

## DAB Module DAB1-AD

- Works as stand-alone audio receiver board or module. Dimensions: 83 x 57 mm.
- **Band 3 on DAB and DAB+ streams up to 256 kbps, channels 5A up to 13F supported.**
- Stores up to 100 presets. FM band support.
- **F-type antenna** socket (female) for DAB/FM aerial with F-type plug (screw-on male.)
- High quality **optical S/PDIF** out and line out connectors.
- Presets up/down with user buttons for stand-alone usage.
- Preset selection and volume control through RS232 command interface for audio module mode.
- Decodes station and artist info where available .
- No software or drivers needed.
- Optional LCD with station info.
- Fitting housing box blue or black available.

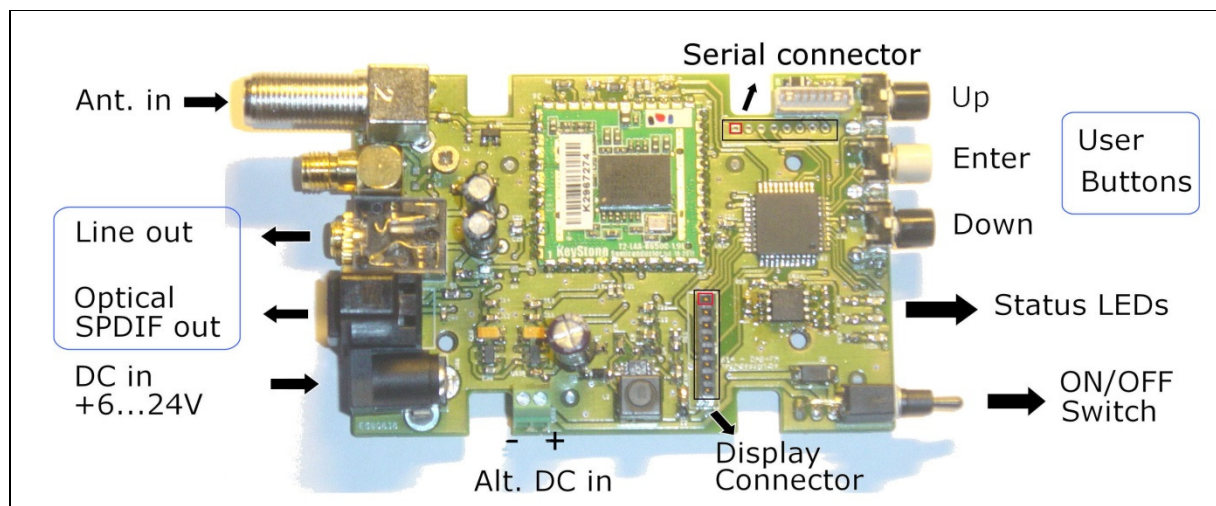


Fig. 1: DAB Module DAB1-AD: Connection overview.

**Line out (audio):** 3,5 mm stereo socket for 3,5 mm stereo jack. Analog audio Zero dB line out. Power on delay switching enabled for amplifier protection.

**Optical SPDIF out** (digital audio): 48 kHz, 16-bit right-justified. Driven directly from the DAB chip.

**DC in +5...24V:** power supply for standard 5mm jack. Supply positive is inner pin, ground is outer. Protected against reverse voltages.

**Alternate DC in:** spare connections for power supply. In case you don't use the 5mm jack.

**Display connector:** optional LCD or OLED module connector. Red square is pin 1. See detailed specs below.

**ON/OFF switch:** user toggle switch. Switches the complete circuit. No power consumption when OFF.

**Status LEDs:** three LEDs: Orange for boot; Yellow for tuning in; Steady Green for normal operation.

**User Buttons:** three user buttons;

- Black Left and Right buttons: DAB preset/ FM tune Up-Down.
- White Enter button:
  - o short press: switch from FM to DAB mode, twice: store current FM station.
  - o long press: at boot (5-10 sec press): module reset and rescan the whole DAB band for available stations.)

**Serial Connector:** External RS232 command connector. See detailed specs below.

### Technical Data:

Parameter	Min .	Typ.	Max.	Unit
Module Power consumption	100	130	150	mA @12V DC supply
DAB Analog line out S/N Ratio		81		dB
Optical SPDIF output		48		Ks/S sample rate
Power on to normal operation	2	4	6	Sec.
DAB/FM Aerial in impedance		50 $\Omega$		

Table 1: Technical Data.

Module Function Block	Chip or Component
Switching power supply	LT1767
MicroController	PIC18F46K20-I/PT
DAB Stream Decoder Module	T1_L4A_8290C
SPDIF Transmitter	GP1FAV31TK0F

Table 2: Chip Data.

