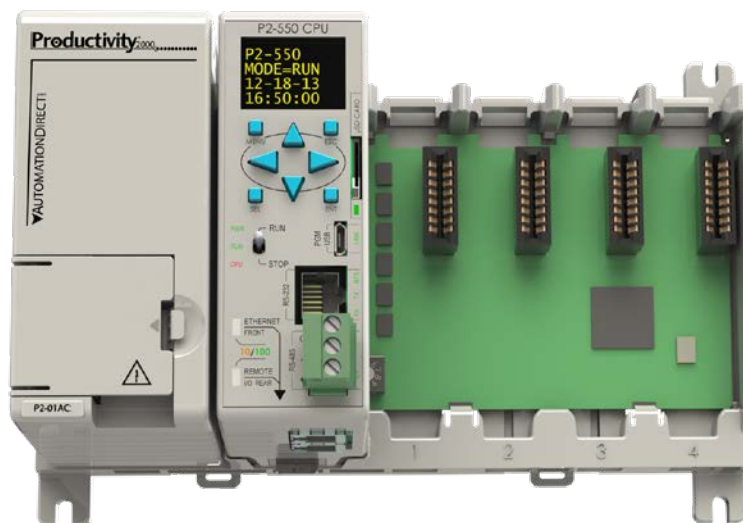
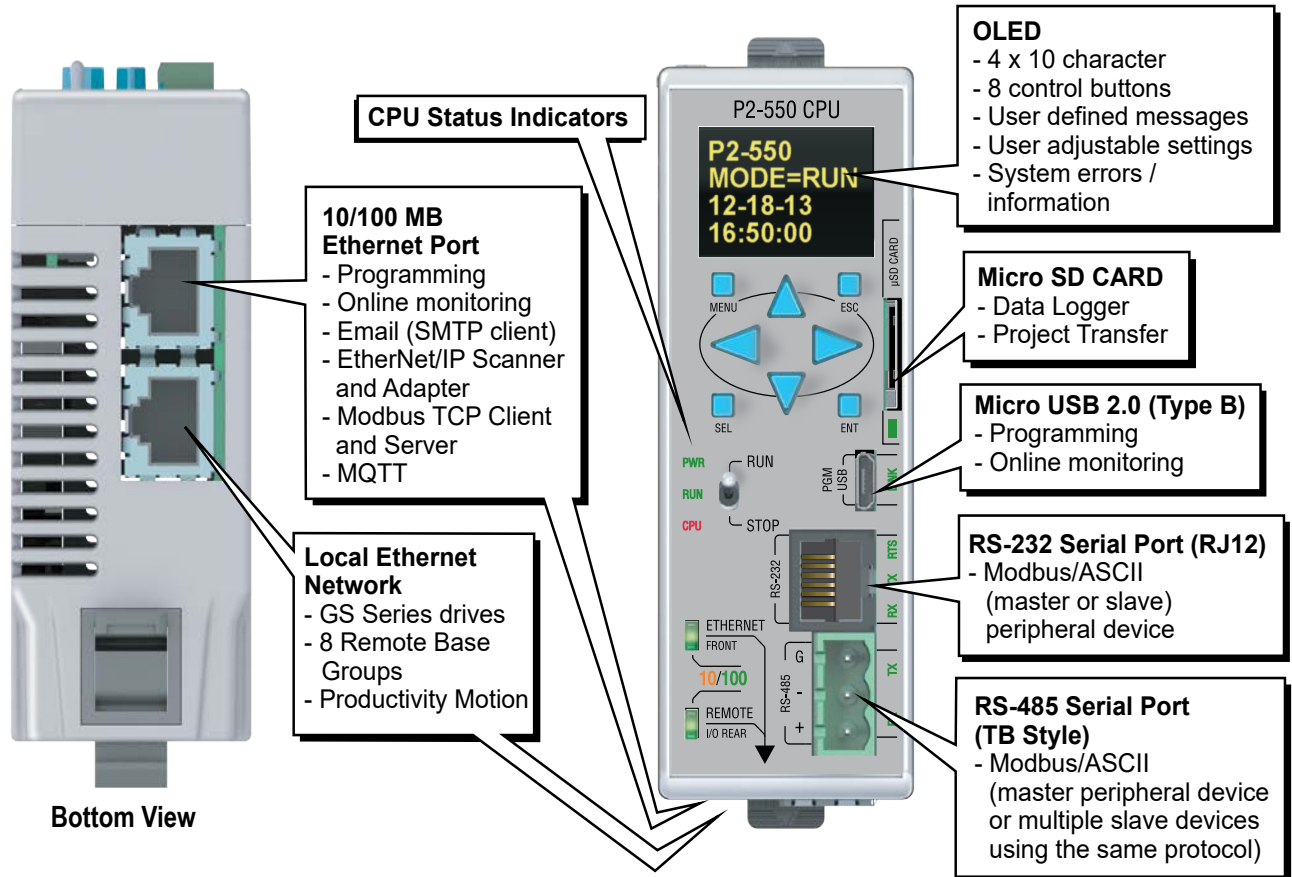


