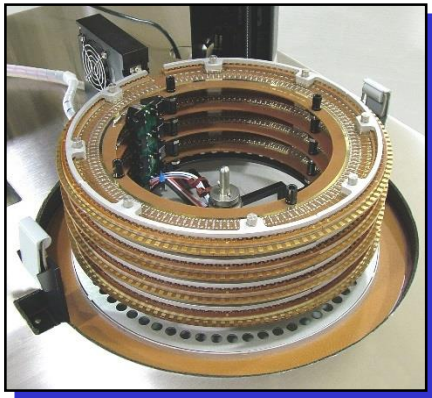


- Automated, software-based oscillator, VCXO and TCXO temperature test system
- Measures over 50 different tests
- Precision time interval analysis of oscillator startup characteristics
- Parameter and curve fit characteristics are checked against easy to define QC limits
- Oscillators of different frequencies can be tested in a single temperature run
- All data is published in a *Microsoft Access™* data base
- Data can be exported to *Microsoft Excel™* for custom data analysis
- Oscillator part number can be used to set complete measurement parameters, QC limits, temperature test points and data printouts



- Chamber holds four disc pallets for a total of up to 512 parts
- Standard SMD sizes available include 2.0x2.5, 2.5x3.2, 3.2x5, 3.5x6, 5x7, 5x7.5, 9x14, DIP (full & half)
- Measures LVDS, PECL, ECL, CMOS, and TTL devices
- Load circuitry easily changed via plug-in module

SPECIFICATIONS

Oscillator Frequency Range:	10 KHz to 1 GHz *
Oscilloscope Analog Bandwidth:	600 MHz (rise time 1% error at 5 nsec)
Oscillator X10 Probe Bandwidth:	1 KHz to 850 MHz (2.5 K Ohm Max Impedance)
Oscillator X50 Probe Bandwidth:	1 KHz to 500 MHz (12.5 K Ohm Max Impedance)
Temperature Stability:	± 0.1° C
Temperature Range:	-55° C to 125° C (MR or LCO ₂) -65° C to 125° C (LN ₂)

* Specific oscillator frequency range depends upon DUT and selected load card.

SAUNDERS & ASSOCIATES, LLC

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E-Mail sales@saunders-assoc.com - World Wide Web <http://www.saunders-assoc.com>

SYSTEM CONFIGURATION

- S&A Probe Test Head
- S&A 4220 Temperature Test Chamber (LCO₂, LN₂ or MR option)
- Oscilloscope
- 20A Power Supply
- System Controller
- S&A MFC-100 Card (requires full size PCI slot)
- GPIB Interface
- Windows® based System Software
- Printer (optional)

SAMPLE REPORTS

Oscillator Group Summary

Run Name: example run 0 to 80 degrees
 Run Start: 02-May-2003 5:40 pm
 Print All Operator: Run Finish: 02-May-2003 7:30 pm
 Ref: F @ 25.00°C (Set) S&A W2800 Rev: 0701 Report: 1700

Setup: C:\Program Files\Saunders & Associates\2800\at#40MHz.qco
 Reference F: 40,960,000 Hz Vcc: 5.000 V Vsw: 5.000 V Trigger: CMOS Level: 1.300 V
 Group 0 Default

Setup: C:\Program Files\Saunders & Associates\2800\at#60MHz.qco
 Reference F: 60,192,000 Hz Vcc: 5.000 V Vsw: 5.000 V Trigger: CMOS Level: 1.300 V
 Group 0 Default
 A001 A002 A003 A004 A005 A006

Oscillator Temperature Test
 Ref: F @ 25.00°C (Actual)
 Run Start: 22-May-2002 5:23 pm
 In Finish: 23-May-2002 12:25 am
 S&A W2200 Rev: 2.21

Setup: test

Run Name: 0 to 80 degrees
 Author: Operator
 Modifier: Operator
 Operator: Operator

Run Date: 17-Dec-2002 5:10 pm
 Description: CMOS 50 pf Lead
 Vcc: 5.000 Volts Vsw: 2.500 Volts
 Reference Fr: 40,960,283 Hz
 Trigger: TTL Level: 1.300 Volts
 S&A 280A Rev: 1.00 Report: 1.00

STATUS	FR	FR	I	Tmax	Tmin	DTV	TR	TF	VR	VL
	ppm	Hz	uh	uh	uh	uh	uh	uh	uh	uh
1	Pass	-0.4	40,960,285	27.5	-2.4	2.7	54	0.7	2.0	4.9
2	Pass	-0.3	40,960,276	27.5	-2.4	2.4	54	0.7	2.9	4.9
3	Pass	-0.3	40,960,273	27.5	-2.4	2.5	54	0.7	2.8	4.9
4	Pass	-0.4	40,960,269	27.5	-2.5	2.4	54	0.8	2.9	4.9
5	Pass	-0.3	40,960,269	27.5	-2.7	2.4	54	0.7	2.9	4.9

TCXO Crystal perturbation test

Setup: Test Device C

Run Date: 17-Dec-2002 2:44 pm
 Description: CMOS 50 pf
 Vcc: 5.000 Volts Vsw: 2.500 Volts
 Reference Fr: 40,950,283 Hz
 Trigger: TTL Level: 1.300 Volts
 S&A 280A Rev: 1.00 Report: 1.00

STATUS	FR	PPM	Waveform
1	Pass	-1.0	
2	Pass	-5.0	
3	Pass	-1.4	
4	Pass	-3.0	

Oscillator Tabular

Run Name: example run 0 to 80 degrees
 Run Start: 02-May-2003 5:40 pm
 Print All Operator: Run Finish: 02-May-2003 7:30 pm
 Ref: F @ 25.00°C (Set) S&A W2800 Rev: 0701 Report: 1700

A001	A002	A003	A004	A005	
Setup: 40MHz	Setup: 40MHz	Setup: 40MHz	Setup: 40MHz	Setup: 40MHz	
Ref F: 40,967,000 Hz	Ref F: 40,967,750 Hz	Ref F: 40,967,720 Hz	Ref F: 40,968,151 Hz	Ref F: 40,968,188 Hz	
°C	F (ppm)	Hz	°C	F (ppm)	
0.00	14.06	21.02	0.01	-1.07	20.02
5.01	5.0K	20.77	5.01	1.70	20.02
10.00	577.8	20.77	10.00	0.11	19.77
15.02	25.98	20.77	15.02	1.54	19.77
19.98	-0.85	20.52	19.99	1.28	19.52
25.01	0.00	20.52	25.01	0.00	19.52
29.97	0.56	20.27	29.97	-1.48	19.52
35.00	1.10	20.52	35.00	-2.80	19.52
40.01	1.98	20.27	40.01	-3.91	19.27
44.98	2.99	20.02	44.98	-4.84	19.27
50.00	4.04	20.27	49.99	-5.20	19.27
55.02	6.89	20.02	55.02	-5.30	19.27
60.01	9.22	20.02	60.01	-4.85	19.02
65.03	12.41	19.77	65.03	-3.16	19.02
70.01	16.62	19.77	70.00	-1.25	19.02
75.02	21.21	19.77	75.01	1.46	19.77
79.98	26.45	19.77	79.99	5.82	19.02

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