With the addition of Control Microsystems’ 5000 Series I/O Expansion and Communication modules, the series of powerful SCADAPack controllers become even more powerful. Any SCADAPack controller is easily expandable from its base I/O configuration to more than 700 process I/O points, and regardless of what communication format is required, there is a communication module to fit the need.

Overview
Flexible I/O – The Control Microsystems 5000 Series I/O Expansion modules are available for a wide range of process I/O requirements, from digital and analog I/O to I/O-simulators and a UPS module. A maximum of twenty I/O modules may be connected for an expansion of up to 512 digital outputs, 512 digital inputs, 128 analog inputs, 64 counters and 64 analog outputs, on some models.

Flexible Communications
Already a SCADAPack strong point, communication flexibility is further increased with a selection of connectivity modules. From the traditional leased line, phone line and radio-transceiver formats to the latest Ethernet and Bluetooth technologies, Control Microsystems 5000 Series communication modules make data-transfer easy and cost-effective.

Applications and Benefits
Whether being specified for a new SCADAPack installation or incorporated into an existing one, the I/O Expansion and Communication modules are specifically designed for use with SCADAPack controllers, are DIN rail-mountable, and are powered either by the SCADAPack itself or by an external power supply. The 5103 UPS module provides additional power where required.

With a wide selection of I/O expansion modules available, many diverse industries, including water and wastewater, oil and gas, and industrial process control, will benefit from SCADAPack process control and SCADA applications.

A variety of communication modules ensures that SCADAPack controllers can be integrated into existing corporate LANs and WANs, and industrial plant-based networks such as leased-line and RS-485.

3 year warranty on parts and labor for all Expansion and Communication Modules.

+ The SCADAPack100 controller does not support I/O Expansion modules.

www.controlmicrosystems.com
### 5000 Series

#### Analog Input Modules

**Module 5502**

**Differential Analog Input Module**

**Features:**
- 8 Differential Isolated Inputs for high versatility
- Integrated transient protection with fusing
- Bipolar 13 bit resolution
- High common mode voltage rejection and tolerance

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5502</td>
<td>297211</td>
<td>8 channel isolated, differential, bipolar analog input module, +/-10V or +/-20mA</td>
</tr>
</tbody>
</table>

**Module 5503**

**RTD Input Module**

**Features:**
- 4 RTD inputs
- Optical isolation for high reliability
- Integrated transient protection
- Minimal self-heating
- Multi-range

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5503</td>
<td>297151</td>
<td>4 channel isolated, four wire RTD input module, PT100</td>
</tr>
</tbody>
</table>

**Module 5504**

**Thermocouple Input Module**

**Features:**
- 8 type J, K, T, E or ±80 mV inputs
- Optical isolation for high reliability
- Integrated transient protection
- Linearized and cold junction compensated

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5504</td>
<td>297166</td>
<td>8 channel isolated thermocouple input module, J, K, T, E</td>
</tr>
</tbody>
</table>

#### Analog Output Modules

**Module 5505**

**RTD Input Module**

**Features:**
- Input values scaled and linearized
- Data returned as 32-bit floating-point number
- Lower power consumption
- Automatic 3-wire RTD compensation
- 5503 emulation mode for Legacy systems

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5505</td>
<td>297318</td>
<td>4 channel 3 or 4 wire RTD input module, 100Ω platinum</td>
</tr>
</tbody>
</table>

**Module 5506**

**Analog Input Module**

**Features:**
- 0 to 20mA / 4 to 20mA inputs
- 0 to 5V / 1 to 5V inputs
- Individual input configuration
- 5501 emulation mode for Legacy systems

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5506</td>
<td>297319</td>
<td>8 channel analog input module, each input individually configured</td>
</tr>
</tbody>
</table>

**Module 5302**

**Analog Output Module**

**Features:**
- 20mA Current
- Low Power
- Class 1, Division 2 for use in hazardous locations

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5302*</td>
<td>297176</td>
<td>4 channel isolated analog output module, 0-20/4-20mA (only two channels supported with SmartWIRE)</td>
</tr>
</tbody>
</table>
**Analog Output Module**

**Module 5304**

**Analog Output Module**

**Features:**
- 4 isolated analog outputs
- Selectable voltage and current modes
- 5V and 10V selectable voltage modes
- Low Power
- Class 1, Division 2 for use in hazardous locations

