bss

Security
through Innovation

User Manual

Art. No. 301001.0, Art. No. 301002.0

HISAC -
RFID reader for concealed mounting

CE

Table of contents

We have checked the contents of this publication for conformity with the components described. Nevertheless, deviations cannot be ruled out, so that we cannot guarantee complete conformity. The information in this publication is checked regularly and any necessary corrections are included in subsequent editions.

We are grateful for any suggestions for improvement.

We reserve the right to make technical changes.

1   General

HISAC stands for "Highly Innovative Smart Access Control". The HISAC RFID reader (Radio Frequency Identification reader) for concealed mounting is intended for use as an access control unit in the maritime sector. HISAC impresses with its compact design and simple concealed mounting option.

HISAC works with 125 KHz Hitag2 cards or tags, and 13.56 MHz Mifare Desfire cards or tags. Optionally, AES encryption can be applied to Mifare Desfire cards.

An acoustic piezo detector and an RGB LED are available as feedback elements for RFID recognition. Communication with the higher-level evaluation unit is optionally possible via a CAN or Wiegand interface.

1.1   Features of the RFID reader

- Power supply 12 V DC or 24 V DC
- RFID frequencies: 125 KHz and 13.56 MHz
- RFID reading distance: ≤ 40mm, depending on the installation situation and the RFID frequency used
- Encryption possible
- Selection CAN or Wiegand protocol
- Compact design
- Easy assembly
- High degree of protection and seawater resistance when mounted
- Cable length 7 m
- Cable flame retardant, seawater resistant, recyclable, LABS-free, RoHs compliant, acid and alkali resistant, ozone resistant, UV resistant, hydrolysis resistant, drag chain resistant, torsion resistant, welding spark resistant, halogen free, silicone free, oil resistant

1.2   Scope of delivery

- HISAC RFID reader for concealed mounting
- Hexagon nut for fastening
- User Manual

1.3   General installation

Make a Ø27+/-0,2 mm recess for concealed mounting (see illustration 3 on page 5). When doing so, position the unit as close to the surface as possible to achieve the best possible RFID reading distance. A suitable hole is needed for LED feedback detection (see illustration 4 on page 5). We recommend using a Ø5mm light guide. After the installation the cable can be connected.

