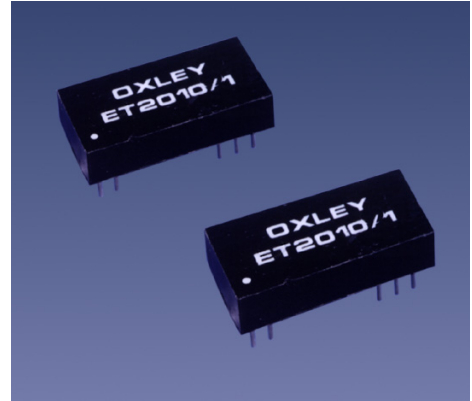


Elapsed Time Indicators, Event Counters ET2010/-

Features

- Hours and/or events in a single package.
- EEPROM non-volatile memory.
- 10 years data retention.
- Printed circuit board mounting.
- Remote interrogation with hand-held reader.
- Nuclear survivability.

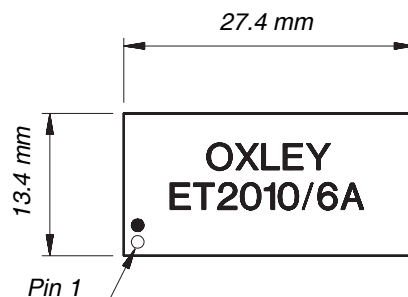
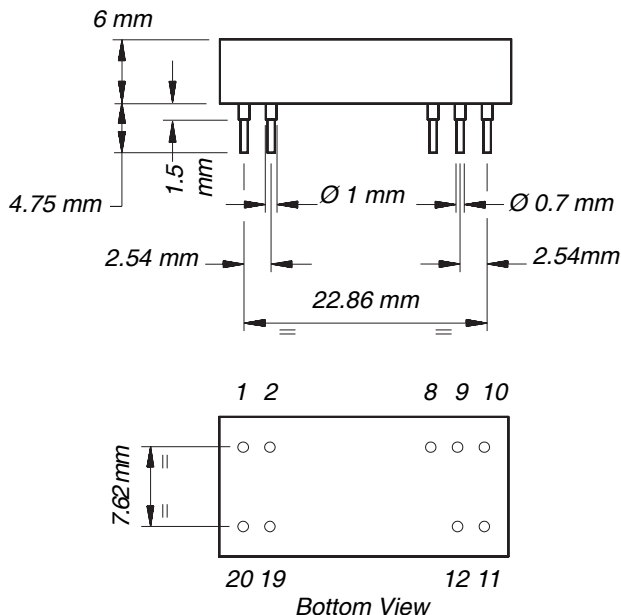
For ordering information see [page 11](#).



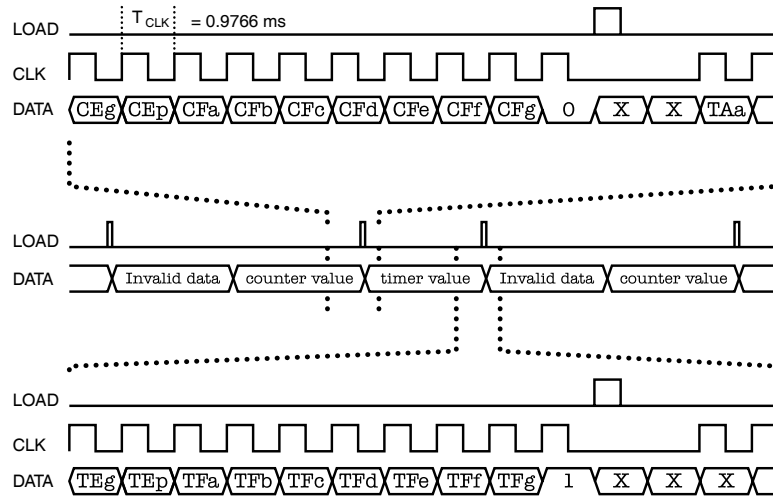
Description

The Oxley Electronic Elapsed Time Indicator Type ET2010 is a PCB mounting device designed to record both elapsed time and events. It is encapsulated in a low profile, board mounting package and ideal for incorporation into equipment where individual Printed Circuit Board monitoring is required.

The ET2010 is available in 8 different versions, offering varying combinations of resolution and capacity. It is equipped with a synchronous output data signal which may be interrogated by host controller or alternatively the Oxley [ET/HHR/3A hand-held reader](#) may be used.



Output Waveforms



Ratings

Table 1

Parameter	Min	Max	Unit
Supply Voltage	4.5	30	V See Note
Supply Current	0.5 @ 5Vdc	15 @ 30Vdc	mA
Timing Error		+/- 0.1	%
Event I/P	VIL	0.8	V
	VIH	2.4	V
Data, Clock, Load	VOL	0.6	V
	VOH	3.5	V
Event Pulse Width	0.1µ	8.0m	S
Event Pulse Frequency		50	Hz
Data Retention	10		Years
Operating Temperature	-55	+90	°C
Storage Temperature	-55	+100	°C
Weight		4	g

Note: For 4.5 V d.c. to 5.5V d.c. operation use the Vcc (+5 V) pin. For 18 V d.c. to 30 V d.c. operation use the +28 V pin.



