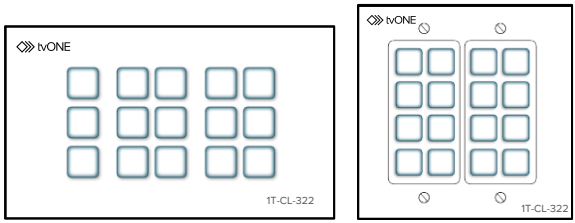

1T-CL-322-EU 15-button Wall Plate Control Keypad
1T-CL-322-US 16-button Wall Plate Control Keypad

User Guide V1.3

Firmware versions EU: 2.21 US: 2.11 and above
MNL-1T-CL-322 V1.3
August 2016

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Thanks for buying this 1T-CL-322 Control Panel from tvONE.

The Control Panel allows you to control a range of devices through an Ethernet connection and relay outputs. It has red and blue LED backlights that you can use to create color themes and show activation of commands.

The Control Panel comes in two models. The EU model has 15 buttons and the US model has 16 buttons. Each model has a full set of primary and extended macro commands, and can store up to 128 commands.

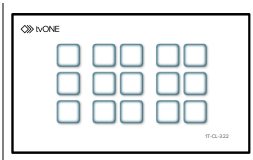
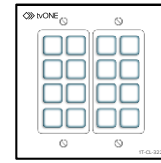
Features

- 15 or 16 macro buttons
- 15 or 16 virtual buttons accessed through web interface
- Up to 16 commands per macro
- Store up to 128 commands
- Control devices with relays that support DC 0-24 V / 8 A
- Store settings for all your devices
- Scheduling control system and settings
- Control with the keypad, Telnet and web interface
- Supports Power over Ethernet

Requirements

- Ethernet connection from switch or router
- Optional: Power over Ethernet

In the box

	EU model	US model
Wall-mounted keypad		
USB Type A to Mini USB OTG adaptor with cable		
3.5 mm Phoenix connectors		
5 V / 2.6 A DC power adaptor, with regional connectors		
Pre-printed labels for buttons, with regional differences		
User guide		

Safety precautions

Read all instructions before attempting to unpack, install or operate this equipment, and before connecting the power supply.

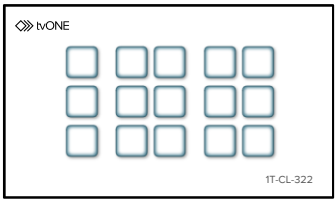
Risk of injury from fire or electric shock

- Follow basic safety precautions.
- Do not expose this product to rain or moisture.
- Do not install this product near water.
- Do not spill liquid onto or into this product.

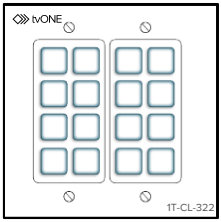
Risk of damage to equipment

- Do not push an object of any kind into this product through any openings or empty slots.
- Use only the supplied AC power cord. Do not use the power cord if it is damaged.
- Do not block any vents or openings in the unit housing that provide ventilation. Allow sufficient space for air to circulate around the unit.

Front panel



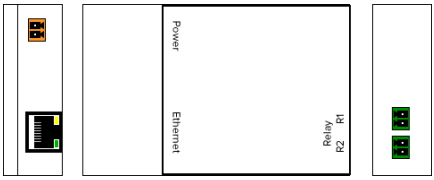
EU version



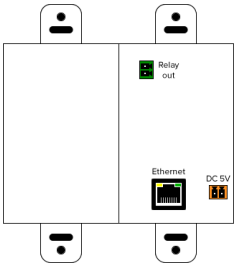
US version

Buttons	Each button can support up to 16 commands and has two LEDs, one red and one blue, adjustable from 0% to 100%.

