OPERATIONAL DESCRIPTION OF TRITON™ POOL ALARM
RF PART ONLY

Affaire :	**PROJET TPA**

Reference	**TPA_Intended_uses_V100_220407_RF_Only.doc**		**Date : 24/04/07**
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Approuvé par :			

Historical

Version	Status/Date (draft/invalide/valide) (dd-mmm-yyyy)	Author	Control	Description
1.00	24/04/07 Valid	Damien PLUTINO Philippe CRAHAY		Extraction from definition file.v1.02

SYNOPSIS

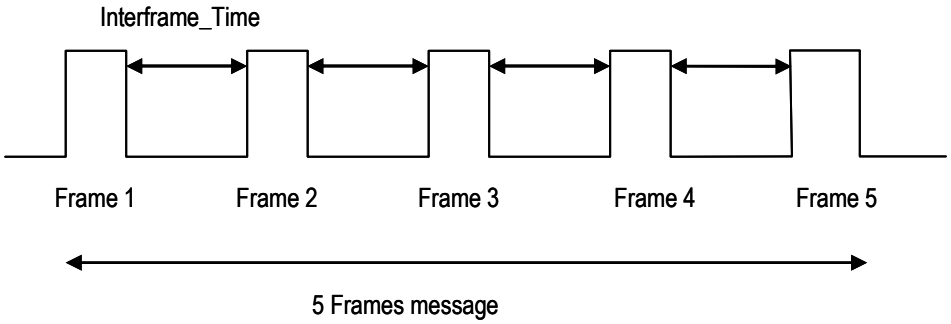
1. Radio Frequencies Details

1.1 Parameters definition:

-Radio frequency: 433.92 MHz
-Bit_Time = 380 µs +/- 10%, Signal bit length
-Interframe_Time = 15 ms +/- 10%, Time between frame
-NB_Frame = 5, number of frame by message
-CODE_STOPLEARN = 00001100, Code acquisition and siren stop
-CODE_ALERT = 00110000, Siren Trigger
-WARN_PERIOD = 3s, Time between message for warning signal
(See diagrams below)

1.2 Transmission definition

The device transmits messages by Radio Frequency data. These messages include NB_Frames (5) RF frames. Between the frames, there's a time without signal emission of Interframe_time (15ms).

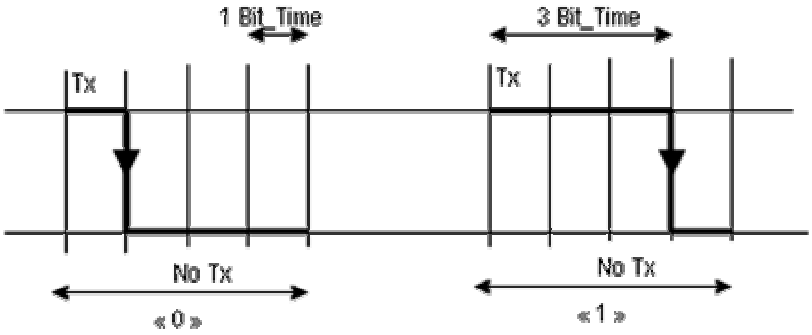


Each frame is coded on 3 bytes plus 1 bit.
The frame definition is:
RF_STOP_LEARN = ID1 / ID2 / CODE_STOPLEARN / 0
RF_ALERT = ID1 / ID2 / CODE_ALERT / 0

In case of warning signals, the 5 frames serie is sent every 3s during the whole triggering time.

ID1 = 1 identifying byte which value is 1100000
ID2 = 1 identifying byte which value is a random number with one "1" at random place, and "0" elsewhere.

The position of the “1” is set by a random number between 0 and 7, obtained by reading the 3 lower bits of a timer value without taking care about when this timer started.
The logical values of the above bits are coded in the signal with this formalism:
Once Bit_Time of signal followed by 3 times Bit_time without signal = 0.
Three times Bit_Time of signal followed by 1 time Bit_Time without signal =1.



1.3 Worst case of emission percentage in a 100ms window

We can consider that the worst duration case for the emission in a window of 100ms is when this window contains 2 complete frames, 1 complete inter frame and one partial inter frame.

In a frame, the biggest number of one in the data is 10 on 25 bits of data. So the worst frame has an emission time of 5 * 3 Bit_Time + 20 * 1 Bit_Time = 35 Bit_Time = 13.3ms

For 2 frames, we have an emission time of 2 * 13.3 = 26.6ms. So, the emission percentage in a window of 100ms, in the worst case, is theoretically 26.6%. To pay attention about variations of characteristics of the product, we’ll use a percentage of 28%.