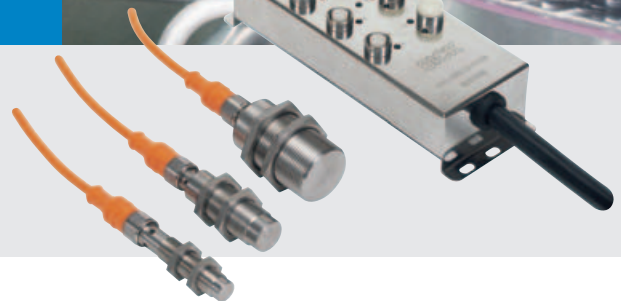




## INOX series

Sensing solutions in IP 69K, V4A and with triple sensing distance for the food and beverage industries



*Stocked, Distributed, and Supported by*

***SENSORS***  
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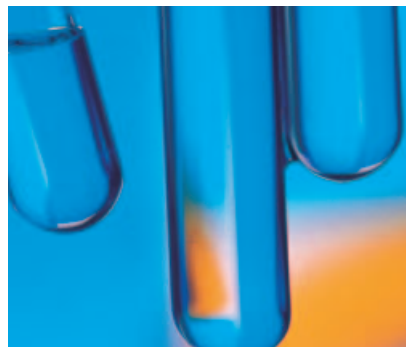
507 Kelsey Street • Delano, MN 55328  
Phone 763-972-1040 Fax 763-972-1041  
Toll Free 888-920-0939  
Sensorsincorporated.com

**SICK**  
Sensor Intelligence.

## CIP-resistant – from sensor to control

Strict hygiene requirements make the food and beverage industries one of the toughest environments for industrial sensors. The requirement profile encompasses not only the process temperatures and pressures in production, but also uncompromising cleaning regimes.



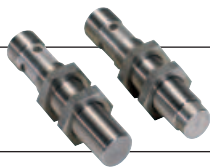


# IP 69K

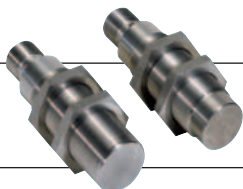
Cleaning in Place (CIP) and high-pressure cleaners with aggressive detergents, acids and alkaline solutions challenge sensors in the extreme. The INOX series, with IP 69K protection, withstands even the hardest tests.

High-pressure cleaning with 100 bar jets over short distances, abrupt temperature changes and corrosive media cannot affect the housing, plug connectors or connection boxes.

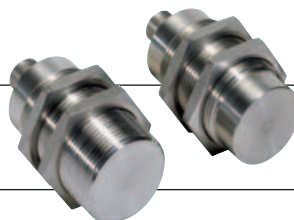
IM 12



IM 18



IM 30



SNL



# V4A + PVC

The mechanical load capacity of a sensor and the resistance to water pressure and aggressive media entirely depend on the selection of the housing and sealing materials. The INOX series features a fully sealed sensor housing in V4A (1.4404, 316L) stainless steel.

The food-compliant stainless steel screw connections and housings in V4A (1.4404, 316L), as well as contact carriers and moulding in PVC and fully sealed-in electronics, ensure maximum operational safety.

# TRIPLE

In food production, the location of the sensor and also the positioning of the objects to be detected cannot always be reliably guaranteed. With the triple sensing distance of up to 40 mm for the IM 30, the INOX series provides the flexibility required in industry.

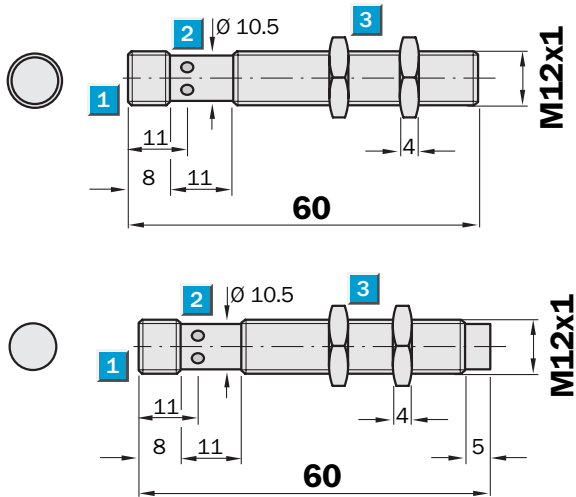
Additional benefits are provided by the connection box suitable for up to 16 sensors, substantially reducing the wiring requirements for systems equipped with large numbers of sensors. This makes for an effective solution in terms of both convenience and costs.

