

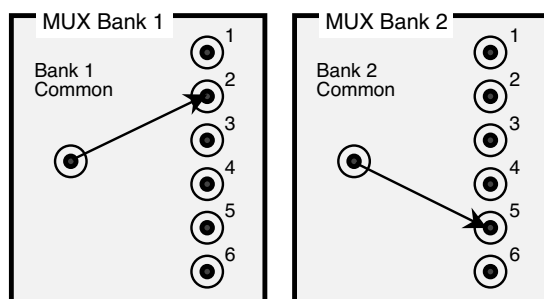
- Single or Dual 6 Channel Multiplexer
- 18GHz, 26.5GHz & 40GHz Versions
- 50Ω Terminating Version Available
- 75Ω Version With 4GHz Bandwidth
- Microwave Relays Are Quickly Replaceable For Minimum Downtime

System 10 Microwave multiplexer modules are suitable for switching 50Ω signals up to 40GHz. Available in a choice of formats as single or dual 6-channel Multiplexer, they are suitable for constructing complex microwave switching networks and provide a range of switching configurations to suit most applications. Optional 50Ω Terminating versions may be ordered, specify -T.

A 75Ω version is available with a bandwidth of 4GHz, this uses the Siemens 1.6/5.6 style 75Ω connector.

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 10-785C has either 1 or 2 six channel multiplexers, this model is particularly suitable for constructing large switching networks.



**Switching Diagram for 10-785C**  
**Microwave Multiplexer Model 10-785C-522**  
**Features 2 Separate 6 Channel RF Multiplexers,**  
**Model 10-785C-521 has 1 Multiplexer Bank**



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

## 10-785C (6 Channel Multiplexer) Programming

Microwave Multiplexer modules are straightforward to program. Each multiplexer has 6 contacts, they are programmed as shown in the table below.

Channel Number	To Close Channel	To Open Channel
MUX 1 Channel 1	CLOSE a , 1	OPEN a , 1
MUX 1 Channel 2	CLOSE a , 2	OPEN a , 2
MUX 1 Channel 3	CLOSE a , 3	OPEN a , 3
MUX 1 Channel 4	CLOSE a , 4	OPEN a , 4
MUX 1 Channel 5	CLOSE a , 5	OPEN a , 5
MUX 1 Channel 6	CLOSE a , 6	OPEN a , 6
MUX 2 Channel 1	CLOSE a , 11	OPEN a , 11
MUX 2 Channel 2	CLOSE a , 12	OPEN a , 12
MUX 2 Channel 3	CLOSE a , 13	OPEN a , 13
MUX 2 Channel 4	CLOSE a , 14	OPEN a , 14
MUX 2 Channel 5	CLOSE a , 15	OPEN a , 15
MUX 2 Channel 6	CLOSE a , 16	OPEN a , 16

Where a is the module address. The following commands may also be used:

<b>ARESET a</b>	Open all channels on device a
<b>DELAY t</b>	Force a minimum delay of t milliseconds between two instructions
<b>DIAGNOSTIC?</b>	Report any Self Test errors
<b>RESET</b>	Open all switches on all modules
<b>VIEW? a</b>	View status of device a

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## Specification - 18GHz Version

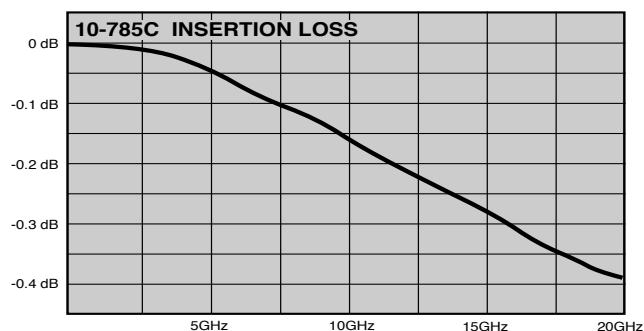
Characteristic Impedance:	50Ω
Maximum Frequency:	18GHz
Rise Time:	<3ps
Insertion Loss (<20GHz):	<0.5dB
VSWR:	1:1.5
Isolation:	>60dB
Maximum Power (<3GHz):	100W
Maximum Power (3-12GHz):	60W
Maximum Power (12-18GHz):	30W
Maximum Voltage:	100V DC
Maximum Switch Current:	1A
On Path Resistance:	<200mΩ
Off Path Resistance:	>10 <sup>10</sup> Ω
Vibration:	Sine 1mm, 5-60Hz Sine 10g, 60-2000Hz
Switching Time:	15ms
Expected Life (Low power):	>2x10 <sup>7</sup> operations
Expected Life (Max power):	>3x10 <sup>5</sup> operations

