

The ARI-800 is an interface to connect almost any radio with almost any amplifier even though the radios and amplifiers do not have standardized accessory plugs or wiring. The input is designed to be compatible with any transceiver or transmitter and the output is compatible with AC or DC control lines up to 200V peak and 300mA operating current. There are a number of plug and play cables to interface some of the more common radios to the ARI-800.

GENERAL USAGE

Amplifier keying circuits can damage the radio amplifier key lines due to relay voltage spikes (reverse EMF when the relay is deenergized), high relay voltages, AC relay voltages, and excess relay currents. When the radio is damaged the symptoms can appear as a stuck control line keeping the amplifier in transmit mode whenever the amp is set to ON or OPERATE.

The ARI-800 acts as a buffer between the radio and the amplifier. It supplying a low voltage and current (<0.35mA) connection to the radio protecting the radio from possible back EMF surges or high currents and supplying connections to the amplifier that can accept high voltages up to 200V DC or AC peak and handle up to 300mA current.

The ARI-800 works well with QSK capable amplifiers because it does not use any internal relays that can adversely affect the speed of the keying or require reverse voltage protection diodes on the amplifier which slows down the relay action on release of the key signal.

CONNECTIONS

Plug & Play

If you are using one of the Plug and Play cables designed for your radio follow the connection instructions included with the cable.

Custom Wiring

If you are wiring your own cable connect the amplifier control line (such as HSEND, SEND, TX, GND OUT, TX GND, ANT RELAY, etc.) to pin 3 of the MULTI-PORT DIN jack on the back of the ARI-800 using a 5 pin DIN cable or connector.

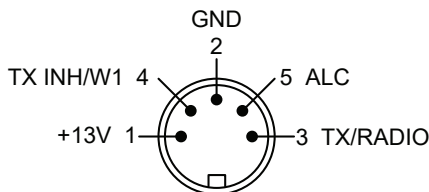


Figure 1 MULTI-PORT DIN Connector

Some radios have "RCA" phono jacks for the SEND and ALC on the back of the radio. The SEND jack can be connected to the RADIO "RCA" Phono jack and the ALC jack straight to the amplifier ALC connections. Both using shielded phono cables.

The jumpers are set depending on the voltage levels the radio uses. The default settings are:

JUMP1 1-2

JUMP2 1-2

Set the jumpers for the proper voltages on the control line.

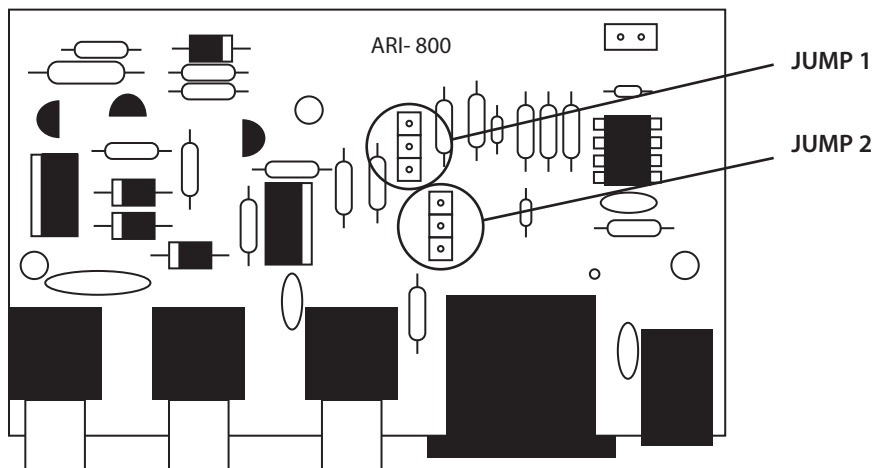


Figure 2 Jumper Locations

Most modern transceivers use the normal setting. Exceptions are transceivers that have very sensitive keying systems, out positive voltages (unusual), or negative voltages (some older radios).

LOW SYSTEMS Normal (default)

The SEND threshold is 2.1V and 2.5V or more open circuit. Most radios that use the Plug and Play cables should use this setting.

JUMP1 1-2

JUMP2 1-2

Activates when the radio pulls the SEND line below 2.1V with only 100 μ A of current. This line is diode blocked any voltage pull-up, so any voltage above 2.5V is acceptable. A pull-down resistance less than 100K can activate the system. This is suitable for radios that have a SEND line that is shared with other radio functions and cannot be loaded down.

