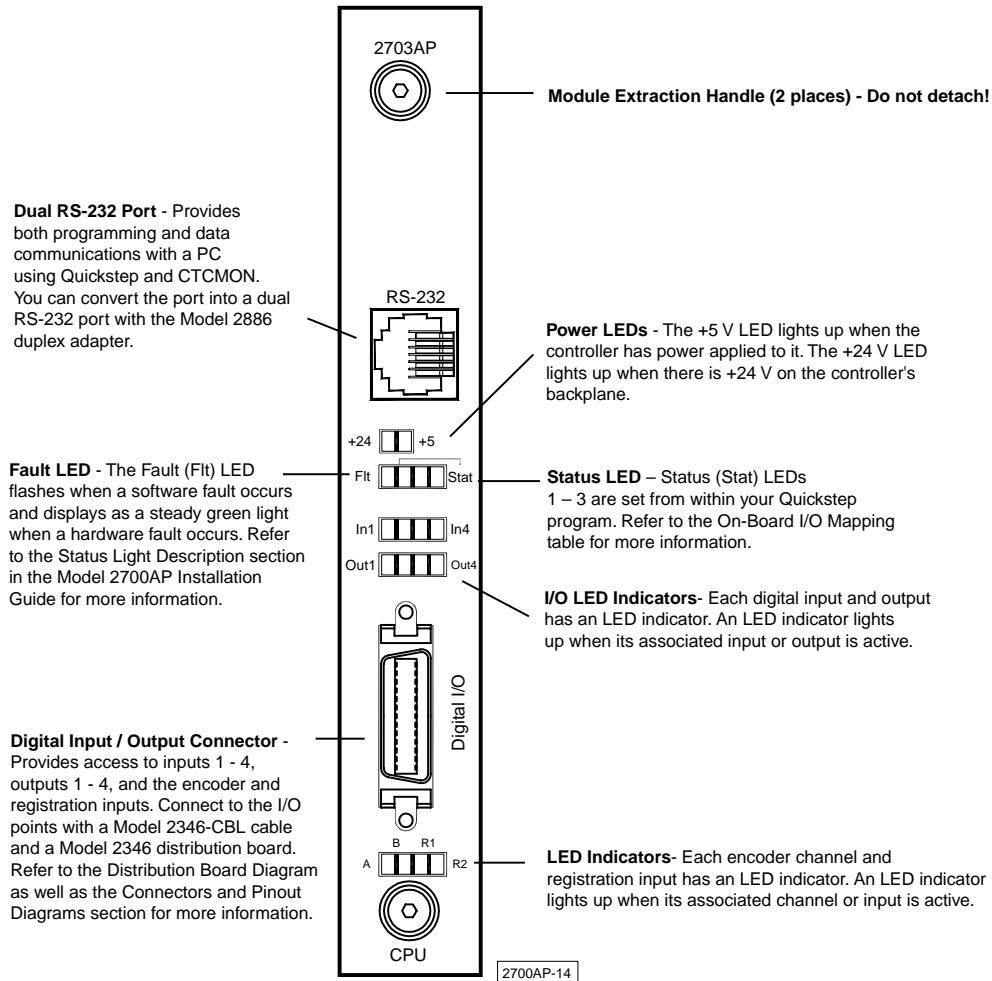


# Model 2703AP Quick Reference Guide

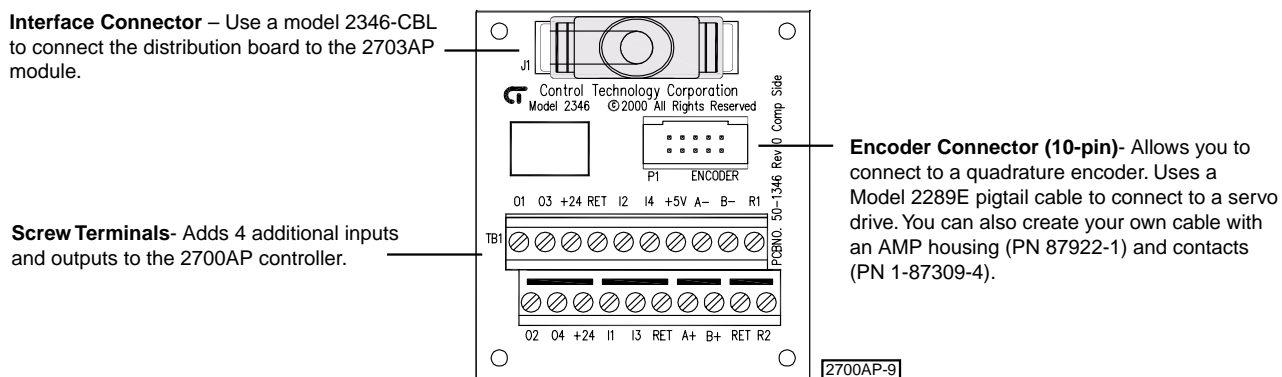
## Product Overview

This section describes the Model 2703AP faceplate and the Model 2346 distribution board.

