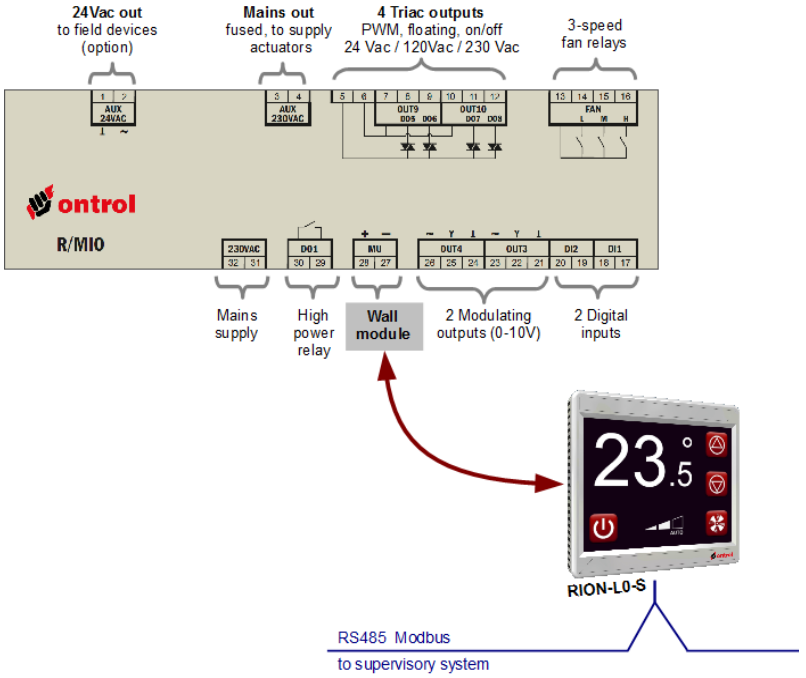
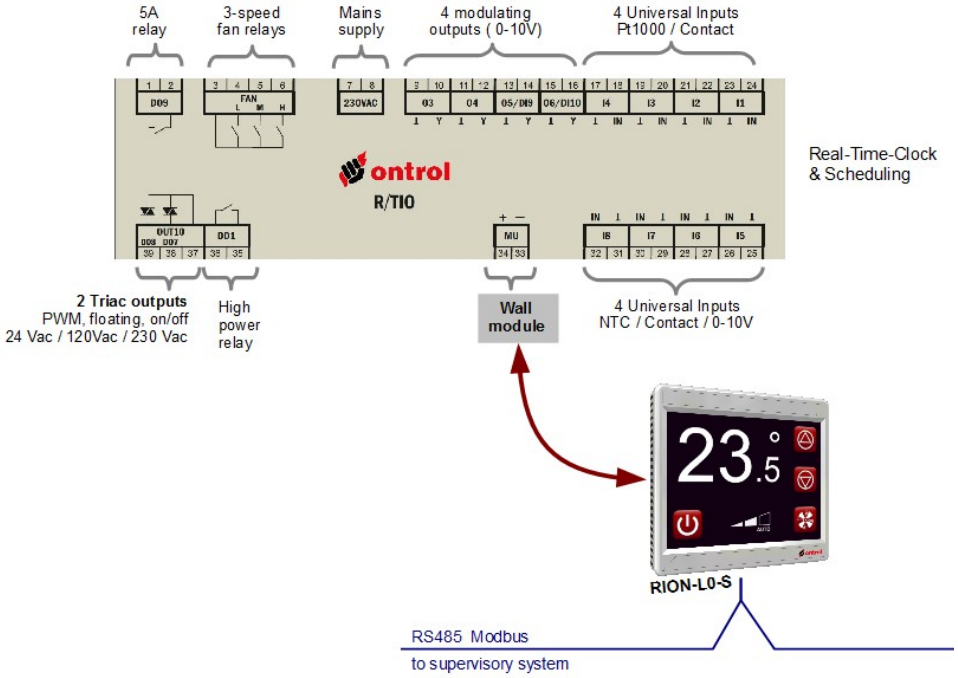
Using Ontrol dedicated IO devices with the R-ION



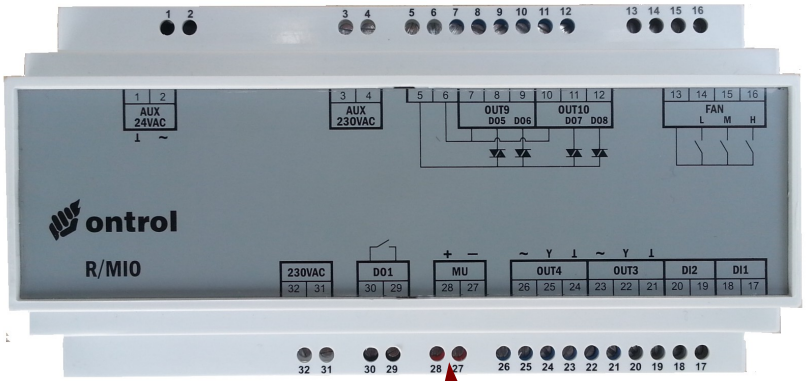


R/MIO and R/TIO Devices

R/MIO and R/TIO are dedicated input/output modules only for use with the R-ION room controllers.

Warning 1:
This is *not* a multi-drop bus,
it is a one-to-one connection.
Do not connect more than one IO module to the R-ION[1].

Warning 2:
These devices are only compatible with the RION-L0-... versions.
(See R-ION documentation for details and different versions.)