Rear panel



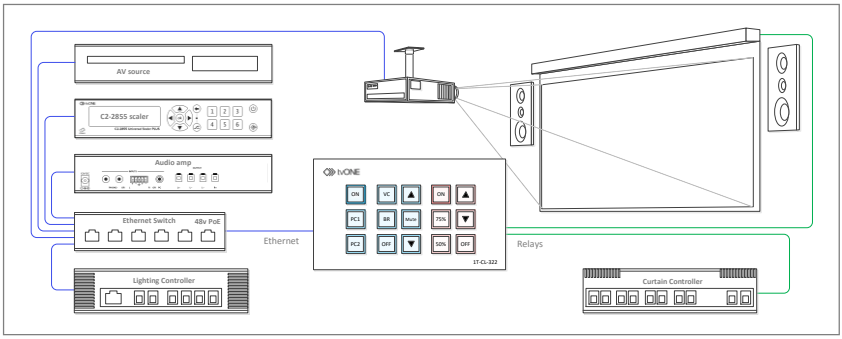
EU version



US version

Ethernet	Connect to an active Ethernet connection, or direct to a PC or Laptop. This connection supports 48 V Power over Ethernet (PoE).
Power/DC 5V	If you don't use PoE, connect the 5 V power adaptor.
Relay/Relay out	Connect to a device that requires 0-24 V / 8 A DC power through a relay or contact closure switch.

Example of hardware configuration



In this example the Control Panel controls multiple devices with a single Ethernet port. Power over Ethernet allows for greater flexibility in system design and installation as a local power supply is not required. In addition to the Ethernet port, two relay outputs are used to trigger mechanical devices such as motorized curtains and an electric screen.

External controls

The **1T-CL-SW** software

You can connect to the Control Panel, find out its IP address and firmware version, and open the web interface from the 1T-CL-SW software.

Download the software for both the EU and US models from the **Downloads** tab at **www.tvone.com/wall-plate-control-panel.**

The web interface

You can control and configure the Control Panel from any modern browser with the web interface.

The default port for the web interface is 80.

Finding out the IP address of your Control Panel

The Control Panel automatically uses DHCP to get an IP address when it is connected to a valid network. You can find out the IP address of your Control Panel on the 1T-CL-SW software.

1. Connect the Control Panel and a computer to the same Ethernet network.
2. In the 1T-CL-SW software, select **Find Devices on Network**.
3. Select your Control Panel from the list.
4. On the **InfoFrom** window, check the network settings of the Control Panel.
5. To connect to the Control Panel, the IP address of your computer and Control Panel must belong to the same range. If they are not, you can edit the network settings of the Control Panel.

Contact the network administrator for information about the network.

If the network doesn't support DHCP, use the static factory default IP address 192.168.1.50 and the default subnet mask 255.255.255.0.

Opening the web interface

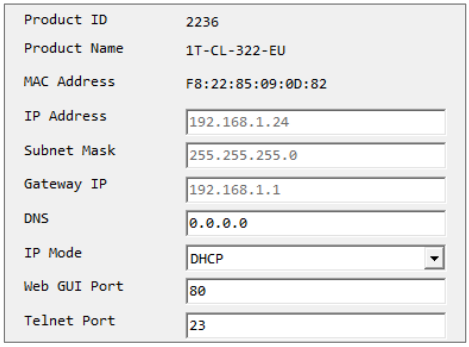
1. To open the web interface, open any browser and enter the IP address for the Control Panel, or select the **Web GUI** link on the **InfoFrom** window.
2. Log in with username: admin and password: adminpw.

Network settings

You can adjust your network settings on the **InfoFrom** window of the1T-CL-SW software, and from the **Network Settings** tab of the web interface.

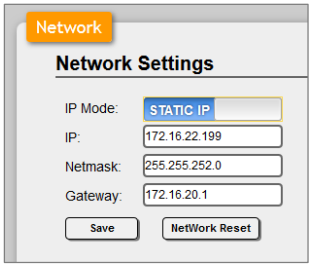
Configuring your network address

On the **InfoFrom** window, you can enable and disable DHCP and change your IP address, Subnet Mask, Gateway IP and DNS.



On the Network Settings tab, you can choose a static or dynamic IP address and change your IP address, Netmask and Gateway. You can also reset your network settings.

Note: If you change your network address, your Control Panel and your computer can end up with different address ranges. You might need to modify the network address of your computer to connect to the Control Panel.



Telnet

You can use Telnet commands to control a specific Control Panel over IP from any Telnet capable device, for example a PC or third-party control system. You can also use Telnet commands to control a specific Control Panel from another Control Panel.

The default port for Telnet commands is 23.

Before you connect to Telnet, make sure your Control Panel and computer are on the same active network.

Connecting to the Control Panel from a PC or Mac

1. Open the command line interface (CLI).
   - On a PC, search for cmd.
   - On a Mac, select **Go** > **Applications** > **Utilities** > **Terminal**.
2. In the CLI, enter `telnet [space] [IP address of Control Panel] [space] 23`.
   For example, enter `telnet 192.168.1.50 23`.
3. For a list of available commands, enter `help`.

