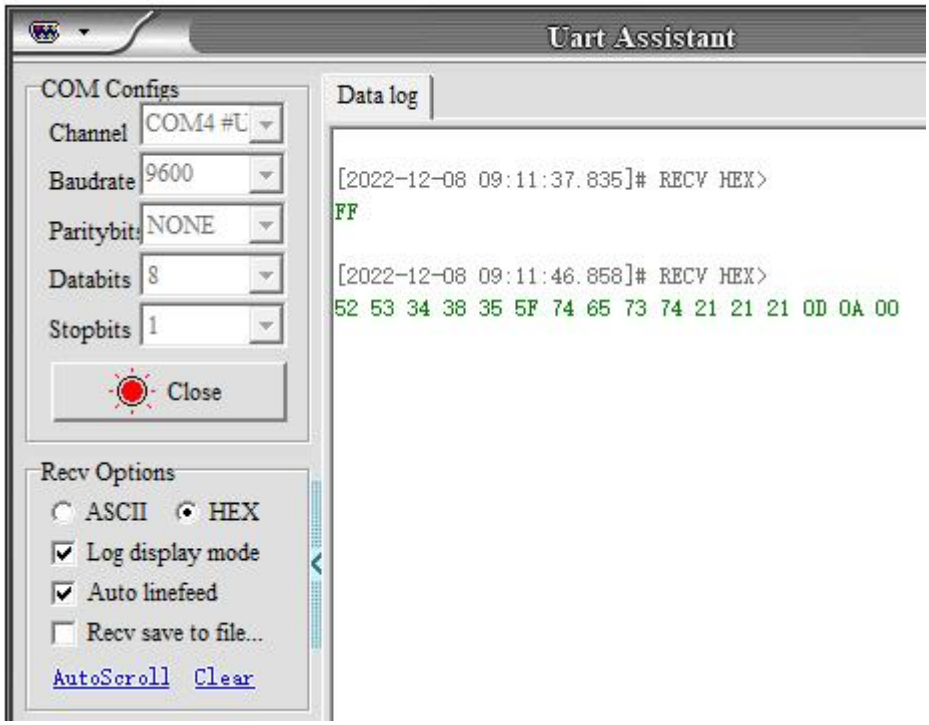
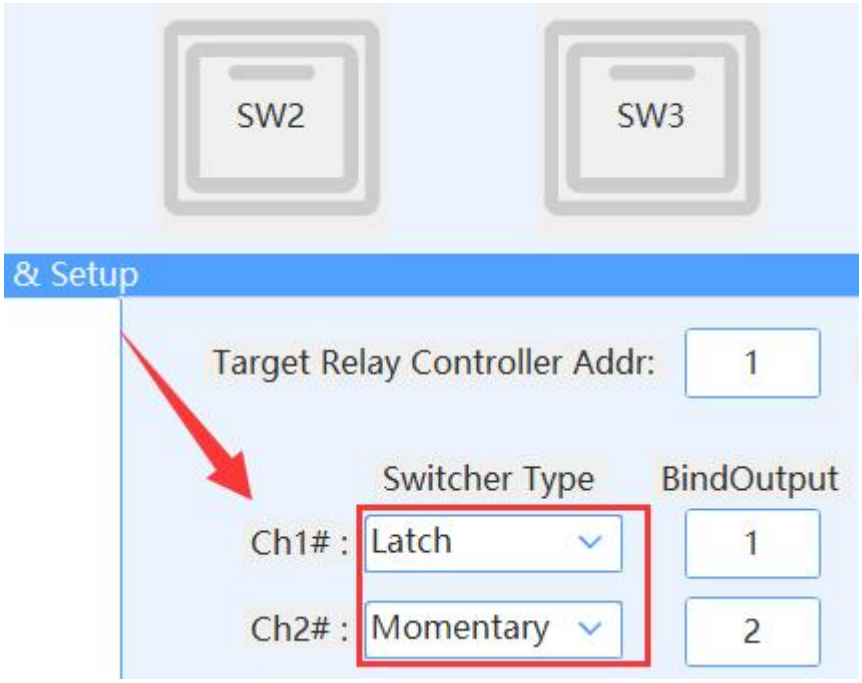
KC868-HA protocol for RS485 relay board

Firmware version 1.06

KC868-HA RS485 communication baud rate: 9600bps
When KC868-HA power on , KC868-HA will feedback Initialization information. (don't care about these)
FF
52 53 34 38 35 5F 74 65 73 74 21 21 21 0D 0A 00



