

SCADAPack32

Features:

- 32 bit RISC processor, 8Mb SDRAM, 4Mb FLASH
- Built in Ethernet port
- 3 RS-232, 1 RS-232/485 ports
- Optional integrated spread spectrum radio
- cULus Class 1, Division 2 Hazardous Area Rating
- 2, 4 or 10 run custody transfer flow computer using RealFLO 6
- 3 year warranty on parts and labor



The Control Microsystems SCADAPack32 is one of five available models in the SCADAPack series of programmable logic controllers. More powerful than the 16 bit controllers, the SCADAPack32 offers high performance, built-in Ethernet, 8 Mb of SDRAM and a wide range of analog and digital I/O options. The product offers 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 SCADAPack32 is based on a multiprocessor architecture with a co-processor used for handling on-board input/output channels.

Overview:

Compact and Powerful - The SCADAPack32 PLC provides Remote Terminal Unit (RTU) functionality with flexible programming options. The unit is programmable in Relay Ladder Logic, IEC 61131-3 and multitasking C/C++ languages and provides an unlimited number of PID controllers for use in feedback control applications. The processor board version (SCADAPack 32P) provides an integrated power supply, 4 digital/counter inputs and a status output, and may be ordered with one of three available lower I/O modules within the same chassis for increased I/O capacity. Further I/O

expansion is easily handled by the product's support for up to twenty 5000 Series I/O modules.

Flexible Communications - The SCADAPack32 provides three RS-232 and one RS-232/485 serial communication ports running both Modbus RTU and Modbus ASCII communication protocols and DNP3. For applications using an Ethernet LAN or WAN, a fully integrated Ethernet port is also included. For those challenging remote applications a fully integrated, license-free spread spectrum wireless module is available at 900 MHz and 2.4 GHz. The SCADAPack32 also supports external radios and modems that use Hayes AT commands, and can be programmed using powerful C/C++ tools for application specific protocols.

Applications and Benefits:

As a stand-alone product, this 32-bit controller, with its 32-bit wide memory, offers the performance needed for those applications requiring real-time communications using multiple protocols and short program loop times. The SCADAPack32 controller can be used in either Master or Slave configurations. Real time communications using industry standard Modbus protocols simplifies integration with

SCADA software, MMIs, DCS systems, intelligent instrumentation and remote I/O control applications.

With its compact footprint and high level of integration the SCADAPack32 is a natural choice for applications where a large number of process I/O and/or control loops are required. As a cost effective solution, this product can be applied to demanding applications including compressor controls, multi-run gas flow computation and electrical distribution. With a real-time clock calendar providing time of day operations and alarms, and a hardware watchdog timer protecting against application program failures, the SCADAPack32 can be used in a wide range of critical processes. Having on-board Ethernet and four multi-functional serial ports, the controller can also be used in high performance data concentration and network traffic management applications.

Similar in design to all other SCADAPack products, the SCADAPack32 is fabricated with conformal coatings, gold-plated machined sockets and zinc plated steel system components. Regardless of the specific need, the SCADAPack32 can provide reliable and compact stand-alone performance in the hazardous environments so often found in SCADA applications.

Specifications (P4A, integrated 5604 I/O board)

Controller	
Processor	CPU: 32-bit CMOS, 120MHz clock, integrated watchdog timer
Memory	8 Mb SDRAM, 4 Mb FLASH, 1 Mb CMOS RAM
Non Volatile RAM	CMOS RAM with lithium battery retains contents for 2 years with no power
I/O	
Analog Inputs	8, user selectable 0 - 10V (15 bit) or 0 - 20mA (14 bit) 1, 0 - 32.678V (15 bit)
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 Port COM1	Configurable RS-232 or RS-485, 2 wire half duplex or 4 wire full/half duplex
Serial Ports COM2, COM4	RS-232, DTE, 8 pin modular jack, full or half duplex with RTS/CTS control Implemented Td, Rd, CTS, RTS, DCD, DTR, +5V
Serial Port COM3	Located on 5604 I/O module. Same specifications as COM2 and COM4
Baud Rates COM1, COM2, COM4	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200
Baud Rate COM3	1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200
Serial Protocols	Modbus RTU, Modbus ASCII, DNP3, DF1, PPP
Ethernet Port	RJ45, 10BaseT
Network Protocols	IP: ARP, TCP, TFTP, UDP, ICMP
Ethernet Port Protocols	Modbus TCP, Modbus RTU in UDP, Modbus ASCII in UDP, DNP in TCP, DNP in UDP
Wireless ¹	Spread spectrum radio at 900MHz ² and 2.4 GHz ²
General	
I/O Terminations	6, 8, 9 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 Input:	11 - 30 VDC, 4.3W typical (10.8W full I/O capacity in use)
Warranty	3 years on parts and labor

¹ Available only with optional integrated wireless modules or with stand-alone wireless modules.

² Not applicable in all countries.

