HEROS Technology Ltd

General Purpose Dual Port Signal Relay

100 Watts RF power rating. DC-1300MHz

User manual. Rev 05
(September 2021)

Typical applications include:

- By-passing a Converter, Preselector, Preamplifier, Filter, etc. device inserted between antenna and a transceiver or transmitter:

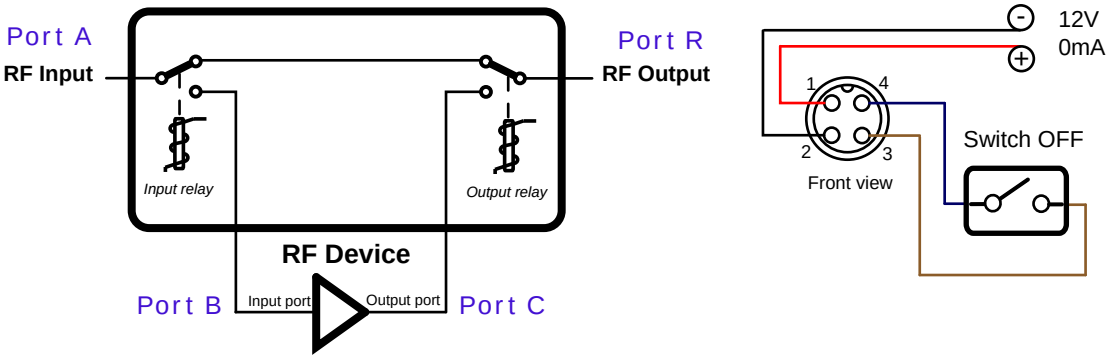
The device is plugged on ports J2 (device input) and J3 (device output). On transmission switchover, via remote control line, the Input and Output RF ports (J2-J3) are by-passed via J1-J4 avoiding being overloaded. Simultaneously ports J2 and J3 are derived to ground adding extra protection.

Other applications let configurations such as: Antenna switching, working with two antennas and one radio, combining two radios and two antennas, protection against electromagnetic pulse (EMP), protection against static discharges on stormy weather situations and many more involving RF signal switching. (see below examples)

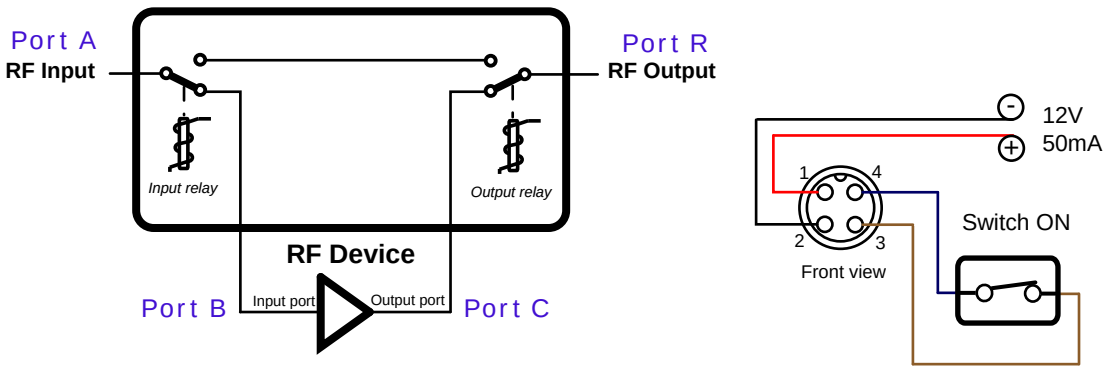
LF-HF-VHF-UHF dual port, by-pass relay features:

- Default configuration: By-Pass connector J1 to J4. (connectors J2-J3 derived to ground)
- Switching relays: Quad hi-quality telecom RF relays.
- Frequency range: DC - 1300MHz
- Insertion loss: 0.003dB
- Isolation: >100 dB typ.
- Power rating: 100 W max.
- Impedance: 50 Ohm
- Power supply: 11-15 Volts DC/50 mA (Active state). Diode protection.
- Switching time:
- Set:5mS
- Reset: 4mS
- Life expectancy (Mechanical): 20,000,000 operations (at 18,000 operations/hr)
- External Dimensions:
- 55x111x40mm (2.16x4.37x1.57in)
- Connectors: Any combination of BNC, N, SO239 connectors is possible, please ask.
- Remote Control cable :
  Remote control connector type: Foster 4 vias.
  RFI-EMI suppression on cable.
  Shielded cable type.

