Advantech Devices - DI and DO in MatDeck

In this example, we illustrate the use of Advantech Devices and Digital Input and Output channels. There are two types of DI and DO functions, port based and bit based. The port based functions are used to work with ports, and the bit functions are used to access a single bit within a port.

Using Advantech USB4704 Device DI and DO

In this example, scenario DO0 is connected to DI0. The first step is to open USB4704 so that it can be used for the digital output and input. Advantech devices use separate open functions for AI, AO, DI, and DO. The open functions return the device handle which is used in later operations to access the appropriate devices. The first step is to define which device is used. The variable sel is used to define the USB device ID.

```
1  sel := 1
2  dev1 := atdevice_do_open(sel, false)
3  dev2 := atdevice_di_open(sel, false)
```

The digital value outputted is set using the port based DO write function. The input value can be read using the standard port based DI read function. The result is shown in the canvas:

```
4  atdevice_do_write(dev1, 0, 255)
5  divalue := atdevice_di_read(dev2, 0)
```

We can access individual bits by using the DO bit function, and then we check the results using the port based DI and bit based DI functions.

```
6  atdevice_do_write_bit(dev1, 0, 0, 0)
7  bit := atdevice_di_read_bit(dev2, 0, 0)
8  port := atdevice_di_read(dev2, 0)
```

We can perform an automatic test. If the value of the port is as expected, then the test is passed otherwise it is failed.

```
9   if(bit == 0 && port == 254)
10    print("Passed")
11  else
12    print("Failed")
```

Once done, we finish by closing the device and releasing the handle.

```
13  atdevice_close(dev1)
14  atdevice_close(dev2)
```

$$divalue = 255$$