

## Metal Face Inductive Proximity Sensors

### Description

**SENSONG** Metal Face inductive proximity sensors is total stainless steel housing from solid stainless steel stock, no two piece welds, no ultra thin foils...no short cuts. This provides a higher level of protection for more reliable operation and longer life in harsh environments. The sensors stand up to abrasion and impact caused by flying metal chips, grit, and misaligned or vibrating targets. Also, the stainless steel body resists corrosion and chemical attack.

In addition to standard all-metal sensing models, the series is available in ferrous and non-ferrous selective versions to detect only a specific type of metal. Ferrous only models will detect only ferrous metals such as steel, iron, nickel or cobalt, non-ferrous only models will detect only metals that do not have ferrous content such as aluminum, brass or copper.

A typical application for ferrous only sensors would be in workcell applications where cutting tools, tool pallets and fixtures must be detected for proper workpiece manipulation. the sensors detect ferrous objects while ignoring aluminum. Non-ferrous only sensors would be used to detect the presence or absence of aluminum components such as engine, transmission and aircraft forgings, without sensing the ferrous fixtures holding them.

These sensors are available in a standard 8mm, 12mm, 18mm, 30mm diameter, and are epoxy filled for shock/vibration resistance and heat tolerance.

### Characteristics

#### Robust Electrical Design:

- AC/DC 2-Wire or DC 2, 3, 4-Wire
- Short circuit protection
- Overload protection
- Reverse polarity protection
- Radio frequency protection
- Transient noise protection
- False pulse protection
- Epoxy potted against shock and vibration

#### Stainless Steel Sensor Face and Housing

- Superior impact and abrasion resistance
- Superior chemical and cutting fluid resistance
- Leakproof
- Sensing face is up to 20mil. Thick
- 8mm, 12mm, 18mm, 30mm diameters meet whatever your need

#### Output Connector Mode

- 2m PVC cable
- Euro QD, Mini QD for DC Type
- Micro QD, Mini QD for AC type
- 360° ring LED for status indication



### Applications

#### Food and Beverage:

- Food processing
- Beverage
- Dairy



#### Oils and Coolants

- Machine cutting
- Deburring
- Milling
- Broaching



#### Welding and Stamping

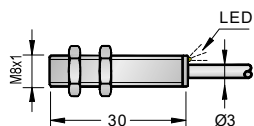
- Resistance Welding
- Shearing
- Stamping



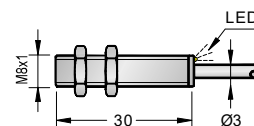


**Features**

- M8mm dimension
- Sn=1mm,2mm,3mm, shielded  
2mm,4mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)

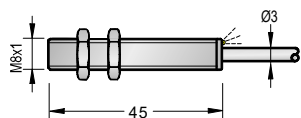


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection						
NPN-NO	M1CC08C01A	M1CC08C02A	M1CC08C03A	M1CD08C02A	M1CD08C04A	
NPN-NC	M1CC08D01A	M1CC08D02A	M1CC08D03A	M1CD08D02A	M1CD08D04A	
PNP-NO	M1CC08A01A	M1CC08A02A	M1CC08A03A	M1CD08A02A	M1CD08A04A	
PNP-NC	M1CC08B01A	M1CC08B02A	M1CC08B03A	M1CD08B02A	M1CD08B04A	
<b>General Data</b>						
Housing size	M8mm			M8mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	1mm	2mm	3mm	2mm	4mm	
Standard sensing object	Steel 8x8x1mm	Steel 8x8x1mm	Steel 9x9x1mm	Steel 8x8x1mm	Steel 12x12x1mm	
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC			10 ... 30VDC		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	
Switching frequency	2000Hz	2000Hz	1000Hz	2000Hz	1000Hz	
Response time	0.1ms/0.1ms	0.1ms/0.1ms	0.2ms/0.2ms	0.1ms/0.1ms	0.2ms/0.2ms	
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø3 3x0.15mm <sup>2</sup> )			2m PVC cable (Ø3 3x0.15mm <sup>2</sup> )		
Weight	Approx. 40g			Approx. 40g		

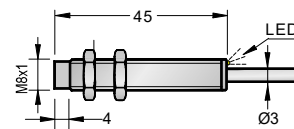


**Features**

- M8mm dimension
- Sn=1mm,2mm,3mm, shielded  
2mm,4mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- Cable version
- IP67 Protection



