEC 60947-5-2

IEC 60947-5-2

IEC 60947-5-2

Housing Material

Brass Nickel-Plated

Brass Nickel-Plated

Brass Nickel-Plated

Brass Nickel-Plated

Front Cap

PCP

PCP

PCP

PCP

Termination

M8 3-pol. Connector

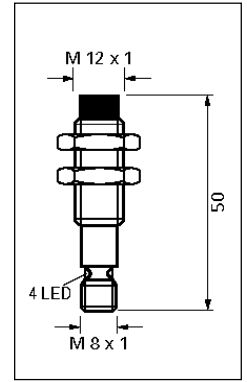
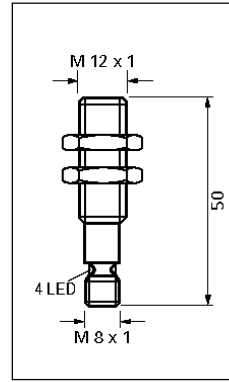
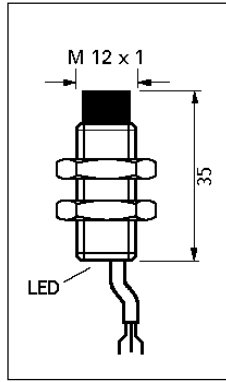
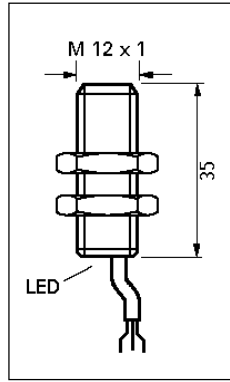
M8 3-pol. Connector

M12 4-pol. Connector

M12 4-pol. Connector

More special versions by separate inquiries!

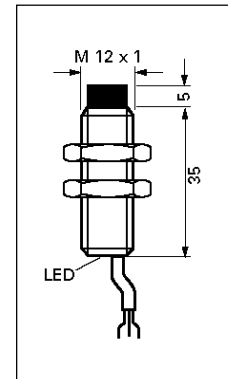
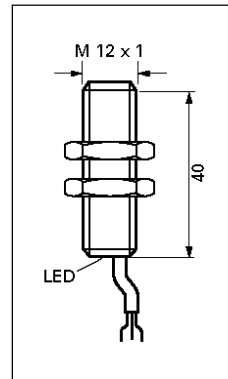
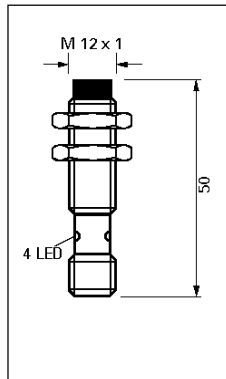
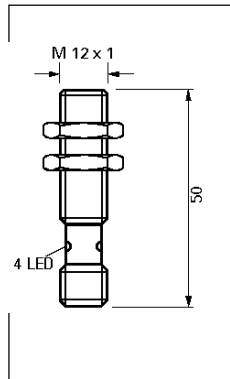
Connection and Termination picture at page 3.



Switching Distance	2,0 mm	4,0 mm	2,0mm	4,0 mm
Mounting	Shielded	Non - Shielded	Shielded	Non - Shielded
	Type	Type	Type	Type
PNP Normally Open	KJ2-M12MB35-DPS 9982-2000	KJ4-M12MN35-DPS 9982-2200	KJ2-M12MB50-DPS-V1 9982-2064	KJ4-M12MN50-DPS-V1 9982-2264
PNP Normally Close				
NPN Normally Open	KJ2-M12MB35-DNS 9982-2100	KJ4-M12MN35-DNS 9982-2300	KJ2-M12MB50-DNS-V1 9982-2164	KJ4-M12MN50-DNS-V1 9982-2364
NPN Normally Close				
PNP Changeover				
NPN Changeover				
Operating Voltage U_b	18 - 30 V DC	18 - 30 V DC	18 - 30 V DC	18 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 1,5 \text{ V}$	$\leq 1,5 \text{ V}$	$\leq 1,5 \text{ V}$	$\leq 1,5 \text{ V}$
Max. Load Current I_o	120 mA	120 mA	120 mA	120 mA
Off-State Current I_o	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	2000 Hz	1000 Hz	2000 Hz	1000 Hz
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$
Operating Temperature T_a	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	Cable 3 x 0,34	Cable 3 x 0,34	M8 3-pol. Connector	M8 3-pol. Connector

