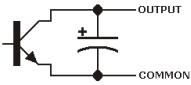


Interfacing The Quad Occupancy Detector With Other Systems

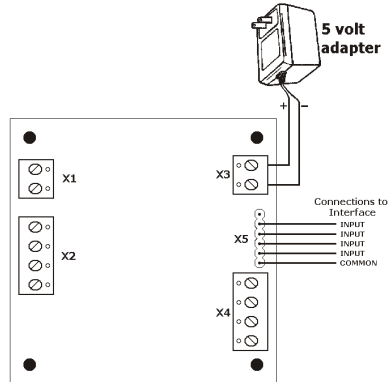


Outputs of the Quad Occupancy detector have an open-collector that provides an active low input to digital systems. This means that the output goes low to a digital "0" when a train is detected. In order for this to function electrically, a common ground must exist between the Quad Occupancy detector and the circuit it is driving. This terminal may be called the common, the ground, or the negative supply terminal. Throughout this document, it will be called the

common terminal. This connection is available on the screw terminal of X3 that is closest to X5, or on the X5 header on the pin that is closest to X4.

To keep diagrams consistent, it will be shown connected to X5 in this document. Also, outputs will be shown using the X5, but may also use X4 if preferred. It is not necessary to provide power on the output side of the Quad Occupancy detector, however without power, its indicators will not function. Ideally, the power supply should be the same power supply that is used for the circuit or system that receives the outputs.

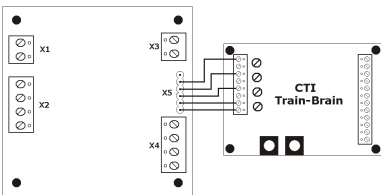
In some cases, it is not practical to obtain the same power supply. In that circumstance, your own power supply may be used but its output voltage should not be greater than the power supply of the circuit or system that received the detector's outputs. Many digital systems use a 5 volt supply, but you should confirm what is used by the system you are interfacing with.



Your own power supply can be as simple as a DC wall adapter (a "wall wart", as they are sometimes called). Its current output should be capable of powering all the Quad Occupancy detectors it will supply. Each indicator can draw up to 10 mA (40 mA if all are on at the same time), though with a 5 volt supply, each will only draw about 2 mA (8 mA when all are lit).

Various commercial input devices and how the Quad Occupancy Detector may be connected to them are presented here in alphabetical order by manufacturer. For simplicity, only connections using the header X5 are shown:

CTI Electronics: Train-Brain



Each of the four inputs on the Train-Brain have two terminals, labeled 'A' and 'B'.

Each 'B' terminal is the common and the 'A' terminal is the digital input. All 'B' terminals are electrically connected on the Train-Brain, so it is only necessary to connect one of them to the Quad Occupancy Detector.

Follow CTI's instructions about setting the sensitivity adjustment for each input should at about midway.

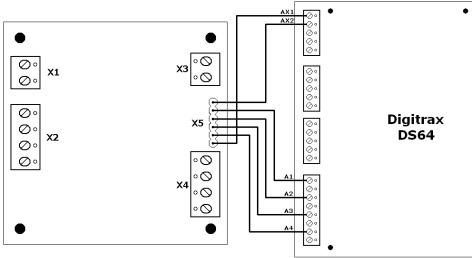
Adjustments can be made as necessary.

The Train-Brain uses 5 volt circuitry, however its 5 volt supply is not available externally. Using a separate 5 volt power supply for the Quad Occupancy Detector will be needed if its indicators are to be lit.

CTI also makes two other interfaces that are connected similarly to the Train-Brain. The Watchman has 8 inputs, and the Sentry has 16. Our Quad Occupancy Detector may use any of these inputs.

Digitrax: DS64

The DS64 from Digitrax has 8 inputs that can be used for turnout position reporting, layout automation, occupancy detection, etc. You can use the 8 inputs on the DS64 to control the operation of its 4 outputs that control your turnouts, or they may be used for other purposes.



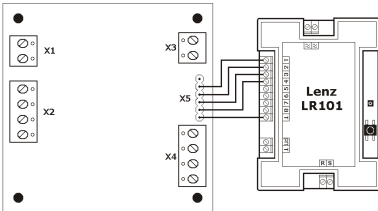
By default, changes to inputs do not send messages to LocoNet. Consult the DS64 instructions on setting Option Switch 13 to "Closed".

The DS64 may be powered from a number of sources, including an external power supply with its negative connection attached to the AX1 terminal, and its positive connection attached to its AX2 terminal. It may also be powered from the track bus using the TRKA and TRKB terminals, or from an external AC or DC supply using the modular power connector.

Regardless of which power source is used, its power will be available on its AX1 (negative) and AX2 (positive) terminals. The AX1 terminal should be connected to the common or ground terminal of the Quad Occupancy Detector. The AX2 terminal may be connected to the V+ terminal to power the LED indicators.

Our Quad Occupancy Detector may use either the "A" inputs (A1-A4) or the "S" inputs (S1-S4) on the DS64. The diagram shows the outputs of the Quad Occupancy Detector connected to the "A" inputs of the DS64.

Lenz: LR101

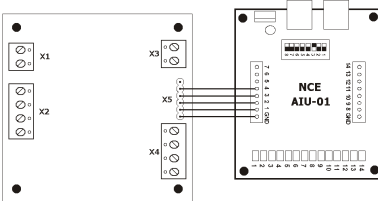


The LR101 from Lenz has eight active-low inputs, labeled from 1 to 8. Each output of the Quad Occupancy Detector may connect to any one of the eight inputs on the LR101.

The LR101 has two common terminals, each labeled with an up-side-down 'T'.

Our Quad Occupancy Detector may use any of the eight inputs of the LR101.

NCE: AIU-01



The AIU-01 Auxiliary Input Unit from NCE works well with the Quad Occupancy detector, though there is a known issue with inputs 6 and 7 at this time, described below.

A common terminal is provided on the AIU-01 labeled GND, but no terminal for its 5 volt power supply exists. Using a separate 5 volt power supply for the Quad Occupancy Detector will be needed if its indicators are to be lit.

User feedback has indicated that our Quad Occupancy Detector can be read without problem on all inputs, except for 6 and 7. The electrical characteristics of these two inputs can inhibit the AIU-01 from reading the low output of the Quad Occupancy Detector. It is recommended that these two inputs on the AIU-01 be avoided with our Quad Occupancy Detector.