

# 20-745 2GHz RF Multiplexer Module

RF MULTIPLEXER  
20-745

- R.F. Multiplexer with up to 2GHz Bandwidth
- Configurable as 32 to 1, Dual 16 to 1 or Quad 8 to 1 Multiplexer
- Wide Choice of Connectors: SMB, BNC, BT Type 43/SMZ, SMA or 1.0/2.3
- Built-In Self Test
- Front Panel LED Indicators
- Suitable for Building Larger Switching Networks
- 75Ω Version Suitable for Telecoms and High Quality Video Switching



The 20-745 series are a range high density 2000MHz Multiplexers arranged as a Quad 8 to 1, Dual 16 to 1 or Single 32 to 1 configuration, all with excellent Insertion Loss, VSWR & Isolation, available in a choice of 50Ω or 75Ω versions with SMA, SMB, Type 43/SMZ, BNC or 1.0/2.3 Connectors.

This module may also be easily configured as a Single 32 to 1, Dual 16 to 1 or Quad 8 to 1 multiplexer, to ease the construction of large RF switching systems.

This module is a higher density version of type 20-740 with the automatic termination function removed, the RF performance specification is similar. It is an equivalent to the 20-730-902 balanced 120Ω multiplexer.

Applications for the 20-745 include routing high frequency signals to and from oscilloscopes, analysers, signal generators and synthesizers, telecoms tributary switching, video/audio switching and switching high frequency logic signals.

### Programming

The Multiplexer module is simple to program:-

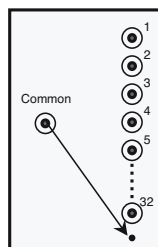
- ARESET a** Open all channels on device a
- DELAY t** Force a minimum delay of t milliseconds between two instructions
- DIAGNOSTIC?** Report any Self Test errors
- RESET** Open all switches on all modules
- VIEW? a** View status of device a
- CHAN a, b, c** Select channel c on multiplexer a, bank b

### Self Test

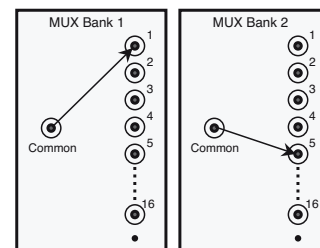
Self-Test is invoked at power on and may also be operated under software (\*TST?) or via a recessed push button. Self-Test pass is indicated on a front panel LED with a full pass/fail description available using the DIAGNOSTIC? command. Self-Test comprises 2 levels:-

1. Logic Test
2. Relay Coil Test

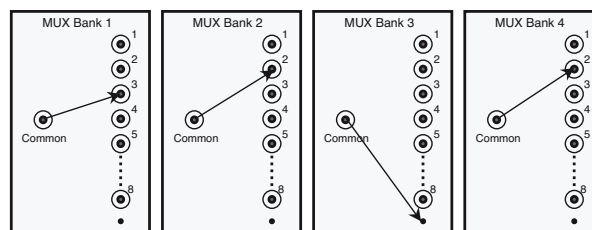
These two levels of testing will find the majority of failures, however please note that the relay contacts themselves are not tested.



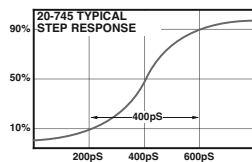
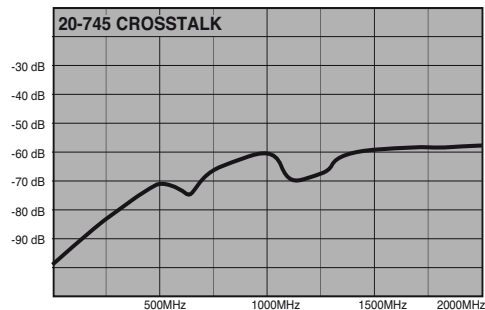
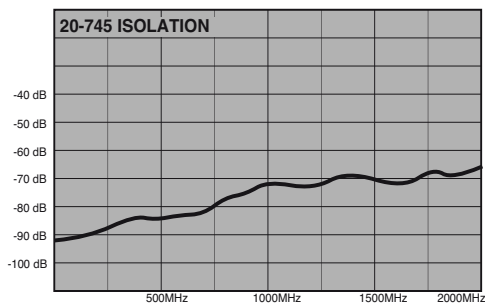
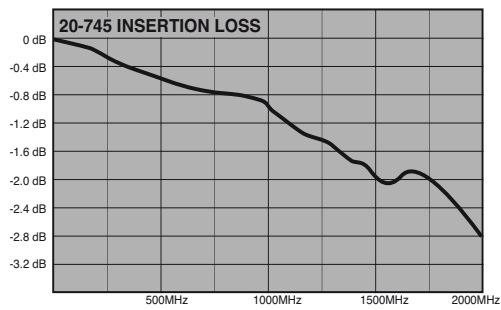
Single 32  
Channel Mode



