



1.0 Introduction

The system Radiocontrol Erone 295W is composed by one transmitter and by one receiver operating at 295 MHz.

The modulation is AM/ASK.

The main characteristic is the wiegand protocol used by the transmitter, which can be used into access control systems.

Each transmitter is identified by a single code, different for each transmitter, inserted during the in-circuit programming

The rated range of the transmitters is about 150 mt in free-space.

The transmitters have 2 push-buttons.

The channel information is provided inside the transmitted frame.

Main characteristics of the system

BRAND : **ERONE**

SERIES : **ERONE 295W**

TYPES: **TX : SETW295AM2**

MANUFACTURER : **ELPRO INNOTEK S.r.l.**

Via Piave, 23

I-31020 S.PIETRO DI FELETTO (TV)

ITALY

Tel: +39-0438-450860

Fax: +39-0438-450091

Contact : Ing. G. Massimo Dalle Carbonare (Product Manager)



2.0 Technical characteristics

2.1 Transmitters

Operating frequency	MHz
Carrier frequency:.....	295 MHz
Rated frequency tolerance:	± 75 KHz
Rated E.R.P.	100 -150 μ W
Modulation :	AM / ASK
Modulating signal frequency:	200 bit/sec
Channel width:	> 25 KHz
Power supply:	6 Vdc
Battery	2 x 3 Vdc CR 2016 lithium batteries
Security code system	Fixed code
Code combinations	2^{16}
Different Facilities available.....	2^6
Channel pushbuttons :	2
Range.....	150 m
Dimensions	88 x 47 x 17 mm
Weight	30 g
Antenna.....	Integral
Automatic deactivation of the transmission after	2 sec.



3.0 System components

The system to which this transmitter belongs is composed by many transmitters and a receiver with converts the data into a wiegand format.

Transmitter : Series **ERONE 295W**
Type : **SETW295AM2**

Receiver : Series **ERONE 295W**
Type : **SELWR295**

4.0 Description

4.1 Transmitter

This transmitter is a very innovative transmitter which combine a very efficient electronic circuit with the technology of printing of the plastic in double injection.

The power supply is provided by a couple of CR 2016 3 Vdc lithium batteries

Summarising the main features of this mini transmitter are the following :

- ◆ High efficient RF antenna;
- ◆ Fixed security code (2^{16} code combinations);
- ◆ Saw resonator controlled oscillator;
- ◆ Long lasting lithium batteries;
- ◆ Battery support rotating door;
- ◆ Original double material plastic box ;
- ◆ Several colour combination;
- ◆ Key-holder ring.

The frame sent to the AM modulator is composed as explained in the next paragraph.



4.2 Frame composition

The frame architecture is described on the following table:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Bit 1,2,3 = Start bit (Logic value “1”)

Bit 4 = Even Parity bit calculated over the bits 5,6,7,8,9,10,11,12,13,14,15,16,17,18

Bit 5,6,7,8, = Don't care

Bit 9,10,11,12,13,14 = Facility code (up to 2^6 possible facilities different codes)

Bit 15,16 = Channel bits

Bit 17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32 = Serial number (up to 2^{16} possible different transmitters) – The serial number is different for each transmitter and it is written into the micro during the in-factory programming.

Bit 33 = Even Parity bit calculated over the bits : 19,20,21,22,23,24,25,26,27,28,29,30,31,32.

4.3 Timings

The system used is based on the Manchester code but with always a RZ.

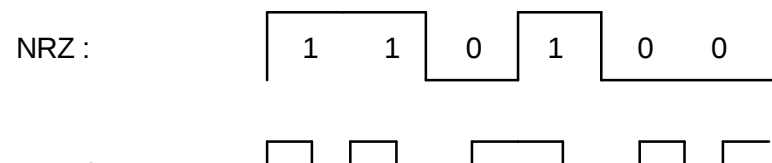
This type of code has the feature that for each bit there is a transition.

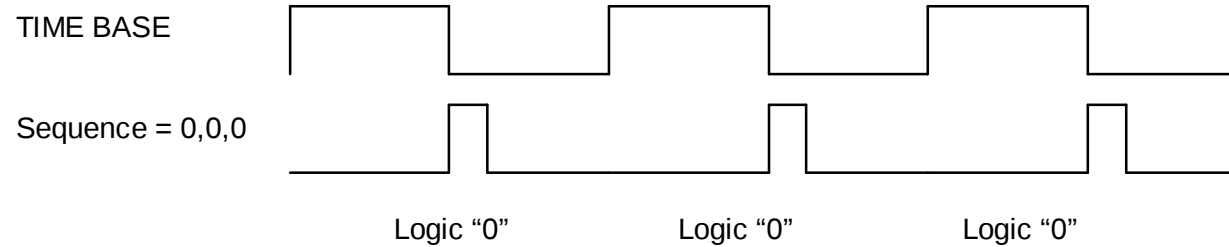
This avoid long sequences of data always at “0” or always at “1”, and hence give more data to the clock extractor circuit systems.