Note: follow each command with a carriage return. Commands are not case-sensitive. If you change the IP address of the Control Panel, the IP address for Telnet access changes as well.

Commands for external Telnet control

Use these commands with an external Telnet control device. You can also use any of the commands for controlling Control Panels, relays, and other devices on pages 16 to 18.

Command	Parameter	Description
`IPCONFIG`		Use this command to display the current IP configuration.
`SIPMODE N`	N = STATIC/DHCP	Use this command to set the Ethernet IP mode.
`SIPADDR XXX. XXX.XXX.XXX`	XXX = 0 to 255	Use this command to set the Ethernet IP address.

Command	Parameter	Description
SNETMASK XXX.XXX.XXX.XXX	XXX = 0 to 255	Use this command to set the Ethernet Subnet mask.
SGATEWAY XXX.XXX.XXX.XXX	XXX = 0 to 255	Use this command to set the Ethernet gateway.
VER		Use this command to show the unit firmware version.
FADEFAULT		Use this command to restore all configurations to the factory default. This command resets the IP address, login ID and password.
ETH_FADEFAULT		Use this command to restore all Ethernet configurations to the factory default.
REBOOT		Use this command to reboot the system.
HELP (?)		Use this command to show the full list of commands.
HELP N	N = COMMAND NAME	Use this command to show the description of a specific command.

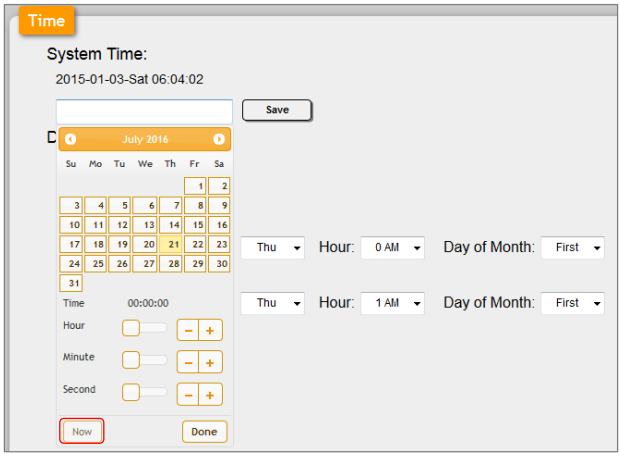
Configuring the Control Panel

Configure what the buttons of the Control Panel do with the web interface. When you configure buttons, you associate one or two macros with each button. Each macro is a sequence of individual commands that you enter on the **Command Settings** tab. You can even have a macro on a button that is made up of several smaller macros.

Setting the date and time

Set the date and time on the **Time Settings** tab.

Tip: select the **Now** button to use the date and time from your computer.



The Control Panel can remember the date and time for 48 hours without power. After 48 hours, the factory default date and time are restored.

Macros and extension macros

The Control Panel supports up to 15 (EU) or 16 (US) primary macros. You can also have up to 15/16 extension macros. Extension macros support toggle mode.

Button modes

Normal mode

In normal mode, pressing a button sends the primary macro command to the target device once.

Repeat mode

In repeat mode, pressing and releasing a button sends the primary macro command to the target device once. Pressing and holding the button sends the macro repeatedly. Use this mode for tasks like increasing or decreasing volume.

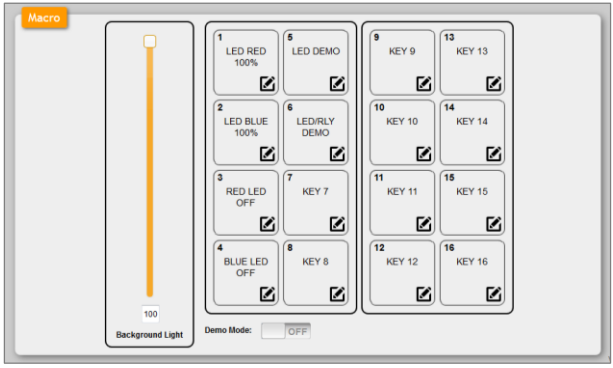
Toggle mode

In toggle mode, pressing a button toggles between the primary and extension macro for that button. Each button press sends the macro command to the target device once. Use this mode for tasks like muting and unmuting audio.

Note: do not apply toggle mode and repeat mode to the same button.

