GPS Tracker Developer's Quick Start Guide

This document gives a quick introduction on how to commission and set up Miromico's GPS tracker for your application.

Revision	Description	Date	Initials
0.1	Initial version	26.04.2018	AS
0.2	Added FTDI section and some images	02.05.2018	AS

1 Prerequisites

You need the following hardware and software components for commissioning (setting the LoRa parameters, such as DEUI, APPEUI and APPKEY)

- FTDI cable

For firmware updates and commissioning via Tag Connect (when no pin headers are available on the PCB) you additionally need the following tools

- ST-Link/V2 programmer
- Miromico's interconnect board
- Tag Connect cable and clip

Above parts are available in our web shop. Please search for the Starter Kit on http://webshop.miromico.ch/ or contact our embedded staff by email embedded@miromico.com and ask for support.

Information about the LoRa FMLR modules and other sensor products can be found on the Miromico Website.

Additional information on the GPS tracker's AT command interface and payload format is available in separate documents.

2 Typical Hardware Setup (FTDI only)

The most straight-forward way to commission and set up the tracker is to connect an FTDI cable to the 5-pin header (if available) note that the 6th pin of the FTDI connector is not used and left loating (green wire in illustration 4). The black ground wire has to be connected to the pin closest to the push buttons.

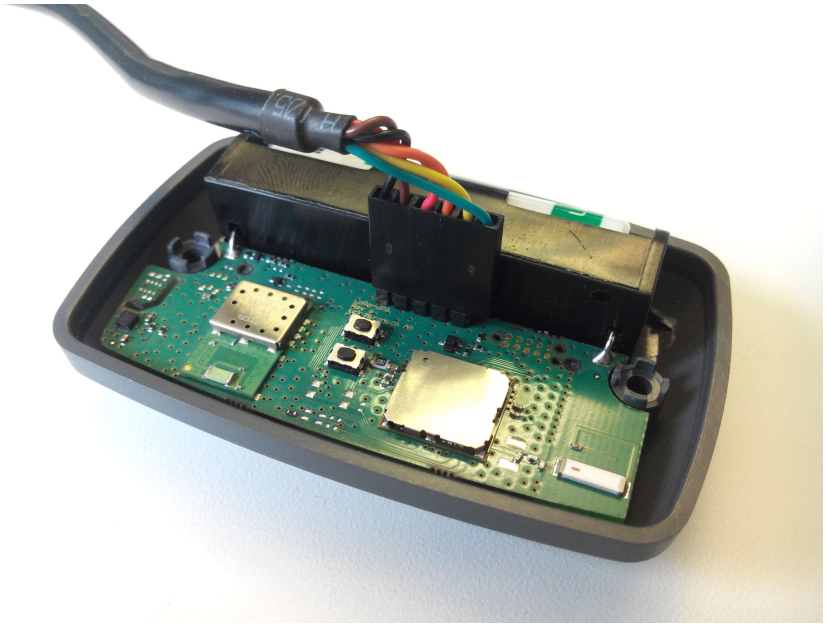

Illustration 4: FTDI Connect cable, connected to the tracker's pin header.

3 Typical Hardware Setup (Tag Connect & FTDI)

For firmware updates and commissioning without pin headers, a Tag Connect cable needs to be used. Illustration 12 shows how the ST-Link/V2 programmer, FTDI cable, interconnect board and various cables need to be connected.

Note that the programmer has to be connected to your PC with a USB cable (not visible in the image)

Miromico's interconnect board offers a 6-pin header for the FTDI cable and some jumpers to set up the supply. If you power the tracker with a battery or supply, remove the jumpers on the interconnect board or place them according to the explanations in section 5

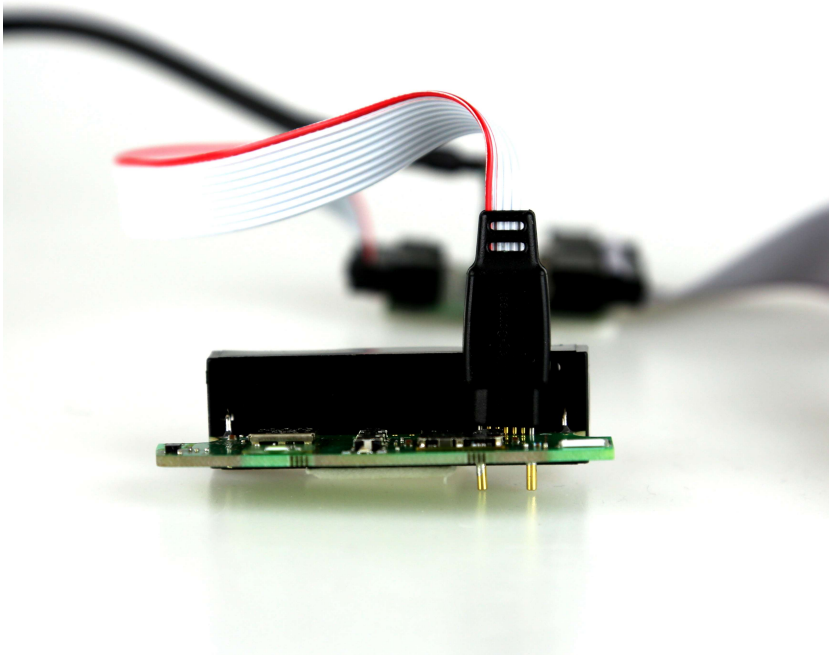

Illustration 8: Tag Connect cable, connected to the tracker's PCB and fixed using the Tag Connect Clip.

