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Find the *Pickering 20-150-301* at our website: ***Click HERE***

# 20-150
# Power Relay Module

- Up To 16 Power Relays Per Module
- Choice of 13A or 30A Power Relays
- Capable of Switching Up To 250V AC
- 8 Additional Control Lines For Operating External Relays
- Suitable For Slave Switching Large Relays or Contactors
- Front Panel RS232 Configuration/Test Port
- Front Panel Status Indicators




Power Relay Modules are intended for switching heavy AC or DC loads or for slaving up to large external relays, contactors and solenoids. The 20-150 range is available with a choice of Medium and High Power Relays for switching up to 30A.

The 20-150 range of Power Switching Modules area available with a choice of 13A or heavy duty 30A relays. The standard version (type 20-150-001) has 16 SPDT Power Relays which will switch up to 13A at 30V DC or 250V AC For applications requiring greater current capability further versions feature 30A SPST relays.

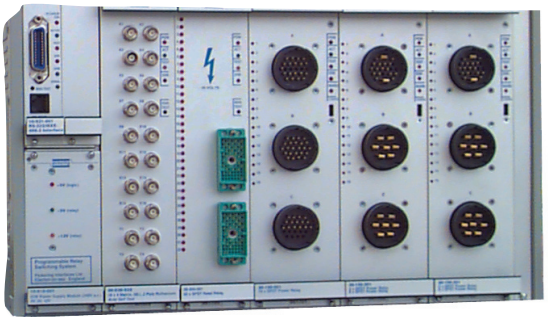
## Range Description

**20-150-001** 16 x SPDT Medium Power Relays (13A)

**20-150-101** 2 x SPST High Power Relays (30A)
12 x SPDT Medium Power Relays (13A)

**20-150-201** 4 x SPST High Power Relays (30A)
8 x SPDT Medium Power Relays (13A)

**20-150-301** 8 x SPST High Power Relays (30A)
2 x SPDT Medium Power Relays (13A)

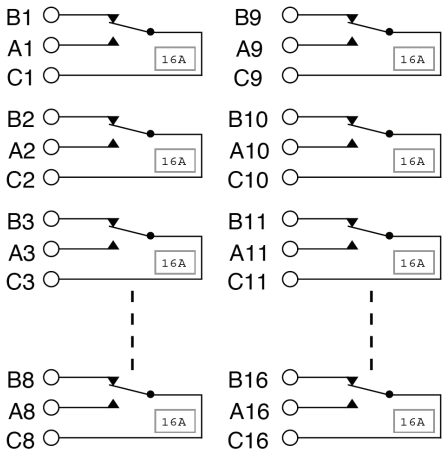


Typical Power Switching System

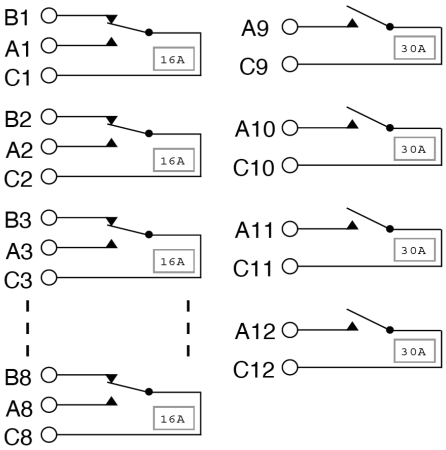
## Connectors

Connections to all modules are made via three front panel mounted power connectors (CPC types). There are three versions available depending upon configuration (7 way, 16 way and 22 way), as shown below:

**20-150-001**: 3 x 22 way power connectors
**20-150-101**: 3 x 22 way power connectors
**20-150-201**: 3 x 16 way power connectors
**20-150-301**: 2 x 7 way + 1 x 22 way power connectors




16 x SPDT Medium Power Relays (20-150-001)




8 x SPDT Medium Power + 4 x SPST High Power Relays (20-150-201)

ISSUE 5, OCT 2006

### Medium Power Relay Switching Specification

| | |
|---|---|
| Contact Type: | AgCdO |
| Contact Rating | |
| Resistive Load: | 13A at 250V AC<br>13A at 30V DC |
| Inductive Load: | 13A at 250V AC<br>5A at 30V DC |
| Max Standoff Voltage: | 600V |
| Max Switching Voltage: | 250V rms |
| Max Switch Current: | 13A |
| Max Carry Current: | 13A |
| Path Resistance - On: | 200mΩ |
| Path Resistance - Off: | $>1x10^8\Omega$ |
| Bandwidth (50Ω): | 10MHz |
| Maximum operate time: † | 15ms |
| Max relay close settling time: | 10ms |
| Max relay open settling time: | 7ms |
| Expected Life | |
| Low power load: | $>1x10^7$ operations |
| Full power load: | $>1x10^5$ operations |

### Programming

The 20-150 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 byte **w** to module **a** (address **a** contains both the module address and the position of the byte being changed: 1 to 3 for a 24 relay unit). |

20-150 module must be used in conjunction with the 10-921 interface module (it is not compatible with the older 10-920 interface).

### Power Relay Types

The 20-150 Power Relay Module is available with a choice of three power switch types: Medium Power Relays are suitable for switching up to 13A, they are socket mounted for ease of maintenance. High Power Relays will switch up to 30A.

### Additional Control Lines

To allow straight forward control of externally mounted relays (e.g. High Power, High Voltage, Microwave) the 20-150 is also fitted with 8 open-collector transistor control lines. These are rated at a maximum of 50V, with 0.5A current sink capability.

### Indicator LEDs

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

### Width and Dimensions

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 3.0 Inches.

### High Power Relay Switching Specification

| | |
|---|---|
| Contact Type: | Silver Alloy |
| Contact Current Rating | |
| Resistive Load: | 30A at 250V AC<br>30A at 30V DC |
| Max Standoff Voltage: | 600V DC |
| Max Switching Voltage: | 270V rms |
| Max Switch Current: | 30A |
| Max Carry Current: | 30A |
| Path Resistance - On: | 50mΩ |
| Path Resistance - Off: | $>1x10^8\Omega$ |
| Bandwidth (50Ω): | 10MHz |
| Maximum operate time: † | 30ms |
| Max relay close settling time: | 20ms |
| Max relay open settling time: | 5ms |
| Expected Life | |
| Low power load: | $>5x10^6$ operations |
| Full power load: | $>1x10^5$ 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)

### Built-In RS-232 Port

The 20-150 also has a built in RS-232 port (9600 baud, XON/XOFF, 8 bit, no parity). This is provided on a 4 pin Molex datamate connector on the front panel. A separate adapter lead to allow use with a standard 9 pin D-type is available. The RS-232 port allows the module to be configured, controlled and monitored from any RS-232 terminal. This can be used as a very versatile debugging aid.

### Product Order Codes

| Power Relay Module | | |
|---|---|---|
| No. of Medium Power Relays | No. of High Power Relays | Product Order Code |
| 16 | 0 | **20-150-001** |
| 12 | 2 | **20-150-101** |
| 8 | 4 | **20-150-201** |
| 2 | 8 | **20-150-301** |

### Mating Connectors

| | |
|---|---|
| 22-Way CPC socket with pins | **10-962-002** |
| 16-Way CPC socket with pins | **10-962-003** |
| 7-Way CPC socket with pins | **10-962-004** |
| Pin extraction tool | **10-962-901** |
| Crimp tool | **10-962-902** |

### Latest Details

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

### 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 |

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