Saflec Systems (Pty) Ltd

## Introduction

The SEB-722 Remote I/O Expansion Board is an addressable expansion device that attaches on to the RS-485 Reader Network of the SDC Door Controller in conjunction with other RS-485 devices.

The SEB-722 Remote I/O Expansion Board can be used as a remote door controller thus avoiding voltage loss for the I/O of a remotely situated door. It can also be used as a remote connection point for additional I/O, for the same reason. The device contains 2x relay outputs (internal and external mode) and 4x digital inputs (see Figure.1).

Four additional RS-485 devices and 2x Wiegand devices can be directly connected to the device through the slave network or Wiegand Interfaces respectively, allowing more than 16 devices to be attached to an SDC controller.
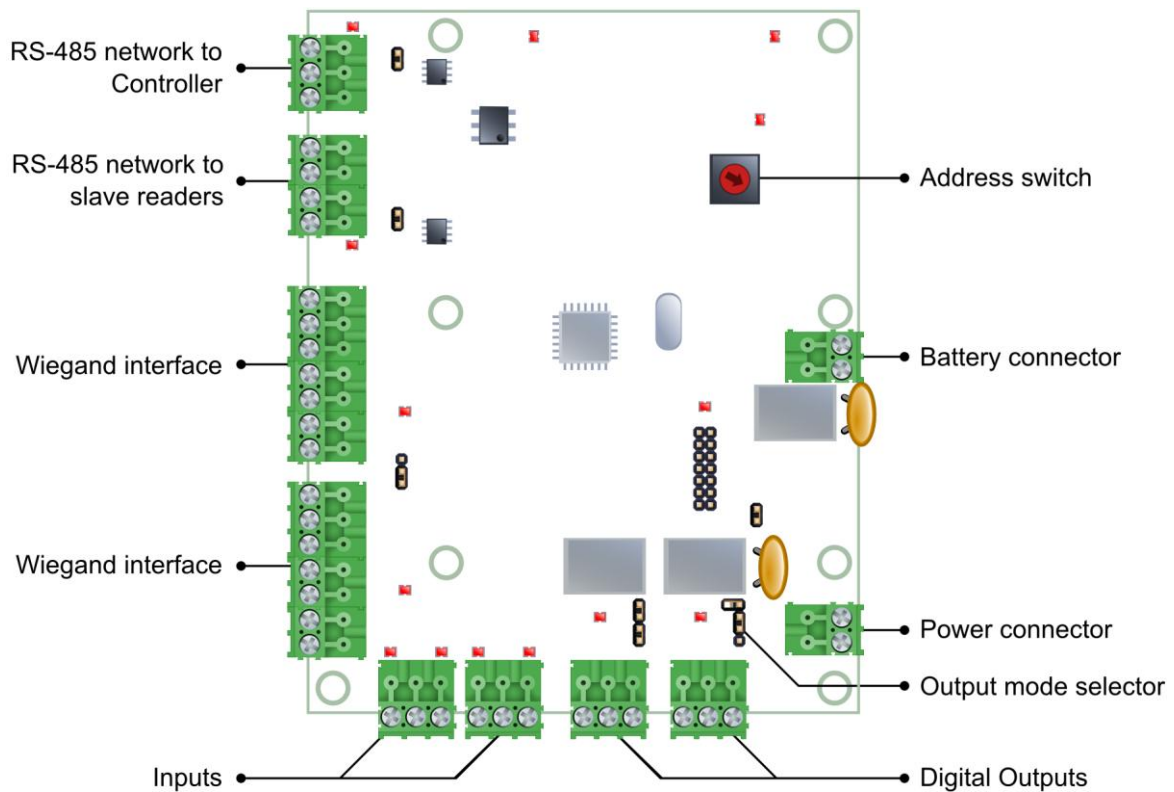


**Figure 1**
*SEB-722 Remote I/O expansion board with feature labels*

# Step by step procedure to install the SEB-722 Remote I/O Expansion Board

Follow these steps to install the SEB-722 Remote I/O Expansion Board:

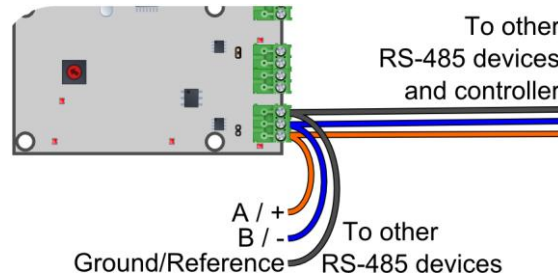1. **Connect the expansion board to the SDC RS-485 Reader network.**



**Figure 2**
*Connecting the SEB-722 Remote I/O Expansion Board to the RS-485 Reader Network*

Note: Indicated colors may vary depending on the type of cable used.