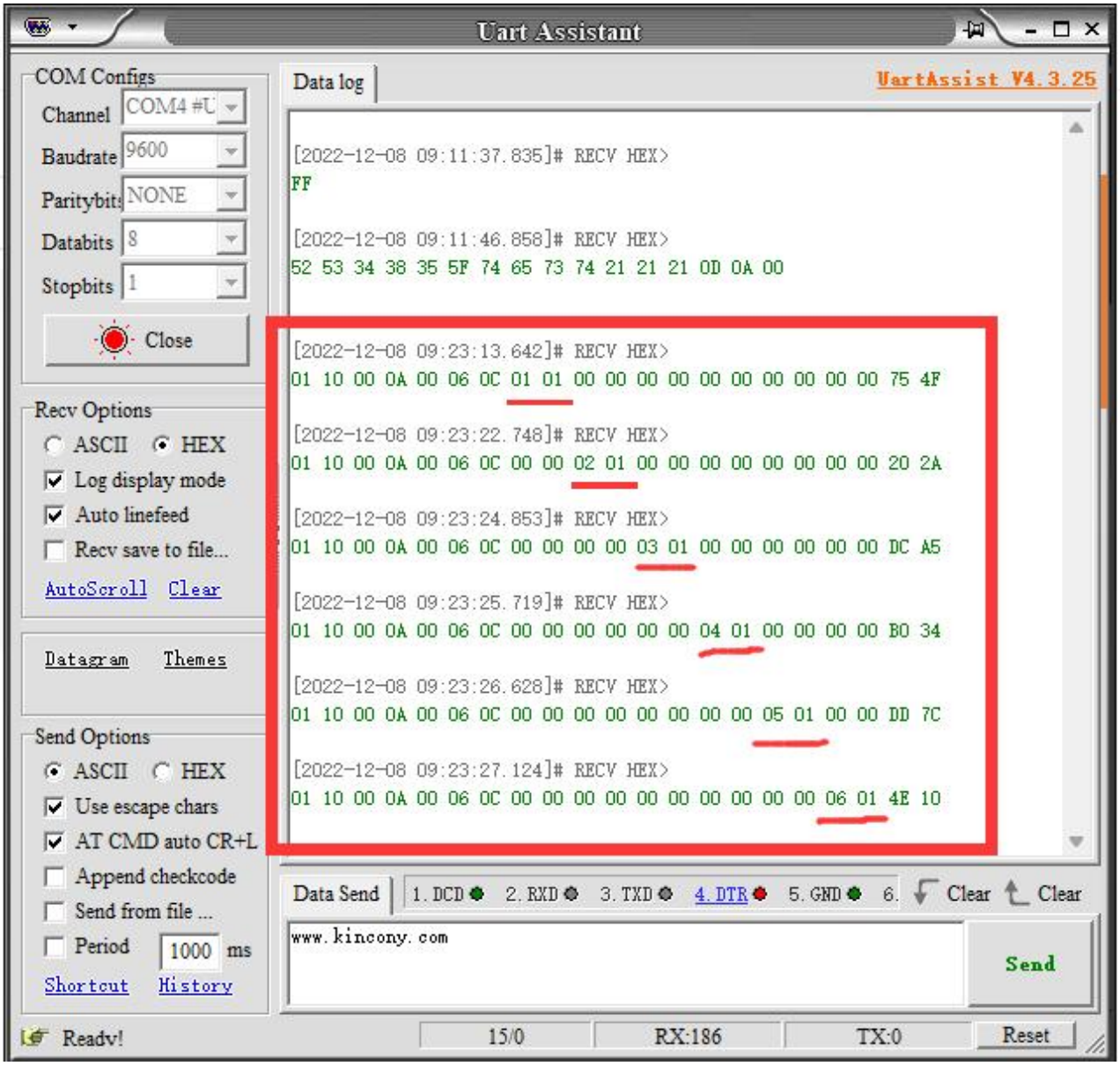
1. Key control relay command (Momentary / Latch mode):



SLAVE ID + fixed package and lengther (10 00 0A 00 06 0C) + (relayX 01) + (relayX 01) + (relayX 01) + (relayX 01) + (relayX 01) + (relayX 01) + CRCH+CRCL

SLAVE ID is your relay controller's RS485 address.
(relayX 01) + (relayX 01) + (relayX 01) + (relayX 01) + (relayX 01) + (relayX 01) mean: key1-key6 toggle which relay

Here is sample command for
key1->relay1 key2->relay2 key3->relay3 key4->relay4 key5->relay5 key6->relay6



01 10 00 0A 00 06 0C 01 01 00 00 00 00 00 00 00 00 00 00 75 4F switch1 toggle relay1

01 10 00 0A 00 06 0C 00 00 02 01 00 00 00 00 00 00 00 00 20 2A switch2 toggle relay2

01 10 00 0A 00 06 0C 00 00 00 00 03 01 00 00 00 00 00 00 DC A5 switch3 toggle relay3

01 10 00 0A 00 06 0C 00 00 00 00 00 00 04 01 00 00 00 00 B0 34 switch4 toggle relay4

01 10 00 0A 00 06 0C 00 00 00 00 00 00 00 00 05 01 00 00 DD 7C switch5 toggle relay5

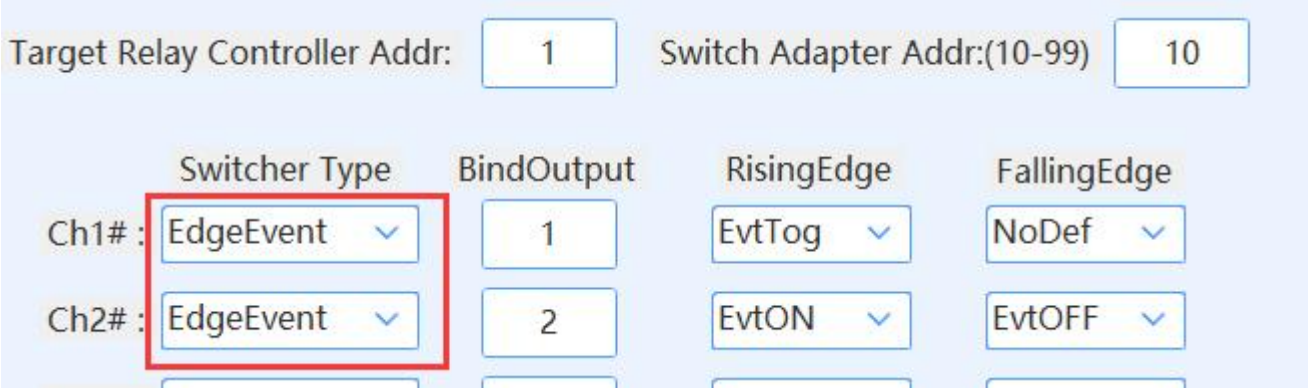
01 10 00 0A 00 06 0C 00 00 00 00 00 00 00 00 00 00 06 01 4E 10 switch6 toggle relay6

01 10 00 0A 00 06 0C 00 00 00 00 00 00 00 00 00 00 80 01 2C 70 switch6 toggle relay128

01 10 00 0A 00 06 0C 80 01 00 00 00 00 00 00 00 00 00 00 8A F2 switch1 toggle relay128

For example:
01 10 00 0A 00 06 0C 00 00 02 01 00 00 00 00 00 00 00 00 20 2A switch2 toggle relay2
01 is KC868-H32B Pro or your own relay module's RS485 address.
10 00 0A 00 06 0C is fixed.
00 00 : it's set for key1, not used.
02 01 : 02 is relay2 01 is toggle, it's fixed. 02 01 use by K2.
00 00 00 00 00 00 00 00 : it's set for key3-key6, not used, just fill 00
20 2A : it's CRC code

2. Key control relay command (EdgeEvent mode):



EdgeEvent mode: you can define every button's "RisingEdge" and "FallingEdge" for "4 different actions".