Simplify diagram.

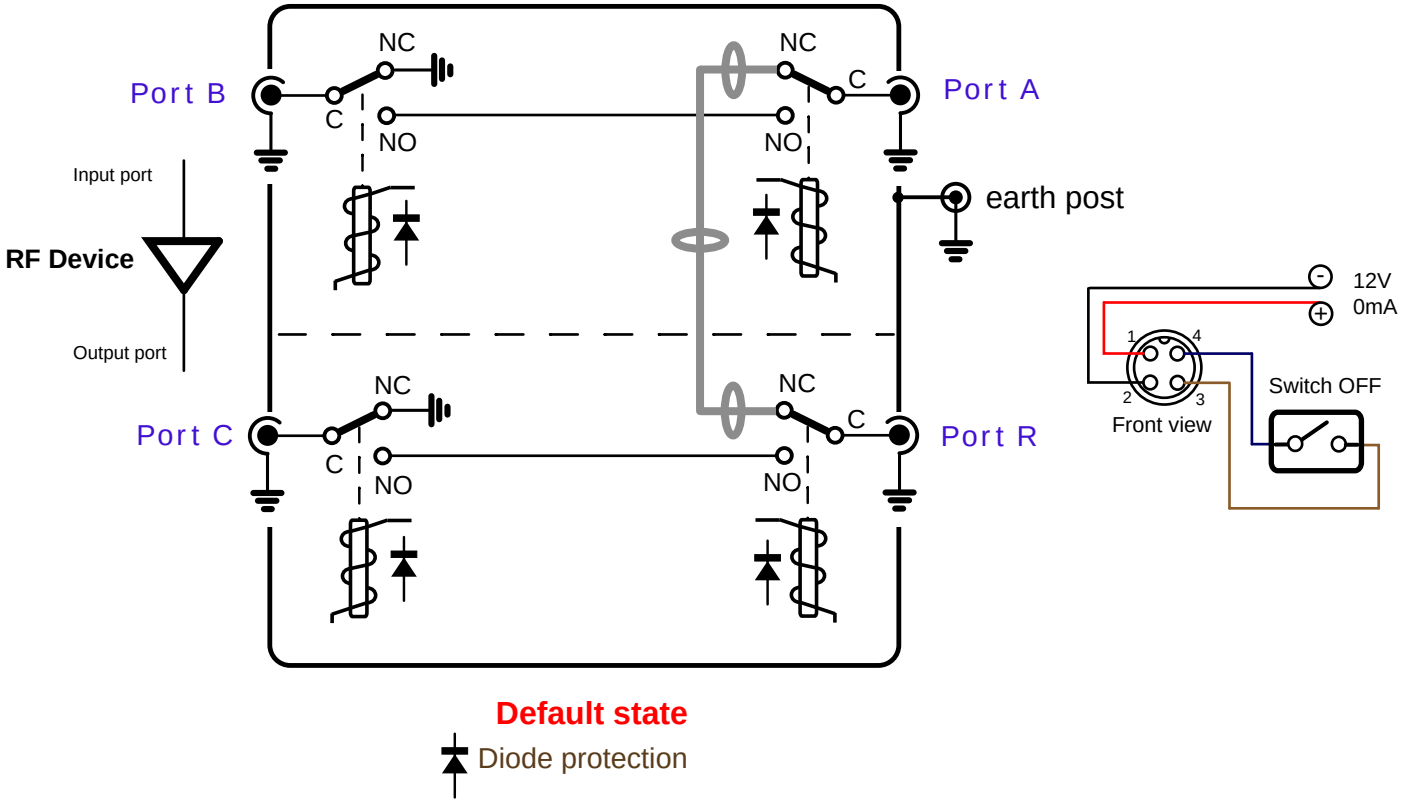


RF Device bypassed. Port A to Port R. Default state.