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance
Mounting

2,0 mm
Shielded

4,0 mm
Non - Shielded

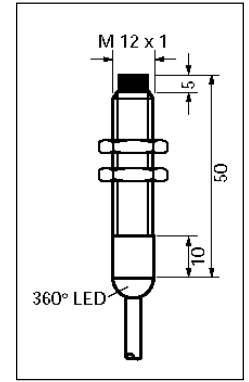
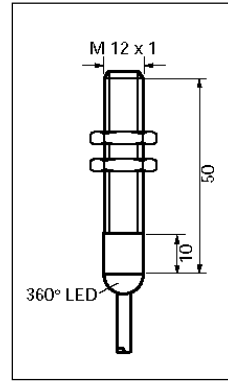
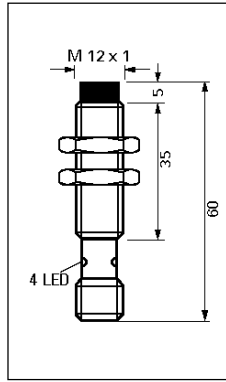
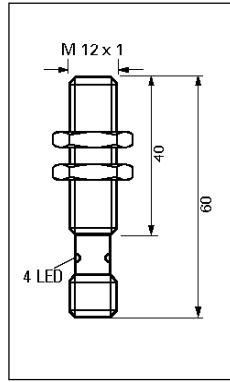
2,0mm
Shielded

4,0 mm
Non - Shielded

	Type	Type	Type	Type
PNP Normally Open	KJ2-M12MB50-DPS-V2 9982-2065	KJ4-M12MN50-DPS-V2 9982-2265	KJ2-M12MB40-DPS 9962-4000	KJ4-M12MN40-DPS 9962-4200
PNP Normally Close				
NPN Normally Open	KJ2-M12MB50-DNS-V2 9982-2165	KJ4-M12MN50-DNS-V2 9982-2365	KJ2-M12MB40-DNS 9962-4100	KJ4-M12MN40-DNS 9962-4300
NPN Normally Close				
PNP Changeover				
NPN Changeover				
Operating Voltage U_b	18 - 30 V DC	18 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 1,5 \text{ V}$	$\leq 1,5 \text{ V}$	$\leq 1,5 \text{ V}$	$\leq 1,5 \text{ V}$
Max. Load Current I_o	120 mA	120 mA	200 mA	200 mA
Off-State Current I_o	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	2000 Hz	1000 Hz	2000 Hz	1000 Hz
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$
Operating Temperature T_{op}	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	M12 4-pol. Connector	M12 4-pol. Connector	Cable 3 x 0,34	Cable 3 x 0,34

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance
Mounting

2,0 mm
Shielded

4,0 mm
Non - Shielded

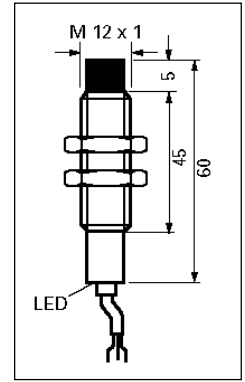
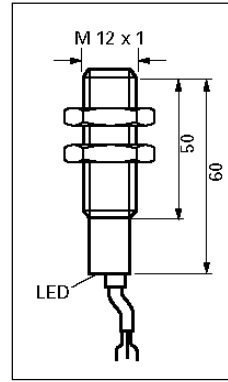
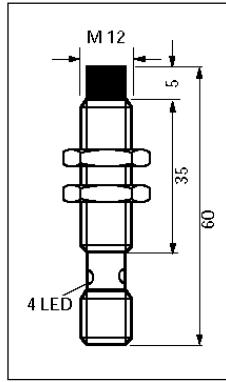
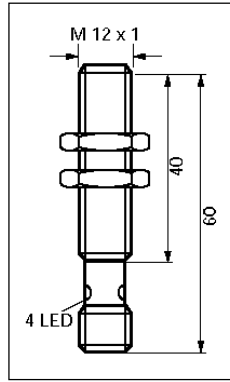
4,0mm
Shielded

4,0 mm
Non - Shielded

	Type	Type	Type	Type
PNP Normally Open	KJ2-M12MB60-DPS-V2 9962-4065	KJ4-M12MN60-DPS-V2 9962-4265	KJ4-M12MB50-DPS 9982-1000	KJ6-M12MN50-DPS 9982-1200
PNP Normally Close			KJ4-M12MB50-DPÖ 9982-1400	KJ6-M12MN50-DPÖ 9982-1600
NPN Normally Open	KJ2-M12MB60-DNS-V2 9962-4165	KJ4-M12MN60-DNS-V2 9962-4365	KJ4-M12MB50-DNS 9982-1100	KJ6-M12MN50-DNS 9982-1300
NPN Normally Close			KJ4-M12MB50-DNÖ 9982-1500	KJ6-M12MN50-DNÖ 9982-1700
PNP Changeover				
NPN Changeover				
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC	10 - 35 V DC	10 - 35 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$
Max. Load Current I_f	200 mA	200 mA	200 mA	200 mA
Off-State Current I_f	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	2000 Hz	1000 Hz	2500 Hz	2000 Hz
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$	typ. $5 \% \leq 10 \%$	typ. $5 \% \leq 10 \%$
Operating Temperature T_f	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	M12 4-pol. Connector	M12 4-pol. Connector	Cable 3 x 0,34	Cable 3 x 0,34

More special versions by separate inquiries!