# P2-550 CPU Module

## P2-550 \$361.00

The P2-550 is a high-performance CPU which has communications ports that support Ethernet and serial devices. The P2-550 also includes a 4-line x 10-character OLED local display and a USB programming port.



Each Productivity2000 system base requires a CPU module be mounted in the controller slot of the unit. The CPU stores and executes the user's program.

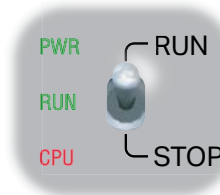
# P2-550 CPU Module

## CPU Run/Stop Switch

|                      |                                                             |
|----------------------|-------------------------------------------------------------|
| <b>RUN position</b>  | Executes user program, run-time edits possible              |
| <b>STOP position</b> | Does not execute user program, normal program load position |

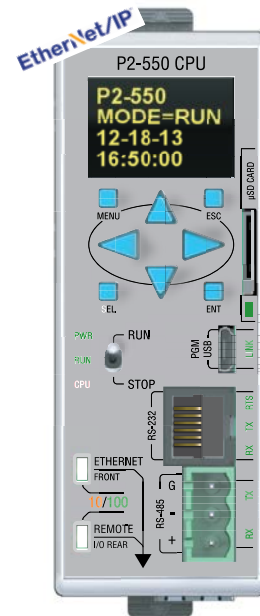
## CPU Status Indicators

|            |                                                             |
|------------|-------------------------------------------------------------|
| <b>PWR</b> | Green LED is illuminated when power is ON                   |
| <b>RUN</b> | Green LED is illuminated when CPU is in RUN mode            |
| <b>CPU</b> | Red LED is illuminated during power ON reset or power down. |



## CPU Specifications

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----|-----------------|-----------------|-----------------|------------------|----------------|------------------|---------------|----------|-----------------|-------|----------------|----------------|
| <b>User Memory</b>                        | 50MB (Includes program, data and documentation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Memory Type</b>                        | Flash and Battery Backed RAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Retentive Memory</b>                   | 500kB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Scan Time</b>                          | 500µs (3K Boolean, 240 I/O)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Display</b>                            | OLED, 4x10 characters, 8 control buttons                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Communications; 5 Integrated Ports</b> | <b>USB:</b> Programming, Monitoring, Debug, Firmware<br><b>ETHERNET:</b> (10/100 Mbps Ethernet) Programming, Monitoring, Debug, Firmware, Email SMTP Client, MQTT, Modbus TCP Client (32 Servers) and Server (16 Clients), EtherNet/IP Scanner (32 Adapters) and Adapter (4 scanners) with 8 connections per device.<br><b>REMOTE I/O:</b> 16 GS series drives, 8 Remote Base Groups, 4 ProtosX TCP couplers, 4 PS-AMC modules<br><b>RS-232:</b> (RJ12, 1200–115.2k baud) ASCII, Modbus<br><b>RS-485:</b> Removable Terminal Included, (1200–115.2k baud) ASCII, Modbus RTU |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Data Logging/Project Transfer</b>      | Micro SD card slot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Hardware Limits of System</b>          | 9 Base Groups: 1 Local (P2-550) + 8 Remote (P2-RS and/or P1-RX) + 4 ProtosX TCP couplers + 4 PS-AMC<br>4,320 Hardware I/O points (All 32-point modules)                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Instruction Types</b>                  | <table border="1"> <tr> <td>Application Functions</td><td>PID</td></tr> <tr> <td>Array Functions</td><td>Program Control</td></tr> <tr> <td>Counters/Timers</td><td>String Functions</td></tr> <tr> <td>Communications</td><td>System Functions</td></tr> <tr> <td>Data Handling</td><td>Contacts</td></tr> <tr> <td>Drum Sequencers</td><td>Coils</td></tr> <tr> <td>Math Functions</td><td>Motion Control</td></tr> </table>                                                                                                                                              | Application Functions | PID | Array Functions | Program Control | Counters/Timers | String Functions | Communications | System Functions | Data Handling | Contacts | Drum Sequencers | Coils | Math Functions | Motion Control |
| Application Functions                     | PID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| Array Functions                           | Program Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| Counters/Timers                           | String Functions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| Communications                            | System Functions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| Data Handling                             | Contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| Drum Sequencers                           | Coils                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| Math Functions                            | Motion Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |
| <b>Real Time Clock Accuracy</b>           | ±5s per day typical at 25°C<br>-15s per day maximum at 60°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |     |                 |                 |                 |                  |                |                  |               |          |                 |       |                |                |



