

Audio
precision®

ATS-2 Control Software



Contents of this CD-ROM

Released October 2001

This CD-ROM contains installation files for the ATS control software, Adobe Acrobat PDF files for all manuals, Addendum information, and audio tracks containing test signals. Most items can be accessed via links from the installation opening screen (via Autorun or Setup.exe in the root of the CD-ROM). Here is the organization of the folders on the disc:

Folder	Contents
ATS	Installation files for the ATS control software. Run Setup.exe located in the ATS folder to install this software.
Adobe	Installation files for Adobe Acrobat Reader, which is necessary to view or print any of the manuals included on this disc in Adobe Acrobat PDF format. If you do not already have Adobe Acrobat Reader installed on your system, run ar405eng.exe in this folder to install version 4.
Manuals and Documentation	Adobe Acrobat PDF files of all user manuals, installation manuals, and related documents. Open the file Documentation.pdf for a list with links to the primary manuals. Using the supplied Adobe Acrobat Reader, any of the manuals may be viewed and/or printed. Acrobat Reader allows convenient navigation to specific chapters and pages.
Audio Test Signals	This CD-ROM also contains 59 audio tracks of test signals. See the document available on this disc for a description of each of the audio tracks and suggestions for use.

Installing the software

The installation CD-ROM starts with the opening screen shown at the right. If your CD-ROM is set to Autorun, this screen will be automatically displayed shortly after inserting the disc. If Autorun is not enabled, browse the CD-ROM and start the Setup.exe program located in the root.

From this point, you can browse the CD-ROM, install the control software, view and print any of the manuals, or view last-minute information. The installation program is self-explanatory and will guide you through the installation process. The program will automatically detect what operating system you are using (Windows 95/98, Windows 2000 or Windows NT) and install the appropriate drivers. It will give you a choice of what files to install and where to install them.

The default installation will install all files, using approximately 20 MB of hard disk space.

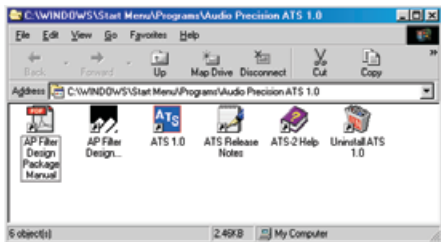


All User Manuals and a number of other documents are included on this CD-ROM as Adobe Acrobat PDF files. The PDF page allows convenient selection of any of the primary manuals. Simply click a document title on the PDF page to open that document in Acrobat Reader, where you can view or print the document.

Acrobat Reader is included on the CD-ROM; if it is not already on your computer, it will automatically be installed when you first try to open any PDF document. Navigation tools are included in Acrobat to help you quickly move about the document.

After a successful installation, you will find a new Start Menu Folder like the one shown at the right. Click the ATS icon to start.

For a quick tour of the software, open one of the sample tests or sample procedures supplied. From the **File** menu, choose **Open > Test** or **Open > Procedure**, and navigate to the ATS folder. There are several sample files you can run as an introduction to of the capabilities of APWIN and your system.



Installing the hardware

ATS requires an Audio Precision Interface Bus (APIB) interface card for use with ATS-2. The control software may be ordered with an ISA-WIN or a PCI-WIN card (Windows 98/2000 only) for desktop PC installation, or with a PCM-WIN PCMCIA card for notebook

ATS version 1 and above will operate under Microsoft Windows 95/98, Windows 2000 and Windows NT 4.0 operating systems. See our web site for a listing of APIB Card and compatible hardware and software configurations.: <http://audioprecision.com/techsupport/compatibility.htm>



To install an ISA-WIN or PCI-WIN APIB card, turn the computer off, remove the cover and mount the interface card. Use caution handling the card to avoid static damage. The jumper settings on the ISA card should work for most installations. If not, see the *Getting Started with ATS-2* manual for details on how to set these.

The PCI card has no jumpers, but it is important to install the control software *before* installing the PCI interface so that Windows 98/2000 can find the card.



