

- 8 or 16 x SPDT Changeover Switches with Bandwidths to over 3GHz
- Choice of Front Panel Mounted BNC, SMA, SMB, BT Type 43 or 1.0/2.3 Connectors
- Insulated Coaxial Version Available
- Suitable for Building Large Switching Networks
- Tree Networks Constructed by Interconnecting Switches
- 75Ω Version Suitable for Telecoms and High Quality Video Switching
- Also Suitable For Low Frequency Shielded Applications



Models 20-710A and 20-711 have a bank of 8 or 16 individual high performance R.F. changeover relays (50Ω or 75Ω) with very low insertion loss, suitable for handling signals up to 3000MHz.

Available with a choice of connectors: Industry standard BNCs are suitable to beyond 1000MHz, for higher performance applications SMA, SMB, BT Type 43 or 1.0/2.3 connector versions are available, all featuring very low insertion loss & good VSWR with bandwidths to beyond 3GHz.

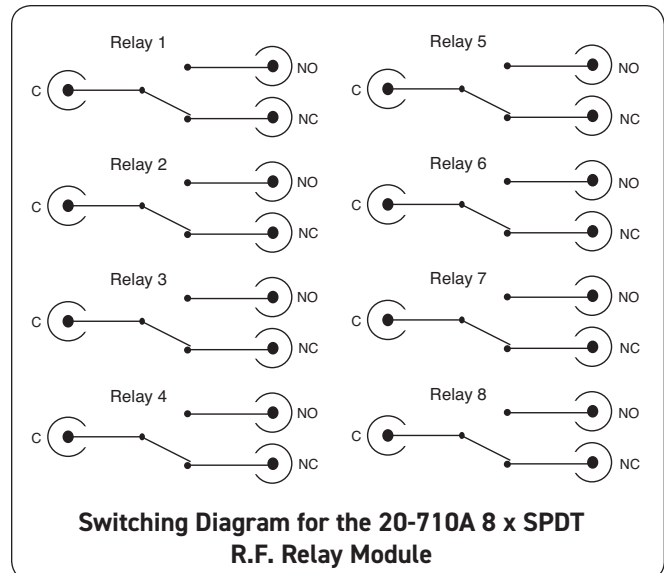
The 75Ω versions are suitable for high frequency video and telecommunication signals up to 3GHz (e.g. 622MBit data).

### Programming

The RF module is simple to program either by single relay or by pattern (8 or 16 relays simultaneously):

- ARESET a** Open all switches on module **a**
- CLOSE a,b** Close switch number **b** on module **a**
- DELAY t** Force a minimum delay of **t** milliseconds between two instructions
- OPEN a,b** Open switch number **b** on module **a**
- RESET** Open all switches on all modules
- VIEW? a[,b]** View status of module **a**, can be viewed at any time either as a byte or by switch as a logical value (1 or 0)
- WRITE a,w** Send byte **w** to module **a**

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



### General Specification (All Versions)

Max Switching Power:	10W
Max Switching Voltage:	30VDC
Max Switching Current:	0.5A
Nominal Switching Capacity:	0.01A, 24VDC, 10W@1.2GHz
On Path Resistance:	<200mΩ
Off Path Resistance:	>10 <sup>8</sup> Ω
Differential Thermal Offset:	<20μV
Switching Time:	10ms
Expected Life, Mechanical:	>1x10 <sup>6</sup> ops
Expected Life, Electrical:	>3x10 <sup>5</sup> ops (10mA@24VDC) >3x10 <sup>5</sup> ops (1W@2.6GHz)

### Isolation and Crosstalk Specification

Isolation (0 to 2000MHz):	>40dB
Crosstalk (0 to 2000MHz):	>45dB

### 20-710A 50Ω Specification (SMA & SMB)

Maximum Frequency:	3000MHz
Rise Time:	<0.2ns
Insertion Loss:	<3dB
V.S.W.R. (0 to 2000MHz):	1:1.7

### 20-710A-501 50Ω Specification (BNC)

Maximum Frequency:	1000MHz
Rise Time:	<0.2ns
Insertion Loss:	<3dB
V.S.W.R. (0 to 2000MHz):	1:1.7

