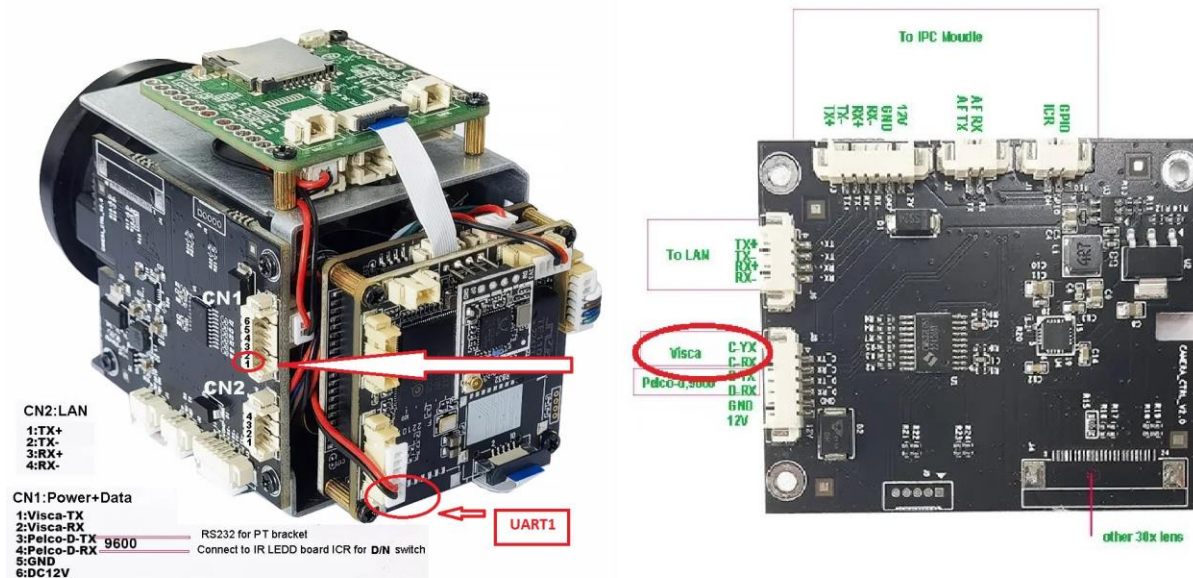


## INSTRUCTIONS FOR ZOOM AND FOCUS CONTROL FROM OPENIPC CAMERA

This experiment is done on Camhi ssc338q+imx415 module with 30x optical zoom, and should work for all visca compatible boards with absolute motor position control.

There are separate controller board and zoom lens available.

<https://www.aliexpress.com/item/1005005869592850.html>



First of all you have to make sure that you have camera module with at least two enabled UART ports ( one is for telemetry and other for zoom control ).

Connect your computer USB-TTL to the visca port on the controller board ( tx-rx, rx-tx ), and install any serial port debugger ( e.g. SSCOM). Power up the camera and the controller board sends long string, and you should remember the last command here ( on this module it is 54 65 6D 2E 2E 2E 0D 0A ). This can be useful if the board is in sleep mode, command can be used to wake it up.

Now you can send visca commands :

First use "81 01 04 38 03 FF" to stop autofocus. Than you point camera at an object as far as you can find ( if you are using the camera for long range surveillance ). Than you can use commands to find as many zoom+focus positions as you need:

(ZOOM +) 81 01 04 07 02 FF , (ZOOM -) 81 01 04 07 03 FF , (STOP) 81 01 04 08 00 FF , (FOCUS+) 81 01 04 08 02 FF , (FOCUS-) 81 01 04 08 03 FF .

On every position you can send commands to get zoom and focus position at that point:

For zoom: "81 09 04 47 FF" - you will get 90 50 0p 0q 0r 0s FF (pqrs: are zoom position)

For focus: "81 09 04 48 FF" - you will get 90 50 0p 0q 0r 0s FF (pqrs: are focus position)

Copy these numbers to this command for every zoom+focus position:

81 01 04 47 \_\_\_\_ FF 81 01 04 48 \_\_\_\_ FF (first zoom, second focus), and this is the final command that is sent to the controller board.

Connect your camera UART1 port to the visca port on the controller board (rx-tx, tx-rx).

On the camera side you need to run these commands:

devmem 0x1F207890 16 0x8 - only once to enable UART1 ( this is for this module only )

Other commands you run every time after restart:

stty -F /dev/ttyS2 9600 - for this module baud rate is 9600

printf '\x54\x65\x6D\x2E\x2E\x0D\x0A' >/dev/ttyS2 - controller board wake up ( for this module only )

printf '\x81\x01\x04\x38\x03\xFF' >/dev/ttyS2 - stop autofocus

And finally commands with zoom+focus positions:

printf '\x81\x01\x04\x47\x00\x00\x00\x00\xFF\x81\x01\x04\x48\x06\x05\x00\x02\xFF' >/dev/ttyS2

All your commands can be written in a script and controlled over mavlink.