**Sensing range**  
6 / 10 mm

Inductive sensor

- Triple sensing range
- Robust stainless steel V4A, 316L one piece housing, with fine thread M12 x 1 mm
- Enclosure rating IP 69K + IP 68
- Especially suitable for use in the food and beverage sector
- Visual installation support

Dimensional drawing

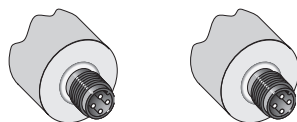


- 1 Connection
- 2 Display LED
- 3 Fastening nuts (2 x); width across 17, stainless steel V4A, 316L

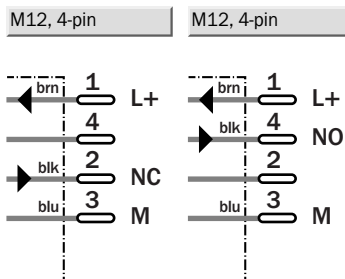


Connection type

IM12-06BPO-NC1	IM12-06BNS-NC1
	IM12-06BPS-NC1
	IM12-10NNS-NC1
	IM12-10NPS-NC1



**Accessories**  
Connector, M12, 4-pin



Technical data		IM12-	06BNS-NC1	06BPO-NC1	06BPS-NC1	10NNS-NC1	10NPS-NC1						
<b>Sensing range <math>S_n</math></b>	6 mm												
	10 mm												
<b>Electrical configuration</b>	DC 3-wire												
<b>Supply voltage <math>U_V</math></b>	DC 10 ... 30 V												
Ripple $U_{pp}$	$\leq 20\%$ <sup>1)</sup>												
Voltage drop $U_d$	$\leq 2\text{ V}$ <sup>2)</sup>												
Power consumption	$\leq 12\text{ mA}$ <sup>3)</sup>												
<b>Continuous current <math>I_a</math></b>	$\leq 200\text{ mA}$												
Time delay before availability $t_v$	$\leq 10\text{ ms}$												
Hysteresis H, of $s_r$	1 ... 15 %												
Repeatability R	$\leq 5\%$ ( $U_b$ and $T_a$ constant) <sup>4)</sup>												
Temperature drift, of $s_r$	$\leq 10\%$												
EMC	According to EN 60947-5-2												
<b>Switching output</b>	NPN												
	PNP												
<b>Output function</b>	Normally open <sup>5)</sup>												
	Normally closed <sup>5)</sup>												
<b>Installation</b>	Flush												
	Non-flush <sup>6)</sup>												
<b>Connection type</b>	Connector, M12, 4-pin												
<b>Enclosure rating</b>	IP 69K + IP 68 <sup>7)</sup>												
Max. switching frequency	400 Hz												
Dimensions	M12 x 1 <sup>8)</sup>												
<b>Short circuit protection</b>	✓ <sup>9)</sup>												
<b>Reverse polarity protection</b>	✓												
<b>Power-up pulse suppression</b>	✓												
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm <sup>10)</sup>												
Ambient temperature $T_a$	-25 °C ... +85 °C												
<b>Housing material</b>	Edelstahl V4A 1.4404, 316L												
Tightening torque	10 Nm												

<sup>1)</sup> of  $U_b$   
<sup>2)</sup> at  $I_a$  max  
<sup>3)</sup> Without load

<sup>4)</sup> of  $s_r$   
<sup>5)</sup> Other output functions available on request.

<sup>6)</sup> See installation notes  
<sup>7)</sup> According to EN 60529  
<sup>8)</sup> Thread diameter x pitch (mm)

<sup>9)</sup> (pulsed)  
<sup>10)</sup> According to IEC 60 947-5-2/7.4

#### Correction factors:

	Flush installation:	Non-flush installation:
Steel (ST37)	1.0	1.0
Copper	0.85	0.8
Aluminium	1.0	1.0
Brass	1.3	1.3
Stainless steel	0.45 / 0.9	0.5 / 0.9

