FLEX-5 Quick Start

AtomioTech

Contents:

Setting IP address of the FLEX-5 and associating with desired PLC

The default IP address of the FLEX-5 is 192.168.1.199:8080. After connecting ethernet cable between PLC and FLEX-5 give power to the device. After the device boots, connect to the same network as the device with laptop/PC and using a browser navigate to http://192.168.1.199:8080. Here you will be able to change the device IP address as well as the PLC address it will connect to. After inputting the desired IP address/es click restart on the device. The device should now come up and be connected to the desired PLC.

Installing the FLEX_5.l5k UDT for Control Logix

Within your Logix5000/Studio5000 project navigate to Data Types, User Defined.

Right click on user defined and select import. Choose the FLEX_5.l5k file retrieved from website and finish the import process.

Upon completion navigate to the controller tags. Create a new tag with the name FLEX and under data type select FLEX_5 as the data type.

The FLEX tag should now be created with the data type of FLEX_5.

Highlighted text = Refers to tag in PLC UDT structure

The following is the PLC UDT tag structure and their functions:

FLEX5.SP_String = name of your sounds with formats as wav or mp3 files

   (stored in "Sounds" folder on USB Folder which is in the main directory ex. /Sounds)

   [0] "sound1.mp3"

   [1] "sound2.wav"

   [2] "sound3.mp3"
   .
   .
   .
   [250]

FLEX5.ControlDINT = Control Bits that interact with the PLC/FLEX-5

   [0] = Input desired sound number here based off the SP_String tag array element
      (Offset is -1 ex. 1 = [0] in SP_String)

   [1] = If sound is accepted by FLEX-5 when number is input into ControlDINT[0]
      (This tag will echo the current playback sound number, 0 when done or no sound playing)

[2] = Setting this bit to a 1 will write data to defined tags on USB

[3] = RESERVED

[4] = Used to start the environment sound function

[5] = Connection between PLC and FLEX-5(will toggle 1-0-1-0 if successfully connected).
     If solid 1 or 0 for greater than 5 seconds this means no connection.

[6] = If a new sound is added in SP_String set this bit to 1 so FLEX-5 can update its list.

[7] = After [8] is turned on, this will go to 1 if command successful

[8] = Used to turn on/off the barcode scanning function USB or BT
     Note: Only one scanner type can be used at single time

[9] = Used to turn the play sound function on/off

[10] = RESERVED

[11] = RESERVED

[12] = RESERVED

[13] = RESERVED

[14] = RESERVED

FLEX5.File_Name = User defines the file name for data storage on USB, where data will be written.

FLEX5.SCAN_DATA = This is where data from barcode scanner will be received

FLEX5.ENV_Sound = Environment sound input in RMS (positive Integer)

FLEX5.ENV_Sound_Count = increments by 1 for each new ENV_Sound input received

FLEX5.STRING_Store_Config = number of strings user would like to store to data file Max: 10

FLEX5.DINT_Store_Config = number of dints user would like to store to data file Max: 10

FLEX5.REAL_Store_Config = number of reals user would like to store to data file Max: 10

FLEX5.Data_STRING [0-9] =user defined data, based on STRING_Store_Config

FLEX5.Data_DINT [0-9] = user defined data, based on DINT_Store_Config

FLEX5.Data_REAL [0-9] = user defined data, based on REAL_Store_Config

Playing Sounds

The FLEX 5 can play custom mp3 or wav files. These files must be on the included USB stick in the "Sounds" folder.

Steps to play sounds:

1. Place mp3 or wav files in "Sounds" folder on the FLEX5 USB.
2. In the FLEX5_SP. String tag elements, include the sounds that are in the "Sounds" folder. So, if you have a sound called "alarm1.mp3" this must be placed in the USB Sounds folder and in FLEX5_SP.String[0] populate with "alarm1.mp3".
3. Make sure USB is in the FLEX5 and boot the FLEX5.
4. After successful connection to the PLC turn on FLEX5_ControlDint[9] which enables the sound function.
5. In PLC put a 1 in FLEX5_ControlDINT[6] and wait for it to go to 0 meaning successful update.
6. In FLEX5_ControlDint[0] select the sound you would like to play; in this example we will put 1 in the value to play our "alarm1.mp3" sound.

Adding Sounds

To add more sounds, make sure the FLEX5 is off, remove the USB, and follow steps 1-2 from above for as many sounds as you have. Then continue from step 3.