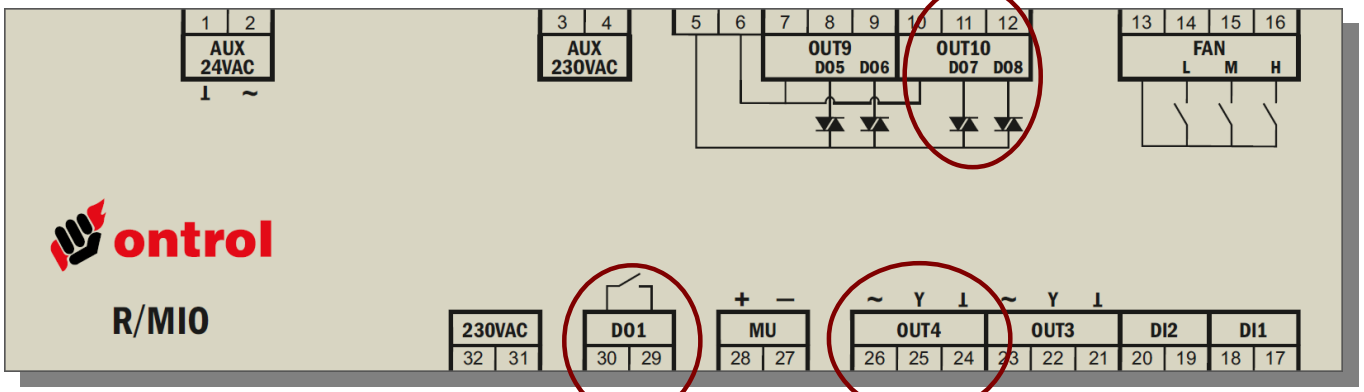
Two-wire
connection for both
communications and power
Max 20 m

[1] for high IO count applications, you can use different versions of the R-ION with additional modbus ports and standard modbus IO devices. See the R-ION topologies document.

I/O Channel addresses

I/O channel addresses are printed on the device label, as well as datasheets.

Here are a few examples :



These triac outputs can be used individually with channel addresses 7 & 8;

or as a pair (for floating control) with channel address 10

Relay output at channel address 1

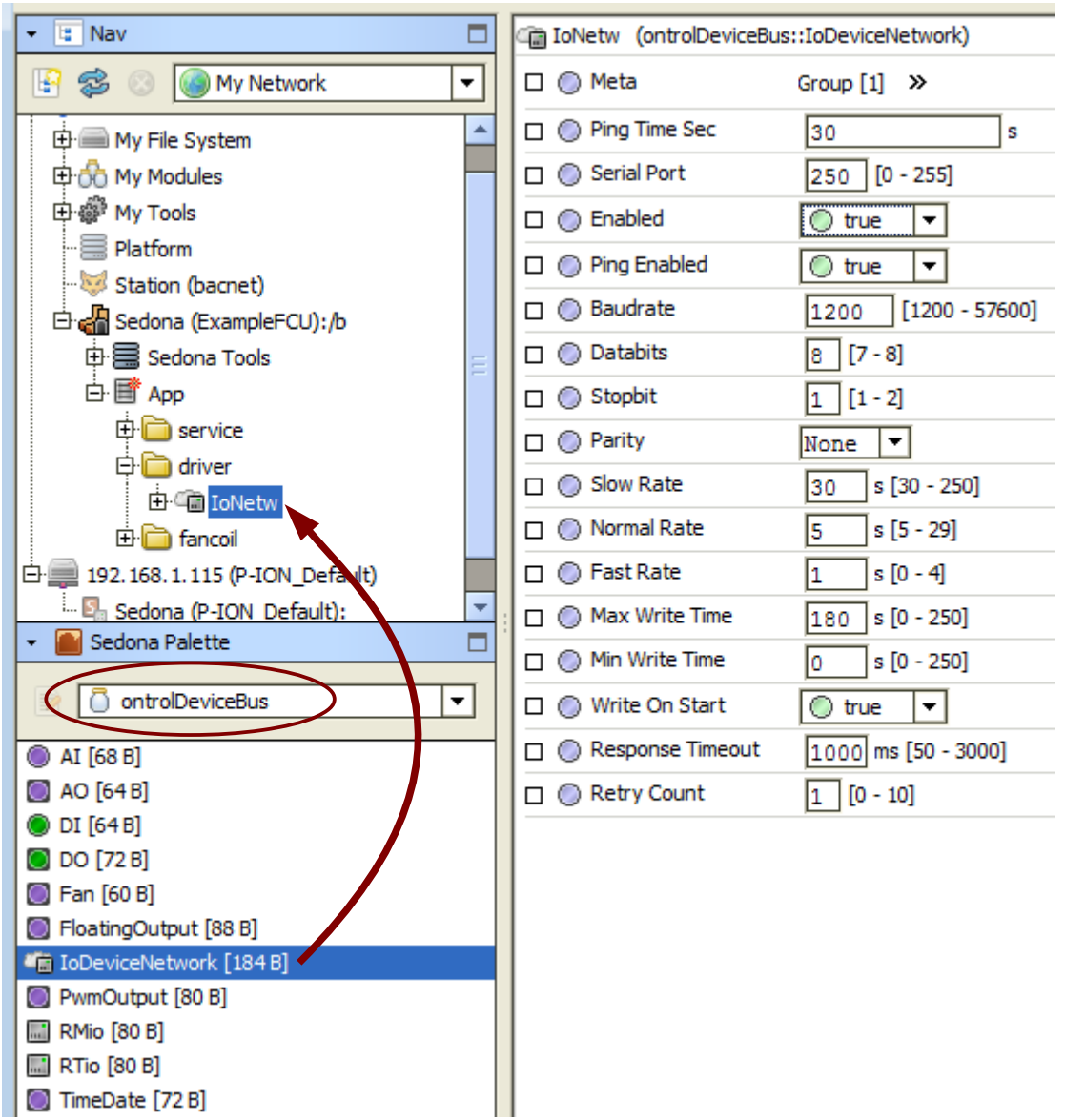
Modulating output at channel address 4

For add-on relay modules, channel addresses are:
- 11...14 for the R/MIO
- 11...18 for the R/TIO

Add 'IoDeviceNetwork' to App

Add a 'IoDeviceNetwork' component from the ontrolDeviceBus kit to your app.