Dual 16  
Channel Mode



Quad 8 Channel Mode



Typical RF Performance Plots for 20-745 in Dual 16 to 1 Mode (SMB/Type 43 connector)

### Operating/Storage Conditions

#### Operating Conditions

Operating Temperature: 0°C to 55°C  
 Humidity: Up to 95% non-condensing  
 Altitude: 5000m

#### Storage and Transport Conditions

Storage Temperature: -20°C to +75°C  
 Humidity: Up to 95% non-condensing  
 Altitude: 15000m

#### Latest Details

Please refer to our Web Site for Latest Product Details.  
[www.pickeringtest.com](http://www.pickeringtest.com)

### Specification (16 to 1 Mode)

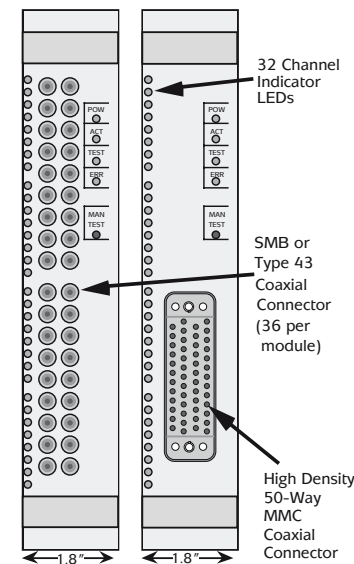
Characteristic Impedance:	50Ω or 75Ω
Maximum Frequency:	1500MHz
Rise Time:	<0.5ns
Maximum Insertion Loss:	<2dB
V.S.W.R. (at 1300MHz):	<1:1.6
Isolation (at 2000MHz):	>75dB
Crosstalk (at 2000MHz):	>55dB
Maximum Voltage:	100V DC
Maximum Power:	10W
Termination Resistor Max Power:	0.25W
Maximum Switch Current:	0.5A
Nominal Switching Capacity:	0.01A, 24Vdc, 10W@1.2GHz
On Path Resistance:	<250mΩ
Off Path Resistance:	>10 <sup>8</sup> Ω
Differential Thermal Offset:	<20μV
Switching Time:	10ms
Expected Life (Low power):	>2x10 <sup>7</sup> operations
Expected Life (Full power):	>3x10 <sup>5</sup> operations

### Additional Specification (8 to 1 Mode)

Maximum Frequency:	2000MHz
--------------------	---------

### Additional Specification (32 to 1 Mode)

Maximum Frequency:	1000MHz
--------------------	---------



### Width and Dimensions

All modules conform to the 6U height (262mm) Eurocard standard and are 160mm deep, panel width is 1.8 Inches (45.7mm).

### Connectors

The 20-745 RF Multiplexer Module is available with BNC, SMA, SMB, Type 43/SMZ or 1.0/2.3 connectors. Other connector types are available to order, please contact the sales office for details.

### Product Order Codes

2000MHz RF Multiplexer, 50Ω, SMB	<b>20-745-501</b>
2000MHz RF Multiplexer, 50Ω, SMA	<b>20-745-521</b>
1300MHz RF Multiplexer, 50Ω, BNC	<b>20-745-531</b>
1500MHz RF Multiplexer, 75Ω, Type 43/SMZ	<b>20-745-701</b>
1000MHz RF Multiplexer, 75Ω, BNC	<b>20-745-731</b>
1500MHz RF Multiplexer, 75Ω, 1.0/2.3	<b>20-745-741</b>

The default configuration should be specified when ordering (Quad 1 to 8, Dual 16 to 1 or Single 32 to 1).

### Mating Connectors & Cabling

50Ω SMB to SMB Lead, 1m length	<b>10-987-510</b>
50Ω SMA to SMA Lead, 1m length	<b>10-981-510</b>
50Ω BNC to BNC Lead, 1m length	<b>10-980-510</b>
75Ω 1.0/2.3 to 1.0/2.3 Lead, 1m length	<b>40-977-731</b>
75Ω SMZ to SMZ Lead, 0.5m length	<b>10-988-705</b>
MMC Co-ax crimp Pins, 50Ω	<b>10-986-005</b>
MMC Co-ax crimp Pins, 75Ω	<b>10-986-007</b>

© Copyright (2010) Pickering Interfaces. All Rights Reserved  
 Pickering Interfaces maintains a commitment to continuous product development, consequently we reserve the right to vary from the description given in this data sheet.

