User1234
User1234 in VEE Software2 weeks ago Show more
VEE communication to PLC
Hello, new to VEE (and programming). I need to connect an 8753D + PC running VEE to a PLC. The VEE program looks at the data and decides pass or fail and just shows pass/fail on the PC screen. I need to connect this system to a PLC to report pass/fail only. Can anyone offer suggestions on what hardware to use and how to send the information?…
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Stan Bischof
Stan Bischof (to User1234) 2 weeks ago

If by "IO Program" you mean Keysight's IO libs then almost certainly the PLC will NOT be recognized. The IO Libs are designed for instruments and do not support computer peripherals, controllers, IO cards, etc. The first two solutions that come to mind are:

(1) Find a PLC whose driver has an API then call that driver from VEE

(2) Use most any DIO card (can highly recommend the ones from accesio and they work fine with VEE) and connect the output to one of the PLC's inputs. i.e. use hardware signalling. This might seem clumsy but would be very robust!

In either case you'll be bypassing the IOLIB's. You might also look for networked PLC so that USB isn't needed, in which case you might be able to bypass the PLC driver and use sockets directly to the PLC.

Stan
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User1234
User1234 (to User1234) 2 weeks ago

Hi Stan, thanks for your help.

If the PLC driver has the API option will that allow me to connect the PC to PLC directly using USB or GPIB-to-USB (or something else)?

Also, you mention a networked PLC. If the PLC can be put on the network would I communicate from VEE using an IP address? What sockets on the PLC are you referring to?

FYI...the PLC is a Mitsubishi FX3U-128M7. Unfortunately, the PLC is oceans away so it's hard to try anything.

This is my first VEE project, I bookmarked your VEEOS.org website for later learning.
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Stan Bischof
Stan Bischof (to User1234) 2 weeks ago

Most of the questions you have are device specific- completely depends upon which PLC you have. Fortunately you already know the PLC, and quick look at its specs shows a plethora of optional interfaces. Also looks like all sorts of nifty IO options- a pretty high-end PLC. So it looks like you could connect via USB, though you would need to look at their drivers to see if there's a API that would meet your needs. Or you could connect via ethernet with one protocol or another. Sockets would be whatever the PLC supports. Protocols would be the real issue though- you would likely have to implement one of the protocols the PLC supports or get a module that implements it. You would need to look at the docs but one promising and simple way to proceed could be via RS232 since that's an option, and VEE can talk direct to RS232 so no problem there.

HOWEVER, given the layers of programming needed in any of these options, I'm back to the really low-tech hard signalling method as my best suggestion. Simplest cheapest DIO could easily create a flag that feeds one of the analog or digital inputs on the PLC and then you are done. No PLC options, protocols, connection issues, drivers, command structures, security issues, etc. Just LVDC signal along a little copper wire and you're set to go. Back in the old days (20th century) you could even use the parallel port on your computer to do the same, but when was the last time you saw a parallel port!

This sounds like a great opportunity for a low-tech solution.

Stan
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Stan Bischof
Stan Bischof (to Stan Bischof) 2 weeks ago

If you go the DIO route, another vendor of interest other than Acessio is Measurement Computing. They have DIO under $100 that would work fine and their "universal library" driver works great with VEE.
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Stan Bischof
Stan Bischof (to Stan Bischof) 2 weeks ago

Another thought- even the low end DIO devices seem overkill for what you need (single line hardware signal) so maybe you should take a look at a simple relay module. For instance https://numato.com/product/1-channel-usb-powered-solid-state-relay-module is VERY cheap and has a virtual serial port driver so should be trivial to talk to from VEE.