Set properties as shown on the right:
- Enabled : true
- Serial Port: 250
- Baud Rate: 1200
- Databits : 8
- Stopbit : 1
- Parity : None
- WriteOnStart : true

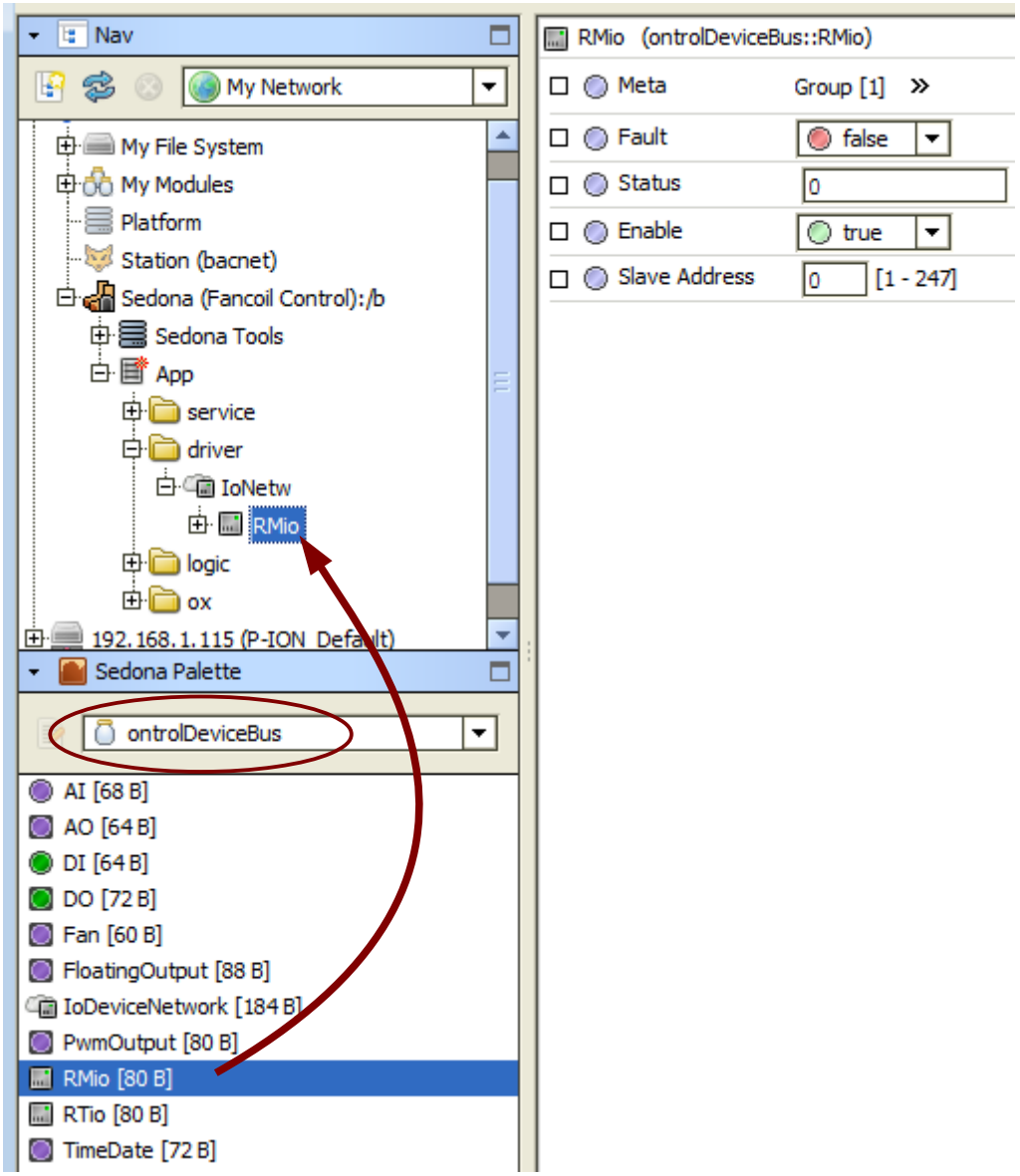


Add IO Device component to network

Add a 'RMio' or 'Rtio' component from the ontrolDeviceBus kit to the IoDeviceNetwork.

Set the slave address to “1”

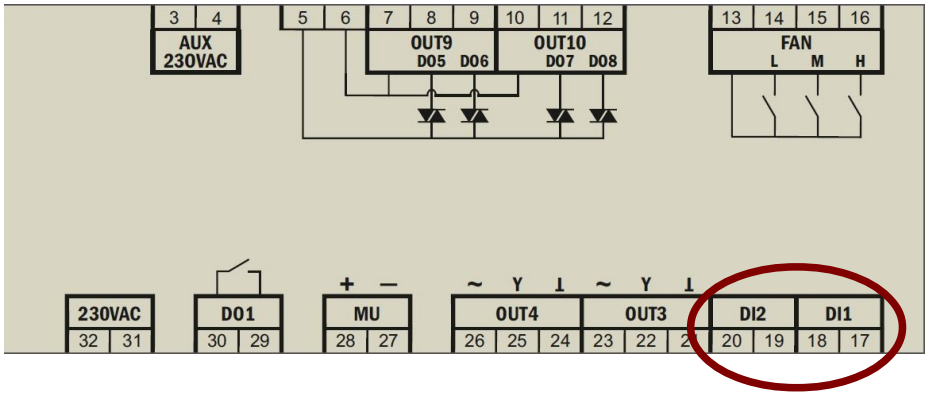
There should be one - and only one - device under the IoDeviceNetwork.