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5304-20*</td>
<td>297248</td>
<td>0-20 mA</td>
</tr>
<tr>
<td>5304-10*</td>
<td>297252</td>
<td>0-10 volts</td>
</tr>
<tr>
<td>5304-5*</td>
<td>297253</td>
<td>0-5 volts</td>
</tr>
<tr>
<td>5304-C*</td>
<td>297254</td>
<td>Custom (specify range of each input)</td>
</tr>
</tbody>
</table>

**Digital Input Modules**

**Module 5404**

**High Level Digital Input Module**

**Features:**
- 16 digital inputs
- 16 optically isolated digital inputs
- Isolated in groups of 4 for ease of wiring
- Very low power requirements
- 12 to 240 volts

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5404-240*</td>
<td>297154</td>
<td>240V discrete input module</td>
</tr>
<tr>
<td>5404-120*</td>
<td>297155</td>
<td>120V discrete input module</td>
</tr>
<tr>
<td>5404-48*</td>
<td>297156</td>
<td>48V discrete input module</td>
</tr>
<tr>
<td>5404-24*</td>
<td>297157</td>
<td>24V discrete input module</td>
</tr>
<tr>
<td>5404-12*</td>
<td>297158</td>
<td>12V discrete input module</td>
</tr>
</tbody>
</table>

**Module 5403**

**High Level Digital Input Module**

**Features:**
- 8 digital inputs
- Reliable optical isolation
- Isolated in groups of 4 for ease of wiring
- Very low power requirements
- Universal AC or CD

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5403-240</td>
<td>297106</td>
<td>240V discrete input module</td>
</tr>
<tr>
<td>5403-120</td>
<td>297107</td>
<td>120V discrete input module</td>
</tr>
<tr>
<td>5403-48</td>
<td>297108</td>
<td>48V discrete input module</td>
</tr>
<tr>
<td>5403-24</td>
<td>297109</td>
<td>24V discrete input module</td>
</tr>
<tr>
<td>5403-12</td>
<td>297110</td>
<td>12V discrete input module</td>
</tr>
</tbody>
</table>

**Typical Installation**

All expansion modules can be powered by a SCADAPack controller or by a separate power supply. Typical installations have the expansion modules mounted adjacent to the controller on the DIN rail with inter-module cables.
### Digital Input Modules

**Module 5410**
**High Speed Counter/Accumulator**

**Features:**
- 4 counter inputs
- Optically isolated
- 32 bit count range
- Wide input range 3 VDC - 28 VDC
- Guaranteed no missed counts to 10KHz
- Count retained during power outage
- Self clearing or accumulating
- Accepts quadrature phase inputs

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5410</td>
<td>297149</td>
<td>4 channel, 10KHz counter input module [or 2 phase encoder inputs]</td>
</tr>
</tbody>
</table>

### Digital I/O Modules

**Module 5402**
**Configurable Digital Input or Output Module**

**Features:**
- 16 configurable digital inputs or outputs
- Each point can be AC or DC
- Plug-in relays simplify maintenance
- High current outputs to 3A

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5402*</td>
<td>297153</td>
<td>16 point input or output module [Relay choices listed on Module 5402 specification sheet]</td>
</tr>
</tbody>
</table>

### Digital Output Modules

**Module 5406A**
**Dry Contact Relay Out Module**

**Features:**
- 16 Form A mechanical relays
- Highest output load current
- Zero leakage current
- Individually isolated
- Modifiable for Form B (NC) operation
- External power input capability

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5406*</td>
<td>297284</td>
<td>16 point Form A relay output module, 6A contacts</td>
</tr>
</tbody>
</table>

**Module 5407**
**Dry Contact Relay Out Module**

**Features:**
- 8 Form A mechanical relays
- Highest output load current
- Zero leakage current
- Individually isolated
- Modifiable for Form B (NC) operation
- Relays sealed against corrosion

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5407</td>
<td>297126</td>
<td>8 point Form A relay output module, 6A contacts</td>
</tr>
</tbody>
</table>
Expansion & Communication Modules

Digital Output Modules

Module 5408
Triac Digital Output Module
Features:
- 8 triac digital outputs
- Optical isolation
- Snubbers for inductive loads
- MOV transient suppression
- Zero-crossing turn on/off for low EMF

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5408</td>
<td>297103</td>
<td>8 point triac output module, 24-240VAC @ 1A</td>
</tr>
</tbody>
</table>

Module 5409
FET Digital Output Module
Features:
- 8 isolated DC outputs
- Optical isolation
- Diode protected for inductive loads
- Power source LED

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5409</td>
<td>297117</td>
<td>8 point DC output module, 12-24VDC @ 1A</td>
</tr>
</tbody>
</table>

Module 5411
Digital Output Module
Features:
- High density, 32 digital outputs
- Sinking output design
- Low Power
- Class 1, Division 2 for use in hazardous locations

