From: Sarah McIntyre
To: Bengt Ragnemalm
Subject: RE: help with trigger box
Date: 16 September 2020 22:05:00
Attachments: image002.png

Thanks Bengt! This makes sense. I found a function in python 3 that converts an integer into however many bytes you want, so I just give it the time in ms/10, and tell it I want 2 bytes and what the order of bytes should be. It gives the correct values for 5000 ms. I'll write a function to take the inputs in an intuitive way, and I'll test it out when I'm next at the lab.

```
ms = 5000
ms_div10 = int(ms/10)
time_bytes = ms_div10.to_bytes(2, byteorder='big', signed=True)
```

From: Bengt Ragnemalm <bengt.ragnemalm@liu.se>
Sent: 16 September 2020 07:59
To: Sarah McIntyre <sarah.mcintyre@liu.se>
Subject: Sv: help with trigger box

Sure!

I think that you rarely use the high byte because it is only valid for long delays but the principle is the same so I give you an example. Since it is defined as two separate bytes it is easiest to think in hexadecimal.

- Translate the desired time to hex. For example 5 s. That is 5000 ms or 500 slots of 10 ms. 500 dec is 1F4. (https://www.binaryhexconverter.com/decimal-to-hex-converter)
- Split the result in two bytes. One byte can take two hexadecimal positions. So 1 in byte 4 and F4 in byte 5.
- Maybe you prefer to type in decimal numbers and in that case you translate back the hexadecimal bytes one by one to decimal again. 1 is the same and F4 is 244.
- So you can send byte 4 = 1 and byte 5 = 244.

When sending numbers it is all about formats. Most typical reason for mistakes is that you don't send a number but a string of characters that the reciever needs to convert to a number. In a string each character is one byte so if the other end reads it a number it will be wrong. Both ends must be talking the same language. Like in the example above. If your software sends 244 as a string of three characters instead of one byte with the value 244 it will still be wrong.

Crystal clear? Maybe not. If those conversions is tricky to fix in Python or whatever you use I can rewrite the communication parts so it is easier to use.

Bengt

Från: Sarah McIntyre <sarah.mcintyre@liu.se>
Skickat: den 15 september 2020 18:46
Till: Bengt Ragnemalm <bengt.ragnemalm@liu.se>
Ämne: help with trigger box

Hi Bengt, I'm trying to use the analog mode, and I'm a bit confused how to use the time variables. Here's what you wrote in the manual:

Byte 4	Byte 5
Param 4	Param 5
X = Time MSB. Time = X * 10 ms). X is 16 bits splitted on parameter 4 and 5.	X = Time LSB
Param 4 & 5 = 0-65535 [1)]	

Can you give me some examples, so, e.g. if I want 500 ms or 15 ms, what values do I enter for param 4 and param 5?