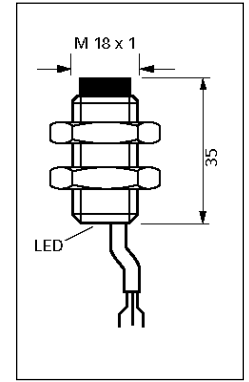
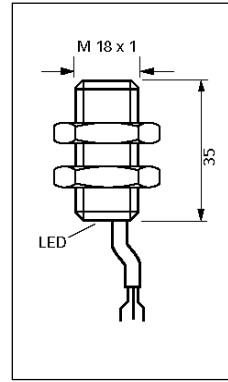
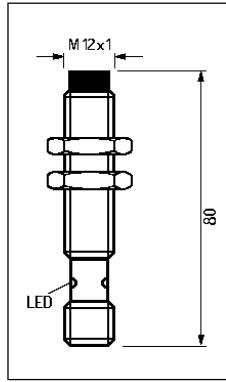
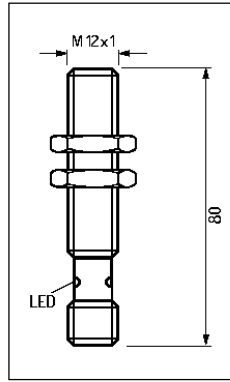
Connection and Termination picture at page 3.



Switching Distance	4,0 mm	6,0 mm	2,0mm	4,0 mm
Mounting	Shielded	Non - Shielded	Shielded	Non - Shielded
Type				
PNP Normally Open	KJ4-M12MB60-DPS-V2 <i>9982-1050</i>	KJ6-M12MN60-DPS-V2 <i>9982-1250</i>		
PNP Normally Close	KJ4-M12MB60-DPÖ-V2 <i>9982-1450</i>	KJ6-M12MN60-DPÖ-V2 <i>9982-1650</i>		
NPN Normally Open	KJ4-M12MB60-DNS-V2 <i>9982-1150</i>	KJ6-M12MN60-DNS-V2 <i>9982-1350</i>		
NPN Normally Close	KJ4-M12MB60-DNÖ-V2 <i>9982-1550</i>	KJ6-M12MN60-DNÖ-V2 <i>9982-1750</i>		
PNP Changeover			KJ2-M12BM60-DPA <i>9962-6200</i>	KJ4-M12MN60-DPA <i>9962-6300</i>
NPN Changeover				
Operating Voltage U_b	10 - 35 V DC	10 - 35 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Voltage Drop U_a	≤ 2,4 V	≤ 2,4 V	≤ 2,4 V	≤ 2,4 V
Max. Load Current I_f	200 mA	200 mA	200 mA	200 mA
Off-State Current I_o	≤ 10mA	≤ 10 mA	≤ 15 mA	≤ 15 mA
Leakge Current I_r	≤ 10 μ A	≤ 10 μ A	≤ 10 μ A	≤ 10 μ A
Switching Frequency f	2500 Hz	2000 Hz	2000 Hz	1000 Hz
Hysteresis H	typ. 5 % ≤ 10 %	typ. 5 % ≤ 10 %	≤ 15 %	≤ 15 %
Operating Temperature T_a	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Repeat Accuracy R	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	M12 4-pol. Connector	M12 4-pol. Connector	Cable 4 x 0,34	Cable 4 x 0,34

More special versions by separate inquiries!

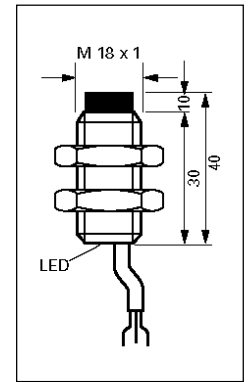
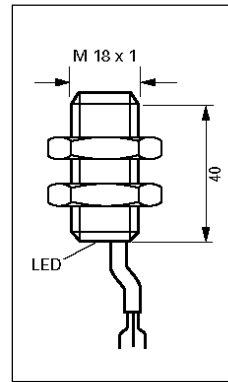
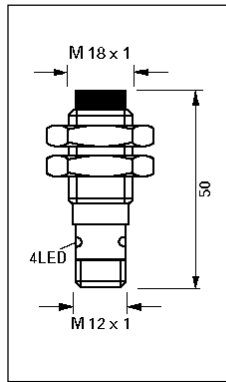
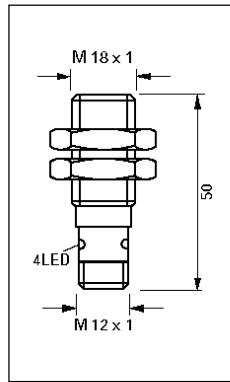
Connection and Termination picture at page 3.