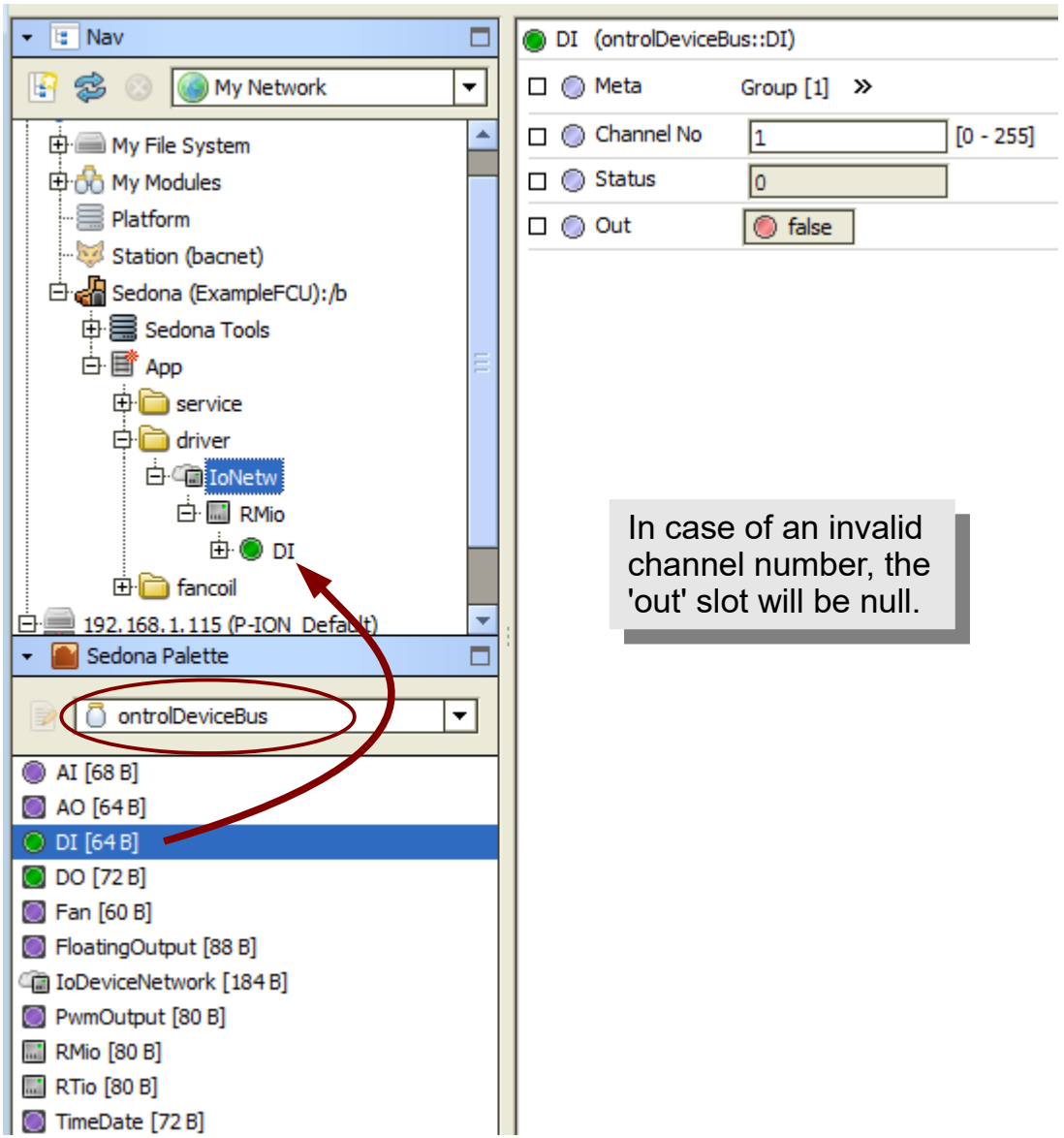


Reading Digital Inputs

Add a 'DI' component from the ontrolDeviceBus kit to the device.

Set the channel address (see page3).





In case of an invalid channel number, the 'out' slot will be null.

Reading Universal Inputs

Add a 'AI' component from the ontrolDeviceBus kit to the device.

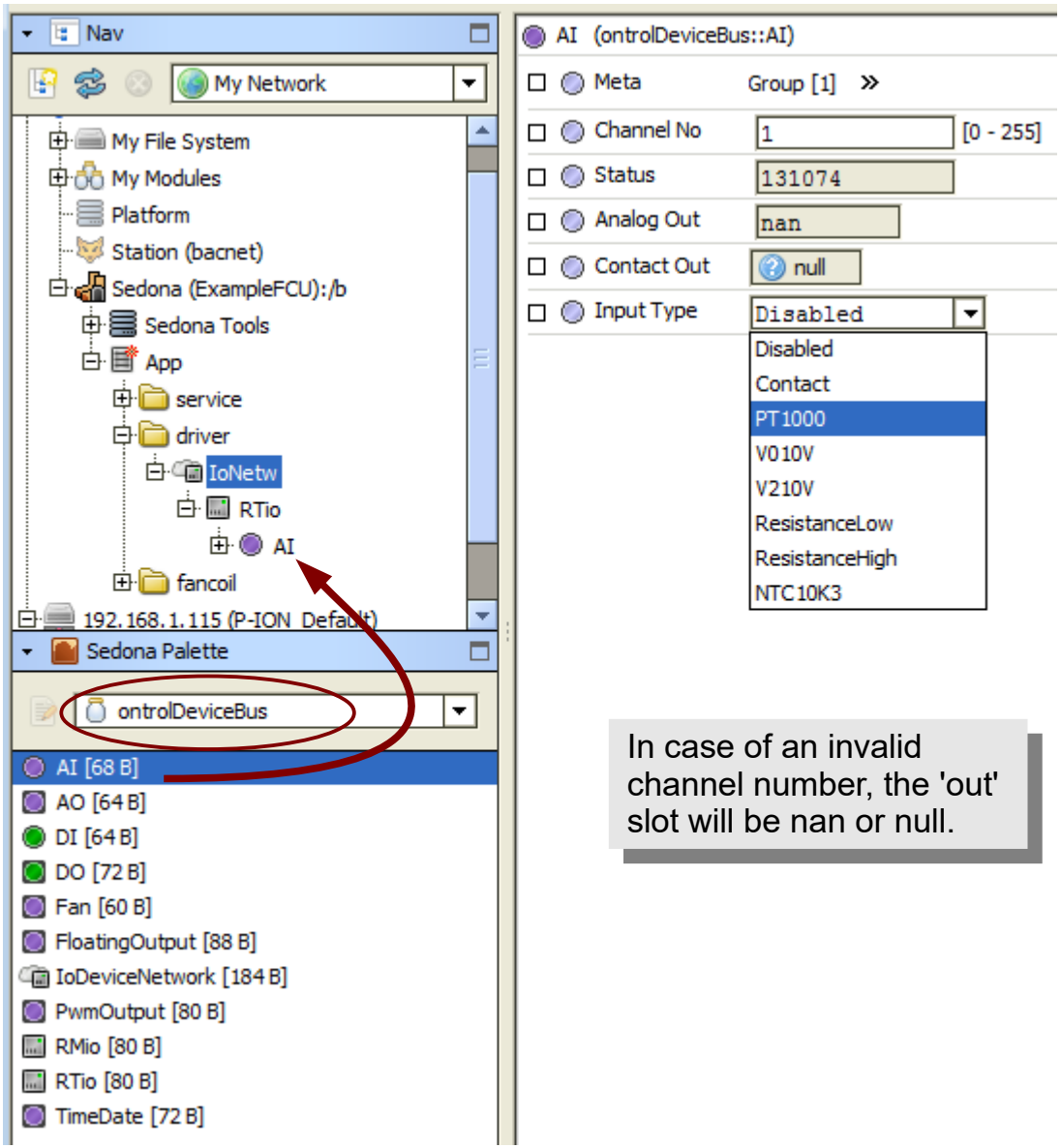
Set the channel address (see page3) and input type.

