

PORTABLE PICO EVENT TIMER 2 kHz

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Abstract

To make happy the “VIP SLR 2k Club” founded in Koetzting, October 2003 we have been developing the Pico Event Timer PET2k. The Portable version P-PET2k proofs the features when operating stand-by at the SLR station. The timing resolution is 1.2 psec, timing interval jitter below 3 psec, linearity better than 2.5 psec, the repetition rate up to 2 kHz. The P-PET2k is interfaced via a standard parallel communication port to a notebook. The P-PET2k contains the range gate generator, and the Signal Strength Monitor SSM for a C-SPAD based receiver.

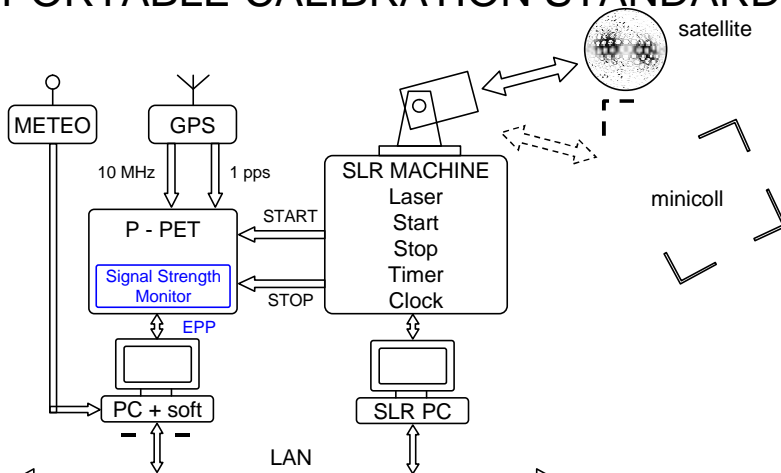
PORTABLE PICO EVENT TIMER 2k

GOALS

- Portable Pico Event Timer 2kHz
- Signal Strength Monitor Built in
- Dedicated for Portable Calibration Standard 2k

PORTABLE PICO EVENT TIMER 2k

PORTABLE CALIBRATION STANDARD



K. Hamal et al, EGS-AGU-EUG Joint Assembly, Nice, April 2003

PORTABLE PICO EVENT TIMER 2k

PRAGUE INDOOR TESTS, JUNE 2004



PPET2k

notebook

Hamamatsu
diode laser
32 ps@778nm

C-SPAD

PORTABLE PICO EVENT TIMER 2k

P-PET PARAMETERS

Upgrade Summary

London '97 => Wash 2002 => **San Fernando**

- timing resolution 1.2 ps
- timing jitter / channel 5 ps 2.5 ps
- non-linearity / channel < 5 ps (spec) < 2.5 ps (meas)
- temperature drift < 0.7 ps/K < 0.53 ps/K
- adjustment NO
- temporal stability ± 1.0 ps/hr ± 0.45 ps/hr
- max. repetition rate 30 Hz 100 Hz **2 kHz**
- no. of channels 2(4)
- interface RS232 **EPP**
- mass transport 32 kg
- **Signal Strength Monitor** **built-in**

K. Hamal et al, EGS-AGU-EUG Joint Assembly, Nice, April 2003

PORTABLE PICO EVENT TIMER 2k

ILRS NETWORK TIME OF FLIGHT DEVICES

Van Husson, Loyal Stuart, 13th WLR, Washington, Nov. 2002

Manufacturer	Current Model	Year	Approach	Resolution (ps)	Jitter (ps)	Linearity (ps)	Stability [ps/K]	Stability [ps/hour]	Max. repetition rate	Max. TOF (Secs)
SR	620	1988	Interval	4	22	50	5		100	1000
HP	5370B	1982	Interval	20	35	20			10	10
Latvian Univ.	A013a	2002	Interval	10	20	2		2	80	0.209
Ortec	TD811	<1980	Event	100			40			N.A.
PESO Cons.	PET4/TIGO	1999	Event	1.2	3.5	3	<0.3	<0.5	>100	N.A.
EOS	MRC5 V.4	1998	Event	2	10	1		1	1000	N.A.
HTSI	MLRO	1998	Event	0.5	<2			0.5	2000	N.A.
PESO Cons.	P-PET 2k	2004	Event	1.2	2.5	3	< 0.3	< 0.5	2000	N.A.

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CONCLUSION

- Portable Pico Event Timer
- Signal Strength Monitor
next paper
- Dedicated for Portable Calibration Standard 2k

1997	20 Hz
1998	100 Hz
2004	2000 Hz