RisingEdge: press download button
FallingEdge: release button

4 different actions code:

NoDef: do nothing 00
EvtON: ON 01
EvtOFF: OFF 02
EvtTog: TOGGLE 03

SLAVE ID + fixed package and lengther (10 00 0A 00 06 0C) + (relayX+100 action code) + (relayX+100 action code) + (relayX+100 action code) + (relayX+100 action code) + (relayX+100 action code) + CRCH+CRCL

Here is sample command for

a. Button1 pressed Turn ON relay1, released Turn OFF relay1 (usually work as a binary sensor integrate to home assistant)

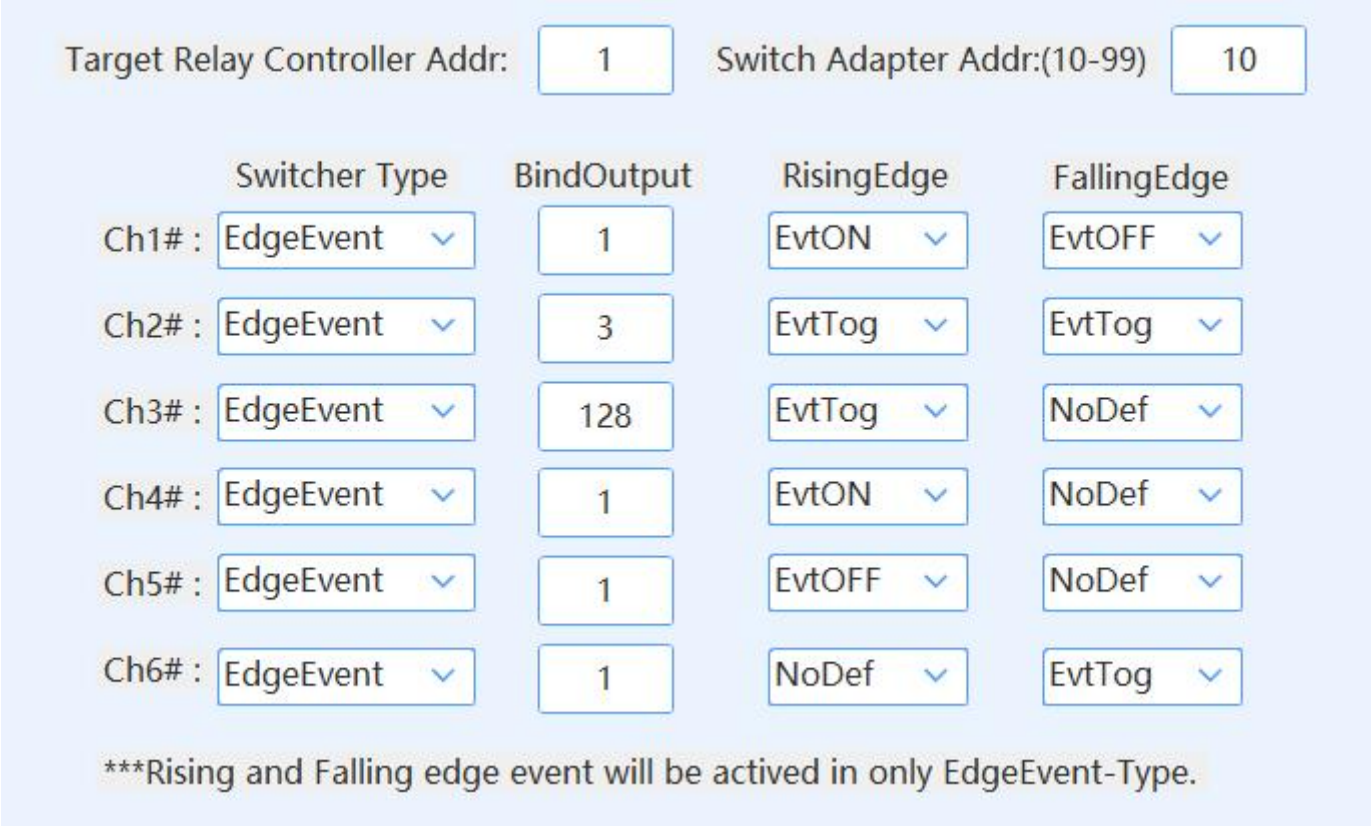
b. Button2 pressed Toggle relay3, released Toggle relay3 (usually use for old switch panel)

c. Button3 pressed Toggle relay128, released do nothing (usually use for momentary switch panel)