2. **Set the desired address for the expansion board.**
This setting can be adjusted by using the rotary switch on the expansion board.
Note: Each device on the SDC RS-485 Reader Network requires a unique address. Duplicate addresses will cause communication problems. The address of the expansion board can be number from 0 to 15.
(A to F is the same as 10 to 15)



**Figure 3**
*Setting the address of the SEB-722 Remote I/O Expansion Board*

3. **Connect the slave RS-485 devices to the Expansion board.**
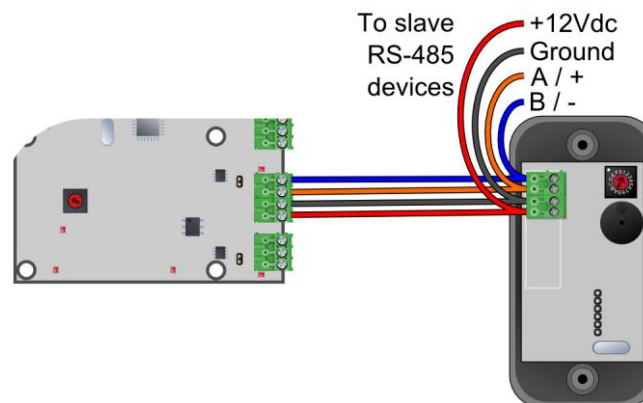This step is optional, skip if no readers are required. The diagram shows an SSR-201 proximity reader being connected.



**Figure 4**
*Connecting the SSR-201 RS-485 Proximity Reader to the SEB-722 Remote I/O Expansion Board*

## 4. Connect a Wiegand device to the expansion board.

This step is optional, skip if no Wiegand devices are required.

There are 2x Wiegand Interfaces on the board, allowing two devices to be connected. If the Wiegand device is independently powered, then the +voltage connector should not be used, however the Ground pin must *always* be correctly connected to the device.

**Note:** The voltage that will be available from the +Vdc pin of the connector is either +5Vdc or +12Vdc, dependent on the jumper setting (J5) next to the Wiegand Interface connections.
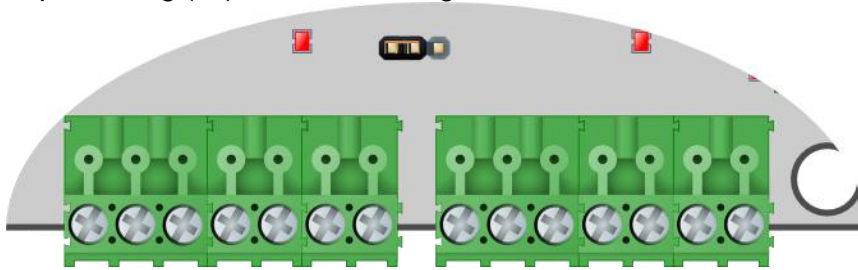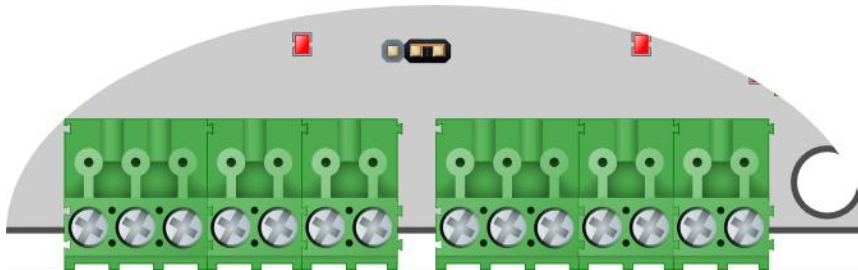