1 mm / 2 mm thick

#### Order information

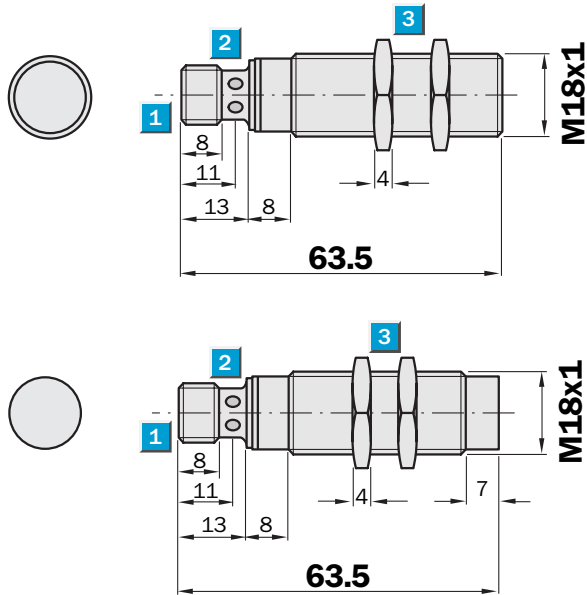
Type	Order No.
IM12-06BNS-NC1	6 027 573
IM12-06BPO-NC1	6 027 574
IM12-06BPS-NC1	6 027 572
IM12-10NNS-NC1	6 027 576
IM12-10NPS-NC1	6 027 575

**Sensing range**  
10 / 20 mm

Inductive sensor

- Triple sensing range
- Robust stainless steel V4A, 316L one piece housing, with fine thread M18 x 1 mm
- Enclosure rating IP 69K + IP 68
- Especially suitable for use in the food and beverage sector
- Visual installation support

Dimensional drawing

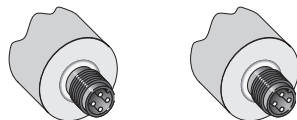


- 1 Connection
- 2 Display LED
- 3 Fastening nuts (2x); width across 24, stainless steel V4A, 316L



Connection type

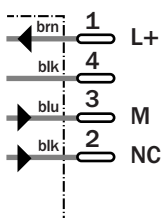
IM18-10BPO-NC1	IM18-10BNS-NC1
	IM18-10BPS-NC1
	IM18-20NNS-NC1
	IM18-20NPS-NC1



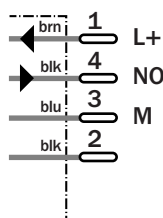
Accessories

Connector, M12, 4-pin

M12, 4-pin



M12, 4-pin



Technical data		IM18-	10BNS-NC1	10BPO-NC1	10BPS-NC1	20NNS-NC1	20NPS-NC1						
<b>Sensing range <math>S_n</math></b>	10 mm												
	20 mm												
<b>Electrical configuration</b>	DC 3-wire												
<b>Supply voltage <math>U_V</math></b>	DC 10 ... 30 V												
Ripple $U_{pp}$	$\leq 20\%$ <sup>1)</sup>												
Voltage drop $U_d$	$\leq 2\text{ V}$ <sup>2)</sup>												
Power consumption	$\leq 12\text{ mA}$ <sup>3)</sup>												
<b>Continuous current <math>I_a</math></b>	$\leq 200\text{ mA}$												
Time delay before availability $t_v$	$\leq 10\text{ ms}$												
Hysteresis H, of $s_r$	1 ... 15 %												
Repeatability R	$\leq 5\%$ ( $U_b$ and $T_a$ constant) <sup>4)</sup>												
Temperature drift, of $s_r$	$\leq 10\%$												
EMC	According to EN 60947-5-2												
<b>Switching output</b>	NPN												
	PNP												
<b>Output function</b>	Normally open <sup>5)</sup>												
	Normally closed <sup>5)</sup>												
<b>Installation</b>	Flush												
	Non-flush <sup>6)</sup>												
<b>Connection type</b>	Connector, M12, 4-pin												
<b>Enclosure rating</b>	IP 69K + IP 68 <sup>7)</sup>												
Max. switching frequency	200 Hz												
Dimensions	M18 x 1 <sup>8)</sup>												
<b>Short circuit protection</b>	✓ <sup>9)</sup>												
<b>Reverse polarity protection</b>	✓												
<b>Power-up pulse suppression</b>	✓												
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm <sup>10)</sup>												
Ambient temperature $T_a$	-25 °C ... +85 °C												
<b>Housing material</b>	Edelstahl V4A 1.4404, 316L												
Tightening torque	50 Nm												

