GPIB 18GHz Microwave Multiplexer Module 20-785/785A

- Dual or Quad 6 Channel Multiplexer
- 18GHz Bandwidth With Options for 26.5 and 40GHz
- Self Terminating Option Available
- 50Ω SMA Connectors
- Microwave Relays Are Quickly Replacable For Minimum Downtime
- Pickering Interfaces Can Construct and Test Custom Microwave Switching Networks

System 20 Microwave multiplexer modules are suitable for switching 50Ω signals up to 18GHz, optionally to 26.5 or 40GHz. Available in a choice of formats as dual or quad 6 channel Multiplexer, they are suitable for constructing complex microwave switching networks.

The 20-785 microwave multiplexer modules provide a range of switching configurations to suit most applications, they will switch up to 18GHz, or optionally to 40GHz, using high performance front panel mounted SMA connectors.

These modules give you the highest RF & Microwave switching performance available within a Pickering Switching System. Applications are mainly in the Microwave region, however there are many uses in the RF spectrum where extremely low insertion loss and ultra high isolation are critical.

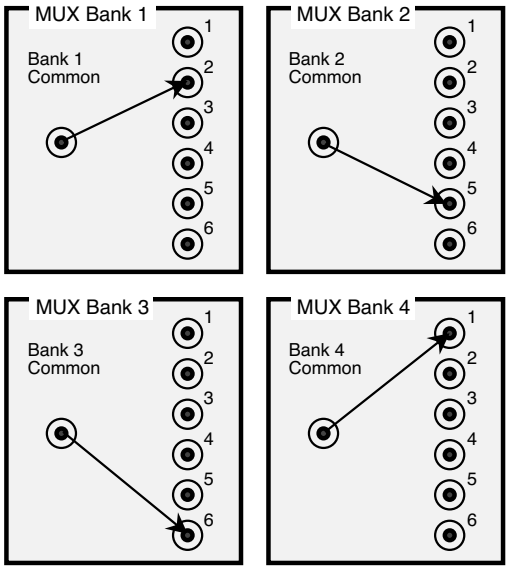
Model 20-785 has either dual or quad six channel multiplexers, this model is particularly suitable for constructing large switching networks (please refer to diagram overleaf).

The 20-785 now features “hot” replaceable relays. These may be replaced without removing the module from the mainframe, while the other relays are still operating.

Automatic Termination Option

Automatic termination into a built-in 50Ω matched load (for non-selected channels) is available for 50Ω multiplexers, please specify option **-T**. There is a maximum power rating of 1W per channel or 3W per 6 channel multiplexer.

***Please contact Pickering for alternative PXI/LXI/USB solutions**



Model 20-785-524 Features 4 Separate 6 Channel RF Multiplexers (model 20-785-522 has 2 multiplexer banks)

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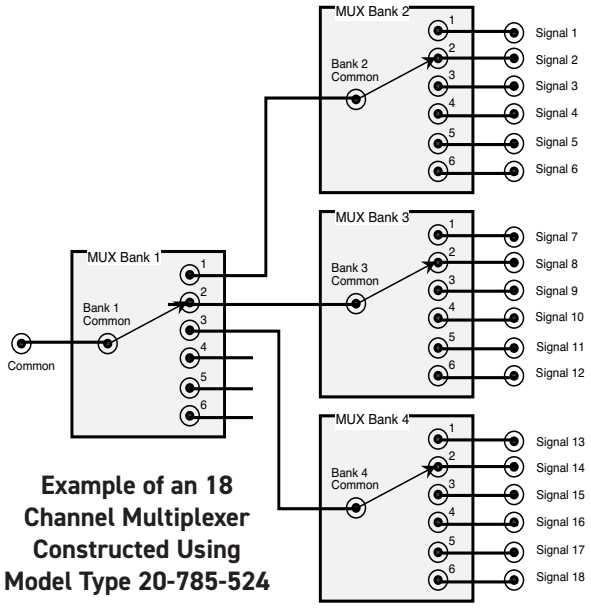
Specification (18GHz Version)

