ETConcept
Systems Engineering

Wiegand to RS485 Converter

W2RS485

User's Guide

CE

V1.1
Nov-08

Contents

List of Accessories Included

The packaged include the following items:

Wiegand to RS485 Converter (W2RS485)

User's Guide

2x- CTF female connectors

List of Required Accessories (not included)

To install the convert the following item are required:

ScrewDrivers

Power Supply

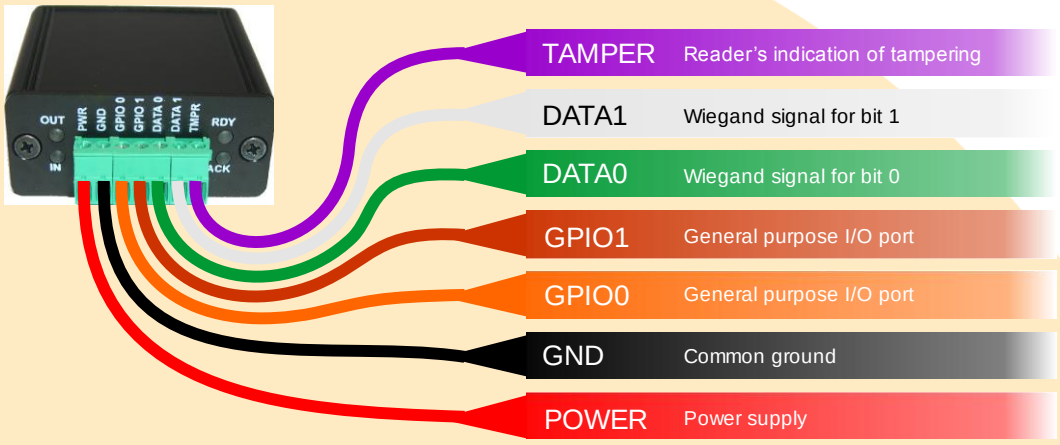
Quick Installation

To install the converter follow the steps below:

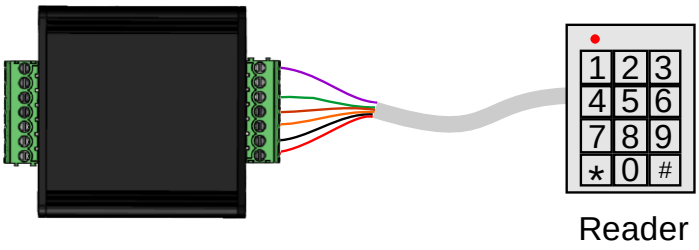
1. Verify the package contents (see the list of accessories included)

2. Connect the reader/controller Wiegand interface to the female CTF terminal block using a S2.5 screwdriver.

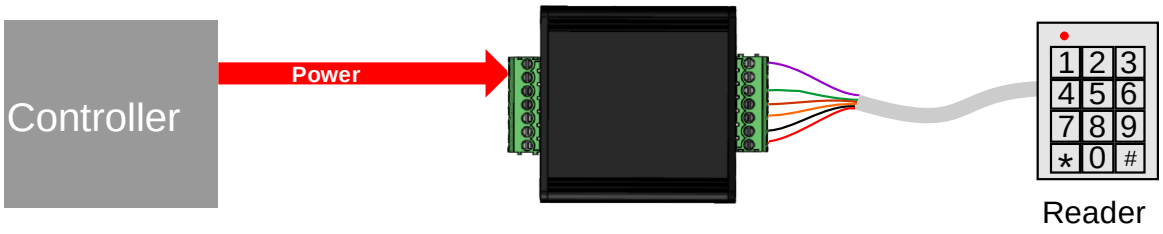
   a. Follow the connection diagram below and use the screwdriver