<sup>1)</sup> of  $U_b$   
<sup>2)</sup> at  $I_a$  max  
<sup>3)</sup> Without load  
<sup>4)</sup> of  $s_r$   
<sup>5)</sup> Other output functions available on request.  
<sup>6)</sup> See installation notes  
<sup>7)</sup> According to EN 60529  
<sup>8)</sup> Thread diameter x pitch (mm)  
<sup>9)</sup> (pulsed)  
<sup>10)</sup> According to IEC 60 947-5-2/7.4

**Correction factors:**

	Flush installation:	Non-flush installation:
Steel (ST37)	1.0	1.0
Copper	0.85	0.85
Aluminium	1.0	1.0
Brass	1.3	1.3
Stainless steel	0.4 / 0.8	0.4 / 0.8

1 mm / 2 mm thick

**Order information**

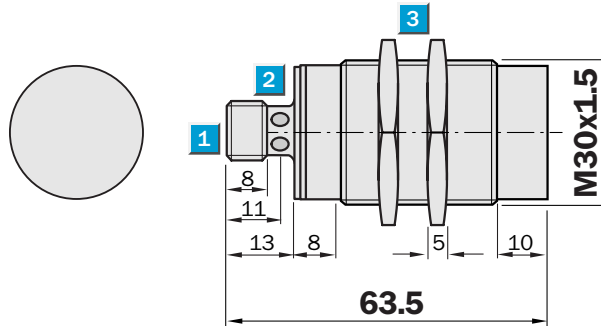
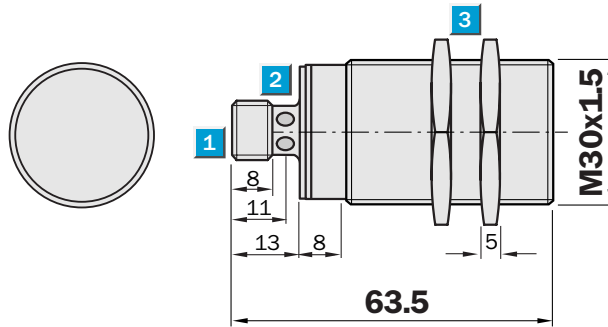
Type	Order No.
IM18-10BNS-NC1	6 027 578
IM18-10BPO-NC1	6 027 579
IM18-10BPS-NC1	6 027 577
IM18-20NNS-NC1	6 027 581
IM18-20NPS-NC1	6 027 580

**Sensing range**  
20 / 40 mm

Inductive sensor

- Triple sensing range
- Robust stainless steel V4A, 316L one piece housing, with fine thread M30 x 1.5 mm
- Enclosure rating IP 69K + IP 68
- Especially suitable for use in the food and beverage sector
- Visual installation support

Dimensional drawing

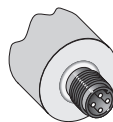


- 1 Connection
- 2 Display LED
- 3 Fastening nuts (2 x); width across 36, stainless steel V4A, 316L



Connection type

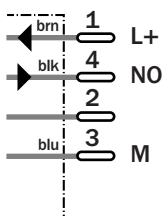
- IM30-20BNS-NC1
- IM30-20BPS-NC1
- IM30-40NNS-NC1
- IM30-40NPS-NC1



Accessories

Connector, M12, 4-pin

M12, 4-pin



Technical data		IM30-	20BNS-NC1	20BPS-NC1	40NNS-NC1	40NPS-NC1						
<b>Sensing range S<sub>n</sub></b>	20 mm											
	40 mm											
<b>Electrical configuration</b>	DC 3-wire											
<b>Supply voltage U<sub>v</sub></b>	DC 10 ... 30 V											
Ripple U <sub>pp</sub>	≤ 20 % <sup>1)</sup>											
Voltage drop U <sub>d</sub>	≤ 2 V <sup>2)</sup>											
Power consumption	≤ 12 mA <sup>3)</sup>											
<b>Continuous current I<sub>a</sub></b>	≤ 200 mA											
Time delay before availability t <sub>v</sub>	≤ 10 ms											
Hysteresis H, of s <sub>r</sub>	1 ... 15 %											
Repeatability R	≤ 5 % (U <sub>b</sub> and T <sub>a</sub> constant) <sup>4)</sup>											
Temperature drift, of s <sub>r</sub>	≤ 10 %											
EMC	According to EN 60947-5-2											
<b>Switching output</b>	NPN											
	PNP											
<b>Output function</b>	Normally open <sup>5)</sup>											
<b>Installation</b>	Flush											
	Non-flush <sup>6)</sup>											
<b>Connection type</b>	Connector, M12, 4-pin											
<b>Enclosure rating</b>	IP 69K + IP 68 <sup>7)</sup>											
Max. switching frequency	100 Hz											
Dimensions	M30 x 1.5 <sup>8)</sup>											
<b>Short circuit protection</b>	✓ <sup>9)</sup>											
<b>Reverse polarity protection</b>	✓											
<b>Power-up pulse suppression</b>	✓											
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm <sup>10)</sup>											
Ambient temperature T <sub>a</sub>	-25 °C ... +85 °C											
<b>Housing material</b>	Edelstahl V4A 1.4404, 316L											
Tightening torque	150 Nm											

