COPY OF THE ORIGINAL

INSTRUCTION MANUAL

Inductive coupler system

F100-2IOL

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Date: 2025-11
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Language: English

SMW AUTOBLOK

Content

INSTRUCTION MANUAL
Inductive coupler system F100-2IOL

Validity:

0E012330 0E012332/4	Inductive coupler F100-2IOL Base	28.07.2023	V1	EN
0E012331 0E012333/5	Inductive coupler F100-2IOL Remote	28.07.2023	V1	EN

Thank you for purchasing your F100-2IOL inductive coupler system..

This **instruction manual** contains the installation, the functional description and the operation of the **„F100-2IOL"**.

SMW-AUTOBLOK reserves the right to make **changes without notice**.

This **instruction manual is a part of the „F100-2IOL "** and must be passed to the new owner in case of sale.

This **instruction manual may not be** -in whole or in part- **copied** without our written agreement.

Please read the instruction manual carefully before installation and use and always follow the regulations.

Please note especially the sections which are marked with the following signs:

- **Danger of injury or danger to life if instructions are not followed.**
- **Danger of damage to the sensor, the machine or the components.**

General safety instructions


General precept sign!


General warning sign!


Caution: Hot surface!


No access for persons with pacemakers


Danger to the environment!


Follow the instructions!

1. **Intended use**
   The device is designed to transmit energy and signals without contact. The system must not be used in applications where the safety of persons depends on the device function.

   Liability claims against the manufacturer expire in the event of damage caused by:
   • unauthorized tampering
   • use not in accordance with the intended purpose
   • use, installation, handling contrary to the regulations of these operating instructions.

2. **Authorized personnel**
   Installation and commissioning are only permitted by trained specialist operators.

3. **Visual inspection**
   Please check the product for visible damage prior to use!

4. **Duties of the operator**
   The operator must ensure that the locally applicable national and international safety regulations are observed. The unit may only be operated with an approved power supply.

5. **Operating faults**
   In case of defective and unrecoverable device malfunctions, put the device out of operation and secure it against unauthorized use.

6. **Caution: Hot surface!**
   Danger of burns from hot surfaces!
   The active surface heats up even under normal operating conditions.
   Keep hands and objects away from the active surface.
   Avoid contact of metallic objects on the active surface.
   Fire hazard!

7. **Protection against electromagnetic fields during operation and assembly**
   The permissible values according to VDE 0848 Part 3-1 are observed from a distance of > 3 mm. Persons with physical aids (e.g. pacemakers) may be exposed to health hazards due to the magnetic fields emitted by the coupler system. The minimum distance for this group of persons is > 5 mm. The operator must ensure that this minimum distance is also maintained during operation by taking suitable measures.

8. **Certification**
   With the CE mark we confirm that our products comply with the requirements of the EC Directives 2004/108/EC (EMC) and the EMC Act.
   In an accredited EMC laboratory, proof was provided that the products meet the EMC requirements of the basic technical standards:
   • EN 61000-6-4 (emitted interference) and
   • EN 61000-6-2 (immunity to interference)


In case of doubts or questions please ask SMW-AUTOBLOK or one of our authorized offices.


Before the start up, the operating instructions must be read carefully.

F100-2IOL

Axial coupler

Inductive Coupling System

■ **Contact free transmission of energy and signals**

Application/customer benefits

- Contact free transmission of energy and signals between moving / rotating and stationary components
- Application examples: Robotic (End of Arm Tooling), Automation, Mechanical engineering
- Substitution of slip ring / connector
- Dynamic Pairing
- Wear and maintenance free
- Protective functions: temperature monitoring, foreign object detection, reverse polarity protection
- Status LED with good visibility

