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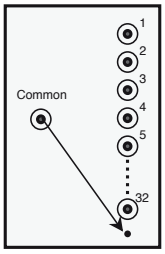
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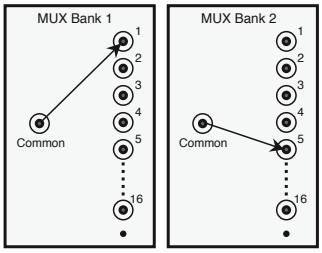
Find the *Pickering 30-745-511* at our website: ***Click HERE***

30-745
RF Multiplexer

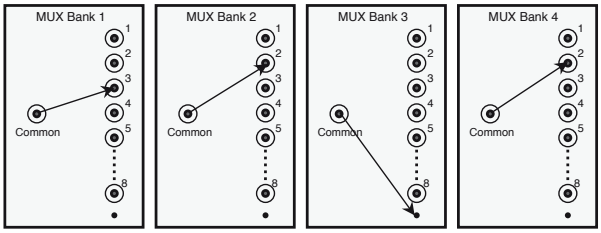
- R.F. Multiplexer with up to 2GHz Bandwidth
- Available as 32 to 1, Dual 16 to 1 or Quad 8 to 1 Multiplexer
- 50Ω or 75Ω Impedance
- Choice of Front Panel Mounted SMB, Type 43, 1.0/2.3 or SMA Connectors
- C Sized VXI Message Based Module
- Suitable for Building Larger Switching Networks
- Built-In Self Test
- SCPI Software Commands
- SCPI Control Via The Built-In RS-232 Interface Allows Easy Manual Control and Monitoring
- IVI & VXI Plug and Play Drivers



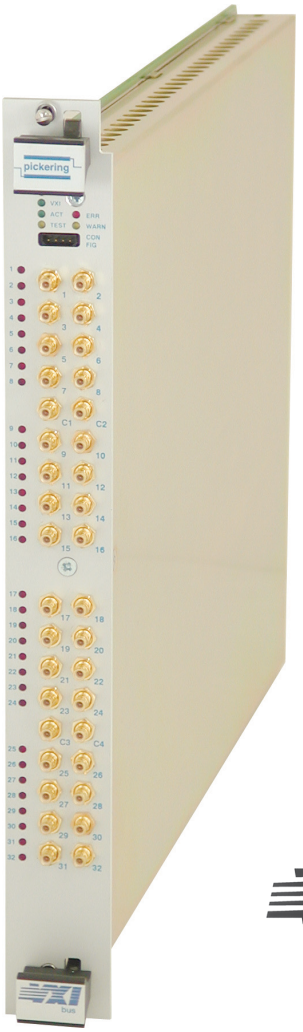
Single 32 Channel Mode



Dual 16 Channel Mode



Quad 8 Channel Mode



Model 30-745 is a High Density 2000MHz Multiplexer arranged as 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 SMB, SMA, BT Type 43 or 1.0/2.3 Connectors.

The 30-745 series is a range of high density RF Bi-Directional Multiplexers with bandwidths to beyond 2000MHz.

The module may be factory re-configured (free of charge) 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. It is a higher density version of type 30-740 with the automatic termination function removed, the RF performance specification is similar.

Applications for the 30-745 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.

Software Support

The SCPI command set is fully implemented and the 30-745 is supplied with IVI & VXI plug and play drivers (available direct from our web site, www.pickeringswitch.com).

