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REVISION HISTORY

REVISION	**DESCRIPTION**	**DATE**
1.0	First Release	Oct 09

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1. OVERVIEW

The 7703R8x1 and 7703R16x1 are bi-directional, low loss switches for signals from DC to 3GHz. The 7703R8x1 is an 8x1 switch while the 7703R16x1 is a 16x1 switch. Control of the switch may be done locally at the card-edge with the built-in rotary encoder and dot-matrix display, or remotely through SNMP/VistaLINK®.

Applications include selecting from multiple signal sources and routing one to a piece of instrumentation such as an oscilloscope, spectrum analyzer or other signal analysis/monitoring equipment. Similarly, a single signal source may be routed to any one of multiple connected receiving devices for applications such as antenna switching.

The 7703R8x1 and 7703R16x1 are ideal for use any facility where signal switching is required, or in automated testing applications.

The 7703R8x1 and 7703R16x1 occupy two card slots and can be housed in a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 modules, a 350FR portable frame that will hold up to 3 modules or a standalone enclosure which holds 1 module.

Features:

- Low insertion loss and high return loss to preserve original signal integrity
- Unused ports automatically terminate to 75Ω (AC coupled)
- Latching relays conserve power usage in the latched state and maintain position in the event of power loss to the card or frame
- Modular, front accessible and hot-swappable - can be conveniently removed from the frame without disconnecting wiring for greatly simplified servicing
- 8x1 and 16x1 versions available to accommodate different sized requirements
- DC - 3GHz bandwidth allows switching of many signal types including RF (L-Band, 70/140MHZ IF, CATV, etc.) analog or digital video or audio, serial digital such as DS3, etc.
- Will pass DC LNB power for antenna switching or similar applications
- Controllable via industry standard SNMP allowing easy integration into facilities or automated test setups
- Comprehensive card status monitoring and control via four digit card edge display and rotary encoder or remotely through SNMP and VistaLINK®
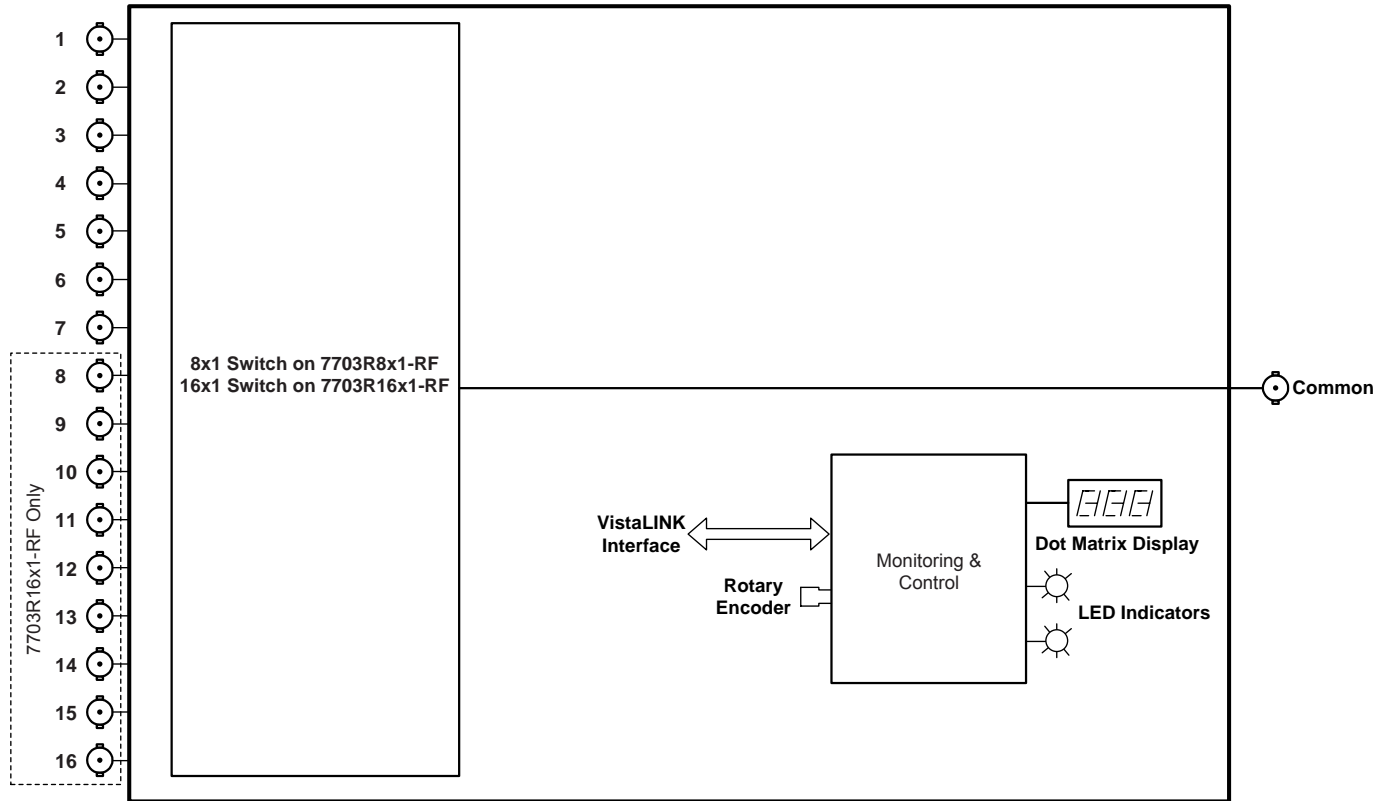
Figure 1-1: 7703R8x1-RF & 7703R16x1-RF Block Diagram

