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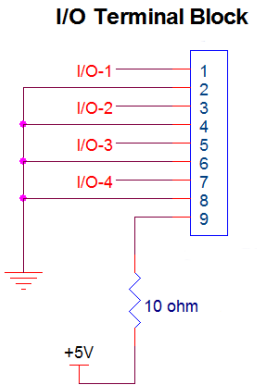
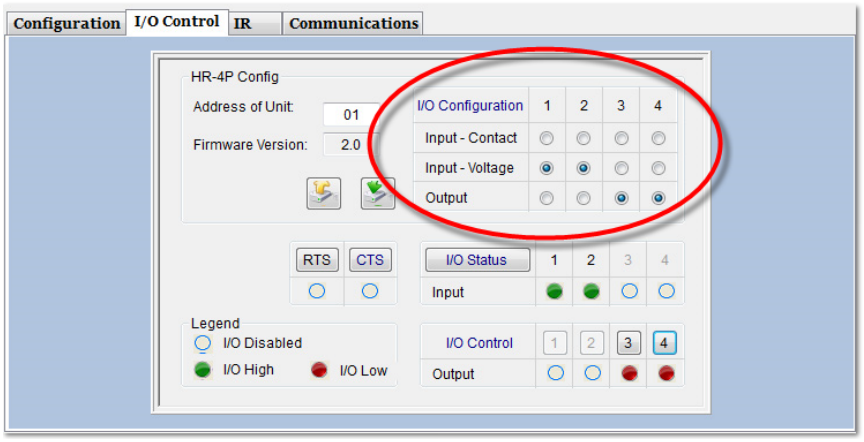
HR-4P I/O Port Configuration Modes

The HR-4P provides 4 I/O ports on screw terminals. There is also a corresponding Ground for each and a +5V output terminal for your convenience that can supply up to 160 maDC of current.



I/O Block connections inside HR-4P

Each of the I/O terminals can be configured to act as an **INPUT** or an **OUTPUT**.



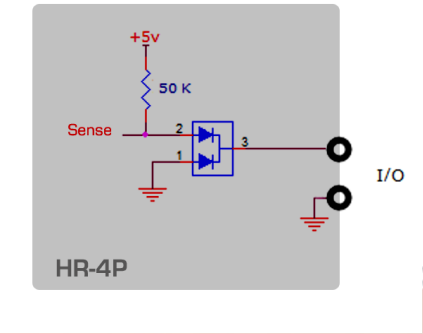
I/O Control tab in GUI

Using I/O Port as an INPUT

When an I/O is defined to be an input, you can assign an action (such as sending out a serial command) to be triggered when a high-to-low transition is sensed, and optionally a different action when a low-to-high transition is sensed.

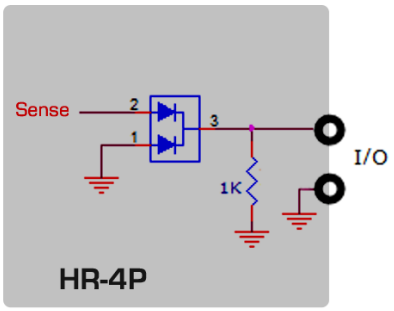
In INPUT mode the pin can be further configured as two types:
INPUT-VOLTAGE or INPUT-CONTACT

INPUT-CONTACT Configuration



In this mode the HR 4P applies a pull-up (typically 50 K) to the sense signal, so when the I/O pin is left open the signal is high. If you connect an external toggle or momentary switch between the I/O terminal and the Ground terminal, then when the external switch is closed, the Sense signal is low and when the switch is open the sense signal is pulled high by the internal pull-up resistor. The diodes shown allow users to have external pull-up voltages to over 5 vDC (e.g. 12 vDC) with no concerns.

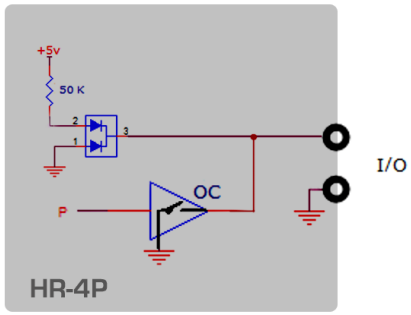
INPUT-VOLTAGE Configuration



In this mode the HR-4-P applies a 1K pull-down resistor to the pin. So when nothing is connected to the terminal the sense signal is low. The user can then apply a voltage to the pin to make it go high. This voltage can be from 5 to 30 volts.

The pull down resistor can be used to bleed a power supply. For example to sense the presence of 220/110 VAC power on an outlet, you can plug a 5 vDC power supply to the outlet and connect the output to the I/O pin defined as Input-Voltage. Then when the power supply is off, the 1 K pull down resistor will help drain the output of the power supply to ground.

Using I/O Port as an OUTPUT



When the I/O pin is defined as an output, there is an electronic Open Collector (OC) switch to ground. This Switch can be controlled by defining an action. For example you can define an action that closes the Switch (pulls the pin low), or pulses it, etc.

When the OC switch is open, the output can swing all the way to maximum of 30 vDC, and when closed, it can sink a max current of 30 maDC.

Connection Examples