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Specification (16 to 1 Mode)

Charateristic Impeddance:	50Ω or 75Ω
Maximum Frequency:	2000MHz
Rise Time:	<0.5ns
Max Insertion Loss:	<2dB
VSWR (at 1800MHz):	<1:1.6
Isolation (at 2000MHz):	>40dB
Crosstalk (at 2000MHz):	>50dB
Maximum Voltage:	100Vd.c.
Maximum Power:	10W
Maximum Switch Current:	0.1A
On Path Resistance:	<250mΩ
Off Path Resistance:	$>1x10^{8}\Omega$
Differential Thermal Offset:	<20µV
Expected Life (low power):	$>2x10^{7}$ operations
Expected Life (full power):	$>3x10^{5}$ operations
Switching Time:	10ms

Additional Specification (8 to 1 Mode)

Maximum Frequency:	2200MHz

Additional Specification (32 to 1 Mode)

Maximum Frequency:	1300MHz

Power Supply Specification

5V d.c.	<0.5A
12V d.c.	<0.7A
Total Power:	<11W
Power Up Delay:	<4s

Environmental Specification

Operating Temperature:	0° to 45°C
Storage Temperature:	-20° to +75°C
Humidity:	95% Non Condensing
Cooling Requirements:	Forced ventilation advised

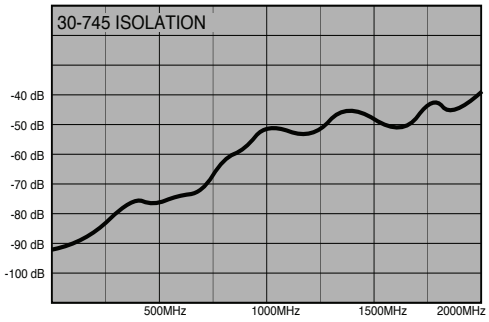
Width, Dimensions and Weight

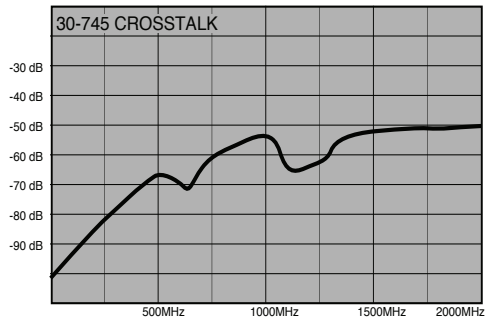
The 30-745 is housed in a C Sized VXI module and occupies 1 slot (30mm). Except SMA and SMZ/Type 43 which are 2 slot width (60mm). Weight is <1500g.

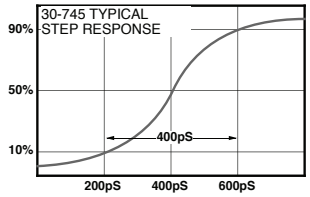
RF Performance Plots











Typical RF Performance Plots for 30-745 in Dual 16 to 1 Mode (SMB/Type 43 connector)

VXI Module Construction

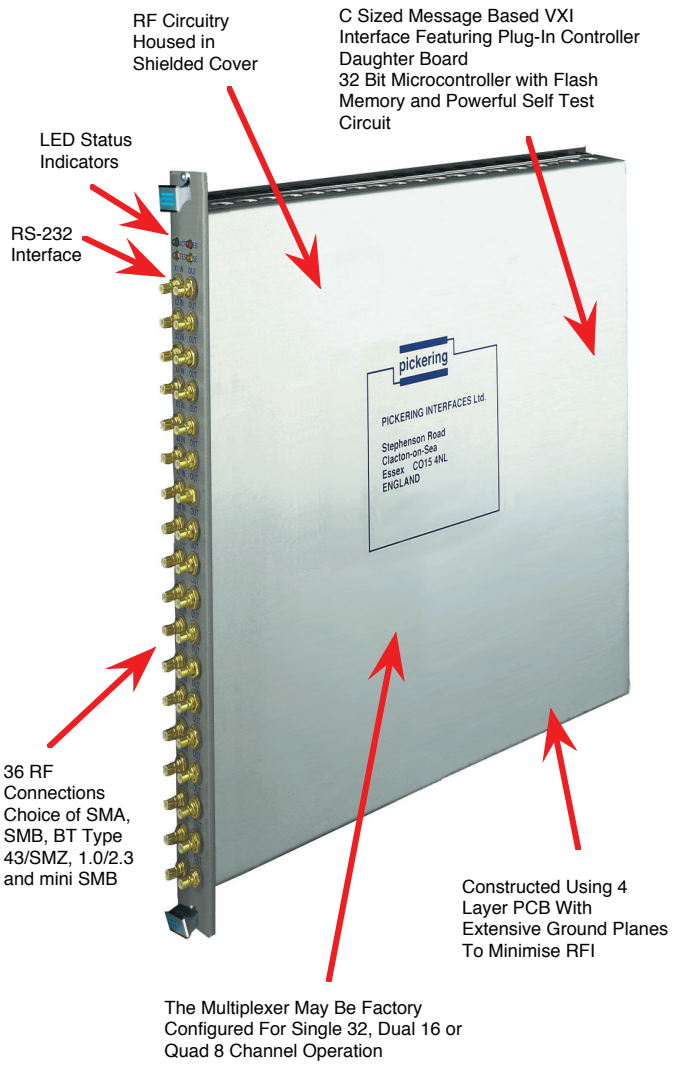
The module is constructed in accordance with the VXI specification, revision 1.4.