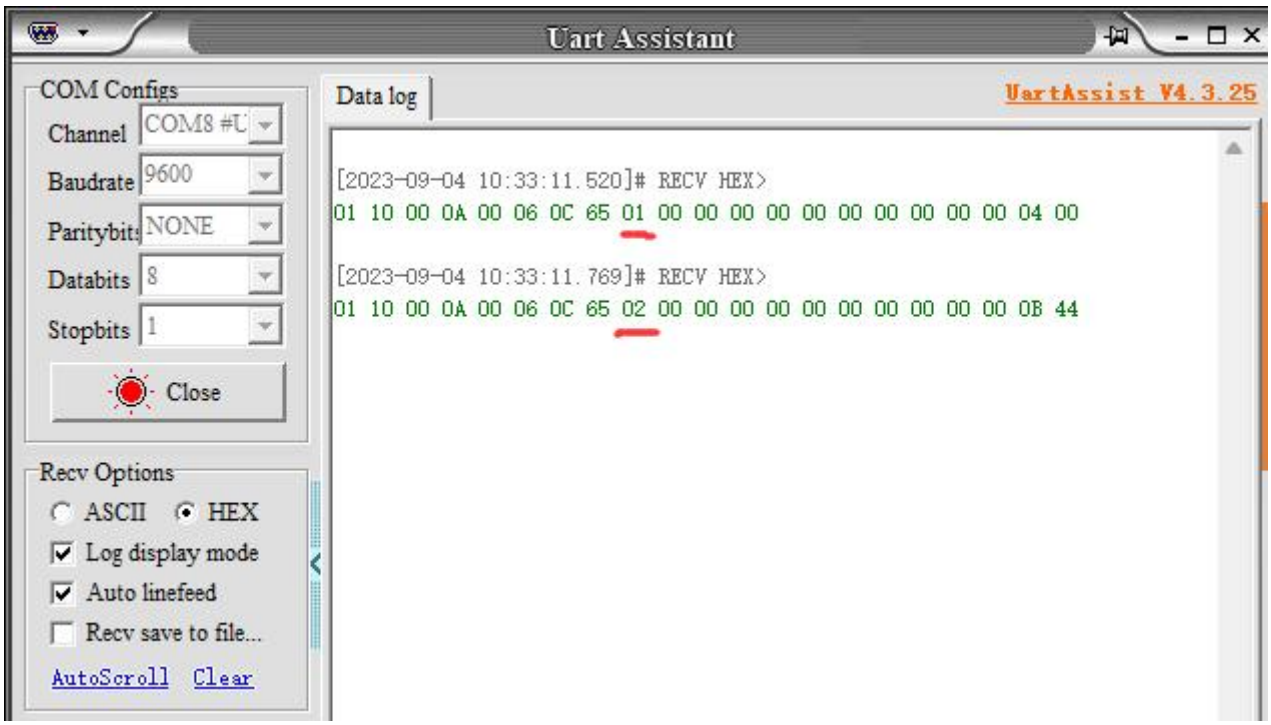
d. Button4 pressed Turn ON relay1, released do nothing (button always use for Turn ON device)

e. Button5 pressed Turn OFF relay1, released do nothing (button always use for Turn OFF device)

f. Button6 pressed do nothing, released TOGGLE relay1



a. Button1 pressed Turn ON relay1, released Turn OFF relay1 (usually work as a binary sensor integrate to home assistant)



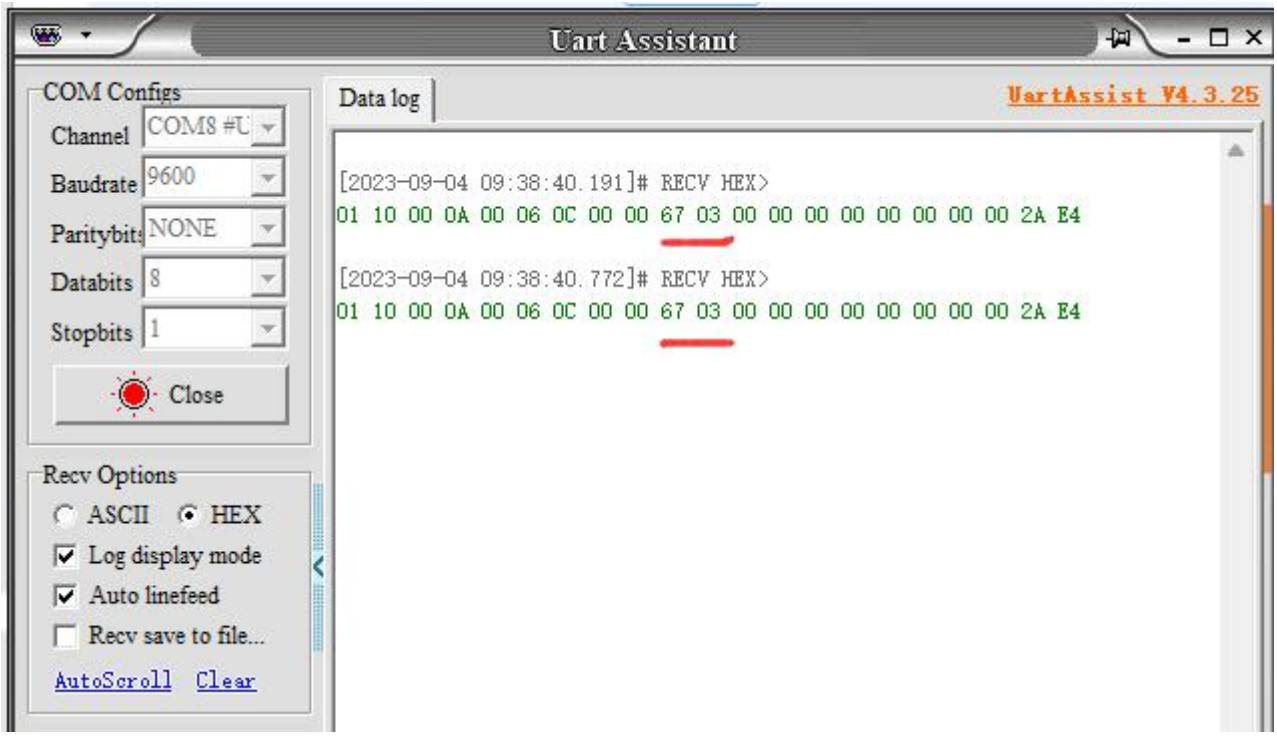
Feedback: 01 10 00 0A 00 06 0C 65 01 00 00 00 00 00 00 00 00 00 00 04 00