### 20-710A-701 75Ω Specification (BNC)

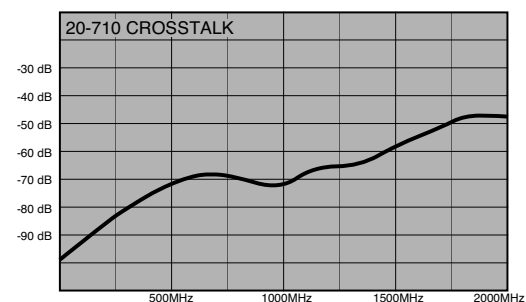
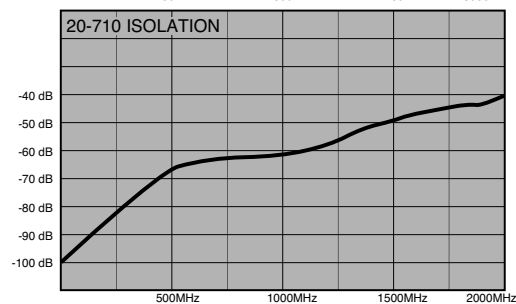
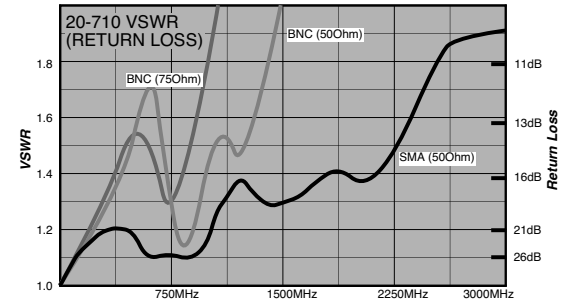
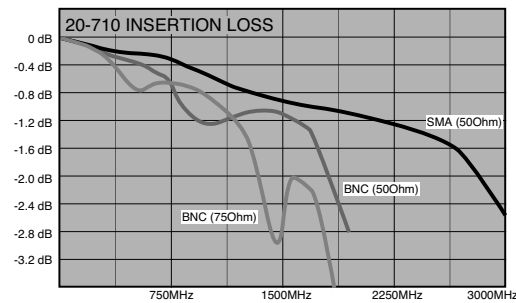
Maximum Frequency:	1000MHz
Rise Time:	<0.3ns
Insertion Loss:	<3dB
V.S.W.R. (0 to 2000MHz):	1:1.7

### Mechanical Characteristics

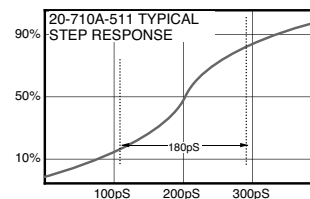
All modules conform to the 6U height (262mm) Eurocard standard and are 160mm deep. Panel width is:

- 1.8 Inch for 20-710A
- 2.4 Inch for 20-711 all versions, except BNC
- 3.6 Inch for 20-711 BNC versions

Note: The 20-710A is an update to the older 20-710, the only changes have been in improved RF performance, module width reduced from 2.4 to 1.8 Inches and wider connector choice.



### Typical RF Performance Plots for 20-710



Step Response Plot for 20-710

### 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

## Product Order Codes

### 8 x Changeover RF Relay (SPDT):

1300MHz, BNC, 50Ω	20-710A-501
3000MHz, SMA, 50Ω	20-710A-511
3000MHz, SMB, 50Ω	20-710A-521
1300MHz, BNC, 75Ω	20-710A-701
2000MHz, Type 43/SMZ, 75Ω	20-710A-711
2000MHz, 1.0/2.3, 75Ω	20-710A-741

### 16 x Changeover RF Relay (SPDT):

1300MHz, BNC, 50Ω	20-711-501
3000MHz, SMA, 50Ω	20-711-511
3000MHz, SMB, 50Ω	20-711-521
1300MHz, BNC, 75Ω	20-711-701
2000MHz, Type 43/SMZ, 75Ω	20-711-711
2000MHz, 1.0/2.3, 75Ω	20-711-741

### Options:

Insulated Shield, where all the shields are floating -I

Alternative connectors are available on many modules e.g. 75Ω mini SMB etc -C

## 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.

## Mating Connectors & Cabling

50Ω SMB to SMB Lead, 1m Length	10-987-510
50Ω SMA to SMA Lead, 1m Length	10-981-510
50Ω BNC to BNC Lead, 1m Length	10-980-510
75Ω BNC to BNC Lead, 1m Length	10-980-710
75Ω 1.0/2.3 to 1.0/2.3 Lead, 1m Length	40-977-731
75Ω SMZ to SMZ Lead, 0.5m Length	10-988-705

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.

## 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.