

Bluetooth Duo

Bluetooth interface option for APx analyzers



FIRMWARE

- Bluetooth core v. 4.2
- A2DP Source/Sink v. 1.3
- AVRCP Target/Controller v. 1.4
- HFP Hands Free/Audio Gateway v. 1.7

Audio precision

• HSP Headset/Audio Gateway v. 1.2

AUDIO CODECS

- CVSD
- mSBC
- SBC
- Qualcomm aptX
- Qualcomm aptX Low Latency
- Qualcomm aptX HD
- AAC

APPLICATIONS

- Automotive
- Smart phones
- Headphone/headset
- Speakers

HIGHLIGHTS

- Fast connection time
- Expanded audio codec support
- Filtered discovery scanning
- Field-upgradeable firmware

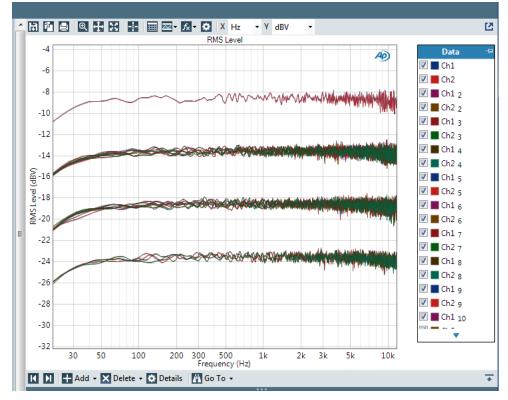
The Audio Precision Bluetooth Duo option is a completely revised, upgraded *Bluetooth*[™] hardware module, with dedicated source and sink radios, new Bluetooth chips and the latest firmware, higher RF power, and improved RF shielding. Supported by Audio Precision's APx500 measurement software (version 4.5 and later), Bluetooth Duo offers a range of new audio codecs, new operational features in the supported profiles, and faster connection times. The option can be installed into any APx modular analyzer manufactured later than mid-2012.

As an APx module, Bluetooth Duo is part of an all-in-one solution, integrated into the analyzer and leveraging the power and flexibility of the APx system. Bluetooth Duo can share the analog, digital, chip-level I²S and TDM protocols, PDM, or HDMI input/output capabilities installed in the analyzer. Intuitive and powerful, the APx500 software provides access to a long list of audio measurements and Bluetooth settings and parameters. APx creates logs of sent and received commands and interactions, and can easily automate Bluetooth I/O, connection, pairing, and settings commands in a stepped sequence for production work. When new Bluetooth features and improvements are made available, Bluetooth firmware upgrades can be distributed and installed in the field.

Bluetooth Settings									
APx Profile Set:	A2DP Source, HFP Audio Gatew	ay, AVRCP Target 🔻 🔽 Che	ck for Firmware U	pdates at Application Start					
· ·	APX55-98764 SOURCE		,	Auto Discoverable/Pair/Con Not Discoverable, No Pair/C		HFP/HSP Profile		swer Incoming HFP/HSP Calls nd Speech (mSBC) Enabled	
	00:22:1a:00:00:11 0000	Tra	SSP Mode: Jus nsmit Power: 4 d		•	A2DP Profile	Codec Set	_	
Device Class: (Auto 60020C Custom 200400 		Active Bluetooth Connection			VRCP Profile	1.4	Enter A/V Sync Delay into DUT Delay	
	Maintain Active Connection				Playback Status: (Auto		•		
						Absolute Volume (Remo		▼ nds Change Generator Settings	
	Scan For Devices	🛅 Clear Devices 👻 🎇 Pair	📉 Unpair 📉 C	onnect 👻 🔯 Disconnect 🛛	Action	ns 👻 🚰 Copy 👻			
Scan Duration(sec): 10	Name	 Address 	Class	Paired	Status		Notes	
	Get Friendly Names	 D iPhone D iPad 	00:f4:b9:c3:a0:cc 84:89:ad:7b:71:c9		Paired Paired	Unknow			
	Filter Devices From Scan								
Device Clas	s: 240000								
Max Device	s: 10 🔺								
								Close Help	

Typical APx500 Bluetooth Settings dialog

AUDIO PRECISION BLUETOOTH DUO OPTION



All appropriate APx audio measurements and techniques are available when using the Bluetooth option as an input or output. This graph shows a nested sweep, where multiple frequency sweeps have been made at four different Bluetooth AVRCP Absolute Volume settings.



WARRANTY

Audio Precision is proud to offer a limited three year warranty on its new products. Any instrument covered under a valid Audio Precision new product warranty—where the damage is not caused by owner misuse or abuse—is repaired free of charge. If the repair is made within a year of purchase, the unit will also receive an Accredited Calibration.

SUPPORTED PROFILES

- HFP, Hands Free Profile in source (Audio Gateway) or sink (Hands Free). Bi-directional audio using CVSD and mSBC (wideband speech) audio codecs.
- HSP, Head Set Profile in source (Audio Gateway) or sink (Headset). Bi-directional audio using CVSD and mSBC (wideband speech) audio codecs.
- A2DP, Advanced Audio Distribution Profile in source or sink. High-quality stereo audio using one of a selection of audio codecs.
- AVRCP, Audio Video Remote Control Profile in source (Target) or sink (Controller). AVRCP supports A2DP with transport controls, delay compensation and absolute volume settings.

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Actions •	🛛 AVRCP Log 🔲 AT Cmd Log				
Field	Value				
Device Name	AP lphone				
Device Address	34:15:9e:ed:3b:17				
Link Key	c57125e4c0e2f38e49b8180384				
A2DP (Control)	Connected				
Audio Routing	A2DP				
A2DP (Data)	Connected				
Streaming	Stopped				
Codec	SBC				
Sample Rate	44.1000 kHz				
Channel Mode	Stereo				
Bit Pool	2-53				
HFP (Control)	Connected				
SCO Status	Closed				
Call Status	No Call				
Network Service	0				
Call Status	0				
Call Setup	0				
Call Held	0				
Signal Level	1				
Roam Status	1				
Battery Level	5				

The Bluetooth Monitor displays a number of status fields, and provides access to the AVRCP log and the AT command log.

SPECIFICATIONS

Bluetooth core version	v. 4.2
Profile versions	A2DP v. 1.3 AVRCP v. 1.4 HFP v. 1.7 HSP v. 1.2
A2DP audio codecs	SBC aptX aptX LL aptX HD AAC
HFP audio codecs	CVSD mSBC
RF connections	SMA (two)
RF input impedance	50 Ω
RF output impedance	50 Ω
RF power	Typical maximum +8 dBm
RF sensitivity	Typically ≤ -81 dBm

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If this data sheet is your first contact with us, please explore our website at ap.com. Audio Precision is the world leader in audio test, with over 30 years of providing scientists, engineers and manufacturers with the finest audio analysis instruments available. We make audio analyzers with unsurpassed analog performance and a wide array of connectivity, including AES3/SPDIF digital, chip-level I²S, TDM and other serial interfaces, a PDM interface, an HDMI interface, an ASIO interface, and of course, a Bluetooth interface. We also offer a number of solutions for acoustic test and measurement, including measurement microphones and accessories, and a headphone test fixture.

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