Feedback: 01 10 00 0A 00 06 0C 65 02 00 00 00 00 00 00 00 00 00 00 0B 44

01 is KC868-H32B Pro or your own relay module's RS485 address.
10 00 0A 00 06 0C is fixed.
65 01 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 01 is ON, it's fixed. 65 01 use by button1.
00 00 00 00 00 00 00 00 00 00 : it's set for button2-button6, not used, just fill 00
04 00 : it's CRC code

65 02 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 02 is OFF, it's fixed. 65 02 use by button1.
00 00 00 00 00 00 00 00 00 00 : it's set for button2-button6, not used, just fill 00
0B 44 : it's CRC code

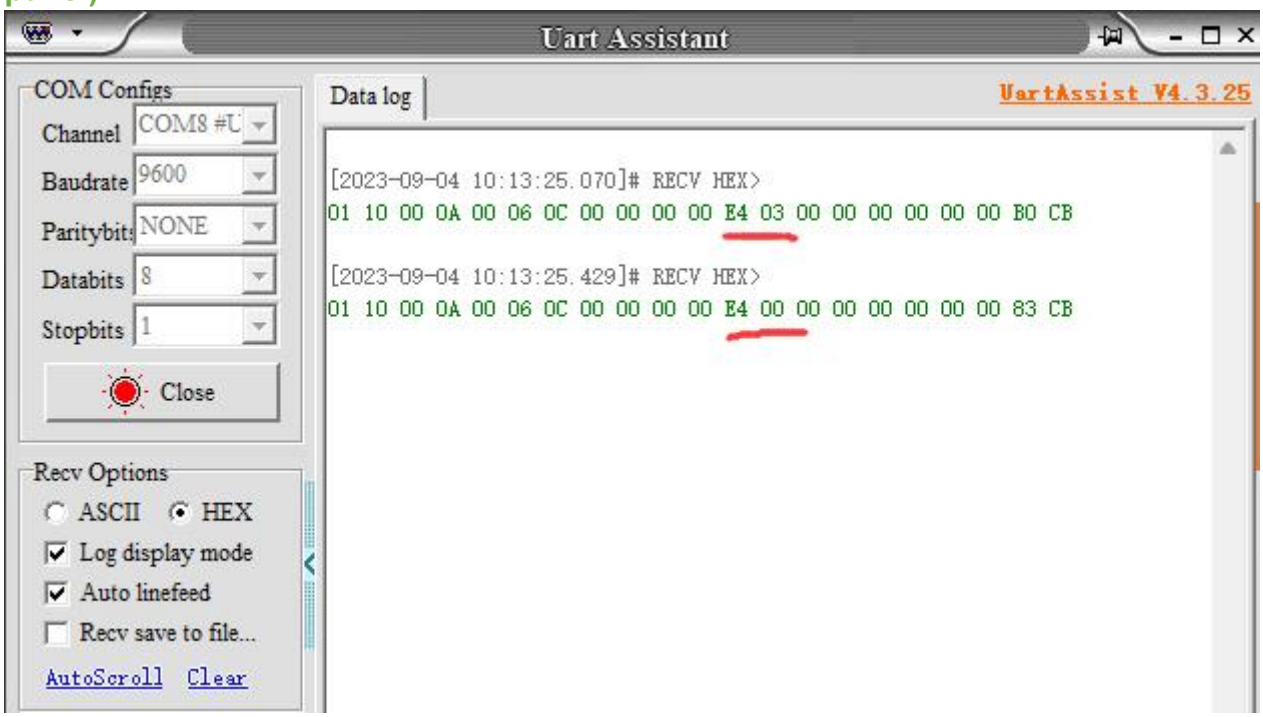
b. Button2 pressed Toggle relay3, released Toggle relay3 (usually use for old switch panel)



Feedback: 01 10 00 0A 00 06 0C 00 00 67 03 00 00 00 00 00 00 00 00 2A E4

01 is KC868-H32B Pro or your own relay module's RS485 address.
10 00 0A 00 06 0C is fixed.
00 00 : it's set for button1, not used.
67 03 : 67 is relay3 (67)hex=(103)dec 103-100=3 means:relay3 03 is toggle, it's fixed. 67 03 use by button2.
00 00 00 00 00 00 00 00 : it's set for button3-button6, not used, just fill 00
2A E4 : it's CRC code

c. Button3 pressed Toggle relay128, released do nothing (usually use for momentary switch panel)