Switching Distance	2,0mm	4,0 mm	5,0mm	8,0 mm
Mounting	Shielded	Non - Shielded	Shielded	Non - Shielded
	Type	Type	Type	Type
PNP Normally Open			KJ5-M18MB35-DPS <i>9984-2000</i>	KJ8-M18MN35-DPS <i>9984-2200</i>
PNP Normally Close				
NPN Normally Open			KJ5-M18MB35-DNS <i>9984-2100</i>	KJ8-M18MN35-DNS <i>9984-2300</i>
NPN Normally Close				
PNP Changeover	KJ2-M12MB80-DPA-V2 <i>9962-6265</i>	KJ4-M12MN80-DPA-V2 <i>9962-6365</i>		
NPN Changeover				
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC	18 - 30 V DC	18 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 1,5 \text{ V}$	$\leq 1,5 \text{ V}$
Max. Load Current I_o	200 mA	200 mA	120 mA	120 mA
Off-State Current I_o	$\leq 15 \text{ mA}$	$\leq 15 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	2000 Hz	1000 Hz	1000 Hz	500 Hz
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$
Operating Temperature T_j	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	M12 4-pol. Connector	M12 4-pol. Connector	Cable 3 x 0,34	Cable 3 x 0,34

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance
Mounting

5,0mm
Shielded

8,0 mm
Non - Shielded

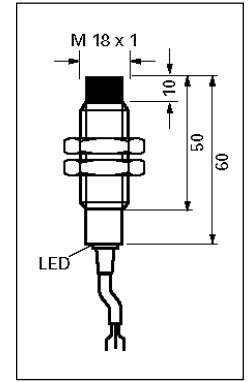
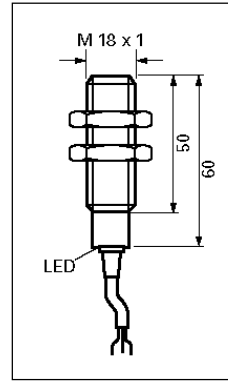
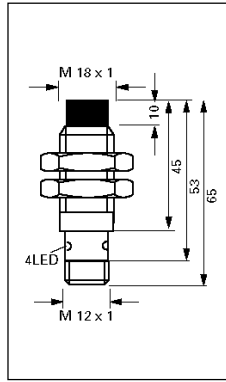
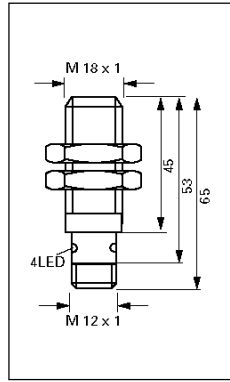
5,0mm
Shielded

8,0 mm
Non - Shielded

	Type	Type	Type	Type
PNP Normally Open	KJ5-M18MB50-DPS-V2 9984-2065	KJ8-M18MN50-DPS-V2 9984-2265	KJ5-M18MB40-DPS 9964-4000	KJ8-M18MN40-DPS 9964-4200
PNP Normally Close			KJ5-M18MB40-DPÖ 9964-4400	KJ8-M18MN40-DPÖ 9964-4600
NPN Normally Open	KJ5-M18MB50-DNS-V2 9984-2165	KJ8-M18MN50-DNS-V2 9984-2365	KJ5-M18MB40-DNS 9964-4100	KJ8-M18MN40-DNS 9964-4300
NPN Normally Close			KJ5-M18MB40-DNÖ 9964-4500	KJ8-M18MN40-DNÖ 9964-4700
PNP Changeover				
NPN Changeover				
Operating Voltage U_b	18 - 30 V DC	18 - 30 V DC	18 - 30 V DC	18 - 30 V DC
Ripple Voltage U_b	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Voltage Drop U_d	≤ 1,5 V	≤ 1,5 V	≤ 1,5 V	≤ 1,5 V
Max. Load Current I_o	120 mA	120 mA	120 mA	120 mA
Off-State Current I_o	≤ 10 mA	≤ 10 mA	≤ 10 mA	≤ 10 mA
Leakge Current I_r	≤ 10 µA	≤ 10 µA	≤ 10 µA	≤ 10 µA
Switching Frequency f	1000 Hz	500 Hz	1000 Hz	500 Hz
Hysteresis H	≤ 15 %	≤ 15 %	≤ 15 %	≤ 15 %
Operating Temperature T_o	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Repeat Accuracy R	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	M12 4-pol. Connector	M12 4-pol. Connector	Cable 3 x 0,34	Cable 3 x 0,34