Specifications (P4, integrated 5601A I/O board)

Controller	
Processor	CPU: 32-bit CMOS, 120MHz clock, integrated watchdog timer
Memory	8 Mb SDRAM, 4 Mb FLASH, 1 Mb CMOS RAM
Non Volatile RAM	CMOS RAM with lithium battery retains contents for 2 years with no power
I/O	
Analog Inputs	8, user selectable 0 - 5V (15 bit) or 0 - 20mA (14 bit)
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 Port COM1	Configurable RS-232 or RS-485, 2 wire half duplex or 4 wire full/half duplex
Serial Ports COM2,COM4	RS-232, DTE, 8 pin modular jack, full or half duplex with RTS/CTS control. Implemented Td, Rd, CTS, RTS, DCD, DTR, +5V
Serial Port COM3	Located on 5604 I/O module. Same specifications as COM2 and COM4
Baud Rates COM1,COM2,COM4	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200
Baud Rate COM3	1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200
Serial Protocols	Modbus RTU, Modbus ASCII, Optional DNP3
Ethernet Port	10BaseT, RJ45
Network Protocols	IP:ARP, TCP, TFTP, UDP, ICMP
Ethernet Port Protocols	Modbus TCP, Modbus RTU in UDP, Modbus ASCII in UDP
Wireless ¹	Spread spectrum radio at 900MHz ² and 2.4 GHz ²
General	
I/O Terminations	6, 8, 9 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 Input:	11 - 30 VDC, 3.5W typical all relays off, 6.5W typical all relays on
Warranty	3 years on parts and labor

¹ Available only with optional integrated wireless modules or with stand-alone wireless modules.

² Not applicable in all countries.

Specifications (P4B, integrated 5606 I/O board)

Controller	
Processor	CPU: 32-bit CMOS, 120MHz clock, integrated watchdog timer
Memory	8 Mb SDRAM, 4 Mb FLASH, 1 Mb CMOS RAM
Non Volatile RAM	CMOS RAM with lithium battery retains contents for 2 years with no power
I/O	
Analog Inputs	8, single-ended, software selectable 0-5V / 0-10 V or 0-20mA / 4-20mA (16 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, 32 on 5606 I/O module: <ul style="list-style-type: none"> ■ 0.67 mA typical at 24V on the 12/24V range, ■ 0.37 mA typical at 48V on the 48V range, ■ 0.35 mA typical at 120V on the 115/125V range, ■ 0.35 mA typical at 240V on the 240V range
Digital Outputs	1 on controller board, 30V, 60mA (used as status output) 16 on 5606 I/O module - Sealed mechanical relay: <ul style="list-style-type: none"> ■ 3A, 30VDC or 240VAC (Resistive) ■ 1000VAC between open contacts
Communications	
Serial Port COM1	Configurable RS-232 or RS-485, 2 wire half duplex or 4 wire full/half duplex
Serial Ports COM2, COM4	RS-232, DTE, 8 pin modular jack, full or half duplex with RTS/CTS control Implemented Td, Rd, CTS, RTS, DCD, DTR, +5V
Baud Rates COM1, COM2, COM4	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200
Serial Protocols	Modbus RTU, Modbus ASCII, DNP3
Ethernet Port	RJ45, 10BaseT
Network Protocols	IP: ARP, TCP, TFTP, UDP, ICMP
Ethernet Port Protocols	Modbus TCP, Modbus RTU in UDP, Modbus ASCII in UDP
Wireless ¹	Spread spectrum radio at 900MHz ² and 2.4 GHz ²
General	
I/O Terminations	5, 6, 8, 9 and 10 pole, removable terminal blocks, 12 to 22 AWG, 15A contacts
Dimensions	8.40 inch (213mm) wide, 6.48 inch (164mm) 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 Input:	11 - 30 VDC, 4.3W typical (10.8W full I/O capacity in use)
Warranty	3 years on parts and labor

¹ Available only with optional integrated wireless modules or with stand-alone wireless modules.

² Not applicable in all countries.

Model Code P4-102-02-0-0 represents a sample code for a P4 with DNP, 0-5V inputs, 12-24V outputs

Model Select: Controller

P4	SCADAPack32, 32 Bit Controller with Integrated Ethernet Port
V4	Above SCADAPack with an integrated 2.4GHz FreeWave Spread Spectrum Radio - requires one RS-232 port
W4	Above SCADAPack with an integrated 900MHz Spread Spectrum Radio - requires 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)
B	5606 lower I/O module, includes 32 Digital Inputs, 16 Digital Outputs and 8 software configurable Analog Inputs

Code Select: Communications Serial Ports

1	With 5601 or 5604: 3 RS232, 1 RS232/485 & 1 Ethernet Port With 5606: 2 RS232, 1RS232/485 & 1 Ethernet Port
3	W4 only - replace integrated 900MHz FreeWave SS Radio with MDS SS Radio

Code Select: Memory Configuration

0	8 Meg DRAM, 4 Meg FLASH, 1 Meg non-volatile SRAM
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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 (0n 5601 and 5604, Default on 5606 which is also software configurable to 0-5V or 0-10V)
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 and 5606 lower I/O Modules only)
1	120 volt Digital Inputs, Dry Contact Digital Outputs (5601 and 5606 lower I/O Modules only)
2	220 volt Digital Inputs, Dry Contact Digital Outputs (5601 and 5606 lower I/O Modules only)

Code Select: Analog Outputs

0	None
1	2 channel Analog Output option, 0-20 mA

Model	Part Number	
5232	297223	SCADAPack 32P, Processor board only, Ports: 2 RS-232, 1 RS-232/485, 1 Ethernet
5232-W	297223W	SCADAPack 32P, same as 5232, with an integrated FreeWave Spread Spectrum radio
5232-W2	297223W2	SCADAPack 32P, same as 5232, with an integrated MDS Spread Spectrum radio