(Unit: mm)



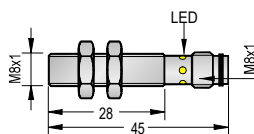
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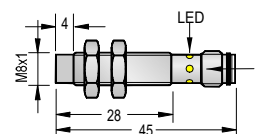
Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CE08C01A	M1CE08C02A	M1CE08C03A	M1CF08C02A	M1CF08C04A	
NPN-NO	M1CE08D01A	M1CE08D02A	M1CE08D03A	M1CF08D02A	M1CF08D04A	
NPN-NC	M1CE08A01A	M1CE08A02A	M1CE08A03A	M1CF08A02A	M1CF08A04A	
PNP-NO	M1CE08B01A	M1CE08B02A	M1CE08B03A	M1CF08B02A	M1CF08B04A	
PNP-NC						
<b>General Data</b>						
Housing size	M8mm			M8mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	1mm	2mm	3mm	2mm	4mm	
Standard sensing object	Steel 8x8x1mm	Steel 8x8x1mm	Steel 9x9x1mm	Steel 8x8x1mm	Steel 12x12x1mm	
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC			10 ... 30VDC		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	
Switching frequency	2000Hz	2000Hz	1000Hz	2000Hz	1000Hz	
Response time	0.1ms/0.1ms	0.1ms/0.1ms	0.2ms/0.2ms	0.1ms/0.1ms	0.2ms/0.2ms	
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø3 3x0.15mm <sup>2</sup> )			2m PVC cable (Ø3 3x0.15mm <sup>2</sup> )		
Weight	Approx. 40g			Approx. 40g		

**Features**

- M8mm dimension
- Sn=1mm,2mm,3mm, shielded  
2mm,4mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M8 connector version
- IP67 Protection



(Unit: mm)



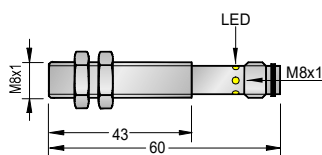
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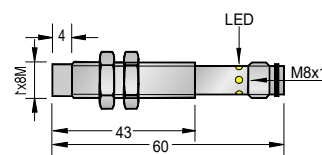
Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CC08C01F	M1CC08C02F	M1CC08C03F	M1CD08C02F	M1CD08C04F	
NPN-NO	M1CC08D01F	M1CC08D02F	M1CC08D03F	M1CD08D02F	M1CD08D04F	
NPN-NC	M1CC08A01F	M1CC08A02F	M1CC08A03F	M1CD08A02F	M1CD08A04F	
PNP-NO	M1CC08B01F	M1CC08B02F	M1CC08B03F	M1CD08B02F	M1CD08B04F	
PNP-NC						
<b>General Data</b>						
Housing size	M8mm			M8mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	1mm	2mm	3mm	2mm	4mm	
Standard sensing object	Steel 8x8x1mm	Steel 8x8x1mm	Steel 9x9x1mm	Steel 8x8x1mm	Steel 12x12x1mm	
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC			10 ... 30VDC		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	
Switching frequency	2000Hz	2000Hz	1000Hz	2000Hz	1000Hz	
Response time	0.1ms/0.1ms	0.1ms/0.1ms	0.2ms/0.2ms	0.1ms/0.1ms	0.2ms/0.2ms	
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	3Pin M8 connector			3Pin M8 connector		
Weight	Approx. 12g			Approx. 12g		

**Features**

- M8mm dimension
- Sn=1mm,2mm,3mm, shielded  
2mm,4mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M8 connector version
- IP67 Protection



(Unit: mm)



(Unit: mm)