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance
Mounting

5,0 mm
Shielded

8,0 mm
Non - Shielded

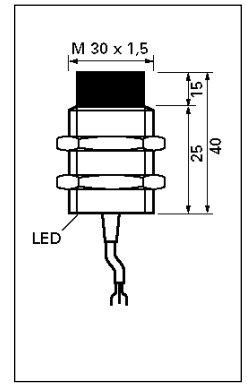
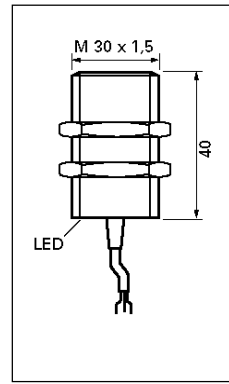
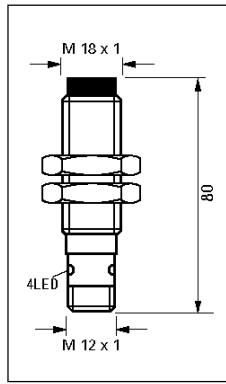
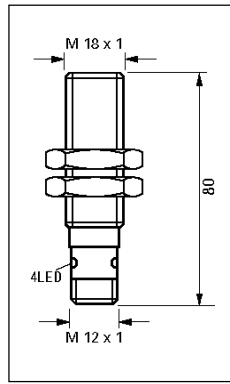
5,0mm
Shielded

4,0 mm
Non - Shielded

	Type	Type	Type	Type
PNP Normally Open	KJ5-M18MB65-DPS-V2 <i>9964-4065</i>	KJ8-M18MN65-DPS-V2 <i>9964-4265</i>		
PNP Normally Close	KJ5-M18MB65-DPÖ-V2 <i>9964-4465</i>	KJ8-M18MN65-DPÖ-V2 <i>9964-4665</i>		
NPN Normally Open	KJ5-M18MB65-DNS-V2 <i>9964-4165</i>	KJ8-M18MN65-DNS-V2 <i>9964-4365</i>		
NPN Normally Close	KJ5-M18MB65-DNÖ-V2 <i>9964-4565</i>	KJ8-M18MN65-DNÖ-V2 <i>9964-4765</i>		
PNP Changeover			KJ5-M18MB60-DPA <i>9964-6200</i>	KJ8-M18MN60-DPA <i>9964-6300</i>
NPN Changeover				
Operating Voltage U_b	10 - 30V DC	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$
Max. Load Current I_f	200 mA	200 mA	200 mA	200 mA
Off-State Current I_o	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 15 \text{ mA}$	$\leq 15 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	1000 Hz	500 Hz	1000 Hz	500 Hz
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$
Operating Temperature T_f	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	M12 4-pol. Connector	M12 4-pol. Connector	Cable 4 x 0,34	Cable 4 x 0,34

More special versions by separate inquiries!

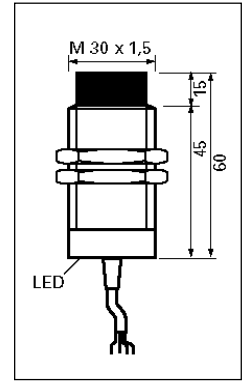
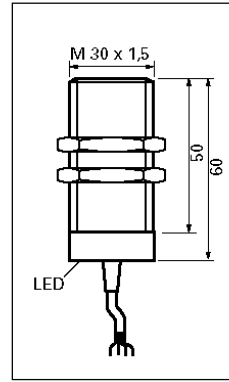
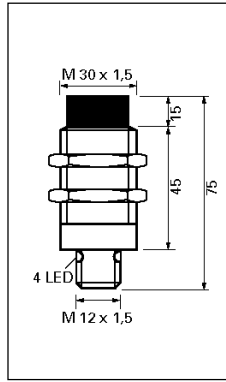
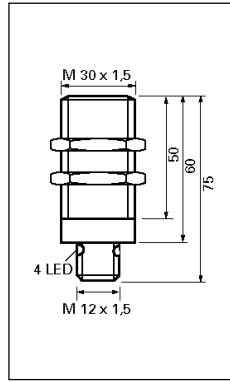
Connection and Termination picture at page 3.



Switching Distance	5,0 mm	8,0 mm	10,0mm	15,0 mm
Mounting	Shielded	Non - Shielded	Shielded	Non - Shielded
Type	Type	Type	Type	Type
PNP Normally Open			KJ10-M30MB40-DPS 9966-4000	KJ15-M30MN40-DPS 9966-4200
PNP Normally Close			KJ10-M30MB40-DPÖ 9966-4400	KJ15-M30MN40-DPÖ 9966-4600
NPN Normally Open			KJ10-M30MB40-DNS 9966-4100	KJ15-M30MN40-DNS 9966-4300
NPN Normally Close			KJ10-M30MB40-DNÖ 9966-4500	KJ15-M30MN40-DNÖ 9966-4700
PNP Changeover	KJ5-M18MB80-DPA-V2 9964-6265	KJ5-M18MN80-DPA-V2 9964-6365		
NPN Changeover				
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Voltage Drop U_d	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$
Max. Load Current I_o	200 mA	200 mA	200 mA	200 mA
Off-State Current I_o	$\leq 10\text{mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$
Switching Frequency f	1000 Hz	500 Hz	500 Hz	300 Hz
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$	$\leq 15 \%$
Operating Temperature T_o	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +70°C
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$	$\leq 10 \%$
Protection Class	IP 67	IP 67	IP 67	IP 67
Switching State	LED	LED	LED	LED
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated	Brass Nickel-Plated
Front Cap	PCP	PCP	PCP	PCP
Termination	M12 4-pol. Connector	M12 4-pol. Connector	Cable 3 x 0,34	Cable 3 x 0,34