**IMPORTANT!**



## Hot-Swapping Information

**NOTE:** This device cannot be Hot Swapped.

# P2-550 CPU Module

## Specifications

| General Specifications       |                                                                                                                          |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</b> | 0° to 60°C (32° to 140°F)                                                                                                |
| <b>Storage Temperature</b>   | -20° to 70°C (-4° to 158°F)                                                                                              |
| <b>Humidity</b>              | 5 to 95% (non-condensing)                                                                                                |
| <b>Altitude</b>              | 2,000 meters, max.                                                                                                       |
| <b>Pollution Degree</b>      | 2                                                                                                                        |
| <b>Environmental Air</b>     | No corrosive gases permitted                                                                                             |
| <b>Vibration</b>             | IEC60068-2-6 (Test Fc)                                                                                                   |
| <b>Shock</b>                 | IEC60068-2-27 (Test Ea)                                                                                                  |
| <b>Heat Dissipation</b>      | 3.81 W                                                                                                                   |
| <b>Overvoltage Category</b>  | II                                                                                                                       |
| <b>Enclosure Type</b>        | Open equipment                                                                                                           |
| <b>Module Location</b>       | Controller slot in the local base in a Productivity®2000 system.                                                         |
| <b>Weight</b>                | 158g (5.6 oz)                                                                                                            |
| <b>Agency Approvals**</b>    | UL 61010-1 and UL 61010-2-201 File E139594, Canada and USA<br>CE (EN 61131-2 EMC, EN 61010-1 and EN 61010-2-201 Safety)* |

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

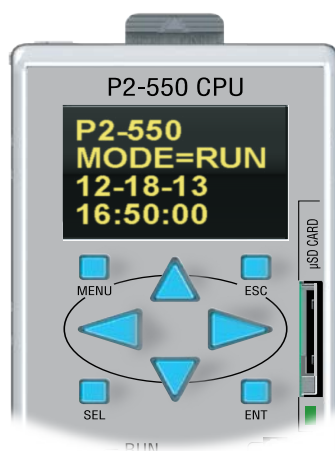
\*\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific component part number web page.

## OLED Message Display

The P2-550 CPU incorporates a 4-line by 10-character OLED (Organic Light-Emitting Diode) display for system alarms, information and for displaying user-defined messages.

Control buttons located beneath the OLED display allow the user to navigate through menu items. These buttons also permit local configuration of time and date settings.

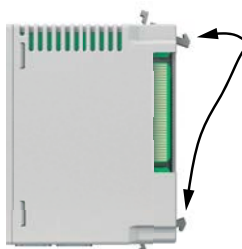
User defined display messages may be configured using the Productivity Suite Programming Software. A "Display Page" dialog box allows the user to program text into user-defined tags that will be displayed based on the programmed ladder execution.



### OLED Control Buttons

|                           |                                                    |
|---------------------------|----------------------------------------------------|
| <b>Menu Button</b>        | Access the OLED menu                               |
| <b>ESC Button</b>         | Returns to the previous screen                     |
| <b>SEL Button</b>         | Selects the desired menu option                    |
| <b>ENT Button</b>         | Starts the selected process                        |
| <b>Directional Arrows</b> | Moves the cursor around the 4 Row x 10 Column OLED |

## CPU Installation



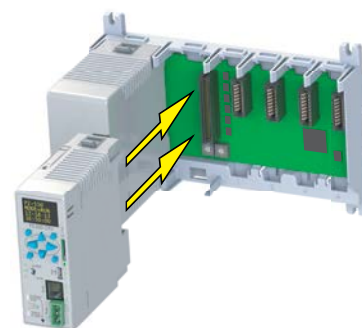
### Step One:

Unlock both locking tabs

**WARNING: DO NOT APPLY FIELD POWER UNTIL THE FOLLOWING STEPS ARE COMPLETED.**

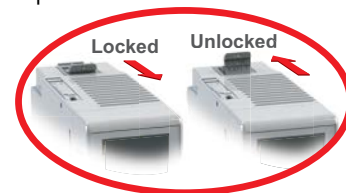
### Step Two:

Seat CPU on support platform and push towards base until circuit board is fully engaged into connector

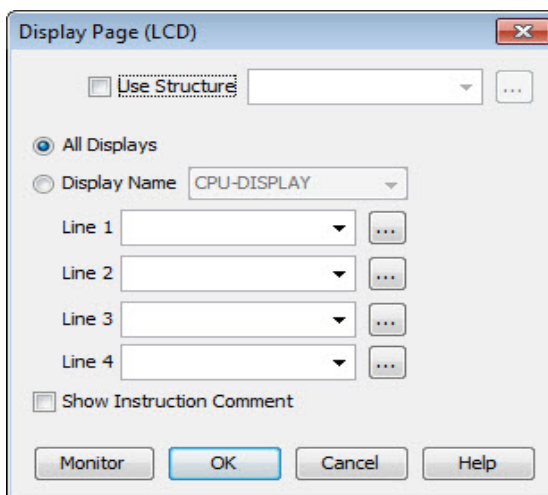


### Step Three:

Snap retaining tab into the locked position.

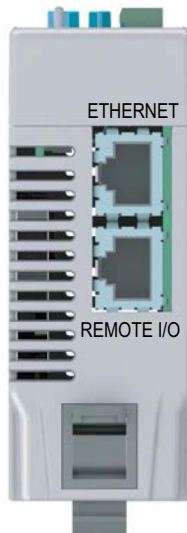
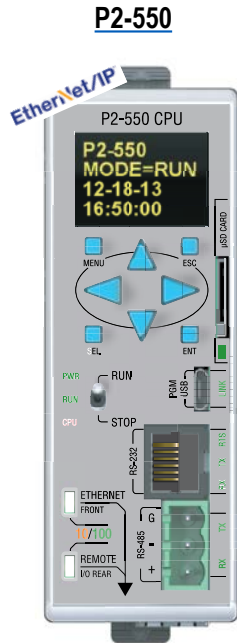


**WARNING: EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT-SWAP MODULES UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS.**



# P2-550 CPU Module

## Port Specifications



P2-550 Bottom View

### Ethernet Port (On bottom of CPU)

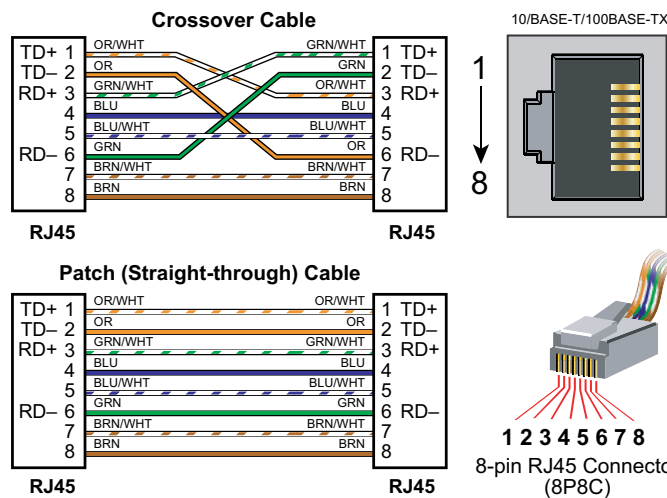
RJ-45 style connector used for:

- Connection to a PC running the ProductivitySuite programming software
- Modbus TCP Client connections (Modbus requests sent from the CPU)
- Modbus TCP Server connections (Modbus requests received by the CPU)
- EtherNet/IP Scanner (32 Adaptors)
- EtherNet/IP Adapter (4 scanners) with 8 connections per device.
- Outgoing E-mail

### Remote I/O Port (On bottom of CPU)

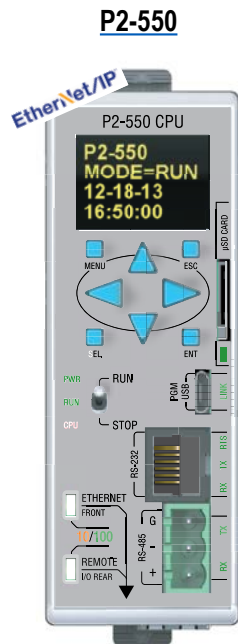
RJ-45 style connector used for connecting to a Remote I/O network consisting of [GS-EDRV100](#) units connected to GS drives.