2. INSTALLATION

The 7703R8x1-RF & 7703R16x1-RF come with a companion rear plate that occupies two slots in the frame. For information on inserting the module into the frame see the 7700FR chapter section 3.
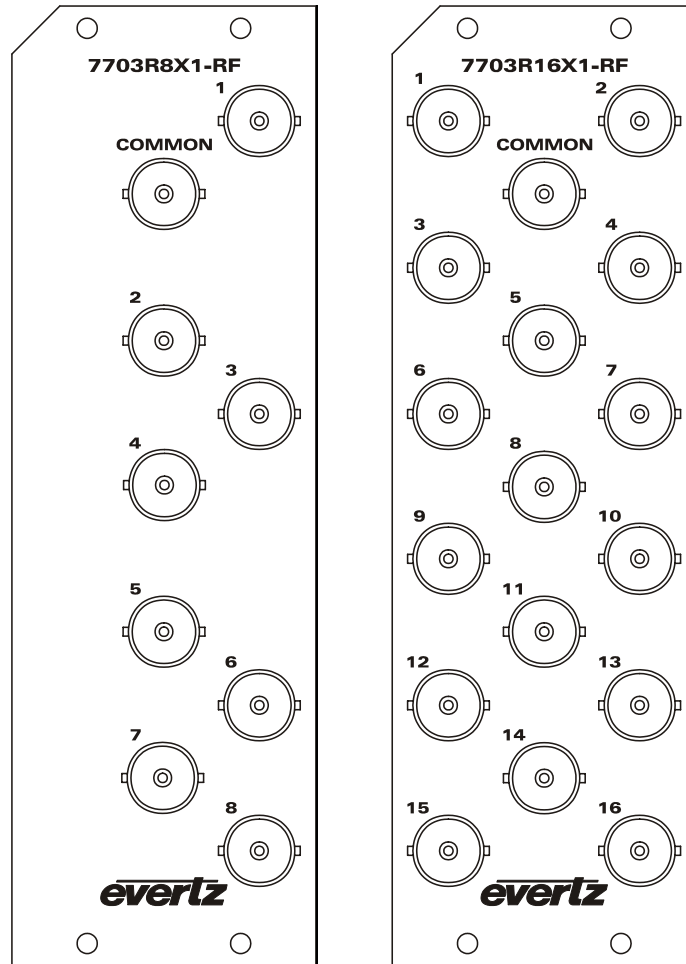

Figure 2-1: 7703R8x1-RF & 7703R16x1-RF Rear Plates

3.   SPECIFICATIONS

3.1.   SIGNAL INPUT/OUTPUT

Number of Ports:
   7703R8x1:   8 + 1 Common
   7703R16x1:   16 + 1 Common
Connector Type: BNC per IEC 61169-8 Annex A
                   (F-Type optional)
Impedance: 75Ω
Bandwidth: DC - 3GHz
Insertion Loss:
   DC - 1.0GHz: < 1.0dB
   DC - 2.25GHz: < 2.0dB
   DC - 3GHz: < 2.3dB
Return Loss:
   DC - 2.25GHz: > 14dB
   2.25 - 3GHz: > 16dB
Isolation:
   DC - 1.0GHz: > 50dB
   DC - 2.25GHz: > 45dB
   DC - 3.0GHz: > 40dB