**Figure 1. 2703AP CPU Faceplate**

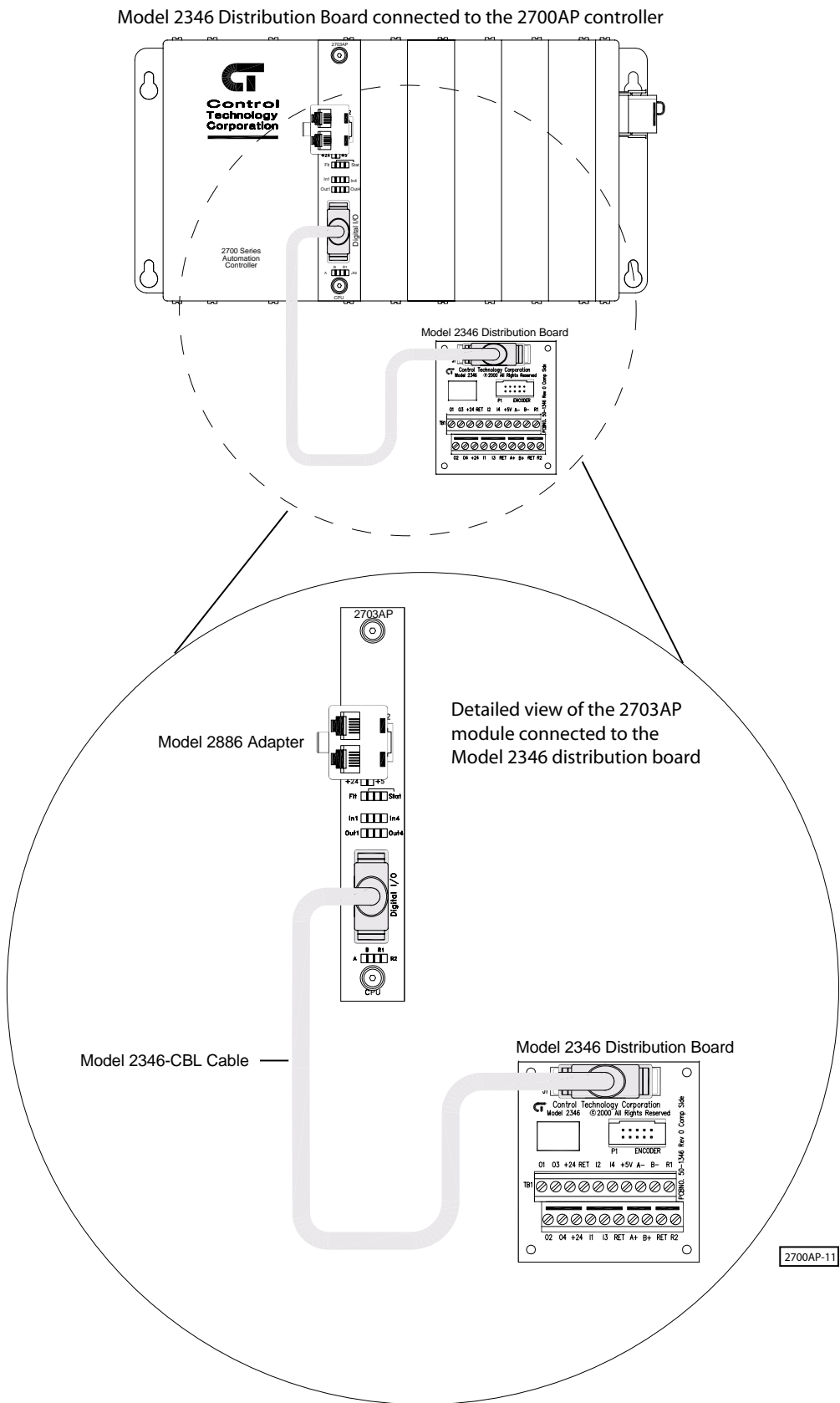


**Figure 2. Model 2346 Distribution Board Description**

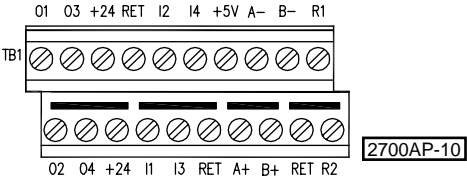


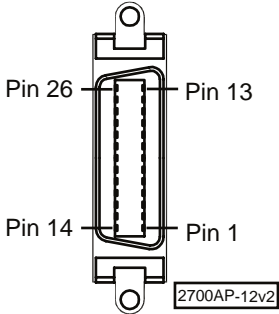
# Model 2703AP Quick Reference Guide Product Overview

