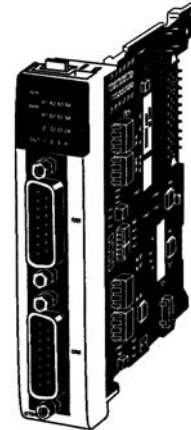


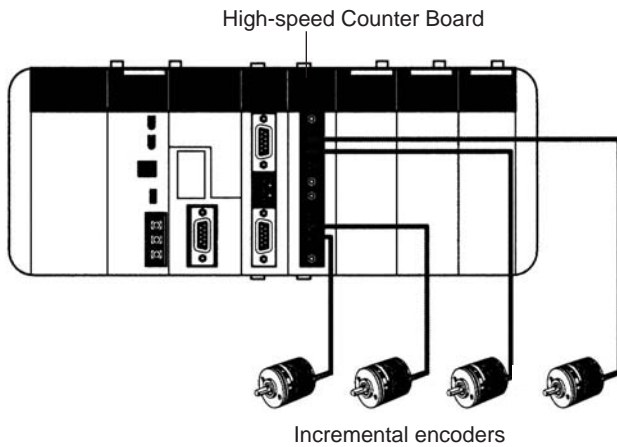
High-speed Counter Board CQM1H-CTB41

The High-speed Counter Board is an Inner Board that counts up to 4 high-speed pulse inputs at up to 500 kHz, and can perform tasks according to the number of pulses counted.

- Can count 4-axis high-speed pulses at up to 500 kHz.
- Provides 4 external outputs on the Board.
- Both linear and ring counting modes are supported.
- The input can be a voltage input or an RS-422A line driver input.
- Three input modes are available: differential phase mode, up/down mode, and pulse + direction mode
- The counters can be set to record the present values in decimal or hexadecimal.



Example System Configuration



Specifications

Item	Specifications
Name	High-speed Counter Board
Model number	CQM1H-CTB41
Applicable CPU Units	CQM1H-CPU51/61
Unit classification	CQM1H-series Inner Board
Mounting location/No. of Boards	Maximum of two Boards can be mounted simultaneously in slots 1 and 2.
Pulse inputs	4 inputs
External outputs	4 outputs
Current consumption (Supplied from Power Supply Unit)	5 V DC, 400 mA max.
Dimensions	25 × 110 × 107 mm (W × H × D)
Weight	90 g max.
Standard accessories	Plugs: XM2D-1501 (OMRON) x 2 Hoods: XM2S-1511 (OMRON) x 2

Pulse Inputs (High-speed Counters)

Pulse Input Function

Item		Specifications		
Number of counters		4 counters (4 ports)		
Input modes (Set in the PLC Setup.)		Differential Phase Inputs	Up/Down Pulse Inputs	Pulse/Direction Inputs
Input method		Switching between inputs using phase difference multiples of 1x, 2x, or 4x. (Set in the PLC Setup.)	Two single-phase inputs	Single-phase pulse and direction inputs
Count frequency (Set for each port in the PLC Setup.)		25 kHz (default) or 250 kHz	50 kHz (default) or 500 kHz	50 kHz (default) or 500 kHz
Count values		Linear counting: -8388608 to 8388607 BCD, F8000000 to 07FFFFFF Hex Ring counting: 00000000 to 08388607 BCD, 00000000 to 07FFFFFF Hex		
Control method	Target value comparison	Up to 48 target values and external/internal output bit patterns registered.		
	Range comparison	Up to 16 upper limits, lower limits, and external/internal output bit patterns registered.		

Pulse Input Specifications

Item		Specifications			
Number of pulse inputs		4 inputs (Ports 1 to 4 = High-speed counters 1 to 4)			
Signals		Encoder inputs A and B; pulse input Z			
Input voltage		Switched by means of input voltage switch on the Board (Specified separately for phases A, B, and Z.)			
		24 V DC±10%		RS-422A line driver (AM26LS31 or equivalent)	
		Phase A and B	Phase Z	Phase A and B	Phase Z
Input current		5 mA typical	8 mA typical	10 mA typical	13 mA typical
ON voltage		19.6 V DC min.	18.6 V DC min.	---	---
OFF voltage		4.0 V DC min.	4.0 V DC min.	---	---

External Output Specifications

Item		Specifications	
Number of external outputs		4 transistor outputs (The four outputs are set together as sinking or sourcing outputs in the PLC Setup.)	
Function		The target comparison or range comparison results of high-speed counters 1 to 4 output four user-defined 4-bit external bit patterns (bits 08 to 11 of either IR 208 to IR 211 or IR 240 to IR 243). An OR is taken of corresponding bits in these four bit patterns, and the result is output on external outputs 1 to 4.	
External power supply		5 to 24 V DC±10%	
Switching capacity		16 mA/4.5 V DC to 80 mA/26.4 V	
Leakage current		0.1 mA max.	
Residual voltage		0.8 V max.	
Response time		ON response: 0.1 ms max.; OFF response: 0.4 ms max.	