

SloMo Elite-C

Video Server Controller



User Manual

SloMo Elite-C and SloMo Elite are trademarks of JLC Cooper Electronics. All other brand names are the property of their respective owners.

*SloMo Elite-C User Manual, Second Edition
Part Number 932152*

*©2019 JLC Cooper Electronics, 142 Arena Street, El Segundo, CA 90245 USA
phone (310) 322-9990 fax (310) 335-0110 web www.jlcooper.com*

Table of Contents

Ethernet Configuration.....	4
Built-in Configuration Mode	4
Navigating Around the Configuration Page.....	5
Modifying Parameters.....	5
Parameters	5
Exiting the Built-in Configuration Mode.....	7
Using the Configuration Tool for Windows	8
Network Configuration	8
Serial Configuration.....	13
Options Configuration.....	16
Firmware Upload.....	18
Details on Ethernet Communication Modes	20
TCP Server Mode Communication	20
TCP Client Mode Communication.....	21
TCP Mixed Mode Communication	21
UDP Mode Communication	21
USB Configuration.....	22
Windows	22
Mac OSX, Linux and others	28
Calibrating the T-Bar	29
Troubleshooting.....	30
Demo Mode	30
JLCooper Limited Warranty	31

Ethernet Configuration

Configuring the SloMo Elite-C network parameters can be done in two different ways.

- 1. Using the built-in configuration page on the SloMo Elite-C or,
- 2. Using the Configuration Tool for Windows.

Built-in Configuration Mode

This method allows you to configure the SloMo Elite-Cs network settings from the SloMo Elite-C itself. No other device or software is required.

Using the built-in Configuration Mode is straightforward. To access the Built-in Configuration Mode, simply press and hold the buttons during power up:

SHIFT + **C4**

Figure 1 Button Sequence for Configuration Mode

This will cause the following page to be displayed:

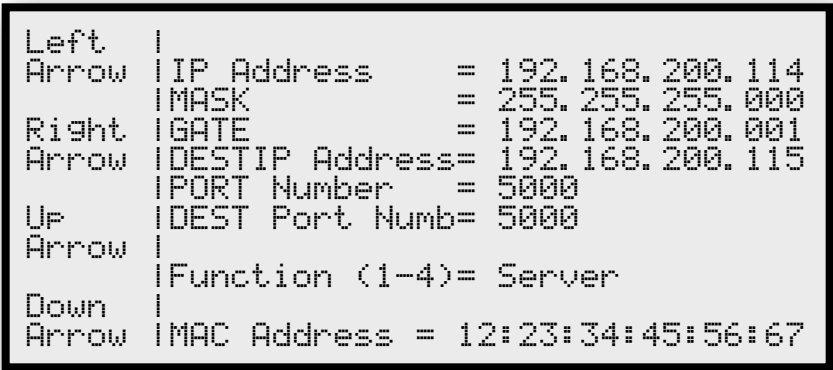


Figure 2 Configuration Page

This will cause the Configuration Page to be displayed. In addition, all buttons will now be used for navigating around the configuration page or entering values.

Navigating Around the Configuration Page

When the Configuration Page is displayed, the C1, C2, C3 and C4 buttons are used to navigate among the parameters.

Left Arrow

Pressing the **C1** button causes the cursor to move to the previous numeric field to the left.

Right Arrow

Pressing the **C2** button causes the cursor to move to the next numeric field to the right.

Up Arrow

Pressing the **C3** button causes the cursor to move to the previous numeric field above.

Down Arrow

Pressing the **C4** button causes the cursor to move to the next numeric field below.

Modifying Parameters

When the Configuration Page is displayed, the numeric buttons below the large LCD screen labelled **1** through **10** are used to enter numeric values. The **10** button is used to enter the value of zero.

Parameters

The following network parameters can be viewed on the Configuration Page. All of these values, except the MAC Address, can also be modified.

IP Address

This parameter sets the IP Address of the SloMo Elite-C. It can be any valid address. It must be in the same subnet as the gateway or router.

MASK

This parameter specifies the Subnet Mask. It can be any valid subnet mask.

GATE Address

This parameter specifies the IP Address of the gateway or router. It can be any valid address. This parameter is required if the SloMo Elite-C must communicate with another device outside its subnet. It must be in the same subnet as the SloMo Elite-C. If the SloMo Elite-C will communicate with another device in its subnet, the Gateway Address is not necessary and is ignored.

DEST IP Address

This parameter specifies the IP Address of the destination device that the SloMo Elite-C will connect to when it is configured for the Client or Mixed mode of operation. It can be any valid address. If this address is not in the same subnet as the SloMo Elite-C, a valid Gateway address must be specified. If the SloMo Elite-C is configured in the Server or UDP mode of operation, the Destination IP address is not used.

PORT Number

This parameter sets the Port Number of the SloMo Elite-C. It can be any valid port number between 1 and 65535.

DEST Port Numb

This parameter specifies the TCP port number of the destination device that the SloMo Elite-C will connect to when it is configured for the Client or Mixed mode of operation. It can be any valid TCP port number. If the SloMo Elite-C is configured in the Server or UDP mode of operation, the Destination Port Number is not used. It can be any valid port number between 1 and 65535.

Function

This parameter sets the communication mode of the Ethernet port in the SloMo Elite-C. This allows the unit to be configured for TCP Server, TCP Client, TCP Mixed (Client/Server) or UDP operation.

These modes are described in detail in the section *Details on Ethernet Communication Modes*.

MAC Address

This displays the MAC or hardware address of the SloMo Elite-C. It is a read only value and cannot be changed.

