

Application Note

Setting up the DTA-110

1. My receiver does not lock. Is the DTA-110 defective?

That is possible, but it is more likely that one or more settings are not correct. This document walks you through the various settings for the DTA-110. We assume that DekTec's StreamXpress player software and Dta1xx driver are properly installed on your PC, and that you have the latest version of both downloaded from the DekTec web site.

A. RF Frequency:

Check that the DTA-110 and the receiver are set to the same RF Frequency. You can set the DTA-110's RF Frequency in the carrier-frequency field in the main StreamXpress dialog.

Alternatively, tune the receiver to the DTA-110's RF Frequency. Please note that some receivers do not allow tuning. They are set-up to a fixed frequency, determined by the NIT in the Transport Stream.

B. Modulation:

Check that the DTA-110 is set to a modulation scheme that the receiver can handle. If the receiver can handle more than one modulation scheme, choose one that can handle your stream. The modulation mode on the DTA-110 and the receiver must be the same. You can set the DTA-110's modulation mode in the modulation field of the StreamXpress software. Please note that 256-QAM is a critical modulation scheme. Long cables, splitters and poor termination may deteriorate the signal such, that reliable reception is no longer possible.

C. Symbol Rate:

This is the rate at which the modulated symbols are sent from the DTA-110 to your receiver. This is different from the bit rate at which your MPEG stream plays! It is vital that the symbol rate on the DTA-110 is set to the same symbol rate as the receiver. If not, your receiver will not lock.

The relationship between symbol rate and bit rate is as follows:

$$f_{\text{symb}} = f_b \cdot \frac{204}{188} \cdot \frac{1}{m}$$

where f_{symb} is the symbol rate in Bd (baud)

f_b is the bit rate in bit/s

m is the power of the modulation scheme, according to 2^m -QAM ¹

Example: Bit Rate $f_b=38,097,647$ bit/s, modulation is 64-QAM, so $m=6$. This yields a symbol rate of 6,890,000 Bd or 6.89 MBd.

You can set the DTA-110's symbol rate in the Sym field of the StreamXpress software. Even though you can set the bit rate in the StreamXpress software, we do not recommend doing so.

¹ $m=2$ for 4-QAM, $m=4$ for 16-QAM, $m=5$ for 32-QAM, $m=6$ for 64-QAM, $m=7$ for 128-QAM, and $m=8$ for 256-QAM

2. Now there is a problem. My receiver dictates me to use symbol rate X, but my stream is Y Mbit/s. Both are fixed!

First, compute the symbol rate that is required to transfer the stream of Y Mbit/s to your receiver. Now there are two situations.

(1) The symbol rate you have just computed is lower than X. In this case, there is no problem. Turn the RMX check box on and the DTA-110 will automatically insert empty (null) packets until it reaches a symbol rate of X.

(2) It is also possible, however, that the outcome of your computation is higher than X. In other words, to transfer a stream of Y Mb/s requires a higher symbol rate. In this case, check with the receiver data sheet to see if the receiver can handle the higher symbol rate. If so, increasing the symbol rate on both the DTA-110 and the receiver will do the job. If not, the only way out is to go to a higher modulation scheme if your receiver can handle that.

3. Everything works fine. However, now that I try to play a different stream, it doesn't work anymore. Even the previous stream doesn't work anymore. Why?

When you selected the new stream, the StreamXpress may have changed the symbol-rate setting. This behavior typically occurs when the new stream requires a higher symbol rate. In this case you cannot simply change back the symbol-rate setting. See question 2 above.