Important:
• Hammer blows to the unit are not permitted.
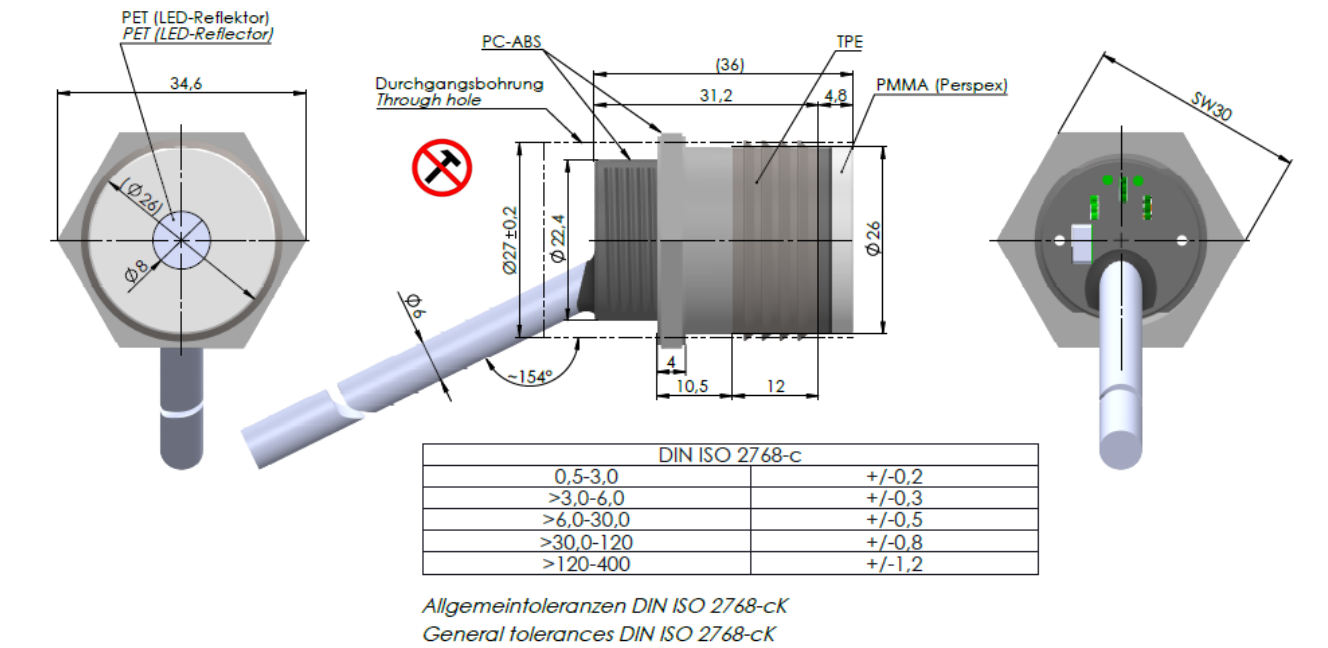*• If the cables are not needed, make sure that short circuits are avoided.*
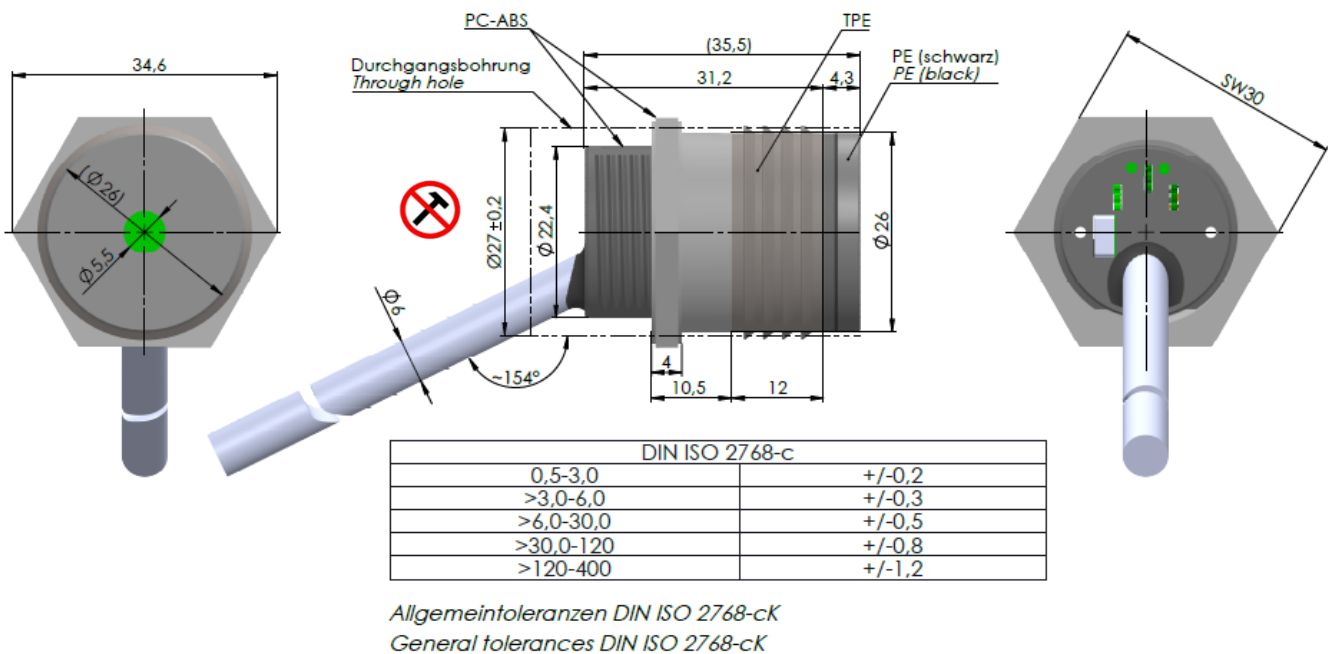
Illustration 1 Product drawing for HISAC 301001.0

Illustration 2 Product drawing for HISAC 301002.0

Das Füllmaterial darf
nicht metallisch sein

*The filling material
must not be metallic*

Metalle sind in diesem
Bereich nicht erlaubt

*Metals are not allowed
in this area*

Stufen im Material sind erlaubt,
wenn keine Metalle enthalten sind

*Steps in the material are allowed if
no metals are included*

Wandstärke vor dem Gerät = ≤2 mm
Wall thickness in front of the device = ≤2 mm

≥Ø120

≤2

Illustration 3 Installation recess for HISAC 3010001.0 and 301002.0

Der Lichtleiter muss in einem Radius R8,5+/-1,5 mm außerhalb der Mitte positioniert werden.

The light guide must be situated out of the center with a radius of R8,5+/-1,5 mm.

Der Lichtleiter muss in der Mitte positioniert werden.

The light guide must be situated in the center.