## Display Connector:

2 mm pitch header HARWIN M22-2011846 and matching M22-7130842.  
LCD connection for use with the optional LCD module (84x48 dots):

Pin number	Pin function
1 (red square)	RES
2	D/C
3	CS
4	SDA
5	VDD +3V3
6	SCLK
7	GND
8	CAP/BL (backlight)

Table 3: Display Connector pinout.

Note 1: the DAB1-AD retains its full functionality when no display is connected (connector remains open.)

Note 2: The LCD module is fully wired and functional to directly connect to the display connector.

## Serial Connector:

2 mm pitch header HARWIN M22-2011846 and matching M22-7130842.  
External interface for module control:

Pin number	Pin function
1 (red square)	PIC RS232 RX input
2	PIC RS232 TX output
3	RB3 (leave open, do not connect)
4	RB4 (leave open, do not connect)
5	RB5 (leave open, do not connect)
6	NC (leave open, do not connect)
7	GND
8	VDD +3V3

Table 4: Serial Connector pinout.

Note 1: The RS232 is at +3V3 level, you'll need a level converter to communicate with a PC COM port.

Note 2: The RS232 speed is 115200 bits per second, protocol 8N1. Use "type" to pass the commands as a text string.

## Serial commands:

External commands received through pin 1 (RX) and pin 7 (GND) for module control:

Command string	Command description
p12<enter>	Tune to preset number x. E.g. "p12" tunes to preset 12. Valid for p1..p100
v16<enter>	Set volume. E.g. "v16" sets to max volume . Valid for v0..v16
u	Up: tune to next preset.
d	Down: tune to previous preset.
+	Increase volume with 1 unit (min..max scale: 0..16)
-	Decrease volume with 1 unit.
x	Reset all DAB presets and search.
r	Module Soft Reset.
m	DAB/FM mode switch. 2x this command stores the current FM station.

Table 5: Serial command specifications.

**Note 1:** After each successful command, the new setting is also stored internally. Last settings for station preset and volume are loaded upon module boot.

## Mechanical Data:

Module Dimensions: 82,66 x 56,61 x 24 mm.

Weight: 38 grams.

4 mounting holes, diameter: 2,6 mm. Each at X 14,33 and Y 14,31 mm from each corner.

Fitting housing: Hammond Hand Held Instrument 1593L (black or blue.)

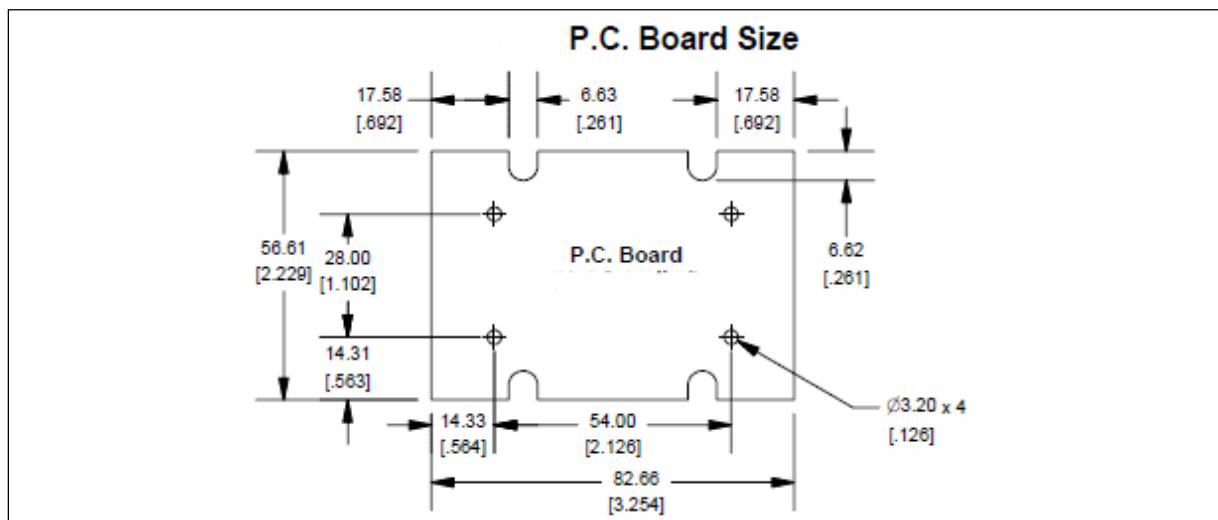


Fig. 2: Module PCB dimension details in mm and [inches]