## Specification - 26.5GHz Version

Maximum Frequency:	26.5GHz
Insertion Loss (<26.5GHz):	<0.7dB
VSWR (<26.5GHz):	<1:1.7
Isolation (<26.5GHz):	>50dB
Maximum Power (<26.5GHz):	15W
Expected Life:	2x10 <sup>6</sup> ops. per position

## Mechanical Characteristics

All models conform to the 3U height (128mm) Eurocard standard and are 160mm deep. Panel width is 2.4 Inches (60.9mm), except -T terminating versions which have a panel width of 4.2 inches (106.7mm).



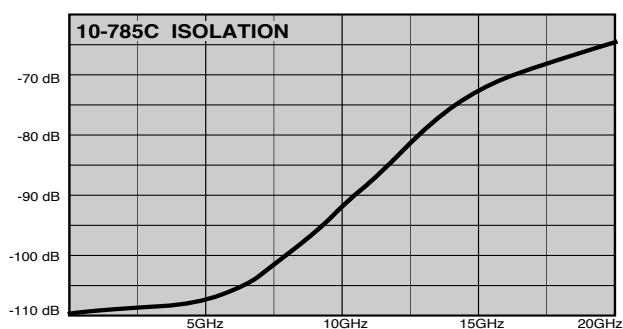
Typical Insertion Loss Plot for 10-785C (50Ω version)

## Specification - 40GHz Version

Characteristic Impedance:	50Ω
Maximum Frequency:	40GHz
Insertion Loss:	<0.2dB (0-6GHz) <0.4dB (6-12.4GHz) <0.5dB (12.4-18GHz) <0.7dB (18-26.5GHz) <1.1dB (26.5-40GHz)
VSWR:	<1:1.3 (0-6GHz) <1:1.4 (6-12.4GHz) <1:1.5 (12.4-18GHz) <1:1.7 (18-26.5GHz) <1:2.2 (26.5-40GHz)
Isolation:	>70dB (0-6GHz) >60dB (6-12.4GHz) >60dB (12.4-18GHz) >55dB (18-26.5GHz) >50dB (26.5-40GHz)
Maximum Power Rating:	40W (0-6GHz) 30W (6-12.4GHz) 25W (12.4-18GHz) 15W (18-26.5GHz) 5W (26.5-40GHz)
Expected Life:	2x10 <sup>6</sup> ops. per position



Typical Return Loss Plot for 10-785C (50Ω version)



Typical Isolation Plot for 10-785C (50Ω version)

## Product Order Codes - Microwave Multiplexers

Single 6-Channel, 18GHz, 50Ω, SMA	10-785C-521
Dual 6-Channel, 18GHz, 50Ω, SMA	10-785C-522
Replacement μWave MUX Relay, 18GHz	10-785C-902
Single 6-Channel, 26.5GHz, 50Ω, SMA	10-785B-531
Dual 6-Channel, 26.5GHz, 50Ω, SMA	10-785B-532
Replacement μWave MUX Relay, 26.5GHz	10-785B-932
Single 6-Channel, 40GHz, 50Ω, SMA-2.9	10-785B-541
Dual 6-Channel, 40GHz, 50Ω, SMA-2.9	10-785B-542
Replacement μWave MUX Relay, 40GHz	10-785B-942
Optional 50Ω Terminating Version	-T
Single 6-Channel, 4GHz, 75Ω, 1.6/5.6	10-785B-751
Dual 6-Channel, 4GHz, 75Ω, 1.6/5.6	10-785B-752
Replacement μWave MUX Relay	10-785B-952

## Product Customization

Pickering System 10 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.

## Mating Connectors & Cabling

Examples of cabling available for the 10-785 are:

SMA to SMA Lead, 1 metre, 50Ω	10-981-510
SMA to SMA Lead, 0.5 metre, 50Ω	10-981-505

For other RF connection accessories for the 10-785 module 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.

## 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.

## 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