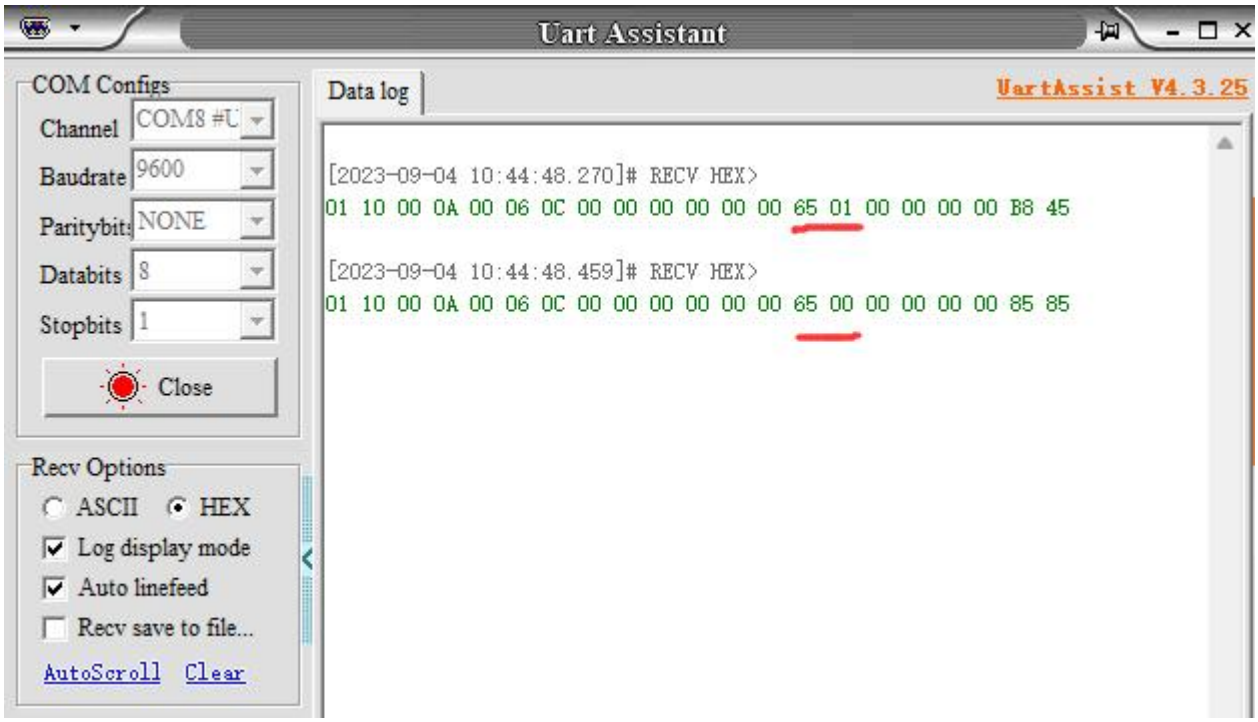
Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 E4 03 00 00 00 00 00 00 B0 CB

Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 E4 00 00 00 00 00 00 00 83 CB

01 is KC868-H32B Pro or your own relay module's RS485 address.
10 00 0A 00 06 0C is fixed.
00 00 00 00 : it's set for button1-2, not used.
E4 03 : E4 is relay128 (E4)hex=(228)dec 228-100=128 means:relay128 03 is toggle, it's fixed. E4 03 use by button3.
00 00 00 00 00 00 : it's set for button4-button6, not used, just fill 00
B0 CB : it's CRC code

E4 00 : E4 is relay128 (E4)hex=(228)dec 228-100=128 means:relay128 00 is nothing, it's fixed. E4 00 use by button3.
00 00 00 00 00 00 : it's set for button4-button6, not used, just fill 00
83 CB : it's CRC code

d. Button4 pressed Turn ON relay1, released do nothing (button always use for Turn ON device)



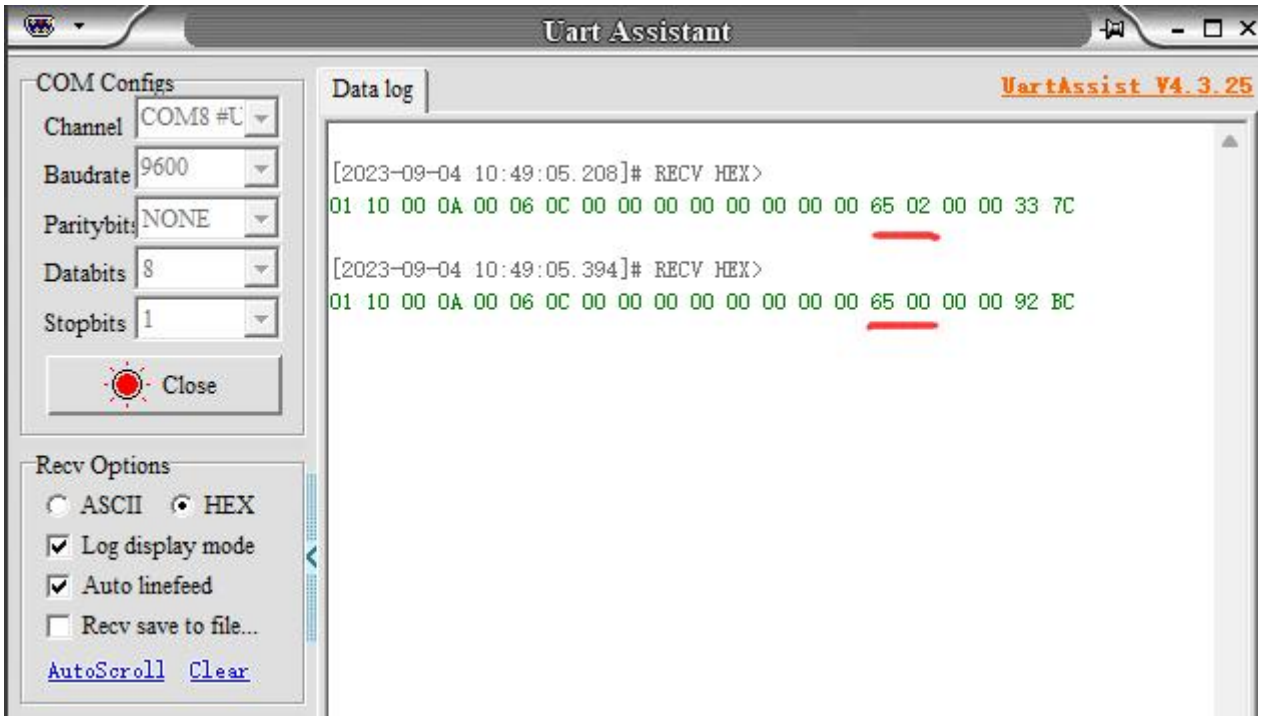
Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 00 00 65 01 00 00 00 00 B8 45

Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 00 00 65 00 00 00 00 00 85 85

01 is KC868-H32B Pro or your own relay module's RS485 address.
10 00 0A 00 06 0C is fixed.
00 00 00 00 00 00 : it's set for button1-3, not used.
65 01 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 01 is ON, it's fixed. 65 01 use by button4.
00 00 00 00 : it's set for button5-button6, not used, just fill 00
B8 45 : it's CRC code

