

USER MANUAL

GSM Modem Option

Compatible with:

DB44, DB45, DB4004, DB7000, DB7007



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GSM MODEM OPTION - FEATURES AND USAGE

The described Features and Usage of the GSM Option is compatible with following DEVA Units:

- **DB44** – Compact FM Radio Monitoring Receiver
- **DB45** – DSP-Based FM Radio Receiver and Modulation Analyzer
- **DB4004** – DSP-based FM Radio Monitoring Receiver
- **DB7000** – FM Radio Re-Broadcast Receiver with Built-in IP Audio & MP3 Backup Players
- **DB7007** – Advanced FM Radio Re-Broadcast Receiver with IP Audio & MP3 Backup Players

The DEVA FM Monitoring receivers supports a very wide range of GSM Modems. However, we suggest the usage of the following model - Sierra Wireless AirLink. This is the modem that is provided from DEVA Broadcast if the feature has been ordered along with the DEVA Unit.

The GSM modem model is directly PIN to PIN compatible with the DEVA Unit GSM Modem's connector, and by simply using a direct cable, you will have not any troubles with the data communication and audio insertion.

Before connecting the GSM Modem to the DEVA Unit, it is necessary to set up the parameters for normal operation. Please bear in mind that:

- GSM modem does not have an automatic detection of the baud rate (AUTOBAUD function). The most important thing is to set up the GSM Modem communication settings. The Communication speed must be 9600 bps, Data Bits: 8; Parity: None; Stop Bits:1.
- The SIM Card PIN code must be disabled in order to avoid a configuration problem of the modem. We suggest you to do this procedure using a GSM phone device of choice. This will save you a lot of time for reading the GSM Modem documentation. In case you decide to do that using the GSM Modem please refer to its User Manual for details.

IMPORTANT: Once the GSM modem is properly installed, the DEVA Unit must be pre-configured to receive messages from up to 5 authorized numbers. This can be made via the WEB interface of the DEVA Unit. Upon successful installation, a notification message will appear on the unit's LCD/OLED screen (if such is available). Using this screen you can find the best place with good GSM Network coverage for the installation of the GSM modem.

NOTE: For information, how the DEVA Unit can be accessed via the WEB Interface, please refer to the respective quick user guide for the device in question. All the documents are available at www.devabroadcast.com/downloads

SHORT MESSAGE SERVICES AVAILABLE



- By sending, a message with the command `Listen + the desired station` (for example `“Listen 101.80”`), the DEVA Unit will retrieve you a call with short record of the station that you have required.

- If you need the current information for a particular station, you can use the second command – `Status + the desired station` (for example `“Status 101.80”`). Then DEVA Unit will send you a message like the one depicted on the screen.

- The ALARM Dispatch - This is a notification that the DEVA Unit will send to you in the cases when a parameters drops below or exceeds the pre-defined threshold. In case of ALARM, the unit will send SMS to all authorized GSM numbers.

Bellow you will find examples how to use the DEVA Unit with GSM Modem features:

REMOTE AUDIO LISTENING

Type the following text and send it as SMS to the DEVA Unit’s GSM number:

`Listen FFF.FF`

`FFF.FF` is the frequency to listen to.

Upon receiving your ‘Listen’ request via SMS, the DEVA Unit will call you back and when you take the call will hear the audio on the frequency `FFF.FF`

IMPORTANT: Do not include leading zeroes such as `“Listen 089.90”`
Fill with trailing zeroes up to two digits after decimal symbol.
Decimal symbol must be ‘.’ (not comma ‘,’).
For example: `“Listen 104.50”` or `“Listen 91.55”`.

REMOTE STATUS REQUEST

The DEVA Unit can send you a report with the values of the most important FM Parameters like RF level, MPX Level, Pilot Level, RDS Level, L&R Audio Level, Stereo/Mono Status and RDS PI Code at any time. Upon receiving your request via SMS, the unit's tuner will be adjusted on the requested frequency and will make measurement of all the parameters listed above. Once the procedure is completed, an SMS message will be generated and sent to the requestor's GSM.
Command Example:

```
Status FFF.FF
```

FFF.FF is frequency to Tune.