Default macros

The Control Panel comes with 6 primary macros installed for demonstrating and testing the Control Panel's functionality. Each macro demonstrates different functions and turns on and off the LEDs and relays. See the default macros on the **Macro Settings** tab.



Button	Macro name	Function
1	LED RED 100%	Turns on the red LEDs sequentially from 1 to 15/16
2	LED BLUE 100%	Turns on the blue LEDs sequentially from 1 to 15/16
3	RED LIGHT OFF	Switches off all the red LEDs
4	BLUE LIGHT OFF	Switches off all the blue LEDs
5	LED DEMO	Toggle the demo mode on or off
6	LEDRLY DEMO	A combination of blue LED and relay functions

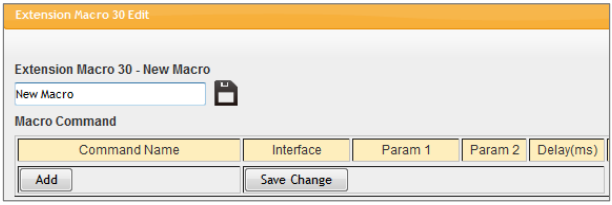
Creating and editing macros

You create and edit both primary and extension macros in the same way. Choose a primary macro on the **Macro Settings** tab. Choose an extension macro on the **Extension Macro** tab.

Creating a macro

1. For the button you want to edit, select .

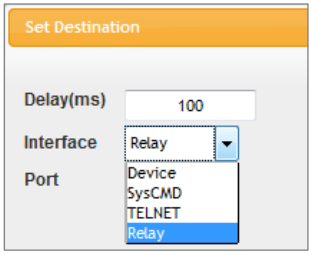
2. Enter a name for the macro and select .



3. To add a command string, select the **Add** button, and then choose a command string from the list on the **Command Select** window.
4. On the **Set Destination** window, enter a time delay from 0-99999 ms.

The delay is the time between sending command strings. We recommend that you choose at least 500 ms.

5. Choose a target for the command string from the **Interface** drop-down list.



- **Device** sends the command to a device saved in your list of devices. Choose a device from the drop-down list.
- **SysCMD** sends an internal command to the Control Panel. For example, turn off the red LEDs.
- **TELNET** sends the command to a device that isn't saved in your list of devices. Enter the IP address and port number of the device. Most tvONE devices use port 10001.
- **Relay** switches on and off equipment connected to a relay port. For the EU model, choose port 1 or port 2.

6. Repeat steps 3-5 to add more commands, then save your changes. You can edit your macro to change, remove and reorder command strings.
7. Optional: choose a button mode on the **Key Settings** tab.

Note: do not apply toggle mode and repeat mode to the same button.

Editing a macro

1. For the button you want to edit, select .
2. Edit your macro.
   - To move a command string up or down in the list, select or .
   - To edit a command string, select .
   - To delete a command string, select .
   - To insert a new command above an existing command, select .
3. Save your changes.
4. To change the name of the macro, select , change the name, and then select .
5. To change the button mode of the macro, turn the buttons on and off on the **Key Settings** tab.

Labelling buttons

When you've finished creating macros, you can label the buttons on the keypad to help you remember which button triggers which macro. Each sheet of labels includes some blank labels that you can customize. We recommend using black-on-clear label tape.

- Remove the protective film from the labels, then stick a label to the button.

Replacement labels

You can buy extra blank labels, contact your tvONE sales representative. For contact details, see the back page of this guide.

Part numbers:

- EU model: BLS-1T-CL-322-EU
- US model: BLS-1T-CL-322-US

Creating and editing command strings

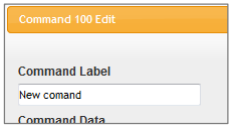
The Control Panel can store up to 128 command strings that are up to 128 characters long. You can store longer strings, but you can't save as many of them.

You create and edit command strings on the **Command Settings** tab.

Creating a command string

1. To create a new command string, select the **Edit** button in an empty row.

2. Enter a name for your command string in the **Command Label** box.
3. Enter one or more commands in the **Command Data** box.



- After each command, enter `\x0d`.
  Don't leave a space after the new command.
- After the last command, enter `\x0d\x0a`.

For example, the string of commands below adds a black border to window 1:

```
login(admin,adminpw)\x0dWindow1.BdrRGB=0\x0dlogout\x0d\x0a
```

Editing a command string

- To change an existing command string, select the string and then select the **Edit** button. Make and save your changes.
- To delete a command string, select the string and then select the **Delete** button.