Exiting the Built-in Configuration Mode

To save the configured values and exit the Configuration Mode, press the following button:

A rectangular button with the word "ENTER" in green capital letters on a black background.

Figure 4 Exit Configuration Mode and Save Button Sequence

After pressing this button, the unit will prompt you to power cycle the unit so the changes can take effect.

Note: The unit takes approximately one second to write the configuration values. You must wait a few seconds before powering down the unit.

To discard the configured values and exit the Configuration Mode, press the following button:

A rectangular button with the word "CLEAR" in green capital letters on a black background.

Figure 5 Exit Configuration Mode and Discard Button Sequence

Using the Configuration Tool for Windows

This method allows you to remotely configure the SloMo Elite-Cs network settings from any location. All that is needed is a computer running Windows and a network connection to the SloMo Elite-C. The Configuration Tool also gives you the ability to search for all SloMo Elite-Cs on the network and the access to other configurable parameters not available in the Built-in Configuration Page.

Network Configuration

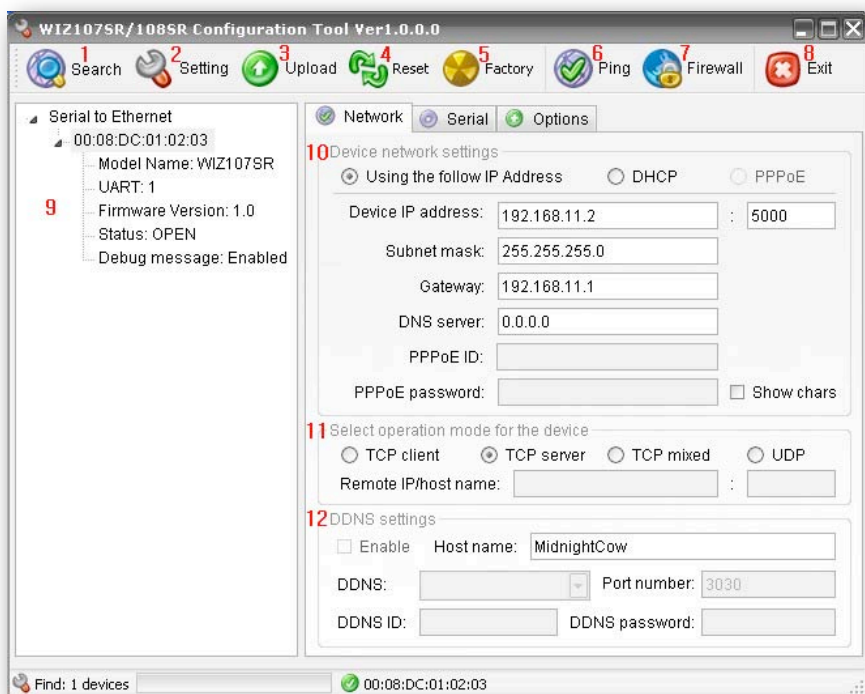
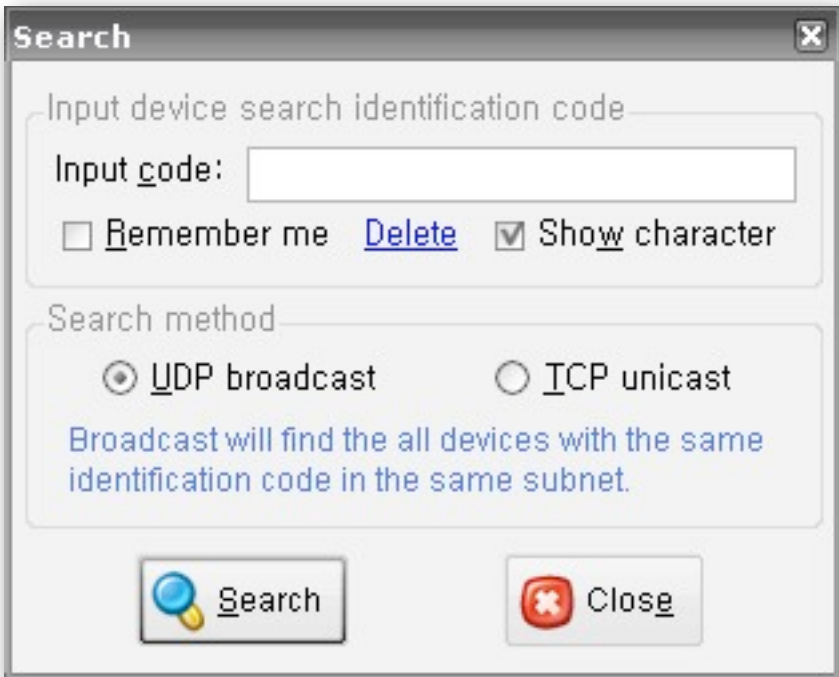


Figure 6 SloMo Elite-C Configuration Tool (Network Configuration)

1. Search

The Search function is used to search all devices existing in the same LAN or one specified one device in WAN. By using UDP broadcast as shown in Figure 4, all connected devices in the same subnet will be found. If the TCP unicast method is checked, the specified IP address must be given as shown in Figure 5. The founded device will be listed in the “Serial to Ethernet” tree with its MAC address.

Please, note the identification code must be input if the device has been configured with one identification code.



Search

Input device search identification code

Input code:

☐ Remember me [Delete](#) ☒ Show character

Search method

☒ UDP broadcast ☐ TCP unicast

Broadcast will find the all devices with the same identification code in the same subnet.