Stan
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Stan Bischof
Stan Bischof (to Stan Bischof) 2 weeks ago

Or for that matter, you could even get more basic and take the $zero approach: use one of the control pins on your computer's serial port as the hardware signal. Then from VEE just set the control pin's state as needed.
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User1234
User1234 (to Stan Bischof) 1 week ago

Hi Stan, you have provided so much helpful information thanks! I went with your suggestion to purchase the relay modules from Numato. I'm waiting for them to arrive, then I can hook them up and start messing with the VEE program. I'll post and let you know how that goes (or ask more questions).
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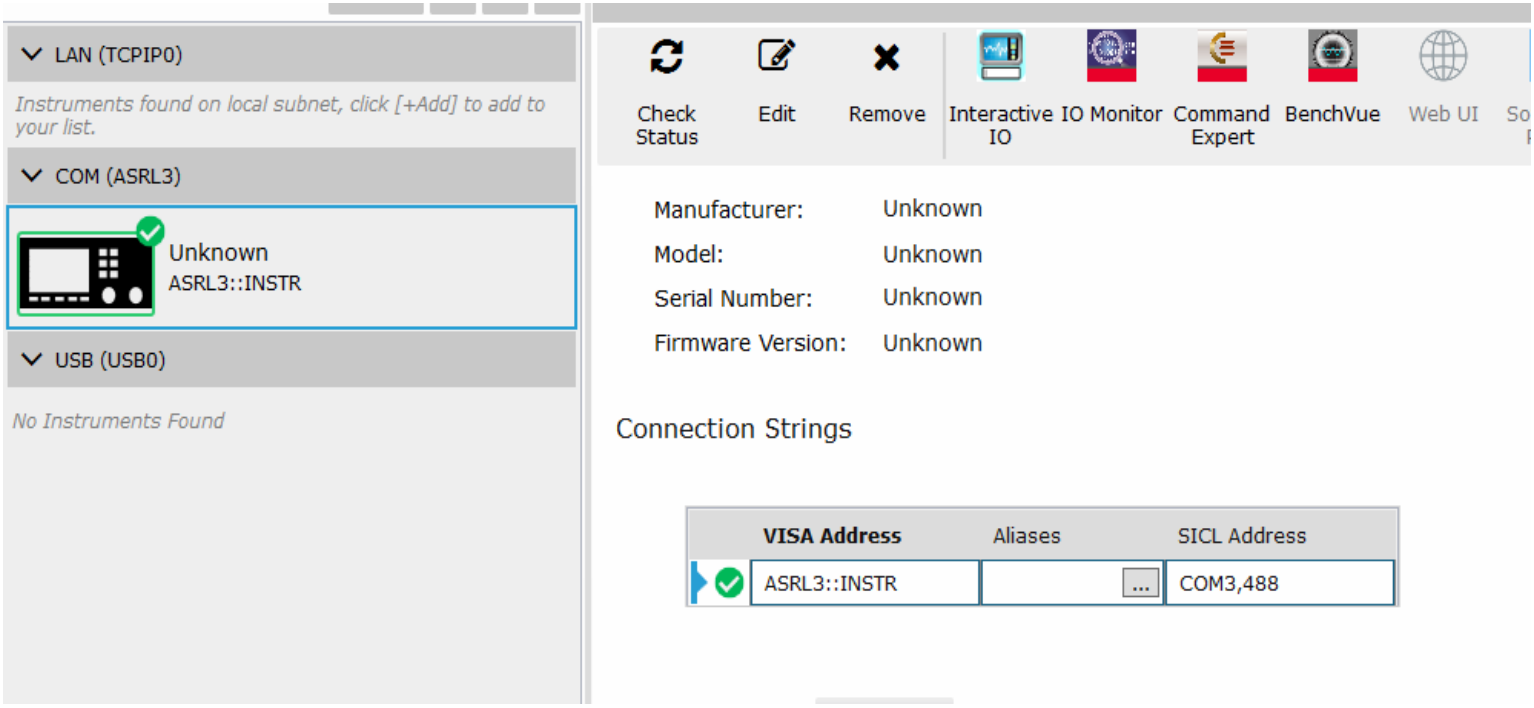
User1234
User1234 (to User1234) 24 hours ago

I've received the Numato USB relay today but I'm having trouble finding it in VEE. Within my PC's device manager I can see the Numato device and installed the driver. The Relay is connected to the PC using a USB but it shows up on a COM port in both the device manager and in the Keysight connection expert. The Keysight programs don't recognize what device it is or have a driver for it. I've played around with the different add instrument settings within the instrument manager but couldn't see that it was connected. I'm not sure why it doesn't show up under USB. Any advice on how to configure the instrument within VEE to communicate?