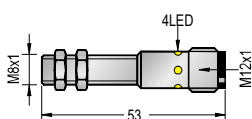


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection						
NPN-NO	M1CE08C01F	M1CE08C02F	M1CE08C03F	M1CF08C02F	M1CF08C04F	
NPN-NC	M1CE08D01F	M1CE08D02F	M1CE08D03F	M1CF08D02F	M1CF08D04F	
PNP-NO	M1CE08A01F	M1CE08A02F	M1CE08A03F	M1CF08A02F	M1CF08A04F	
PNP-NC	M1CE08B01F	M1CE08B02F	M1CE08B03F	M1CF08B02F	M1CF08B04F	
<b>General Data</b>						
Housing size	M8mm			M8mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	1mm	2mm	3mm	2mm	4mm	
Standard sensing object	Steel 8x8x1mm	Steel 8x8x1mm	Steel 9x9x1mm	Steel 8x8x1mm	Steel 12x12x1mm	
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC			10 ... 30VDC		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	
Switching frequency	2000Hz	2000Hz	1000Hz	2000Hz	1000Hz	
Response time	0.1ms/0.1ms	0.1ms/0.1ms	0.2ms/0.2ms	0.1ms/0.1ms	0.2ms/0.2ms	
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	3Pin M8 connector			3Pin M8 connector		
Weight	Approx. 12g			Approx. 12g		

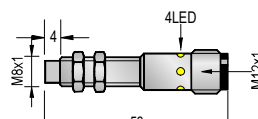


**Features**

- M8mm dimension
- Sn=1mm,2mm,3mm, shielded  
2mm,4mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M12 connector version
- IP67 Protection



(Unit: mm)



(Unit: mm)

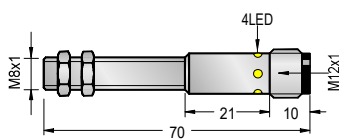


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CC08C01H	M1CC08C02H	M1CC08C03H	M1CD08C02H	M1CD08C04H	
NPN-NO	M1CC08D01H	M1CC08D02H	M1CC08D03H	M1CD08D02H	M1CD08D04H	
NPN-NC	M1CC08A01H	M1CC08A02H	M1CC08A03H	M1CD08A02H	M1CD08A04H	
PNP-NO	M1CC08B01H	M1CC08B02H	M1CC08B03H	M1CD08B02H	M1CD08B04H	
PNP-NC						
<b>General Data</b>						
Housing size	M8mm			M8mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	1mm	2mm	3mm	2mm	4mm	
Standard sensing object	Steel 8x8x1mm	Steel 8x8x1mm	Steel 9x9x1mm	Steel 8x8x1mm	Steel 12x12x1mm	
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC			10 ... 30VDC		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	
Switching frequency	2000Hz	2000Hz	1000Hz	2000Hz	1000Hz	
Response time	0.1ms/0.1ms	0.1ms/0.1ms	0.2ms/0.2ms	0.1ms/0.1ms	0.2ms/0.2ms	
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
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Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 20g			Approx. 20g		

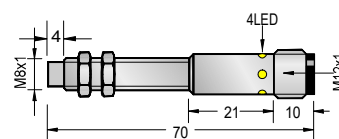


**Features**

- M8mm dimension
- Sn=1mm,2mm,3mm, shielded  
2mm,4mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case  
Stainless steel active sensing face
- Short-circuit protection  
Overload protection  
Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M12 connector version
- IP67 Protection



(Unit: mm)



(Unit: mm)

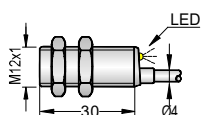


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CE08C01H	M1CE08C02H	M1CE08C03H	M1CF08C02H	M1CF08C04H	
NPN-NO	M1CE08D01H	M1CE08D02H	M1CE08D03H	M1CF08D02H	M1CF08D04H	
NPN-NC	M1CE08A01H	M1CE08A02H	M1CE08A03H	M1CF08A02H	M1CF08A04H	
PNP-NO	M1CE08B01H	M1CE08B02H	M1CE08B03H	M1CF08B02H	M1CF08B04H	
PNP-NC						
<b>General Data</b>						
Housing size	M8mm			M8mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	1mm	2mm	3mm	2mm	4mm	
Standard sensing object	Steel 8x8x1mm	Steel 8x8x1mm	Steel 9x9x1mm	Steel 8x8x1mm	Steel 12x12x1mm	
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC			10 ... 30VDC		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	
Switching frequency	2000Hz	2000Hz	1000Hz	2000Hz	1000Hz	
Response time	0.1ms/0.1ms	0.1ms/0.1ms	0.2ms/0.2ms	0.1ms/0.1ms	0.2ms/0.2ms	
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 25g			Approx. 25g		

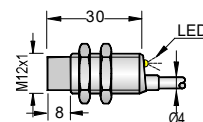


**Features**

- M12mm dimension
- Sn=2mm,4mm, shielded  
4mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)