 Search  Close

Figure 7 Searching with UDP broadcast method

Search

Input device search identification code

Input code:

☐ Remember me [Delete](#) ☒ Show character

Search method

☐ UDP broadcast ☒ ICP unicast

Host name/IP addr:

Search **Close**

Figure 8 Searching with TCP unicast method

2. Setting

This function is to complete the configuration change.

If you select the MAC Address from the “Serial to Ethernet” tree, the default configuration value of the module will be displayed. Change the configuration and click “Setting” button to complete the configuration. The module will re-initialize with the changed configuration. Changed value is saved in the EEPROM of the module. Thus, the value is not removed even though power is disconnected.

3. Upload

Ethernet Module firmware will be uploaded through network. Note, this is not the SloMo Elite-C firmware.

4. **Reset**

Reset and restart the selected module if you select the MAC Address from the tree and click “Reset” button.

5. **Factory**

All values are initialized to their factory default values if you select the MAC Address from the tree and click “Factory” button.

6. **Ping**

Clicking this button allows you to ping the Ethernet Interface module in the SloMo Elite-C for the purposes of troubleshooting.

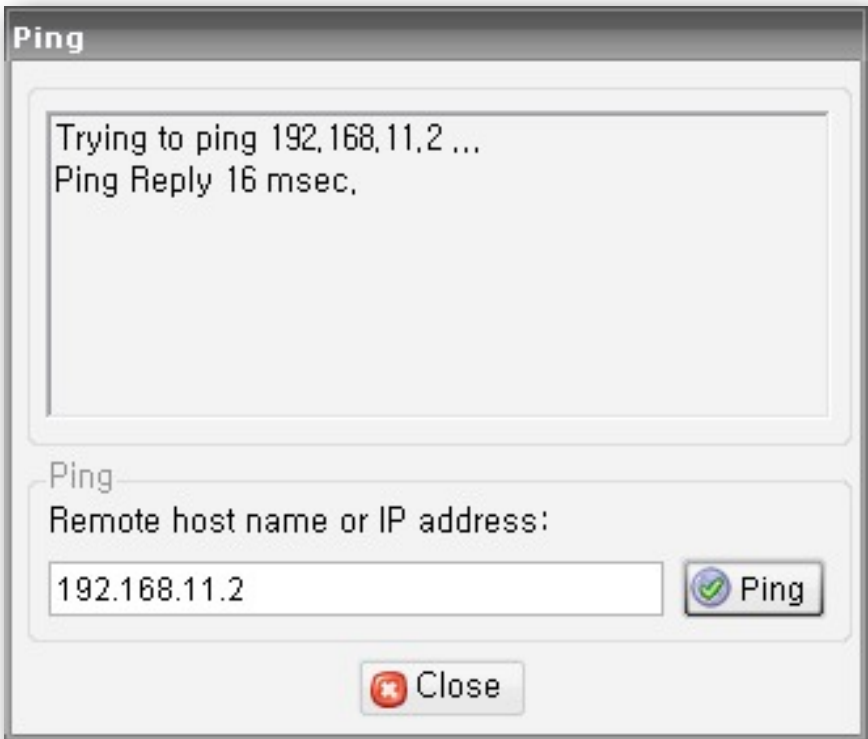


Figure 9 Simple Ping Test Program

7. **Firewall**

Clicking this button launches the Windows Firewall setup program.

8. Exit

Closes the configuration Tool Program.

9. Search window

If you click “Search” button, all the MAC address on a same subnet, will be displayed in this area. You can see the basic information such as Model name, Firmware version, etc.

10. Network Setting Method

Selects IP setting mode. You can select Static or DHCP

- Static
This is option for setting SloMo Elite-C module’s IP with static IP address. Firstly, select MAC address which you wanted to set as static IP in the board list. Then “Device IP, Subnet, Gateway box” will be enabled. Input Static IP address and click “setting” button. Then set the IP address as you want.
- DHCP
Set this option to use DHCP mode. Firstly, check ‘DHCP’ and click ‘Setting’ button. If IP address is successfully acquired from DHCP server, the MAC address will be displayed in the configuration window. (It takes some time to acquire IP address from DHCP server) When a module on the board list is selected, IP address, Subnet mask and Gateway are displayed. If module could not acquire network information from DHCP server, IP address, Gateway Address and Subnet mask will be initialized to 0.0.0.0.
- PPPoE
This mode is not supported in the current version.

11. Network Operation Mode

This parameter sets the communication mode of the Ethernet port in the SloMo Elite-C. This is described in detail in the section *Details on Communication Modes*.

12. DDNS Setting

DDNS (Dynamic Domain Name System) function is not supported in the current version.