Input Type selection

- If input type is 'contact' use the ContactOut slot to read the input as a boolean.
- Otherwise, use the AnalogOut slot to read the input as a numeric value.

Output scaling & unit

- For Pt1000 and NTC input types, output value is in degrees Centigrade.
- For Resistance input types, output value is in ohms.
- For Voltage input types, output value is 0...100%.



In case of an invalid channel number, the 'out' slot will be nan or null.

Controlling Analog Outputs

Add a 'AO' component from the ontrolDeviceBus kit to the device.

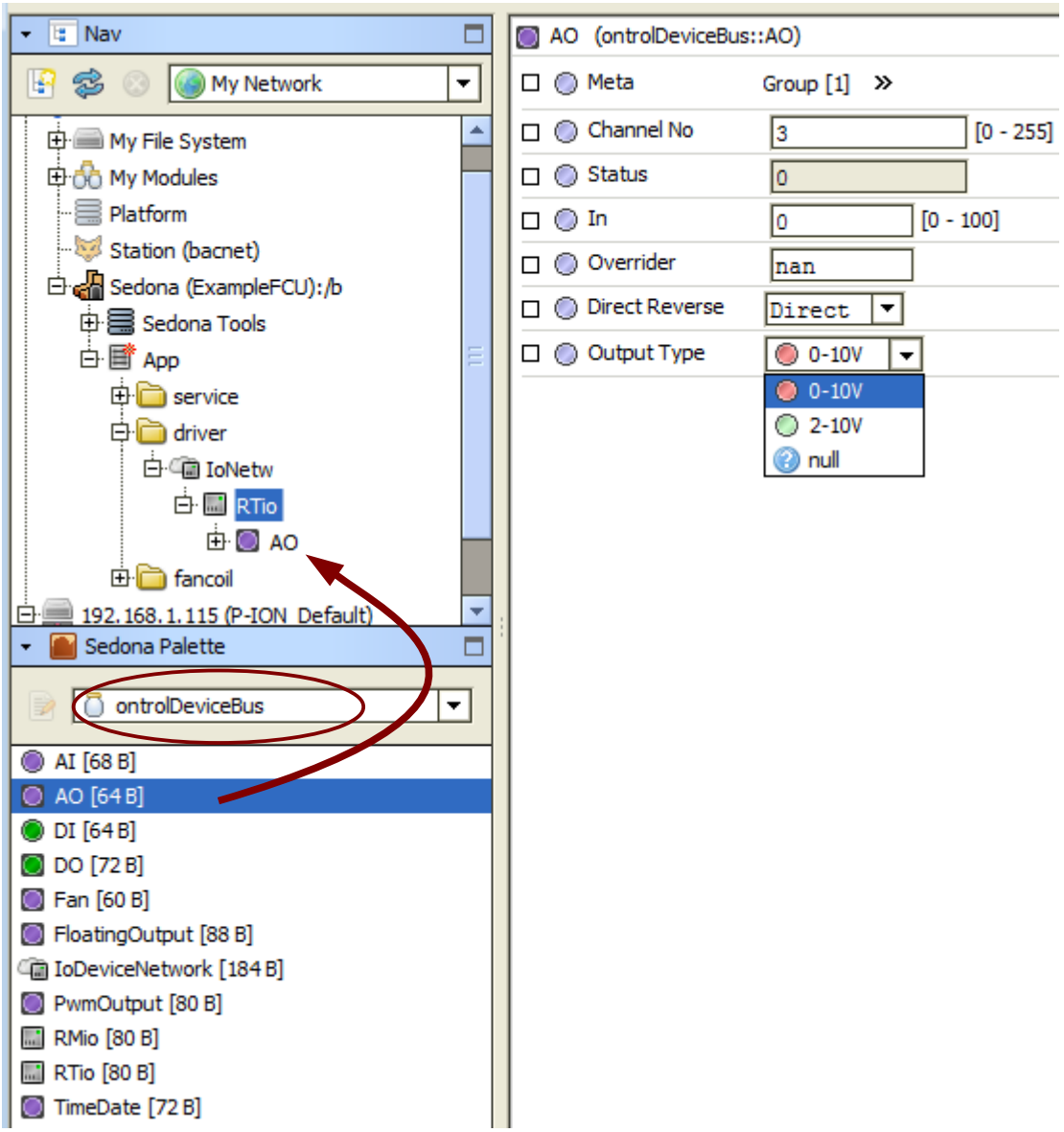
Set the channel address (see page3).