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5411*</td>
<td>297246</td>
<td>32 point, 12-24V digital output module, open-drain type</td>
</tr>
</tbody>
</table>

* Modules not fully supported by the non-programmable SmartWIRE controller modules [Model 5201 & 5202]

Combination I/O Modules

Module 5606
Analog/Digital I/O Module
Features:
- High density I/O combination board
- 32 DIs
- 16 Relay D0s
- 8 Configurable AIs
- 2 Optional AOs

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5606-24</td>
<td>297328</td>
<td>Combination 24V DI, DI and AI module</td>
</tr>
<tr>
<td>5606-48</td>
<td>297329</td>
<td>Combination 48V DI, DI and AI module</td>
</tr>
<tr>
<td>5606-120</td>
<td>297330</td>
<td>Combination 120V DI, DI and AI module</td>
</tr>
<tr>
<td>5606-240</td>
<td>297331</td>
<td>Combination 240V DI, DI and AI module</td>
</tr>
<tr>
<td>5606-24-AO</td>
<td>297334</td>
<td>Combination 24V DI, DI, AI and AO module</td>
</tr>
<tr>
<td>5606-48-AO</td>
<td>297335</td>
<td>Combination 48V DI, DI, AI and AO module</td>
</tr>
<tr>
<td>5606-120-AO</td>
<td>297336</td>
<td>Combination 120V DI, DI, AI and AO module</td>
</tr>
<tr>
<td>5606-240-AO</td>
<td>297337</td>
<td>Combination 240V DI, DI, AI and AO module</td>
</tr>
</tbody>
</table>

I/O Simulator Modules

Module 5421
Toggle Switch Digital Input Module
Features:
- 8 toggle switch digital inputs
- Reliable, sealed toggle switches
- Ideal for simulation, testing
- Status LEDs show switch position

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5421</td>
<td>297104</td>
<td>8 point, toggle switch DI module for simulation/testing</td>
</tr>
</tbody>
</table>

Module 5521
Potentiometer Input Module
Features:
- 8 potentiometer inputs
- Multi-turn pots aid adjustment
- 12 bit resolution
- Does not require 24V power

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5521</td>
<td>297119</td>
<td>8 channel potentiometer analog input module for simulation/testing</td>
</tr>
</tbody>
</table>
## 5000 Series

### Modems

#### Module 5901
**Dial-Up Modem**

**Features:**
- Heavy duty lightning suppression prevents damage
- Automatic recovery from failure-to-answer
- Power-down mode conserves power when battery-operated
- -40°C/F to 70°C/158°F operating temperature range
- v.32bis, 300 - 14,400 baud

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5901</td>
<td>297198</td>
<td>Auto dial/auto answer modem module, 56K baud V.32 bis, with built-in transient protection</td>
</tr>
<tr>
<td>5901SA</td>
<td>297199</td>
<td>Same as 5901 with a 115VAC AC adapter for connection to PCs or other RS-232 devices</td>
</tr>
</tbody>
</table>

#### Module 5902
**Bell 202 Radio or Leased Line Modem**

**Features:**
- Universal radio or telephone interface
- Soft carrier turnoff for rapid turn-around
- Excellent performance on poor lines
- Optional stand-alone versions for PCs
- Useful as isolated HART® interface

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5902</td>
<td>297120</td>
<td>Bell 202 modem module, 1200 baud, FSK, 2/4 wire, with radio PTT key control and RF carrier detect</td>
</tr>
<tr>
<td>5902SA</td>
<td>297194</td>
<td>Same as 5902 with a 115VAC AC adapter for connection to PCs or other RS-232 devices</td>
</tr>
<tr>
<td>5902SAF</td>
<td>297195</td>
<td>Same as 5902SA with a full duplex to half duplex converter - for devices without RTS/CTS support</td>
</tr>
</tbody>
</table>

### Interface Modules & Gateways

#### Module 5904
**HART Interface Module**

**Features:**
- Compliant with HART physical layers specifications
- Configurable as primary or secondary master
- Unloads HART protocol details from application software
- Enables up to 4 HART ports per CPU without using CPU serial ports

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5904</td>
<td>297205</td>
<td>HART interface module</td>
</tr>
</tbody>
</table>

#### Module 5908/5908-WO2
**Wireless Data Transceiver**

**Features (5908):**
- Incorporates Freewave Radio Technology
- Available in 900 MHz and 2.4* GHz versions
- High Speed [115.2 kbps true data throughput]

