

# Q5 SIGNAL 28MHz/144MHz Diplexer/Switch

A Down East Microwave Product Manufactured by Q5 SIGNAL, LLC

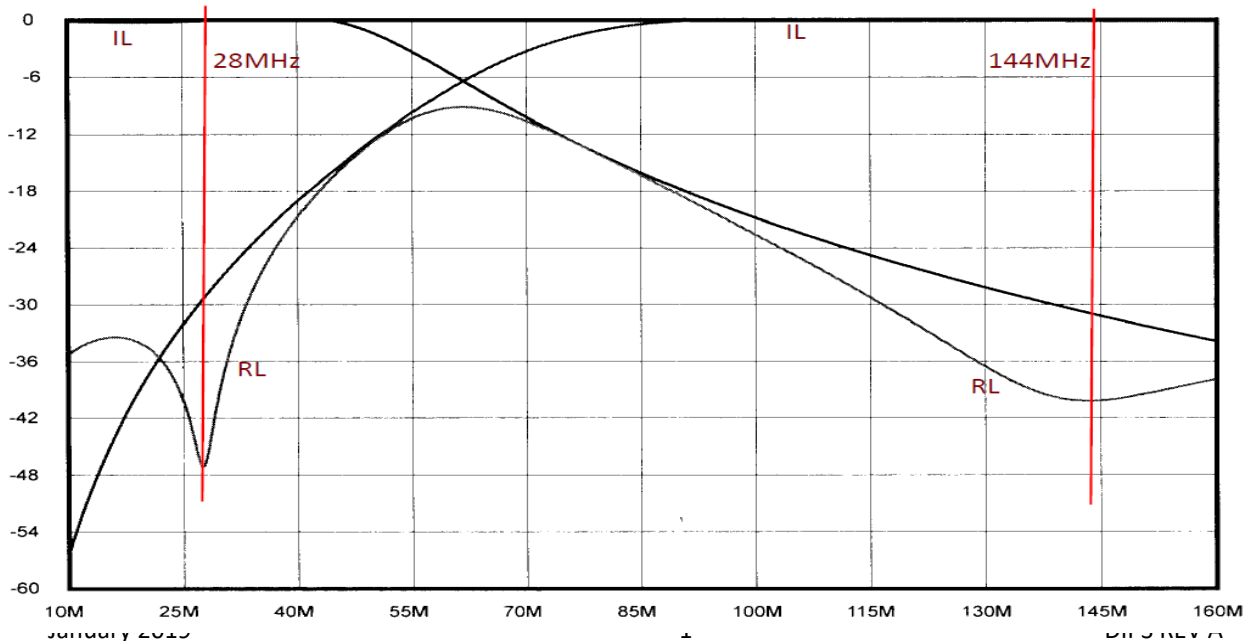
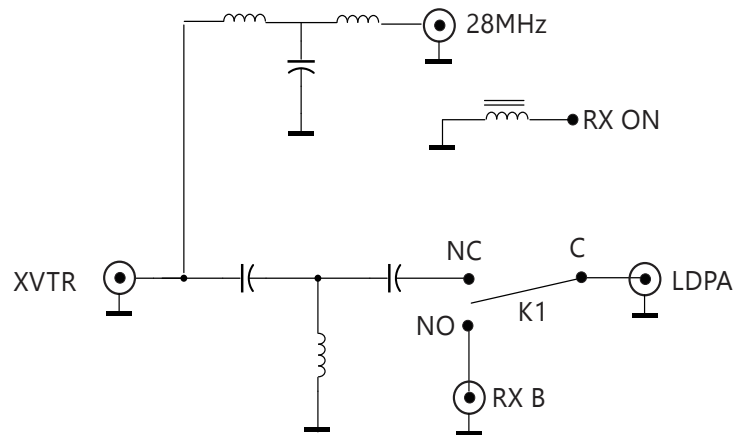
## Part Number DIPS

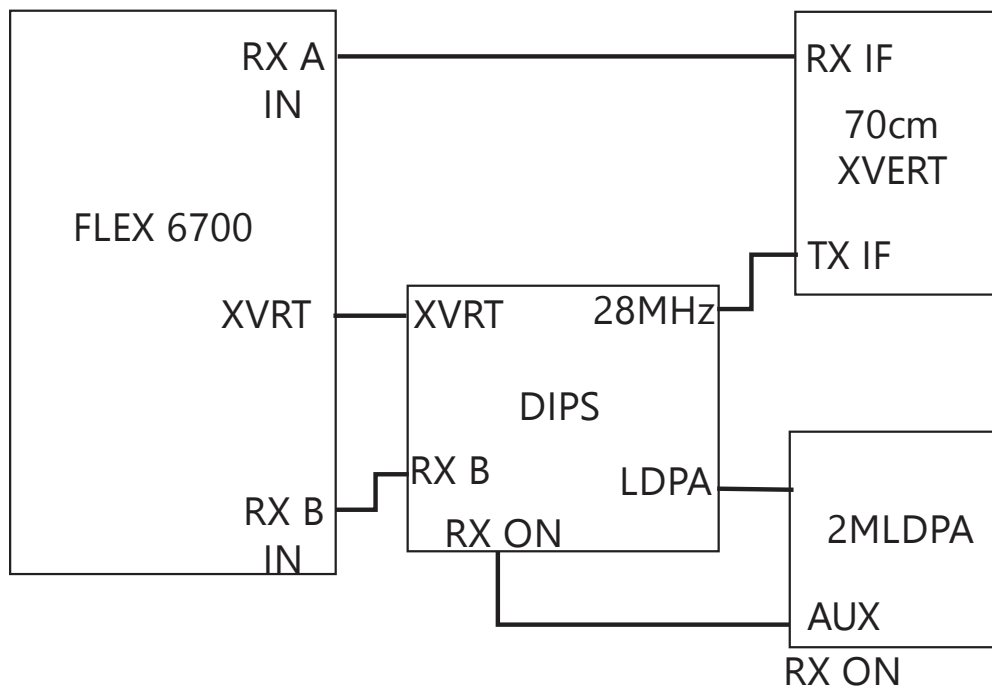


### Specifications

Operating Frequency:	2 and 10 Meters
DC Connection:	RCA (F)
RF Connectors:	BNC (F)
Return Loss:	>25 dB
Insertion Loss:	< 0.2 dB @ operating frequency
Enclosure Size:	2.0" L x 2.0" W x 1.2" H