RF Device connected in line. Port A to Port B ; Port R to Port C. Active state

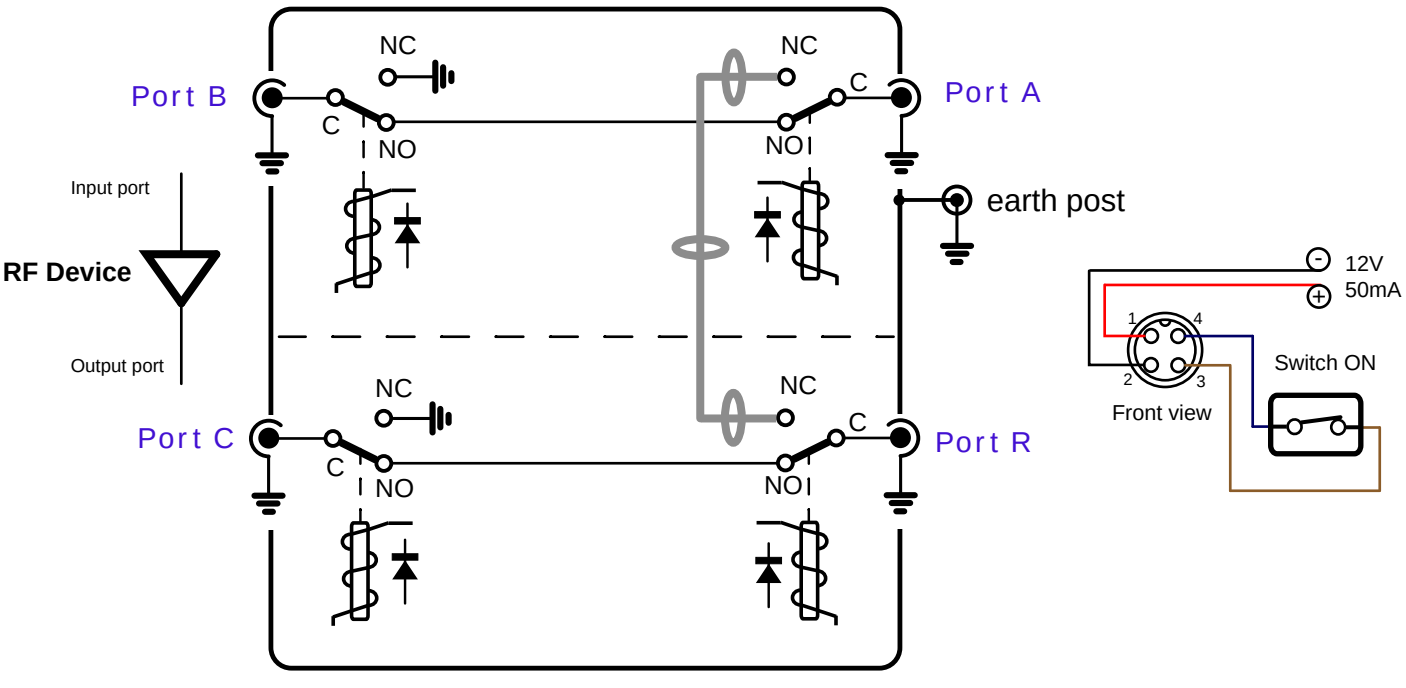
When the General Purpose Dual Port Signal Relay is **NOT** energised, Port A is connected to Port R. Device plugged on Port B and Port C is by-passed. Port B and Port C are derived to ground.
Default state.



Default state

Diode protection

When the General Purpose Dual Port Signal Relay is energised the internal relays switchover Port A is connected to Port B and Port C to Port R. The device plugged on Port B and Port C is connected in-line. **Active state.**



Active state

Diode protection

General Purpose Dual Port Signal Relay.

Example: By-passing any device. Connection diagram

Antenna

Any Preamplifier, Converter, Preselector etc device.
It will be by-passed on switchover.

Device Input

Device Output

Remote control connector

Generic SDR or Analogue Transceiver
(100W power output max.)

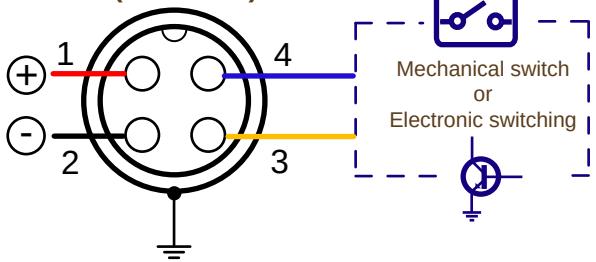
Antenna

Dual Relay operation

* Default state By-pass.
Remote control connector pins 3-4 open **OR** unit **NOT** powered.
- Connector J1 joined to J4
- Connectors J2 and J3 grounded.
Device in line By-passed.