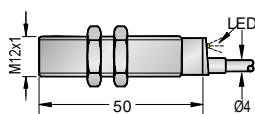
Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CC12C02A	M1CC12C04A		M1CD12C04A		
NPN-NO	M1CC12C02A	M1CC12C04A		M1CD12C04A		
NPN-NC	M1CC12D02A	M1CC12D04A		M1CD12D04A		
PNP-NO	M1CC12A02A	M1CC12A04A		M1CD12A04A		
PNP-NC	M1CC12B02A	M1CC12B04A		M1CD12B04A		
<b>General Data</b>						
Housing size	M12mm			M12mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	2mm	4mm		4mm		
Standard sensing object	Steel 12x12x1mm	Steel 12x12x1mm		Steel 12x12x1mm		
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC		<1.5VDC		
Switching frequency	2000Hz	1000Hz		1000Hz		
Response time	0.1ms/0.1ms	0.2ms/0.2ms		0.2ms/0.2ms		
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø4 3x0.34mm <sup>2</sup> )			2m PVC cable (Ø4 3x0.34mm <sup>2</sup> )		
Weight	Approx. 67g			Approx. 67g		



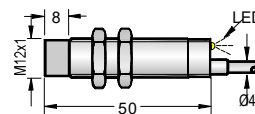


**Features**

- M12mm dimension
- Sn=2mm, 4mm, 6mm shielded  
4mm, 8mm, 10mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN, PNP Output
- NO, NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)

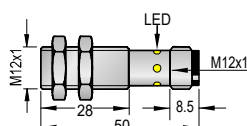


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CE12C02A	M1CE12C04A	M1CE12C06A	M1CF12C04A	M1CF12C08A	M1CF12C10A
NPN-NO	M1CE12C02A	M1CE12C04A	M1CE12C06A	M1CF12C04A	M1CF12C08A	M1CF12C10A
NPN-NC	M1CE12D02A	M1CE12D04A	M1CE12D06A	M1CF12D04A	M1CF12D08A	M1CF12D10A
PNP-NO	M1CE12A02A	M1CE12A04A	M1CE12A06A	M1CF12A04A	M1CF12A08A	M1CF12A10A
PNP-NC	M1CE12B02A	M1CE12B04A	M1CE12B06A	M1CF12B04A	M1CF12B08A	M1CF12B10A
<b>General Data</b>						
Housing size	M12mm			M12mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	2mm	4mm	6mm	4mm	8mm	10mm
Standard sensing object	Steel 12x12x1mm	Steel 12x12x1mm	Steel 18x18x1mm	Steel 12x12x1mm	Steel 24x24x1mm	Steel 30x30x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	2000Hz	1000Hz	800Hz	1000Hz	500Hz	400Hz
Response time	0.1ms/0.1ms	0.2ms/0.2ms	0.2ms/0.2ms	0.2ms/0.2ms	0.3ms/0.3ms	0.5ms/0.5ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø4 3x0.34mm <sup>2</sup> )			2m PVC cable (Ø4 3x0.34mm <sup>2</sup> )		
Weight	Approx. 70g			Approx. 70g		

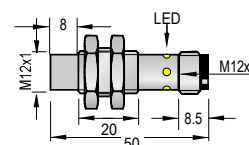


**Features**

- M12mm dimension
- Sn=2mm,4mm, shielded  
4mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M12 connector version
- IP67 Protection



(Unit: mm)



(Unit: mm)

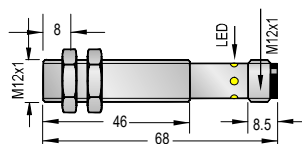


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CC12C02H	M1CC12C04H		M1CD12C04H		
NPN-NO	M1CC12D02H	M1CC12D04H		M1CD12D04H		
NPN-NC	M1CC12A02H	M1CC12A04H		M1CD12A04H		
PNP-NO	M1CC12B02H	M1CC12B04H		M1CD12B04H		
PNP-NC						
<b>General Data</b>						
Housing size	M12mm			M12mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	2mm	4mm		4mm		
Standard sensing object	Steel 12x12x1mm	Steel 12x12x1mm		Steel 12x12x1mm		
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC		<1.5VDC		
Switching frequency	2000Hz	1000Hz		1000Hz		
Response time	0.1ms/0.1ms	0.2ms/0.2ms		0.2ms/0.2ms		
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 25g			Approx. 25g		