Serial Configuration

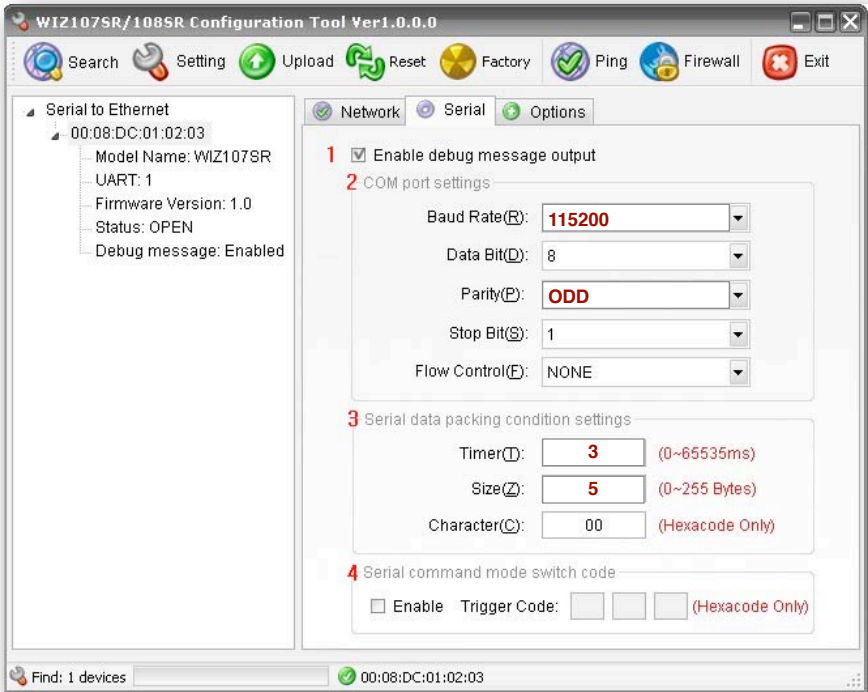


Figure10 SloMo Elite-C Configuration Tool (Serial Configuration)

To use the Ethernet Interface successfully, verify the following parameter settings:

- The "Enable debug message output" checkbox is cleared.
- The Baud Rate is set to 115200.
- The Parity is set to ODD.
- The Timer is set to 3.
- The Size is set to 5.

Then, click the Setting icon at the top of the application and click the Reset icon at the top of the application.

1. Enable debug message output

If this mode is checked, you can monitor the status of module and socket message like listen OK, connect fail etc. through serial terminal. If debug mode is on, debug message can cause abnormal operation of the serial device. Therefore, just use this mode only for debug mode.

2. COM port Setting

The parameters of COM port of SloMo Elite-C are listed well in this page. Users can set the COM port of SloMo Elite-C by selecting the value of each parameter in the drop down list.

By clicking the "Setting" button, changed value can be applied.

3. Serial data packing condition settings

You can designate how the serial data can be packed to send to the Ethernet. In default mode, SloMo Elite-C checks the serial buffer and sends any received data to Ethernet without any standard. Therefore, the data can be regarded as error data due to inconsistent data length. In order to solve this problem, the data from serial can be packed according to the specified condition before sending to Ethernet. The condition is as below.

- Time
If there is not any new data during designated time, all data in the serial buffer is converted to Ethernet packet. If new data is received, the time is re-calculated and the received data is saved in the serial buffer. Time condition can be utilized when the serial data size is variable and has no ending character, but needs to be delivered in frame SloMo Elite-C. (If the value is '0', option is not used)
- Size
When data is collected as much as the defined size in the serial buffer, it is transmitted to Ethernet (If the value is '0', option is not used)
- Character
The data is collected in the serial buffer until specified character is received, and transmitted to Ethernet. The character can be specified in Hex formation. (The value is '0', this option is not used)

When one of three conditions is satisfied, the data is transmitted to the Ethernet port.

For example:

Delimiter: Size=10, Char=0x0D

Serial data : 0123456789abc

Ethernet data : 0123456789

“abc” data remains in the serial buffer of module.

4. Serial command mode switch code

This function is for module configuration not through network with Configuration tool but through serial communication. At the default status, the serial command mode is disabled. When you want to set via serial communication, check “enable”.

Options Configuration

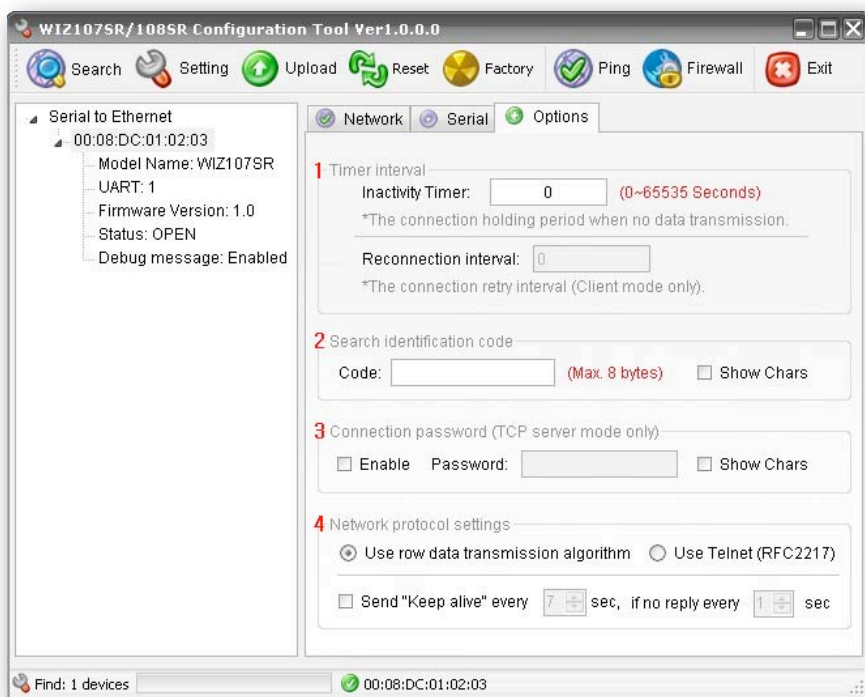


Figure 11 SloMo Elite-C Configuration Tool (Options Configuration)

1. Timer interval

- Inactivity Timer
The connection holding period when no data is transmitted.
- Reconnection Interval
The connection retry interval (client mode only)

After the connection is established, if there is not data transmission within the time defined in Inactivity time, the connection is closed automatically. The default value is '0'. If '0' is set, this function is not activated. In this default setting, the connection is maintained even though there is no data transmission. In order to close the connection, the 'Close' command should be given.