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance

10,0 mm

15,0 mm

10,0mm

15,0 mm

Mounting

Shielded

Non - Shielded

Shielded

Non - Shielded

Type

Type

Type

Type

PNP Normally Open

KJ10-M30MB75-DPS-V2
9966-4065

KJ15-M30MN75-DPS-V2
9966-4265

PNP Normally Close

KJ10-M30MB75-DPÖ-V2
9966-4465

KJ15-M30MN75-DPÖ-V2
9966-4665

NPN Normally Open

KJ10-M30MB75-DNS-V2
9966-4165

KJ15-M30MN75-DNS-V2
9966-4365

NPN Normally Close

KJ10-M30MB75-DNÖ-V2
9966-4565

KJ15-M30MN75-DNÖ-V2
9966-4765

PNP Changeover

KJ10-M30MB60-DPA
9966-6200

KJ10-M30MN60-DPA
9966-6300

NPN Changeover

Operating Voltage U_b

10 - 30 V DC

10 - 30 V DC

10 - 30 V DC

10 - 30 V DC

Ripple Voltage U_b

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

Voltage Drop U_d

$\leq 2,4 \text{ V}$

$\leq 2,4 \text{ V}$

$\leq 2,4 \text{ V}$

$\leq 2,4 \text{ V}$

Max. Load Current I_o

200 mA

200 mA

200 mA

200 mA

Off-State Current I_o

$\leq 10 \text{ mA}$

$\leq 10 \text{ mA}$

$\leq 15 \text{ mA}$

$\leq 15 \text{ mA}$

Leakge Current I_r

$\leq 10 \mu\text{A}$

$\leq 10 \mu\text{A}$

$\leq 10 \mu\text{A}$

$\leq 10 \mu\text{A}$

Switching Frequency **f**

500 Hz

300 Hz

500 Hz

300 Hz

Hysteresis H

$\leq 15 \%$

$\leq 15 \%$

$\leq 15 \%$

$\leq 15 \%$

Operating Temperature T_a

-25°C ... +70°C

-25°C ... +70°C

-25°C ... +70°C

-25°C ... +70°C

Temperature Drift

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

Repeat Accuracy R

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

$\leq 10 \%$

Protection Class

IP 67

IP 67

IP 67

IP 67

Switching State

LED

LED

LED

LED

EMC-Standard

IEC 60947-5-2

IEC 60947-5-2

IEC 60947-5-2

IEC 60947-5-2

Housing Material

Brass Nickel-Plated

Brass Nickel-Plated

Brass Nickel-Plated

Brass Nickel-Plated

Front Cap

PCP

PCP

PCP

PCP

Termination

M12 4-pol. Connector

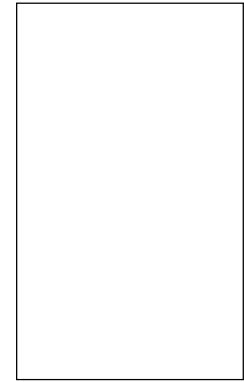
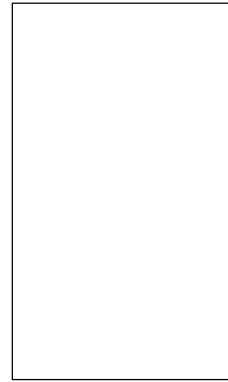
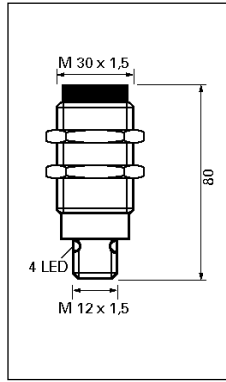
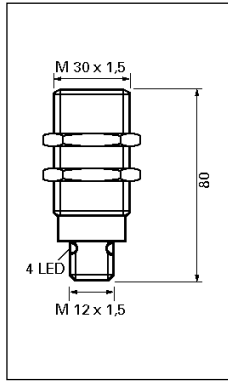
M12 4-pol. Connector

Cable 4 x 0,34

Cable 4 x 0,34

More special versions by separate inquiries!

Connection and Termination picture at page 3.



