

# **TURBO LEVO/KENEVO & VADO/COMO WITH TCD-w:** **ANT+ CONNECTIVITY OPTIONS TO SEE TURBO DATA**

**SPECIALIZED TURBO RETAILERS AND RIDERS**

**MAY 2019**

## What is it about?

Turbo Levo/Kenevo and some Vado/Como bikes offer the possibility to connect to e-bike specific sensors through ANT+ devices. This document gives some useful tips and outlines some options we believe are most valuable. More options can be found through internet research.

## General notes on ANT+ connectivity

All Turbo motors feature sensors for Speed, Rider Power and Cadence. The sensor data can be received via the ANT+ modules of the bike. Basically, all ANT+ devices can connect to these sensors. Additionally, many bicycle-specific GPS devices feature e-bike specific protocols, often called LEV protocol (Light Electric Vehicle) to simplify sensor connection and to show specific display screens for e-bike data.

## Where is the ANT+ module located in my Turbo Levo/Kenevo or Vado/Como?

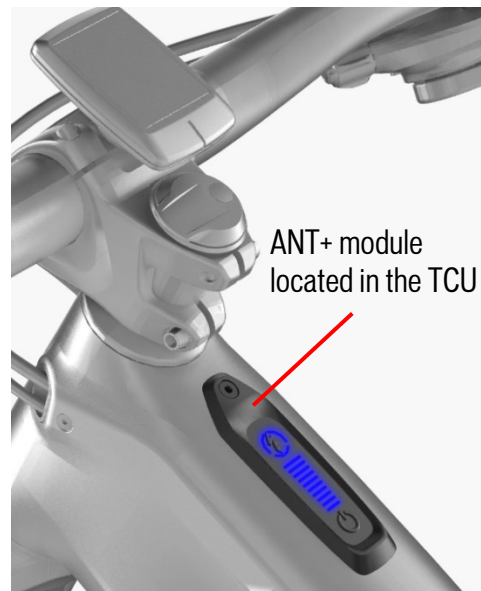
This depends on the bike generation and can be important for pairing, during which the ANT+ device usually needs to be closer to the ANT+ module of the Turbo.

ANT+ module located  
near charge port



All Turbo Levo/Kenevo bikes w/o a display in the top tube have the ANT+ module built into the battery.

All Turbo Levo bikes with a display in the top tube have the ANT+ module built into the TCU.



ANT+ module  
located in the TCU



ANT+ module located in the TCD-w



All Turbo Vado/Como Bikes with a TCD-w have the ANT+ module built into the display.

The TCD-w already shows all Turbo data, but it would be possible to mirror this data on e.g. a Garmin device by searching for the e-bike sensors as described below under 'Connect to LEV sensors in ANT device'.

The TCD-w also allows pairing with an ANT+ heart rate belt to display heart rate data (enter the setup menu and switch to 'Y' when asked 'Pair HR Y/N')

### Useful ANT+ Connectivity Options

#### **Specialized TCD**

Use the Specialized TCD display to see all relevant ride and Turbo data (displays all regular data of a bicycle computer plus Turbo data like state of charge as % figure and bar scale, rider power, cadence and selected mode; allows connecting a heart rate belt). Comes with two handlebar mounts. The TCD also allows pairing with an ANT+ heart rate belt to display heart rate data (enter the setup menu and switch to 'Y' when asked 'Pair HR Y/N')

**Note:** As of April 2019, the TCD is fully compatible only with Levo bikes featuring a TCU unit (Distance not displayed correctly when used with first generation Turbo Levo; retailers are informed, fix is in the works)



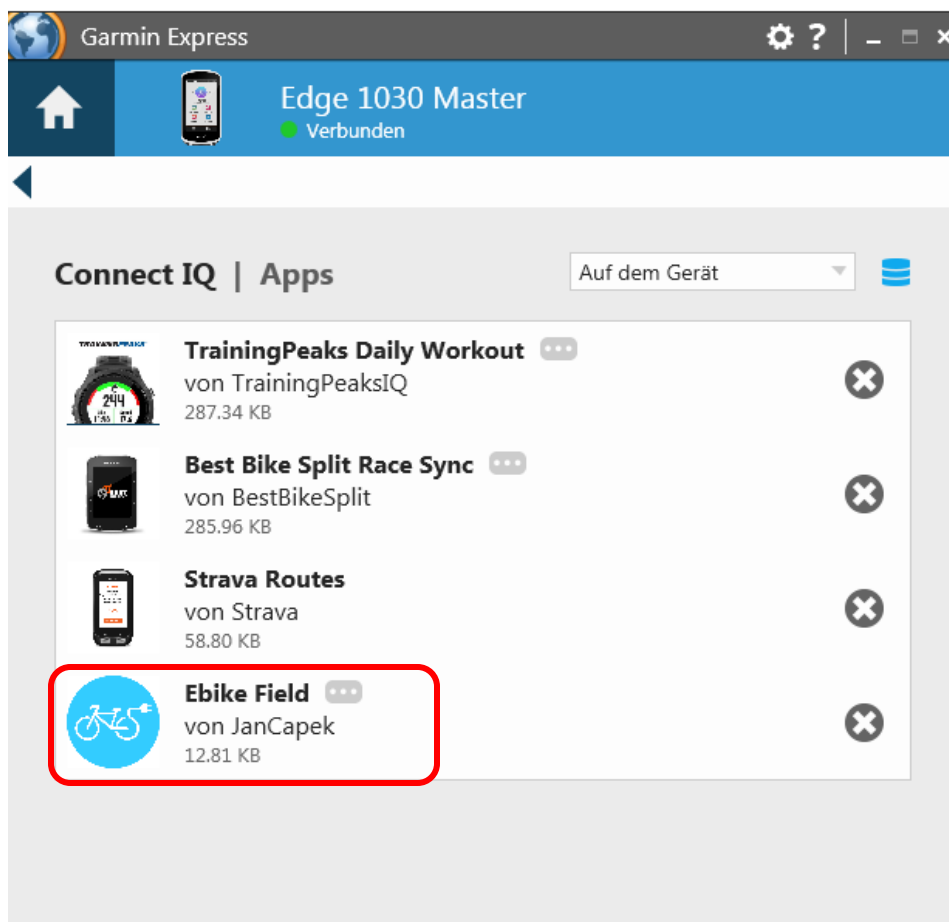
## Connect to LEV sensors in ANT device

In the ANT+ device, search for sensors and connect to Speed, Power and Cadence sensor of the Turbo to see the data on the device. Usually, data fields can be customized.

## Garmin devices: LEV data fields through Garmin Connect IQ

Garmin GPS devices that are capable of Connect IQ offer dedicated data fields to display e-bike data. Note: It's a known issue on current Garmin devices that with paired LEV sensors, none of the Connect IQ data fields will find the bike. Make sure your device is not paired to the Turbo sensors before setting up the data field. Here are two options we recommend:

- Install the 'Ebike Field' by Jan Capek (easier to install/connect than option b.)
- Install the 'Turbo Levo Data Field' on your Garmin. Then activate the new data field and connect your Turbo to it



## Fake Channel in MC App to show Turbo battery state of charge

To show the Turbo battery % on any ANT+ device, activate the 'Fake Channel' in the 'Tune' menu of Mission Control App, choosing an unused channel (e.g. Cadence). Restart bike to activate Fake Channel. Search for sensors in the ANT+ device and choose the faked sensor. If necessary, make the needed data field visible. In this example, the Levo battery is charged at 86 %.