Commands for controlling Control Panels

You can control Control Panels, for example, changing the states of LEDs, and starting and stopping macros.

You can send commands internally to your Control Panel. You can also send commands to other Control Panels. Choose targets for your commands when you create macros.

Command	Parameter	Description
`REBOOT`		Use this command to reboot the control panel. After rebooting, log in to the web interface again.
`RELAY N N1`	N = PORT (1 or 2) N1 = OPEN/CLOSE/ TOGGLE	Use this command to control specific relay ports. For example, use `RELAY 1 CLOSE` to close the relay at port 1. OPEN opens the relay. CLOSE closes the relay. TOGGLE changes the state of the relay between open and closed, and can work in either direction.
`LEDBLUE N N1`	N = BUTTON (1-15/16) N1 = % (0-100)	Use this command to change the state of the blue LED of a specific button.
`LEDRED N N1`	N = BUTTON (1-15/16) N1 = % (0-100)	Use this command to change the state of the red LED of a specific button.
`LEDBLUES N`	N1 = % (0-100)	Use this command to change the state of all blue LEDs.
`LEDREDS N`	N1 = % (0-100)	Use this command to change the state of all red LEDs.

Command	Parameter	Description
`LEDSHOW N`	N = ON/OFF/ TOGGLE	Use this command to change the state of all LEDs for a specific button.
`BACKLIGHT N`	N1 = % (0-100)	Use this command to change the state of all LEDs.
`MACRO RUN N`	N = MACRO (1-30/32)	Use this command to run a specific primary or extension macro. This can be useful if you want to activate a series of Macros to run in sequence or repeat. Place `MACRO RUN N` at the end of a command string.
`MACRO STOP N`	N = MACRO (1-30/32)	Use this command to stop a specific primary or extension macro. This can be useful if a series of Macros has been activated and you want to stop just one.
`MACRO STOP`		Use this command to stop all active macros.

Commands for controlling relays

You can open and close relay ports to switch on and off connected equipment.

You can open and close the relay ports of your Control Panel. You can also send relay commands to other Control Panels. Choose targets for your commands when you create macros.

Command	Parameter	Description
`RELAY N N1`	N = PORT (1 or 2) N1 = OPEN/CLOSE/ TOGGLE	Use this command to control specific relay ports. For example, use `RELAY 1 CLOSE` to close the relay at port 1. OPEN opens the relay. CLOSE closes the relay. TOGGLE changes the state of the relay between open and closed, and can work in either direction.

Controlling other devices

You can control any device that can be controlled by Telnet commands, including tvONE devices, other Control Panels and the relay ports of other Control Panels. Choose targets for your commands when you create macros.

All devices being controlled by Ethernet must be on the same network and within the same IP range. The IP address and port number of the device must be part of the command string.

For a list of commands for your other devices, see the manufacturer's instructions.

Commands for controlling tvONE devices

For a list of the commands you can use with a specific tvONE device, see the API document which appears on the **Support Information** tab for that product at **tvone.com**.

Examples of command strings for controlling tvONE devices

Here is an example of how to create command strings to control equipment through the Ethernet port. This example triggers presets saved on the tvONE products C2-2855 and C3-510.

Example 1 – triggering preset 1 on the C2-2855

The C2-2855 requires two command strings to trigger a single preset. The preset is recalled first, and then loaded.

Command Name	Interface	Param 1	Param 2	Delay(ms)					
C2-2855 Preset 1	TELNET	192.168.1.21	10001	600					
Load preset	TELNET	192.168.1.21	10001	100					

To recall preset 1:

- **Command Name**: C2-2855 Preset 1
- **Interface**: TELNET
- **Param 1**: IP address of the C2-2855
- **Param 2**: Port number of the C2-2855
- **Delay**: 600 ms
  This allows the recall to complete before the Control Panel triggers loading
- Command: `F0410410225000001??\x0d\x0a`

To load preset 1:

- **Command Name**: Load preset
- **Interface**: TELNET
- **Param 1**: IP address of the C2-2855
- **Param 2**: Port number of the C2-2855
- Command: `F0410410226000017E\x0d\x0a`

Example 2 – triggering preset 1 on the C3-510

The C3-510 only requires one command string to load a preset, but you must include a login command to access the unit. We recommend that you log out to close the connection.