This function can be used for more than two or more systems to connect to a SloMo Elite-C module. If one system holds the connection to the SloMo Elite-C, other systems cannot connect to the module. If there is no data transmission during the time defined in Inactivity time, the connection will be closed for other system to be connected.

Inactivity Time also can be useful for the case when the server system is unexpectedly shut down. In this status, if there is not any data communication during the time defined in the Inactivity time, SloMo Elite-C will close the connection and enter into waiting status.

2. Search identification code

For the security issues, SloMo Elite-C can have its own password for searching. The password is stored in the EEPROM of SloMo Elite-C, and it can be modified via this configuration tool. The password can be any alphabet or number. Its length can be variable and its maximum length is 8 bytes. The password is case sensitive.

3. Connection password

This function is available only when SloMo Elite-C works in server mode. If this function is enabled, the remote client should send the password to SloMo Elite-C before data transmission. Please, note the password is case sensitive.

4. Network protocol settings

There are two kinds of data transmission protocol: one is raw data transmission, and the other is using Telnet (RFC2217). But in current version, only the raw data transmission is supported. If the 'Keep alive' function is enabled, SloMo Elite-C will send keep alive packet in every user set minutes if no reply received after the user set period.

Firmware Upload

Do not switch off power when firmware is being uploaded to unit.

1. Run the Configuration Tool program and click “Search” button, and input search password in the password popup dialog if you set the search password.
2. If the module is properly connected to the network then MAC address will be displayed on the “Serial to Ethernet” search result area.
3. Select a MAC address shown in search result and click “Upload” button.

Before uploading through Ethernet, you should set the network information of SloMo Elite-C first by Configuration Tool program.

4. When the window as shown below Figure is displayed, select file for upload and click “Open” button.

Do not upload any other files except for SloMo Elite-C application firmware file. If you uploaded other files by accident, Configuration Tool program cannot search out SloMo Elite-C so that uploading correct files will be unavailable. In this case, you should erase code and data flash in W7100 and upload correct files by using WIZISP for iMCU W7100 program.



Figure 12 File open dialog box for Firmware uploading

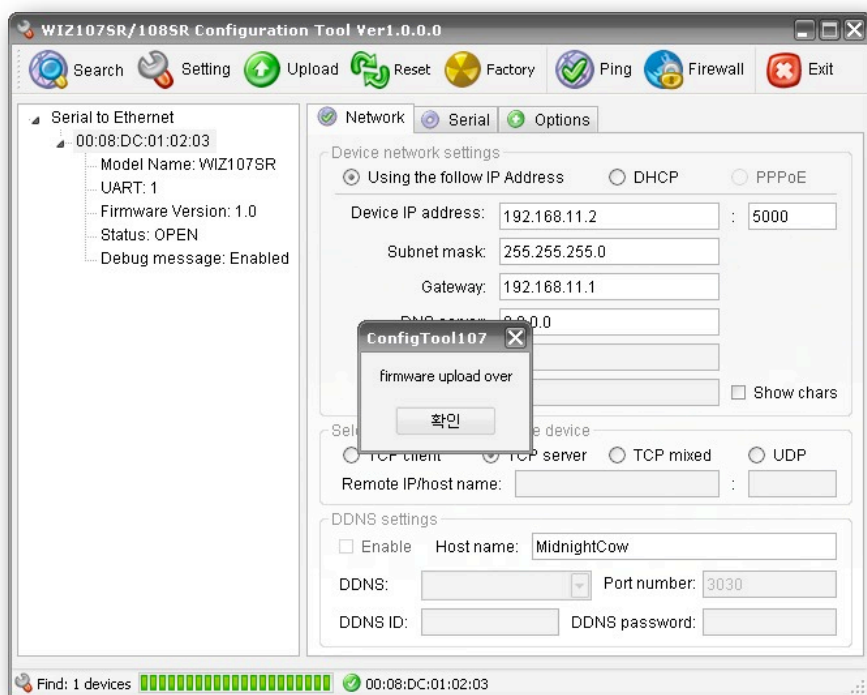


Figure 13 Firmware uploaded successfully

5. When the firmware is uploaded successfully, the following message box will be shown.

Details on Ethernet Communication Modes

This is to select the communication method of the SloMo Elite-C. TCP is the protocol to establish the connection before data communication, but UDP just processes the data communication without connection establishment. The Network mode of SloMo Elite-C can be divided into TCP Server, TCP Client and Mixed mode according to the connection establishing method.

At the TCP server mode, SloMo Elite-C operates as server on the process of connection, and waits for the connection trial from the client.

The SloMo Elite-C operates as client at the TCP Client mode on the process of connection, and tries to connect to the server's IP and Port.

Mixed modes supports both of Server and Client. The communication process of each mode is as below.

1. TCP Server Mode Communication

At the TCP Server mode, SloMo Elite-C waits for the connection requests.

TCP Server mode can be useful when the monitoring center tries to connect to the device (where SloMo Elite-C is installed) in order to check the status or provide the commands. In normal time SloMo Elite-C is on the waiting status, and if there is any connection request (SYN) from the monitoring center, the connection is established (ESTABLISH), and data communication is processed (Data Transaction). Finally connection is closed (FIN).

In order to operate this mode, Local IP, Subnet, Gateway Address and Local Port Number should be configured first.