* Active state
Remote control connector pins 3-4 closed and unit powered.
- Connectors J1 joined to J2
- Connectors J3 joined to J4
Device in line, NO By-passed..

Remote control connector (front view)

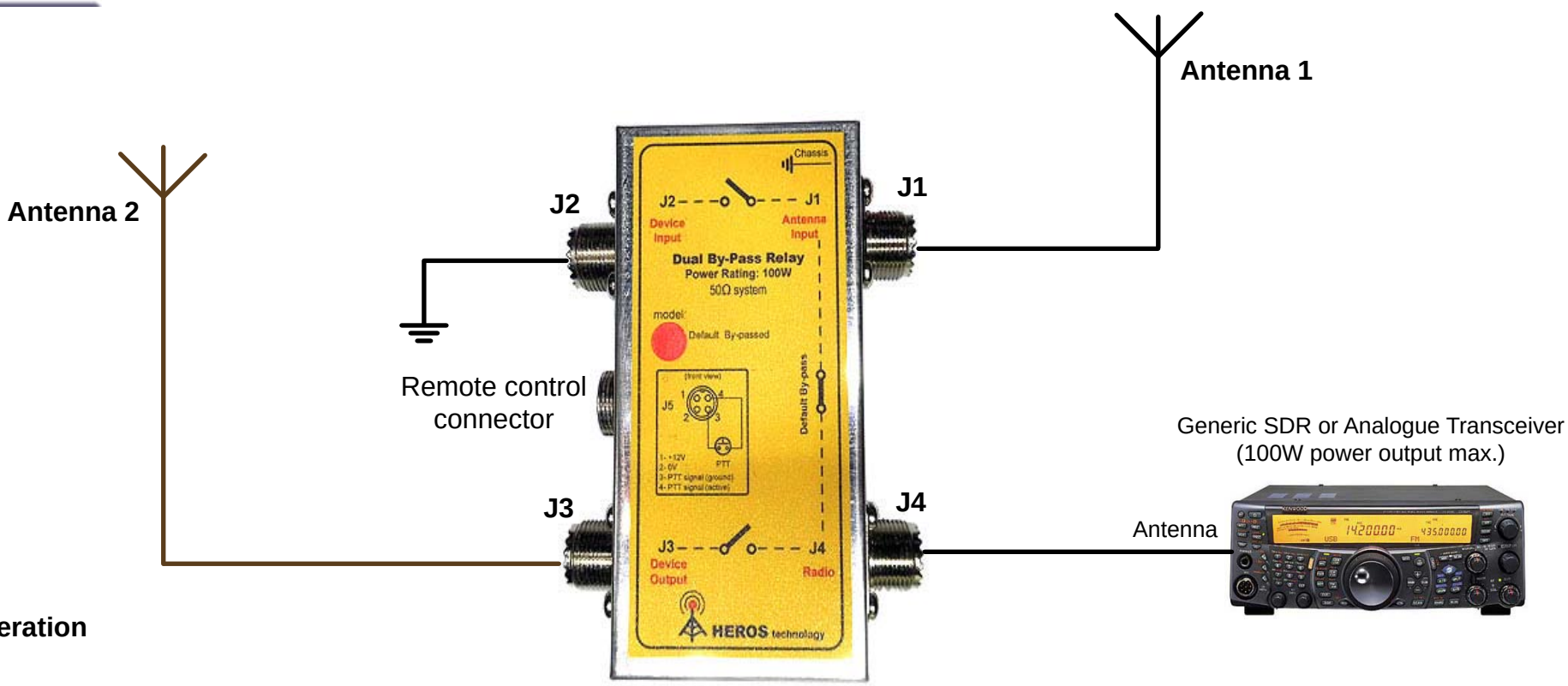


-WARNING!
PRIOR APPLY RF POWER
ASSURE CONNECTIONS
AND SWITCHING FUNCTIONS ARE OK.

1- +12V
2- 0V (isolated from chassis)
3- Remote control signal - 0v (isolated from chassis)
4- Remote control signal - active
Chassis/earth (cable braid)

General Purpose Dual Port Signal Relay.

