

TEK Universal Translator

Case Study

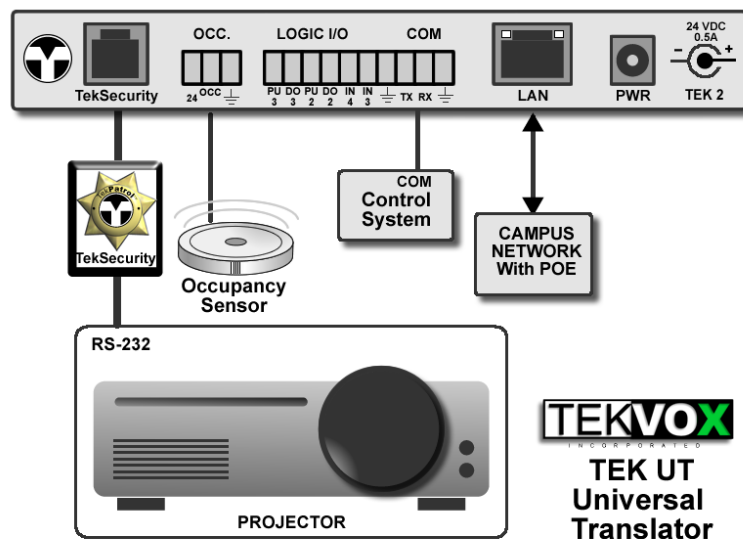
A customer will often have a nice conference room operated by a control system and want to replace the video projector. One of your sales reps will assure them that it's not a problem and the customer purchases a new projector from you. You then schedule your installers and programmer for the job but a few hours into replacing the projector, the programmer calls you with one or more of the following issues:

- The customer does not have the source code
- The source code is not the latest version
- The control system or code is password protected

You then have to inform the customer that their new projector cannot be controlled by their expensive control system and would require a rewrite of the entire software. This is an extremely common scenario that most integrators experience.

Solution

A TekMonitor has an ability to load drivers for various devices and convert commands using Macro definitions. When a TekMonitor is installed on control systems, it converts the communication protocol to Macro definitions where the programmer can then choose what commands they wish to use. This method makes it very easy to just load a new driver when changing a projector or display.



A new type of driver called a TEK UT (Universal *Translator*) listens for common commands sent by the control system to a device and determines what action to take. If it is a query command, the driver retrieves the status out of the Com 1 driver and translates it to the correct feedback for the control system. In some cases such as query inputs, the driver calls a macro which will require you to program the macro using conditional statements to match the new projector with the old one. If the control system sends a command, the driver will set the status of the Com 2 driver and call a defined macro command. This allows you to set the commands in the Macro. For example; if the control system sends the command for VGA 1 and you want it to select HDMI 1 on the new projector, all you need to do is set the Macro command for input to HDMI 1. You could even set the power on Macro to turn on the projector and set it to HDMI 1.

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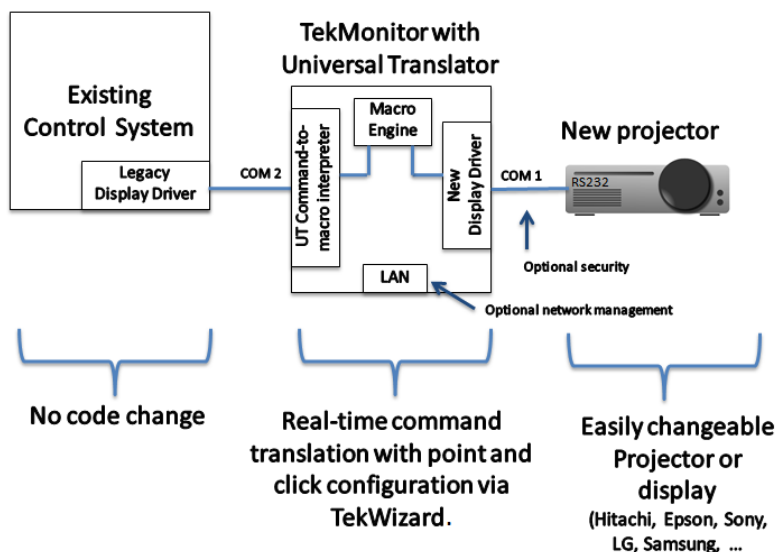
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An extra benefit of a TekMonitor is its ability to provide remote monitoring and control of a device; simply connect the TekMonitor to the campus network and run the TekManager program.

