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TeleAlarm®

434MHz Radio Transmission Specifications

Page:

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Radio Transmission Specifications

- Frequency: 434.01 MHz

- Quartz frequency: 434.01 MHz / 32

- Modulation type: FSK

- Modulation depth: ± 2.5 kHz up to ± 4 kHz

- Transmission rate: 260 to 500 bit/s (depends on transmission format, see next pages)

- Data coding: Motorola format, N45 format (TeleAlarm) + Format 2000 (TeleAlarm)

- Data transmission: Detailed on next pages

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Technical Specification / Information

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Motorola Format : Explanation Code
Mobile Transmitters S36 and RAC/Fire

≈ 2500 ms

Transmission
(≈ 50 packs)

Pack   ≈ 12 ms   ≈ 34,2 ms

Synchronize
(low logic)   ≈ 12 ms
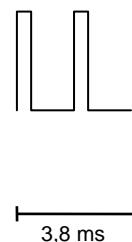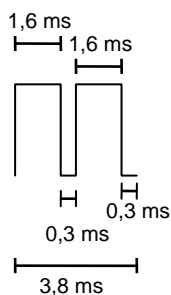
3,8 ms

Transmitter ID

Bit 1
Bit 2
Bit 3
Bit 4
Bit 8
Bit 9
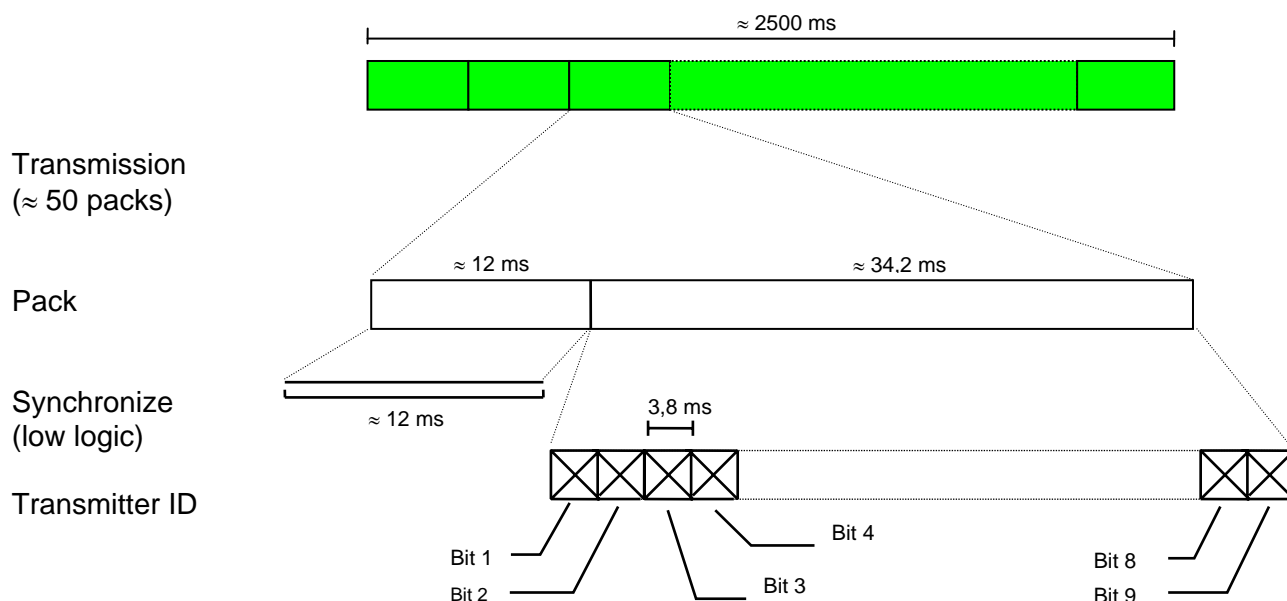
The code for one bit is a ternary code; 3 values are possible:

A) High (2 x long)   B) Open (long + short)   C) Low (2 x short)

1,6 ms
1,6 ms

0,3 ms
0,3 ms

3,8 ms   3,8 ms   3,8 ms

Bit 1 - 8 define the code of the transmitter.   Bit 9 defines the criterion.

