

DigPilot Move Sensor

User manual



DigPilot AS
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1 Introduction

All DigPilot sensors are interchangeable.

A boom sensor can be used as a bucket sensor, and a pitch, roll & compass sensor can also be used as an arm sensor, but without the laser receiver. This may allow the customer to complete his excavation after a sensor has broken, while waiting for a replacement sensor, though with a crippled excavator guidance system.

Installing sensors in a different location in the sensor chain than configured may be a time consuming task. The excavator software will search for the sensors, but may fail multiple times after long delays.

When a sensor chain has been configured to use another radio channel than channel 1 this will take even longer.

As boom, articulated boom, bucket and tilt sensors are identical sensors, they are all shipped from DigPilot AS configured as boom sensors. To avoid long delays installing new sensors, they should be reconfigured for their intended chain position before installation.

This is achieved by the software DigPilot Move Sensor on your regular Windows laptop or workstation, with a coordinator attached to it.

1.1 Requirements

- A Windows laptop or workstation with .NET Framework 3.5 installed.
- A spare coordinator. Taking a coordinator from a complete system, will break that systems sensor chain, and leave the system in an unstable condition. DigPilot Move Sensor will work, but the complete system may require servicing by DigPilot AS.

1.2 Warning

To achieve high speed in reconfiguring the sensors, a few shortcuts in the DigPilot radio protocol has been employed. A little extra care from the operator is necessary.

Do not run multiple copies of this software within radio range of the sensors at the same time. The excavator software is fairly robust when it comes to handling sensor interfering with each other, but with DigPilot Move Sensor the coordinators will lose track of which sensor it is connected to.

If it is necessary to be able to run multiple copies of DigPilot Move Sensor at the same time, please consider designing a Faraday cage which will contain radio signals from the coordinator and sensor.

2 Installation

The program requires a Windows driver to let the software talk to the coordinator. The installation requires a user account with administrative access.

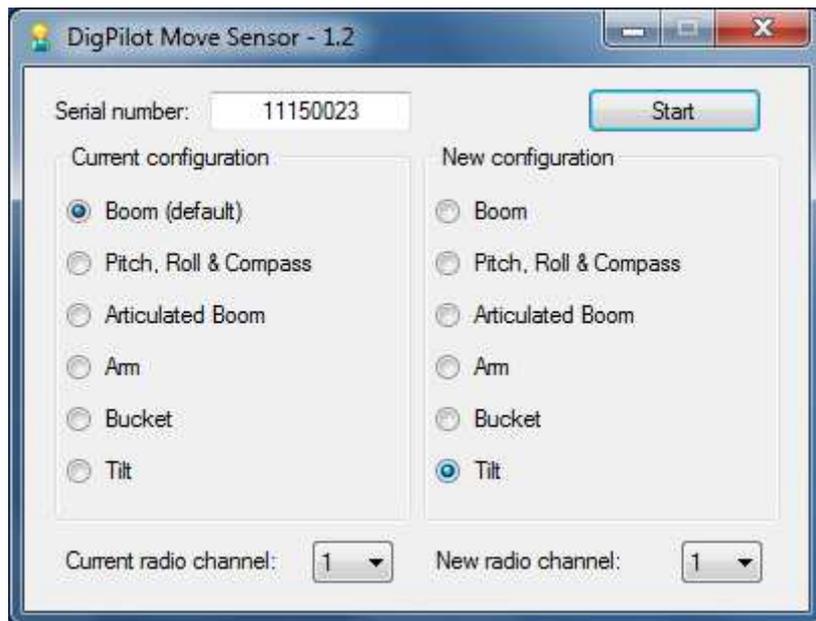
The driver is made by FTDI (www.ftdichip.com), which designed the USB controller inside the coordinator.

Copy the program file and library into a suitable folder, and make a desktop shortcut.

3 Operation

3.1 Reconfigure a sensor

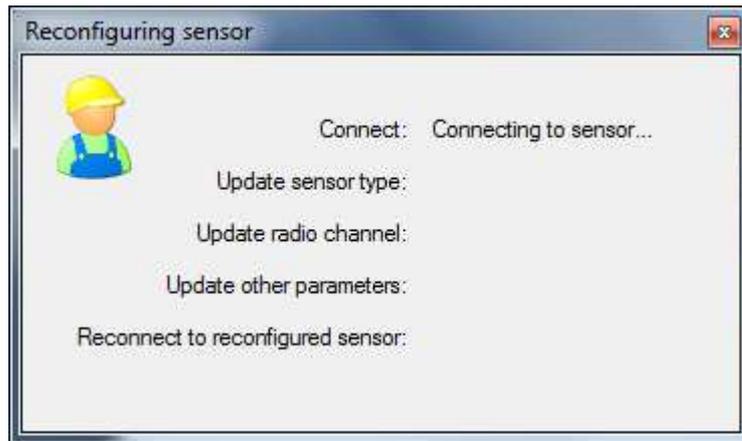
Enter the sensors eight digit serial number. Select its current configuration, and a new configuration. DigPilot Move Sensor does not search for sensors, and will not find the sensor if the wrong “current configuration” is selected.



The default sensor configuration is “Boom”, which is the configuration of all sensors sold without a name sticker attached.

At the bottom of the user interface is two combo boxes to also select radio channels. By default all sensor systems are configured with radio channel 1, but this may have been changed by the installer or customer. Correct current radio channel must be selected to be able to connect to the sensor.

Click the “Start” button and wait a few seconds while the program connects to the sensor, reconfigures and reboots it, and verifies that the reconfigured sensor is ready.



3.2 Logging

DigPilot Move Sensor maintains a log file, which can be used to check which sensors have been reconfigured, and when this was done.

3.3 Failsafe

If the reconfiguration process is interrupted or fails and leaves the sensor in a useless condition, a safety feature in the sensor cleans up.

First, just try running the program again, as it may still be possible to connect to the sensor. The new configuration is not activated until the sensor is rebooted at the end of the reconfiguration process, and usually this will work.

If unable to connect to the sensor, reset the sensor by placing it momentarily in a charging station. When removed from the charging station, the sensor will run a self-diagnostic check. If the sensor is in a broken condition, the sensor will reconfigure itself to a boom sensor.

The sensor is then ready to be reconfigured from boom to its intended configuration again.