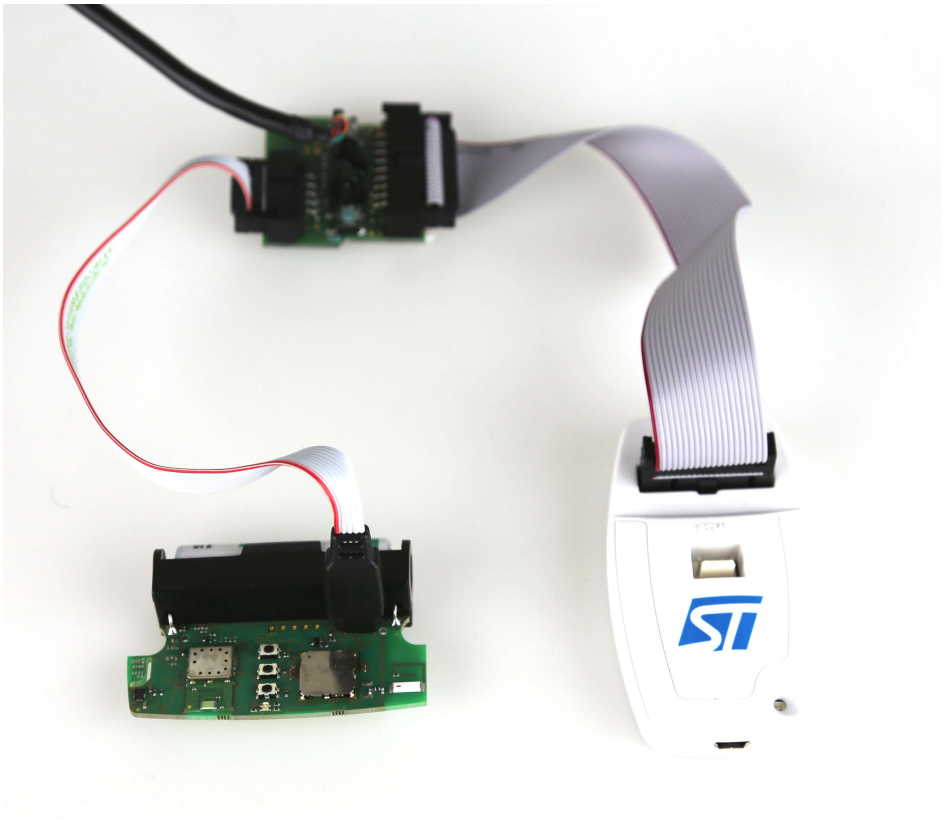

Illustration 12: Left: Tracker with Tag Connect plug and clip connected

4 Commissioning

For commissioning, you can connect the FTDI cable directly to the pin headers on the tracker. If no headers are available, add them to the PCB or use a loose a pin header and apply sideway force to ensure contact with the pads.

Alternatively, use the Tag Connect cable and clip, and connect both the Tag Connect and the FTDI cable to Miromico's interface board, as explained in section 3.

The programmer can be omitted for commissioning via the AT interface.

Install a terminal program, such as YAT.
https://sourceforge.net/projects/y-a-terminal/

Open a serial connection with the following settings. The FTDI's virtual COM port varies and can be investigated using the Windows device manager.

You find further information on the available commands in separate documentation. For an overview of available commands, type AT? on the terminal.

Baudrate	115200
Databits	8
Parity	None
Stopbits	1

5 Firmware update using STM32 ST-Link Utility

STM32 ST-Link Utility is a tool provided by STMicroelectronics and running on Windows. It is needed to flash firmware using the ST-Link Programmer.

Download and install the driver and utility to proceed.

http://www.st.com/en/development-tools/stsw-link004.html

http://www.st.com/content/st_com/en/products/development-tools/software-development-tools/stm32-software-development-tools/stm32-utilities/stsw-link009.html

Load the provided .hex file with the utility program and connect the tracker to the programmer via the interconnect board.

Now click the „connect to target" icon to let the software identify the micro controller on the tracker.

Then click the „program / verify" icon. Ensure the uploaded firmware is automatically verified.

6 Power Supply Options

To power the module over our interface board by FTDI the positions of the Jumper 1 and 2 (Pin 2, 3 connected by both Jumpers) are depicted on illustration 16. If you want to power the module by SEGGER J-Link, Jumper 1 needs to connect pin 2, 3 and Jumper 2 needs to connect pin 1, 2. Using a ST-LINK with our interface board Jumper 1 has to link pin 1, 2 and the position of Jumper 2 does not matter.

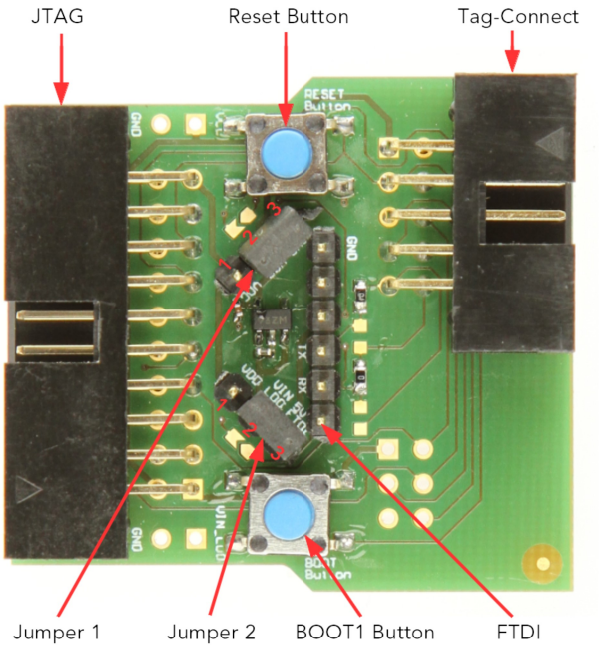

Illustration 16: Interface board to connect a standard 20 pin ARM header to the Tag-Connect connector