

Controlling Numato Lab Ethernet Relay/GPIO Modules using LabView

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1. Introduction

In today's interconnected world, the ability to control hardware devices remotely is a powerful capability. LabVIEW, renowned for its intuitive graphical programming environment, offers a seamless solution for managing complex systems with ease. Whether you're a seasoned engineer or a novice enthusiast, harnessing LabVIEW's capabilities to control Ethernet Relay modules opens doors to countless possibilities.

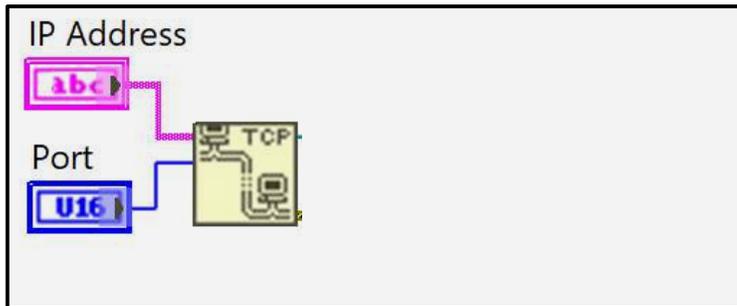
2. Prerequisites

1. LabView ([Download and Install LabView](#))

3. Fundamentals of communicating to the device through LabVIEW

Once LabVIEW is installed, we can start creating the block diagram.

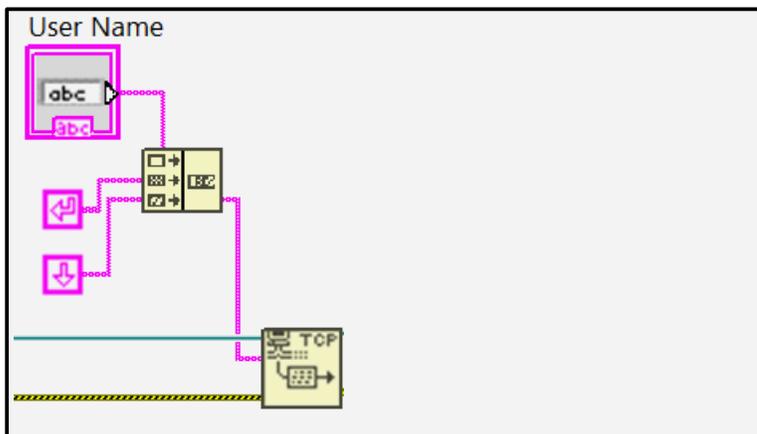
The very first step is to add the Data communication protocol. Here, it is TCP. LabVIEW version Past 2014, TELNET is deprecated.



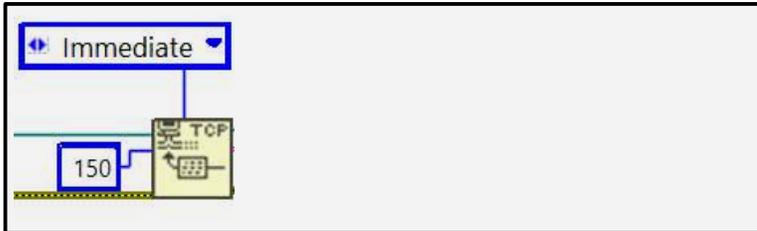
A TCP open connection block is added with 2 variables, the IP address of the module, and the Port. IP address created using String Control and Port is Numeric Control from the Controls pallet. The default port number is 23.

Now, it's time to login with the credentials.

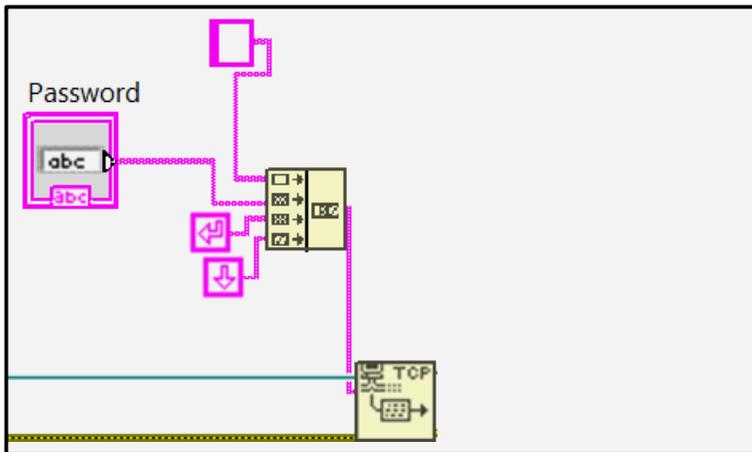
TCP Write is used to write to the module. Here, the first input will be the username followed by the CR and LF.



