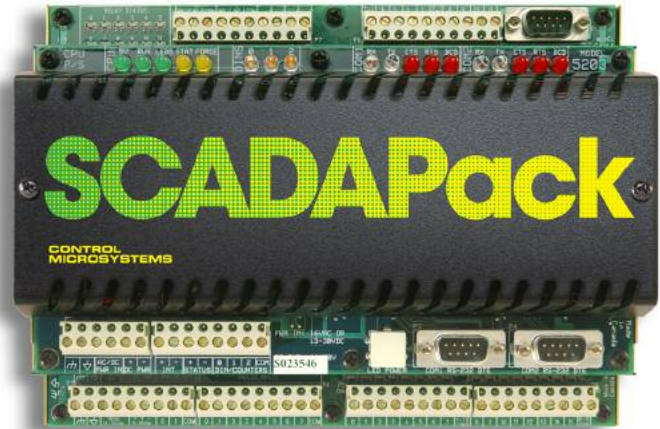


SCADAPack

Features:

- Up to 9 analog inputs and 32 digital I/O on-board
- 3 digital/counter inputs, interrupt input, status output
- 3 RS-232 or 2 RS-232 and 1 RS-485 serial port
- Optional integrated spread spectrum radio
- cULus Class 1, Division 2 Hazardous Area Rating
- Dual run custody transfer flow computer
- 3 year warranty on parts and labor



The Control Microsystems SCADAPack PLC is the flagship of the SCADAPack series of programmable logic controllers. The SCADAPack model is a flexible controller complete with integrated power supply, analog and digital I/O and serial communications. The product uses Modbus RTU, Modbus ASCII and DNP3 as native protocols and is remotely programmable through a choice of flexible programming languages. As with all SCADAPack products the SCADAPack is based on a multiprocessor architecture with a co-processor used for handling on-board input/output channels.

Overview:

Compact and Powerful - The Control Microsystems SCADAPack controller provides Remote Terminal Unit (RTU) functionality with flexible programming options. The programming options include Relay Ladder Logic, IEC 61131-3 and multitasking C languages. The unit can provide a large number of PID controllers for use in feedback control applications. The central processing unit includes a 16-bit CMOS microprocessor with up to 1 MB of CMOS RAM, up to 512K of Flash ROM for use in firmware and application programming. The unit also includes 1kB of EEPROM for storing configuration parameters. With 9 analog inputs, 32 digital I/Os and optional analog outputs, the

SCADAPack provides for a wide variety of process control and metering applications.

Flexible Communications - The SCADAPack provides 3 RS-232 or 2 RS-232 and 1 RS-485 serial communication ports offering Modbus RTU, Modbus ASCII and DNP3 communication protocols. For applications using an Ethernet LAN or WAN, a fully integrated Ethernet module is available. For those challenging remote applications a fully integrated, license-free spread spectrum wireless module is available at 900 MHz and 2.4 GHz. The SCADAPack also supports external radios and modems using Hayes AT commands, and can be programmed using powerful C tools for application specific protocols.

Applications and Benefits:

As the flagship of Control Microsystems' series of controllers the SCADAPack offers flexible options for those applications which require a mix of analog and digital I/O coupled with multiple communication ports. With real time communications using industry-standard Modbus protocols, the SCADAPack integrates easily with a wide range of SCADA software, MMIs, DCS systems, intelligent instrumentation, and remote I/O control applications.

The SCADAPack is a flexible controller with use in both master and slave configurations. Special functions

include report-by-exception and store and forward capabilities. The unit can be used in applications ranging from large installations with multiple control loops, to remote installations with power conservation requirements. Examples include the control and monitoring of process elements in sewage pumping stations and waste water purification plants. For the Oil and Gas industry this product is ideal for use in gas well optimization, automatic well testing, and tank battery facilities. With the optional on-board Ethernet module and two standard serial ports the SCADAPack can also be used in data concentration and network traffic management applications.

For low power applications the SCADAPack offers sleep mode functions which keep only counter inputs, interrupt inputs and real time clock alarms active. These features work well in installations using solar power allowing the use of smaller solar panels and batteries.

Similar in design to all other SCADAPack products, the SCADAPack is fabricated with conformal coatings, gold-plated machined sockets and zinc plated steel system components. Regardless of the specific need, the SCADAPack can provide reliable and compact stand-alone performance in the hazardous environments so often found in SCADA applications.