**Figure 3. Model 2346 Distribution Board Connection Diagram**



## Connectors and Pinout Diagrams

I/O Connector Distribution Contacts (located on Model 2346 distribution board)	Pin #	Signal	Pin #	Signal
	1	Output 1	11	Output 2
	2	Output 3	12	Output 4
	3	+24 V	13	+24 V
	4	Return	14	Input 1
	5	Input 2	15	Input 3
	6	Input 4	16	Return
	7	+5 V	17	Phase A+
	8	Phase A-	18	Phase B+
	9	Phase B-	19	Return
	10	Registration Input 1	20	Registration Input 2

Interface Connector (located on 2703AP module and 2346 distribution board)	Pin #	Signal	Pin #	Signal
	1	+5VE	14	RET
	2	Phase B+	15	Phase B-
	3	Phase A+	16	Phase A-
	4	RET	17	RET
	5	REG1	18	REG2
	6	IN3	19	IN4
	7	IN1	20	IN2
	8	+24V	21	+24V
	9	OUT4	22	OUT4
	10	OUT3	23	OUT3
	11	OUT2	24	OUT2
	12	OUT1	25	OUT1
	13	+24V	26	+24V

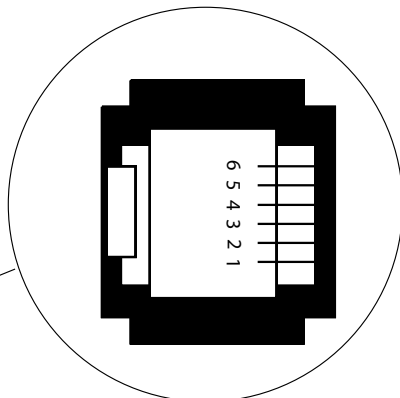
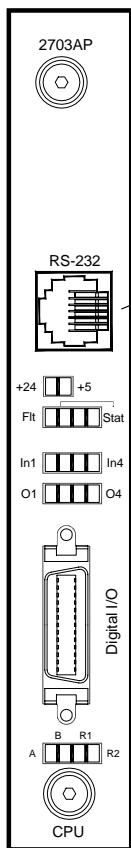
<b>Encoder Connector (located on the Model 2346 distribution board)</b>		<b>Pin #</b>	<b>Signal</b>	<b>Pin #</b>	<b>Signal</b>
		1	Phase A (+)	6	5 Volt Return
		2	Phase A (-)	7	+5 VDC (for encoder)
		3	NC	8	Phase B (+)
		4	NC	9	Phase B (-)
		5	Index (-)	10	Index (+)

## On-Board I/O Mapping in Quickstep

<b>2703AP Input</b>	<b>QS Resource</b>	<b>2703AP Output</b>	<b>QS Resource</b>
1	Input 993	1	Output 993
2	Input 994	2	Output 994
3	Input 995	3	Output 995
4	Input 996	4	Output 996
	Input 998	Status LED 1	Output 998
Registration Input 1	Input 999	Status LED 2	Output 999
Registration Input 2	Input 1000	Status LED 3	Output 1000

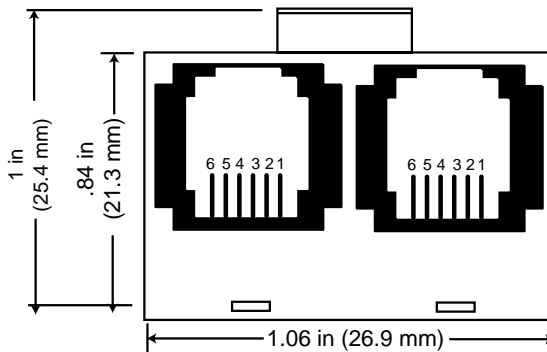
# RS-232 Wiring Diagrams

## RS-232 Wiring Diagram – Single Port

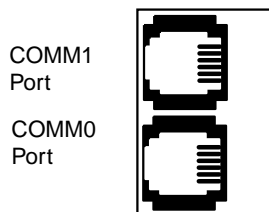


- 1 - TxD Outbound (Comm1)
- 2 - TxD Outbound (Comm0)
- 3 - Common
- 4 - Common
- 5 - RxD Inbound (Comm0)
- 6 - RxD Inbound (Comm1)