| Ethernet Specifications |                                                                                                                                                                                                                                          |                                                                                                                                                               |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Port Name               | ETHERNET                                                                                                                                                                                                                                 | REMOTE I/O                                                                                                                                                    |
| Description             | Standard transformer isolated Ethernet port with built-in surge protection for programming, online monitoring, Email (SMTP client), Modbus/TCP client/server connections (fixed IP or DHCP) and EtherNet/IP Scanner/Adapter connections. | Standard transformer isolated Ethernet port with built-in surge protection for connection to 16 GS series drives, 8 remote base groups, and 4 PS-AMC modules. |
| Transfer Rate           | 10 Mbps (Orange LED) and 100 Mbps (Green LED) (auto-crossover).                                                                                                                                                                          |                                                                                                                                                               |
| Port Status LED         | LED is solid when network LINK is established. LED flashes when port is active (ACT).                                                                                                                                                    |                                                                                                                                                               |



# P2-550 CPU Module

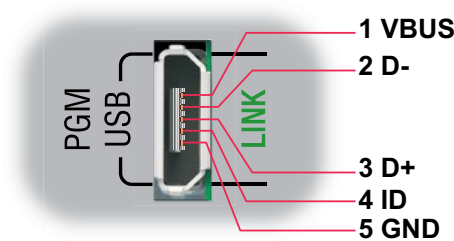
## Port Specifications



### MICRO USB Programming Port

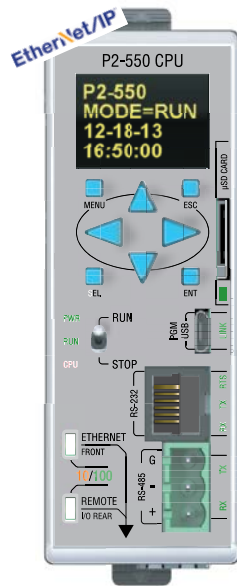
Used exclusively for connecting to a PC running the Productivity Suite programming software.

| Micro USB Input Specifications |                                                                                                                                                          |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Port Name                      | MICRO USB                                                                                                                                                |
| Description                    | Standard Micro USB Slave input for programming and on-line monitoring, with built-in surge protection. Not compatible with older full speed USB devices. |
| Transfer Rate                  | 480 Mbps                                                                                                                                                 |
| Port Status LED                | Green LED is illuminated when LINK is established to programming software.                                                                               |
| Cables                         | USB Type A to Micro USB Type B:<br>6ft cable part # <a href="#">USB-CBL-AMICB6</a><br>15ft cable part # <a href="#">USB-CBL-AMICB15</a>                  |



# P2-550 CPU Module

## P2-550



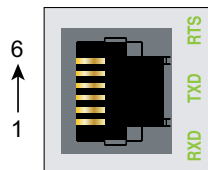
## RS-232 Port

RJ-12 style connector used for:

- Modbus RTU Master connections
- Modbus RTU Slave connections
- ASCII full or half duplex communications
- Custom Protocol Incoming and Outgoing communications

### RS-232 Specifications

|                                        |                                                                                                                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Port Name</b>                       | RS-232                                                                                                                                                                                                    |
| <b>Description</b>                     | Non-isolated RS-232 DTE port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection                                                        |
| <b>Data Rates</b>                      | Selectable, 1200, 2400, 4800, 9600, 19200, 33600, 38400, 57600, and 115200 baud                                                                                                                           |
| <b>+5V Cable Power Source</b>          | 210mA maximum at 5V, $\pm 5\%$ . Reverse polarity and overload protected                                                                                                                                  |
| <b>TXD</b>                             | RS-232 Transmit output                                                                                                                                                                                    |
| <b>RXD</b>                             | RS-232 Receive input                                                                                                                                                                                      |
| <b>RTS</b>                             | Handshaking output for modem control                                                                                                                                                                      |
| <b>GND</b>                             | Logic ground                                                                                                                                                                                              |
| <b>Maximum Output Load (TXD/RTS)</b>   | 3k $\Omega$ , 1000pf                                                                                                                                                                                      |
| <b>Minimum Output Voltage Swing</b>    | $\pm 5V$                                                                                                                                                                                                  |
| <b>Output Short Circuit Protection</b> | $\pm 15mA$                                                                                                                                                                                                |
| <b>Port Status LED</b>                 | Green LED is illuminated when active for TXD, RXD and RTS                                                                                                                                                 |
| <b>Cable Options</b>                   | <a href="#">EA-MG-PGM-CBL</a><br><a href="#">D2-DSCBL</a><br><a href="#">USB-RS232-1</a> with D2-DSCBL<br><a href="#">FA-CABKIT</a><br><a href="#">FA-ISOCAN</a> for converting RS-232 to isolated RS-485 |