**Figure 5a**
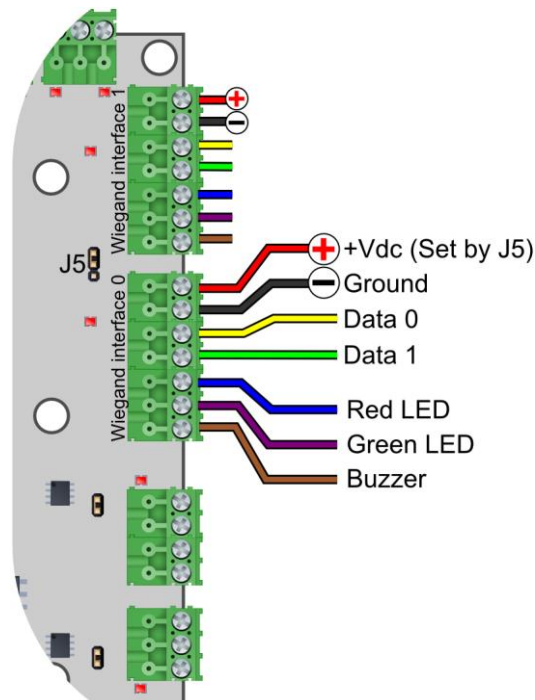*Jumper set on +5Vdc*



**Figure 5b**
*Jumper set on +12Vdc*



**Figure 6**
*Connecting a Wiegand Device to the SEB-722 Remote I/O Expansion Board*

**Note:** Indicated colors may vary depending on the type of cable used.

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## 5. Connect the Digital Inputs to the expansion board.
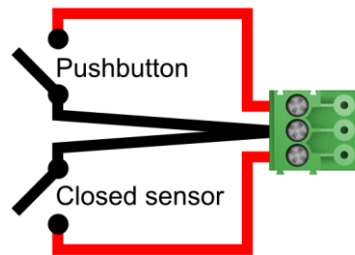This step is optional, skip if no inputs need to be wired into the expansion board.



**Figure 7**
*Connecting the Digital Inputs*

## 6. Connect the Digital Outputs to the expansion board.
This step is optional, skip if no outputs need to be wired into the expansion board.

The outputs can be configured as a potential free contact that allows external DC or AC power to be switched through the relay (Option 1), or it can provide +12Vdc power to the output device (Option 2). The configuration of the output modes can be accomplished by changing the jumpers next to the selected output connector to the correct setting.
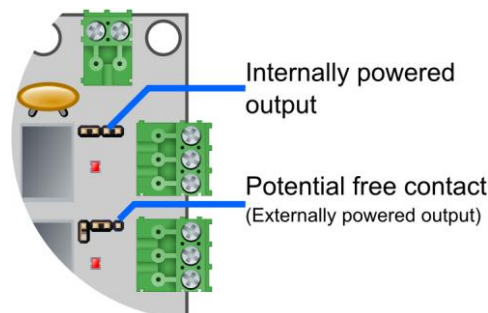


**Figure 8**
*SEB-722 Output Configuration Jumpers*

### 6.1 Option 1 - Externally Powered Outputs (Default factory setting)



**Figure 9a**
*Jumper configuration for Externally Powered Outputs*

This configuration is the factory default setting and is used when the SEB-722 Remote I/O Expansion Board is located more than 100 meters from its power source or the power supply for the expansion board has insufficient power to supply the output device.
This is the safer of the two methods because this connection is a potential free connection and any interference or damage to the output device will not effect the operation of the SEB-722 Remote I/O Expansion Board.

**Note:** Use this method to switch AC powered devices e.g. 24Vac Turnstile solenoids, 220Vac Gate Motors, etc.

- Set the jumper next to the output connector to the correct setting for Externally Powered outputs.

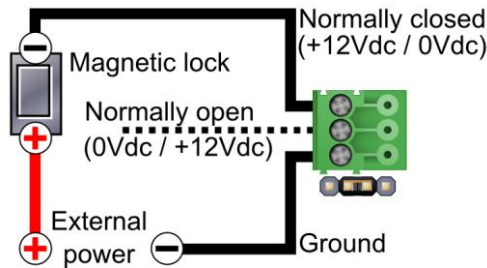- Connect the output as shown in the diagram below.