Command Name	Interface	Param 1	Param 2	Delay(ms)					
C3-510 Preset 1	TELNET	192.168.1.23	10001	500					

Unlike C2 products, C3 commands can be put in the same string, separated by `\x0d`.

There are three individual elements to the command string:

- To log in: `login(admin,adminpw)`
- To load preset 1: `preset.take=1`
- To log out: `logout`

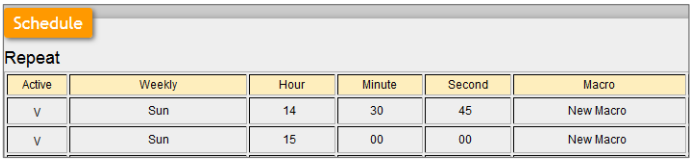
To load preset 1:

- **Command Name**: C3-510 Preset 1
- **Interface**: TELNET
- **Param 1**: IP address of the C3-510
- **Param 2**: Port number of the C3-510
- Command:
  `login(admin,adminpw)\x0dpreset.take=1\x0dlogout\x0d\x0a`

Scheduling macros

You can create one-off events and repeating schedules to trigger a macro automatically.

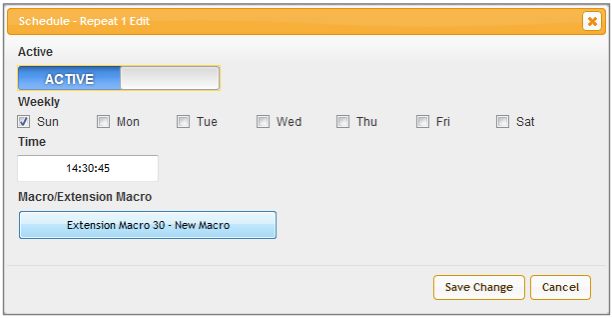
Repeating schedules can only trigger the macro once per day, but you can set up multiple repeating schedules to trigger the same macro at different times.



Before you start creating schedules, make sure that the control panel shows the correct date and time on the **Time Settings** tab.

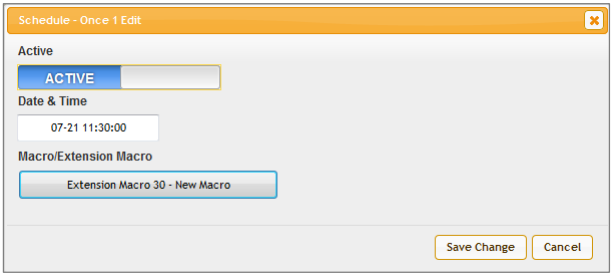
Creating and editing repeating schedules

1. Select an **Edit** button in the **Repeat** list.
   If you are creating a new schedule, select the **Edit** button in the first available empty row.
2. Choose or change the settings for your schedule.



Creating and editing one-off events

1. Select an **Edit** button in the **Repeat** list.
   If you are creating a new event, select the **Edit** button in the first available empty row.
2. Choose or change the settings for your schedule.



Adding and editing devices

You can store a list of devices that are connected by Ethernet, including the IP address and port number of each device.

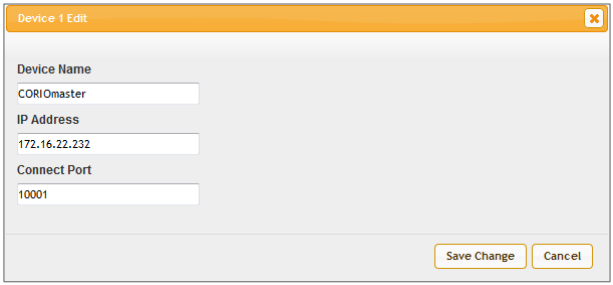
Add and edit devices on the **Device Settings** tab.

What are devices?

Devices are any equipment that can be controlled by Telnet commands, including tvONE devices. You can also add other Control Panels to your list of devices.

Adding a device

1. Select an empty row and then select the **Edit** button.
2. Enter a name, the IP address, and the port of the device.



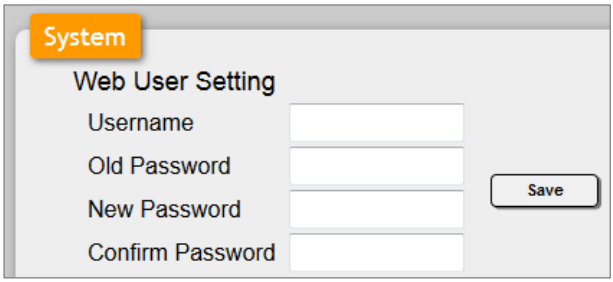
tvONE products use the default port 10001.