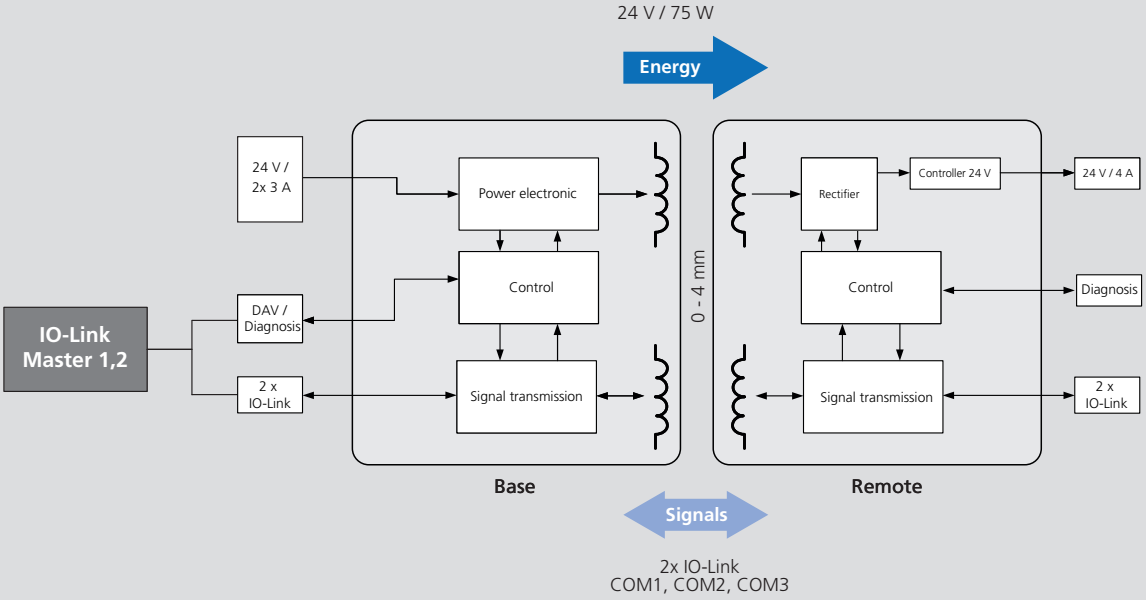
Technical features

- Diameter: 100 mm / Through hole 50 mm
- Operating voltage: 24 V / max 6 A
- Transmission distance: 0 - 4 mm
- Transmission of energy: 24 V / 75 W
- Transmission of signals: 2x IO-Link (COM 1, COM 2, COM 3)
- Connections: Base: 2x M12 x 1 male 5-pin, Remote: 2x M12 x 1 female 5-pin
- Protection class: IP67

Standard equipment

Inductive coupler base or remote

Block diagram



Subject to technical changes.
For more detailed information please ask our customer service.

IO-Link

Inductive coupling system F100-2IOL		
Type	**Base**	**Remote**
Id. No.	**0E012330**	**0E012331**
Operating temperature (housing surface)	-20 °C ... +60 °C	
Storage temperature	-20 °C ... +60 °C	
Transmission distance	0 mm ... 4 mm	
Operating voltage	24 V	-
Output voltage	-	24 V (75 W)
Signal transmission	2x IO-Link (COM2, COM 2, COM 3)	
LED	2 LEDs 2-color	
Current consumption (Base)	6 A (24 V)	-
Overload protection / short circuit protection	✓	✓
Residual ripple	-	< 50 mV
Reverse polarity protection	✓	-
Data-Valid output	max. 100 mA	
Ready delay	< 1 s	

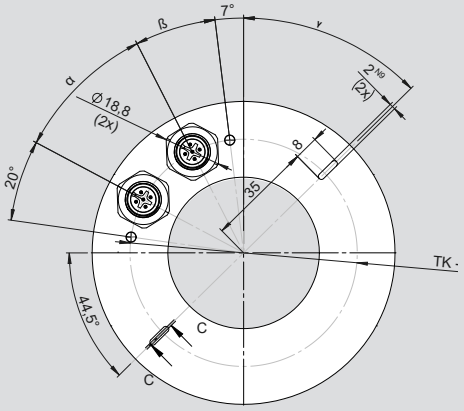
Inductive Coupling System

■ Stationary unit - Base
■ Mobile unit - Remote

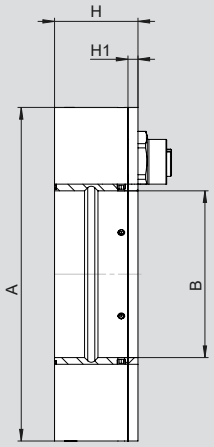
F100-2IOL

Axial coupler

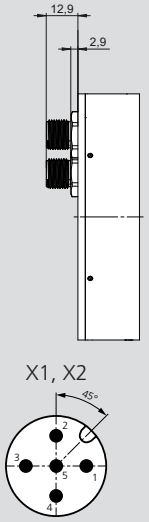
Base / Remote:



