

TTM635VME

VME Time & Frequency Processor

KEY FEATURES

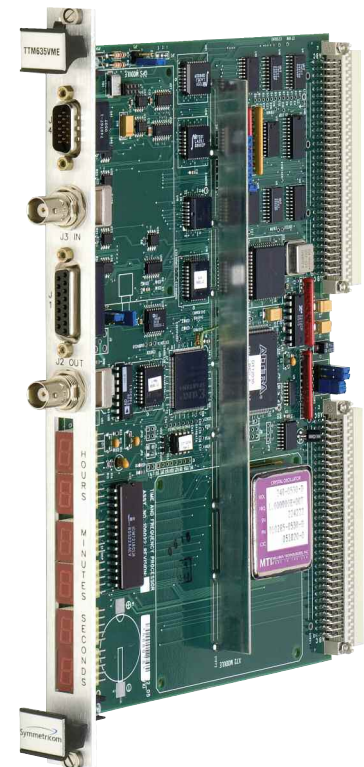
- 6U, Single Width VME
- Time Code Inputs
- Time Code Output
- 1PPS Pulse Rate Output/Interrupt
- Frequency Outputs (1, 5, 10 MHz)
- External Event Capture/Interrupt
- Programmable Periodic Output/Interrupt
- Programmable Time Strobe Output/Interrupt
- Battery Backed Clock
- Extensive Driver Support

Symmetricom's TTM635VME time and frequency processor module provide precision time and frequency reference to the host computer and peripheral data acquisition systems. Time is acquired from time code signals, typically IRIG B. Integration of the module is facilitated with drivers for several operating systems (see Software). Time is displayed on the front panel (hours, minutes, seconds) via LED digits.

Central to the operation of the module is a disciplined 10 MHz oscillator and 100 nanosecond clock. Current time (days to 100 nanoseconds) can be accessed across the bus with zero latency, which allows for very high speed time requests. The oscillator is rate matched (disciplined) to the input time source and drives the precision 10 MHz frequency output and time code generator circuitry. If the time source is lost, the module will continue to maintain time (flywheel). If power is lost, a +/- 10 PPM battery backed clock is available to maintain time.

Both time code generation and translation are supported. The generator supplies IRIG B or IRIG H time code output that is synchronized to the input time source. The translator decodes IRIG B, 2137 or XR3 time code inputs.

An event time capture feature provides a means of latching the time of an event input and/or generating a bus interrupt that is coincident with an external TTL pulse. The module can also be programmed to generate a periodic pulse rate/interrupt as well as to generate a strobe/interrupt at a single predetermined time.



VME Time & Frequency Processor

TTM635VME SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

- Real time clock
 - Bus request resolution: 100 nanoseconds
 - Bus request latency: Zero
 - Major time format: Binary or BCD
 - Minor time format: Binary
- Time code translator
 - Time code formats: IRIG A, IRIG B (modulated or DCLS) XR3, 2137 (modulated only)
 - Modulation ratio: 3:1 to 6:1
 - Input amplitude: 500 mV to 5 V P-P
 - Input impedance: >10KΩ (AC coupled)
- Time code generator
 - Time code format: IRIG B (modulated or DCLS) IRIG H (DCLS only)
 - Output amplitude: 0 V to 10 V P-P (adjustable)
 - DC level shift: TTL/CMOS
- Timing functions
 - Heartbeat (TTL, 50Ω): Programmable periodic 2.3 MHz to 2.5 MHz
 - Time strobe (TTL, 50Ω): Programmable, 1mS through hrs
 - Event capture (TTL, 50Ω): 100 nS resolution, zero latency
 - 1PPS pulse rate (TTL, 50Ω): Positive edge on-time
- Disciplined oscillator
 - Frequency: 10 MHz
 - Outputs (50): 1, 5, or 10 MHz (selectable)
 - Rate accuracy
 - Standard VCXO: 5.0E-8 short term (tracking) 5.0E-7/day long term (flywheeling)
 - Optional oven oscillator: 2.0E-9 short term (tracking) 5.0E-8/day long term (flywheeling)
 - Sync sources: GPS, time code, 1PPS, 10 MHz
- VME Bus
 - Size: 6Ux160 mm; B size, single
 - Address space: A16, AM codes \$29 and \$2D, 64 bytes
 - Data transfer: D16
 - Interrupter: D08(O), I(1-7), ROAK
 - Power: +5 VDC @ 1.5 A +12 VDC @ 50 mA +12 VDC @ 250 mA (GPS) -12 VDC @ 30 mA
- Environment

	Module	Ant/Rec
Temperature		
Operating:	0°C to 70°C	-30°C to + 70°C
Storage:	-50°C to 125°C	-55°C to +100°C
Humidity		
Operating:	5% to 95%*	95%

*non-condensing

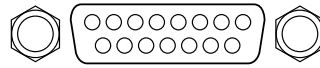
SOFTWARE

Customer source software drivers available for download at www.symmetric.com. Various operating systems available.

OPTIONS

- 'D' Connector (J1) to BNC Adapter
- Ovenized Crystal Oscillator
- Isolation Transformer Time Code Input
- Connectors

J1 Timing I/O: 15-pin 'DS'



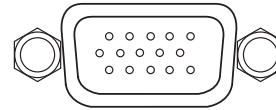
Pin	Direction	Signal
1	Input/Output	External 10MHz Input or Ovenized Oscillator Output*
2		Ground
3	Output	Strobe
4	Output	1 PPS
5	Output	Time Code (AM)
6	Input	External Event
7	Input	Time Code
8		Time Code Return/Ground
9	Output	Oscillator Control Output
10		Not Used
11	Output	Time Code (DCLS)
12		Ground
13	Output	1,5,10 MHz
14	Input	External 1 PPS
15	Output	Periodics

* Pin 1 is an output when the optional ovenized oscillator is installed.

J2 Out Time Code: BNC

J3 In Time Code: BNC

J4 Timing I/O: 15-pin 'DP'



Pin	Direction	Signal
1	Input	RS-422 Rx(+)
2	Input	RS-422 Rx(-)
3	Output	DCLS Out(+)**
4	Output	DCLS Out(-)**
5		Ground
6		Not Used
7	Output	**
8	Input	DCLS In (+)**
9	Input	DCLS In (-)**
10		Ground
11	Output	**
12	Output	**
13		Not Used
14		Ground
15	Output	**

** May also support some legacy timing functions found in the TTM637VME model. See manual for full details.



TTM635VME Time & Frequency Processor

Complete specifications can be found in the manual located at <http://www.symmetric.com>



SYMMETRICOM, INC.
 2300 Orchard Parkway
 San Jose, California
 95131-1017
 tel: 408.433.0910
 fax: 408.428.7896
info@symmetricom.com
www.symmetricom.com