

A frequent complaint about **OpenTX** is its lack of documentation, and therefore its difficulty of use. This guide sets out to try to rectify that. It is also the case that **OpenTX** is an evolving program, like most software. This brings the problem that much of what has been written in the past is now partially or wholly out of date.

Several principles were used in the writing of this guide:

- ✪ It does not try to cover any previous versions of **OpenTX**. For those that need it, there is already a version of this documentation for **OpenTX 2.1**.
- ✪ It uses the **OpenTX Companion** as the primary starting point for programming a model and not the transmitter.
- ✪ The use of screen shots to simplify the text needed.
- ✪ As the range of FrSky transmitters has grown considerably, parts of the user guide are split into transmitter-specific sections.
- ✪ It has been laid out to follow the menu system in the **OpenTX Companion**.

The guide is broken down into sections. After the introduction, this section lists the contents of the remaining sections. Section 2 with the green border, **Getting Started** takes the user gently through the actual programming of a model to give a flavour of how the program works. This does not require the reader to have a transmitter, and could be useful for those wondering whether to invest in an FrSky transmitter or whether to move to **OpenTX**. The following **Sections 3 to 8** with the blue border explain briefly what everything does. Finally the last two sections with the red borders of **How To's** explains in more detail some of the aspects of the program or other facilities that can enhance the program.

I would like to thank all those who have already contributed to developing the knowledge base of **OpenTX** on the internet, and especially those who have unknowingly contributed some part of this documentation.

Finally this documentation was also freely produced and is offered in a similar spirit to readers. However, it is a copyright document as such, and must not be reproduced in whole or part for profit without approval. If elements are copied on a non-profit basis, I would appreciate an acknowledgement as the source, as I have tried to do with other contributors in this document.

Martin Phillips
March 2018

It is the sole responsibility of the user to ensure that the setting up of their transmitter functions as expected on the model.

Introduction

Without doubt **OpenTX** is the most comprehensive model radio system available today. It has been adapted to cover the whole range of FrSky radios currently available, plus some Turnigy radios. However, that comprehensiveness comes at a price. It can appear very daunting to learn and use, and without doubt that is true to some extent. It is probably true that no modeller will ever use all the features available, but they are there if required.

OpenTX is open source software, that is to say all the development work has, and still is, being done by a team of willing programmers and enthusiasts from around the world at no cost to you the user, though donations to the project are warmly received. This helps keep the cost of equipment much lower than comparable systems with in-house programming. As most who use computers in one form or another realise, computers are constantly evolving, and so is the software surrounding them. This is also true of **OpenTX**, and users need to accept they are entering a world where regular updating becomes the norm, and new features will constantly appear, and some features will change. Changes to national and international radio regulations have also forced changes to the system. While frustrating at times, it does mean that one always has a fully up-to-date system to match or exceed the best of the rest. The **OpenTX** team have done much to make this updating process very simple, and if one follows a few basic precautions, there is never any chance of “bricking” (i.e. damaging) the transmitter, or losing all the effort you put into setting up your models.

The **OpenTX** transmitter system is unlike most other transmitter systems. It does not have the normal menu system you may well be used to and be comfortable with. It does not follow all the limiting conventions used by traditional systems, and this has been reflected in the FrSky transmitter designs themselves. For example, the switches are labelled “A”, “B”, “C”, etc., rather than giving them specific designations, so any switch can be used for any purpose. Similarly you decide which channels to use for what purpose.

One needs to step back from ones pre-conceived ideas of how radio systems should be set up to fully appreciate the flexibility of **OpenTX.**

I hope as you read through this document you will begin to see the wonderful flexibility of this system, and instead of asking whether the program can do this or that, ask how to I get it to do.. ?

Contents

Section 1: Introduction & Contents

Foreword	Page 1
Introduction	Page 2
Contents	Page 3

Section 2: Getting Started

Introduction	Page 2
The Main OpenTX Companion Screen	Page 3
The Model Wizard	Page 5
The Editing Screen	Page 7
The Simulator	Page 8
The Inputs Window	Page 9
The Mixes Window	Page 10
Editing a Model	Page 11
The Setup Window	Page 14
Going Beyond Basics	Page 19
Creating Elevons	Page 20
Playing Sounds	Page 22
Logical Switches	Page 23
The Outputs Screen	Page 25

Section 3: The OpenTX Companion

The OpenTX Companion	Page 2
The OpenTX Companion Screen	Page 6
Radio Profiles	Page 6
The Three Settings Menus	Page 7
Managing Models on OpenTX Companion	Page 10
Compare Models	Page 11
Synchronise CD	Page 12
Model Categories	Page 13
The Companion, Edit Radio Profile	Page 14
The Companion, Edit Application Settings	Page 17
The Companion, Edit Simulator Settings	Page 18
The OpenTX Simulator	Page 19
Radio Output	Page 21
Telemetry Simulator	Page 22
Trainer Simulator	Page 22
Other Functions	Page 23
Working with the Simulator	Page 24

