



W-2200 Upgrade Kit for Transat TC-100 Temperature Chamber

What does it take to upgrade?

Typical System Upgrade kit consists of:

- S&A 250B Network Analyzer
- S&A 2451 Switch Controller
- S&A PCI TTL I/O Card
- Minimum 500 MHz Pentium III with:
 - * One full PCI slot
 - * +3.3V and +5V power
 - * Windows 98
- Printer



Why upgrade?

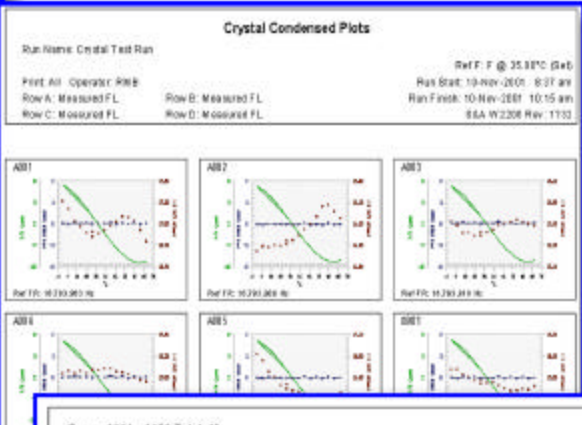
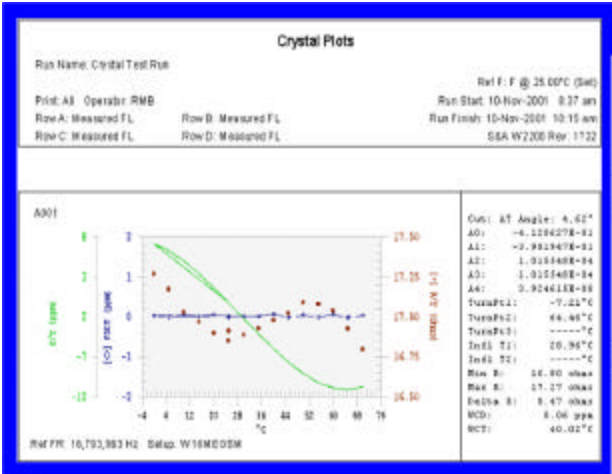
- 1** Measurement speed is about 4 times faster
- 2** Extensive graphing, grouping, QC, and printout capabilities
- 3** User-friendly Windows system software
- 4** DLD can be measured and graphed as a function of temperature
- 5** Crystals in each vertical test wheel column are measured before incrementing the wheel, reducing the number of wheel rotations by 50%
- 6** Uses existing crystal test wheels and measurement test head
- 7** All data is published in *Microsoft Access*™ compatible data base in real time
- 8** Data can be automatically exported to *Microsoft Excel*™ for custom data analysis
- 9** Continuous software support and development

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SAUNDERS & ASSOCIATES, INC.

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SAMPLE REPORTS

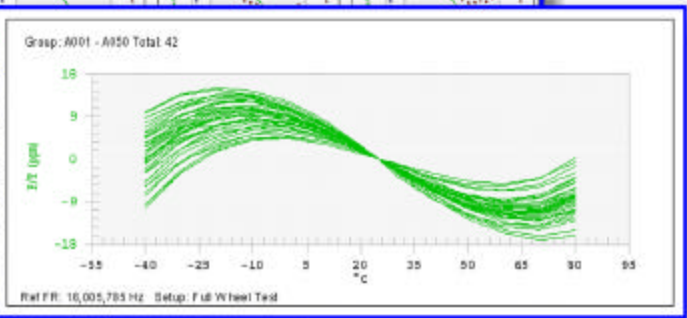


Crystal Tabular

Run Name: Example Run
 Print All Operator:
 Row A: Measured FL
 Row B: Measured FL
 Row C: Measured FL
 Row D: Measured FL

Ref F: F @ 25.00°C (Set)
 Run Start: 26-Oct-2001 8:31 pm
 Run Finish: 26-Oct-2001 8:34 pm
 S&A W2200 Rev: 1122

