- **High Density Power Relay Module**
- **32 or 64 Single-Pole Double-Throw Relays in One System 20 Module**
- **Capable of Switching 250V AC/100V DC**
- **Up to 5A Current Handling**
- **Suitable For Slave Switching Large Relays or Contactors**
- **Programmable by Bit Byte or Word**
- **Front Panel Status Indicators**

The 20-160 Power Relay Module is available with a choice of 32 or 64 single-pole double-throw relays controlled by a System 20 back plane. It is suitable for applications where conventional reed-relay based switching modules do not have sufficient voltage rating or current carrying capacity.
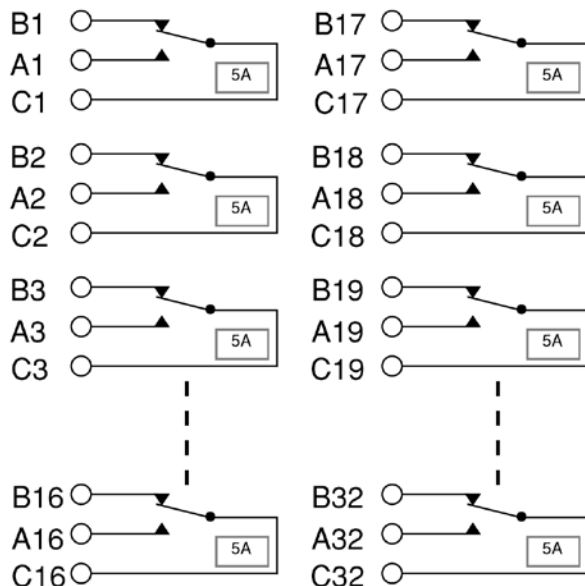
The System 20 backplane uses a standard IEEE-488.2/RS232 message based interface allowing the Module to be programmed in bit, byte or word formats.

All of the double-throw contacts are electrically isolated from one another and are rated at 250V AC/100V DC with a maximum current of 5A. Applications for the 20-160 include switching of large external relays or contactors. For applications that require greater current handling capability, please look at our 20-150 range which will switch 16A or 30A.
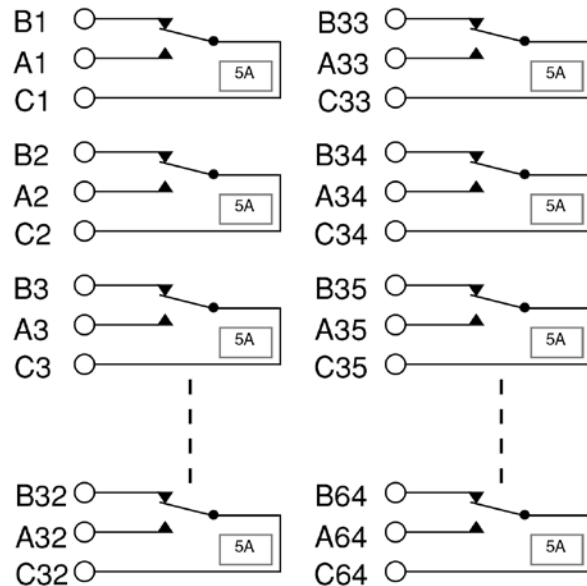

*Please contact Pickering for alternative PXI/LXI/USB solutions

32 x SPDT Power Relays, Model 20-160-001

64 x SPDT Power Relays, Model 20-160-101

Power Relay Types

The 20-160 Power Relay Module uses NAiS Power Relay Type JE1X-DC12V, Silver Alloy Contact.

Relay Switching Specification

Contact Type:	Silver Alloy
Contact Current Rating	
Resistive Load:	5A at 125VAC 3A at 250VAC 5A at 30VDC
Max Standoff Voltage: Max Switching Voltage: Max Switch Current:	750VAC rms 250VAC rms 100VDC 5A
Initial Path Resistance	
On:	$<200m\Omega$
Off:	$>1 \times 10^8 \Omega$
Bandwidth (50Ω):	10MHz
Maximum operate time: † Max relay close settling time: Max relay open settling time:	18ms 10ms 2ms
Expected Life	
Low power load:	$>5 \times 10^6$ operations
Full power load:	$>1 \times 10^5$ operations

† This is the time taken from the start of the IEEE-488 or RS-232 message to the closure of the relay (assuming fast IEEE-488/RS-232 communication and no pending operations).

Connectors

Connections to all modules are made via four front panel mounted 50-pin D-Type male connectors.

Indicator LEDs

All modules have LED indicators for each relay, thus easing system programming and debugging.

Mechanical Characteristics

The Power Relay Module conforms to the 6U height (262mm) Eurocard standard and is housed in a 160mm deep screened plug-in module. Panel width is 2.4 Inches.
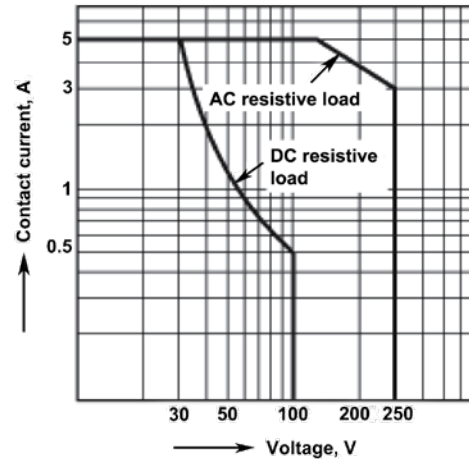
Operating/Storage Conditions

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

20-160 Current/Voltage Curve

Programming

The 20-160 module is simple to program either by single bit or by byte (8 bits).

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

20-160 modules must be used in conjunction with the 10-921 interface module.

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.

Product Order Codes

32xSPDT Power Relay Module	**20-160-001**
64xSPDT Power Relay Module	**20-160-101**

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

50-Pin D-type Socket with Pins & Shell	**10-960-050**

For other 50-pin connection accessories for the 20-160 series modules please refer to the 90-007D 37-pin D-type Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.