Editing a device

- To change an existing device, select the device and then select the **Edit** button. Make and save your changes.
- To delete a device, select the device and then select the **Delete** button.
- To hide a device so that it doesn't appear when you create or edit macros, select the **ENABLE/DISABLE** button. When a device is disabled, it is hidden.

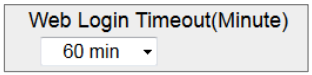
Changing your username and password

You can choose a new username and password on the **System Settings** tab.



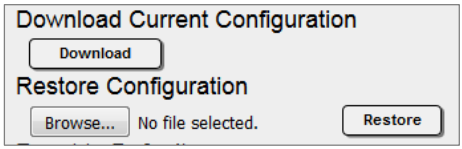
Setting a timeout time

The web interface automatically logs you out after a period of inactivity. Choose a time between 5 and 60 minutes on the **System Settings** tab.



Saving and restoring your settings

You can create multiple backup copies of your settings and save them to your computer. If something goes wrong, you can restore your backed up settings. Save and restore settings on the **System Settings** tab.



Factory default settings

When you restore the factory default settings, the IP address of your Control Panel also resets. If you want to keep your IP address, you can make a note of your existing network settings on the **InfoFrom** window of the 1T-CL-SW software. After you restore the factory default settings, enter the same network settings on the **InfoFrom** window.

You can also back up your settings before you restore the default settings.

For more information about the **InfoFrom** window, see page 5.

For more information about saving configurations, see page 23.

Restoring the factory default settings

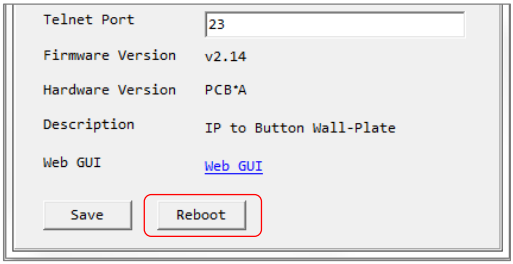
Restore the factory default settings on the **System Settings** tab.

1. Select the **ALL Reset** button.

2. When you see the message **XML Restore Finish!**, refresh your browser.

Rebooting the Control Panel

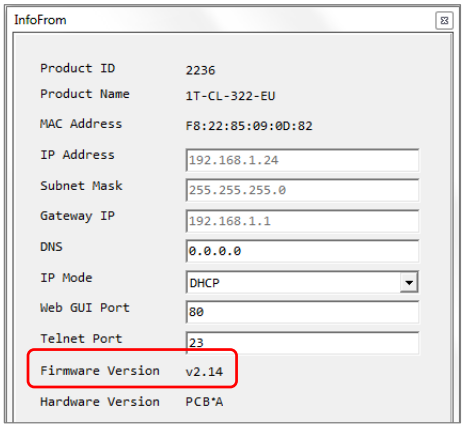
You can reboot the Control Panel from the **System Settings** tab or from the **InfoFrom** window of the 1T-CL-SW software.



Firmware

Finding your firmware version

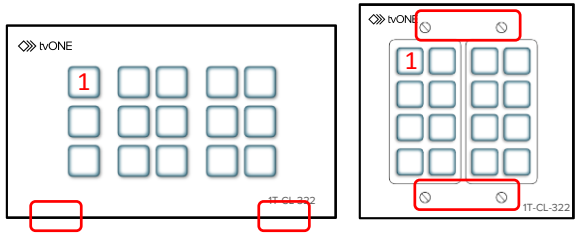
Find your firmware version on the **InfoFrom** window of the 1T-CL-SW software.



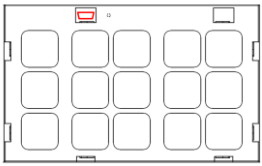
Updating firmware

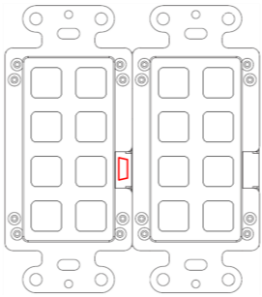
Update the control panel by connecting it to your computer.