The Data transmission proceeds as follows:

- 1. The host connects to the SloMo Elite-C which is configured as TCP Server mode.**
- 2. As the connection is established, data can be transmitted in both directions – from the host to the SloMo Elite-C, and from the SloMo Elite-C to the host.**

2. TCP Client Mode Communication

If SloMo Elite-C is set as TCP Client, it tries to establish connection to the server. To operate this mode, Local IP, Subnet, Gateway Address, Server IP, and Server port number should be set. If server IP had domain name, use DNS function. In TCP Client mode, SloMo Elite-C can actively establish a TCP connection to a host computer when power is supplied. The Data transmission proceeds as follows:

1. **As power is supplied, SloMo Elite-C board operating as TCP client mode actively establishes a connection to the server.**
2. **If the connection is complete, data can be transmitted in both directions – from the host to the SloMo Elite-C and from SloMo Elite-C to the host.**

3. TCP Mixed Mode Communication

In this mode, SloMo Elite-C normally operates as TCP Server and waits for the connection request from the peer. However, if SloMo Elite-C receives data from the serial device before connection is established, it changes to the client mode and sends the data to the server IP.

Therefore, at the mixed mode, the server mode is operated prior to the client mode. As like TCP Server mode, the Mixed mode is useful for the case that the monitoring center tries to connect to the serial device (in which SloMo Elite-C is used) to check device status. In addition to this, if any emergency occurs in the serial device, the module will change to Client mode to establish the connection to the server and deliver the emergency status of the device.

4. UDP Mode Communication

UDP is not a connection oriented protocol. But the communication port should also be defined well. If the UDP mode is selected, the data from serial interface can be defined where to delivery via the “Sever IP Address” and “Port”, and the SloMo Elite-C can also be defined where to receive Ethernet data from via the “Remote Peer IP Address” definition. If the data destination and source are the same, the two IP address will also be the same. Please note the destination and source are using the same port.

USB Configuration

Windows

To install your SloMo Elite-C USB on your PC:

1. Download the latest USB drivers from the JLC Cooper website. They can be downloaded from:

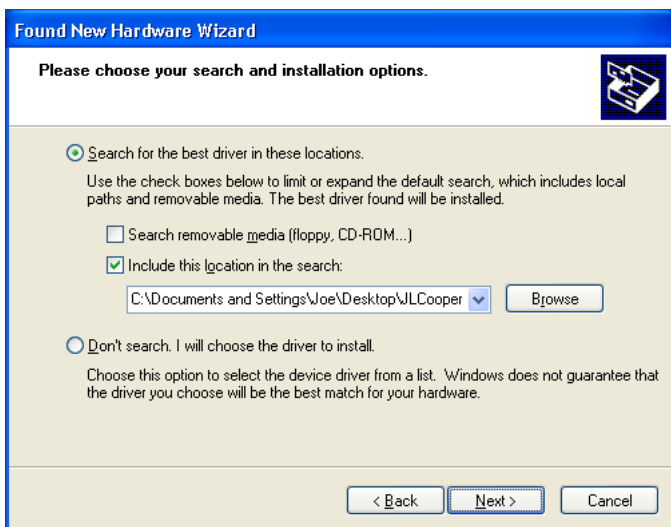
<http://www.jlcooper.com/pages/downloads.html>

The file is called “JLC Cooper USB Drivers for Windows”.

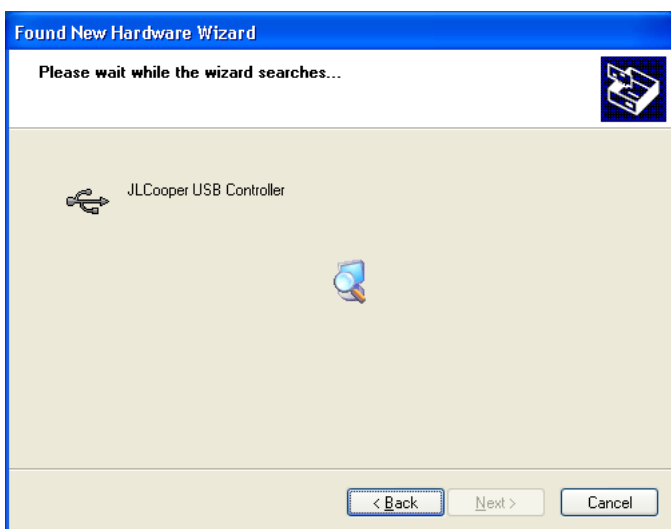
2. Extract the file.
3. Plug your unit into an available USB port on your PC.
4. When the Windows New Hardware Wizard starts, follow these steps:



Select “Install from a list or specific location” and click Next.



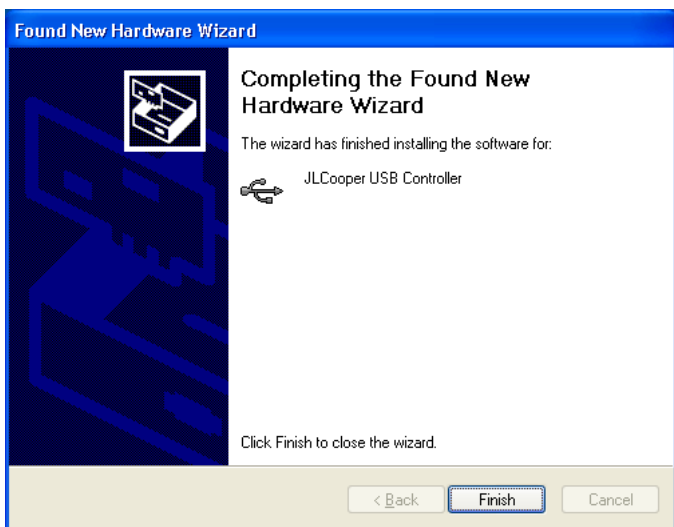
Select “Search for the best driver in these locations” and “Include this location in the search”. Select the folder where you extracted the drivers.