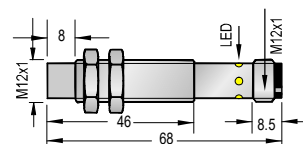


**Features**

- M12mm dimension
- Sn=2mm,4mm,6mm shielded  
4mm,8mm,10mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M12 connector version
- IP67 Protection



(Unit: mm)



(Unit: mm)

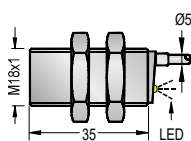


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CE12C02H	M1CE12C04H	M1CE12C06H	M1CF12C04H	M1CF12C08H	M1CF12C10H
NPN-NO	M1CE12C02H	M1CE12C04H	M1CE12C06H	M1CF12C04H	M1CF12C08H	M1CF12C10H
NPN-NC	M1CE12D02H	M1CE12D04H	M1CE12D06H	M1CF12D04H	M1CF12D08H	M1CF12D10H
PNP-NO	M1CE12A02H	M1CE12A04H	M1CE12A06H	M1CF12A04H	M1CF12A08H	M1CF12A10H
PNP-NC	M1CE12B02H	M1CE12B04H	M1CE12B06H	M1CF12B04H	M1CF12B08H	M1CF12B10H
<b>General Data</b>						
Housing size	M12mm			M12mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	2mm	4mm	6mm	4mm	8mm	10mm
Standard sensing object	Steel 12x12x1mm	Steel 12x12x1mm	Steel 18x18x1mm	Steel 12x12x1mm	Steel 24x24x1mm	Steel 30x30x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	2000Hz	1000Hz	800Hz	1000Hz	500Hz	400Hz
Response time	0.1ms/0.1ms	0.2ms/0.2ms	0.2ms/0.2ms	0.2ms/0.2ms	0.3ms/0.3ms	0.5ms/0.5ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 29g			Approx. 29g		

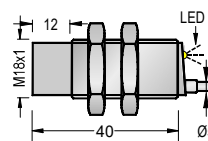


**Features**

- M18mm dimension
- Sn=5mm,8mm, shielded  
8mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)

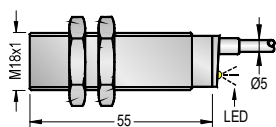


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CC18C05A	M1CC18C08A		M1CD18C08A		
NPN-NO	M1CC18C05A	M1CC18C08A		M1CD18C08A		
NPN-NC	M1CC18D05A	M1CC18D08A		M1CD18D08A		
PNP-NO	M1CC18A05A	M1CC18A08A		M1CD18A08A		
PNP-NC	M1CC18B05A	M1CC18B08A		M1CD18B08A		
<b>General Data</b>						
Housing size	M18mm			M18mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	5mm	8mm		8mm		
Standard sensing object	Steel 18x18x1mm	Steel 24x24x1mm		Steel 24x24x1mm		
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC		<1.5VDC		
Switching frequency	1000Hz	500Hz		500Hz		
Response time	0.2ms/0.2ms	0.5ms/0.5ms		0.5ms/0.5ms		
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø5 3x0.5mm <sup>2</sup> )			2m PVC cable (Ø5 3x0.5mm <sup>2</sup> )		
Weight	Approx. 132g			Approx. 132g		

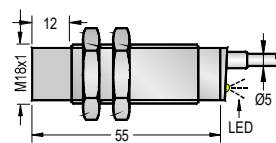


**Features**

- M18mm dimension
- Sn=5mm, 8mm, 12mm, shielded
- 8mm, 16mm, 20mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN, PNP Output
- NO, NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)