Example: Switching antennas Connection diagram



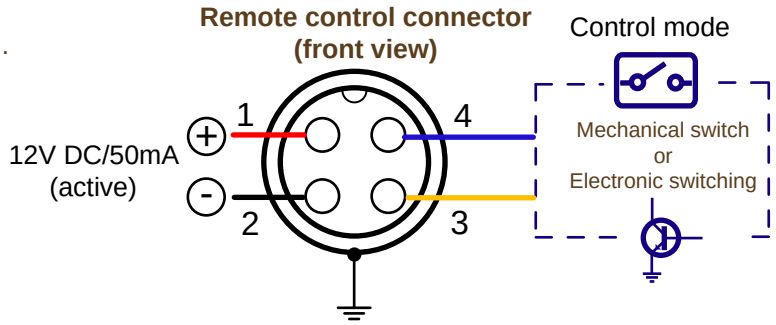
Dual Relay operation

* Default state.
Remote control connector pins 3-4 open **OR** unit **NOT** powered.
- Connector J1 joined to J4
- Connectors J2 and J3 grounded.

Antenna1 to radio; Antenna 2 grounded.

* Active state
Remote control connector pins 3-4 closed and unit powered.
- Connectors J1 joined to J2
- Connectors J3 joined to J4

Antenna 2 to radio; Antenna 1 grounded..



-WARNING!
PRIOR APPLY RF POWER
ASSURE CONNECTIONS
AND SWITCHING FUNCTIONS ARE OK.

1- +12V
2- 0V (isolated from chassis)
3- Remote control signal - 0v (isolated from chassis)
4- Remote control signal - active
Chassis/earth (cable braid)

General Purpose Dual Port Signal Relay.

Example: Combining two Radios and two antennas.
Connection diagram

Radio 2

Antenna

Generic SDR or Analogue transceiver
(100W power output max.)

Antenna 1

Antenna 2

Remote control
connector

Radio 1

Generic SDR or Analogue Transceiver
(100W power output max.)

Antenna

Dual Relay operation

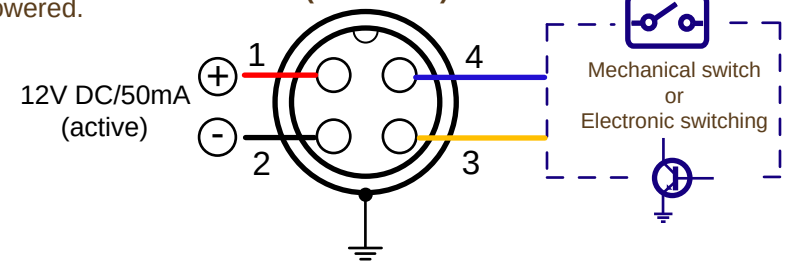
* Default state.
Remote control connector pins 3-4 open **OR** unit **NOT** powered.
- Connector J1 joined to J4.
- Connectors J2 and J3 grounded.

Antenna 1 to Radio 1.
Antenna 2 and Radio 2 grounded.

* Active state
Remote control connector pins 3-4 closed and unit powered.
- Connectors J1 joined to J2.
- Connectors J3 joined to J4.

Antenna 1 to Radio 2.
Antenna 2 to Radio 1.

Remote control connector (front view)