Criterion: Help   → Bit 9 = Low
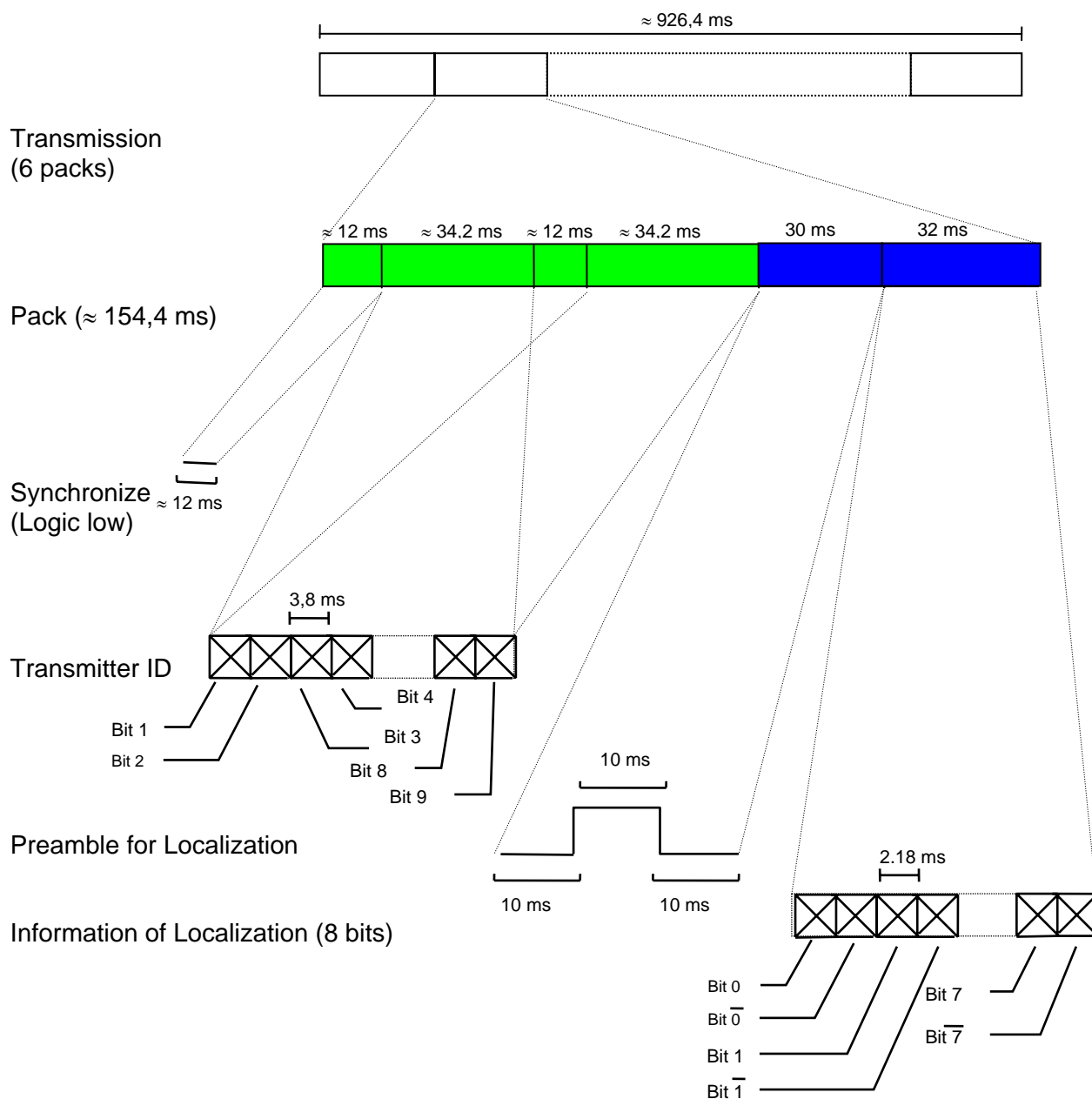   Low Battery   → Bit 9 = High   *Remark: Bit 9 = Open is not valid*

Remark:

For the RAC/Fire, the transmission is exactly the same but with all inverted levels.
Then, the criterion is ''Fire'' instead of ''Help''.