65 00 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 00 is nothing, it's fixed. 65 00 use by button4.
00 00 00 00 : it's set for button5-button6, not used, just fill 00
85 85 : it's CRC code

e. Button5 pressed Turn OFF relay1, released do nothing (button always use for Turn ON device)



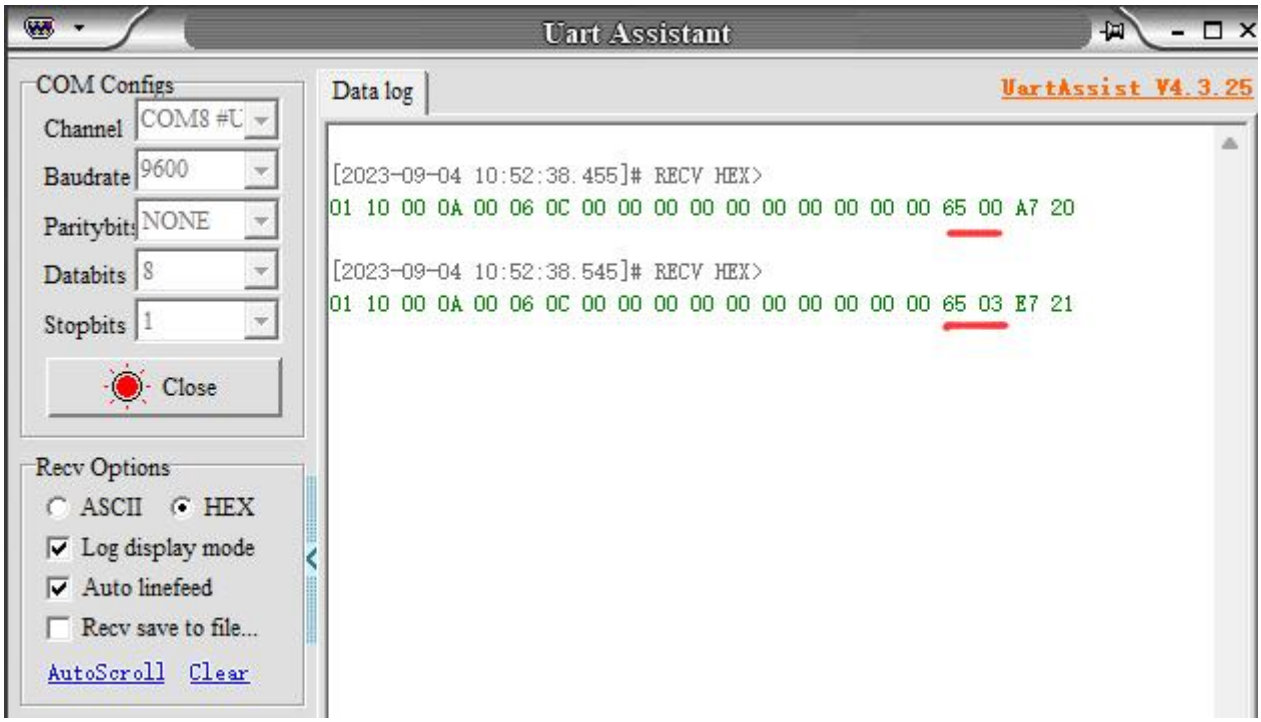
Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 00 00 00 00 65 02 00 00 33 7C

Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 00 00 00 00 65 00 00 00 92 BC

01 is KC868-H32B Pro or your own relay module's RS485 address.
10 00 0A 00 06 0C is fixed.
00 00 00 00 00 00 00 00 : it's set for button1-4, not used.
65 02 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 02 is OFF, it's fixed. 65 02 use by button5.
00 00 : it's set for button6, not used, just fill 00
33 7C : it's CRC code

65 00 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 00 is nothing, it's fixed. 65 00 use by button5.
00 00 : it's set for button6, not used, just fill 00
92 BC : it's CRC code

f. Button6 pressed do nothing, released TOGGLE relay1



Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 00 00 00 00 00 00 65 00 A7 20

Feedback: 01 10 00 0A 00 06 0C 00 00 00 00 00 00 00 00 00 00 65 03 E7 21

01 is KC868-H32B Pro or your own relay module's RS485 address.
10 00 0A 00 06 0C is fixed.
00 00 00 00 00 00 00 00 00 00 : it's set for button1-5, not used.

65 00 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 00 is nothing, it's fixed. 65 00 use by button6.
A7 20 : it's CRC code

65 03 : 65 is relay1 (65)hex=(101)dec 101-100=1 means:relay1 03 is TOGGLE, it's fixed. 65 03 use by button6.
E7 21 : it's CRC code

3. Feedback relay state to KC868-HA

a. MAX 32 channel relay state feedback command (firmware<1.06):