Set the output type (0-10V or 2-10V) and the direct/reverse selection.

Link the controlling logic,
- in the numeric range 0...100% -
to the 'in' slot.

In direct mode:
- 0% input results in 0V (or 2V) output
- 100% input results in 10V output.

In reverse mode:
- 0% input results in 10V output
- 100% input results in 0V (or 2V) output.



Controlling relays (and individual triacs in on/off mode)

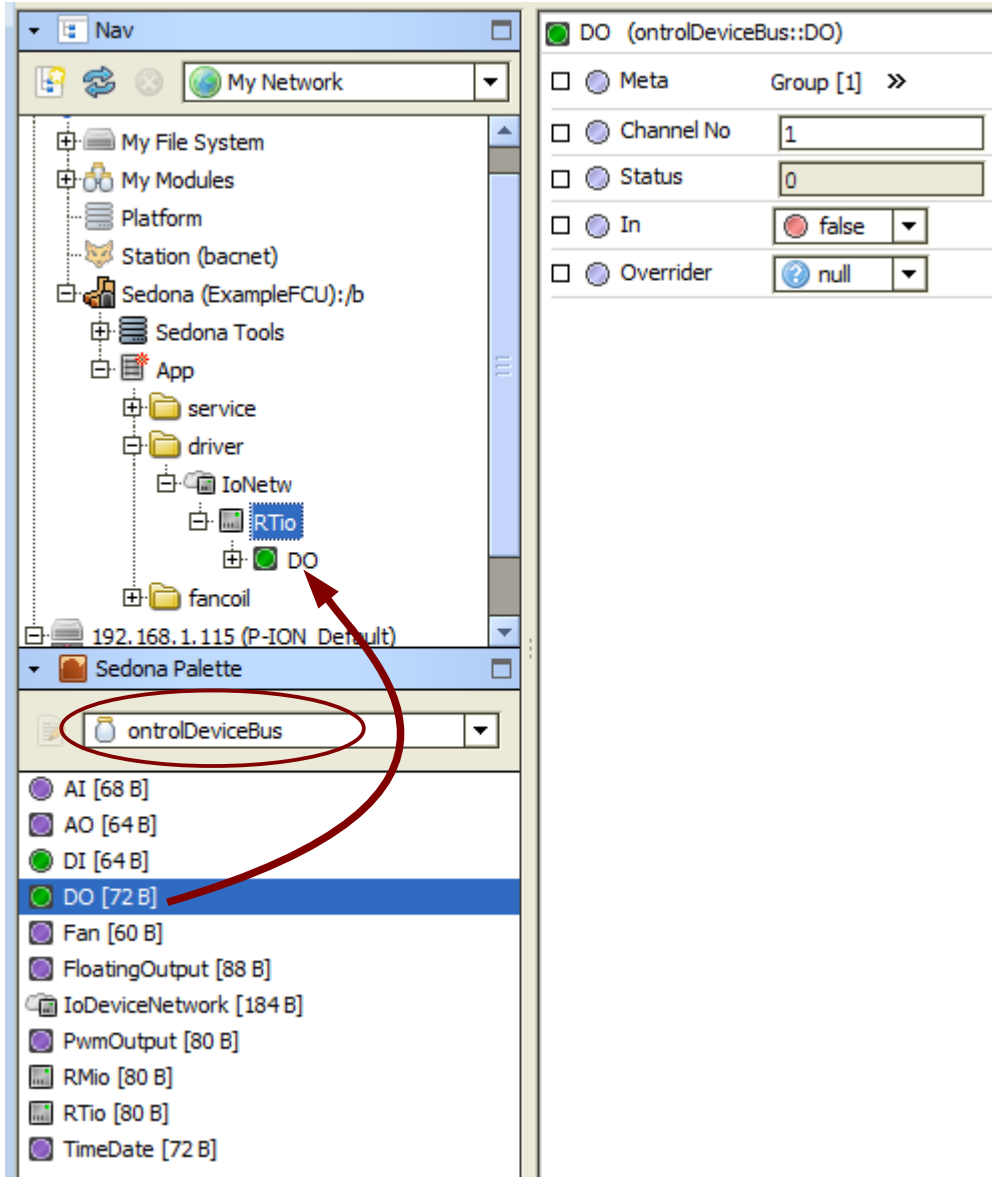
Add a 'DO' component from the <u>ontrolDeviceBus</u> kit to the device.

Set the channel address (see page 3).

If the channel address corresponds to a triac output, the triac is driven in on/off mode like a relay.

Link the controlling logic to the 'in' slot to control the relay/triac.