Switching Distance	10,0mm	15,0 mm		
Mounting	Shielded	Non - Shielded		
	Type	Type		
PNP Normally Open				
PNP Normally Close				
NPN Normally Open				
NPN Normally Close				
PNP Changeover	KJ10-M30MB80-DPA-V2 9966-6265	KJ10-M30MN80-DPA-V2 9966-6365		
NPN Changeover				
Operating Voltage U_b	10 - 30 V DC	10 - 30 V DC		
Ripple Voltage U_b	$\leq 10 \%$	$\leq 10 \%$		
Voltage Drop U_d	$\leq 2,4 \text{ V}$	$\leq 2,4 \text{ V}$		
Max. Load Current I_o	200 mA	200 mA		
Off-State Current I_o	$\leq 15 \text{ mA}$	$\leq 15 \text{ mA}$		
Leakge Current I_r	$\leq 10 \mu\text{A}$	$\leq 10 \mu\text{A}$		
Switching Frequency f	500 Hz	300 Hz		
Hysteresis H	$\leq 15 \%$	$\leq 15 \%$		
Operating Temperature T	-25°C ... +70°C	-25°C ... +70°C		
Temperature Drift	$\leq 10 \%$	$\leq 10 \%$		
Repeat Accuracy R	$\leq 10 \%$	$\leq 10 \%$		
Protection Class	IP 67	IP 67		
Switching State	LED	LED		
EMC-Standard	IEC 60947-5-2	IEC 60947-5-2		
Housing Material	Brass Nickel-Plated	Brass Nickel-Plated		
Front Cap	PCP	PCP		
Termination	M12 4-pol. Connector	M12 4-pol. Connector		

More special versions by separate inquiries!

Connection and Termination picture at page 3.

A large empty rectangular box with a black border, intended for taking notes.

A large empty rectangular box with a black border, intended for taking notes.

