

# TPI GPO - Helper block

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The TPI GPO helper block is a wrapper that simplifies the use of the [GPO block](#) with the [all-in-one programmable inverter](#) (TPI8032 22kW).

The TPI GPO helper block is available starting from [version 2024.2](#) of the SDK. The TPI8032 is **required** to use this driver. Please refer to its [datasheet](#) for more information on the location, numbering, and voltage levels of the GPOs.

## Simulink GPO helper block

### Signal specification

- The GPO pin is set if the input is >0
- The `sim` output signal is used in simulation and documented in [Simulation essentials with Simulink \(PN135\)](#).



## Parameters

- Device ID selects which TPI to address when used in a multi-device configuration.
- GPO bit selects one pin to control.
- Reset pin value to 0 in case of fault acts when a fault is detected, for instance when an analog inputs exceeds a configured limit value.
- Show simulation output port defines if the simulation output port is displayed or not.

**Block Parameters: TPI GPO**

**TPI GPO**  
Sets one General Purpose Output (GPO) pin of a TPI.

$GPO(x) = 1$  if  $INPUT > 0$   
 $GPO(x) = 0$  otherwise

**Parameters**

Device ID (default=0)

GPO (0 to 7)

**Optional reset**

☐ Reset pin value to 0 in case of fault

**Simulation output**

☒ Show simulation output port

If ticked, the value of the GPO bit is directly fed through to the output port in simulation. In code generation, the output port is disregarded.

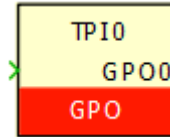
**OK** **Cancel** **Help** **Apply**

## PLECS GPO helper block

## Signal specification

- The GPO pin is set if the input is  $>0$

- The target output ports (only visible at the atomic subsystem level) is used in simulation and documented in [Simulation essentials with PLECS \(PN137\)](#).



## Parameters

- Device ID selects which TPI to address when used in a multi-device configuration.
- GPO bit selects one pin to control.
- Optional reset can be set to Reset pin value to 0 in case of fault to act when a fault is detected, for instance when an analog inputs exceeds a configured limit value.
- Show simulation output port defines if the simulation output port is displayed or not.

The image shows a 'Block Parameters' dialog box for the 'imperix\_template/Imperix controll...' block. The dialog has a title bar with a play icon and a close button. The main content area is titled 'TPI GPO - General purpose output (mask) (link)' and contains the following text: 'Sets one General Purpose Output (GPO) pin of a TPI. GPO(x) = 1 if INPUT > 0 GPO(x) = 0 otherwise'. Below this, there is a 'Parameters' section with four rows of controls, each with a checkbox on the right:

- 'Device ID [default=0]:' with a text input field containing '0'.
- 'GPO pin(s) [0 to 7]:' with a text input field containing '0'.
- 'Optional reset:' with a dropdown menu showing 'None'.
- 'Simulation output port:' with a dropdown menu showing 'Show simulation port'.

At the bottom of the dialog are four buttons: 'OK' (highlighted with a blue border), 'Cancel', 'Apply', and 'Help'.

## C++ functions

There are no C++ helper functions for the TPI. Please refer to the [generic GPO functions](#).