

Event Timer A031-ET

The Event Timer A031-ET is a computer-based instrument that can be used for various applications (such as satellite laser ranging) where high-precise epoch time-tags or time interval measurements are especially needed.

The A031-ET provides:

- Two inputs A and B for the events being measured
- Time-tag marking specifying the input (A or B) that provided the measured event
- Two modes of operation supporting either the event timing or time interval measurement:
 - AT*-mode when the events can come at the inputs in any order;
 - TI*-mode when a single Start-event at the input A opens the input B over internal gate
- Arbitrary external gating
- Cyclical operation at KHz rates
- Measurement up to 6 550 events at rate up to 13.2 MHz in every operating cycle
- Separate input for *Epoch* supporting synchronization of the internal real-time clock by GPS time standard
- Interface with a user-defined application subsystem via standard network

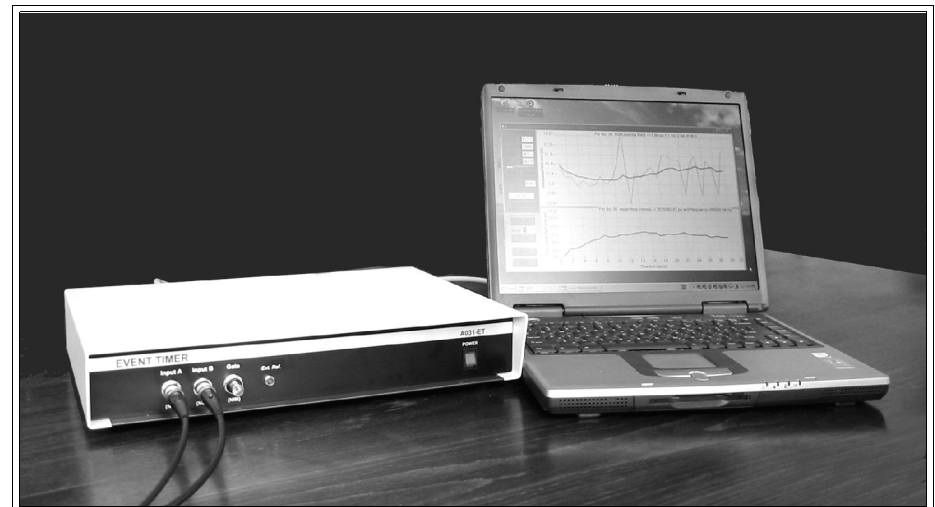
The A031-ET offers high precision and flexibility of applications on the basis of a compact and inexpensive hardware. As a result the A031-ET combined with user-made or custom-made application software can be used to create reasonably priced top-quality timing systems. Basically the A031-ET is being delivered as a custom-made product and certain user-defined modifications are possible.

Summary of Specifications

Inputs (50 Ω):	<i>Input A</i> <i>Input B</i> <i>Gate</i> <i>Epoch</i> <i>Trigger</i> <i>Ext. Timebase</i>	NIM pulse (falling edge, <2 ns/V slope) NIM pulse (falling edge, <2 ns/V slope) NIM pulse (high level) TTL pulse (rising edge, 1 pps) TTL pulse (rising edge) 10 MHz (>0.5 V p-p)
Least Significant Digit (LSD)		1 ps
Single-shot RMS resolution		< 15 ps (11-13 ps typical)
Non-linearity error		< ± 1 ps
Temporal stability:		
Offset drift		< ± 0.25 ps/hr
Drift of RMS resolution		< ± 0.1 ps/hr
Temperature stability:		
Offset		< 0.05 ps/ $^{\circ}$ C
RMS resolution		< 0.5 ps/ $^{\circ}$ C
Dead time		75 ns
Max. measured time interval		2 hr
Buffer memory size		6 550 time-tags before reading by the PC
Cycle triggering		external or internal
Cycle repetition rate		up to 3.8 KHz (mean)
Software		MS-Windows [®] based
Interface		PC Ethernet port supporting TCP/IP protocol
Hardware connection to PC		via PC parallel port supporting EPP mode
Hardware dimension/weight		375x60x233 mm/3.2 kg
Power supply		100-240 VAC

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