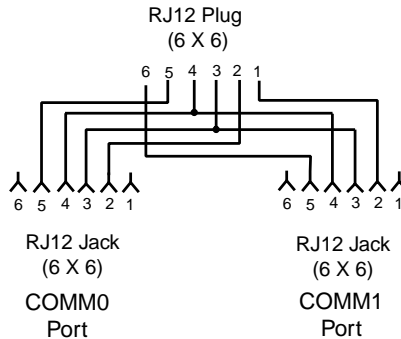
## RS-232 Wiring Diagram – Dual Port with the Model 2886 Adapter



Orientation of connector when plugged into 2703AP



Wiring Diagram



2700AP-2

## General Specifications

Description	Min.	Typical	Max.	Units
<b>Absolute Maximum Ratings</b>				
Ambient Temperature				
Operating	0		+50	°C
Storage	-20		+80	°C
User memory capacity (4 years unpowered lithium-cell RAM)		128K		Bytes
<i>The main CPU is an Hitachi SH2 processor running at 24.576 MHz.</i>				
<b>Power Supply Capacities</b>				
Common mode voltage range	-10		+10	VDC
Encoder power supply capacity (+5 V)			250.0	mA
CPU power requirement (5 V)		0.4	0.6	A
<b>Communications Characteristics</b>				
RS-232 transmitters		± 5	± 12	VDC
RS-232 receivers		± 5	± 12	VDC
<b>Controller Resource Summary</b>				
Multi-tasking (tasks)			84	
Volatile registers (32-bit)			500	
Non-volatile registers (32-bit)			4500	
Data table elements (16-bit, non-volatile)			16000	
Input-linkable counters			8	
Flags			32	
Program steps			4096	
<b>On-Board I/O</b>				
Digital inputs <sup>1</sup>			4	
Digital outputs <sup>1</sup>			4	
Encoder inputs <sup>1</sup>			1	
Registration inputs <sup>1</sup>			2	
RS-232 ports <sup>2</sup>			2	
<ol style="list-style-type: none"> <li>1. These inputs and outputs require a Model 2346 distribution board.</li> <li>2. The second communications port requires a Model 2886 adapter.</li> <li>3. Specifications are at 25°C unless otherwise specified.</li> </ol>				

## Electrical Specifications

Description	Min.	Typical	Max.	Units
<b>Absolute Maximum Ratings</b>				
Applied input voltage	0		27.0	VDC
Applied output voltage	0		24.0	VDC
<b>Operating Characteristics</b>				
Differential encoder inputs				
Nominal input range	0.0		+5.0	VDC
Open-circuit voltage ( $I_i = 0$ mA)		5.0	5.38	VDC
Logic-low current ( $V_i = 0$ V)		1.1	1.2	mA
Maximum counting rate <sup>1</sup>			3.0	MHz
Counting range	-2,147,483,648		+2,147,483,647	Counts
Output on voltage ( $I_o = 500$ mA) <sup>2</sup>		1.0	1.5	VDC
Output off leakage (applied voltage = 24V) <sup>3</sup>		1.0	100.0	$\mu$ A
Input off voltage ( $I_i = 0$ mA)		24.0	26.4	VDC
Input on current ( $V_i = 0$ V) <sup>4</sup>		-4.4	-5.0	mA
Input on current threshold ( $V_i = 6$ V typical)		-3.2	-3.5	mA
Input off current (typical leakage current allowable)			-250	$\mu$ A

1. This value assumes a 50% duty cycle, which means that the ON time = OFF time.
2. An on-board protection diode returns to +24 V from each output.
3. In the off state, unconnected outputs are internally pulled to +5 V through a diode and an LED indicator.
4. Under normal operation, no external input voltage is applied. Inputs should be externally switched to the input common.
5. Specifications are at 25°C unless otherwise specified.

## Hardware / Firmware Revision Levels

Model Number	Hardware Revision Level	Firmware Revision Level <sup>1 2</sup>
2703AP	A or greater	3.05

1. You can confirm firmware revision levels by doing a register read in Quickstep's monitor program. Use register 13003 to confirm the firmware revision in a MultiPro controller.
2. Firmware revision levels are not equivalent to standard decimal numbers. For example, firmware revision level 3.05 translates to:

Major Revision Level 3  
Minor Revision Level 05

If this value changes to 3.10, it translates to:

Major Revision Level 3  
Minor Revision Level 10 (not revision level 1)