Type	Art-Nr.	Site	Type	Art-Nr.	Site
G6,5					
SJ1,5-G6,5EB30-DPA	08313651564	4	KJ4-M12MN50-DPS-V1	08317822264	9
SJ1,5-G6,5EB30-DNA	08313651554	4	KJ4-M12MN50-DNS-V1	08317822364	9
SJ1,5W-G6,5EB30-DPA	08313651566	4	KJ4-M12MN50-DPS-V2	08317822265	10
SJ1,5W-G6,5EB30-DNA	08313651556	4	KJ4-M12MN50-DNS-V2	08317822365	10
KJ2-G6,8MB30-DPS	08317816000	4	M12		
KJ2-G6,5MB50-DPS-V1	08317816064	5	KJ4-M12MN60-DPA	08317626300	12
SJ2,5-G6,5EN45-DPA	08313650264	5	KJ4-M12MN60-DPS-V2	08317624265	11
SJ2,5-G6,5EN45-DNA	08313650254	5	KJ4-M12MN60-DNS-V2	08317624365	11
KJ3-G6,5MN33-DPS	08317816200	4	KJ4-M12MB60-DPS-V2	08317821050	12
KJ3-G6,5MN53-DPS-V1	08317816264	5	KJ4-M12MB60-DPÖ-V2	08317821450	12
M8					
KJ1,5-M8MB40-DPS	08317610200	5	KJ4-M12MB60-DNS-V2	08317821150	12
KJ1,5-M8MB40-DNS	08317610300	5	KJ4-M12MB60-DNÖ-V2	08317821550	12
SJ1,5-M8EB45-DPA	08313081560	7	KJ4-M12MN80-DPA-V2	08317626365	13
SJ1,5-M8EB45-DNA	08313081550	7	KJ6-M12MB50-DPS	08317821200	11
SJ1,5W-M8EB45-DPA	08313081566	7	KJ6-M12MB50-DPÖ	08317821600	11
SJ1,5W-M8EB45-DNA	08313081556	7	KJ6-M12MB50-DNS	08317821300	11
KJ1,5-M8MB50-DPS-V1	08317610264	6	KJ6-M12MB50-DNÖ	08317821700	11
KJ1,5-M8MB50-DNS-V1	08317610364	6	KJ6-M12MB60-DPS-V2	08317821250	12
KJ2-M8MB33-DPS	08317811000	6	KJ6-M12MB60-DPÖ-V2	08317821650	12
KJ2-M8MB33-DPÖ	08317811400	6	KJ6-M12MB60-DNS-V2	08317821350	12
KJ2-M8MB33-DNS	08317811100	6	KJ6-M12MB60-DNÖ-V2	08317821750	12
KJ2-M8MB33-DNÖ	08317811500	6	M18		
KJ2-M8MN40-DPS	08317610400	6	KJ5-M18MB35-DPS	08317842000	13
KJ2-M8MN40-DNS	08317610500	6	KJ5-M18MB35-DNS	08317842100	13
SJ2-M8EN45-DPA	08313082560	7	KJ5-M18MB40-DPS	08317644000	14
SJ2-M8EN45-DNA	08313082550	7	KJ5-M18MB40-DPÖ	08317644400	14
KJ2-M8MN50-DPS-V1	08317610464	6	KJ5-M18MB40-DNS	08317644100	14
KJ2-M8MN50-DNS-V1	08317610564	6	KJ5-M18MB40-DNÖ	08317644500	14
KJ2-M8MB50-DPS-V1	08317811064	8	KJ5-M18MB50-DPS-V2	08317842065	14
KJ2-M8MB50-DPÖ-V1	08317811464	8	KJ5-M18MB50-DNS-V2	08317842165	14
KJ2-M8MB50-DNS-V1	08317811164	8	KJ5-M18MB60-DPA	08317646200	15
KJ2-M8MB50-DNÖ-V1	08317811564	8	KJ5-M18MB65-DPS-V2	08317644065	15
KJ2-M8MB58-DPS-V2	08317811050	8	KJ5-M18MB65-DPÖ-V2	08317644465	15
KJ2-M8MB58-DPÖ-V2	08317811450	8	KJ5-M18MB65-DNS-V2	08317644165	15
KJ2-M8MB58-DNS-V2	08317811150	8	KJ5-M18MB65-DNÖ-V2	08317644565	15
KJ2-M8MB58-DNÖ-V2	08317811550	8	KJ5-M18MB80-DPA-V2	08317646265	16
KJ3-M8MN33-DPS	08317811200	7	KJ8-M18MN35-DPS	08317842200	13
KJ3-M8MN33-DPÖ	08317811600	7	KJ8-M18MN35-DNS	08317842300	13
KJ3-M8MN33-DNS	08317811300	7	KJ8-M18MN40-DPS	08317644200	14
KJ3-M8MN33-DNÖ	08317811700	7	KJ8-M18MN40-DPÖ	08317644600	14
KJ3-M8MN50-DPS-V1	08317811264	8	KJ8-M18MN40-DNS	08317644300	14
KJ3-M8MN50-DPÖ-V1	08317811664	8	KJ8-M18MN40-DNÖ	08317644700	14
KJ3-M8MN50-DNS-V1	08317811364	8	KJ8-M18MN50-DPS-V2	08317842265	14
KJ3-M8MN50-DNÖ-V1	08317811764	8	KJ8-M18MN50-DNS-V2	08317842365	14
KJ3-M8MN58-DPS-V2	08317811250	8	KJ8-M18MN60-DPA	08317646300	15
KJ3-M8MN58-DPÖ-V2	08317811650	8	KJ8-M18MN65-DPS-V2	08317644265	15
KJ3-M8MN58-DNS-V2	08317811350	8	KJ8-M18MN65-DPÖ-V2	08317644665	15
KJ3-M8MN58-DNÖ-V2	08317811750	8	KJ8-M18MN65-DNS-V2	08317644365	15
M12					
KJ2-M12MB35-DPS	08317822000	9	KJ8-M18MN65-DNÖ-V2	08317644765	15
KJ2-M12MB35-DNS	08317822100	9	KJ8-M18MN80-DPA-V2	08317646365	16
KJ2-M12MB40-DPS	08317624000	10	M30		
KJ2-M12MB40-DNS	08317624100	10	KJ10-M30MB40-DPS	08317664000	16
KJ2-M12MB50-DPS-V1	08317822064	9	KJ10-M30MB40-DPÖ	08317664400	16
KJ2-M12MB50-DNS-V1	08317822164	9	KJ10-M30MB40-DNS	08317664100	16
KJ2-M12MB50-DPS-V2	08317822065	10	KJ10-M30MB40-DNÖ	08317664500	16
KJ2-M12MB50-DNS-V2	08317822165	10	KJ10-M30MB60-DPA	08317666200	17
KJ2-M12MB60-DPA	08317626200	12	KJ10-M30MB75-DPS-V2	08317664065	17
KJ2-M12MB60-DPS-V2	08317624065	11	KJ10-M30MB75-DPÖ-V2	08317664465	17
KJ2-M12MB60-DNS-V2	08317624165	11	KJ10-M30MB75-DNS-V2	08317664165	17
KJ2-M12MB80-DPA-V2	08317626265	13	KJ10-M30MB75-DNÖ-V2	08317664565	17
KJ4-M12MN35-DPS	08317822200	9	KJ10-M30MB80-DPA-V2	08317666265	18
KJ4-M12MN35-DNS	08317822300	9	KJ15-M30MN40-DPS	08317664200	16
KJ4-M12MN40-DPS	08317624200	10	KJ15-M30MN40-DPÖ	08317664600	16
KJ4-M12MN40-DNS	08317624300	10	KJ15-M30MN40-DNS	08317664300	16
KJ4-M12MB50-DPS	08317821000	11	KJ15-M30MN40-DNÖ	08317664700	16
KJ4-M12MB50-DPÖ	08317821400	11	KJ15-M30MN60-DPA	08317666300	17
KJ4-M12MB50-DNS	08317821100	11	KJ15-M30MN75-DPS-V2	08317664265	17
KJ4-M12MB50-DNÖ	08317821500	11	KJ15-M30MN75-DPÖ-V2	08317664665	17
M12					
KJ2-M12MB35-DPS	08317822000	9	KJ15-M30MN75-DNS-V2	08317664365	17
KJ2-M12MB35-DNS	08317822100	9	KJ15-M30MN75-DNÖ-V2	08317664765	17
KJ2-M12MB40-DPS	08317624000	10	KJ15-M30MN80-DPA-V2	08317666365	18
KJ2-M12MB40-DNS	08317624100	10			