Operation

With a TekMonitor, it is possible to convert RS232 control protocol from one manufacturer to another. This is accomplished by loading drivers into the COM ports on a TekMonitor to match the protocol of each device. Afterwards, you can manipulate the commands with the Macro editor. The TekMonitor is placed between the control system and the new display by using the RS232 control cable from the old display.

On a TekMonitor, COM 1, also known as TekSecurity, is connected to the new display and loaded with a normal device driver to communicate with the display. COM 2 connects to the control system and loaded with a special translator driver that emulates the original display. Commands that are received by the control system are then converted by the driver into Macro commands where they are manipulated by the Macro engine. Once a Macro command is received, the Macro can then either send commands to the new display or send feedback data back to the control system.

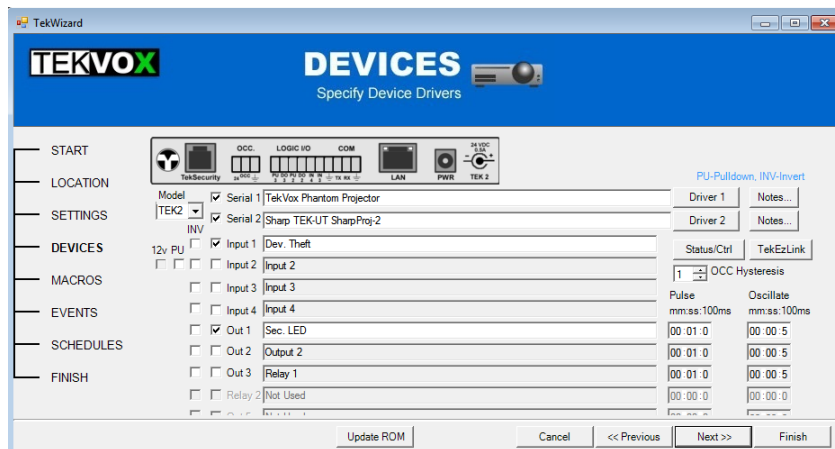
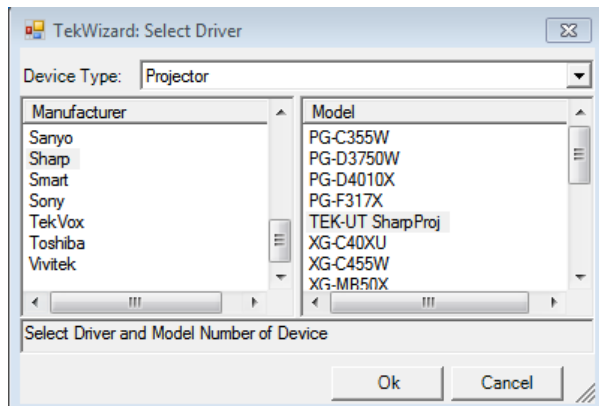


Configuring a UT system is similar to loading drivers into a TekMonitor using TekWizard. First, you should update drivers from the Tools menu and then make certain you have the drivers for the display that you are using. These drivers are found on the Devices page in TekWizard by selecting Driver 1. If you cannot find a driver for the display you are using, please contact customer support at TEKVOX.

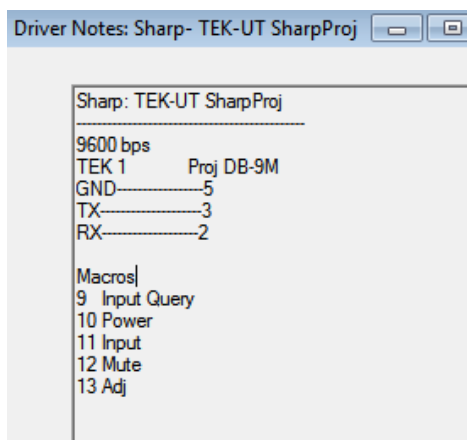
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Select Driver 1 and choose the driver that most represents the display you are working with. Then, select the Driver 2 and choose the TEK UT driver. In this example, the TEKVOX Phantom Projector driver for Driver 1 and Sharp TEK-UT SharpProj driver for Driver 2.