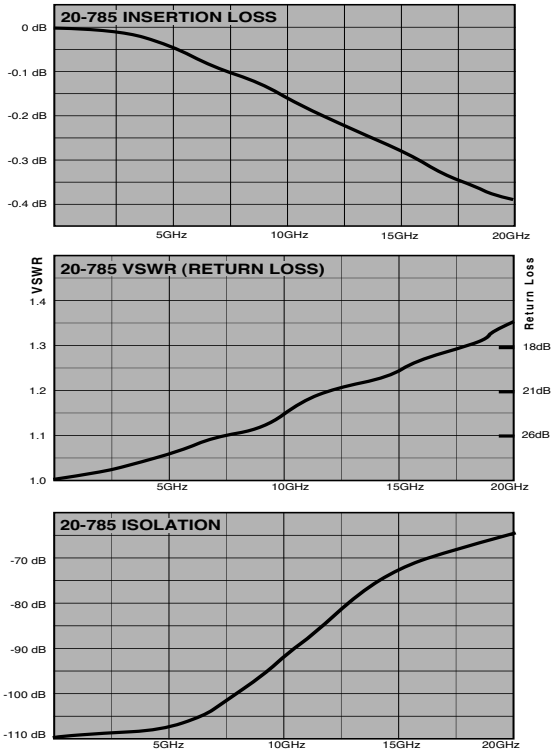
Characteristic Impedance:	50Ω
Maximum Frequency:	18GHz
Rise Time:	<3ps
Insertion Loss (<18GHz):	<0.5dB
V.S.W.R. (<18GHz):	<1:1.5
Isolation (<18GHz):	>60dB
Maximum Power (<3GHz):	100W
Maximum Power (3-12GHz):	60W
Maximum Power (12-18GHz):	30W
Maximum Voltage:	100V DC
Maximum Switch Current:	1A
On Path Resistance:	<200mΩ
Off Path Resistance:	>1x10^{10}Ω
Vibration:	Sine 1mm, 5-60Hz
	Sine 10g, 60-2000Hz
Switching Time:	15ms
Expected Life (Low power):	>2x10^{7} operations
Expected Life (Full power):	>3x10^{5} operations

Additional Specification (26.5GHz & 40GHz Versions)

Insertion Loss (<26.5GHz):	<0.7dB
V.S.W.R. (<26.5GHz):	<1:1.7
Isolation (<26.5GHz):	>55dB
Expected Life:	>2x10^{6} operations
Insertion Loss (<40GHz):	<1.1dB
V.S.W.R. (<40GHz):	<1:2.2
Isolation (<40GHz):	>50dB
Expected Life:	>2x10^{6} operations



Example of an 18 Channel Multiplexer Constructed Using Model Type 20-785-524



Typical RF Performance Plots for 20-785

Programming

Microwave multiplexer modules are 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**. The address is prefixed by bank number **b** by 1, 2, 3 or 4 to indicate the bank number

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:

- **Logic Test**
- **Relay Coil Test**

Please note that the relay contacts themselves are not tested.

Easy Repair

To allow fast in field repair all relays may be individually replaced without removing the module from the switching system case.

Mechanical Characteristics

All modules conform to the 6U height (262mm) Eurocard standard and are 160mm deep, panel width is 2.4 Inches (60.9mm), except the -T version which is 3.6" (91.5mm).

Product Order Codes

†Dual 6-Chan MUX, 18GHz, SMA, 50Ω	20-785A-522
Quad 6-Chan MUX, 18GHz, SMA, 50Ω	20-785A-524
†Dual 6-Chan MUX, 26.5GHz, SMA, 50Ω	20-785-532
Optional Terminating Version (50Ω) (only available for the 3 codes shown above)	-T
Quad 6-Chan MUX, 26.5GHz, SMA, 50Ω	20-785-534
†Dual 6-Chan MUX, 40GHz, SMA-2.9, 50Ω	20-785-542
Quad 6-Chan MUX, 26.5GHz, SMA-2.9, 50Ω	20-785-544
†Dual 6-Chan MUX, 1GHz, 1.6/5.6, 75Ω	20-785-752
Quad 6-Chan MUX, 1GHz, 1.6/5.6, 75Ω	20-785-754

† Dual versions are upgradable to the Quad version

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

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2010, EMC Immunity EN61326-1:2013, Emissions EN55011:2009+A1:2010.

Mating Connectors & Cabling

50Ω SMA to SMA Lead, 1m Length	10-981-510

For other connection accessories for this series of modules please refer to the 90-011D RF Cable Assemblies data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

Product Customization

Pickering System 20 modules are designed and manufactured on our own flexible manufacturing lines, giving complete product control and enabling simple customization to meet very specific requirements.

Customization can include:

- Alternative relay types
- Mixture of relay types
- Alternative number of relays
- Different performance specifications

All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.