b. Plug the CTF terminal block to the converter



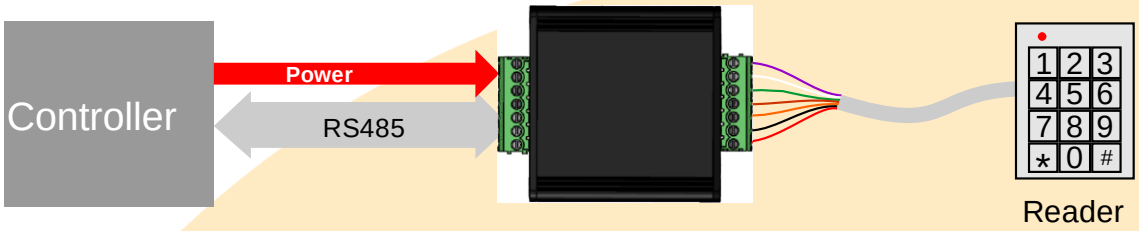
3. Connect the converter to the power supply



4. Certify that the correct mode has been detected (Input or Output)

a. If the converter isn't in the correct mode repeat step 3

5. Than connect the RS485 cable to the controller



General Information

Wiegand converters were developed for the security market to connect control access equipments like, for example, keypads and card readers with Wiegand interface, to other interfaced equipments like for example the serial port of a computer. This family of bidirectional Wiegand converters can convert data in binary format to Wiegand and vice-versa. The converter's setup is reduced to minimum for rapid installation.

The Converter has two working modes: input-mode and output-mode, explained in detail on the next subchapters.

Operating in Input Mode

The converter will operate in **Input-Mode** when connected to the **output interface** of a Wiegand compliant device e.g., a keypad or card-reader. In this mode, the converter will automatically convert a Wiegand 6-bit up to 96-bit input sequence to a formatted binary frame, see command set. It will also detects changes on the Tamper input signal and reports to the controller. The converter sets the two general purpose I/O to output and will accept commands from the serial interface to control the $GPIO_0$ and $GPIO_1$. Figure 1 shows a conceptual diagram of the Wiegand converter in input mode and the data flow directions.

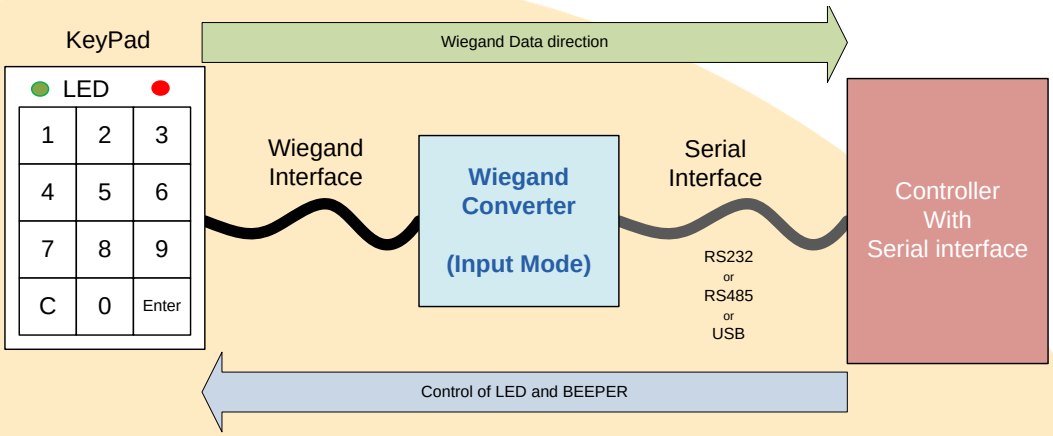


Figure 1 - Conceptual diagram of the Wiegand converter input mode

Wiegand interface Panel LED Signaling for Input-Mode

Waiting Wiegand frame in Input-Mode

The converter is connected to the Wiegand interfaced equipment waiting for Wiegand frames from Wiegand Interface and commands from the RS232 interface.

Processing data in Input-Mode

The converter is processing the received Wiegand frame or command. After processing the converter returns to the **Waiting Wiegand frame** state.

