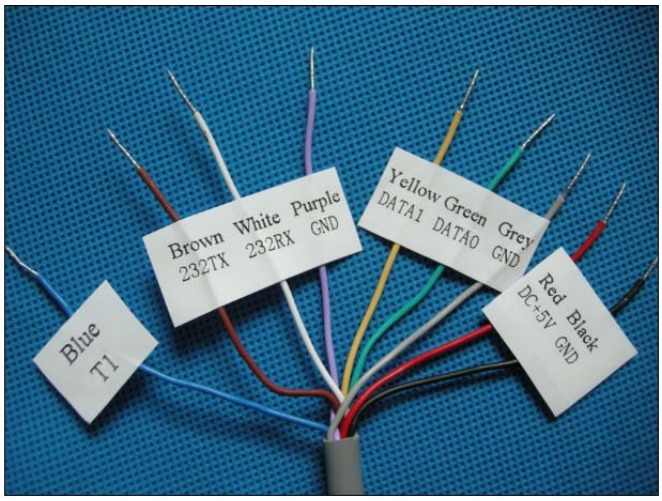
Wiegand Quick Start Guide



Power Requirements

The Reader can be powered from 8 to 16 volts DC (1.5mA @ 12V) regulated, linear or switching power sources. The Reader should be operated from a grounded supply that has the same ground reference as the host. The positive power and the ground connections are applied to the Reader at the pigtail.

Wiegand Wire Specifications

Shielded (22 AWG for cable length ≤ 25' and 16 AWG for lengths 25' to 500' per Wiegand specification) insulated, stranded wire is recommended and all wires should be tinned. Termination can be done either by soldering or crimping the wires between the panel and the Reader pigtail cable.

Electrical Format

A Wiegand interface uses at a minimum three wires, a ground wire and two data wires (called Wiegand Data 0 and Data 1). Note that the ground wire should generally be used; there are circumstances in which for instance systems have a common ground that is provided via a common power supply. A typical Wiegand interface may successfully communicate at up to 500' (150 meters). Distances longer than a few feet/meters may require slower data rates.

Wiegand Connection to Panel

This is a standard Wiegand protocol with Data 0 and Data 1 normally resting at zero voltage and moving to +5 volts on logic 0 or logic 1. The Reader is defaulted to a Pulse Width of 80µS and Data Interval in time of 2mS.

Color	Signal Name	Function
Brown	RS232 TX	RS232
White	RS232 RX	RS232
Purple	RS232 GND	Ground
Yellow	DATA1	Wiegand
Green	DATA0	Wiegand
Gray	Ground	Wiegand
Blue	T1	Reader Control
Red	Power +V	+8 to +16 volts
Black	Power -V	-volts ground

Installation Overview

The Reader is supplied in a weatherproof enclosure for direct outdoor installation or can be placed indoors, such as in a guardhouse, close to other electronic equipment. The Reader outputs the decoded data to an access control unit via standard data cabling. Systems are available that output data in either the standard Wiegand and the serial RS232 and the TCP/IP Ethernet formats.

Wiring Guide

Selecting the correct size and type of wire will enhance the performance and reliability of your system. The size of the wire must be large enough to carry the maximum current expected without undue voltage losses.

Wire Length Table

POWER	**WIRE GAUGE**									
W(VA)/Amps	8awg	10awg	12awg	14awg	16awg	18awg	20awg	22awg	24awg	26awg
5W/.42A	2,222	1,426	898	564	354	224	139	87	55	35
10W/.83A	1,124	722	454	285	179	113	71	44	28	18
20W/1.67A	559	359	226	142	89	56	35	22	14	9
30W/2.50A	373	240	151	95	60	38	23	15	N/A	N/A

Troubleshooting Guide

Q: To confirm that the unit is operating properly
A: Confirm the beeper is audible when a good tag is presented or when power is first applied. If it is not, remove power. Verify the voltage supplied to the Reader is between 8 and 16 VDC

Q: Reader does not recognize a tag (no beep, no outputted tag data)
A: If no beep, check to see if another tag works, maybe damaged tag. Verify Reader operations by connecting to a computer through the RS232 port and running a Terminal program.

Q: How can I verify that the tres900 Reader I have is Wiegand or serial or TCP/IP?
A: Both Reader products have RS232 and one model has Wiegand and one has TCP/IP. The TCP/IP model has a cat 5 cable with an 8 pin connector attached.

Q: Tag data to panel is scrambled
A: One or more of the Reader's wiring connections are incorrect. Power down the receiver/panel and verify the wiring connections are correct. Check that data 1 and data 0 are consistent from tres900 to the host panel.

Earth Ground should terminate at the back of the Reader through the mounting brackets.

Reader timing not set properly or cable too long back to the panel.

Q: Reader beeping and host not responding
A: Check to insure the tres900 tag number and site code are properly programmed to the host panel. Check the Wiegand timing that your host is looking for and insure their timing scheme is within the SIA standard parameters.

Q: Read Range too short
A: Ground loop could be an issue here, see if earth ground terminates at the reader. Check by powering reader without reader ground wire connected. Earth ground should terminate at the Reader, check your panel or power supply.

Tag orientation should be in a vertical position for the Readers Antenna maximum performance and distance.

Reader Operating Parameters

Item Details	Specifications
Operating Frequency	902MHz～928MHz (860-960 MHz built-in)
RF Protocol	ISO18000-6B, EPC Class 1, EPC Class 1 GEN 2
Operating Method	FHSS or fixed frequency (configured by software)
Antenna	Internal 7dBi circular polarized w/ 0.65:1.0 H/V power ratio
Max RF Power	30 dBm (1 Watt)
RF Power Range	20~30 dBm, Software Adjustable
Tag ID Modes	Trigger Mode - external trigger control to read
Identify Tag Time	≤ 8ms Identify single tag
Reading/Writing Tag Time	Reads every 8 bytes in less than 5ms
Reading/Writing Tag Distance	18' to 25', depends on variables defined later
Communication Interface	RS-232, Wiegand, TCP/IP
Input (trigger control)	One way trigger input (grounded turns off Reader)
Power Supply (suggested)	8-16VDC @ 2Amp
Power Consumption (peak)	1.5A max. @ 12VDC
Size	10.24" x 10.24" x 3.54" (260mm×260mm×90mm)
Net Weight	4.2 lb (1.91kg)
Work Temperature	-4°F to 158°F (-20°C to +70°C)
Storage Temperature	-40°F to 185°F (-40°C to +85°C)
Wiegand Timing (default)	Pulse Width: 80μS; Period: 2mS; Start Bits: 1
Working Status Indication	Audible Beeper