Tunable parameter

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The tunable parameter block creates a variable that can be altered in real-time using imperix Cockpit. It supports the *int32*, *uint32*, and *float* data types.

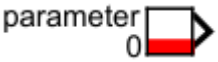
Simultaneously, the tunable parameter can also be modified through the CAN bus or via Ethernet UDP/IP

In simulation, the block can be configured to perform steps at predefined timestamps.

Simulink block

Signal specification

The block propagates the variable value to its output signal.



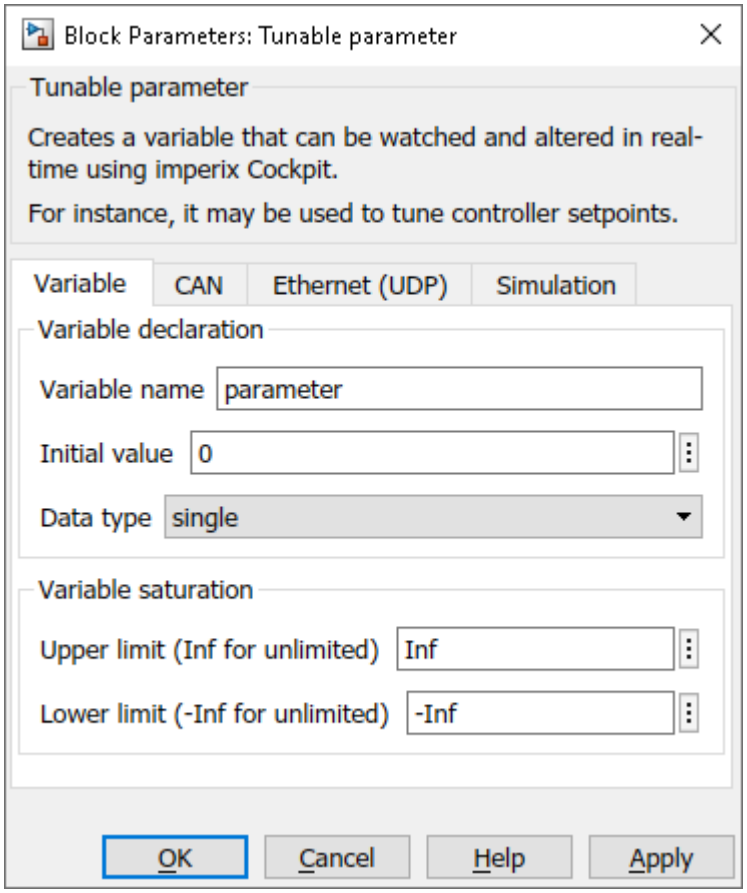
Standard parameters

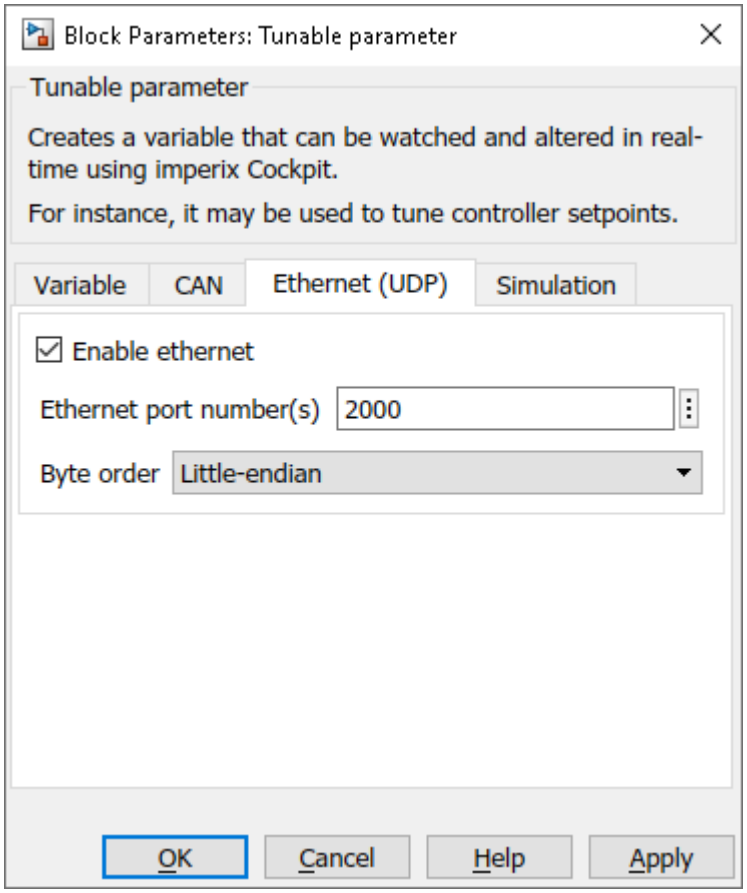
- `Variable name`: sets the variable name. This name must start with a character and must not contain any spaces or special characters except for the "_" character.
- `Initial value` (vectorizable): sets the initial value of the variable.
- `Data type`: sets the variable type (*int32*, an *uint32*, or *single*)