1. Download the latest firmware from **www.tvone.com/firmware-updates**. Search for 1T-CL-322.
2. Extract any zipped files and copy the .BIN file to your computer.
3. Remove the front plate of the Control Panel.
   On the EU model, use a small screwdriver in the two slots at the bottom of the plate to lever off the front cover. On the US model, remove the four screws.



4. Disconnect the power.
5. Press and hold button 1 and reconnect the power. When button 1 flashes twice, release button 1.
6. Connect a USB cable from your computer to the mini USB socket.





   The **USB UPDATE** drive appears.
7. Copy the .BIN file to the root of the **USB UPDATE** drive.
   The firmware update starts automatically.
   When the transfer is complete, all LEDs on the Control Panel light up.
   The update is complete when the Control Panel reboots automatically.

You might need to refresh the web interface as part of the firmware upgrade process. Press F5 to refresh your browser, or reconnect with the 1T-CL-SW software.

Specifications

Input ports	• EU model: 15 buttons, 1 IP (RJ45) • US model: 16 buttons, 1 IP (RJ45)
Output ports	• EU model: 2 relay • US model: 1 relay
Ethernet protocol	• TCP/IP
Power supply	• 5 V/2.6 A DC (US/EU standards, CE/FCC/UL certified)
Power consumption	• EU model: 3.7 Watts • US model: 6.1 Watts
ESD protection	Human body model: • ±8 kV (air-gap discharge) • EU model: ±6 kV (contact discharge) • US model: ±4 kV (contact discharge)
Dimensions including front panel, connectors and buttons H x W x D	• EU model: 87 x 149 x 31 mm • US model: 114 x 116 x 47 mm
Weight	• EU model: 226 g • US model: 238 g
Operating temperature	• 0–40 ˚C / 32–104 ˚F
Storage temperature	• -20–60 ˚C / -4–140 ˚F
Relative Humidity	• 20–90% (non-condensing)

Limited warranty

1. tvONE warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a fixed term from the date of purchase. The warranty term for specific product lines is defined below.

2.

3. tvONE branded products based on tvONE's CORIO technology are warranted for a period of five years from the date of purchase. This includes products with the model number prefix of C2, 1T-C2, CX, A2 or S2.

   tvONE products, other than those based on tvONE's CORIO technology mentioned above, are warranted for a period of three years from the date of purchase. This includes products with the model number prefix of 1T, with the exception of 1T-C2.

   LCD Monitors are warranted for a period of three years from the date of purchase, with the exception of the LCD panels integrated into the monitors that are supplied by third parties. LCD panels are limited to the term and conditions of the warranty offered by the respective LCD panel manufacturer. Such specific LCD panel warranties are available upon request to tvONE.

Should a product, in tvONE's opinion, prove defective within this warranty period, tvONE, at its discretion, will repair or replace this product without charge. Any defective parts replaced become the property of tvONE. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from tvONE and return the product to a location designated by tvONE, freight prepaid. After repairs are complete, the product will be returned, freight prepaid.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to the stated number of years from the date of purchase. tvONE assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

tvONE makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of tvONE with respect to any defective products will be limited to the repair or replacement of such products. In no event shall tvONE be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

Regulatory compliance

The 1T-322-UK and 1T-322-US Controller products have been tested for compliance with appropriate FCC and CE rules and regulations. The power adaptor/supply has been tested for compliance with appropriate UL, CUL, CE, PSE, GS Rules, regulations and/or guidelines. This product and power adapter is RoHS compliant.

Liability statement

This product is intended for professional use. This product is not intended for use in a medical environment and does not have the required certifications for such use. Similarly, use aboard any aircraft or spacecraft while in flight or as an adjunct to any surface, airborne or marine navigation system or any offshore marine activity, including control of any watercraft, or any use similar to those specifically herein mentioned is prohibited. Use in the aforementioned circumstances would require additional testing and certification.

No warranty is made either expressed or implied including but not limited to any implied warranties of merchantability or fitness for a particular purpose. In no event shall the supplier or manufacturer of this product be liable for errors found within, or be liable for any direct, indirect or consequential damages or loss in connection with the purchase or use of this hardware, software or manual. The sole and exclusive liability to the supplier and manufacturer regardless of the form of action shall not exceed the replacement cost of the materials described herein.

tvONE reserves the right to revise any of its hardware and software products following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

By using this equipment, you have indicated that you have agreed to the terms listed above. If you do not wish to agree or the above terms are contrary to your conditions of purchase you may return the equipment, unused, to your supplier.

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