<sup>1)</sup> of U<sub>b</sub>  
<sup>2)</sup> at I<sub>a</sub> max  
<sup>3)</sup> Without load  
<sup>4)</sup> of s<sub>r</sub>  
<sup>5)</sup> Other output functions available on request.  
<sup>6)</sup> See installation notes  
<sup>7)</sup> According to EN 60529  
<sup>8)</sup> Thread diameter x pitch (mm)  
<sup>9)</sup> (pulsed)  
<sup>10)</sup> According to IEC 60 947-5-2/7.4

**Correction factors:**

	Flush installation:	Non-flush installation:
Steel (ST37)	1.0	1.0
Copper	0.9	0.9
Aluminium	1.0	1.0
Brass	1.2	1.2
Stainless steel	0.5 / 0.9	- / 0.5
1 mm / 2 mm thick		

Order information	
Type	Order No.
IM30-20BNS-NC1	6 027 583
IM30-20BPS-NC1	6 027 582
IM30-40NNS-NC1	6 027 585
IM30-40NPS-NC1	6 027 584

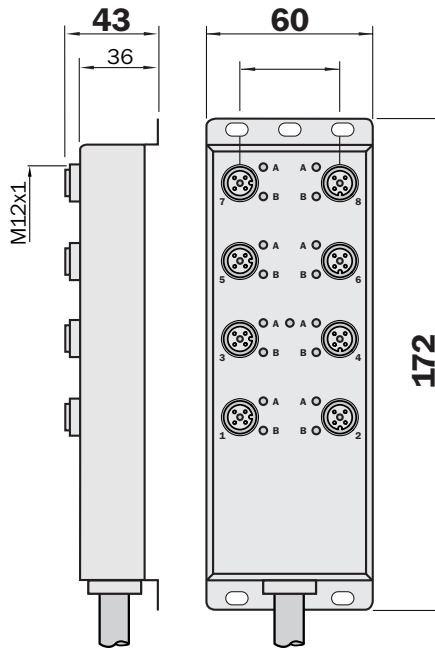
**"Food & Beverage"  
IP 69K, V4A**

Sensor connection box

- Enclosure rating IP 69K (only in fully locked position with its plugs or dust covers)
- Housing & thread material: stainless steel V4A
- Especially suitable for use in the food and beverage sector
- Improved resistance to chemicals, acids and cleaning agent

Dimensional drawings

SNL-08...



M12-Contacts	Wire colour	Signal/outlet
1	brown	+
3	blue	-
2	grey/pink	1
	red/blue	2
	white/green	3
	brown/green	4
	white/yellow	5
	yellow/brown	6
	white/grey	7
	grey/brown	8
4	white	1
	green	2
	yellow	3
	grey	4
	pink	5
	red	6
	black	7
	violet	8
5	green/yellow	PE

**Technical data**

<b>Temperature range</b>	0 °C ... +60 °C
<b>Materials</b>	
Housing	V4A-stainless steel
Moulded body	PVC
Contact	CuZn, pre-nickeled and 0.8 µm gold plated
Threaded sleeve	V4A-stainless steel
O-Ring	EPDM
<b>Mechanical data</b>	
Enclosure rating	IP 69K (only in fully locked position with its plugs)
<b>Electrical data</b>	
Contact resistance	≤ 5 mΩ
Nominal power	4 A per outlet/11 A max. total at 30 °C (refer to correction factors EN 60204-1)
Nominal voltage U <sub>b</sub>	10 ... 30 V DC
Reference voltage	32 V ~ eff.
Insulation resistance	> 10 <sup>9</sup> Ω
Pollution grade	2 acc. VDE 0110
Cable	PVC, colour black, 3 x 1.0 mm <sup>2</sup> /16 x 0.5 mm <sup>2</sup> (appropriate for drag cable use)
<b>Accessories</b>	4 dust covers for unused sockets