**Features (5908-WO2):**
- Incorporates MDS TransNET Radio Technology
- Available in 900 MHz
- High Speed [115.2 kbps true data throughput]

*Not applicable in all areas - consult Control Microsystems for availability

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5908</td>
<td>297270</td>
<td>Radio Transceiver, Freewave 900MHz Spread Spectrum Radio, 6-30VDC</td>
</tr>
<tr>
<td>5908-2.4G</td>
<td>297283</td>
<td>Radio Transceiver, Freewave 2.4GHz Spread Spectrum Radio, 6-30VDC</td>
</tr>
<tr>
<td>5908-WO2</td>
<td>297310</td>
<td>Radio Transceiver, MDS 900 Spread Spectrum Radio, 9-30VDC</td>
</tr>
</tbody>
</table>
# Expansion & Communication Modules

## Interface Modules & Gateways

### Module 5910 Ethernet Switch

**Features:**
- 5-port, 10/100BaseT Ethernet switch
- Auto MDI/MDI-X crossover operation
- Powered by SCADAPack 5V source.
- Class 1, Division 2, Hazardous Area Rating

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5910</td>
<td>297288</td>
<td>Ethernet Switch, 5 port (unmanaged), 10/100Mb autodetect, 12-24 Vdc powered</td>
</tr>
<tr>
<td>5910SA</td>
<td>297289</td>
<td>Same as 5910 with a 115VAC AC adapter for connection to PCs or other RS-232 devices</td>
</tr>
</tbody>
</table>

### Module 5913 Serial to Bluetooth Adapter

**Features:**
- Acts as Bluetooth slave
- Connects to SCADAPack RJ-45 serial port connector, (cable included)
- Wireless communications module certified to Bluetooth® version 2.0
- Bluetooth Class 1: +100 meter (330 feet) distance when communicating with another Class 1 device
- Encryption and 16-character alphanumeric Personal Identification Number (PIN) and error correction schemes for guaranteed packet delivery

### Module 5914 USB to Bluetooth Transceiver

**Features:**
- Acts as Bluetooth master
- Connects to USB port on desktop or laptop computer
- Wireless communications module certified to Bluetooth® version 2.0
- Bluetooth Class 1: +100 meter (330 feet) distance when communicating with another Class 1 device
- Encryption and 16-character alphanumeric Personal Identification Number (PIN) and error correction schemes for guaranteed packet delivery

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5913</td>
<td>297373</td>
<td>Serial to Bluetooth Adapter w/ 24&quot; RJ45-to-RJ45 cable</td>
</tr>
<tr>
<td>5914</td>
<td>297374</td>
<td>USB to Bluetooth Transceiver</td>
</tr>
</tbody>
</table>

## UPS Power Supply

### Module 5103 Uninterruptible Power Supply

**Features:**
- Transformer isolated
- Built-in battery charger for UPS
- Isolated 24 volt analog loop output
- Dual, wide range AC/DC inputs
- Cool running switch-mode design

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5103</td>
<td>297102</td>
<td>External UPS with 5V@2A, <a href="mailto:24V@0.5A">24V@0.5A</a> isolated outputs, 16-24VAC or 12-40 VDC</td>
</tr>
</tbody>
</table>

## Non-Programmable Controller Modules

### Module 5201 RS-485 Communication Controller

**Features:**
- Simple configuration – no programming
- Powerful industry-standard protocol
- Support 64 AI, 64 DI, 64 DO, 32 AO
- Watchdog timer
- Power saving LED control

### Module 5202 RS-232 Communication Controller

**Features:**
- Simple configuration – no programming
- Powerful industry-standard protocol
- Support 64 AI, 64 DI, 64 DO, 32 AO
- Watchdog timer
- Power saving LED control

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5201</td>
<td>297101</td>
<td>CPU, 1 RS-485 port, 2/4 wire, supports up to 64 D/I, 64 D/O, 64 A/I and 32 A/O, non-programmable</td>
</tr>
<tr>
<td>5202</td>
<td>297111</td>
<td>CPU, 1 RS-232 port, DB9P, supports up to 64 D/I, 64 D/O, 64 A/I and 32 A/O, non-programmable</td>
</tr>
</tbody>
</table>
Sample installation of Communications & I/O Modules

Remote installations using Wireless SCADAPacks

In-plant network using non-programmable controllers

Store & Forward Station

Ethernet Switch

TCP/IP

I/O Expansion

Main Plant SCADA Pack Installation

5103 5201

RS-485

Control Room SCADA Station

I/O Expansion

I/O

I/O

I/O

I/O

I/O

In-plant network using non-programmable controllers