QUARTZ-MM

5 OR 10 COUNTER / TIMERS, 9513 CHIP, 16 DIGITAL I/O

- 5 or 10 16-bit counter/timers
- 9513 chip provides extensive counting, gating, and timing functions
- Frequency and period measurement
- PWM signal generation
- Maximum input frequency:
  7MHz (commercial temp.)
  20MHz (industrial temp.)
- Built-in programmable frequency generator
- 8 digital inputs, 8 digital outputs
- Timer-controlled interrupts
- 0 to 70°C and -40 to +85°C versions available
- FREE Universal Driver software included

Quartz-MM uses the 9513 counter/timer IC (originally from AMD) to provide versatile counting and timing capabilities. The 9513 chip has a high degree of functionality all under software control. It can perform frequency and period measurement, pulse-width modulation (PWM) and frequency-shift keying (FSK) signal generation, event counting, programmable pulse and one-shot generation, and more.

Each chip contains 5 counters and an internal frequency generator. One chip's frequency generator output is made available on the I/O header. The 5 counters can count in both binary and BCD modes, and they can be cascaded together (one counter's output is the next counter's input) to create wider counters.

The count direction, input source, input edge, gate function, and output signal are all programmable, providing maximum flexibility in counter configuration to suit all types of applications. Multiple counters can be latched simultaneously to avoid skew in the readings. All counter features are supported in our Universal Driver software.

The board provides a PC/104 bus interrupt input. By connecting a counter output to the interrupt input and using the Universal Driver "User Interrupt" feature, you can generate interrupts at a programmable rate for real-time control applications. Also included are 8 TTL digital inputs and 8 TTL digital outputs. All user I/O is contained on a single 50-pin header. Mating cable is C-50-18.

Quartz-MM is available with 5 or 10 counter/timers and in commerial or industrial temperature range. The 0-70°C rated boards use AMD AM9513APC chips with 7MHz maximum input frequency. The -40 to +85°C rated boards use Celeritous CTSC9513API-2 chips with 20MHz maximum input frequency. All models include an on-board 4MHz clock oscillator.

SPECIFICATIONS

COUNTER/TIMERS	
QMM-5	5, 16 bits wide
QMM-10	10, 16 bits wide
Max. input frequency	7MHz, 20MHz (XT)
On-board osc.	4MHz ±.01% (100 ppm)
Signal type	TTL
Input voltage	Low: -0.5V min, 0.8V max High: 2.2V min, 5V max
Input current	±10µA max
Output voltage	Logic 0: 0.0V min, 0.4V max @ 3.2mA max Logic 1: 2.4V min, 5.0V max @ -200µA max
DIGITAL I/O	
Compatibility	TTL
Input port	8 lines, 5V logic compatible
Input voltage	Logic 0: 0.0V min, 0.8V max
Input current	±1µA max
Output port	8 lines, 5V logic compatible
Output voltage	Logic 0: 0.0V min, 0.33V max Logic 1: 3.8V min, 5.0V max
Output current	±4mA max
GENERAL	
Operating temp.	0 to 70°C, standard models -40 to +85°C, XT models
Power supply	QMM-5: +5V ±10% @ 220mA typical QMM-10: +5V ±10% @ 290mA typical
Weight	QMM-10: 3.0oz / 85g QMM-5: 2.7oz /76g

ORDERING GUIDE

QMM-5	5 ctr/timers, 16 digital I/O, 0-70°C
QMM-5-XT	5 ctr/timers, 16 digital I/O, -40 to +85°C
QMM-10	10 ctr/timers, 16 digital I/O, 0-70°C
QMM-10-XT	10 ctr/timers, 16 digital I/O, -40 to +85°C

For cables and accessories, see pages 46-47.

I / O HEADER

	IN 1	1 2	IN 2
	GATE 1	3 4	GATE 2
	OUT 1	5 6	OUT 2
	IN 3	7 8	IN 4
	GATE 3	9 10	GATE 4
	OUT 3	11 12	OUT 4
	IN 5	13 14	OUT 5
	GATE 5	15 16	FOUT
QMM-10 ONLY	IN 6	17 18	IN 7
QMM-10 ONLY	GATE 6	19 20	GATE 7
QMM-10 ONLY	OUT 6	21 22	OUT 7
QMM-10 ONLY	IN 8	23 24	IN 9
QMM-10 ONLY	GATE 8	25 26	GATE 9
QMM-10 ONLY	OUT 8	27 28	OUT 9
QMM-10 ONLY	IN 10	29 30	OUT 10
QMM-10 ONLY	GATE 10	31 32	INTERRUPT
	DOUT 7	33 34	DIN 7
	DOUT 6	35 36	DIN 6
	DOUT 5	37 38	DIN 5
	DOUT 4	39 40	DIN 4
	DOUT 3	41 42	DIN 3
	DOUT 2	43 44	DIN 2
	DOUT 1	45 46	DIN 1
	DOUT 0	47 48	DIN 0
	+5	49 50	DIGITAL GND

QUARTZ-MM BLOCK DIAGRAM