**Description:** Specifically designed for the Flex 6700 and 2MLDPA, the DIPS is a passive diplexer with a built in RF switch activated by the 2MLDPA that enables **Full Duplex Satellite operation** utilizing any 70cm transverter with separate TX and RX 10M ports.





**Theory of operation:**

Installing multiple devices to the 6700’s transverter port can be accomplished by different methods. The 2MLDPA was designed that when disabled (power down) it is placed into a bypass mode and allows other transverters to be “Daisy Chained” and connected directly to the 6700’s transverter port. But this function will not allow duplex Satellite operation.

With the 6700 configured correctly and connected with the DIPS as shown, all single band and cross band operating issues are solved. No matter what mode of operation is selected, (simplex/duplex) the 2MLDPA receive path (144-148 MHz) will always be directed to the RX ANT B IN port of the 6700. When the PTT function of the 2MLDPA is enabled, the DIPS will transfer the transverter port of the 6700 to the 2MLDPA enabling its 2M transmit. This function allows the selection of any satellite mode V/U - U/V or the operation of any single band. The DIPS function also allows the 2MLDPA to function as designed and pass the 6700’s transverter port operation on through to any other transverter requiring a VHF TX/RX signal by simply disabling (powering down) the 2MLDPA.

On the 28 MHz side of the DIPS, if full duplex operation is expected, the UHF transverter will require a split IF (separate 28 MHz TX and RX) and the RX port of the transverter should be connected to the RX ANT A IN port of the 6700. The DIPS will also allow other 28 MHz IF transverters (222, 900, or 1296 MHz) with a common port (TX/RX) to be connected by installing an external relay/switch on the DIPS 28MHz connection. This relay/switch should only be activated when selecting that desired transverter. Consult Q5 Signal for further information.

**Important Note:** 2MLDPA with serial numbers through #237, will require a cable and internal modification to function as this document specifies. Complete instructions will be supplied for the user to complete or your LDPA may be sent back for the modification to both the unit and the cable. Please specify when ordering the DIPS if your 2MLDPA requires modification.

## Modifying 2MLDPA with SN#'s through 237

**Purpose:** First, this modification is not required if you do not intend to utilize the 2MLDPA and Flex 6700 for duplex satellite operation. The modification will enable the DIPS to function automatically allowing duplex operation of the 2MLDPA and any 70cm transverter by providing the correct voltage at the correct time to the DIPS. This voltage directs the 2M TX or RX signals to the correct port of the Flex 6700. The DIPS would also function correctly with manual switching of a DC voltage but the simplicity of the 2MLDPA controlling this function is foolproof. Review the modification instructions below and decide which one is your best approach, or have DEMI modify it for you.

**Modification Option:** Both cables for the standard and remote option have a white bundled cable with 6 wires that have been designated for the output of the sequencer (3 signals, 3 grounds). If it is determined that one or more of the steps of the sequencer will not be utilized, then the simple modification would be to complete step #1 below and then re-route an existing wire from the AUX connector (Pins 1-3) within the 2MLDPA to the NC via that is controlled by the K1 relay. This is less work inside and the external cable does not need any modification. All connections of the AUX connector and associated cable are identified on Page 10 of the manual provided with the 2MLDPA along with the color code of the white bundled cable. If all of the Sequencer connections are intended to be utilized, then follow steps 1 through 3 below for the complete correct modification.

### Modification to the 2MLDPA:

1. Remove the cover plate of the 2MLDPA and locate the K1 relay located near center of the board but closer to the IC1 Hybrid power module. It has three Vias near it labeled C, NC, and NO. Install a 3-1/2" wire (#24 - #28) in the C via and run it across the board to a 13.8SW Via located near the TX LED. This supplies voltage to the relay when the 2MLDPA is powered on.
2. Install a 2-1/2" wire of the same gauge, in the NC via and connect to the AUX connector on the rear panel of the 2MLDPA. If you have the Standard version, pin # 4 will be the only available pin left in the 9 pin connector. If you have the Remote Option version, connect it to pin 11. Any open pin will work but pin 11 is the easiest to access.
3. Follow **a** for the standard cable, **b** for the remote
  - a. Modification of the standard cable is to use a small twin lead (low current) cable with a RCA connector. It can be a twisted pair or a shielded cable. On the standard cable pin #4 will be the only open cable. Attach the RCA center to it and the other to any ground connection, pins 6-9.
  - b. For the Remote Option cable, it's a little crowded but make the connections of the RCA center to Pin 11 and the other side to any ground connection 4,5,10 or 15. The modification is complete and ready to test with the DIPS

**Operation:** When the 2MLDPA is power on, it will supply voltage (RXON) to the DIPS connecting the 2M receive section of the 2MLDPA to the Flex 6700 RX ANT B IN port. When the 2MLDPA is placed into transmit, the voltage to the DIPS is dropped allowing the Flex 6700 2M TX signal from the transverter port to drive the TX amplifier section of the 2MLDPA. When the DIPS is connected, the 2M RX signal will always be routed to the 6700's RX ANT B IN port.