The 30-745 has a standard IEEE-488.2 message based VXI interface and is constructed using a 4 layer PCB with very extensive RFI shielding. The microcontroller and VXI interface are contained on a small “piggyback” daughter PCB. Most components are surface mount types, however to simplify maintenance all relays are leaded.

Microcontroller Based Design

The 30-745 matrix has a built in 32-bit microcontroller, Motorola 68332. The operation of this module is controlled entirely by this microcontroller.

The flash memory based microcontroller allows modifications to the matrix instruction set or self test operation to be implemented by simply downloading new firmware from disc or from the Pickering Internet Web site. Parametric data is also stored in nonvolatile flash memory.

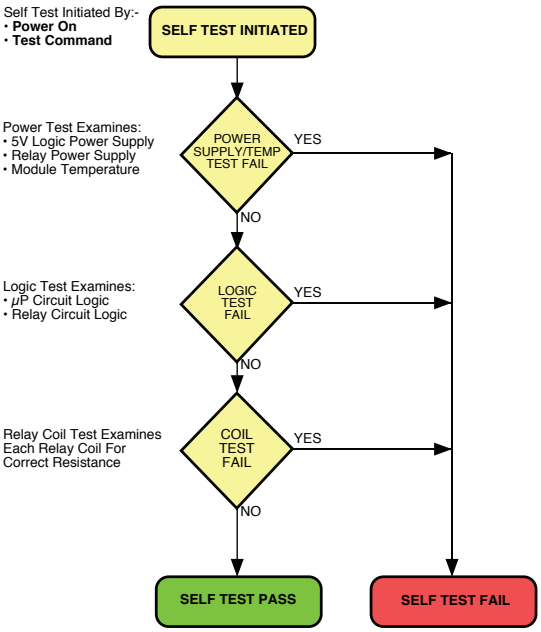


Automatic Self Test

Self-Test is invoked at power on and may also be operated under software command (from the VXI or RS-232 ports). 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 (shown in the flow chart below):-

1. Power Supply, Logic and Temperature Test
2. Relay Coil Test

All relay service and fail test thresholds are re-programmable also complete relay self test data together with detailed diagnostics may be dumped via the RS-232 port.



All test levels for coil resistance, power supplies, etc., are programmable.

Built-In Spare Relays

Spare relays are mounted within the module, so should self test indicate a suspect relay then repair will only take a few minutes, thus keeping downtime to an absolute minimum.