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Local Format : Explanation Code Mobile Transmitters
S35L TeleAlarm – Motorola Format with Locating

≈ 926,4 ms

Transmission (6 packs)

≈ 12 ms   ≈ 34,2 ms   ≈ 12 ms   ≈ 34,2 ms   30 ms   32 ms

Pack (≈ 154,4 ms)

Synchronize (Logic low) ≈ 12 ms

Transmitter ID

3,8 ms

Bit 1
Bit 2
Bit 4
Bit 3
Bit 8
Bit 9

Preamble for Localization

10 ms

10 ms   10 ms

Information of Localization (8 bits)

2.18 ms

Bit 0
Bit $\overline{0}$
Bit 1
Bit $\overline{1}$
Bit 7
Bit $\overline{7}$

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N45 Format : Code Room Transmitter N45 TeleAlarm
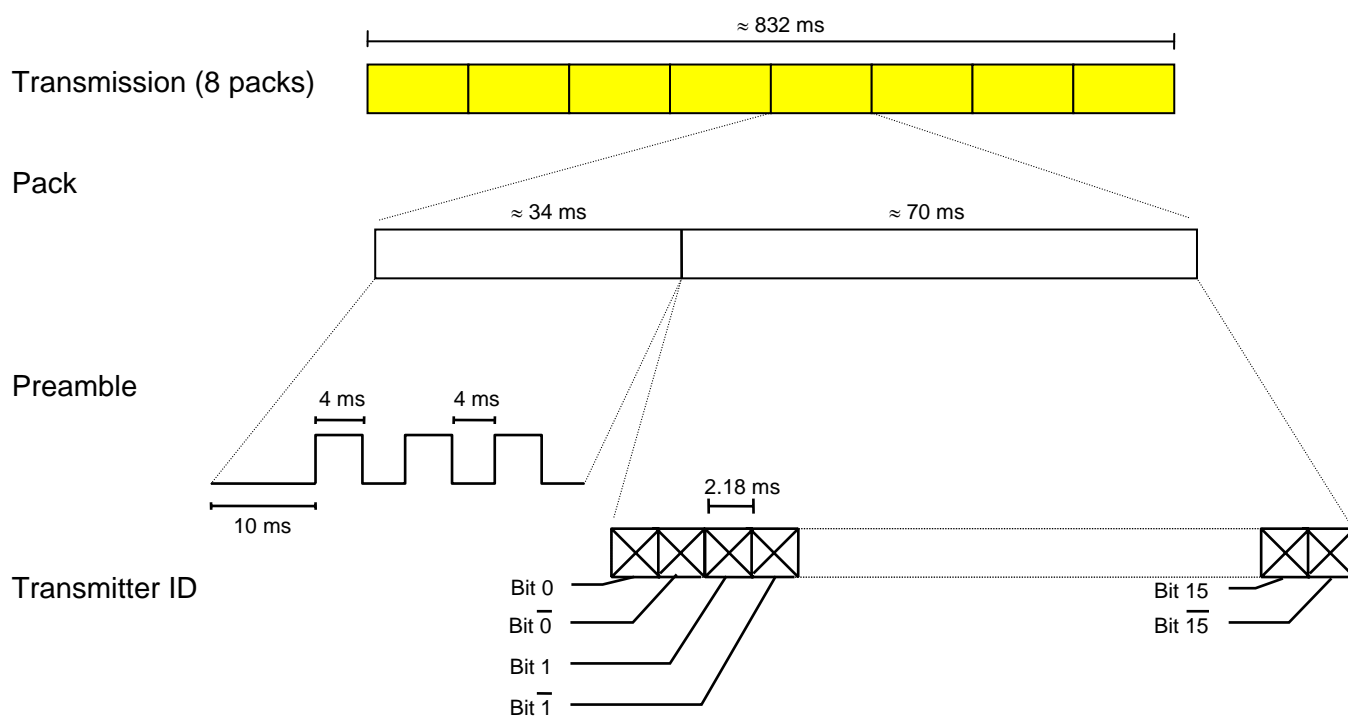
Bit 0 à Bit 3: Criterion
Bit 4 à Bit 15: Code (identification) of the transmitter (0 - 4095)

Criterion:

Help	01
Assistance	02
Receipt	03
Reserve	04
Technical	05
Departure of personnel	06
Arrival of personnel	07, 08, 09, 10
Low Battery	11
24 Hour	12
Door	13
Error	15

Example: Receipt sent by transmitter n°. 330 :
330 dec. $\cong$ 0001 0100 1010 bin. $\rightarrow$ Inversion $\rightarrow$ 1110 1011 0101 bin.

