KC868-A series board protocol – String command

Note: This protocol document use for KinCony smart controller:

KC868-AM ASR A2 A4 A4S A6 A8 A8M A8S A16 A16S E16S A32 A32M A64 A128 AG AK AI AIO AP

Different board will have different channel of digital output, digital input , ADC, DAC, so the protocol is same , just according to the hardware resource to set channel number.

String format command can use for “TCP Server/TCP Client/RS232/UCP Server/UDP Client” work mode.

1. Read all digital output state

Send: RELAY-STATE-255
Feedback: RELAY-STATE-255, D7,D6,D5,D4,D3,D2,D1,D0,OK

D7,D6,D5,D4,D3,D2,D1,D0 are “decimal” number, every data convert to binary, bit ”1” is ON, bit “0” is OFF.

if use KC868-A64 , it have 64 digital output, every byte have 8 bit, every bit mean every digital output state, so KC868-A64 have 8 bytes. Feedback format is RELAY-STATE-255,D7,D6,D5,D4,D3,D2,D1,D0

For example: feedback is RELAY-STATE-255,0,0,0,0,0,0,5,128,OK

D7=(0)dec=(00000000)b	output (64-57)	means:output57—64: OFF
D6=(0)dec=(00000000)b	output (56-49)	means:output49—56: OFF
D5=(0)dec=(00000000)b	output (48-41)	means:output41—48: OFF
D4=(0)dec=(00000000)b	output (40-33)	means:output33—40: OFF
D3=(0)dec=(00000000)b	output (32-25)	means:output25—32: OFF
D2=(0)dec=(00000000)b	output (24-17)	means:output17—24: OFF
D1=(0)dec=(00000101)b	output (16-9)	means: output9,11: ON others: OFF
D0=(128)dec=(10000000)b	output (8-1)	means: output8: ON others: OFF

2. Read all digital input state
send：RELAY-GET_INPUT-255
feedback：RELAY-GET_INPUT-255, D7,D6,D5,D4,D3,D2,D1,D0,OK

D7,D6,D5,D4,D3,D2,D1,D0 are “decimal” number, every data convert to binary, bit ”0” is trigger, bit “1” is not trigger.

if use KC868-A64 , it have 64 digital input, every byte have 8 bit, every bit mean every digital input state, so KC868-A64 have 8 bytes. Feedback format is RELAY-STATE-255,D7,D6,D5,D4,D3,D2,D1,D0

For example: feedback is RELAY-STATE-255,255,255,255,255,255,255,255,127,OK

D7=(255)dec=(11111111)b output (64-57) means:input57—64: not trigger
D6=(255)dec=(11111111)b output (56-49) means:input49—56: not trigger
D5=(255)dec=(11111111)b output (48-41) means:input41—48: not trigger
D4=(255)dec=(11111111)b output (40-33) means:input33—40: not trigger
D3=(255)dec=(11111111)b output (32-25) means:input25—32: not trigger
D2=(255)dec=(11111111)b output (24-17) means:input17—24: not trigger
D1=(255)dec=(11111111)b output (16-9) means: input9,11: trigger others: not trigger
D0=(127)dec=(01111111)b output (8-1) means: input8: trigger others: not trigger

3. Read one channel of ADC (analog input) state
   RELAY-GET_ADC-255,id

   send: RELAY-GET_ADC-255,1
   feedback: RELAY-GET_ADC-255,1,100,OK means: channel-1 ADC value=100

   "id" means: 1-MAX channel number.
   “100” is ADC original acquisition value. Range: 0-4095 -> dc 0-5v input

4. Read one channel of DAC (analog output) state
   RELAY-GET_DAC-255,id

   send: RELAY-GET_DAC-255,1
   feedback: RELAY-GET_DAC-255,1,100,OK means: channel-1 DAC value=100

   "id" means: 1-MAX channel number.
   “100” is DAC output value. Range: 0-255 -> dc 0-10v output

5. Read one channel of digital output state
   RELAY-READ-255,id

   send: RELAY-READ-255,2 means: turn digital output-2 OFF
   feedback: RELAY-READ-255,2,0,OK

   "id" means: 1-MAX channel number.
   “0” is OFF, “1” is ON.

6. Set ON/OFF one channel of digital output
   RELAY-SET-255,id,state

   send: RELAY-SET-255,1,0 measn: turn OFF digital output-1
   feedback: RELAY-SET-255,1,0,OK

"id" means: 1-MAX channel number.
“state” means: “0” is OFF, “1” is ON.

7. Set one channel of DAC output
   RELAY-SET_DAC-255,id,state

   send：RELAY-SET_DAC-255,1,200
   feedback：RELAY-SET_DAC-255,1,200,OK

   "id" means: 1-MAX channel number.
   “state” range: 0-255 -> dc 0-10v output

8. Set ON/OFF/TOGGLE for any multi channel of digital output

RELAY-SET_MULTI-255,
D23,D22,D21,D20,D19,D18,D17,D16,D15,D14,D13,D12,D11,D10,D9,D8,D7,D6,D5,D4,D3,D2,D1,D0

if use KC868-A64 , it have 64 digital output, every byte have 8 bit, every bit mean every digital output state, so KC868-A64 have 8 bytes. We will use ON/OFF/TOGGLE for these, so total need 8*3=24 bytes.