To get the embedded Macro commands used in Driver 2, select Notes for Driver 2. You can copy from notes using Ctrl c. Use these Macros to set the command script of what you want the TekMonitor to send. If the baud rate is different as shown in notes, you will need to contact TEKVOX for a special driver.

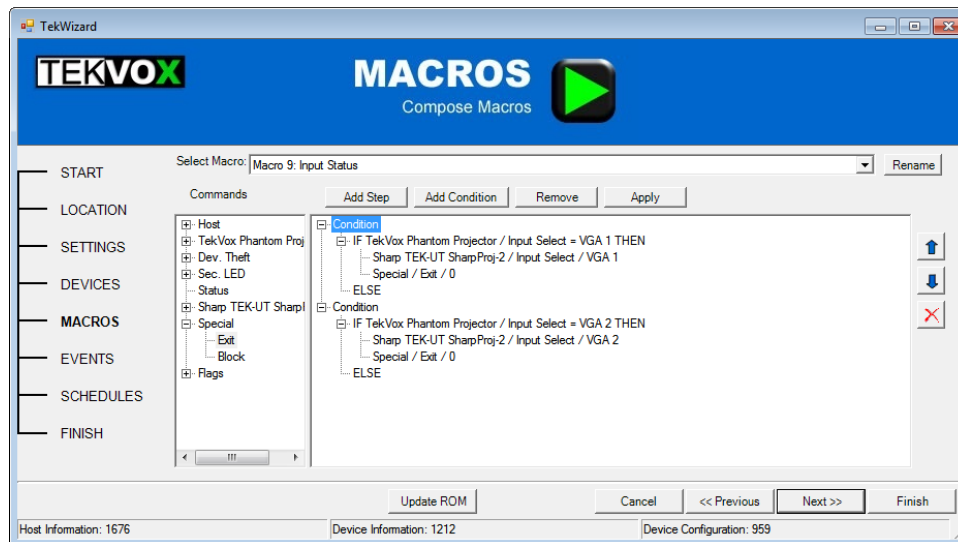


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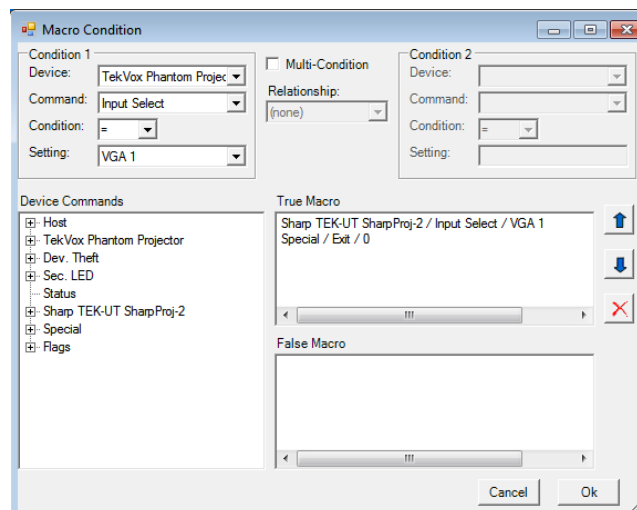
Macros

TekMonitors use a simple programming method called Macros to create scripts. By using the above list of Macros found in the Driver Notes all you need to do is create Macros that match the number listed.



Input Query

For the Input Query, you will need to match the current input of the new display with the old one. In this example, we test for the condition of the input (VGA 1) on the new display and if it is True, send the command for VGA 1 to the control system. Multiple conditional statements can be added in the in a Macro (see below). The Special Exit is used to exit from the Macro and not test any other conditions.