Operating in Output Mode

The converter will operate in **Output-Mode** in two situations: when connected to the **input interface** of a Wiegand compliant device or if not connected to any device. In this mode, the converter will convert data received from the serial interface to Wiegand frames. It will also accept commands to control the Tamper signal. Changes in the general purpose inputs GPIO are converted to commands and sent out through the serial interface. Figure 2 shows a conceptual diagram of the wiegand converter in input mode and the data flow directions.

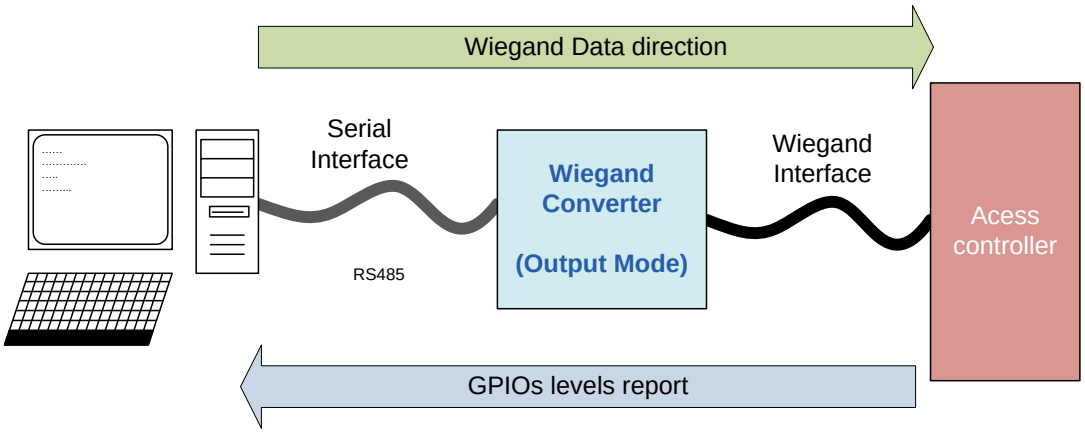


Figure 2 - Conceptual diagram of the Wiegand converter output mode

Wiegand interface Panel LED Signaling for Output-mode

Waiting command in Output-Mode

The converter is waiting for commands from the RS232 interface and changes on the GPIOs or Tamper ports

Processing data in Output-Mode

The converter is processing the received command. After the processing and sending the wiegand frame the converter return to **Waiting command** state.

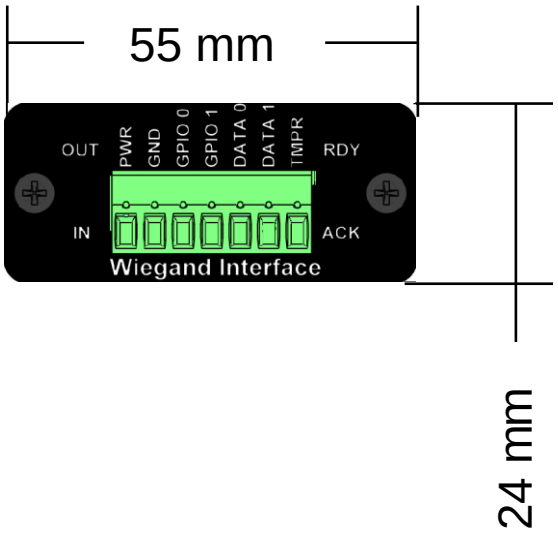
Product Specifications

Electrical Characteristics	
Operating Voltage Range	Min. 7V DC Max. 16V DC
Current Consumption	Typ. 30mA
Environmental Characteristics	
Operating Environment	Indoor and Outdoor[1)]
Operating Temperature Range[2)]	0°C to 70°C
Operating Humidity	0 - 95% (non-condensing)
Storage	-40°C - 70°C and 0 - 95% (non-condensing)
Wiegand Interface	
Wiegand Format Length	From 6 bits to 96 bits
Idle Period	Min. 30ms
Wiegand Pulse Width	Min. 50µs and Max. 200µs
Wiegand Bit Period	1ms, 2ms
General Purpose I/O	2
Tamper Signal	1 Port to read/write the TAMPER signal
RS232 Interface	
Communication Distance	Up to 50m
Communication Modes	Full-Duplex without flow control
Baud Rate[3)]	9600
Mechanical Characteristics	
Weight	75 g
Dimensions	55 mm x 72 mm x 24 mm [4)]
Enclosure material	Anodized Aluminium