Base / Remote:



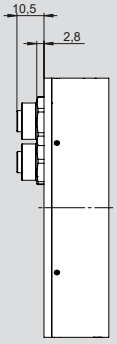
Base:



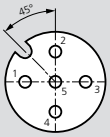
X1, X2

2x Male connector 5-pin
M12 x 1

Remote:



X1, X2



2x Female connector 5-pin
M12 x 1

Subject to technical changes.
For more detailed information please ask our customer service.

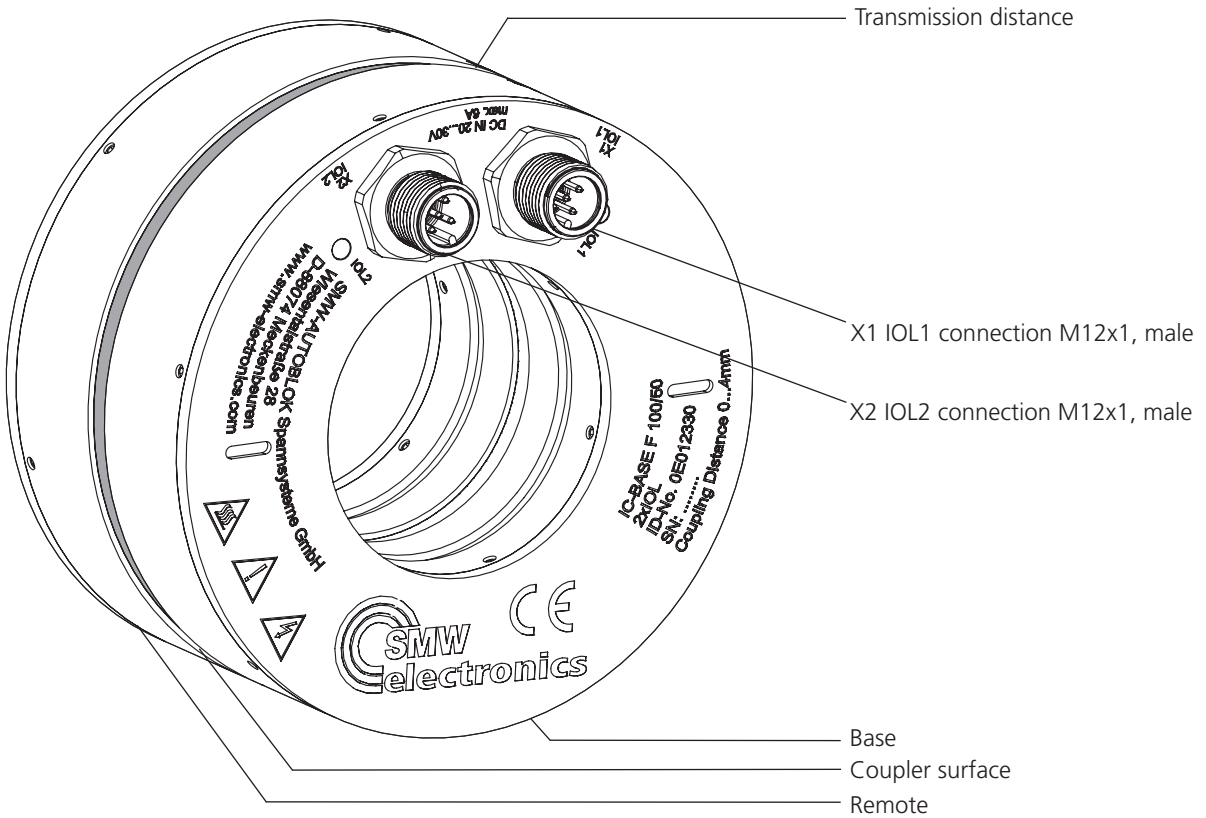
Inductive coupling system F100-2IOL			
Type		**Base**	**Remote**
Id. No.		**0E012330**	**0E012331**
A	mm	100	
B	mm	50	
C	mm	1	
H	mm	25	
H1	mm	3	
α	degree	35	
ß	degree	20	
γ	degree	45.5	
Housing material		Al, GFK	
Protection class		IP67	
Weight	kg	0,224	0,237