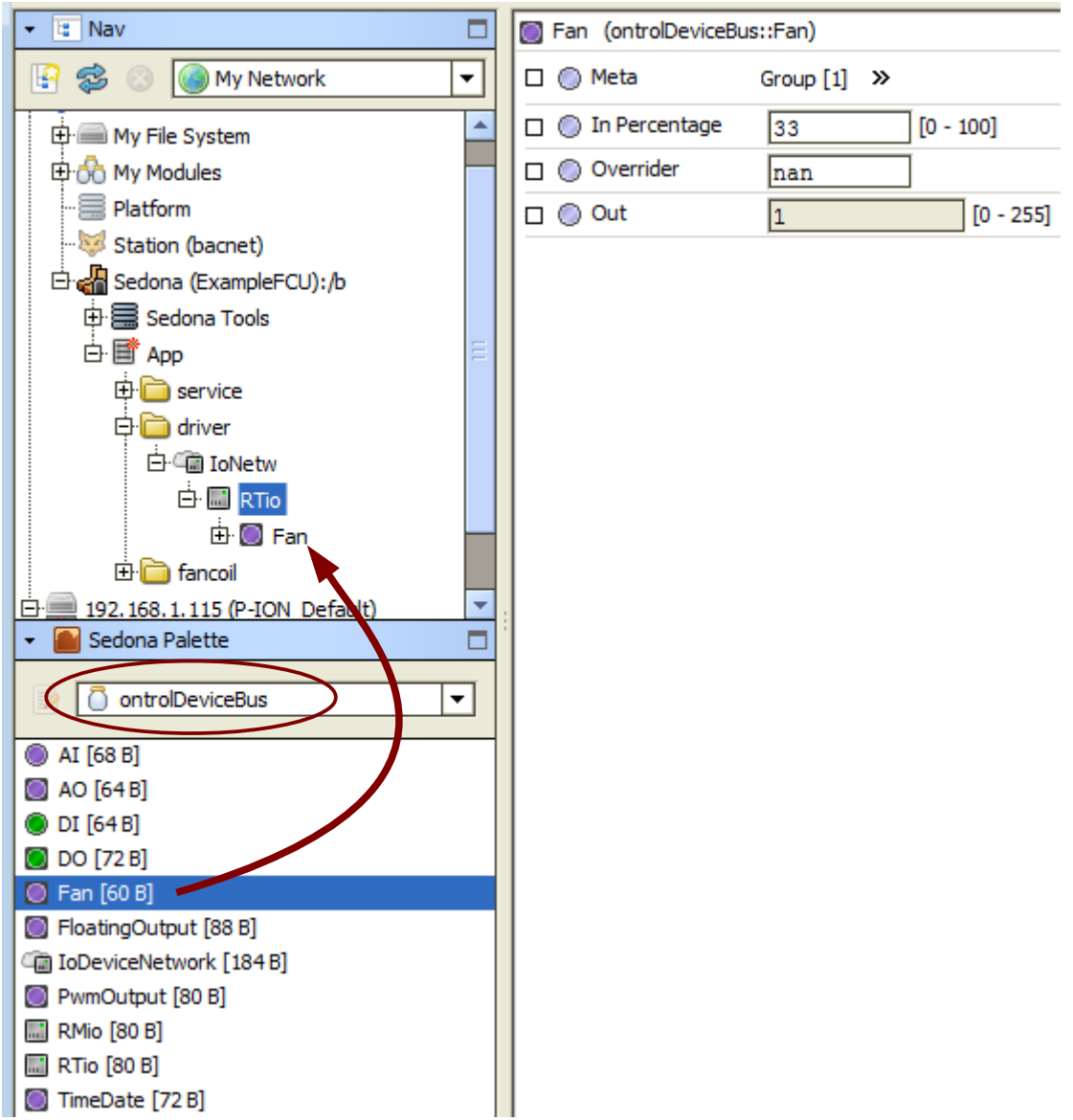
For add-on relay modules, channel addresses are:
- 11...14 for the R/MIO
- 11...18 for the R/TIO



Controlling 3-speed fan

Add a 'Fan' component from the ontrolDeviceBus kit to the device.

Link the controlling logic,
in the numeric range 0...100%,
to the 'inPercentage' slot.



The 3 fan-speed relays are activated as follows:

0%	all off
1...33%	low speed relay
34...66%	medium speed relay
67...100%	high speed relay

The 'out' slot provides an integer type feedback on current fan-speed in the range 0 to 3.

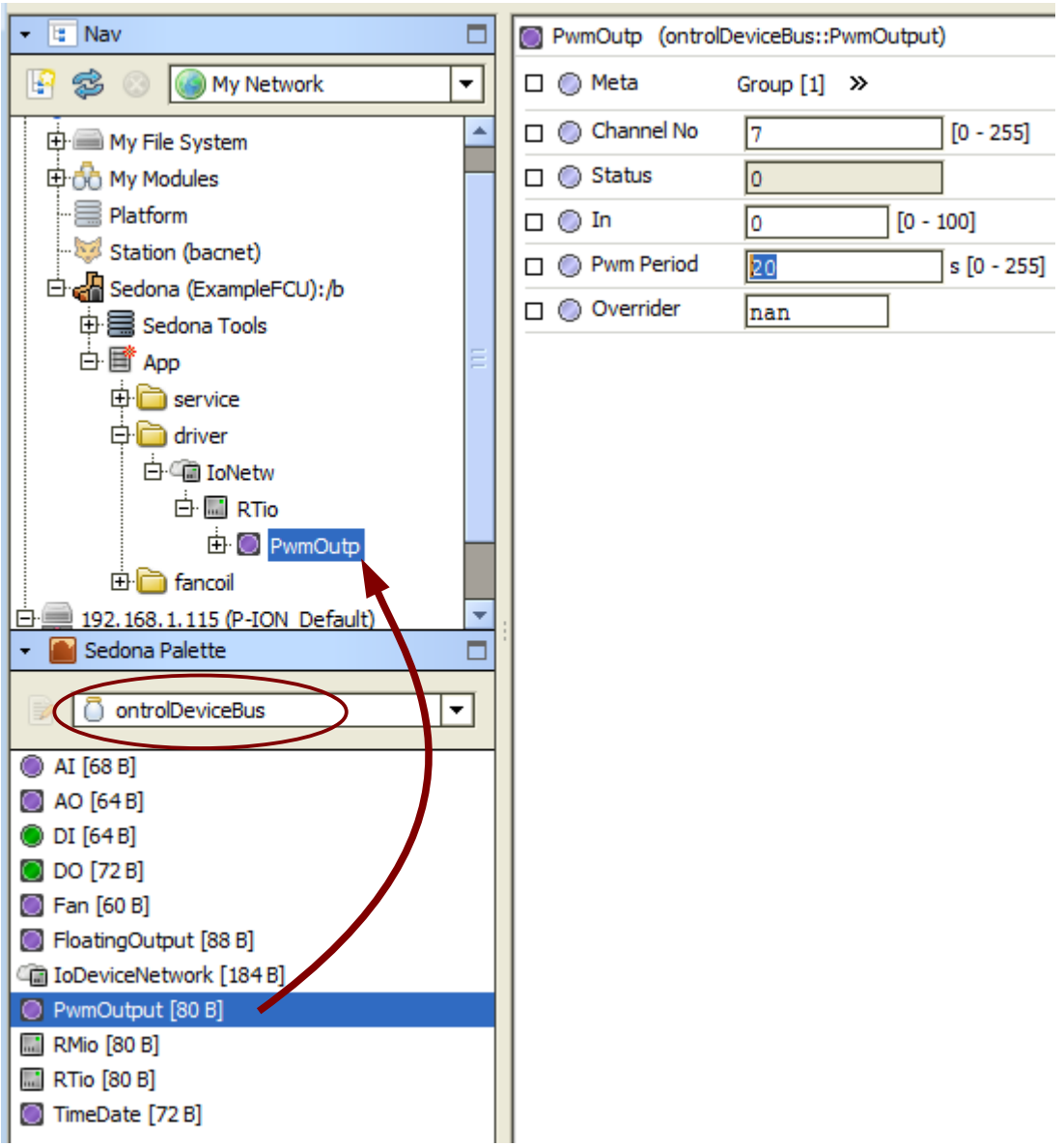
Controlling individual triacs in PWM mode [1]