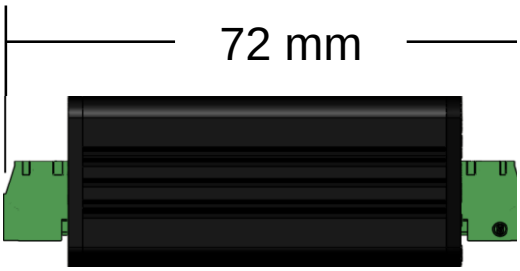
Notes:

1) For Outdoor applications the converter must be protected against direct rain and direct sun exposure;
2) Other temperature ranges are available on demand;
3) Other baud rates are available on demand;
4) Dimensions include the terminal block CTF connectors.

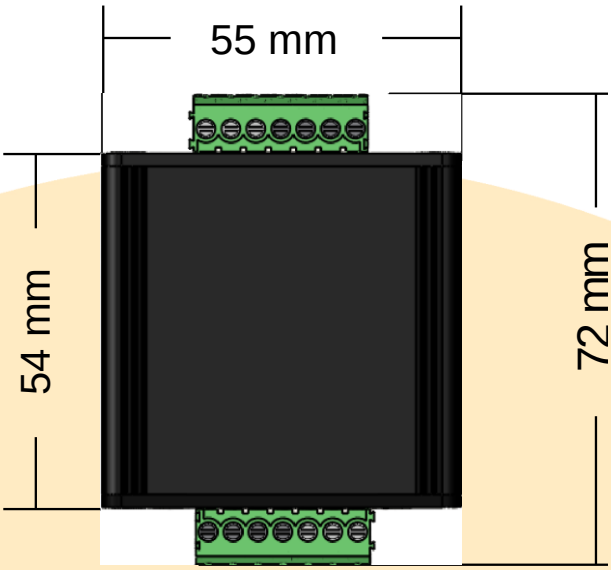
Mechanical Specifications



Front View



Side View



Top View

Note: All dimensions are in millimeters

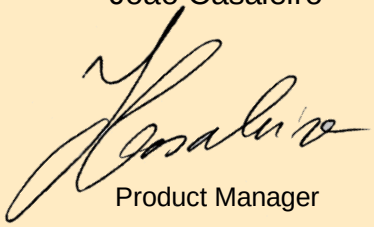
CE Statement of Conformity

Manufacturer:	ETConcept, Systems Engineering LDA
Address:	Bairro da Paradela
	Rua Jacinto Duarte, Lt.97
	2660-270 Santo António dos Cavaleiros
	Portugal
Type of Equipment:	Wiegand to RS485 Converter
Model:	W2RS485
Council directives applied:	2004/108/CE
Year mark applied:	2008

The product has been tested in the typical installation configuration and with peripherals complying with the above listed Directives. I, the Undersigned, hereby declare that the above mentioned equipment conforms to the requirements of the Directives specified above, when installed in accordance with the manufacturer specifications.

01/07/2008

João Casaleiro



Product Manager

Important Information

This manual provides information on how to setup and interface the Wiegand to RS485 Converter (W2RS485). It has been written for experienced users to setup the system within the shortest time. Please take special care to all specifications and do not hesitate to contact ETConcept for any additional support.

Warranty

This ETConcept product is warranted against defects in material and workmanship for a period of two years from the date of shipment, as evidenced by receipts or other documentation. Duration and conditions of warranty for this product may be superseded when the product is integrated into (becomes a part of) other ETConcept products. During the warranty period, ETConcept will, at its option, either repair or replace products which prove to be defective.
The warranty period begins on the date of delivery or on the date of installation if installed by ETConcept.

Warranty Service

For warranty service or repair, this product must be returned to a service facility designated by ETConcept.
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