3.2.   SWITCHING

Switching Time: <11ms
Max Voltage: 30V
Max Current: 500mA

3.3.   ELECTRICAL

Voltage: 12V DC
Power: 6W

3.4.   PHYSICAL (NUMBER OF SLOTS)

350FR: 2
7700FR-C: 2
7800FR: 2

4.   STATUS INDICATORS

The 7703R8x1-RF & 7703R16x1-RF have two LED status indicators on the main circuit-board front card edge to show the operational status of the card at a glance.   These two large LEDs on the front of the board indicate the general health of the module.

LOCAL FAULT: This red LED indicates poor module health and will be ON if a local input power fault exists (i.e.: a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This green LED indicates good module health and will be on when local power at the board is good.

5.   DOT-MATRIX DISPLAY

Status monitoring and control of the card's parameters are provided via the four-digit alphanumeric display located on the card edge. The card-edge control knob (see Figure 6-1) is used to navigate through the display menus and pressing this knob selects options.

SET menu items have user-adjustable configuration values associated with them. MON menu items display operating conditions or configuration values, but do not allow adjustment.

If a specific menu selection has a configuration value associated with it, then this may be changed by rotating the control knob. Pressing the control knob will apply the displayed value and return you to the previous menu level. Selecting BACK at any time will return you to the previous menu level without applying any settings. Table 5-1 provides a quick reference to the display menu structure.

The most recent user selection will be maintained in non-volatile memory in the event of power loss to the module.

Level 1	Level 2	Level 3	Level 4
OK	BACK		
	SET	BACK	
		CHAN	NC, 1-16 (7703R16x1) NC, 1-8 (7703R8x1)
	MON	BACK	
		TYPE	1x16 (7703R16x1) or 1x8 (7703R8x1)
		VER	Firmware version
		CHAN	NC, 1-16 (7703R16x1) NC, 1-8 (7703R8x1)

Table 5-1: Card Edge Menu Structure

5.1.   SELECTING THE CHANNEL

To change the selected channel, select the SET menu item in menu level 1. Use the control knob to then select the CHAN menu item and press the knob to select it. The knob may then be used to select the select the channel that is routed to the COMMON port. Any channels that are not routed are automatically terminated to 75 Ohms.

SET
CHAN
NC, 1-16 (7703R16x1) *NC, 1-8 (7703R8x1)*

Changes the channel connected to the common port

NC   No channel connected (all terminated).
1-8   Select from channels 1-8 on 7703R8x1.
1-16   Select from channels 1-16 on 7703R8x1.

5.2. MONITORED PARAMETERS

To view the monitored parameters, select the MON menu item in menu level 1. The control knob may then be used to select the parameter to view as described below:

5.2.1. DISPLAYING THE CARD TYPE

MON
TYPE
1x16
1x8

Indicates the type (number of channels) of the card.

1x16   16 channel card (7703R16x1)
1x8   8 channel card (7703R8x1)

5.2.2. DISPLAYING THE FIRMWARE VERSION

The *VER* display shows the version and build number of the firmware. The message will scroll across the display.

For example: *VER 1.0 BLD 067*

5.2.3. DISPLAYING THE SELECTED CHANNEL

MON
CHAN
NC, 1-16 (7703R16x1)
NC, 1-8 (7703R8x1)

Displays which channel connected to the common port.

NC   No channel connected (all terminated).
1-16   Channels 1-16 on 7703R16x1.
1-8   Channels 1-8 on 7703R8x1.