Function LED IO-Link Base (X1, X2)	
LED Power	
Color	Yellow / red
Function	Yellow » SIO mode active and SIO signal is high
	Flash yellow (1000 ms on, 100 ms off), » IO-Link communication active, power is on, Remote was detected
	Flashing 2 Hz yellow » no IO-Link device detected, power on, no Remote detected
	Flashing 2 Hz red » Short circuit on IO-Link PIN
	Flashing 5 Hz red » Overload voltage output Remote

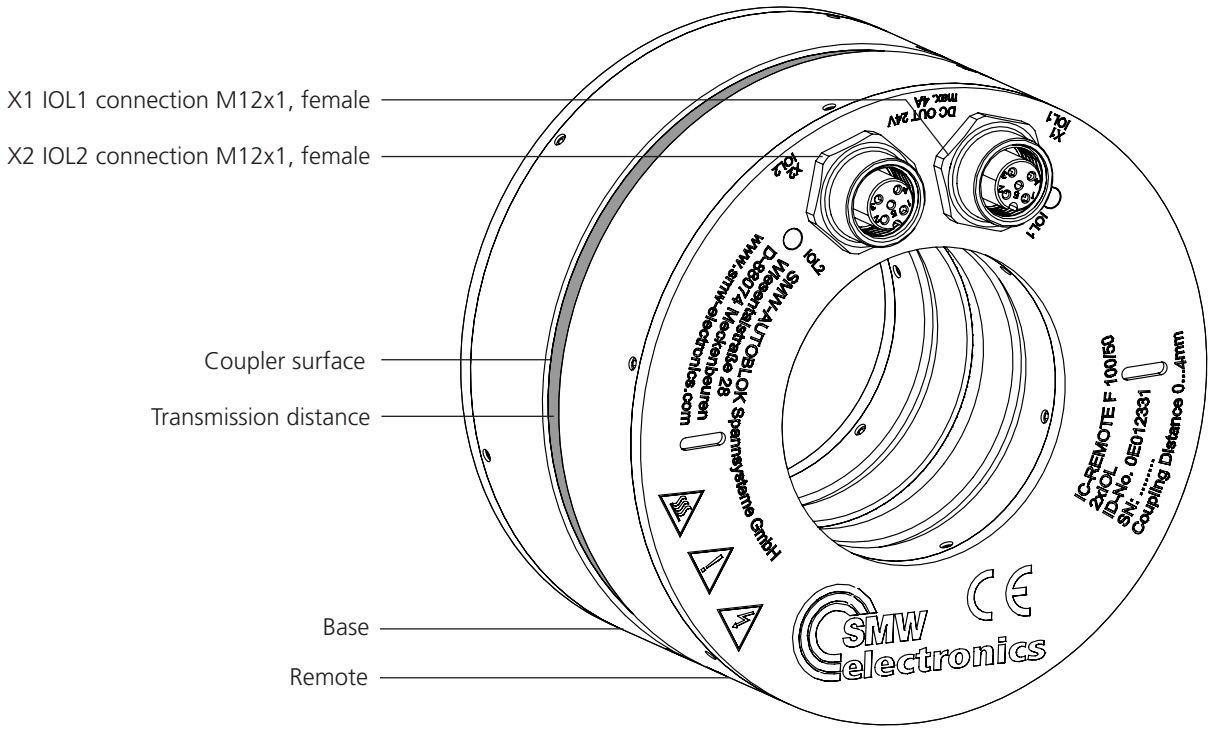
Function LED IO-Link Remote (X1, X2)	
LED Power	
Color	Yellow / red
Function	Yellow » SIO mode active and SIO signal is high
	Flash yellow (1000 ms on, 100 ms off),» IO-Link communication active, power is on, Base has been detected
	Flashing 2 Hz yellow » No IO-Link communication, power on, no Base detected
	Flashing 2 Hz red » Short circuit on IO-Link PIN
	Flashing 5 Hz red » Overload voltage output Base