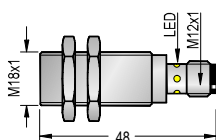


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CE18C05A	M1CE18C08A	M1CE18C12A	M1CF18C08A	M1CF18C16A	M1CF18C20A
NPN-NO	M1CE18D05A	M1CE18D08A	M1CE18D12A	M1CF18D08A	M1CF18D16A	M1CF18D20A
NPN-NC	M1CE18A05A	M1CE18A08A	M1CE18A12A	M1CF18A08A	M1CF18A16A	M1CF18A20A
PNP-NO	M1CE18B05A	M1CE18B08A	M1CE18B12A	M1CF18B08A	M1CF18B16A	M1CF18B20A
PNP-NC						
<b>General Data</b>						
Housing size	M18mm			M18mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	5mm	8mm	12mm	8mm	16mm	20mm
Standard sensing object	Steel 18x18x1mm	Steel 24x24x1mm	Steel 36x36x1mm	Steel 24x24x1mm	Steel 48x48x1mm	Steel 60x60x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	1000Hz	500Hz	300Hz	500Hz	150Hz	100Hz
Response time	0.2ms/0.2ms	0.5ms/0.5ms	0.5ms/0.5ms	0.5ms/0.5ms	1ms/1ms	1ms/1ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø5 3x0.5mm <sup>2</sup> )			2m PVC cable (Ø5 3x0.5mm <sup>2</sup> )		
Weight	Approx. 144g			Approx. 144g		

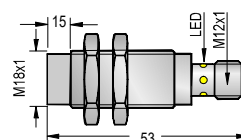


**Features**

- M18mm dimension
- Sn=5mm,8mm, shielded  
8mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M12 connector version
- IP67 Protection



(Unit: mm)



(Unit: mm)

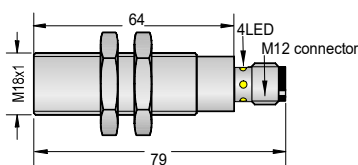


Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CC18C05H	M1CC18C08H		M1CD18C08H		
NPN-NO	M1CC18C05H	M1CC18C08H		M1CD18C08H		
NPN-NC	M1CC18D05H	M1CC18D08H		M1CD18D08H		
PNP-NO	M1CC18A05H	M1CC18A08H		M1CD18A08H		
PNP-NC	M1CC18B05H	M1CC18B08H		M1CD18B08H		
<b>General Data</b>						
Housing size	M18mm			M18mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	5mm	8mm		8mm		
Standard sensing object	Steel 18x18x1mm	Steel 24x24x1mm		Steel 24x24x1mm		
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC		<1.5VDC		
Switching frequency	1000Hz	500Hz		500Hz		
Response time	0.2ms/0.2ms	0.5ms/0.5ms		0.5ms/0.5ms		
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 50g			Approx. 50g		

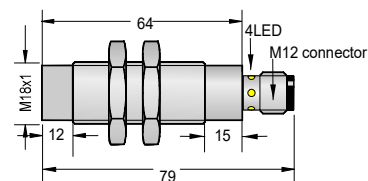


**Features**

- M18mm dimension
- Sn=5mm, 8mm, 12mm, shielded
- 8mm, 16mm, 20mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN, PNP Output
- NO, NC Function
- M12 connector version
- IP67 Protection



(Unit: mm)



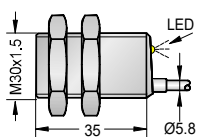
(Unit: mm)



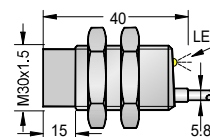
Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CE18C05H	M1CE18C08H	M1CE18C12H	M1CF18C08H	M1CF18C16H	M1CF18C20H
NPN-NO	M1CE18D05H	M1CE18D08H	M1CE18D12H	M1CF18D08H	M1CF18D16H	M1CF18D20H
NPN-NC	M1CE18A05H	M1CE18A08H	M1CE18A12H	M1CF18A08H	M1CF18A16H	M1CF18A20H
PNP-NO	M1CE18B05H	M1CE18B08H	M1CE18B12H	M1CF18B08H	M1CF18B16H	M1CF18B20H
PNP-NC						
<b>General Data</b>						
Housing size	M18mm			M18mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	5mm	8mm	12mm	8mm	16mm	20mm
Standard sensing object	Steel 18x18x1mm	Steel 24x24x1mm	Steel 36x36x1mm	Steel 24x24x1mm	Steel 48x48x1mm	Steel 60x60x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	1000Hz	500Hz	300Hz	500Hz	150Hz	100Hz
Response time	0.2ms/0.2ms	0.5ms/0.5ms	0.5ms/0.5ms	0.5ms/0.5ms	1ms/1ms	1ms/1ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 95g			Approx. 95g		

**Features**

- M30mm dimension
- Sn=10mm,15mm,22mm, shielded  
15mm,25mm,40mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)