6.   JUMPER POSITIONS

6.1.   7703R8X1/7703R16X1 JUMPERS
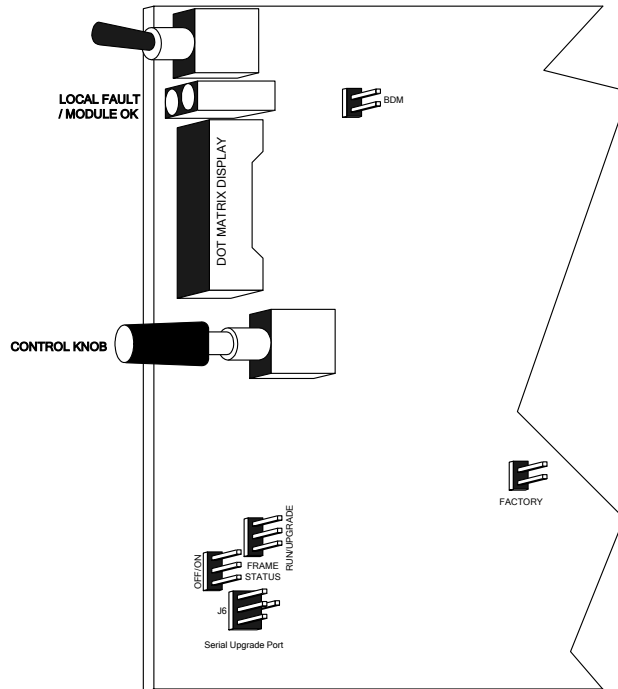

Figure 6-1: Location of 7703R8x1 and 7703R16x1 Jumpers and LEDs

6.2.   SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED
BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper J3 determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7700FR frame's global status bus.

FRAME STATUS: To monitor faults on this module with the frame status indicators (on the Power Supply FRAME STATUS LEDs and on the Frame's Fault Tally output) install this jumper in the ON position (default).

When this jumper is installed in the Off position local faults on this module will not be monitored.

6.3.   CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper J5 is used when firmware upgrades are being done to the module. For normal operation it should be installed in the *RUN* position. See the *Upgrading Firmware* section of this manual for more information.

To upgrade the firmware:

1. Pull the module out of the frame.

2. Move the UPGRADE jumper into the *UPGRADE* position.

3. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the SERIAL header at the card edge.

4. Re-install the module into the frame.

5. Run the upgrade as described in the *Upgrading Firmware* section of this manual.

6. When the upgrade is completed, remove the module from the frame, move the UPGRADE jumper into the *RUN* position, remove the upgrade cable and re-install the module.

The module is now ready for normal operation.

Note that if installed in a frame with a 7700FC frame controller, the 7703R8x1 and 7703R16x1 may also be conveniently upgraded through Evertz VistaLINK® PRO. Consult VistaLINK® PRO documentation for details on this feature.

6.4.   FACTORY AND BDM JUMPERS

When shipped from the Evertz facility, the FACTORY and BDM jumpers will not be installed. These jumpers **should not** be installed for any reason. If jumpers are on these positions they should be removed.

7. VISTALINK® REMOTE MONITORING/CONTROL

7.1. WHAT IS VISTALINK®?

VistaLINK® is Evertz's remote monitoring and configuration platform which operates over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. VistaLINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through VistaLINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, VistaLINK® enables the user to configure devices in the network from a central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP manager, also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz *Vista*LINK® Pro Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz *Vista*LINK® enabled products.

2. Managed devices (such as 7703R8x1-RF & 7703R16x1-RF), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz VistaLINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC VistaLINK® frame controller module, which serves as the Agent.

3. A virtual database known as the Management Information Base (MIB) lists all the variables being monitored, which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

For more information on connecting and configuring the *Vista*LINK® network, see the 7700FC Frame Controller chapter.
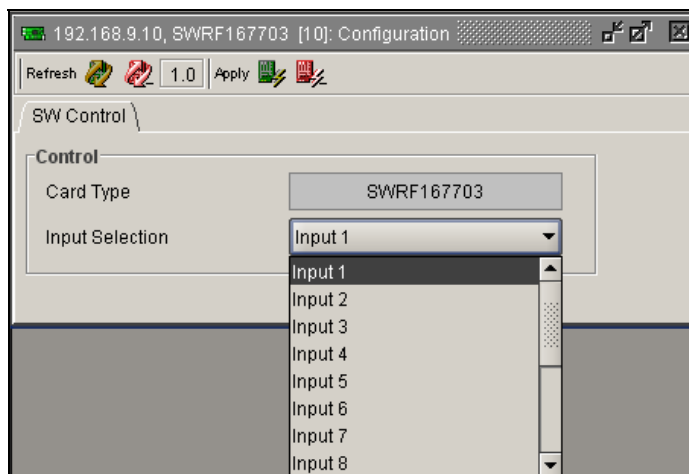

Figure 7-1: 7703R16x1 VistaLINK® Control Screenshot