



ID ISC.LR.WS-A Wiegand Switch (4955.000.00)

Functional Description and Installation



Note

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FEIG ELECTRONIC GmbH
Lange Strasse 4
D-35781 Weilburg
Tel.: +49 6471 3109-0
<http://www.feig.de>

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1. Abbreviated terms

Ant	Antenna
D0	Data-0
D1	Data-1
GND	Ground
IN	Input
I/O	Input/Output
OUT	Output
REL	Relay
RFID	Radio-Frequency Identification
UHF	Ultra High Frequency

2. Safety Instructions / Warning - Read before start-up !

- The device may only be used for the intended purpose designed by for the manufacturer.
- The installation manual should be conveniently kept available at all times for each user.
- Unauthorised changes and the use of spare parts and additional devices which have not been sold or recommended by the manufacturer may cause fire, electric shocks or injuries. Such unauthorised measures shall exclude any liability by the manufacturer.
- The liability-prescriptions of the manufacturer in the issue valid at the time of purchase are valid for the device. The manufacturer shall not be held legally responsible for inaccuracies, errors, or omissions in the manual or automatically set parameters for a device or for an incorrect application of a device.
- Repairs may only be executed by the manufacturer.
- Installation, operation, and maintenance procedures should only be carried out by qualified personnel.
- Use of the device and its installation must be in accordance with national legal requirements and local electrical codes .
- When working on devices the valid safety regulations must be observed.

3. Characterization ID ISC.LR.WS-A

The Wiegand Switch is an additional interface device which allows you to route the Wiegand signal of a FEIG RFID reader to two different input channels of an access control panel.

Switching between the output channels of the Wiegand Switch is controlled by the readers relay. The readers relay is switched on or off in dependency of a read event on a particular antenna.

This offers the possibility to control two neighboring gates e.g. in a vehicle access control application with just one reader. This can either be an entry and an exit, two entry lanes or two exit lanes. Multiple antennas can be used per lane.

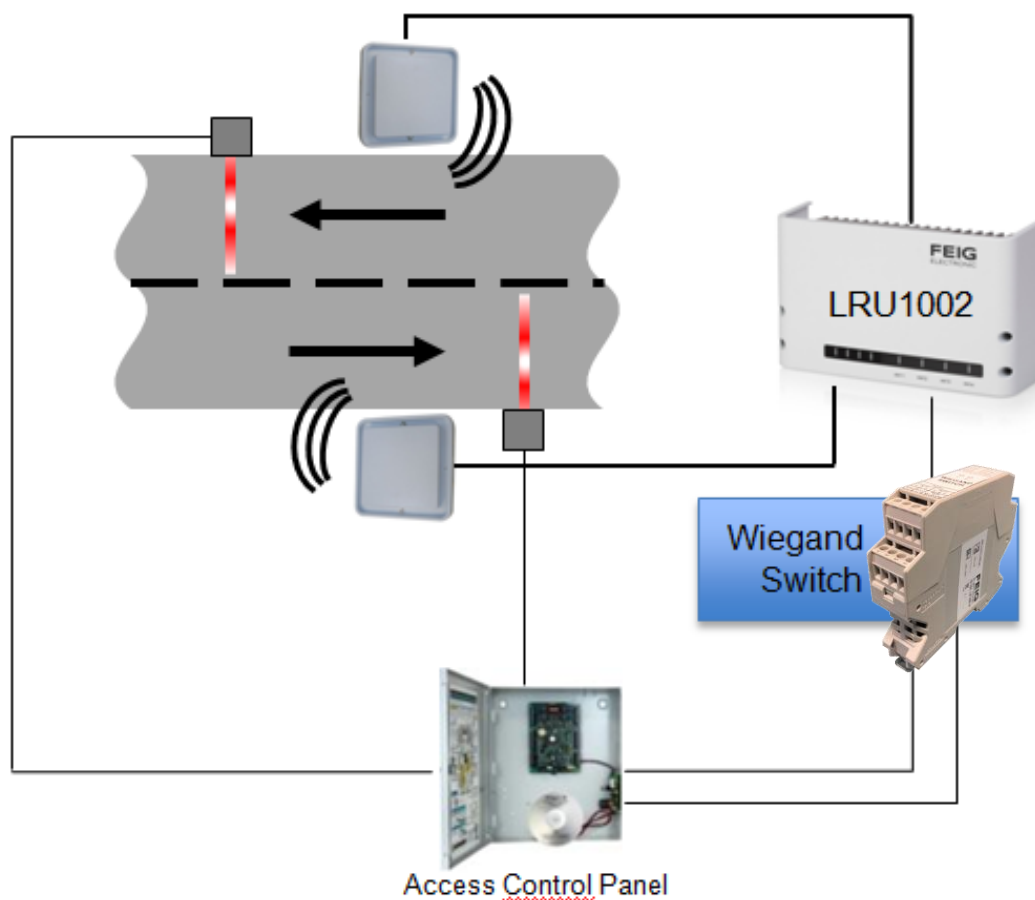


Figure 1: Examples for control of two lanes with one reader ID ISC.LRU1002 (V2)

The Wiegand Switch can be also used if the Wiegand signal quality of other reader types is not sufficient for the connected Access Control Panel.

3.1. Scope of delivery

The delivery contains the following parts:

Table 1: Product order information

Part Number	Product Name
4955.000.00	ID ISC.LR.WS-A Wiegand-Switch

3.2. Reader Support

The Wiegand Switch can be used with the following FEIG devices:

Table 2: Supported Reader types if Wiegand Switch is used for two lanes

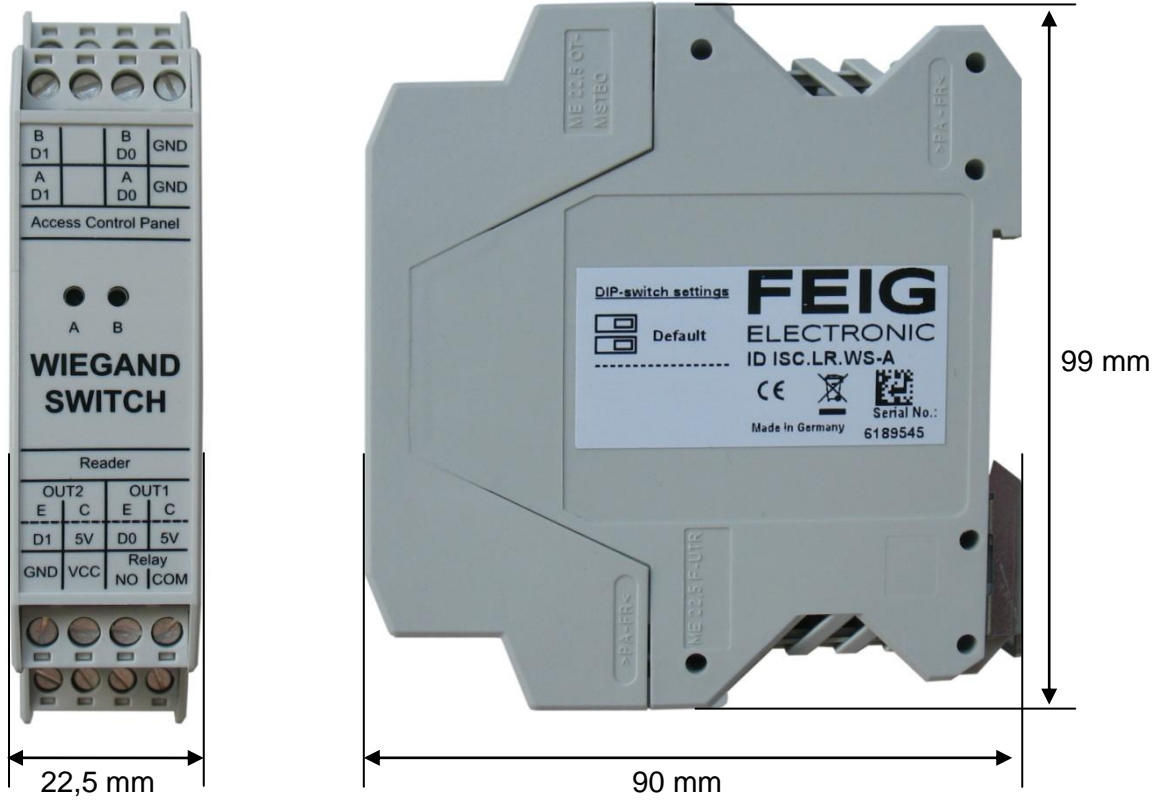
Part Number	Product Name	Comment
4127.001.00 4128.001.00	ID ISC.LRU1002-EU (V2) ID ISC.LRU1002-FCC (V2)	Useable from firmware version 1.00
3548.000.01 3549.000.01	ID ISC.LRU3000-EU ID ISC.LRU3000-FCC	If required please contact identification-support@feig.de
3551.000.01 3550.000.01	ID ISC.LRU3500-EU ID ISC.LRU3500-FCC	

Table 3: Supported Reader types if Wiegand Switch is used for one lane to get an improved 5 V TTL Wiegand signal

Part Number	Product Name	Comment
4127.000.00 4128.000.00	ID ISC.LRU1002-EU ID ISC.LRU1002-FCC	Can be used to get an improved 5 V TTL Wiegand signals for an easy adaption of the reader to a Wiegand Controller
3548.000.01 3549.000.01	ID ISC.LRU3000-EU ID ISC.LRU3000-FCC	
3551.000.01 3550.000.01	ID ISC.LRU3500-EU ID ISC.LRU3500-FCC	
3620.000.00	ID ISC.LR2500-A	
3618.000.00 3619.000.00	ID ISC.LRM2500-A ID ISC.LRM2500-B	

4. Dimensions

The ID ISC.LR.WS-A is designed for DIN hat rail mounting (according to DIN EN 50 022) and is therefore especially suited for use in industrial housings.



5. System Architecture

The Wiegand Switch is powered by an external supply voltage of 12 up to 24 V DC. This can be provided either by an external power supply or by the DC pin of the readers I/O connector (depending on used reader).

The Wiegand Output of the reader is connected to the Wiegand Input of the Switch. The Wiegand Outputs of the Switch are connected to different inputs at an Access Control Panel.

The output of the Wiegand Switch is controlled by a switching signal. The switching signal can be generated by the readers relay output. The on/off switching of the relay in dependency of a read event on a particular antenna can be configured in the reader settings (see: [10.1.2. Configuration](#)).

If the reader relay is switched off (default state) the Wiegand Switch uses its Wiegand Output A. If the relay is switched active the Wiegand signal will be routed to Wiegand Output B.

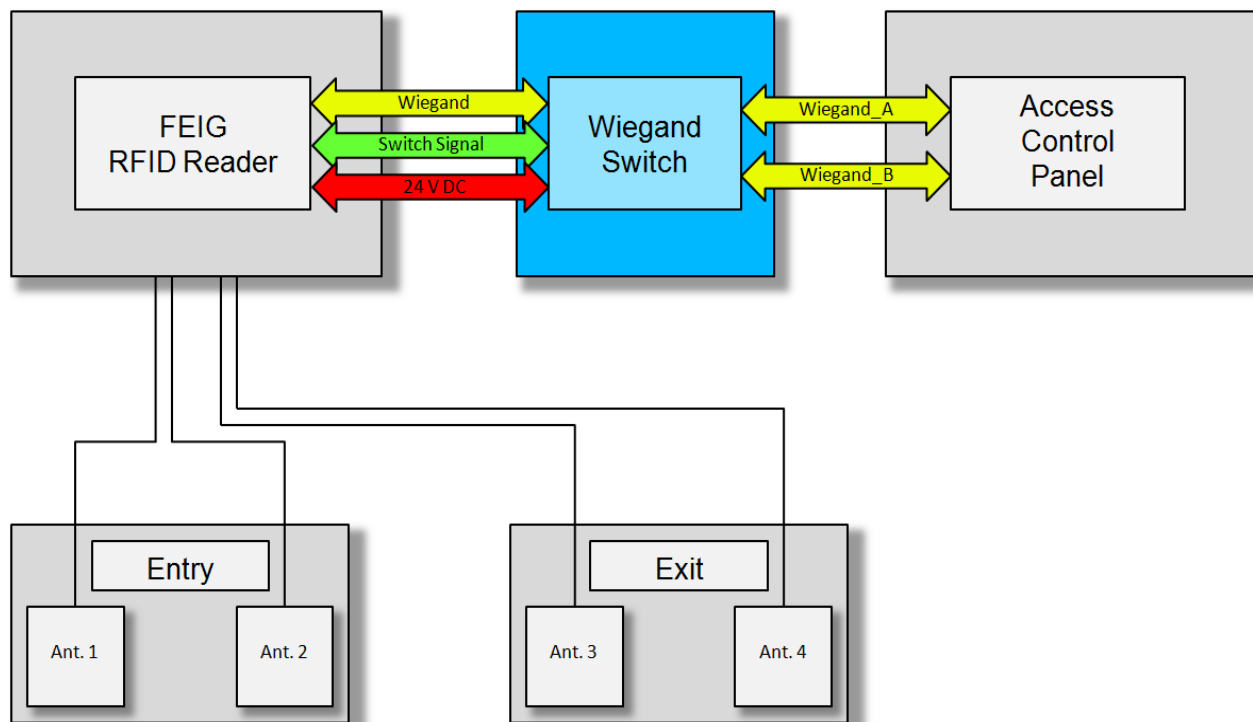


Figure 2: System Architecture

6. Connector description of the Wiegand Switch

Figure 3: Available Connectors gives an overview on the different connectors of the Wiegand Switch, the reader and the used Access Control Panel.

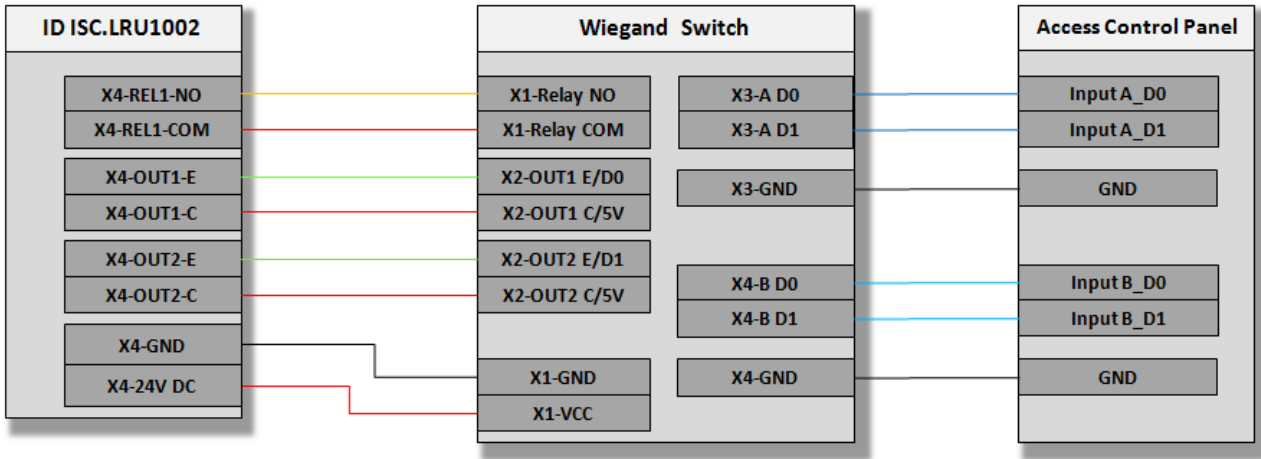


Figure 3: Available Connectors



Figure 4: Connector overview X1 – X4

6.1. Power Supply

The supply voltage of 12-24 V DC must be connected to connector X1 of the Wiegand Switch.

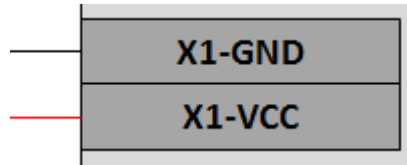
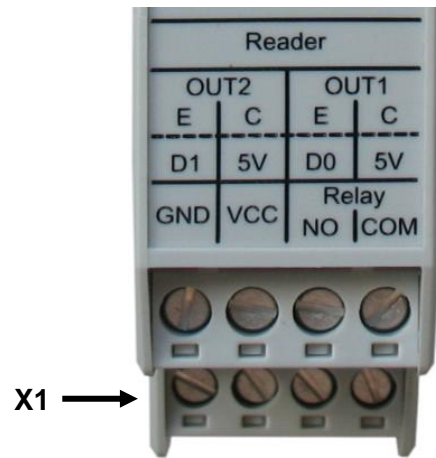


Figure 5: Pin Assignment at connector X1



Pin	Signal
X1-GND	Ground
X1-VCC	12-24 V DC

Table 4: Pin assignment at connector X3

6.2. Inputs

The Output signals from the reader are connected to connector X1 and X2 of the Wiegand Switch.

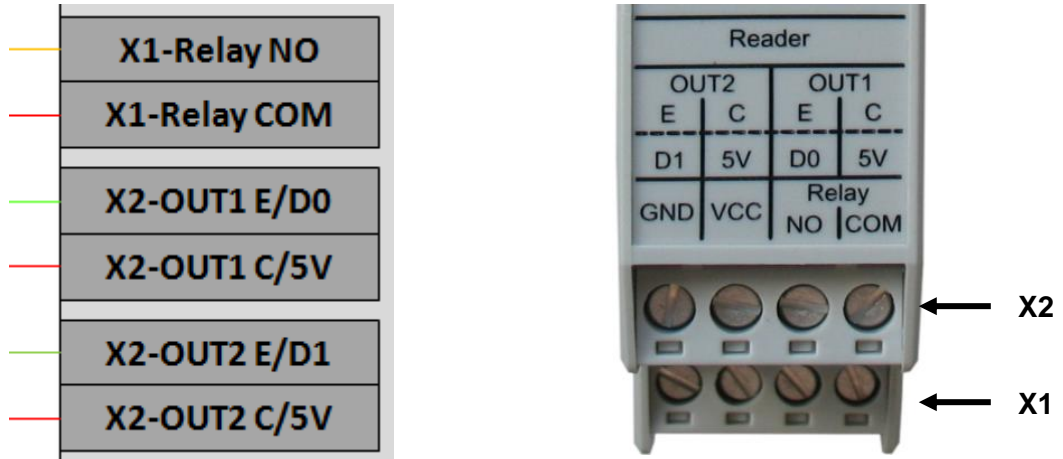


Figure 6: Pin Assignment at connector X1

Table 5: Pin assignment at connector X1 and X2

Pin	Signal
X1-Relay No	Switching signal of the relay
X1- Relay COM	
X2-OUT1 E/D0	Data-0 Signal of the readers Wiegand Output
X2-OUT1 C/ 5V	5 V DC Signal to drive the outputs of the reader
X2-OUT2 E/D1	Data-1 Signal of the readers Wiegand Output
X2-OUT2 C/ 5V	5 V DC Signal to drive the outputs of the reader

6.3. Wiegand Outputs D0, D1 (5V TTL)

The input signals of the external access controller are connected to connector X3 and X4 of the Wiegand Switch.

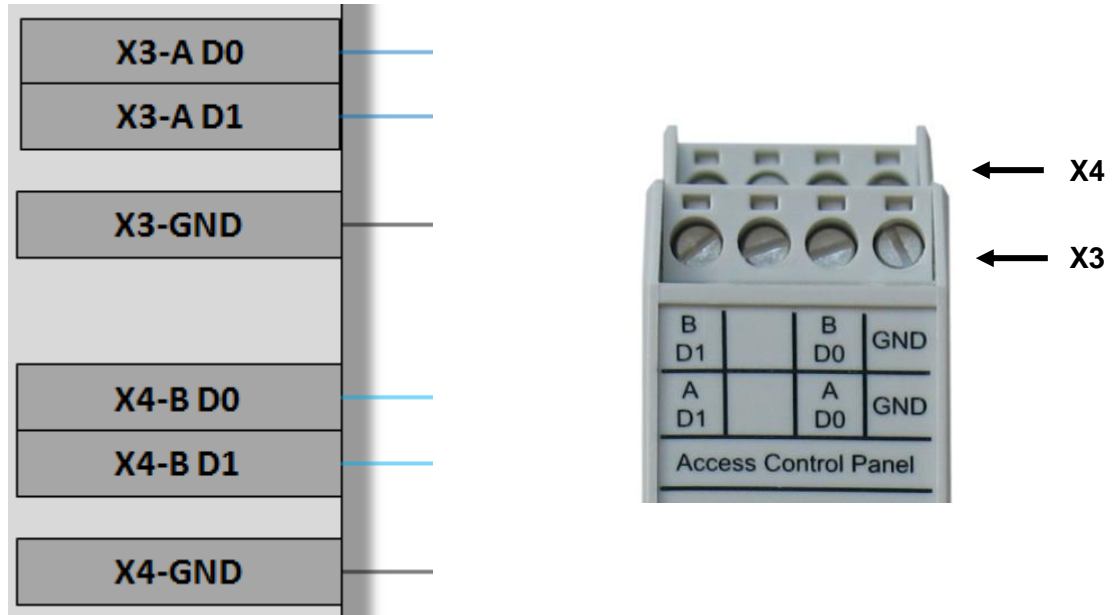


Figure 7: Pin Assignment at connector X3 and X4

Table 6: Pin assignment at connector X2

Pin	Signal
X3-A D0	D0 at Input 1 of the Access Controller (5V TTL)
X3-A D1	D1 at Input 1 of the Access Controller (5V TTL)
X3-GND	Common Ground
X4-B D0	D0 at Input 2 of the Access Controller (5V TTL)
X4-B D1	D1 at Input 2 of the Access Controller (5V TTL)
X4-GND	Common Ground

7. DIP-Switch settings

The Wiegand Switch is equipped with two DIP-Switches . This DIP-Switch need to be set depending on the used reader type.

For getting access to the DIP-Switches the Wiegand Switch need to be opened.

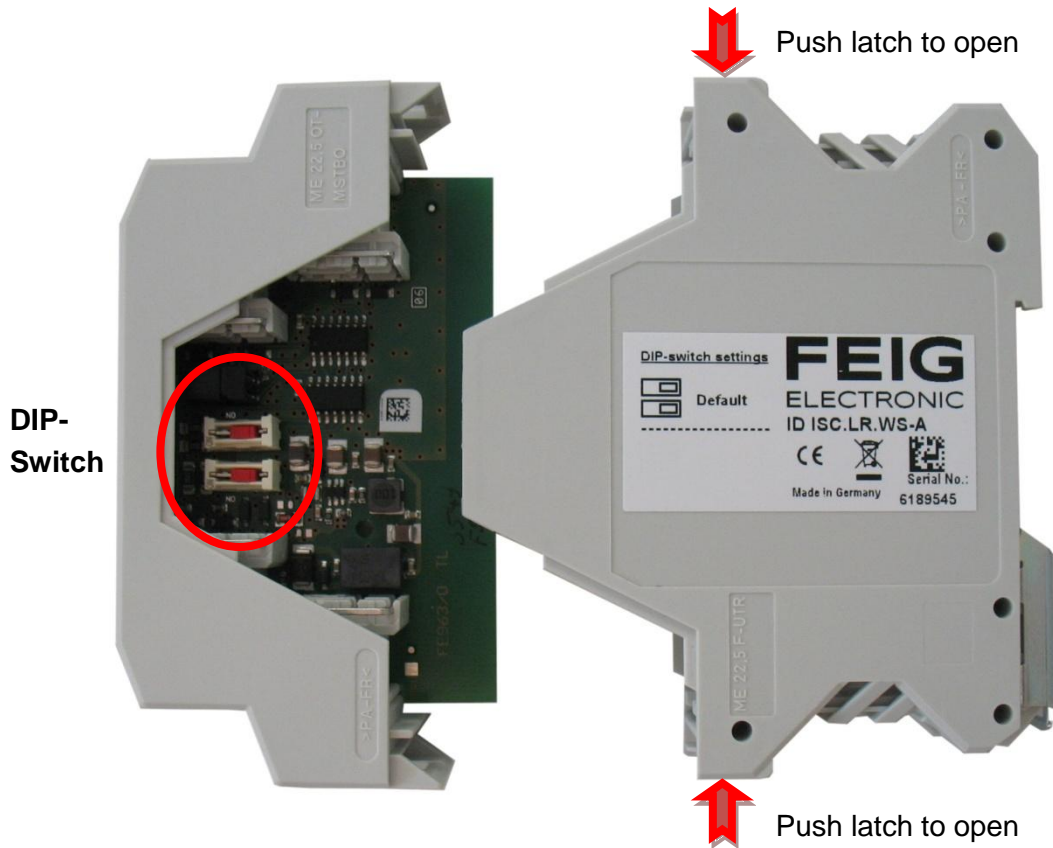


Figure 8: Position of the DIP-Switch

Table 7: Jumper setting

Jumper position	Action
	Default Setting Use with ID ISC.LRU1002 (V2) only (EU: 4127.001.00; FCC: 4128.001.00)
	Use with ID ISC.LRU3x00 and ID ISC.LR(M)2500 and ID ISC.LRU1002 (EU: 4127.000.00; FCC: 4128.000.00)

NOTE:

The setting of the DIP Switch 1-2 should always be set in pairs

8. Indicators LEDs

The Wiegand Switch has two green LEDs which indicates the active Wiegand output A or B.



Figure 9: shows the position of the two green LEDs

9. Technical Data

Technical Data	
Housing	Polyamide
Colour	RAL7035 (light grey)
Dimensions	99 mm x 90 mm x 22,5 mm (H x L x W)
Weight	approx. 90 g
Power Supply	12...24 V DC (+/-20 %)
Current Consumption	typ. < 80 mA
Output voltage	5V TTL (D0, D1)
Supported Reader	Two lane support: ID ISC.LRU1002 (V2) Wiegand Signal improvement: ID ISC.LRU1002, ID ISC.LRU3000, ID ISC.LRU3500, ID ISC.LR2500
Indicator	2 green LED; indicates the active Wiegand output
Other Features	Housing for DIN Hat Rail Mounting
Temperature	
- Operation	-25 °C up to +55 °C
- Storage	-40 °C up to +85 °C
Humidity	5 % up to 95 % (non-condensing)
Vibration	EN 60068-2-6 10 Hz up to 150 Hz: 0,075 mm / 1 g
Shock	EN 60068-2-27 Acceleration: 30 g
Applicable Standards	
- EMC	EN 301 489
- Safety	EN 32 368

10. Wiring and Configuration Examples

10.1. ID ISC.LRU1002

10.1.1. Wiring

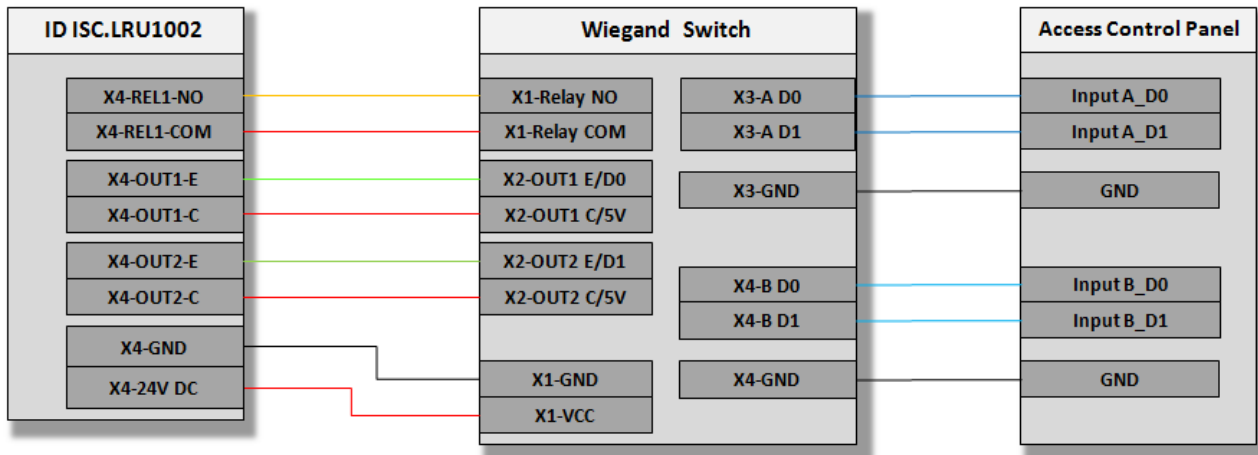


Figure 10: Wiring Example for ID ISC.LRU1002

10.1.2. Configuration

Figure 11: Example for relay settings in the reader configuration shows an example for possible settings in the reader configuration. In that scenario two antennas are connected to the reader. Each antenna is used to control a separate lane. If a transponder is detected by antenna 1 the relay of the reader stays off. Data is transmitted by Output A of the Wiegand Switch to the Access Controller. If a transponder is read by antenna 2 the relay output of the reader is switched on. Data is transmitted by Output B of the Wiegand Switch to the Access Controller.

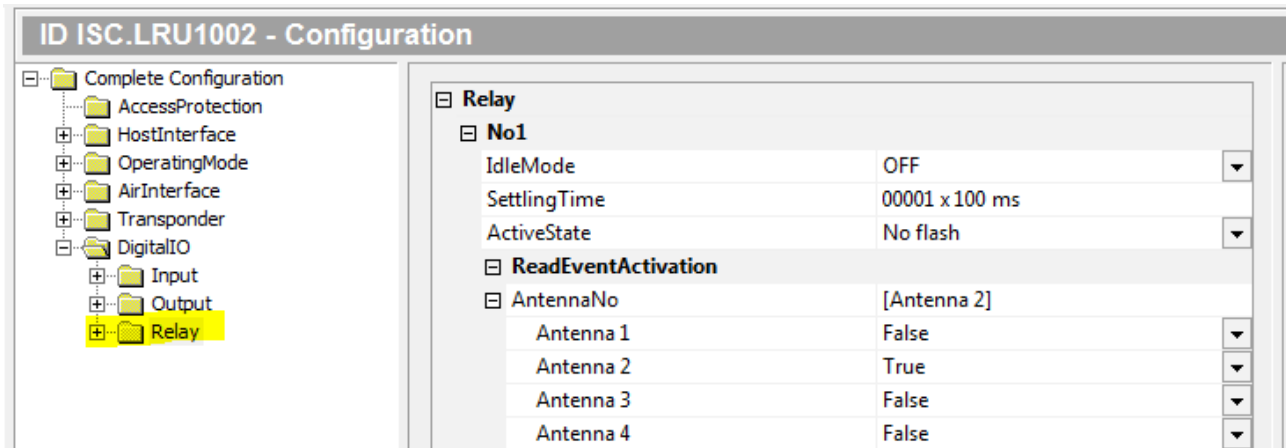


Figure 11: Example for relay settings in the reader configuration

NOTE:

The relay "Setting Time" need to be set to (00001 x 100 ms)

Table 8: Settings for 2 gates with one antenna per lane

Gate	Antenna assignment	Read Event Activation	Output Wiegand Switch
1	ANT1	False	OUT A
2	ANT2	True	OUT B

Table 9: Settings for 2 Gates with 2 antennas per lane

Gate	Antenna assignment	Read Event Activation	Output Wiegand Switch
1	ANT1	False	OUT A
1	ANT2	False	OUT A
2	ANT3	True	OUT B
2	ANT4	True	OUT B