LOW SYSTEMS Sensitive

The SEND threshold is 2.5V and 5V open circuit.

JUMP1 1-2

JUMP2 2-3

Open circuit voltage is 5V and the current when low is about 100 μ A. A pull-down resistance of 15K or less activates the system.

NEGATIVE SYSTEMS

JUMP1 2-3

JUMP2 2-3

Activates when the radio pulls the SEND output more than 1V negative. Less than 350µA of current is consumed when negative and open circuit is 2.5V positive.

POSITIVE SYSTEMS

JUMP1 2-3

JUMP2 1-2

Activates when the radio pulls the SEND output 3V or higher. The unit is deactivated when the voltage out is below 2.5V. Deactivated the current draw into the ARI-800 is 35µA and 500µA at 12V when active.

AMP Jack

The AMP jack is a standard phono "RCA" jack. This is normally connected to the amplifier KEY line using a standard shielded phono cable. This line will pull the line low to 0.7V and handle 100mA of current. The maximum rated current is 300mA. It will handle an open circuit voltage of up to 200V AC or DC positive or negative. The shield is connected to chassis ground and cannot handle connections where the key line is not connected to ground.

ALC Jack

The ALC jack is normally used with plug and play cables using a standard shielded phono cable between the amp and the ALC jack. This is a straight through connection to the MULTI-PORT DIN connector pin 5. This cable can be connected directly to the radio if the radio has a similar jack.

POWER

This is a socket for DC voltage between 8 and 18VDC at up to 50mA. This can come from a station supply, a 12V wall power adapter (or Wall-Wart), or if a Plug and Play adapter is used, from the radio if the radio is capable of supplying power on the interface port. Do not use power from the radio and a power adaptor at the same time. The power adaptor or power supply can back feed the radio power output. The center pin of the power connector is positive and the sleeve of the connector is negative. On the included power cord, the RED wire is POSITIVE and the BLACK wire is NEGATIVE.

W1 Pad (not marked on the board)

Some QSK capable transceivers (mainly early Yaesu transceivers) have a control terminal, jack, or line labeled TX INHIBIT. This line used with amplifiers that are QSK capable to prevent hot switching, telling the radio that it has switched to transmit mode before generating RF. Connect this pad to the amplifier handshake connector. Consult the radio manual and the amplifier manual for more information on QSK operation and the requirement of the TX INHIBIT or LINEAR lines.

PLUG & PLAY CABLES

ARI-7DI

Icom radios with 7 pin DIN ACC2 jack or OPC-599 conversion cable IC-746, IC-756, IC-7600, IC-7610

ARI-8DI

Icom radios with 8 pin DIN ACC or ACC1 jack or OPC-599 conversion cable IC-746, IC-756, IC-7600, IC-7610

ARI-13DI

Icom radios with 13 pin DIN ACC jack. IC-703, IC-706, IC-718, IC-7000, IC-7100, IC-7200, IC-7300, IC-7410, IC-9100

ARI-7DK

Kenwood radios with 7 pin DIN REMOTE jack

TS-50, TS-120, TS140, TS-180, TS-440, TS-450, TS-570, TS-590/S/SG, TS-680, TS-690, TS-850, TS-870, TS-890, TS-950, TS-990, TS-2000

Requires external power:

TS-130, TS-430, TS-530, TS-830, TS-940

ARI-8MK

Kenwood TS-480

ARI-5MY

Yaesu FT-847 (Requires external power.)

ARI-8DY

Yaesu FT-747/GX, FT-767/GX, FT-920, FT-990, FT-1000/D/MP, FT-2000, FTdx-5000, FTdx-9000/D

ARI-8MY

Yaesu FTdx-710, FT-817, FT-840, FT-857/D, FT-890, FT-891, FT-897, FT-900, FT-991/A

ARI-10MY

Yaesu FTdx-10, FT-450, FT-950, FT-1200

ARI-DB15Y

FTdx-101/MP, FTdx-3000



TWO YEAR LIMITED WARRANTY

This Limited Product Warranty is provided by the Dealer where your Intellitron product was purchased. The Product Warranty extends only to the original purchaser of the product and is valid for a period of two years from the date of purchase. Please keep your dated sales receipt as evidence of the date of purchase. You will need it to receive warranty service. Your Dealer warrants the product will be free from defects in workmanship and materials under normal use. If the product fails to conform to the warranty and is within the warranty period of two years, contact your original dealer for a return authorization. Your dealer may choose to either repair or replace the non-conforming product.