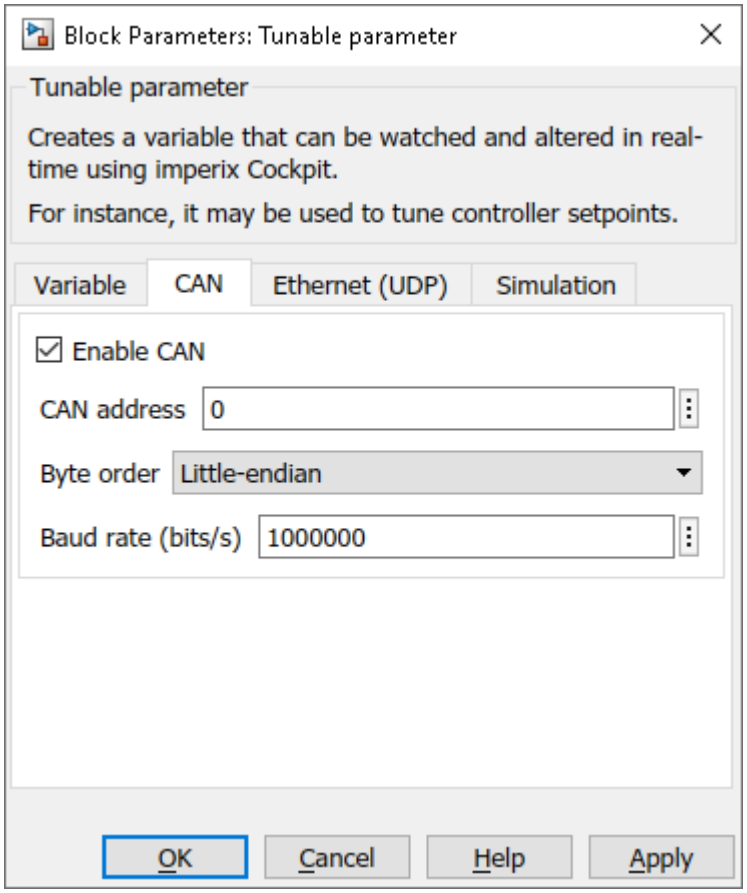
Simulation parameters

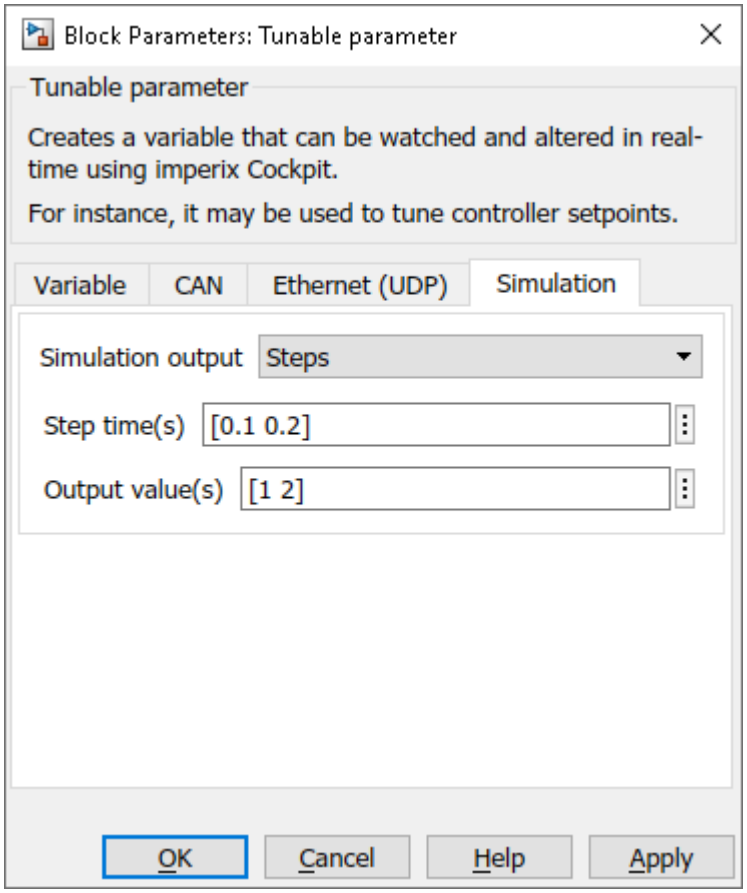
- `Simulation output` must be set to *steps* to enable the generation of steps in simulation.
- `Step times` (vectorizable) specifies the time points when the steps occurs (in seconds).
- `Data points` (vectorizable) specifies the steps to perform at each defined time point.

The tunable parameters can also be altered through the CAN bus similar to a CAN input mailbox or via UDP/IP, similar to an Ethernet input mailbox.




Block Parameters: Tunable parameter
Tunable parameter
Creates a variable that can be watched and altered in real-time using imperix Cockpit.
For instance, it may be used to tune controller setpoints.
Variable
CAN
Ethernet (UDP)
Simulation
Enable ethernet
Ethernet port number(s)
2000
Byte order
Little-endian
OK
Cancel
Help
Apply


Block Parameters: Tunable parameter
Tunable parameter
Creates a variable that can be watched and altered in real-time using imperix Cockpit.
For instance, it may be used to tune controller setpoints.
Variable
CAN
Ethernet (UDP)
Simulation
Enable CAN
CAN address
0
Byte order
Little-endian
Baud rate (bits/s)
1000000
OK
Cancel
Help
Apply

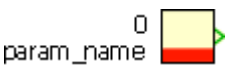


PLECS block

Signal specification

The block propagates the variable value to its output signal.

When the `initial value` parameter is a vector, *N* variables are created where *N* is the vector size. For example, if the tunable block is named `value`, 3 variables named `value_0`, `value_1` and `value_2` are created.