OR



If the computer to be used is a notebook with a PCMCIA slot, use the PCM-WIN interface. Install the control software before plugging in the PCM-WIN interface card. The installation process will install the correct driver for the PCM-WIN card. After completing the installation, plug in the PCM-WIN card and Windows 95/98 should find the card and establish the correct link. Windows NT will find the card on restart.

Audio Precision CD-ROM Audio Test Signals

All waveforms are at the standard CD Audio 44.1 kHz sample rate.

All Tracks have triangular dither unless otherwise indicated.

Track	Description	Duration	Test File (note -see below)
1	Data Track: ATS software, manuals and other Audio Precision publications in PDF format. Readable on a computer CDROM only		

REFERENCE

		in \A-a\ unless indicated	
2	997 Hz 0 dBFS single tone	30 s	— 0 dB reference — (1)

NOISE

3	Quiet track, no data, no dither, "infinity zero" AES17 "Idle channel noise"	30 s	A-A NOISE (2)
4	Quiet track, no data, triangular dither	30 s	A-A NOISE (2)
5	Quiet track, no data, shaped triangular dither	30 s	A-A NOISE (2)

FREQUENCY SWEEP 0 dBFS

6	120 Tones 20-20k Hz High resolution	1 s each	X-A FREQ RESP
7	31 Tones 20-20k Hz	1 s each	X-A FREQ RESP
8	120 Tones 20-20k Hz High resolution	0.5 s each	X-A FREQ RESP
9	31 Tones 20-20k Hz	0.5 s each	X-A FREQ RESP
10	11 Tones at ISO one octave spacing	1 s each	X-A FREQ RESP (3)
11	21 Tones at ISO one-half octave spacing	1 s each	X-A FREQ RESP (3)
12	31 Tones at ISO one-third octave spacing	1 s each	X-A FREQ RESP (3)
13	11 Tones at ISO one octave spacing	3 s each	X-A THD+N V.S. FREQ (3,4)
14	21 Tones at ISO one-half octave spacing	3 s each	X-A THD+N V.S. FREQ (3,4)
15	31 Tones at ISO one-third octave spacing	3 s each	X-A THD+N V.S. FREQ (3,4)

FREQUENCY SWEEP -20 dBFS

16	120 Tones 20-20k Hz High resolution	1 s each	X-A FREQ RESP
17	31 Tones 20-20k Hz	1 s each	X-A FREQ RESP
18	120 Tones 20-20k Hz	0.5 s each	X-A FREQ RESP
19	31 Tones 20-20k Hz	0.5 s each	X-A FREQ RESP
20	11 Tones at ISO one octave spacing	1 s each	X-A FREQ RESP (3)
21	21 Tones at ISO one-half octave spacing	1 s each	X-A FREQ RESP (3)
22	31 Tones at ISO one-half octave spacing	1 s each	X-A FREQ RESP (3)
23	11 Tones at ISO one octave spacing	3 s each	X-A THD+N V.S. FREQ (3,4)
24	21 Tones at ISO one-half octave spacing	3 s each	X-A THD+N V.S. FREQ (3,4)
25	31 Tones at ISO one-half octave spacing	3 s each	X-A THD+N V.S. FREQ (3,4)

Track	Description	Duration	Test File
AMPLITUDE SWEEP			
26	0 dBFS to -110 dBFS at 400 Hz	5 s each	\D-AIX-A D-A LINEARITY (4)
27	Frequency Controlled Amplitude sweep. Left channel 0 to -110 dBFS @ 300 Hz, Right channel 1000 to 890 Hz in 10 Hz steps	5 s each 60 s total	X-A FreqCtrl L CH AMPL LINEARITY
28	Frequency Controlled Amplitude sweep. Right channel 0 to -110 dBFS @ 300 Hz, Left channel 1000 to 890 Hz in 10 Hz step	5 s each 60 s total	X-A FreqCtrl R CH AMPL LINEARITY
29	0 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
30	-3 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
31	-6 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
32	-10 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
33	-20 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
34	-30 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
35	-40 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
36	-50 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
37	-60 dBFS 400 Hz tone AES17 "Noise in the presence of signal"	30 s	\D-AIX-A DYN RANGE (2)
38	-70 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
39	-80 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
40	-90 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
41	-100 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)
42	-110 dBFS 400 Hz tone	30 s	X-A THD+N V.S. AMPL (4)