**Figure 9b**
*Connecting the Digital Outputs (External mode)*

**6.2 Option 2 - Internally Powered Outputs**



**Figure 10a**
*Jumper configuration for Internally Powered Outputs*

This configuration of the outputs is the simplest way for connecting the outputs. The output device is simply connected directly into the COMMON and Normally Open (NO) connectors or into the COMMON and Normally Closed (NC) connectors depending on the powered device used and its active state requirement.

**Important Note:** This type of connection is limited by the power requirement of the output device and care must be taken that the power supply source of the SEB-722 Remote I/O Expansion Board is sufficient to supply power to the output device. Care must also be taken to ensure that the current rating of the powered device does not exceed the rating of the output. Connecting outputs in this manner, although being the simplest connection, means that the connection is not potential free and any interferences from the powered device can cause communication failure to occur between the SEB-722 Remote I/O Expansion Board and the Controller's RS-485 Reader Network, or cause permanent damage to the SEB-722 Remote I/O Expansion Board.

- Set the jumper next to the output connector to the correct setting for Internally Powered outputs.

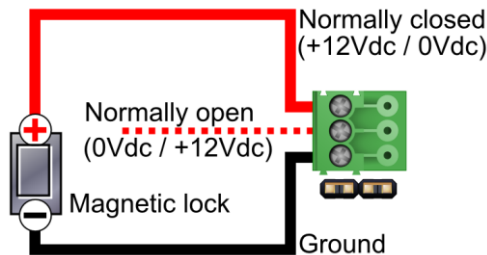- Connect the output as shown in the diagram below.



**Figure 10b**
*Connecting the Digital Outputs (Internal mode)*

## 7.  Connect the expansion board to the power supply.

**Note:** The power supply should normally be a +15Vdc power supply capable of supplying 300mA, however if no rechargeable battery is connected, the power supply can be a +12Vdc power supply.

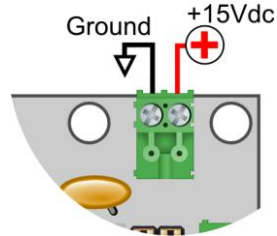This power supply with battery backup can be factory supplied with the expansion board.



**Figure 11b**
*Connecting the +15Vdc power supply.*

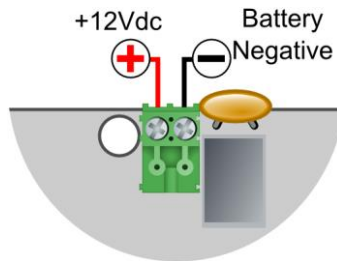Should a battery be required for backup purposes, it is attached as follows:



**Figure 11a**
*Connecting a +12Vdc rechargeable battery (Optional).*

**Notes:**

| PRODUCT SPECIFICATIONS | |
|---|---|
| **Power requirements** | |
| Operating Voltage (DC) | 12Vdc |
| Maximum Current (with Externally Powered outputs) | 200mA |
| Maximum Current (Including four SSR-001 proximity card readers) | 600mA |
| | |
| **Environmental characteristics** | |
| Operating Temperature | 0°C to +70°C |
| Storage Temperature | -10°C to +80°C |
| | |
| **Inputs** | |
| Input Type | Digital |
| Typical Input Voltage | 0 to +12Vdc |
| Maximum Input Voltage | -12Vdc to 36Vdc |
| Maximum Input Current | 5mA |
| | |
| **Outputs** | |
| Output type | Relay |
| Maximum voltage (AC) | 250Vac |
| Maximum voltage (DC) | 220Vdc |
| Maximum current | 2A |
| Recommended maximums (Single Relay) | 850mA at 30Vdc |
| Maximum switching current (inductive) | 500mA |
| | |
| **Note:** Care must be taken not to exceed the contact ratings listed or damage to the expansion board will occur. | |
| | |
| **RS-485 reader network** | |
| Transient Protection | Yes |
| Maximum Network Length | 500 meters |
| | |
| **Wiegand Input** | |
| Specification: | TLL input with 4k7 Pull-up Resistor to 5V DC. |
| Max Voltage on terminal | -10 to +20V referenced to ground |
| V Input Low | < 1V |
| V Input High | > 2V |