R8,5±1,5   (Ø5)

(Ø5)

301001.0   301002.0

Illustration 4 Light guide position for HISAC 301001.0 and 301002.0

1.4 Bus- Select

Bus Select

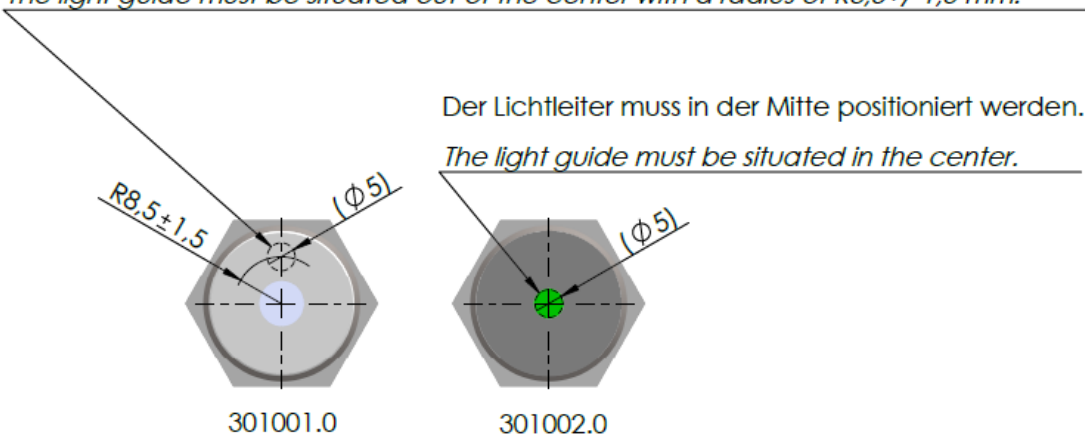The interface to the HISAC reader can be defined via this input.

If the input is switched to GND, the CAN interface is selected and Wiegand is deactivated. In addition, the LED inputs are deactivated (control via CAN).

If the input is switched to supply voltage potential, the Wiegand interface is selected and the CAN interface is deactivated. In addition, the LED inputs are activated.

If the input is not connected, only the LEDs are active.

The potential-free output is always inactive.

When booting HISAC, the bus select is reported as follows:

- CAN: 3xBeep (long)+blue
- Wiegand: 5xBeep (short)+green
- Bus off: 1xBeep (long)+red

Floating output (normally open contact)

In this version of "concealed mounting", the touch function is inactive, i.e. the potential-free output Switch-1 , Switch-2 is not connected.

2   Connection

Cable for Wiegand/CAN/button			
Number	Wire colour	Signal	Description
1	red	12V/24V DC	Supply voltage
2	brown	LED red	Input for LED red
3	white	LED orange (blue)	Input for LED blue
4	green	LED green	Input for LED green
5	blue	GND	Zero potential (of supply voltage, and the LEDs)
6	grey	RXTX-P/D1	CAN bus High internally connected to RXTX-P-2 /Wiegand Clock
7	pink	RXTX-N/D0	CAN bus Low internally connected to RXTX-N-2 /Wiegand Data
8	violet	RXTX-P2	CAN bus High internally connected to RXTX-P
9	black	RXTX-N2	CAN bus Low internally connected with RXTX-N
10	yellow	Bus Select	Busselect (Wiegand/CAN_/Busoff-)
11	grey/pink	Switch-1	Not connected.
12	red/blue	Switch-2	Not connected.
Shield	-	-	Connected to protective circuit and is to be put on.

Cable properties:

Management	PUR, UL, S370
Description	Flexible, silicone- and halogen-free control cable with high mechanical strength. The cable is resistant to chemicals, hydrolysis and microbes. Drag chain use is possible with a bending radius of min. 10xd. Due to its resistance to welding sparks, the cable is very well suited for flexible use in robotics, machine tools and metal-cutting production. The cables meet the requirements of UL and CSA (UL10493/20549; cULus).
Outer diameter sheath	6.00 mm
Maerial cable sheath	PUR
Coat colour	BK, similar to RAL9005
Core insulation material	PP
Core colours	BN, BU, WH, GN, PK, YE, BK, GY, RD, VT, GYPK, RDBU
Strand construction	19 x 0.10 mm
Bending radius (fixed)	5 x Ø cable
Bending radius (moved)	12 x Ø cable
Temperature range (moved)	-30°C...+90°C
Temperature range (fixed)	-40°C...+90°C
Temperature range (drag chain)	-25°C...+60°C
Drag chain insert	2 million cycles
Shielding	Yes
Halogen-free	Yes
Torsion	+/-180Q/m, < 1 million cycles
Rated voltage line	≤ 300 V
Special features	flame retardant, seawater resistant, recyclable, LABS-free, RoHs compliant, acid and alkali resistant, ozone resistant, UV resistant, hydrolysis resistant, drag chain resistant, torsion resistant, welding spark resistant, halogen free, silicone free, oil resistant

3   Commissioning

After applying the operating voltage 12V DC or 24V DC, HISAC listens for 1 minute on the CAN interface to enable a firmware update. This is indicated by the LED flashing in several colours.