Logic value “1” = transition H -> L

Logic value “0” = transition L -> H

EXAMPLE:

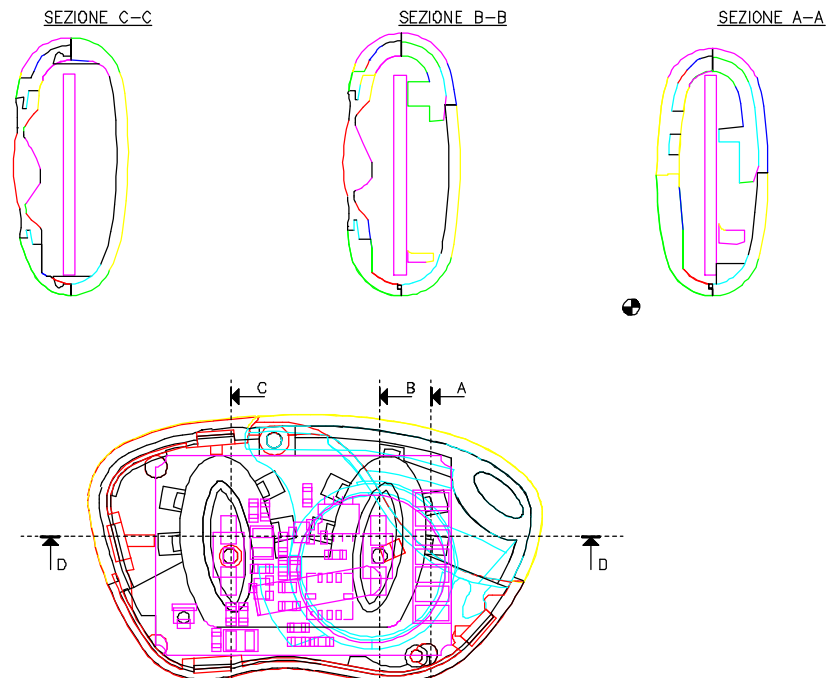




Each frame is paused by the next with a 22 – 25 mS pause delay

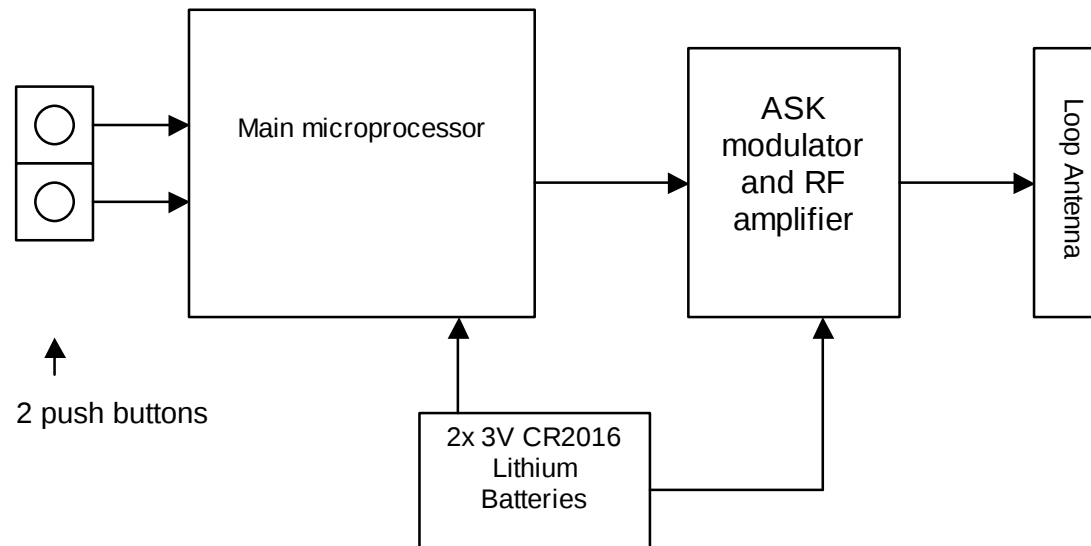
The RF signal is received by a Wiegand receiver which arranges the data demodulated and transmits them over the wiegand bus.

4.3 Mechanical drawings



5.0 Schematic block diagrams

5.2 2 keys transmitter



6.0 Reference Regulations

System Erone 295W has been designed in compliance with the following Regulations:

- Part 15 of FCC Rules