Environment Sound Function

To listen to the environment sound level, follow these steps:

1. Ensure that the microphone is connected to the FLEX5 through the USB to 3.5mm speaker/microphone adapter.
2. Put a 1 in FLEX5.ControlDint[4] which enables the function.
3. You should now see a value in FLEX5.ENV_Sound, this is the sound level the microphone is picking up.
4. The tag FLEX5.ENV_Sound_Count will increment for each sample received in FLEX5.ENV_Sound data. This verifies that the function is still active if the sound level is unchanging.

USB Scanner

To use a USB scanner, follow these steps:

(More than one scanner can be connected to the FLEX-5, all scanned data reports to FLEX.Scan_Data)

1. Ensure the USB scanner is connected to the FLEX_5.
2. Verify the scanner is configured to your specifications.
3. Put a value of 1 in FLEX5.ControlDint[8] which enables the scanning function.
4. Try scanning a barcode, you should see the data in FLEX.Scan_Data.

Bluetooth Scanner

To use a Bluetooth scanner, follow these steps:

1. Navigate to the FLEX5 IP address that was setup in a browser, remember to add :8080 for the port connection.
2. Verify the scanner is configured to your specifications.
3. Ensure that your BT scanner is in pair mode.
4. Click scan on the webpage in the Bluetooth section and wait about 10 seconds.
5. After it is done scanning, Scan results will populate with the devices it can connect to.
6. In the "Select BT Device" field, type the number that corresponds with the device you are setting up and click select only once. Wait (~20 seconds) for the connection to occur.

Upon completion you should see your device name populate in the field on the webpage that mentions the currently connected BT device. **Note: TO REMOVE THE PAIRED BT DEVICE CLICK REMOVE DEVICE ON THE WEBPAGE**

Bluetooth Device with Passkey

To use a Bluetooth device with a passkey, follow these steps:

1. Navigate to the FLEX5 IP address that was setup in a browser, remember to add :8080 for the port connection.
2. Verify the device you want to connect to is in Bluetooth mode and discoverable.
3. **Enter and submit the passkey on the FLEX5 webpage!**
4. Click the scan button next to "Scan for BT devices" text.
5. After it is done scanning, Scan Results: will populate with the devices it discovered.
6. In the "Select BT Device" field, type the number that corresponds with the device you are setting up and click select only once. Wait (~20 seconds) for the connection to occur.
7. After successful connection, the device will appear on the webpage next to "Current BT device that is paired:"

8. In the PLC FLEX Tag Structure, place a 2 in the FLEX5.ControlDint[8] value. It will go to 0 shortly after confirming. Around 5 seconds later, if all previous steps were successful, the data should be feeding into the FLEX.SCAN_DATA tag and FLEX.BT_Stream_Count will increment by 1 in a loop every time data is received by the PLC.

Writing PLC data to USB

To write USB data to the USB drive follow these steps:

1. In FLEX.File_Name put the name of the file you would like the FLEX5 to create on the FLEX5 USB to store data in. Make sure to include .txt at the end Such as: "mydata.txt"
2. In FLEX5.STRING_Store_Config, FLEX5.DINT_Store_Config, and FLEX5.REAL_Store_Config put the number of each data type you would like to store. Example: if you want to store 2 string values, 1 DINT and 0 REAL; the value of the config tags should represent this. So, 2 in the FLEX5.STRING_Store_Config, 1 in FLEX5.DINT_Store_Config, and 0 in FLEX5.REAL_Store_Config. For each write the FLEX5 does to the file that is created, it will take that amount of each type and write them to the file.
3. Your PLC code must place the desired data to write in FLEX5.Data_STRING [0-9], FLEX5.Data_DINT [0-9], and FLEX5.Data_REAL [0-9]. The FLEX5 does not clear these tags, that is the responsibility of the PLC! Depending on the setup of the config tags, that determines how many elements per each type the FLEX5 will retrieve and write to the USB.
4. When code is written to ensure proper handling of data, the PLC must also tell the FLEX5 when to write data. Do this by putting 1 in FLEX5.ControlDint[2], after successful write to file, it will go to 0. This would be the time to ensure the PLC code handles the transfer of new data in the Data tags for another write. Then when ready have the PLC logic place another 1 in FLEX5.ControlDint[8].