Add a 'PwmOutput' component from the ontrolDeviceBus kit to the device.

Set the channel address (see page 3).

Set the PWM period in seconds.

Link the controlling logic,
in the numeric range 0...100%,
to the 'in' slot.



PWM operation example
With Pwm period set to 20 seconds and an input value of 25%, the output will be ON for 5 seconds, OFF for 15 seconds.

[1] commonly used with thermoelectric valve actuators.

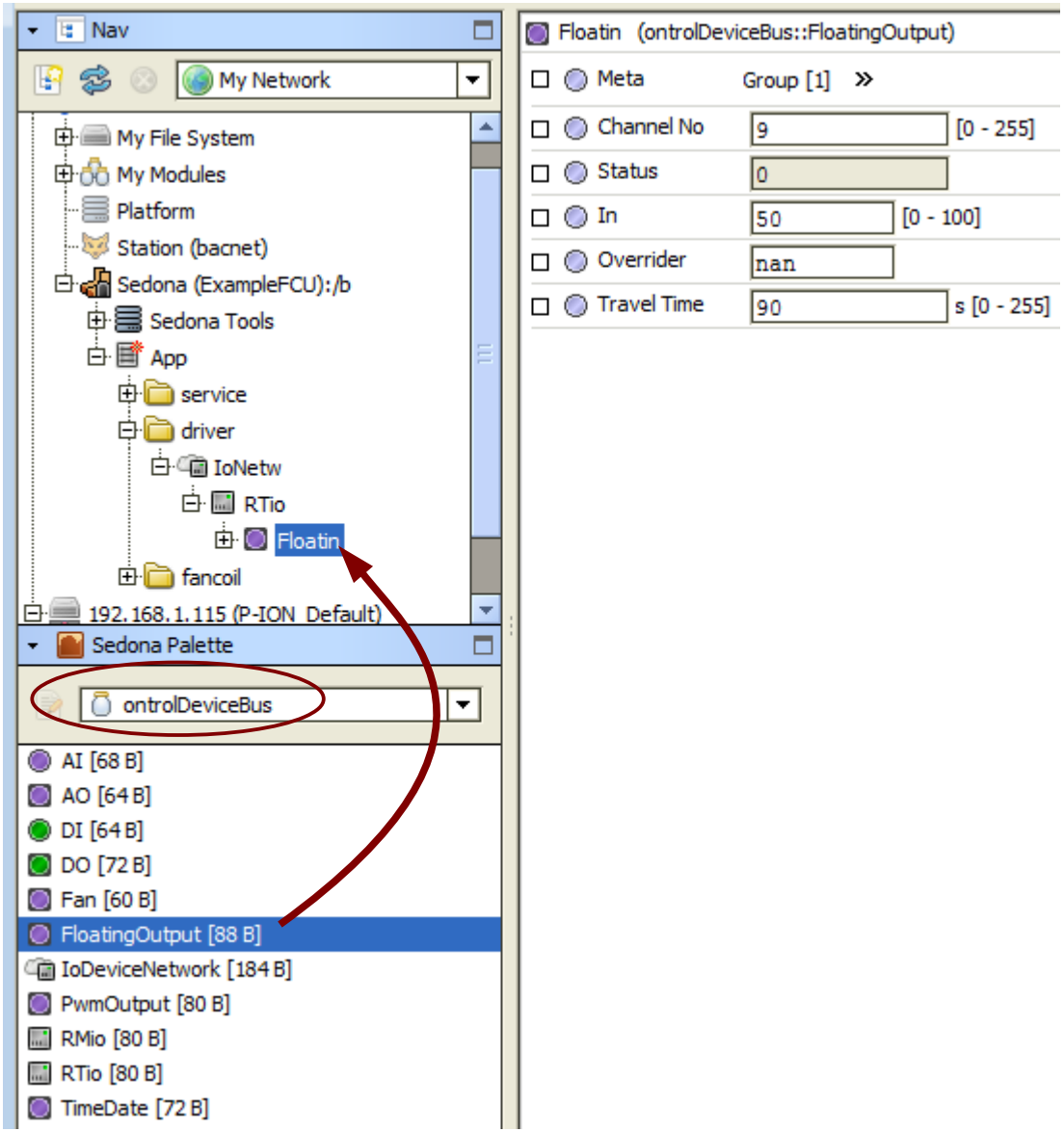
Controlling triac pairs in floating control mode[1]

Add a 'FloatingOutput' component from the ontrolDeviceBus kit to the device.
(this is valid only for pairs of triacs)

Set the channel address (see page 3).

Set the travel time of the actuator in seconds (running time from fully-open to fully-closed position).

Link the controlling logic,
in the numeric range 0...100%,
to the 'in' slot.



[1] also known as “raise/lower” or “3-position” control