Pin Details

Table 2

PIN No	SIGNAL	DETAILS
1	28 V d.c.	18 to 30 Vd.c. positive supply compatible with DEF STAN 61-5 Part 6.
2	CLK	Asynchronous clock pin for use with ET/HHR/3A hand-held reader .
8	EVENT	Input pin used for pulse counting versions. Internally pulled down to 0 V through a 100 K Ω resistor and may be left unconnected when not required.
9	DATA	Asynchronous data pin for use with ET/HHR/3A hand-held reader .
10	0 V	Power supply common.
11	Vcc	4.5 to 5.5 V d.c. positive supply.
12	LOAD	Asynchronous data load pin for use with ET/HHR/3A hand-held reader .
19	N.C	No connection.
20	Vaux	4.8 V d.c. to 6 V d.c. positive supply connection for cold reading. Providing no supply is present at pins 1 and 11 then timing/counting will be inhibited when powered through Vaux.

Environmental Standards

Table 3

TEST	SPECIFICATION	NEAREST EQUIVALENT MIL-STD-202 METHOD (except where stated)
Bump	IEC 68-2-29, 4000 Bumps, 40 g	No equivalent
Shock	DEF STAN 07-55 200 g, 3 ms, 1/2 Sine Wave, 18 shocks total	Method 213-2 Comp I, 00 g, 6 ms, sawtooth
Vibration	IEC 68-2-6, 10-2000 Hz 20 g	Method 20K Cond D, 10-200 Hz 20 g
Damp heat (steady state)	IEC 68-2-3, -55/90/21	Method 103 Cond B, 96 hours
Change of temp.	IEC 68-2-14, Ta = -55°C, Tb = 90°C, Tl = 30 mins	Method 107 Cond A

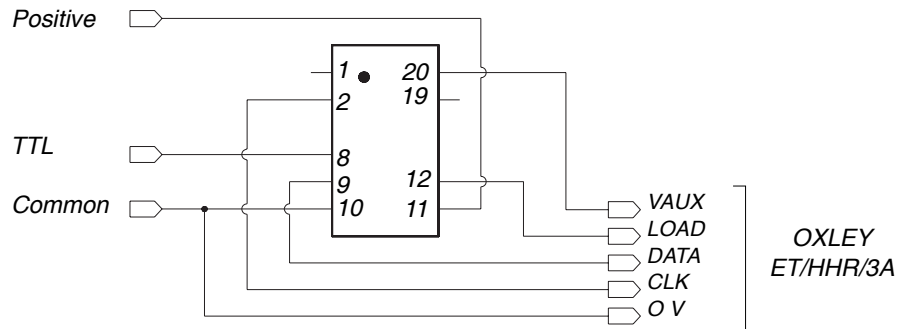
Nuclear Hardness

Maximum combined neutron & gamma ionising dose = 1550 cGy (Si)

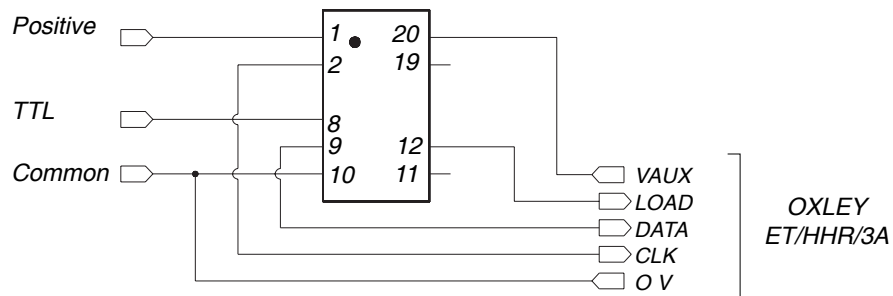
Maximum neutron fluence 10^{12} n/cm/cm

Suggested Circuit Configurations

ET 2010/ - 4.5 V to 5.5 V d.c. Operation



ET 2010/ - 18 V to 30 V d.c. Operation



Ordering Information

Table 4

Type Number	Resolution (hours)	Capacity (hours)	Event Capacity
ET2010/1	1.0	999,999	-
ET2010/2	0.1	99,999.9	-
ET2010/5A	1.0	999,999	10 ⁶ PULSES
ET2010/5B	1.0	999,999	10 ⁶ POWER UP
ET2010/6A	0.1	99,999.9	10 ⁶ PULSES
ET2010/6B	0.1	99,999.9	10 ⁶ POWER UP
ET2010/7A	0.01	9,999.99	10 ⁶ PULSES
ET2010/7B	0.01	9,999.99	10 ⁶ POWER UP

When ordering please specify type number and quantity.