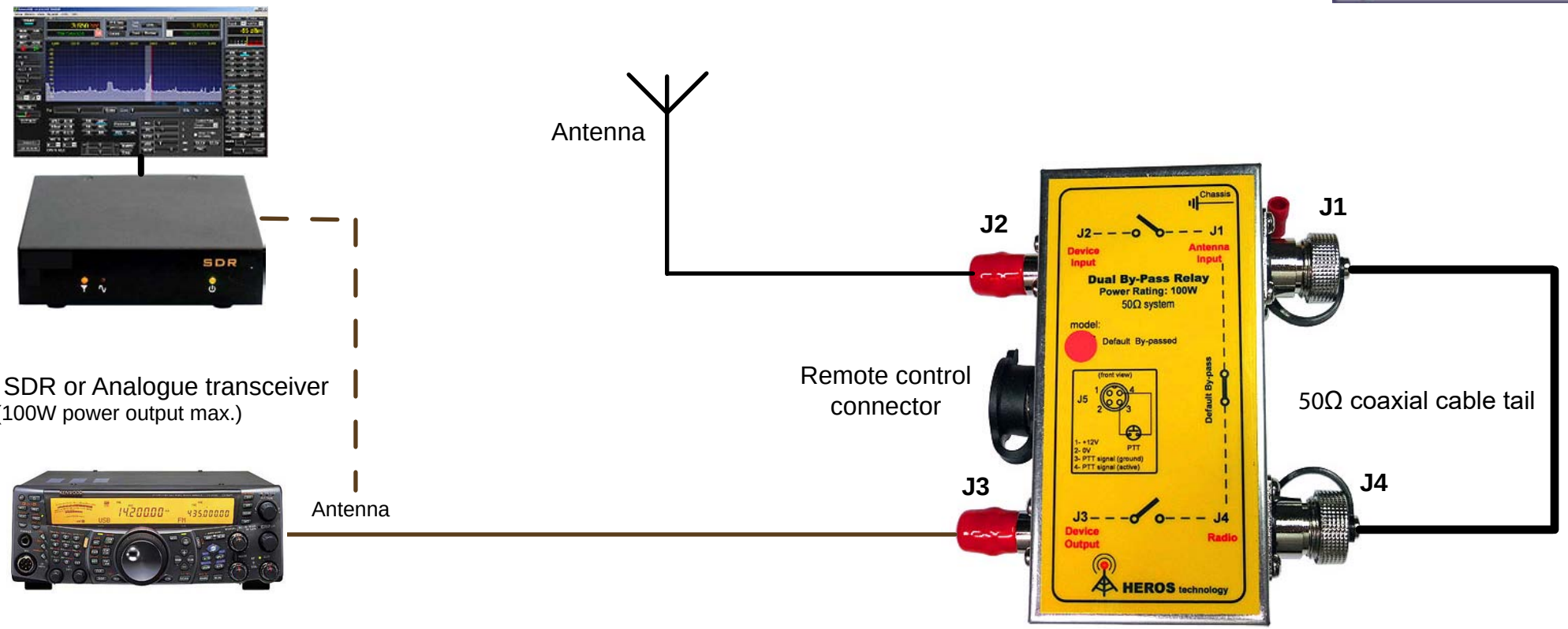


-WARNING!
PRIOR APPLY RF POWER
ASSURE CONNECTIONS
AND SWITCHING FUNCTIONS ARE OK.

1- +12V
2- 0V (isolated from chassis)
3- Remote control signal - 0v (isolated from chassis)
4- Remote control signal - active
Chassis/earth (cable braid)

General Purpose Dual Port Signal Relay.

Example: EMI-Static discharges protection.
Connection diagram.



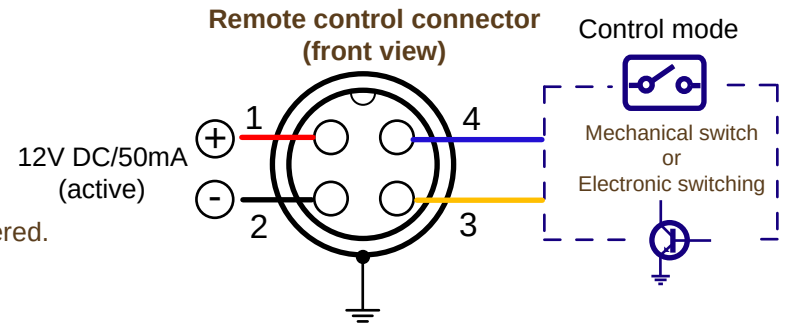
Dual Relay operation

* Default state.
Remote control connector pins 3-4 open **OR** unit **NOT** powered.
- Connector J1 joined to J4.
- Connectors J2 and J3 grounded.

EMI-Static discharge protected
Antenna grounded
Radio antenna input grounded.

* Active state
Remote control connector pins 3-4 closed and unit powered.
- Connectors J2 joined to J1
- Connectors J4 joined to J3

Antenna connected to radio ready for operation.



-WARNING!
PRIOR APPLY RF POWER
ASSURE CONNECTIONS
AND SWITCHING FUNCTIONS ARE OK.

1- +12V
2- 0V (isolated from chassis)
3- Remote control signal - 0v (isolated from chassis)
4- Remote control signal - active
Chassis/earth (cable braid)

NOTES:

Heros technology Limited disclaims all liability arising from this information and its use.

It is your responsibility to ensure that your application meets with your specifications.

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates.

Heros technology Limited makes no representations or warranties of any kind whether express or implied, written or oral, statutory or otherwise, related to the information, including but not limited to its condition, quality, performance, merchantability or fitness for purpose.