PIN assignment	PIN	X1 Base	X2 Base	X1 Remote	X2 Remote
Supply voltage	1	24 V IN	24 V IN	24 V OUT	24 V OUT
Data-Valid	2	DAV 24 V	-	-	-
Ground	3	GND	GND	GND	GND
IO-Link Signal	4	IO-Link CQ	IO-Link CQ	IO-Link CQ	IO-Link CQ
-	5	-	-	-	-

View Base



View Remote



Description of function

Description

The inductive coupling system F100-2IOL is used to operate electronic components of automation technology such as IO-Link hubs, sensors or actuators on mobile, dynamically variable or rotating units in machine and device parts.

A contactless bilateral fully transparent 2 IO-Link signal transmission takes place between a stationary unit (base) and a mobile unit (remote). The IO-Link protocol is transmitted without restrictions (COM1, COM2, COM3), so that no parameter settings are required for the inductive coupling system. This means that no device-specific IODD is required.

In addition to signal transmission, electrical energy is also transmitted without contact to the mobile unit (remote) for the power supply of sensors or actuators.

The F100-2IOL inductive coupling system consists of a stationary unit (base) and a mobile unit (remote), each of these units are equipped with different mounting possibilities. Both units are mounted axially facing each other on a distance of 0 to 4 mm from the coupling surface. The manufacturer recommends the mounting in a metallic environment.

An integrated coil system ensures the transmission of the energy and the signals on a contactless inductive principle. The transmission is independent of whether there is a rotating movement or not. The transmitted 2 IO-Link signals are usually passed on from the stationary unit (base) to the control component.

In addition, the system has all the usual protective functions (temperature protection, reverse polarity protection) and it is protected according to IP 67.

The system is designed as a plug and play solution, so that integration into the customer´s system is possible with minimal effort. All important interfaces are designed to be detachable, so that replacement during maintenance and service is possible without delay.
The stationary and mobile units are compatible and interchangeable (dynamic pairing).

The electrical and mechanical interfaces for the individual function units are described in the following chapters.

Start-up

⚠ Notice

Use base coupler 0E012330 only with remote coupler 0E012331.

The start-up can only occur after the entire transmission chain of base and remote has been comletely set up. The installation of the components must always be performed in a (electrical) power-free state.

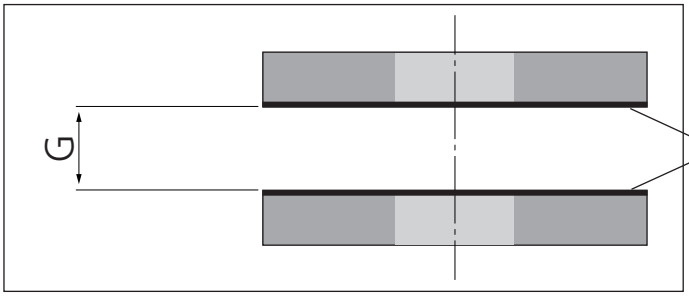
A correct coupling between Base and Remote is indicated by the Data Valid signal.

Integration

The base and remote units of the contactless transmission are integrated by mounting them in axial alignment in compliance with the installation specifications. The assembly must be performed in a (electrical) power-free state. The following sections describe valid installation instructions that must be strictly followed for correct operation.

We recommend to use the coupler with a coupling distance of 2 mm.