4   Troubleshooting

In case of malfunctions, check the following points:

- **Wiring:**
    Are all lines connected correctly?
- **Control signals:**
    Is the supply voltage of 12V DC or 24V DC applied?
    Are the required control signals available at the HISAC?
- **Installation:**
    Is the housing damaged?
- **Operation:**
    Does the LED light up correctly?
   Does the signal transmitter report?
    Are the cards or tags read?

5   Serial interface

HISAC has the option of communicating either via Wiegand protocol (1KHz) or via CAN bus protocol. The protocol to be used is determined via the BUS-SELECT line at the time of switch-on.

Important:

The maximum voltage of the Wiegand lines for the serial interface is 24V with a current of less than or equal to 5mA. Higher voltages or currents can damage the HISAC and/or the bus system.
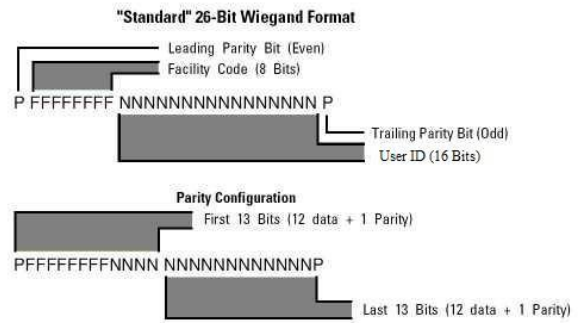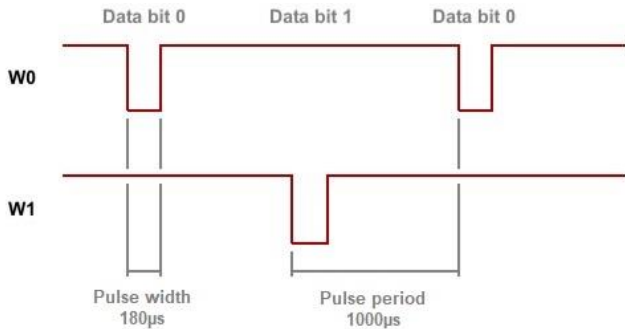
5.1   CAN bus protocol

HISAC can be parameterised via the CAN 2.0B protocol. The following factory settings apply to this protocol. These can be changed subsequently.

Baud rate (default)	250 kBit/s
Device ID	Identical with serial number (Extended-Identifier Format)

Detailed information on the protocols can be found in the interface description available separately. Please request this from us if required.

6 Technical data

Approvals	CE
RFID frequencies	125 KHz and 13.56 MHz
RFID read distance	≤ 40mm, depending on the installation situation and the RFID frequency used.
Operating nominal voltage / voltage range	12V DC or 24 V DC / 11...30 V DC
Power consumption in Ruhr mode with LEDs without sound without card reading	max. 35mA/24V, 90mA/12V
Power consumption in boot mode, LED and sound	max. 150mA/24V, 150mA/12V
Current consumption during card reading (Mifare with AES), LEDs without sound	max. 55mA/24V, 130mA/12V
Current consumption during card reading (Mifare with AES), LEDs with sound	max. 200mA/24V, 250mA/12V
Current consumption during card reading (Mifare), LEDs without sound	max. 50mA/24V, 82mA/12V
Current consumption during card reading (Mifare), LEDs with sound	max 180mA/24V, 210mA/12V
Current consumption during card reading (hitag2, em4100), LEDs without sound	max. 50mA/24V, 80mA/12V
Current consumption during card reading (hitag2, em4100), LEDs with sound	max . 160mA/24V, 200mA/12V
Load capacity of the potential-free output	30V, 300 mA
Operating temperature / storage temperature range	-15° C ... +60° C / -20° C ... +70° C
Protection class	IP67 (front side, when installed)
Housing dimensions	See product drawing*Illustration 1 Product drawing for HISAC 301001.0*
Weight with connection cable	Approx. 0.4 kg
Cable length	7 m
Material housing	PC-ABS

7 List of figures

8 Notes

Notes: