

# SSI-301-W Isolated Wiegand interface board

Revision 1.0 - (September 29, 2009)

## Quick Start Guide

### Introduction

The SSI-301-W is a board designed to connect Wiegand compatible devices to the RS-485 reader network used by the SDC-5x0 controllers, and the SEB-720 Remote IO board.

This unit is power isolated, allowing the Wiegand device to have its own power supply without causing grounding issues on the network side of the device. This means that it has to be powered from a 12Vdc power source on both the RS-485 side of the device and from the Wiegand device side separately for the isolation to be effective. The RS-485 side of the power can be taken directly from the controller depending on the distance of the cable.

This device has been designed to be used with the following devices:

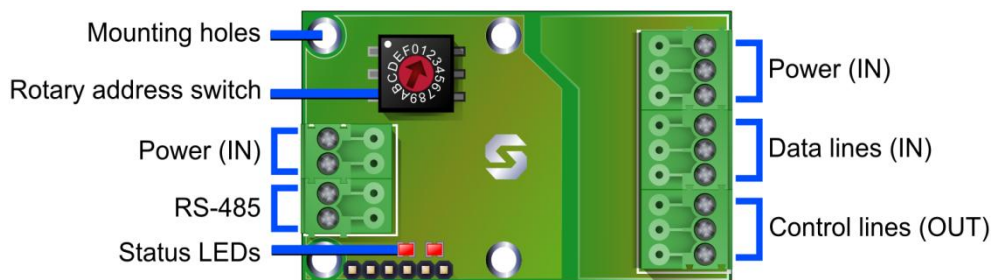
- SDC-5x0 controller board (Primary purpose).
- SEB-720 Remote IO board
- And any 3<sup>rd</sup> party Wiegand compatible device

It mimics a proximity reader on the RS-485 side and has a Wiegand host connection on the other side, which allows it to translate data between the two standards.

The unit is addressed on the RS-485 reader network using the rotary dipswitch. There are two LEDs to indicate the status of the device.

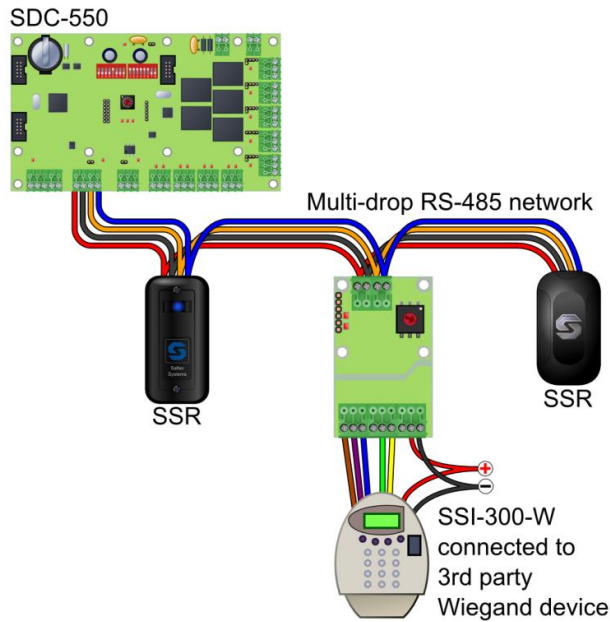
When the CPU light is flashing rapidly, then the network communications to the controller has been established, when it flashes slowly the device is working, but the network connection has not been established.

The READ light indicates when a Wiegand number has been received from the Wiegand interface.



**Figure 1**

*SSI-301-W with feature labels*

**Figure 2**

*System layout showing Wiegand-compatible device and SSI-301-W interface board*

### Step 1: Set the address using the address switch

The SSI-301-W communicates with the master device (e.g. SDC-550 controller) via a multi-drop RS-485 communications network as if it was an SSR-201 proximity card reader. Each device on this network requires a unique address for communications and identification. Duplicate addresses will cause communication problems.

The address of this interface board can be a number from 0 to F (0 to 15). This setting can be adjusted using the rotary dipswitch on the board. Turn the dial until the arrow points to the address that you wish to assign to the interface board.

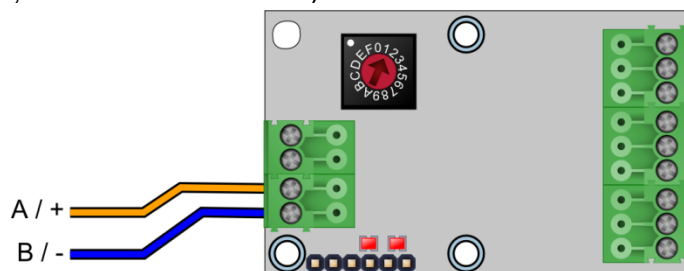
Note: This address of the interface board will be configured to be the address of a reader in the SACS software.

**Figure 3**

*Address switch with address 1 selected*

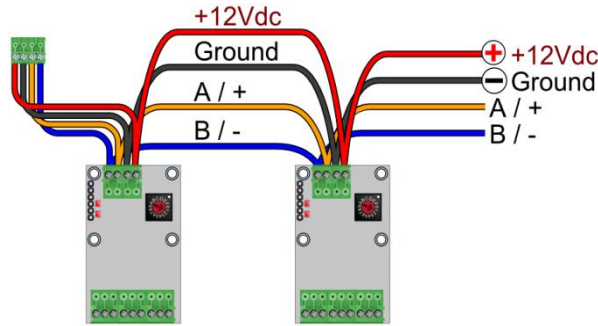
### Step 2: Connect the RS-485 reader network

Connect the RS-485 network to the other readers or compatible devices (e.g. the SSI-301-W Wiegand interface board) on the line (See Figures 2, 4 and 6). If this is the first device on the line, connect it to the controller board (SDC-550, SDC-510 or SEB-720).

**Figure 4**

*Wiring diagram for the RS-485 connections on the SSI-301-W interface board.*

Each device in the network will have a positive (A) and a negative (B) connector which connects to the corresponding line on the reader network. The RS-485 connections are always made this way, so all devices on the line will be wired in the same way.

**Figure 5**

RS-485 and power wiring diagram showing connection to controller and another SSI-301-W board.

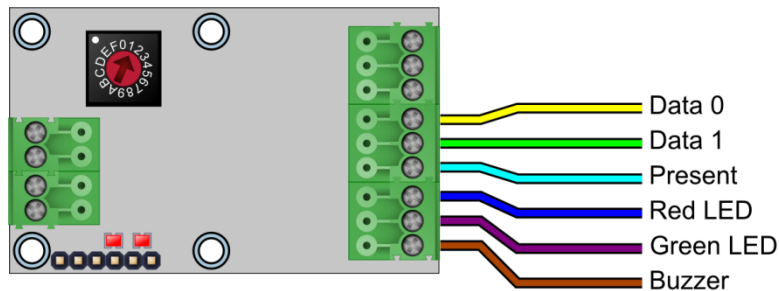
### Step 3: Connect the Wiegand device and power

The Wiegand device communicates with the SSI-301-W via six signalling lines which can be broken into two groups:

- The data lines (Data 0, Data 1 and Present)
- The control lines (Red LED, Green LED and Buzzer)

Connect these lines ensuring that the correct cables are used.

**Note:** Make sure that the power is switched off before connecting these cables.

**Figure 6**

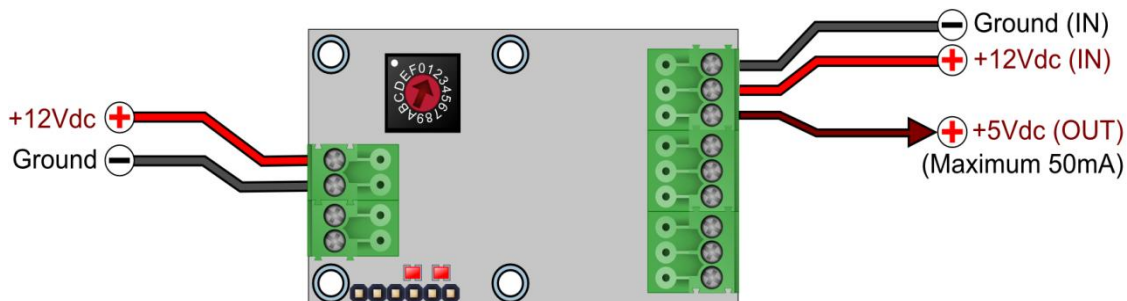
Wiring diagram for the Wiegand connections on the SSI-301-W interface board.

### Step 4: Connect the power

**Note:** The two sides of this device (RS-485 and Wiegand) are power isolated from each other and therefore must be powered independently.

**Wiegand side:** Connect the Ground and +12Vdc lines to the power supply that is to power the 3<sup>rd</sup> party Wiegand device.

If the 3<sup>rd</sup> party Wiegand device requires a +5Vdc connection, the SSI-301-W is able to supply a maximum of 50mA from this connection.

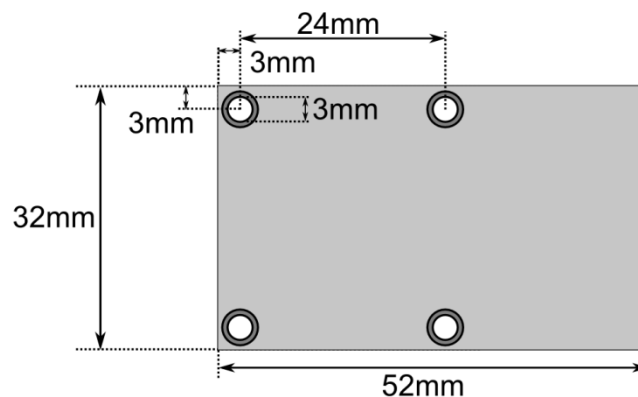
**Figure 7**

Wiring diagram for the power connections on the SSI-301-W interface board.

**RS-485 side:** Connect the Ground and +12Vdc lines to the RS-485 cable. This will cause that side of the board to be powered by the controller. Ensure that at least +9Vdc is provided.

## PRODUCT SPECIFICATIONS

Power requirements	
Operating Voltage (DC)	9 to 14 Vdc
Current	30 mA
Environmental characteristics	
Operating Temperature	0°C to +70°C
Storage Temperature	-10°C to +80°C
Digital Outputs (Wiegand)	
Specification:	Open collector transistor output with 4k7 Pull-up Resistor to 5Vdc.
Max Voltage on terminal	-2 to +20V referenced to ground
Max Load	100mA at 5Vdc
Inputs	
Specification:	TTL input with 4k7 Pull-up Resistor to 5Vdc.
Max Voltage on terminal	-10 to +20V referenced to ground
V Input Low	< 1V
V Input High	> 3V
Wiegand encodings	
Wiegand length	34 bits (32 bits data)/26 bits (24 bits data)
Site code length	0 bits (No site code)
Start parity bit	Even parity over the first half of the data bits
Stop parity bit	Odd parity over the last half of the data bits



**Figure 8**

Locations of the mounting holes on the SSI-301-W.