Distance to each other

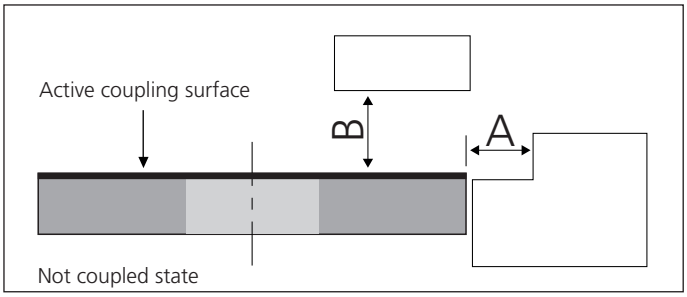


Operating voltage 24 V distance G ≤ 4 mm

Installation in metall

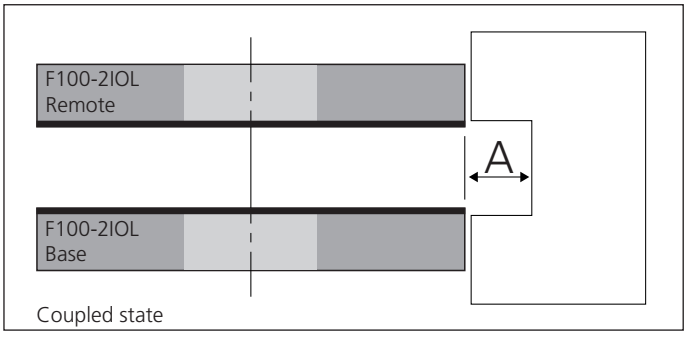
Attention!

Metal objects in the area near the active coupling surfaces can heat up strongly due to the magnetic field generated by the coupler. Therefore, the specified minimum distances must be strictly followed when installing in metal.



Distance A > 1 mm

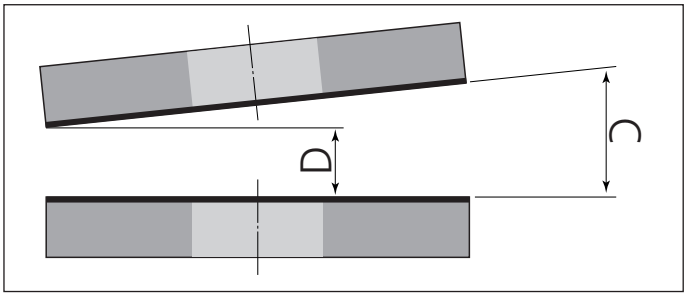
Distance B > 30 mm



Distance A > 1 mm

Permissible angle offset

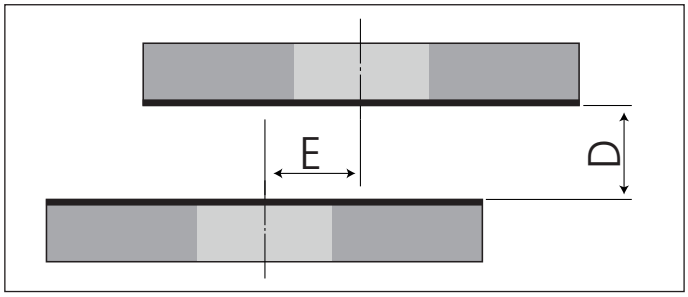
The permissible angle offset allows function in special mounting positions.



Distance D	Angle °
0 mm	< 3°
2 mm	< 2°

Permissible side offset

The maximum side offset between base and remote unit is ±1 mm.



Side offset E < 1 mm

Attention!

The factors like enviroment temperature, distance, angle offset and side offset can affect the amount of energy transfer.
The coupler works optimal centric at D = 1 to 2 mm.

Attention!

No liability in case of damage to the coupling surfaces caused by the use of the product, for example as a result of insufficient cleanliness. If the coupling surfaces are subject to contamination during operation, suitable action (blowing air and / or flushing) must be performed.

Attention!