SPECIAL MEASUREMENT—all have no dither

43	1 kHz squarewave 0 dBFS	15 s	A-A VIEW WAVEFORM
44	Polarity: 1kHz pos, 2 kHz neg 0 dBFS	15 s	A-A VIEW WAVEFORM
45	J-Test - data-induced jitter	15 s	\DioAnalyzer\DIO INTERF EYE-PATTERN
46	Walking One: 10 samples/step	15 s	\D-DIX-D BIT ERROR WALKING 1
47	Walking zero: 10 samples step	15 s	\D-DIX-D BIT ERROR WALKING 1 (5)
48	Monotonicity: 10 samples/step	15 s	\D-AIX-A MONOTONICITY
49	Distortion Cal: 1kHz, 0 dBFS & 2kHz @ -40dB	15 s	X-A THD+N V.S. FREQ (6)
50	Distortion Cal: 1kHz, 0 dBFS & 2kHz @ -60dB	15 s	X-A THD+N V.S. FREQ (6)
51	Distortion Cal: 1kHz, 0 dBFS & 2kHz @ -80dB	15 s	X-A THD+N V.S. FREQ (6)

Track	Description	Duration	Test File
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ARBITRARY WAVEFORM SIGNALS \Apwin\Waveform\44k\

52	SMPTE IMD: 63Hz & 7kHz, 4:1 ratio 44kSMPTE7k&60.agm	30 s	A-A SMPTE V.S. AMPL (4)
53	Twin-Tone IMD: 19k & 20k Hz 44kCCIF19k&20k.agm	30 s	A-A CCIF V.S. AMPL (4)
54	Twin-Tone IMD: 14k & 15k Hz 44kCCIF14k&15k.agm	30 s	A-A CCIF V.S. AMPL (4)
55	31 tones: 16 to 20k Hz 44kMulTon31.agm	10 s	X-A MULTI SPECTRUM (2,7)
56	11 tones: 1 octave ISO spacing 44kMulTonIso1perOct.agm	10 s	X-A MULTI SPECTRUM (2,7)
57	21 tones: ½ octave ISO spacing 44kMulTonIso2perOct.agm	10 s	X-A MULTI SPECTRUM (2,7)
58	31 tones: 1/3 octave ISO spacing 44kMulTonIso3perOct.agm	10 s	X-A MULTI SPECTRUM (2,7)
59	31 monaural tones plus 6 Xtalk tones 44kMulTon30+6.ag	10 s	X-A MULTI SPECTRUM (2,7)
60	CODEC test: 26 tones in alternate critical bands, excluding 1k to 4k Hz 44kMulTon26no1k-4k.agm	10 s	X-A MULTI SPECTRUM (2,7)

NOTES

General: All tests with a signal source not generated by the AP System are called External tests. There are three different qualification modes for starting an external sweep. The mode must be selected each time APWIN is started. Select Procedure, Open \Apwin\XStart-OnRules.apb and Procedure, Run to select the mode desired. Generally the second mode ("Beyond the Start setting") is the most reliable.

1. Set Analyzer dBr reference while playing the 0 dBFS tone - press the "F4" key.
2. Valid noise tests depend on having the dBr value set to 0 while playing a 0 dBFS tone.
3. ISO tone sequences start at 16 Hz. Set the Sweep panel Source 1 Start field to 16 Hz to capture the first tone.
4. Analyzer meter displays distortion. On the Sweep panel select Single point to read distortion at a single level. Check the Stereo box to take Stereo (2 channel) data.
5. Select Walking 0 in the Digital Analyzer Waveform field.
6. Check the Sweep panel Single Point box. Set Sweep panel Source 1 Start field to 1kHz. See the test result in the Data Editor.
7. Enter the Waveform file name in the AGen panel Waveform field. Select Spectrum, Response, Distortion, Noise, etc. modes in the Digital Analyzer panel Measurement field. If sweep tables are required they are located in the same folder as the Waveform files



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