String which is sent :

Bit 0	Bit 1	Bit 2	Bit 3		Bit 4	Bit 5	Bit 6	Bit 7		Bit 8	Bit 9	Bit 10	Bit 11		Bit 12	Bit 13	Bit 14	Bit 15
1	1	0	0		1	1	1	0		1	0	1	1		0	1	0	1

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Coding Supervised Transmitters S37 & Family

S37 and S35 Supervised : Help Call (option: Motorola Format)

2 x [8 x (2 x Help Call Motorola + 1 x number of transmissions Format 2000)]

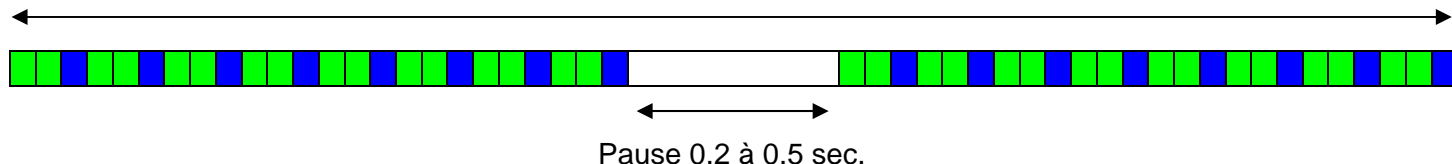T tot.~2.8 à 3.2 sec.

Pause 0.2 à 0.5 sec.
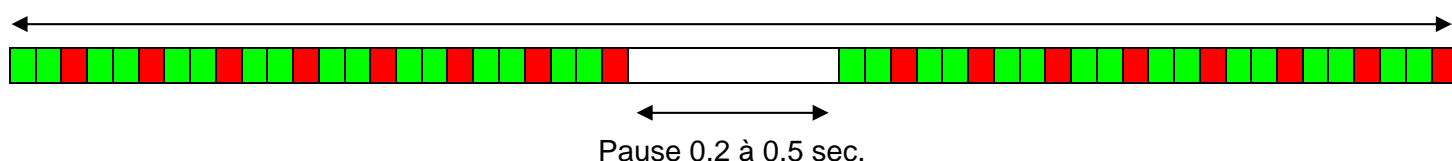
S37L : Help Call (Motorola Format !)

2 x [8 x (2 x Help Call Motorola + 1 x local position Local Format)]

T tot.~2.7 à 3.1 sec.

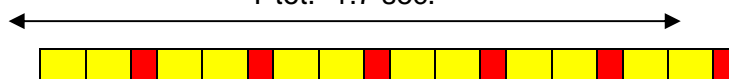Pause 0.2 à 0.5 sec.

N46 : All Criterion
S37 : Help Call (option: N45 Format)
S35 Supervised : Help Call (option: N45 Format) or Assistance
S37L + S37 + S35 supervised : Daily Message (N45 Format !)

6 x (2 x Criterion N45 Format + 1 x number of transmissions Format 2000)]

T tot.~1.7 sec.

Remark :
The « Low Battery » information is directly inside the Motorola Format, but it's not the case with the N45 Format. For the S37 and the S35 supervised with option N45 Format, a second transmission is sent one second after the end of the first transmission, with the criterion "Low Battery".