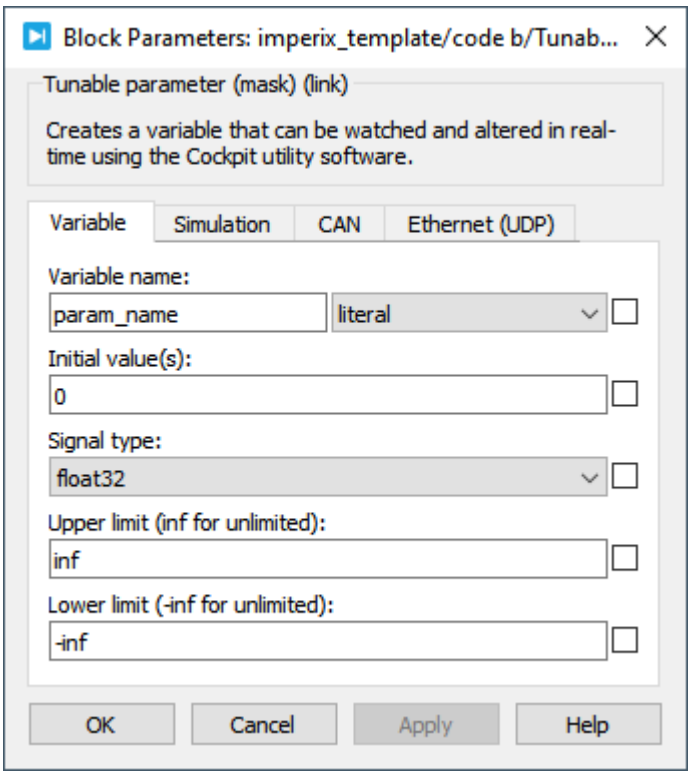
Standard parameters

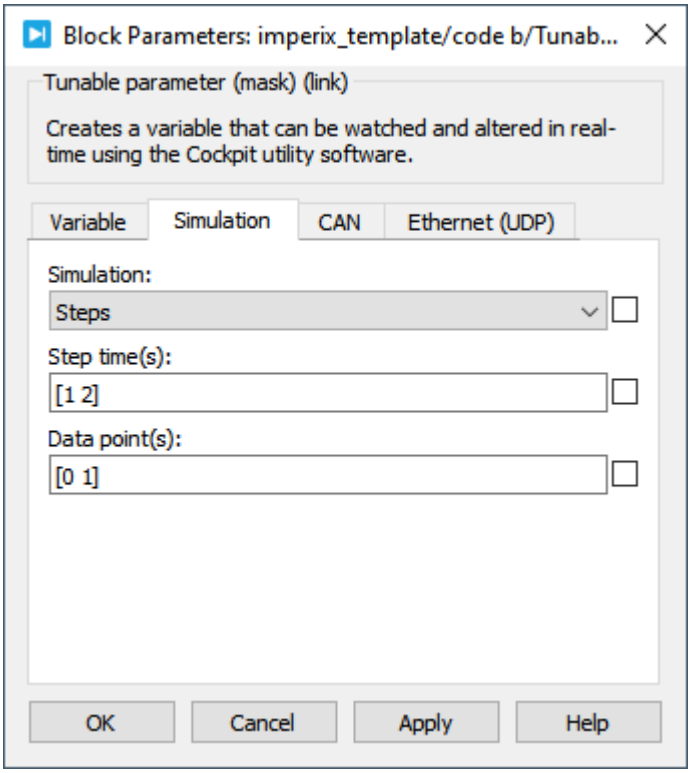
- `Name of the tunable parameter`: sets the variable name. This name must start with a character and must not contain any spaces or special characters except for the "_" character.
- `Initial value`(vectorizable): sets the initial value of the variable.
- `Signal type`: sets the variable type (*int32*, an *uint32*, or *float32*)