Specifications (P1A, integrated 5604 I/O board)

| Controller | |
|--|--|
| Processor | CPU: 16-bit CMOS, 14.74MHz clock, integrated watchdog timer CPU co-processor: 14.74MHz clock (used for I/O processing) |
| Memory | 128 kB to 1MBytes CMOS RAM, 512K flash ROM, 1kB EEPROM |
| Non Volatile | CMOS RAM with lithium battery retains contents for 2 years with no power |
| I/O | |
| Analog Inputs | 8, user selectable 0 - 10V (15 bit resolution) or 0 - 20mA (14 bit resolution) 1, 0 - 32.678V (15 bit resolution) |
| Analog Outputs | 2 with optional 5305 analog output module, output range 0-20mA |
| Digital Inputs | 4 on controller board - 3 Digital Input/Counter, 1 Interrupt with optical isolation |
| Digital Outputs | 1, 30V / 60mA (used as status output) |
| Digital I/O (5604 I/O board) | 32 configurable as input or output (1 Amp DC max output / dry contact input) |
| Communications | |
| Serial Ports (5203 controller) or Serial Ports (5204 controller) | 2 RS-232 (COM1 & COM2), DTE, DE-9P connector 1 RS-232 (COM2), DTE, DE-9P connector 1 RS-485 (COM1), 2 wire half duplex and 4 wire half or full |
| Serial Port (5604 I/O module) | 1 RS-232 (COM3), DTE, DE-9P connector |
| Baud rates (COM1, COM2) | 300, 600, 1200, 2400, 4800, 9600, 19200, 38400 |
| Baud rates (COM3) | 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 |
| Serial Protocols | Modbus RTU, Modbus ASCII, DNP3 |
| Serial Protocol Modes | Slave, Master, Master/Slave, Store and Forward |
| Ethernet Termination ^{1,4} | RJ45, 10BaseT |
| Network Protocols ^{1,4} | IP:ARP, TCP, TFTP, UDP, ICMP |
| Ethernet Protocols ^{1,4} | Modbus TCP, Modbus RTU in TCP, Modbus UDP, Modbus RTU in UDP |
| Wireless ^{2,4} | Spread spectrum radio at 900MHz ³ or 2.4 GHz ³ |
| General | |
| I/O Termination | 2, 3, 5, 8 and 10 pole, removable terminal blocks, 12 to 22 AWG, 15A contacts |
| Dimensions | 8.40 inch (213mm) wide, 6.13 inch (155mm) high, 2.80 inch (72mm) deep |
| Packaging | Corrosion resistant zinc plated steel with black enamel paint |
| Environment | 5% RH to 95% RH, non-condensing, - 40°C to 70°C (- 40°F to 158°F) |
| Power: | (5203 Controller) 11 - 30 VDC, 2.6W typical (6.5W all I/O capacity in use) (5204 Controller) 11 - 30 VDC, 3.1W typical (6.5W all I/O capacity in use) |
| Warranty: | 3 years on parts and labour |

1 Available only with optional integrated Ethernet module or with the stand-alone Ethernet module.
 2 Available only with optional integrated wireless modules or with stand-alone wireless modules.
 3 Not applicable in all countries.
 4 Either the Ethernet or wireless module can be integrated inside the SCADAPack, not both.

Specifications (P1, integrated 5601A I/O board)

| Controller | |
|--|--|
| Processors | CPU: 16-bit CMOS, 14.74MHz clock, integrated watchdog timer CPU co-processor: 14.74MHz clock (used for I/O processing) |
| Memory | 128 kB to 1MBytes CMOS RAM, 512K flash ROM, 1kB EEPROM |
| Non Volatile | CMOS RAM with lithium battery retains contents for 2 years with no power |
| I/O | |
| Analog Inputs | 8, user selectable 0 - 5V (15 bit resolution) or 0 - 20mA (14 bit resolution) |
| Analog Outputs | 2 with optional 5305 analog output module, output range 0-20mA |
| Digital Inputs | 4 On controller board - 3 Digital Input/Counter, 1 Interrupt with optical isolation 16 On 5601A I/O module - 6.5mA typical at 24V and 3.5mA typical at 115V |
| Digital Outputs | 1 On controller board , 30V, 60mA (used as status output) 12 On 5601A I/O module - Sealed mechanical relay: <ul style="list-style-type: none"> ■ 0.4A at 125 Vrms, 2A at 30V resistive loads ■ 1.0A at 30V, 0.2A at 125Vrms inductive load with pf=0.4, L/R=7ms ■ 250Vrms, 220V maximum operating voltage |
| Communications | |
| Serial Ports (5203 controller) or Serial Ports (5204 controller) | 2 RS-232 (COM1 & COM2), DTE, DE-9P connector 1 RS-232 (COM2), DTE, DE-9P connector 1 RS-485 (COM1), 2 wire half duplex and 4 wire half or full duplex |
| Serial Port (5601 I/O module) | 1 RS-232 (COM3), DTE, DE-9P connector |
| Baud rates (COM1, COM2) | 300, 600, 1200, 2400, 4800, 9600, 19200, 38400 |
| Baud rates (COM3) | 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 |
| Serial Protocols | Modbus RTU, Modbus ASCII, DNP3 |
| Serial Protocol Modes | Slave, Master, Master/Slave, Store and Forward |
| Ethernet Termination ¹ | RJ45, 10BaseT |
| Network Protocols ¹ | IP:ARP, TCP, TFTP, UDP, ICMP |
| Ethernet Protocols ¹ | Modbus TCP, Modbus RTU in TCP, Modbus UDP, Modbus RTU in UDP |
| Wireless ^{2, 4} | Spread spectrum radio at 900MHz ³ or 2.4 GHz ³ |
| General | |
| I/O Terminations | 2, 3, 5, 8 and 10 pole, removable terminal blocks, 12 to 22 AWG, 15A contacts |
| Dimensions | 8.40 inch (213mm) wide, 6.13 inch (155mm) high, 2.80 inch (72mm) deep |
| Packaging | Corrosion resistant zinc plated steel with black enamel paint |
| Environment | 5% RH to 95% RH, non-condensing - 40°F (- 40°C) to 158°F (70°C) |
| Power | (5203 controller) 11 - 30 VDC, 1.6W typical all relays off, 5.1W typical all relays on (5204 controller) 11 - 30 VDC, 2.2W typical all relays off, 5.6W typical all relays on |
| Warranty | 3 years on parts and labor |