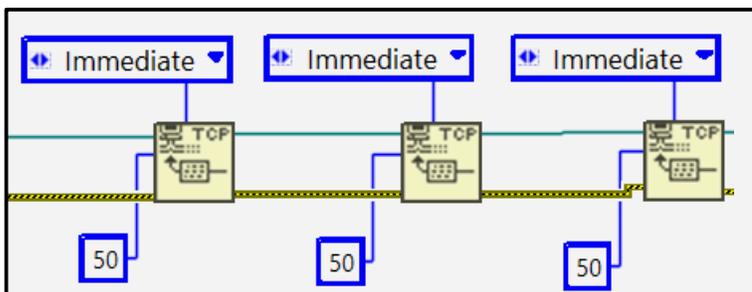
Concatenate Strings from the string function is used to concatenate the username and CR - Carriage Return and LF – Line Feed here. CR and LF is created using a string constant. Read the available data after sending the username using TCP Read.



Now, send the Password. Password is concatenated with 3 characters here created as a string constant, which is required for successful login.

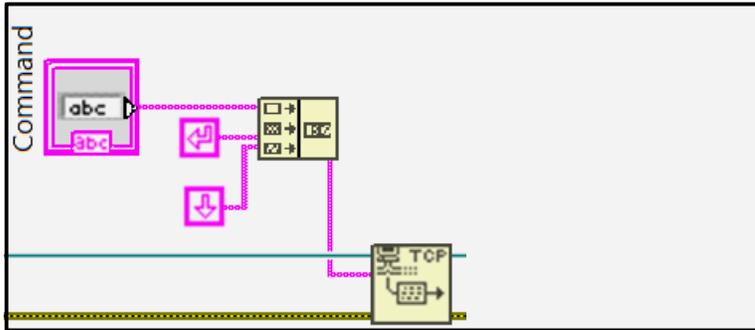


Now, read all the remaining data which includes the status of authentication.

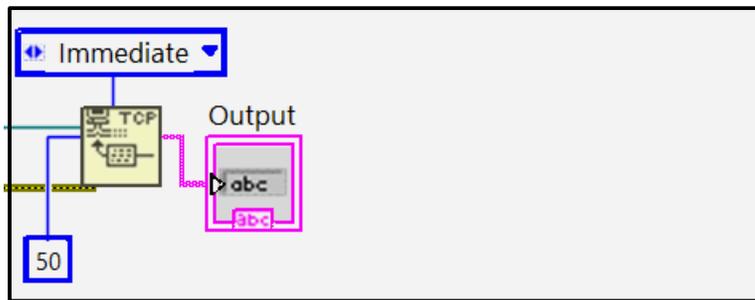


Once the authentication is successful, we can send commands to the module. Create an input field using string control to enter commands. Concatenate the input field

with CR- Carriage Return and LF- Line Feed. Write this to the module using TCP Write as discussed earlier in this article.



Read the response from the module using TCP Read and print the same using a string indicator.