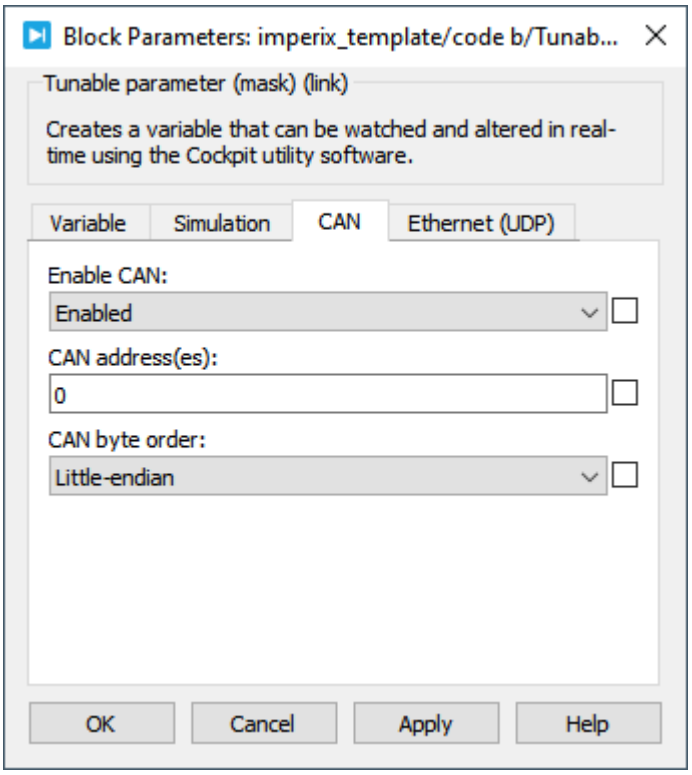
Simulation parameters

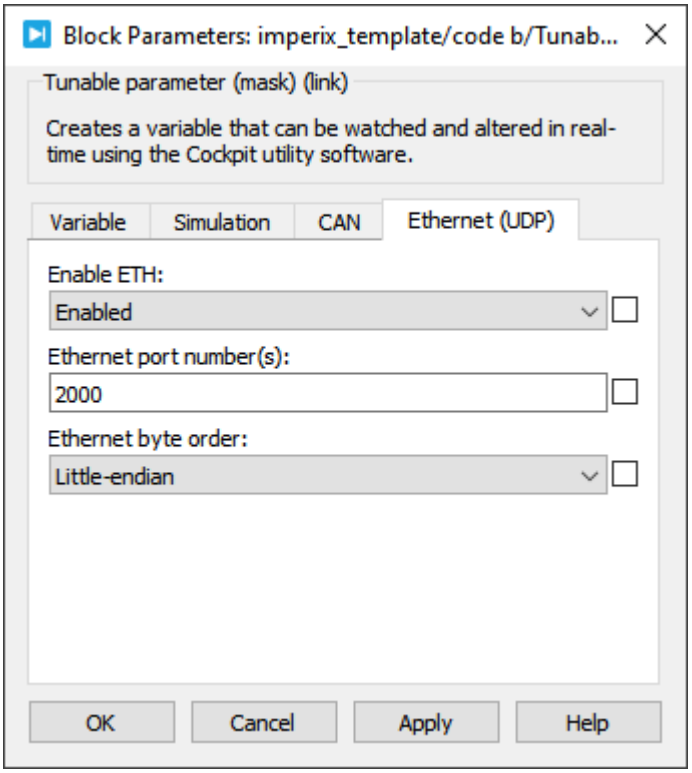
- `Simulation output` must be set to *steps* to enable the generation of steps in simulation.
- Step times (vectorizable) specifies the time points when the steps occur (in seconds).
- `Data points` (vectorizable) specifies the steps to perform at each defined time point.

The tunable parameters can also be altered through the CAN bus similar to a CAN input mailbox or via UDP/IP, similar to an Ethernet input mailbox.




Block Parameters: imperix_template/code b/Tunab...
Tunable parameter (mask) (link)
Creates a variable that can be watched and altered in real-time using the Cockpit utility software.
Variable
Simulation
CAN
Ethernet (UDP)
Simulation:
Steps
Step time(s):
[1 2]
Data point(s):
[0 1]
OK
Cancel
Apply
Help


Block Parameters: imperix_template/code b/Tunab...
Tunable parameter (mask) (link)
Creates a variable that can be watched and altered in real-time using the Cockpit utility software.
Variable
Simulation
CAN
Ethernet (UDP)
Enable CAN:
Enabled
CAN address(es):
0
CAN byte order:
Little-endian
OK
Cancel
Apply
Help



C++ functions

All global variables of type `int`, `unsigned int`, or `float` can be scoped and altered using the BB Control utility software.

Data can be received using the Ethernet input mailbox or the CAN input mailbox.