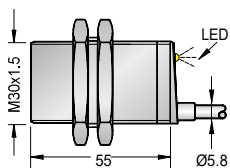
Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
Connection	M1CC30C10A	M1CC30C15A	M1CC30C22A	M1CD30C15A	M1CD30C25A	M1CD30C40A
NPN-NO	M1CC30D10A	M1CC30D15A	M1CC30D22A	M1CD30D15A	M1CD30D25A	M1CD30D40A
NPN-NC	M1CC30A10A	M1CC30A15A	M1CC30A22A	M1CD30A15A	M1CD30A25A	M1CD30A40A
PNP-NO	M1CC30B10A	M1CC30B15A	M1CC30B22A	M1CD30B15A	M1CD30B25A	M1CD30B40A
PNP-NC						
<b>General Data</b>						
Housing size	M30mm			M30mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	10mm	15mm	22mm	15mm	25mm	40mm
Standard sensing object	Steel 30x30x1mm	Steel 45x45x1mm	Steel 66x66x1mm	Steel 45x45x1mm	Steel 75x75x1mm	Steel 120x120x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
<b>Electrical Data</b>						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	300Hz	150Hz	100Hz	150Hz	100Hz	100Hz
Response time	0.5ms/0.5ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
<b>Mechanical Data</b>						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø5.8 3x0.5mm <sup>2</sup> )			2m PVC cable (Ø5.8 3x0.5mm <sup>2</sup> )		
Weight	Approx. 182g			Approx. 182g		



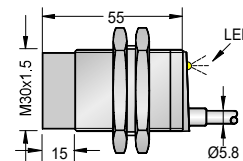


**Features**

- M30mm dimension
- Sn=10mm,15mm,22mm, shielded  
15mm,25mm,40mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)

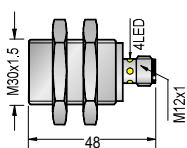


Mounting	Shielded			Non-shielded		
Connection	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
NPN-NO	M1CE30C10A	M1CE30C15A	M1CE30C22A	M1CF30C15A	M1CF30C25A	M1CF30C40A
NPN-NC	M1CE30D10A	M1CE30D15A	M1CE30D22A	M1CF30D15A	M1CF30D25A	M1CF30D40A
PNP-NO	M1CE30A10A	M1CE30A15A	M1CE30A22A	M1CF30A15A	M1CF30A25A	M1CF30A40A
PNP-NC	M1CE30B10A	M1CE30B15A	M1CE30B22A	M1CF30B15A	M1CF30B25A	M1CF30B40A
General Data						
Housing size	M30mm			M30mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	10mm	15mm	22mm	15mm	25mm	40mm
Standard sensing object	Steel 30x30x1mm	Steel 45x45x1mm	Steel 66x66x1mm	Steel 45x45x1mm	Steel 75x75x1mm	Steel 120x120x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
Electrical Data						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	300Hz	150Hz	100Hz	150Hz	100Hz	100Hz
Response time	0.5ms/0.5ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
Mechanical Data						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	2m PVC cable (Ø5.8 3x0.5mm <sup>2</sup> )			Euro-style 4 Pin M12 connector		
Weight	Approx. 217g			Approx. 217g		

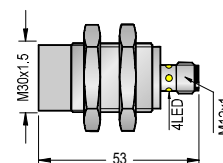


**Features**

- M30mm dimension
- Sn=10mm,15mm,22mm, shielded  
15mm,25mm,40mm, non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- Cable version
- IP67 Protection



(Unit: mm)



(Unit: mm)



Mounting	Shielded			Non-shielded		
	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
NPN-NO	M1CC30C10H	M1CC30C15H	M1CC30C22H	M1CD30C15H	M1CD30C25H	M1CD30C40H
NPN-NC	M1CC30D10H	M1CC30D15H	M1CC30D22H	M1CD30D15H	M1CD30D25H	M1CD30D40H
PNP-NO	M1CC30A10H	M1CC30A15H	M1CC30A22H	M1CD30A15H	M1CD30A25H	M1CD30A40H
PNP-NC	M1CC30B10H	M1CC30B15H	M1CC30B22H	M1CD30B15H	M1CD30B25H	M1CD30B40H