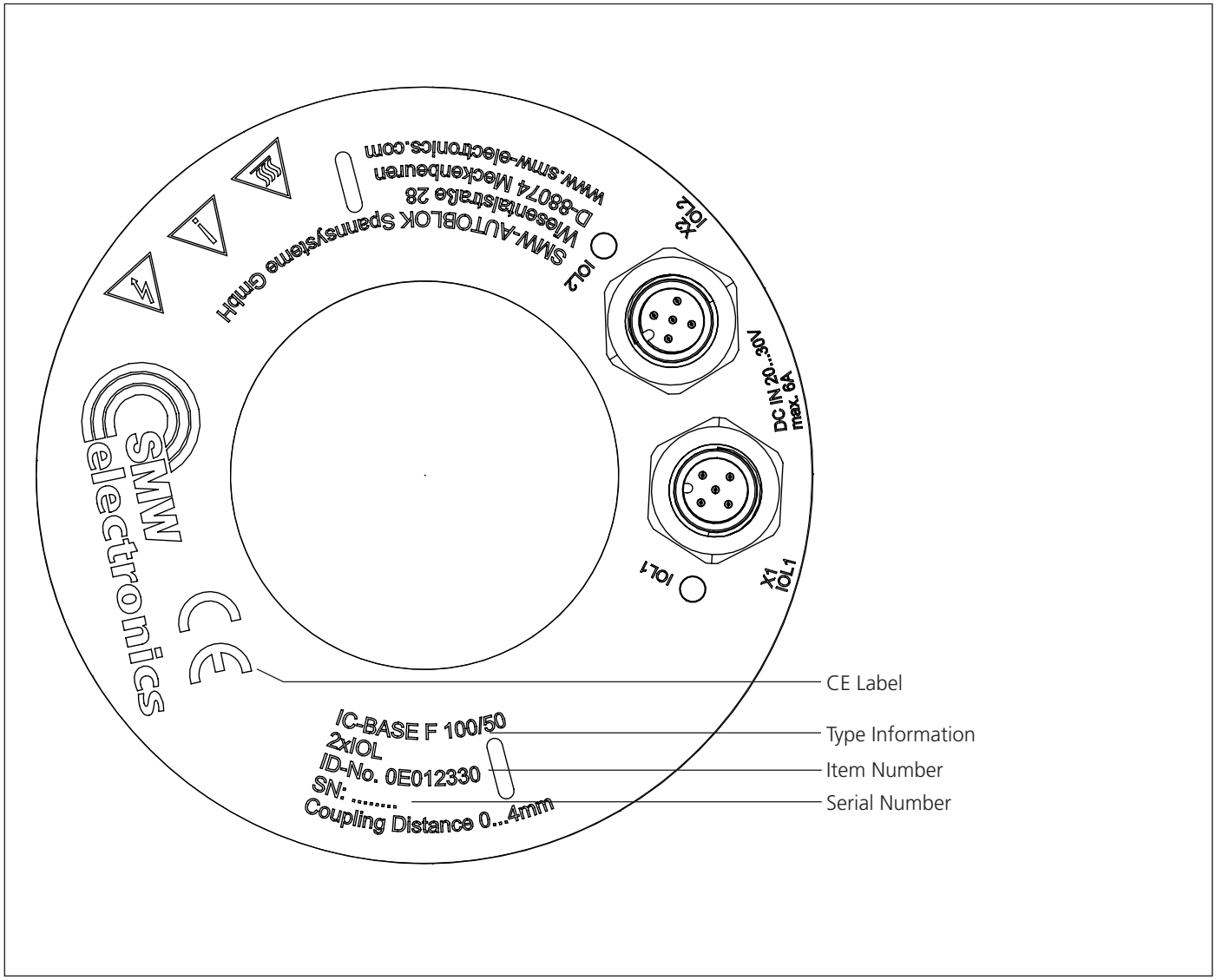
To ensure that the specified values are permanently reached, the housing of the coupling system must be mounted in a metallic environment so that the heat can be conducted away. The maximum housing temperature is T=60°C.

Notes

Typeplate

Typeplate and contact

If you have any questions about the product or if you wish to place order, please specify the type and item number on the typeplate of the inductive coupling system.



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12 months warranty

Product: Inductive coupler system F100-2IOL

SMW-ELECTRONICS guarantees the proper function of the inductive coupling system, if the operation and storage are in accordance with the technical specifications of this operating manual.

In the case that the inductive coupling system does not meet the specified requirements and values, after checking the facts, repair or replacement will be carried out.

In case of production defects, the inductive coupling system will be repaired free of charge within the warranty period.

The warranty period will be 12 months starting from the date of delivery.

In order to maintain the warranty, the return must be carried out in the original packaging.

In addition, a description of the malfunction must be included.

The manufacturer otherwise retains the right not to admit warranty claims.

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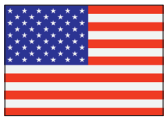

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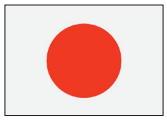

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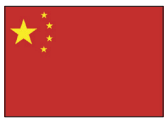

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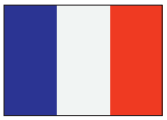

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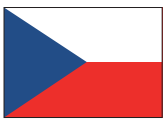

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