

THE TELOS ALLIANCE®

Interfacing Telos Hx-series Hybrids with a Telos Direct Interface Module

The Direct Interface Module (DIM) was originally designed to interface with older Telos hybrids (Telos ONE or ONE+One). These older hybrid designs did not need to detect phone line voltage in order to operate, so the DIM's circuitry does not pass the phone line's voltage through to its MAIN and CONF port outputs.

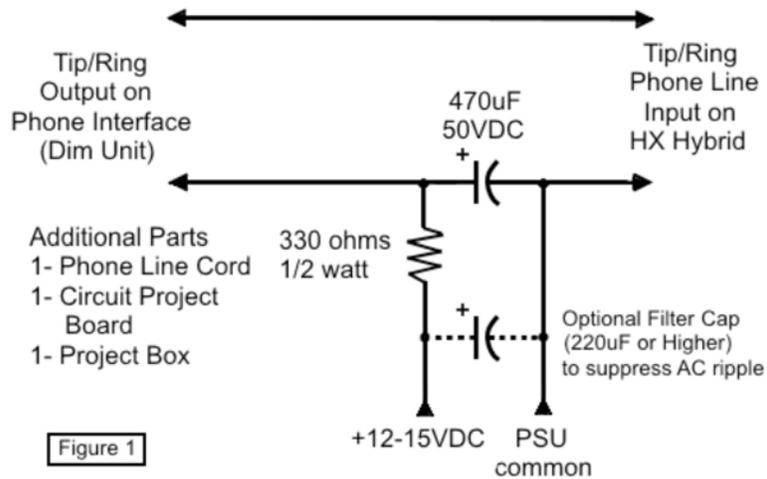
Telos' newer Hx1 and Hx2 hybrids, however, require line voltage to be present when the phone line is connected in order to detect active line presence; if it does not sense line voltage, the Hx hybrid will turn off during calls in progress, thinking that the line does not exist or has dropped. The simple circuit described here will supply the line voltage required for Hx hybrid(s) when interfaced behind the DIM.

The simplified circuit in Figure 1 can easily be built on a small breadboard and be powered by a "wall wart" power supply. The device is placed INLINE between the DIM's phone line output port(s) MAIN and/or CONF., and the Hx hybrid's LINE input. Note that the DIM OUTPUT MUST be transformer isolated first; DIMs were originally designed with output audio transformers at their outputs. Some DIMs may have been modified to have their output transformers bypassed by bridged connectors, or removed entirely. If this is the case please see the description for the circuit in Figure 2.

If you are only using the DIM's MAIN OUT to connect to one Hx hybrid, you only need one of these devices. If you have a second Hx hybrid connected to the CONF OUT (two single Hx1s or an Hx2) you need two of these devices. IMPORTANT: Be sure to use a separate a power supply for each circuit, OR a DC-to-DC isolated power supply converter to isolate the power between the two circuits (see Figure 2). Failure to isolate the power between the two circuits can cause the MAIN and CONF outputs to couple with each other.



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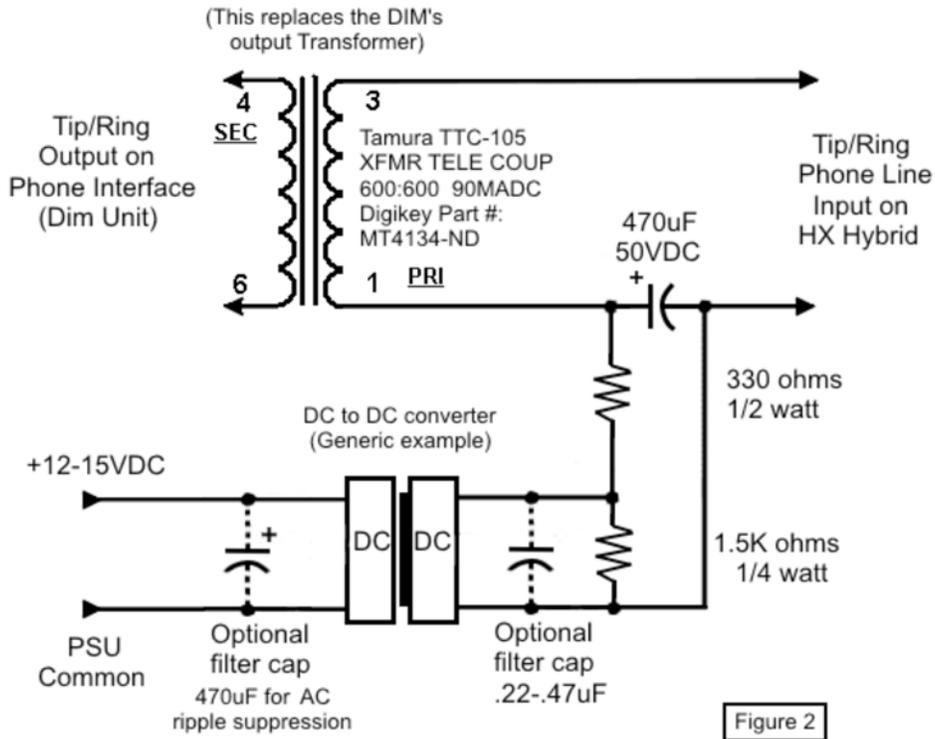
(Note the old transformers do not have a specification noting their DC current handling. They should be able to tolerate very low DC current but damage could occur for higher currents. The transformer noted in Figure 2 is rated at 90ma, and is more than adequate to pass the designed current to the Hx).

In the event the DIM's MAIN and CONF output transformers have been removed, OR you wish to change them to a transformer that is designed to handle a small current draw, you can use the circuit design shown in Figure 2. This design requires some modification to the DIM's motherboard.

Existing transformers on the DIM motherboard can be removed and jumpered, or can be jumpered out of the circuit without removing them. The new transformers can reside in a project box with the connections on the motherboard bridged in place of the transformers, or the new transformers can be re-inserted into the DIM's motherboard. (As of this writing, the noted transformer part number is still available from [Digikey.com](https://www.digikey.com).)

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Circuit Example for adding audio Transformer and isolating power.



Note that the above circuit was also tested with a DIM unit which had its internal transformers still in series with the output (not jumpered); audio still passed as required.

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