Connection expert screen Thanks!
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Stan Bischof
Stan Bischof (to User1234) 23 hours ago

You actually already have it configured. It will appear as a COM device to VEE just as it does to Connection Expert. The driver takes care of this and is otherwise invisible.

In VEE you will control the relay by instantiating a DirectIO object for that COM device and sending whatever command is needed - likely a one-liner string that looks something like "relay on x" where x is the number of the relay on your device if it has multiple relays. There will be a corresponding "relay off" command.

Check the relay programming manual for correct commands.
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Stan Bischof
Stan Bischof (to User1234) 23 hours ago

As for "The Keysight programs don't recognize what device it is or have a driver for it"--- that's exactly why you want a device like this that has a virtual COM driver. Keysight software won't recognize much of anything other than "instruments" and certainly not peripherals, IO devices, USB devices and so on. But since there's a VCOM driver the Keysight software (including VEE) just sees it as another COM port so is happy.
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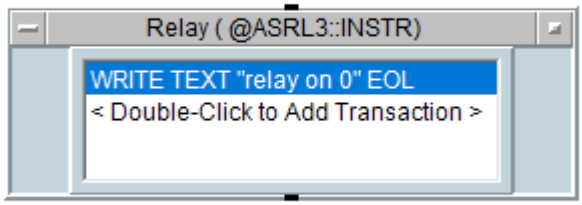
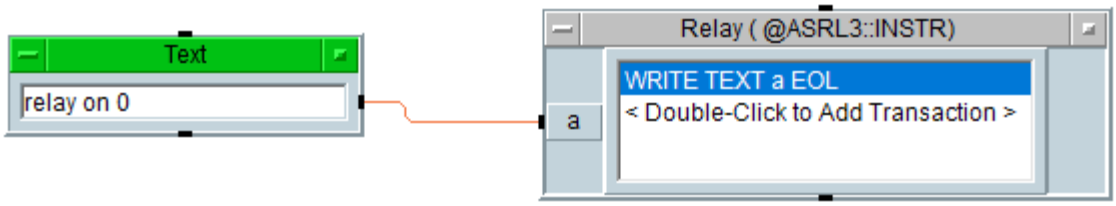
User1234
User1234 (to Stan Bischof) 4 hours ago

I'm trying to turn the relay on via the direct i/o but haven't been able to, so far. According to Numato the relay should turn on with the text relay on 0 (there's only 1 relay). As a check I downloaded the Numato software and was able to toggle the relay on/off so it does work.

First I tried to write the text "relay on 0", then I tried to create a text constant as an input. Neither of these worked, I also tried the 1st option with different settings from the dropdown (string, string with quote, etc..). The program says it runs and doesn't give an error but the relay doesn't come on (there is an indication light). Do I need to put the text into ASCII characters or HEX or some other

format? It seems from the Numato website the module understands text. Maybe I am making a syntax error in VEE?





Thanks!
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Stan Bischof
Stan Bischof (to User1234) 4 hours ago

RS232 problems usually are caused by serial settings. Start by verifying that your EOL is correct for that device. Then look at baud rate and whatnot. If that doesn't help bypass VEE by using the interactive mode in connection expert. If that still doesn't work pull up a terminal (hyperterminal is fine) and try from there. Once you find a working interface you'll have known good settings and can go back to CE and then VEE. If the manual says "relay on 0" is the right syntax, then you example looks fine- basic ASCII text is pretty robust.
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Stan Bischof
Stan Bischof (to Stan Bischof) 4 hours ago

AND-- another reason to drill down to a terminal is that if you need to chat with the vendor's tech support they will be much more likely to help. Afterall nobody in their tech support will know about instrument software (Connection Expert) or graphical programming (VEE) but they will know standard computer software.
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User1234
User1234 (to Stan Bischof) 2 hours ago

Wow thanks! Just as you said the read/write EOL terminator needed to be r instead of n. I can now use my relay... on to the rest of the programming. Thanks again for your help!
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