

AstroLink 4 mini communication protocol

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Introduction

AstroLink 4 mini communication protocol. Communication is done over FT232RL USB to serial converter. Bitrate is 115200 bps. Each line is ended with NL (\n, ASCII code 10) character.

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Commands

Below there is commands description. Each section contains textual description with parameters, command syntax and sample usage.

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#

#

Returns device name that is always a string *AstroLink4mini*

Q: #
A: *AstroLink4mini*

#:
#: *AstroLink4mini*

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A

A

Returns current device firmware.

Q: A
A: A:<firmware version>

A:
A: *4.2 mini*

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Bb

B

Sets PWM output state. Allowed values is integer in the range 0..100 plus 254 and 255. 0..100 sets PWM out as percent value. 254 sets PWM output to AUTO mode. 255 sets PWM output to HEAT mode.

Q: B:<output index>:<PWM value>
A: B:

B: *0:34*
B:

b

Reads actual PWM output value. Return range is 0..100.

Q: b:<output index>
A: b:<value>

b:0
b:34

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Cc

C

Sets switchable DC output state. 0 means OFF, 1 means ON.

Q: C:<output index>:<output state>
A: C:

C:1:1
C:

c

Returns DC output state. 0 means OFF, 1 means ON.

Q: c:<output index>
A: c:<value>

c:2
c:1

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d

d

Returns calculated dewpoint as float value in *C. Only when temperature/humidity sensor is connected.

Q: d
A: d:<dewpoint value>

d
d:12.4

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D

D

Triggers internal device buzzer to beep with specified parameters - *count* means number of beeps, *buzztime* is each beep time in ms

Q: D:<count>:<buzztime>
A: D:

D:4:50
D:

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h

h

Returns measured humidity in percent. Only when humidity sensor is connected:

Q: h
A: h:<value>

h
h:23.4

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H

H

Stops stepper motor (if moving).

Q: H
A: H:

H
H:

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i

i

Checks if motor is moving.

Q: i
A: i:1

i
i:1

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Jj

J

Enables or disables internal device buzzer - argument can be 0 or 1.

Q: J:<value>
A: J:

J:1
J:

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m**m**

Returns PCB revision.

Q: m
A: m:<revision>

m
m:2.0

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Pp**P**

Sets stepper motor position to given number of steps. Does not move the motor, only position is updated.

Q: P:<position>
A: P:

P:2340
P:

p

Returns current stepper position in steps.

Q: p
A: p:<position>

p
p:2340

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q**q**

Prints monitoring values. This is a concatenated string that contains all values from the device. Needs to be parsed to split them all. The answer can be in two modes: when motor is moving only short version is returned to avoid stepper motor breaks. When motor is idle then full answer is returned.

Q: q
When motor is moving:
A: q:<stepper position>:<distance to go>:<current>:
When motor is idle:
A: q:<stepper position>:<distance to go>:<current>:<sensor 1 type>:<sensor 1 temp>:<sensor 1 humidity>:<dewpoint>:<sensor 2 type>:<sensor 2 temp>:<pwm1>:<pwm2>:<out1>:<out2>:<out3>:<Vin>:<Vreg>:<Ah>:<Wh>:<DCmotorMove>:<CompDiff>:<OverProtectFlag>:<OverProtectValue>

Where:

- *Ah, Wh* - are energy consumed in Ah and Wh units
- *DCmotorMove* indicates if DC motor is moving
- *CompDiff* - is calculated compensation in steps
- *OverProtectFlag* - indicates reason why protection has been triggered. 0 - none, 1 - overvoltage, 2 - overcurrent
- *OverProtectValue* - displays the value that triggered protection. Can be either in A or V
- *sensor type* - 0 - no sensor, 1 - DS temperature sensor, 2 - DHT temp./hum. sensor, 3- MLX sky temperature sensor

q

q:0:0:0.01:0:12.41:34.1:-1.32:0:0.00:0:0:0:0:12.7:5.0:0.00:0.01:0:0:0

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R

R

Moves stepper to given position. Argument is step number - cannot be lower than 0 and larger than maximum focuser position.

Q: R:0:<position>

A: R:

R:0:2450

R:

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t

t

Returns measured temperature. Is valid only when at least one of sensors is connected. When both sensors are connected, DHT sensor temperature is returned.

Q: t

A: t:<temperature>

t

t:-12.3

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