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2700AP Series Automation Controllers

Integrated, high-performance control

Control Technology Corporation

25 South Street
Hopkinton MA 01748
800.282.5008
www.ctc-control.com



- **Integrates machine sequencing, motion control, networking and analog data acquisition**
- **Serial, Ethernet, DeviceNet communications**
- **Performance exceeds that of more costly controllers**
- **Easy programming**
- **Up to 84 concurrent tasks**

Totally integrated control

The 2700AP Series Automation Controllers are high-performance control systems that accept a wide range of plug-in modules to accommodate specific applications. These controllers integrate machine sequencing, motion control, networking and analog data acquisition into a single control strategy. Discrete devices can be programmed independently during preliminary stages of the project and then combined with other devices at later stages, which simplifies troubleshooting and accelerates development. Supplied in an easily panel-mountable format, the 2700AP Series accepts modules for every aspect of motion, digital and analog control, with additional modules for advanced serial, Ethernet and DeviceNet™ communications. Supported protocols include TCP/IP, UDP, and Modbus. The 2700AP uses powerful, flexible communications avenues to integrate with other other devices such as robots, which may have their own control programs.

High performance, low cost

The 2700AP uses advanced technology, including a highly integrated plug-in CPU, to attain performance that exceeds the response metrics of much more costly systems. This performance level, combined with the controller's 64K user memory capacity and extended I/O and step capacities, makes the 2700AP Series appropriate for any application that demands ultra fast response times or real-time, multitasking machine control. An independent CPU in each plug-in module supplements the one in the main control unit, distributing workload across multiple processors and thereby increasing performance even more.

Easy programming

Users program the 2700AP with CTC's Quickstep™, a powerful automation programming language. Quickstep has the easy to learn English-like syntax that is traditionally limited to desktop applications, yet it enables users to deploy industrial-strength features: multitasking for up to 84 independent tasks and an instruction set that includes high-level motion control commands, as well as time delay, input monitoring, math and data manipulation commands. These commands make full use of such internal resources as the controller's non-volatile and volatile registers, user-definable data table, input-linkable counters and 32 flags.

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Other Specifications

Capacities*

Models 2700AP -5/10/16	
Module Slots:	5/10/16
Inputs:**	160/320/512
Outputs:**	120/320/256
Analog Inputs:	80/128/128
Servo Axes:	10/16/16
RS-232 Channels:	12/13/13

*Not mutually inclusive
**Slot limit

CPU Module On-board I/O

Digital Inputs*	4
Digital Outputs*	4
Encoder Inputs*	1
Registration Inputs*	2
RS-232 Ports**	2

*Requires Model 2346 distribution board.
**Requires Model 2886 duplex adapter to use the second communication port.

All specifications listed are at 25°C unless otherwise specified. See 2703AP CPU Data Sheet for on-board I/O specs and Quickstep™ instructions supported.

More Information

To receive further detailed information about Control Techology products, contact our Systems Specialists at:

Control Technology Corporation

25 South Street
Hopkinton MA 01748

Phone: 508.435.9595
Toll Free: 800.282.5008
Fax: 508.435.2373
Email: help@ctc-control.com
Web: www.ctc-control.com

Model 2700AP Specifications

General Specifications

Absolute Maximum Ratings	Min	Typical	Max	Units
Ambient Temperature				
Operating	0		50	°C
Storage	-20		80	°C
A.C. Voltage Range				
120 V Mode 50/60Hz	100.0	120.0	132.0	VAC
240 V Mode 50/60Hz	200.0	240.0	264.0	VAC
Current Requirement				
120 V Mode	0.9	1.5		Amp
240 V Mode	0.45	0.75		Amp
Power Supply Capacities				
+24 V I/O Supply			1.5	Amp
+5 V Logic Supply			5.0	Amp
RS-232 Transmitters		±9	±12	VDC
RS-232 Receivers		±3	±12	VDC
Common Mode Voltage Range	-10		+10	VDC
Encoder Power-Supply Capacity (+5V)			250.0	mA
CPU Power Requirement (5V)		0.4	0.6	Amp
Lithium-cell RAM (4 yrs. unpowered)		128K		Bytes

This CPU uses a Hitachi SH-2 processor running at 24.576 MHz

Supported Modules

Models 2201, 2202, 2203, and 2221 DC Input and Output Modules
Model 2206 Single or Dual-axis Stepping Motor Modules
Models 2207, 2209 and 2713 Analog Input and Output Modules
Models 2210 and 2211 AC Input and Output Modules
Model 2212 8-channel Relay Module
Model 2220 Precision Analog Input and Output Modules
Models 2214, 2219 and 2719 Dual-axis Servo Control Modules
Model 2216 and 2716 Dual Channel RS-232 Modules
Model 2217 and 2717 Ethernet Communications Modules

Programming Resources

500 Volatile Registers – for the temporary storage of numeric data, 32-bit capacity (integers in the range of -2,147,483,648 to +2,147,483,647).
4500 Non-volatile Registers – similar to the above, except with indefinite retention of data during power-down.
16000+ Element Data Table – a two-dimensional array of numbers, capable of storing numbers in the range of 0 to +65,535.
32 Flags – bistable (“set” or “clear”) memory elements used to store events or communicate between tasks. Instructions “shift” and “rotate” also allow their use as shift registers.
8 Input-linkable Counters – each may be programmed to automatically monitor any three inputs to perform “count-up,” “count-down” and “reset” functions, at rates to 750 Hz.
8 Additional Upcounters – each may be linked to digital inputs for counting at rates up to 750 Hz.
Group I/O Access – I/O may be accessed as 8-bit, 16-bit or 32-bit binary words.
Indirect Addressing – I/O and registers may be indirectly addressed for iterative access.
Unlimited Timers – fixed or variable time delays down to 10 ms level.
Message Transmitting – of stored messages, with data, via RS-232 port.
Real-Time Clock – free-running, user-settable RTC allowing second, minute, hour, day, month, year levels.
Indirect Addressing – all resources may be indirectly addressed for iterative access.
4096 Program Steps – each step defines the state of the process for a period of time.
84 Simultaneous Tasks – each task may be an independent sequence of steps, running asynchronous to any other tasks in operation.
Programmable Limit Switch – up to 16 high-speed outputs may be independently programmed to turn on and off based on servo motor positions.
Quadrature Encoder Input – 32-bit counter with 2 high-speed registration inputs.

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