**Order information**

**Sensor connection box "Food & Beverage", IP 69K, V4A (1.4404/316 L), M12 x 1 mm (5-pin), 8 x female connector, type of connection, cable**

Type	Order no.	Connecting cable		
		Length [m]	Lead [mm <sup>2</sup> ]	Cable
SNL-08D12-KA05	6 027 586	5	3 x 1.0/16 x 0.5	PVC black
SNL-08D12-KA10	6 027 587	10	3 x 1.0/16 x 0.5	PVC black
SNL-08D12-KA15	6 027 588	15	3 x 1.0/16 x 0.5	PVC black

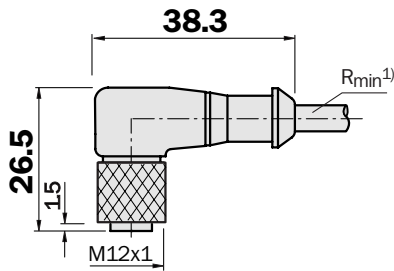
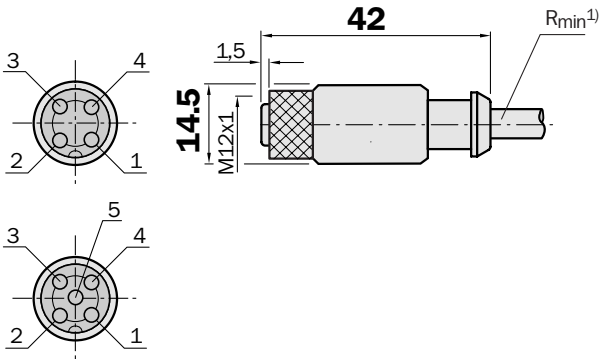
**Connecting cables  
"Food & Beverage"**

**Round connectors**

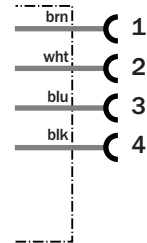
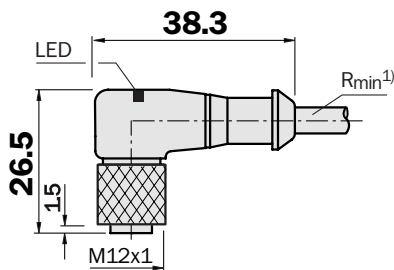
- Especially suitable for use in the food and beverage sector
- Gold plated pins
- Improved resistance to chemicals, acids and cleaning agent
- Enclosure rating IP 69K (only in fully locked position with its plugs)
- Stainless steel locking nut (V4A)

**Dimensional drawings**

DOL-12...



DOL-1204-L...



Contacts	Wire colour
1	brown
2	white
3	blue
4	black
5	grey



1) Minimum bend radius in dynamic use  
 $R_{min} = 20 \times \text{cable diameter}$

## Technical data

<b>Nominal voltage U<sub>b</sub></b>	250 V AC/300 V DC (M12, 4-pin-connector)
	30 V AC/36 V DC (M12, 5-pin-connector)
	10 ... 30 V DC (M12, LED-indicator)
<b>Contact resistance</b>	≤ 5 mΩ
<b>Nominal power</b>	4 A (CSA = 3 A)
<b>Testvoltage</b>	2.0 kV eff./60 s. (4-pin)
	1.5 kV eff./60 s. (5-pin)
<b>Insulation group</b>	C acc. VDE 0110
<b>Insulation resistance</b>	> 10 <sup>9</sup> Ω
<b>Temperature range</b>	In fixed position            -25 °C ... +90 °C
	In flexible motion            +5 °C ... +90 °C
<b>Bending radius</b>	> 10 x diameter of cable
<b>Contact</b>	CuZn, 0.3 μm gold plated
<b>Locking nut</b>	Stainless steel V4A
<b>Cable</b>	PVC, colour orange
<b>Conductor diameter</b>	4 x 0.25 mm <sup>2</sup>
	5 x 0.5 mm <sup>2</sup>
<b>Connector</b>	PVC, colour orange