5.



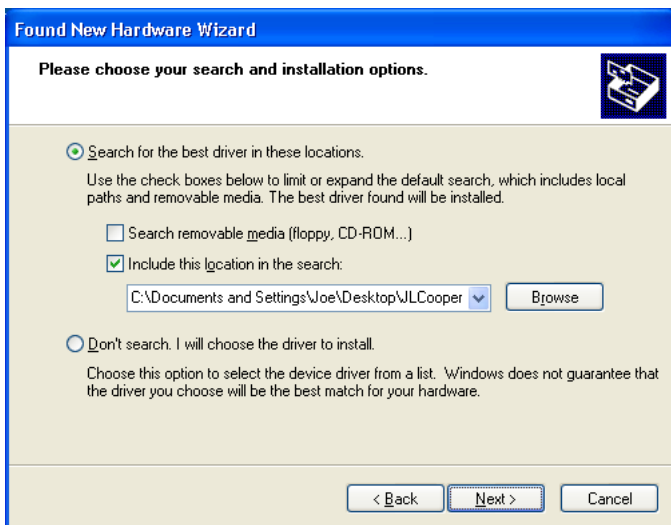
Click "Continue Anyway".



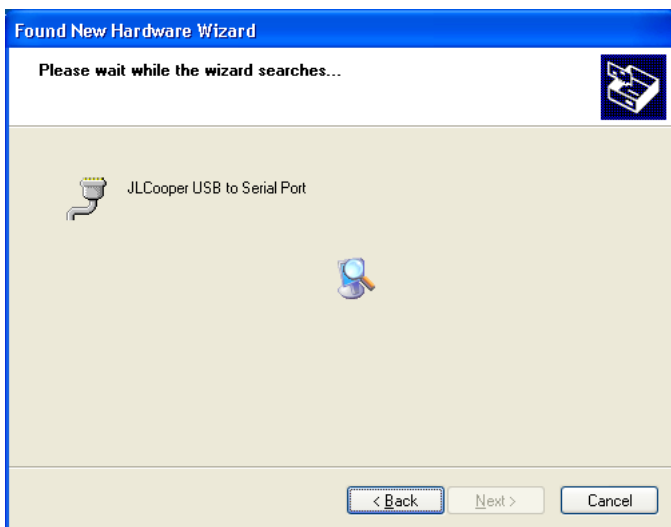
Click "Finish". This completes the first part of the driver.



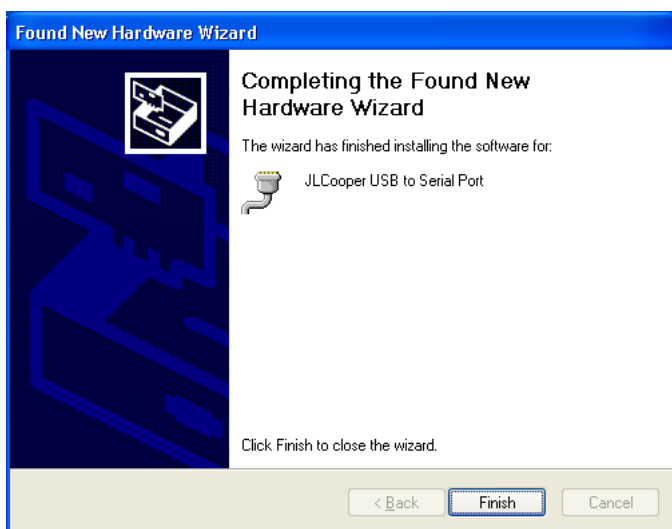
Select “Install from a list or specific location” and click Next.



Select “Search for the best driver in these locations” and “Include this location in the search”. Select the folder where you extracted the drivers.

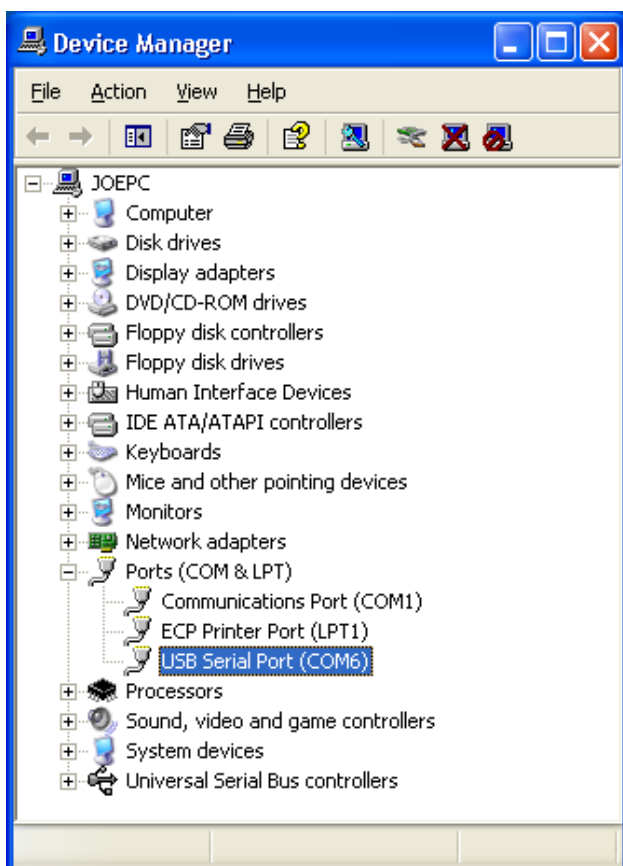


Click "Continue Anyway".



