Memory channel protocol TEF ESP32

Communication protocol to receive and submit memory channels to/from TEF ESP32 based radios. This guide can be used to generate a channel editor for PC.

Read data from radio

Send a lowercase letter ‘s’ to the radio, followed by \n or \r.

You will receive a return for example:

```
r:0
v:v2.00.11
m:99
s:0
o:0
a:144,27000
f:65000,108000
1,106600,0,1,8000,TEFFM
2,94000,0,1,1234,RADIO-V
3,1440,4,0,,
4,0,0,1,,
5,0,0,1,,
6,0,0,1,,
7,0,0,1,,
…
97,0,0,1,,
98,0,0,1,,
99,0,0,1,,
```

Explanation:

r:0	Radio 0. Can be used in future for different radio models.
v:v2.00.11	V2.00.11. Software version on radio.
m:99	99. Total of 99 memory positions.
s:0	0. Frequency value used when memory channel should be skipped.
o:0	0. Frequency offset in MHz for FM use.
a:144,27000	144,27000. AM range in kHz (144-27000kHz)
f:65000,108000	65000-108000. FM range in kHz (65-108MHz)

Examples:

`1,106600,0,1,8000,TEFFM`	Memorychannel 1. Frequency 106600kHz, auto bandwidth, auto stereo, PI 8000 and PS TEFFM
`3,1440,4,0,,`	Memorychannel 3, Frequency 1440kHz, 4kHz bandwidth, mono, no PI and no PS

Possible bandwidths:
FM: 0=auto, 1=56kHz, 2=64kHz, 3=72kHz, 4=84kHz, 5=97kHz, 6=114kHz, 7=133kHz, 8=151kHz, 9=168kHz, 10=184kHz, 11=200kHz, 12=217kHz, 13=236kHz, 14=254kHz, 15=287kHz, 16=311kHz.
AM: 1=3kHz, 2=4kHz, 3=6kHz, 4=8kHz.

Send data to radio

Send a uppercase ‘S’, followed by parameters and end with \n or \r.

For example:

S1,106600,0,1,1234,TEFFM

This will set Memory channel 1 to 106600kHz (106.6MHz), auto bandwidth, auto stereo, PI is 1234 and PS is TEFFM.

Full command is:
S<chnumber>,<freq_in_khz>,<bandwidth>,<mono(0)/auto_stereo(1),PI(4 digits),PS(8 digits)

S returns:

After sending the command you will get a S code return. Convert the value to binary format.

7	6	5	4	3	2	1	0
All ok, channel stored.	X	X	Memory channel 1 can’t be set to skip.	Mono/ auto stereo out of range.	Bandwidth out of range.	Memory channel out of range.	Frequency out of range.

- To set a channel to skip, send an empty frequency. For example, S2,0,0,1. This will skip memory channel 2.
- Make sure you send ALL the values, otherwise no return will be shown and nothing will be processed.
- When sending FM frequencies when using a converter offset, send only the IF frequency! For example, when converter offset is set to 340MHz and frequency to store is 433.0MHz. Send Sx,93000,x,x (where 93000 = 433000 – 340000)

Example:
S1,106600,0,1,8000,Hitradio
Return: S:128 (128 = BIN 10000000 = All ok, channel stored.

S1,106600,20,3,8000,Hitradio
Return: S:12 (12 = BIN 00001100 = Mono/auto stereo out of range and bandwidth out of range.

Revision history

1.0	2-4-2024	Initial version
1.1	6-4-2024	Added PI and PS