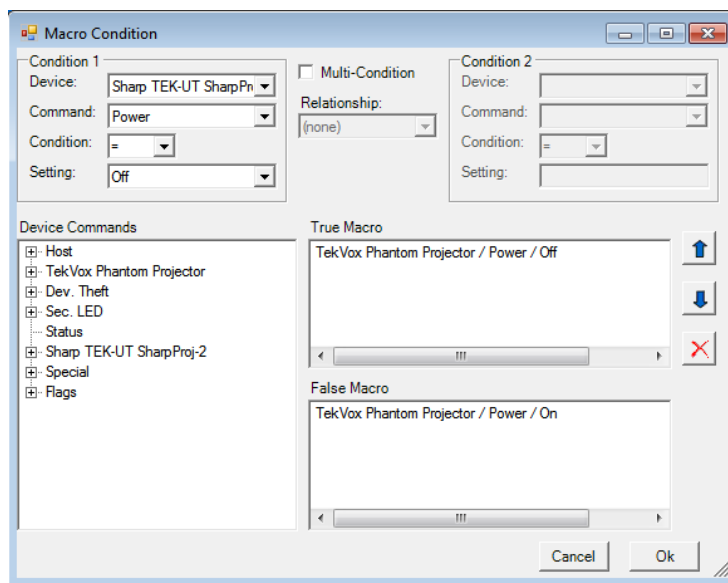
Power

Since Power has two states, the power status of the translator driver is set before the driver calls the Power Macro. Using a conditional statement and testing the state of the power for the translator driver

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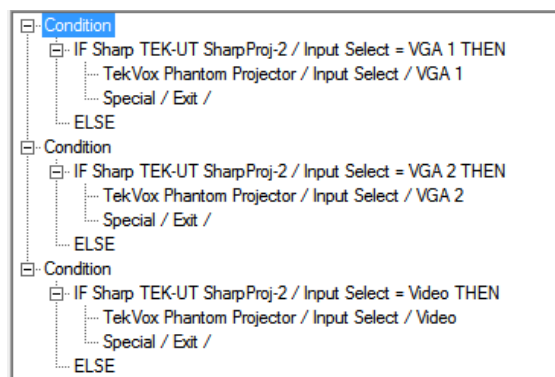
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a power on or off command can be set for the new display. In this example if the translator power state is off, a command is sent to the display to power it off.



Input

Like the Power Macro, inputs have multiple options and will need to be tested using multiple conditions. In this example, we will need to test each input that might be received from the control system and set the input on the display that corresponds with the old display. Use the special exit to jump out of the Macro when found.

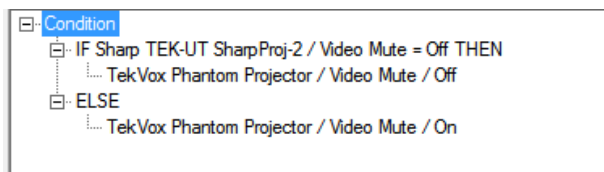


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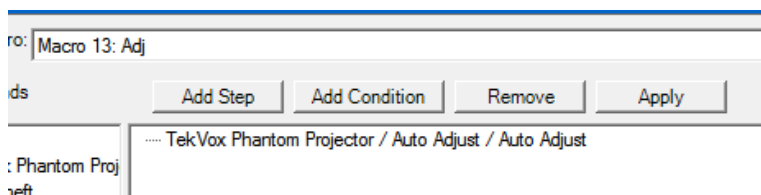
Mute

Similar to the Power Macro the Mute Macro has two states. When the translator driver receives the mute command from the control system, the driver sets the Mute option and calls the Mute Macro. The Macro then sends the command to the display that matches the control system.



Adjust

Since there is only one Adjust state in the translator driver, there is no need to test the state in the Macro. All that the Macro needs to do is send the Auto Adjust command to the display.



Conclusion

Using the TEK UT drivers with a TekMonitor is a great tool to solve an issue while keeping customers happy. In some cases it can be far less expensive to use a TekMonitor with the TEK UT application as compared to rewriting control software or having to write a new module for a display.

Discover the other benefits of using TekMonitors on your projects at www.tekvox.com.