Click “Finish”. This completes the second part of the driver.

6. Open the device manager and click the “+” symbol next to the Ports (COM & LPT) as seen on the next page.



7. Look for the item "USB Serial Port". There will be a COM port next to it. This is the COM port associated with your SloMo Elite-C. You will use this to specify which COM port your application will use to access the SloMo Elite-C.

Mac OSX, Linux and others

If you wish to use the SloMo Elite-C with other platforms such as OSX or Linux, please contact JLCoper directly.

Calibrating the T-Bar

The T-Bar in the SloMo Elite-C is precalibrated from the factory. In the event that the T-Bar mechanism needs to be recalibrated, follow the steps below:

1. **Power off the SloMo Elite-C.**
2. **Press and hold the **ENTER** button.**
3. **Power on the SloMo Elite-C**
4. **Move the T-Bar to the top and press the **ENTER** button.**



MOVE TO TOP AND PRESS ENTER
BUTTON

5. **Move the T-Bar to the bottom and press the **ENTER** button.**



MOVE TO BOTTOM AND PRESS ENTER
BUTTON

Troubleshooting

If for some reason the SloMo Elite-C does not give you the expected results, take a moment to do some investigating. The most important concept is that you have your SloMo Elite-C connected properly as outlined in Installation and Use. Take a moment to double check your setup.

In addition, the JLCopper website (www.jlcooper.com) will contain up to date information on drivers, applications and troubleshooting.

If all else fails, you can contact the JLCopper Service Department at: service@jlcooper.com.

Demo Mode

As an aid for troubleshooting, the SloMo Elite-C has a Demonstration Mode. This feature can be invoked by pressing and holding the following keys during power up:

SHIFT + C1

Figure 14 Button Sequence for Demo Mode

Care and Service

If properly cared for, your SloMo Elite-C should provide years of trouble free performance. While the SloMo Elite-C is built in a rugged metal enclosure, please avoid dropping the SloMo Elite-C.

Clean with a soft, damp cloth. Do not allow liquids, dust or other foreign matter to get inside the unit.

There are no user-serviceable parts in the SloMo Elite-C. Please refer to the JLCopper Electronics Limited Factory Warranty on the last page for detailed warranty and service information.

JLCooper Limited Warranty

JLCooper Electronics ("JLCooper") warrants this product to be free of defects in materials or workmanship for a period of 12 months from the date of purchase. This warranty is non-transferable and the benefits apply only to the original owner. Proof of purchase in the form of an itemized sales receipt is required for warranty coverage. To receive service under this warranty, customers in the United States should contact the JLCooper factory at (310) 322-9990 and talk to a service technician. If necessary, a Return Authorization number may be issued. For our customers outside the United States, it is recommended that you first contact your Dealer or Distributor, since they may offer their own service or support policy. If local support is not obtainable, please send a FAX to JLCooper's Service Department at +1 310 335 0110 with a detailed description of the service required. Upon issuance of return authorization, the product should be packed in the original shipping materials and shipped prepaid and insured to: Service Department, JLCooper Electronics, 142 Arena Street, El Segundo, CA 90245. Please include the following: copy of the sales receipt, your name and address (no P.O. Boxes, please), a brief description of the problem, and any other related items discussed with the service department and considered necessary to evaluate the product or effect a repair. The return authorization number must be clearly written on the outside of the package. JLCooper will at its option, without charge for parts or labor, either repair or replace the defective part(s) or unit. Carriage, insurance, customs duties, impounds, tariffs, taxes, surcharges, brokerage fees and other shipping costs are not covered by this warranty. JLCooper's normal repair turn around time at the factory is approximately 15 business days from receipt of product to shipping. Your actual turn around time will include return shipping. Actual turn around time will vary depending upon many factors including the repeatability of the customer's reported complaint, the availability of parts required for repair, the availability of related products needed to evaluate the product if necessary. Priority services are available at additional cost. These should be discussed with the service technician at the time the return authorization is issued. This warranty provides only the benefits specified and does not cover defects or repairs needed as result of acts beyond the control of JLCooper including but not limited to: abuse, failure to operate in accordance with the procedures outlined in this owner's manual; nor does it cover damage from accident, negligence, using incorrect power supply, modification, alteration, improper use, unauthorized servicing, tampering, ingress of foreign matter; nor for damage from natural or man-made events such as, but not limited to flooding, lightning, electrostatic discharge, tornadoes, earthquake, fire, civil unrest, war, terrorism, etc.

THE DURATION OF ANY OTHER WARRANTIES, WHETHER IMPLIED OR EXPRESS, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN. JLCOOPER HEREBY EXCLUDES INCIDENTAL AND CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO: LOSS OF TIME, INCONVENIENCE, DELAY IN PERFORMANCE OF THIS WARRANTY, THE LOSS OF USE OF THE PRODUCT OR COMMERCIAL LOSS, AND FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY APPLICABLE TO THIS PRODUCT. JLCOOPER SHALL NOT BE LIABLE FOR DAMAGES OR LOSS RESULTING FROM THE NEGLIGENT OR INTENTIONAL ACTS OF THE SHIPPER OR HIS CONTRACT AFFILIATES. THE CUSTOMER SHOULD CONTACT THE SHIPPER FOR PROPER CLAIMS PROCEDURES IN THE EVENT OF DAMAGE OR LOSS RESULTING FROM SHIPMENT. THIS WARRANTY SHALL BE GOVERNED BY THE LAWS OF THE STATE OF CALIFORNIA.