(D23,D22,D21,D20,D19,D18,D17,D16) use for ON command
(D15,D14,D13,D12,D11,D10,D9,D8) use for OFF command
(D7,D6,D5,D4,D3,D2,D1,D0) use for TOGGLE command
D23,D22,D21,D20,D19,D18,D17,D16,D15,D14,D13,D12,D11,D10,D9,D8,D7,D6,D5,D4,D3,D2,D1,D0
are “decimal” number, every data convert to binary, bit ”1” is effective , bit “0” is ineffective.

For example:
send：RELAY-SET_MULTI-255,0,0,0,0,0,0,0,128,0,0,0,0,0,0,0,64,0,0,0,0,0,0,0,32
feedback：RELAY-SET_MULTI-255,OK

D16=(128)dec=(10000000)b means: turn ON output-8
D8=(64)dec=(01000000)b means: turn OFF output-7
D0=(32)dec=(00100000)b means: TOGGLE output-6

So send this command, will turn ON output-8,turn OFF output-7, TOGGLE output-6 simultaneously.

9. Set ON/OFF multi channel of digital output
   RELAY-SET_ALL-255,D7,D6,D5,D4,D3,D2,D1,D0

   send：RELAY-SET_ALL-255,0,0,0,0,0,0,5,128
   feedback：RELAY-SET_ALL-255,0,0,0,0,0,0,5,128,OK

if use KC868-A64 , it have 64 digital output, every byte have 8 bit, every bit mean every digital output state, so KC868-A64 have 8 bytes. Feedback format is RELAY-SET_ALL-255,D7,D6,D5,D4,D3,D2,D1,D0,OK

For example: send command is RELAY-SET_ALL-255,0,0,0,0,0,0,5,128

D7=(0)dec=(00000000)b output (64-57) means:output57—64: OFF
D6=(0)dec=(00000000)b output (56-49) means:output49—56: OFF
D5=(0)dec=(00000000)b output (48-41) means:output41—48: OFF
D4=(0)dec=(00000000)b output (40-33) means:output33—40: OFF
D3=(0)dec=(00000000)b output (32-25) means:output25—32: OFF
D2=(0)dec=(00000000)b output (24-17) means:output17—24: OFF
D1=(0)dec=(00000101)b output (16-9) means: output9,11: ON others: OFF
D0=(128)dec=(10000000)b output (8-1) means: output8: ON others: OFF

So use this command will turn ON output8,9,11 turn OFF others simultaneously.

10. Set all channels of digital output ON
    send：RELAY-AON-255,1,1
    feedback：RELAY-AON-255,1,1,OK

11. Set all channels of digital output OFF
    send：RELAY-AOF-255,1,1
    feedback：RELAY-AOF-255,1,1,OK

12. Actively report information
    feedback：RELAY-NOTIFY-255,id,state

    "id" means: 1-MAX channel number.
    “state” means: “0” is OFF, “1” is ON.
    Any digital output changed STATE by any way , it will actively report message.

13. Toggle state of digital output
    Send:RELAY-KEY-255,id,1
    Feedback:RELAY-KEY-255,id,1,OK

    "id" means: 1-MAX channel number.

    change the status of one digital output, such as your output is ON, when send this command , it will be OFF. if your output is OFF, when send this command , it will be ON.

14. Send one IR signal have learned
    RELAY-IR-RUN-255,id

    Send: RELAY-IR-RUN-255,1
    Feedback: RELAY-IR-RUN-255,1,OK

15. Send one RF signal have learned
    RELAY-RF-RUN-255,id

Send: RELAY-RF-RUN-255,1
Feedback: RELAY-RF-RUN-255,1,OK

16. Set ON/OFF of buzzer
RELAY-SET-BEEP,state

send：RELAY-SET-BEEP,1 measn: turn ON buzzer
feedback：RELAY-SET-BEEP,1,OK

send：RELAY-SET-BEEP,0 measn: turn OFF buzzer
feedback：RELAY-SET-BEEP,0,OK

17. Read temperature and humidity sensor from GPIO port
RELAY-GET_SENSOR-255,id

send: RELAY-GET_SENSOR-255,1
feedback: RELAY-GET_SENSOR-255,1,26,-100,OK

1: ID1 of GPIO port,
26 is temperature value, The display unit of temperature is set in the webpage.
-100 is humidity value, -100 means have not connect humidity sensor, if connected, it will replace with actually value.
If temperature value is -100, that means invalid, when board power on, it need time to read sensor data, during this time, maybe will show -100