A001 +2a001+	A002 +2a002+	A003 +2a003+	A004 +2a004+	A005 +2a005+										
Setup: 12megw2	Setup: 12megw2	Setup: 12megw2	Setup: 12megw2	Setup: 12megw2										
Ref F: 12,795,174 Hz	Ref F: 12,795,955 Hz	Ref F: 12,795,917 Hz	Ref F: 12,795,942 Hz	Ref F: 12,795,917 Hz										
°C	FR ppm	R	°C	FR ppm	R	°C	FR ppm	R	°C	FR ppm	R	°C	FR ppm	R
25.01	0.00	4.82	25.03	0.00	18.71	35.02	0.00	12.39	25.01	0.00	11.97	25.03	0.00	11.97
30.01	0.01	5.13	30.01	0.01	21.44	0.00	3.28	12.96	-0.01	3.74	12.49	0.01	3.74	12.49
35.02	0.33	4.98	35.00	6.79	20.77	4.98	3.16	12.82	4.99	3.52	12.39	5.01	3.52	12.39
39.98	0.44	5.03	40.00	5.24	20.39	16.00	2.69	12.93	16.00	2.94	12.39	8.99	2.94	12.39
45.02	0.50	5.03	45.01	3.89	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
50.00	0.36	5.03	50.00	3.89	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
55.00	0.09	5.05	55.01	3.89	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
60.02	-0.12	5.04	60.01	-1.00	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
65.00	-0.39	5.03	65.00	-1.00	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
70.02	-0.55	5.04	70.02	-1.00	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
75.03	-0.52	5.06	75.02	-1.00	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
80.00	-0.20	5.00	80.00	-1.00	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
85.00	0.33	4.98	85.00	0.00	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39
90.00	1.33	5.05	90.00	0.00	19.82	16.00	3.27	12.93	16.00	3.27	12.39	14.00	3.27	12.39



Crystal Curvefit Summary

Run Name: Example Run
 Print All Operator:
 Row A: Measured FL
 Row B: Measured FL
 Row C: Measured FL
 Row D: Measured FL

Ref F: F @ 25.00°C (Set)
 Run Start: 26-Oct-2001 4:51 pm
 Run Finish: 26-Oct-2001 6:34 pm
 S&A W2200 Rev: 1122

Setup: 12megw2	Ref F: 12,795,917 Hz	°C	FR ppm	R
25.01	0.00	4.82	25.03	0.00
30.01	0.01	5.13	30.01	0.01
35.02	0.33	4.98	35.00	6.79
39.98	0.44	5.03	40.00	5.24
45.02	0.50	5.03	45.01	3.89
50.00	0.36	5.03	50.00	3.89
55.00	0.09	5.05	55.01	3.89
60.02	-0.12	5.04	60.01	-1.00
65.00	-0.39	5.03	65.00	-1.00
70.02	-0.55	5.04	70.02	-1.00
75.03	-0.52	5.06	75.02	-1.00
80.00	-0.20	5.00	80.00	-1.00
85.00	0.33	4.98	85.00	0.00
90.00	1.33	5.05	90.00	0.00

Crystal Curvefit Tabular

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30.01	0.01	5.13	30.01	0.01
35.02	0.33	4.98	35.00	6.79
39.98	0.44	5.03	40.00	5.24
45.02	0.50	5.03	45.01	3.89
50.00	0.36	5.03	50.00	3.89
55.00	0.09	5.05	55.01	3.89
60.02	-0.12	5.04	60.01	-1.00
65.00	-0.39	5.03	65.00	-1.00
70.02	-0.55	5.04	70.02	-1.00
75.03	-0.52	5.06	75.02	-1.00
80.00	-0.20	5.00	80.00	-1.00
85.00	0.33	4.98	85.00	0.00
90.00	1.33	5.05	90.00	0.00

Crystal Setup File Parameters

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STATDC	FE	CO	EA	Q	CL	L	PFA	TEMP	R/T
ppm	pp	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
10.0	0.0	25.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
-10.0	0.0	25.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

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65.00	-0.39	5.03	65.00	-1.00
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75.03	-0.52	5.06	75.02	-1.00
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Crystal Failures Only

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70.02	-0.55	5.04	70.02	-1.00
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