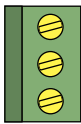
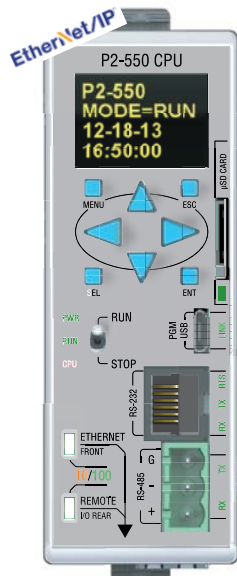


6-pin RJ12 Female Modular Connector

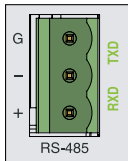
| Pin # | Signal |               |
|-------|--------|---------------|
| 6     | GND    | Logic Ground  |
| 5     | RTS    | RS-232 Output |
| 4     | TXD    | RS-232 Output |
| 3     | RXD    | RS-232 Input  |
| 2     | +5V    | 210mA Maximum |
| 1     | GND    | Logic Ground  |

# P2-550 CPU Module

## P2-550



Removable connector included.  
Spare connectors available (part no.  
[P3-RS485CON](#)).



| Pin # | Signal    |
|-------|-----------|
| G     | GND       |
| -     | TXD-/RXD- |
| +     | TXD+/RXD+ |

## RS-485 Port

A 3-pin removable terminal block used for:

- Modbus RTU Master connections
- Modbus RTU Slave connections
- ASCII Incoming and Outgoing communications
- Custom Protocol Incoming and Outgoing communication

### RS-485 Port Specifications

|                                             |                                                                                                                                                                                            |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Port Name</b>                            | RS-485                                                                                                                                                                                     |
| <b>Description</b>                          | Non-isolated RS-485 port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD/EFT protection and automatic echo cancellation when transmitter is active |
| <b>Data Rates</b>                           | Selectable, 1200, 2400, 4800, 9600, 19200, 33600, 38400, 57600, and 115200                                                                                                                 |
| <b>TXD+ /RXD+</b>                           | RS-485 transceiver high                                                                                                                                                                    |
| <b>TXD-/RXD-</b>                            | RS-485 transceiver low                                                                                                                                                                     |
| <b>GND</b>                                  | Logic ground                                                                                                                                                                               |
| <b>Input Impedance</b>                      | 19kΩ                                                                                                                                                                                       |
| <b>Maximum Load</b>                         | 50 transceivers, 19kΩ each, 60Ω termination                                                                                                                                                |
| <b>Output Short Circuit Protection</b>      | ±250mA, thermal shut-down protection                                                                                                                                                       |
| <b>Electrostatic Discharge Protection</b>   | Contact ±4kV, Air 8kV per IEC1000-4-2<br>Cable is installed for testing.                                                                                                                   |
| <b>Electrical Fast Transient Protection</b> | ±1kV per IEC1000-4-4                                                                                                                                                                       |
| <b>Minimum Differential Output Voltage</b>  | 1.5 V with 60Ω load                                                                                                                                                                        |
| <b>Fail Safe Inputs</b>                     | Logic high input state if inputs are unconnected                                                                                                                                           |
| <b>Maximum Common Mode Voltage</b>          | -7.5 V to 12.5 V                                                                                                                                                                           |
| <b>Port Status LED</b>                      | Green LED illuminated when active for TXD and RXD                                                                                                                                          |
| <b>Cable Options</b>                        | Go to <a href="http://www.AutomationDirect.com">www.AutomationDirect.com</a> for RS-485 cables                                                                                             |

### Removable Terminal Block Specifications

|                            |                                                           |
|----------------------------|-----------------------------------------------------------|
| <b>Part Number</b>         | <a href="#">P3-RS485CON</a>                               |
| <b>Number of Positions</b> | 3 Screw Terminals                                         |
| <b>Pitch</b>               | 5mm                                                       |
| <b>Wire Range</b>          | 28–12 AWG Solid Conductor<br>30–12 AWG Stranded Conductor |
| <b>Screw Driver Width</b>  | 1/8 inch (3.175 mm) maximum                               |
| <b>Screw Size</b>          | M2.5                                                      |
| <b>Screw Torque</b>        | 4.5 lb·in (0.51 N·m)                                      |