LED Indicators

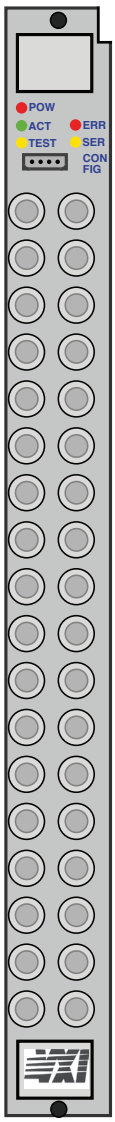
There are six indicators:-

POW	Power indicator. Colour Green.
VXI	Indicates if module has VXI interface. Colour Green.
ACT	Matrix active indicator, set if any crosspoint is selected. Colour Green.
ERR	Error found during self test. Colour Red.
TEST	Self Test running indicator. Colour Yellow.
WARN	Module requires maintenance. A relay has been diagnosed as entering failure conditions. Colour Yellow.

DIP Switches

The 30-745 has a DIP switch, SW1 for VXI addressing.

The built in RS-232 port is used for additional configurations and self test options.



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Programming

The 30-745 Matrix module is very easy to program. All commands are in IEEE-488.2 format, the main examples are shown below (a separate Programming Manual is available):-

Device Specific Commands

:SERVice?
:TYPE?

488.2 Common Commands

*CLS	*ESE <INT_P>	*ESE?
*ESR?	*IDN?	*OPC
*OPC?	*RST	*SRE <INT_P>
*SRE?	*STB?	*TST?
*WAI		

SCPI Commands

```
:STATus
   :OPERation
      [:EVENt]?
         :CONDition?
         :ENABle   <INT_P>
         :ENABle?
   :QUEStionable
      [:EVENt]?
         :CONDition?
         :ENABle   <INT_P>
         :ENABle?
   :PRESet
:SYSTem
   :ERRor[:NEXT]?
   :VERSion?
   :CAPability?
:[ROUTe]
   :CLOSe <channel_list>
      :STATe?
   :OPEN <channel_list>
      :ALL
:DIAGnostic?
```

Notes

SCPI version conformance is 1996.0.

Nodes in [] are optional.

Parameter types

<INT_P>::	<Rounded NRf>
<INT_VAL>::	<Rounded NRf> | MIN | MAX | DEF
<NRf>::	IEEE 488.2 'flexible' syntax for NR1,NR2, & NR3
<Rounded NRf>::	Number will be rounded to an integer if parameter requires integer
<channel_list>::	IEEE488.2 channel list

VXI Programming Examples

Single 32 Channel Mode:

`TYPE?`	Description of multiplexer.
`CLOS (@2)`	Close channel 2.
`OPEN (@2)`	Open channel 2.
`CLOS:STAT?`	View multiplexer status.
`OPEN:ALL`	Open all channels.

RS-232 Programming Commands

The 30-745 also has a built in RS-232 port (9600/19200/57600 baud, XON/XOFF, 8 bit, no parity). This is provided on a 4 pin Molex type connector. A separate adapter lead to allow use with a standard 9 pin D-type is available.

The RS-232 port allows the multiplexer to be controlled and monitored from any RS-232 terminal. This can be used as a very versatile debugging aid.

The RS-232 port supports full SCPI operation. Therefore the RS-232 port can be used for familiarization and debugging of your VXI program code.

Product Order Codes

VXI RF Multiplexer	
50Ohm, 2GHz, SMB Connector	**30-745-511**
50Ohm, 2GHz, SMA Connector	**30-745-521**
75Ohm, 2GHz, SMZ/Type 43 Connector	**30-745-711**
75Ohm, 2GHz, 1.0/2.3 Connector	**30-745-741**
75Ohm, 2GHz, mini-SMB Connector	**30-745-751**

When ordering please state which configuration you would like the 30-745 to be shipped in:

- Quad 8 Channel
- Dual 16 Channel
- Single 32 Channel

Further options are available including alternative RF connectors.

Mating Connectors & Cabling

Please refer to the Pickering Interfaces "**Interconnection Solutions**" catalog for a full list of connector/cabling options, including drawings, photos and specifications. This is available in either print or as a download.

Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering modules.

Latest Details

Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com

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