¹ Available only with optional integrated Ethernet module or with the stand-alone Ethernet module.

² Available only with optional integrated wireless modules or with stand-alone wireless modules.

³ Not applicable in all countries.

⁴ Either the Ethernet or wireless module can be integrated inside the SCADAPack, not both.

Model Code

P1-102-02-0-0 represents a sample code for a P1 with DNP, 0-5V inputs, 12-24V outputs

| Model | Select: Controller |
|-----------|--|
| P1 | SCADAPack, 16 Bit controller |
| T1 | Above SCADAPack with integrated Ethernet Gateway Module supporting Modbus TCP/UDP, Modbus in TCP/UDP |
| W1 | Above SCADAPack with an integrated 900MHz Spread Spectrum Radio – requires one RS-232 communication port |

| Code | Select: Lower I/O Module |
|----------|---|
| | 5601 lower I/O module, includes 16 Digital Inputs, 12 Digital Outputs and 8 Analog Inputs (see options below) |
| A | 5604 lower I/O module, includes 32 configurable Digital I/O and 8 selectable Analog Inputs (0-10v or 0-20mA) |

| Code | Select: Communications Serial Ports |
|----------|--|
| 1 | 3 RS-232 Communication Ports, DE9P, RTS/CTS |
| 2 | 2 RS232 (DE9P) and 1 RS-485 (Terminal block) Communication Ports, RTS/CTS |
| 3 | W1 only - replace integrated 900 MHz FreeWave SS Radio with MDS SS Radio, 2 RS-232 ports available |
| 4 | W1 only - replace integrated 900 MHz FreeWave SS Radio with MDS SS Radio, 1 RS-232 & 1 RS-485 port available |

| Code | Select: Memory Configuration |
|----------|---------------------------------------|
| 3 | 512K OS RAM (U10), 512K APP RAM (U15) |

| Code | Select: Protocol Option/ Programming Environment |
|----------|---|
| 0 | Modbus protocol with TelePACE Ladder Logic and C Language firmware loaded - IEC enabled |
| 1 | Modbus and DF1 protocol with TelePACE Ladder Logic and C Language firmware loaded - IEC enabled |
| 2 | Modbus and DNP 3.0 (Level 2) protocol with TelePACE Ladder Logic and C Language firmware loaded - IEC enabled |
| 3 | Modbus protocol with IEC 61131-3 and C Language firmware loaded - TelePACE Ladders enabled |
| 4 | Modbus and DF1 protocol with IEC 61131-3 and C Language firmware loaded - TelePACE Ladders enabled |
| 5 | Modbus and DNP 3.0 (Level 2) protocol with IEC 61131-3 and C Language firmware loaded - TelePACE enabled |

| Code | Select: Analog Inputs |
|-----------|--|
| 01 | 0-20mA, single ended |
| 02 | 0-5 volt, single ended (5601 lower I/O Module only) |
| 03 | 0-10 volt, single ended (5604 lower I/O Module only) |
| 04 | Pre-selected range for each A/I, must specify each A/I as being 0-20mA or 0-10v (5604 lower I/O Module only) |

| Code | Select: Digital Inputs/Outputs |
|----------|--|
| 0 | Dry Contact Digital Inputs, Open Drain Digital Outputs, Individually configurable (5604 lower I/O Module only) |
| 0 | 12-24 volt Digital Inputs, Dry Contact Digital Outputs (5601 lower I/O Module only) |
| 1 | 120 volt Digital Inputs, Dry Contact Digital Outputs (5601 lower I/O Module only) 220 volt |
| 2 | Digital Inputs, Dry Contact Digital Outputs (5601 lower I/O Module only) |

| Code | Select: Analog Outputs |
|----------|---|
| 0 | None |
| 1 | 2 channel Analog Output option, 0-20 mA |