IMPORTANT: Do not include leading zeroes such as "Status 089.90"
Fill with trailing zeroes up to two digits after decimal symbol.
Decimal symbol must be '.' (not comma ',')
For example: "Status 102.55" or "Status 88.80".

The DEVA Units will shortly respond back with SMS with the following content (example):

```
STATUS:  
11.07.09 09:08:34  
FREQ:102.50MHz  
RF Level: 55.1dBuV  
MPX Level: 74.1kHz  
Left: -11.7dB  
Right: -12.3dB  
Pilot: 7.5kHz  
Stereo  
RDS Level: 4.1kHz  
PI:824D
```

INITIALIZATION PROCEDURE FOR SIERRA WIRELESS AIR-LINK FXT009 GSM MODEM

in regards with the following DEVA Units:

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1. Setting up the modem

Prior to connecting/using the GSM modem for the first time, kindly read the manufacturer’s user manual. The document can be found on https://source.sierrawireless.com/resources/airlink/hardware_reference_docs/airlink_fxt_series_user_guide/

The appropriate values should be assigned via the RS232 interface of the GSM modem. A custom made cable and a terminal program of any kind should be used. The cable specifications should be as follows:

To PC DB 9 female pin		GSM modem DB 15 male pin	Note
1	->	1	Data Carrier Detect
2	->	6	com TX
3	->	2	com RX
4	->	8	DTR
5	->	9	GND
6	->	7	DSR
7	->	12	RTS
8	->	11	CTS
9	->	13	RI

Next, the following settings should be applied to the terminal program:

Speed	115200 bps.
Flow control	hardware (CTS/RTS)
Parity	none
Data bits	8
Stop bits	1

To check the communication type the command “AT” in the terminal program and press Enter. The modem will/should respond with “OK”.

Upon powering on, the modem should start working with its factory settings. To see these settings type the command “AT&V”. The modem will respond with the factory default settings:

```
Q:0 V:1 S0:000 S2:043 S3:013 S4:010 S5:008
+CR:0 +CRC:0 +CMEE:0 +CBST:0,0,1
+SPEAKER:1 +ECHO:0 &C:0 &D:2 %C:0
+IPR:115200 +ICF:3,4 +IFC:2,2
```

ATTENTION: If the displayed parameters differ from one listed above, we recommend you to return the modem to its factory defaults. In order for this to happen, the command “AT&F1” should be typed.

NOTE: For further information on the AT commands, please refer to the GSM Modem complete user manual.

Once the modem is returned to its factory defaults, you can proceed with following commands:

COMMAND	DESCRIPTION	NOTE
ATE0	This command will turn Echo Off	
AT+ICF=3,4	8n1, no parity	
AT+IFC=0,0	no flow control	
AT+IPR=9600	set com speed	Change terminal speed to 9600 bps (if needed)
AT&W	save configuration	After this command turn power Off and On
AT&V	display new configuration	

NOTE: After every command, the modem should respond with “OK”.

Once all changes/modifications are applied, the modem should respond with the following adjustments:

```
Q:0 V:1 S0:000 S2:043 S3:013 S4:010 S5:008
+CR:0 +CRC:0 +CMEE:0 +CBST:0,0,1
+SPEAKER:1 +ECHO:0 &C:1 &D:2 %C:0
+IPR:9600 +ICF:3,4 +IFC:0,0
```

Upon applying all the described settings, the modem should be fully compatible for operation with DEVA Unit.

2. Connecting with DEVA Unit

Communication Cable Description:

DEVA Unit port DB 15 female pin		GSM modem DB 15 male pin	Note
2	->	2	com TX
4	->	4	mic (+)
5	->	5	mic (-)
6	->	6	com RX
9	->	9	gnd