## Order information

## Round connectors M12 connecting cable "Food &amp; Beverage"

Type	Order no.	Description	Contacts	Cable length [m]
DOL-1204-G02MN	6 028 128	Female connector straight	4	2
DOL-1204-G05MN	6 028 130	Female connector straight	4	5
DOL-1204-G10MN	6 028 132	Female connector straight	4	10
DOL-1204-G25MN	6 028 134	Female connector straight	4	25
DOL-1204-W02MN	6 028 129	Female connector angled	4	2
DOL-1204-W05MN	6 028 131	Female connector angled	4	5
DOL-1204-W10MN	6 028 133	Female connector angled	4	10
DOL-1204-W25MN	6 028 135	Female connector angled	4	25
DOL-1204-L02MN	6 028 136	Female connector angled LED (PNP)	4	2
DOL-1204-L05MN	6 028 137	Female connector angled LED (PNP)	4	5
DOL-1204-L10MN	6 028 138	Female connector angled LED (PNP)	4	10
DOL-1204-L25MN	6 028 139	Female connector angled LED (PNP)	4	25
DOL-1205-G02MN	6 028 140	Female connector straight	5	2
DOL-1205-G05MN	6 028 141	Female connector straight	5	5
DOL-1205-G10MN	6 028 142	Female connector straight	5	10
DOL-1205-G25MN	6 028 143	Female connector straight	5	25

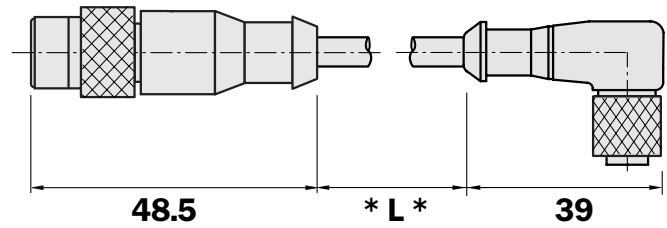
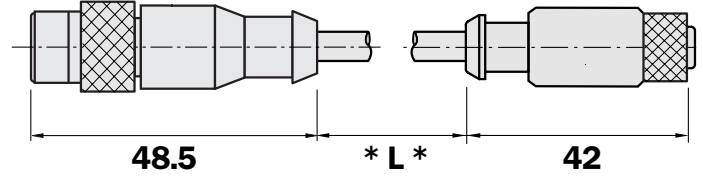
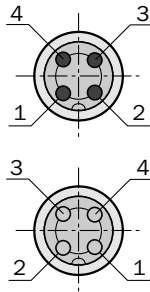
**Extension cable  
"Food & Beverage"**

**Round connectors**

- Especially suitable for use in the food and beverage sector
- Gold plated pins
- Improved resistance to chemicals, acids and cleaning agent
- Enclosure rating IP 69K (only in fully locked position with its plugs)
- Stainless steel locking nut (V4A)

**Dimensional drawings**

DSL-1204-...



## Technical data

Nominal voltage $U_b$	250 V AC/300 V DC	
Contact resistance	$\leq 5 \text{ m}\Omega$	
Nominal power	4 A (CSA = 3 A)	
Testvoltage	2.0 kV eff./60 s.	
Insulation group	C acc. VDE 0110	
Insulation resistance	$> 10^9 \Omega$	
Temperature range	In fixed position	-25 °C ... +90 °C
	In flexible motion	+5 °C ... +90 °C
Bending radius	$> 10 \times$ diameter of cable	
Contact	CuZn, 0.3 $\mu\text{m}$ gold plated	
Locking nut	Stainless steel (V4A)	
Cable	PVC, colour orange	
Conductor diameter	4 x 0.25 mm <sup>2</sup>	
Connector	PVC, colour orange	

## Order information

## Round connectors extension cable "Food &amp; Beverage", female connector M12, male connector M12 (straight)

Type	Order no.	Description		Contacts		Cable length [m]
				Female connector	Male connector	
DSL-1204-G0M6N	6 028 194	Female connector	straight	4	4	0.6
DSL-1204-G02MN	6 028 195	Female connector	straight	4	4	2
DSL-1204-G05MN	6 028 196	Female connector	straight	4	4	5
DSL-1204-B0M6N	6 028 197	Female connector	angled	4	4	0.6
DSL-1204-B02MN	6 028 198	Female connector	angled	4	4	2
DSL-1204-B05MN	6 028 199	Female connector	angled	4	4	5

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