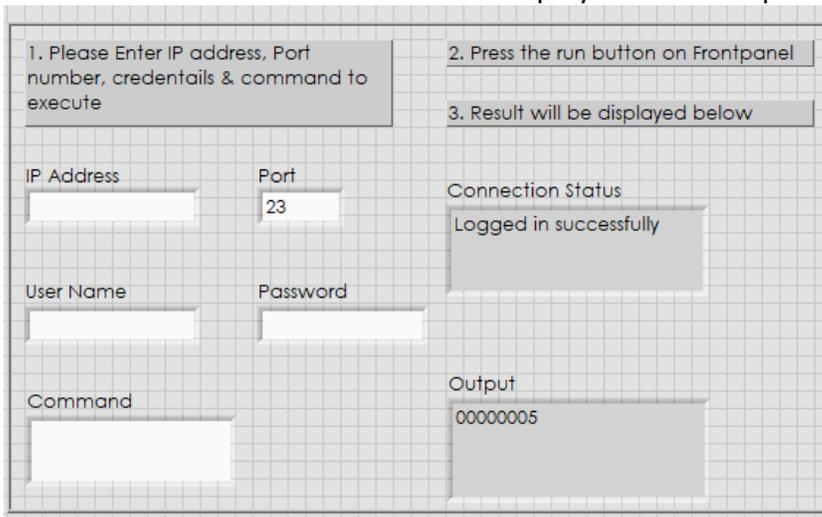


4. LabView Sample Code and Result

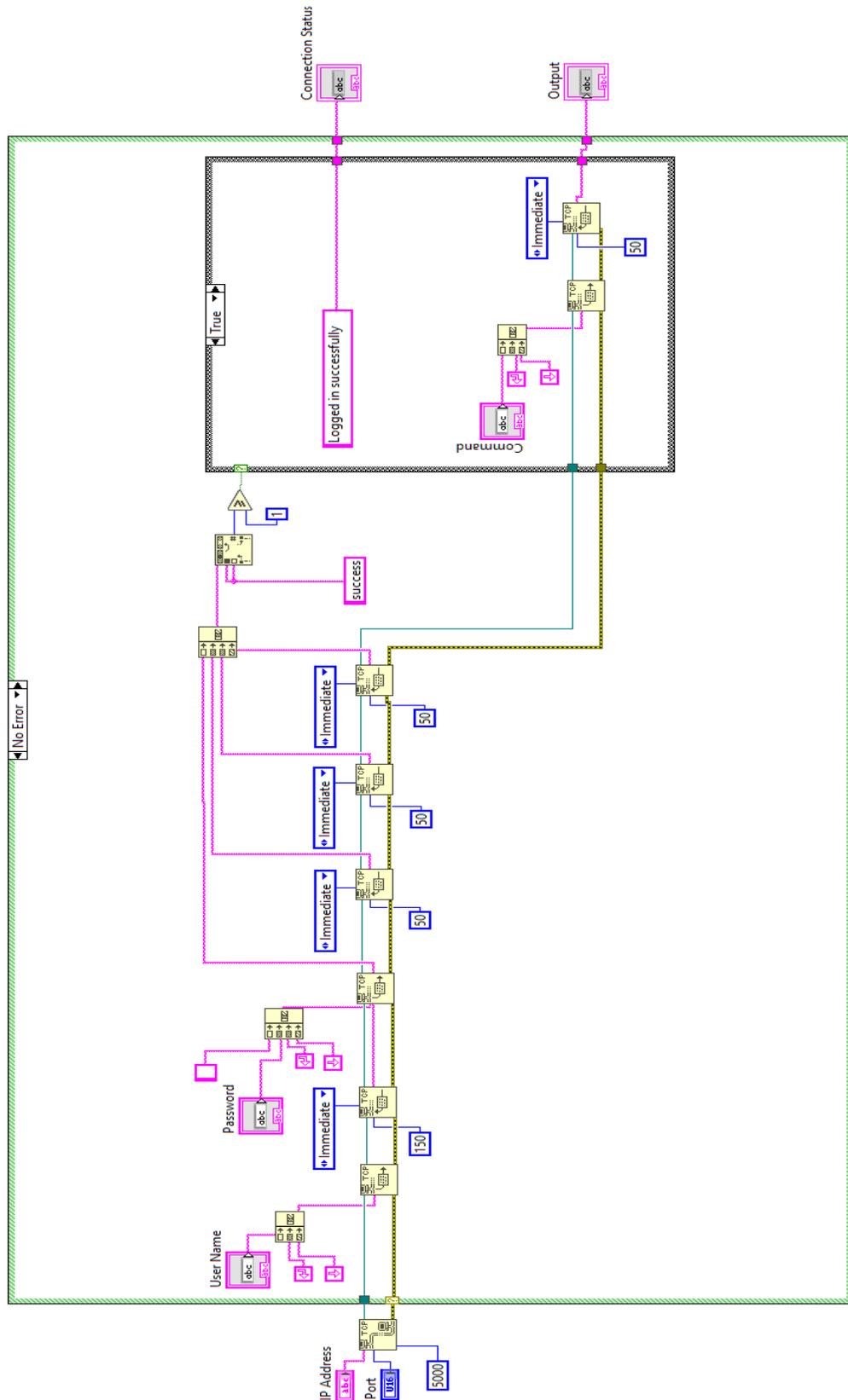
Download [Numato Lab Ethernet Module LabView Sample Code](#) , open the .vi file and follow the instructions :

1. Please Enter the IP address, Port number, credentials & command to execute in the respective fields.
2. Press the run button on the Front panel.

Connection status and result will be displayed in the respective fields.



(Front Panel)



(Block Diagram of sample code)

1. Please Enter IP address, Port number, credentials & command to execute		2. Press the run button on Front panel
		3. Result will be displayed below
IP Address	Port	Connection Status
192.168.10.180	23	Logged in successfully
User Name	Password	
admin	admin	
Command		Output
relay readall		FF

(Result)