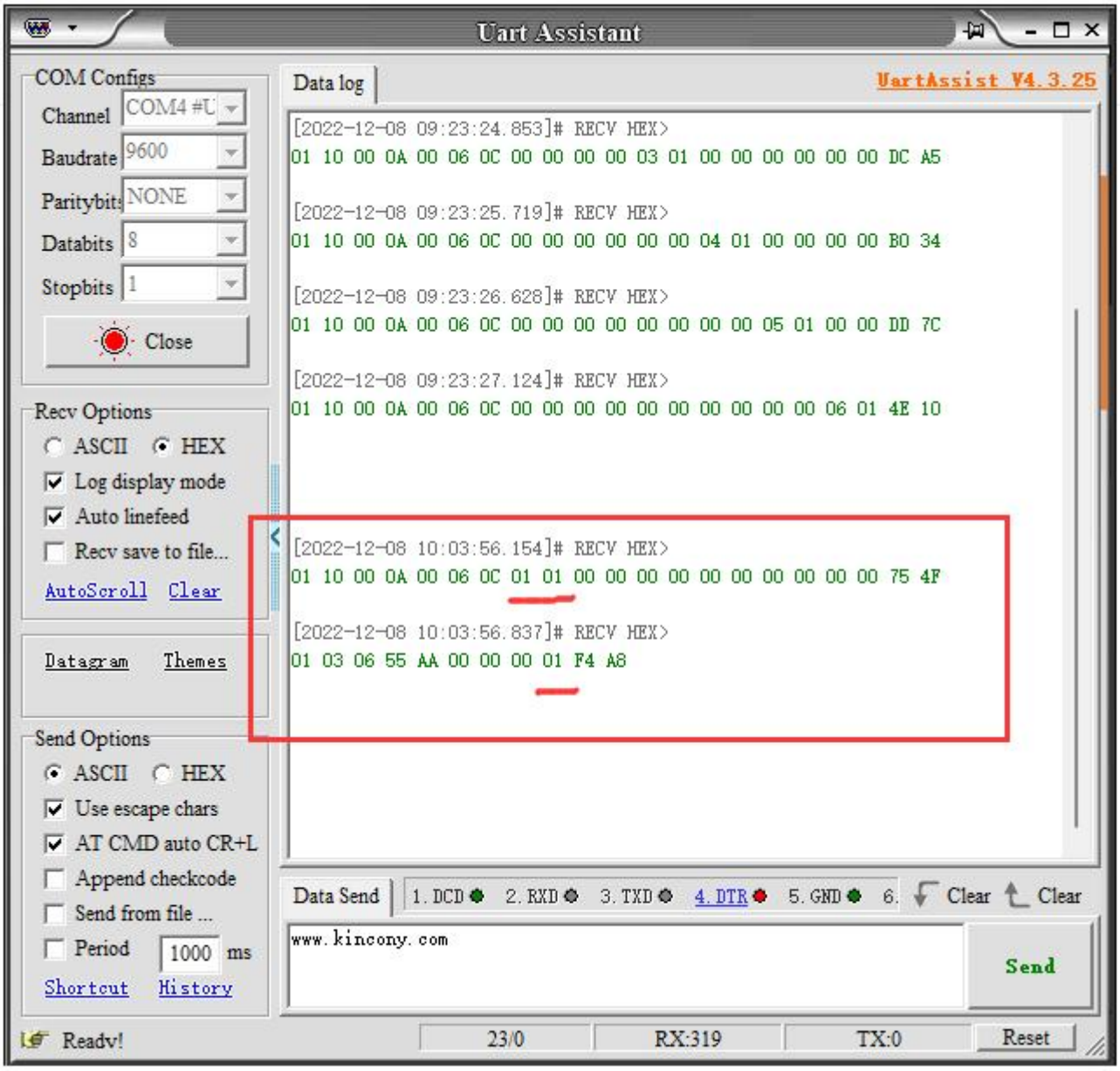
SLAVE ID + fixed package and length (03 06 55 AA) + byte3+byte2+byte1+byte0 + CRCH+CRCL

SLAVE ID is your relay controller's RS485 address.
byte3 is relay state of channel 32-25
byte2 is relay state of channel 24-17
byte1 is relay state of channel 16-9
byte0 is relay state of channel 8-1

every byteX use by 8 bits: 0:OFF 1:ON

fox example:
byte0 is 10001101
means: relay1:ON relay2:OFF relay3:ON relay4:ON relay5:OFF relay6:OFF relay7:OFF relay8:ON

Here is sample command and feedback for toggle relay1 by key1



KC868-HA will send command to KC868-H32B Pro relay controller:
01 10 00 0A 00 06 0C 01 01 00 00 00 00 00 00 00 00 00 00 75 4F

KC868-H32B Pro relay controller will feedback the newest relay state to KC868-HA:
01 03 06 55 AA 00 00 00 01 F4 A8

How to decode 01 03 06 55 AA 00 00 00 01 F4 A8 :
01 is KC868-H32B Pro or your own relay module's RS485 address.
03 06 55 AA is fixed.
byte3:00
byte2:00

byte1:00
byte0:01

byte0:01 is (00000001) binary data. So “1” means relay1 is ON.

If turn ON all 32 channel relay by mobile phone or any software or switch panel, just by anyway changed relay state, then will feedback:
01 03 06 55 AA FF FF FF FF 34 FC

byte3:FF
byte2:FF
byte1:FF
byte0:FF

byte3:01 is (11111111) binary data. Relay32-25 all ON.
byte2:01 is (11111111) binary data. Relay24-17 all ON.
byte1:01 is (11111111) binary data. Relay16-9 all ON.
byte0:01 is (11111111) binary data. Relay8-1 all ON.

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b. MAX 128 channel relay state feedback command (firmware>=1.06):

SLAVE ID + fixed package and length (03 12 55 BB) +byte15+byte14+ byte13+byte12+byte11+byte10+byte9+byte8+byte7+byte6+byte5+byte4+byte3+byte2+byte1+byte0 + CRCH+CRCL

SLAVE ID is your relay controller’s RS485 address.

byte15 is relay state of channel 128-121
byte14 is relay state of channel 120-113
byte13 is relay state of channel 112-105
byte12 is relay state of channel 104-97

byte11 is relay state of channel 96-89
byte10 is relay state of channel 88-81
byte9 is relay state of channel 80-73
byte8 is relay state of channel 72-65

byte7 is relay state of channel 64-57
byte6 is relay state of channel 56-49
byte5 is relay state of channel 48-41
byte4 is relay state of channel 40-33

byte3 is relay state of channel 32-25
byte2 is relay state of channel 24-17
byte1 is relay state of channel 16-9
byte0 is relay state of channel 8-1

every byteX use by 8 bits: 0:OFF 1:ON

fox example:

byte0 is 10001101
means: relay1:ON relay2:OFF relay3:ON relay4:ON relay5:OFF relay6:OFF relay7:OFF relay8:ON