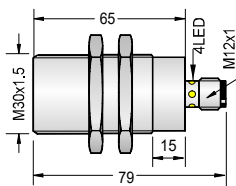
General Data						
Housing size	M30mm			M30mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	10mm	15mm	22mm	15mm	25mm	40mm
Standard sensing object	Steel 30x30x1mm	Steel 45x45x1mm	Steel 66x66x1mm	Steel 45x45x1mm	Steel 75x75x1mm	Steel 120x120x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		

Electrical Data						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	300Hz	150Hz	100Hz	150Hz	100Hz	100Hz
Response time	0.5ms/0.5ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		

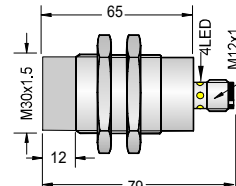
Mechanical Data						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 111g			Approx. 111g		

**Features**

- M30mm dimension
- Sn=10mm,15mm,22mm, shielded  
15mm,25mm,40mm,non-shielded
- 10-30VDC operating voltage
- Stainless steel housing case
- Stainless steel active sensing face
- Short-circuit protection
- Overload protection
- Reverse polarity protection
- NPN,PNP Output
- NO,NC Function
- M12 connector version
- IP67 Protection



(Unit: mm)



(Unit: mm)



Mounting	Shielded			Non-shielded		
Connection	Standard Sn	Extended Sn	Long Sn	Standard Sn	Extended Sn	Long Sn
NPN-NO	M1CE30C10H	M1CE30C15H	M1CE30C22H	M1CF30C15H	M1CF30C25H	M1CF30C40H
NPN-NC	M1CE30D10H	M1CE30D15H	M1CE30D22H	M1CF30D15H	M1CF30D25H	M1CF30D40H
PNP-NO	M1CE30A10H	M1CE30A15H	M1CE30A22H	M1CF30A15H	M1CF30A25H	M1CF30A40H
PNP-NC	M1CE30B10H	M1CE30B15H	M1CE30B22H	M1CF30B15H	M1CF30B25H	M1CF30B40H
General Data						
Housing size	M30mm			M30mm		
Installation type	Shielded			Non-shielded		
Sensing distance(Sn: mm)	10mm	15mm	22mm	15mm	25mm	40mm
Standard sensing object	Steel 30x30x1mm	Steel 45x45x1mm	Steel 66x66x1mm	Steel 45x45x1mm	Steel 75x75x1mm	Steel 120x120x1mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn			90 ... 110% of Sn		
Assured operating distance(Sa: mm)	0 ... 80% of Sn			0 ... 80% of Sn		
Hysteresis	<15%			<15%		
Housing material	Stainless steel			Stainless steel		
Operating voltage	10 ... 30VDC(55Vdc can also be customized)			10 ... 30VDC(55Vdc can also be customized)		
Electrical Data						
Rated operating voltage	24VDC			24VDC		
Repeated accuracy	±10%			±10%		
Ripple	<10%			<10%		
No load current	10mA			10mA		
Max. Load current	200mA			200mA		
Leakage current	<0.01mA			<0.01mA		
Voltage drop	<1.5VDC	<2.0VDC	<2.0VDC	<1.5VDC	<2.0VDC	<2.0VDC
Switching frequency	300Hz	150Hz	100Hz	150Hz	100Hz	100Hz
Response time	0.5ms/0.5ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms	1ms/1ms
Rated insulation voltage	75VDC			75VDC		
Operating temperature	-25°C ... +70°C			-25°C ... +70°C		
Storage temperature	-40°C ... +80°C			-40°C ... +80°C		
Temperature drift	<10%			<10%		
Power indicator	No			No		
Function indicator	Yellow LED			Yellow LED		
Reverse polarity protection	Yes			Yes		
Short-circuit protection	Yes			Yes		
Overload trip point	220mA			220mA		
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4			Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4		
Mechanical Data						
Sensing surface material	Stainless steel			Stainless steel		
Protection	IP67			IP67		
Shock rating	Shock, half-sinus, 30gn, 11ms			Shock, half-sinus, 30gn, 11ms		
Vibration rating	55Hz, 1mm ampl., 3x30min.			55Hz, 1mm ampl., 3x30min.		
EMC	IEC 60947-5-2			IEC 60947-5-2		
Accessory	2 nuts			2 nuts		
Connection	4 Pin M12 connector			4 Pin M12 connector		
Weight	Approx. 217g			Approx. 217g		