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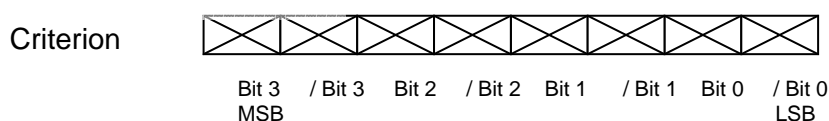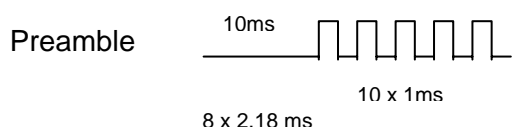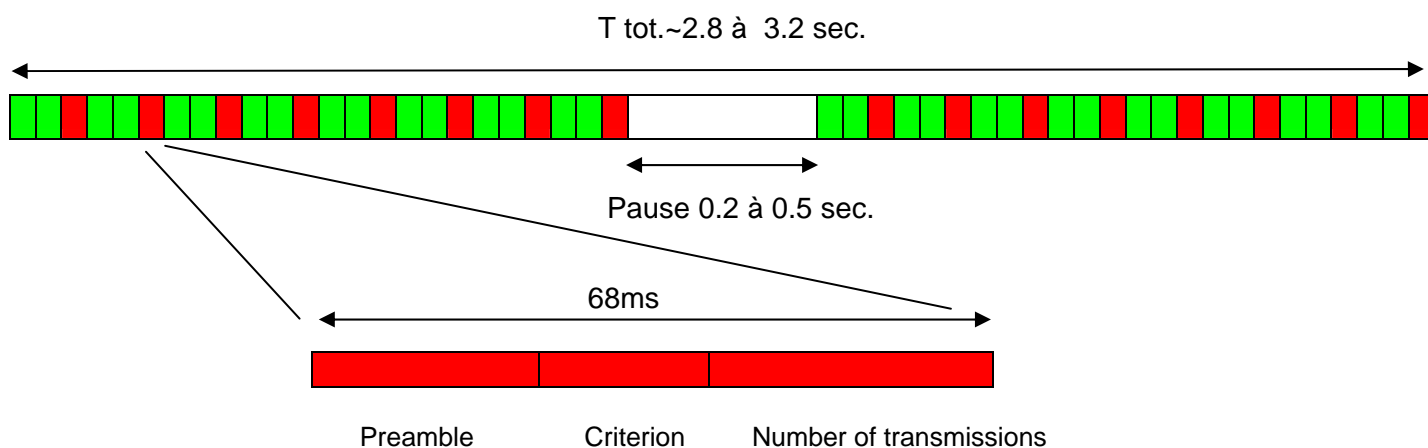# Format 2000 for Transmitters S37 & family

From the end of the year 2000, TeleAlarm has introduced inside the protocol of his transmitters, the information of the number of transmissions sent since the last change of battery.
It's associated with another criterion for futures applications.
This new string of information is added with Motorola and N45 Format (see upper).

Example : S37 and S35 supervised ; Help Call (option: Motorola Format)

2 x [8 x (2 x Help Call Motorola + 1 x number of transmissions Format 2000)]

T tot.~2.8 à 3.2 sec.

Pause 0.2 à 0.5 sec.

68ms

Preamble   Criterion   Number of transmissions

Preamble

10ms

10 x 1ms

8 x 2.18 ms

Criterion

| Bit 3 | / Bit 3 | Bit 2 | / Bit 2 | Bit 1 | / Bit 1 | Bit 0 | / Bit 0 |
| MSB | | | | | | | LSB |

Help   = 01
Medium Fall   = 02
High Fall   = 03
…   = …

Number of transmissions : (Number of ''packs'' of <32> transmissions)   (1 bit = 2.18ms)

| Bit 7 | / Bit 7 | Bit 6 | / Bit 6 | .... | .... | .... | Bit 0 | / Bit 0 |
| MSB | | | | | | | | LSB |
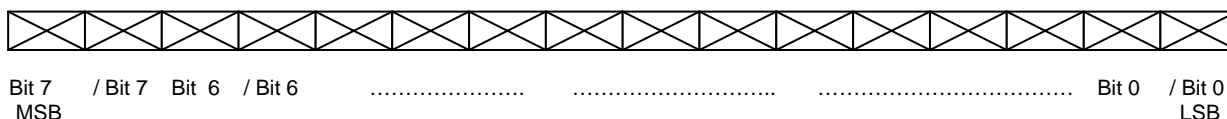
Example : Criterion = Help ; Number of transmissions = 710 (=> int.(710/32) = **22** = 00010110b)