Section 4: The Radio Setup Menu

The Radio Setup Menu	Page 2
Radio Settings: The Setup Screen	Page 4
Radio Settings: Global Functions	Page 8
Radio Settings: Trainer	Page 9
Radio Settings: Hardware	Page 11
Radio Settings: Calibration	Page 12

Section 5: The Model Editor

Accessing the Model Editor	Page 3
The Setup Screen	Page 5
Timers 1, 2, 3	Page 6
Throttle Source	Page 6
Trim Step	Page 6
Trims Display	Page 7
Throttle Idle Only	Page 7
Throttle Warning	Page 7
Reverse Throttle	Page 7
Extended Limits	Page 8
Extended Trim	Page 8
Display Checklist	Page 8
Global Functions	Page 8
Switch Warnings	Page 8
Pot Warnings	Page 8
Internal Radio System	Page 9
The Failsafe Mode	Page 9
Binding a Receiver	Page 10
Range Test	Page 11
External radio Module	Page 11
The Heli Screen	Page 13
The Flight Modes Screen	Page 15
Global Variables	Page 16
The Inputs Screen	Page 20
The Input Edit Window	Page 23
Important Warning	Page 25
The Mixes Screen	Page 26
The Outputs Screen	Page 30
Notes on Servos	Page 33
Inputs Diagram	Page 36
Mixes Diagram	Page 37
Outputs/Servos Diagram	Page 38
The Curves Screen	Page 39
The Logical Switches Screen	Page 44
The Special Functions Screen	Page 49

Section 6: Telemetry

The Telemetry Screen	Page 2
Telemetry Key Points	Page 4
The FrSky Smart Port Sensors	Page 5
Current Sensors	Page 5
Voltage Sensors	Page 6
Variometer	Page 6
GPS Sensor	Page 9
RPM and Temperature Sensor	Page 9
Air Speed Sensor	page 10
Discovering new Sensors	Page 11
The Telemetry Screen	Page 12
Analogue Outputs A1/A2	Page 15
Telemetry Displays (Taranis)	Page 16
Data Logging	Page 17

Section 7: The Taranis Transmitters

The Taranis transmitter range	Page 2
The Taranis X9D transmitter	Page 3
The Taranis X9E transmitter	Page 4
The Taranis Q X7 transmitter	Page 5
Entering bootloader mode	Page 6
Sources available X9 transmitters	Page 7
Sources available Q X7 Transmitter	Page 8
Firmwares	Page 9
Updating the firmwares	Page 10
Updating the SD Card	Page 13
The Taranis transmitter menu system	Page 14
The Taranis radio setup screens	Page 15
The Taranis controls information screens	Page 17
The Taranis telemetry screens	Page 19
The Taranis model edit screens	Page 20

Section 8: The Horus Transmitters

The Horus X10 and X10S Diagram	Page 3
The Horus X12S Diagram	Page 3
Sources for Inputs and Mixes	Page 5
Screen Symbols	Page 6
Switch Default Settings	Page 7
External/Internal Aerials	Page 7
Memory Storage	Page 8
The SD-HD Card	Page 8
Updating the SD Card	Page 11

The Horus Transmitter Menu System	Page 12
The Horus Screen	Page 13
The System Menu	Page 14
Calibration	Page 15
The Model Setup Menu	Page 16
Bind and range Check	Page 17
Discovering Sensors	Page 17
The Model Select Menu	Page 18
Widget Editing	Page 20
Layout	Page 21
Screen Options	Page 22
Setup Widgets	Page 22
The Widget User Interface	Page 24
Notes on Widgets	Page 26
Firmwares	Page 27
Installing OpenTX for the First Time	Page 28
Installing Zadig for PC	Page 28
Installing OpenTX Companion	Page 29
Installing OpenTX on the Radio	Page 30
Re-installing FrOS	Page 31
The Bootloader	Page 32
Updating OpenTX	Page 33

Section 9: How To ... Part 1

How to Flash the EU LBT Firmware	Page 2
How to Create a Sound File	Page 6
How to Create a Text File	Page 9
How to Use the Trainer Function	Page 11
How to Record Transmitter Settings	Page 15
How to Set Up a Flybarless Helicopter	Page 16
How to Set Up a CCPM Helicopter	Page 23
How to Create a Kill Switch	Page 33

Section 10: How To ... Part 2

How to Add Voltage Telemetry to the X4R	Page 2
How to Create Model Pictures for the Horus	Page 4
Telemetry LiPo Fuel Gauge	Page 8
How to Use the Bluetooth Trainer Function	Page 11
Setting up the S6R and S8R Stabilised Receivers	Page 12