MachineryGuide devices and softwares are designed to work both as individual units and as a complete system. Devices use wireless communication (via WiFi or Bluetooth), to make installation simpler and faster. They can be connected to optimize their functioning capacity and to make it easier to transfer data between them.

### Bluetooth receivers to receive GPS signals from the antenna
- SM1 for sub-meter accuracy
- DM1 for decimeter accuracy
- CM1 and CM2 for centimeter accuracy

### GPS, GLONASS, SBAS and RTK antennas for connection to guidance signals.
- Easily mountable on the machinery
- Stable connection

### Cloud service to connect all MachineryGuide devices and applications.

### Tablet mount with MachineryGuide, Orchard application or BSC software
Flexible tablet mount for heavy-duty use

### BSC section controllers and BHC hydraulic controllers for sprayers, PSC planter controllers for planters
- BSC for manual pressure control
- BSC Plus for automatic pressure control
- BSC Pres for application rate and section
- BSC Flow for flow sensor support
- BHC
- PSC

### Easily mountable automatic steering solution developed by MachineryGuide. It can place the MachineryGuide guidance system amongst the precision technology performing at the highest possible accuracy.

### BSC Pres for application rate and section
- BSC Flow for flow sensor support
MachineryGuide is an agricultural guidance app for Android devices that helps the user to keep track of the cultivated area and overlaps. It also helps the user in edging along the ideal track by gearing to straight reference lines. A precision guidance system can be built by simply buying the application and an antenna.

MachineryGuide software is a practical easy-to-use and innovative solution for all, primarily small and medium sized farms.

**Guidance patterns:**
- AB straight
- AB surrounding
- AB curve
- AB round curve
- Freeland

**Visual Section Control**
Up to 12 sections, all with individual width settings.
- Optional Automatic section control and application rate control with BSC, BSC Plus, BSC Pres or BSC Flow module

**Session and Field Handling**
- Detailed statistics
- PDF and KML export function
- Cloud-based data management integration

**Night View Mode**
Working under poor visibility due to adverse weather conditions
- Customizable display settings
  - 3D or 2D view
  - Color settings for navigation lines

**Realistic 3D Models**
Tractor, tractor with mounted sprayer, harvester, planter and arrow models to visualize the work process on the field.
The development of the MachineryGuide software continues with extra functions which enable further measurements, field work efficiency and precision. The handling of application prescription maps is such a function with which farmers can have the needed work done on their field with high level of specification. The issue of having different type of trailed equipment is also solved as the application is able to follow and model such flow in the movement of the machinery, further increasing the accuracy of work on the field.

**SHP Import Option**

**Import SHP Files**
Variable rate application prescription maps can be handled by the app. The file can have multiple attributes per map of which the user can select which one should be applied.

**Automatic Application Rate**
Farmers using BSC Pres or BSC Flow will have automatic variable rate control according to the loaded prescription map.

**Visual Application Rate**
Option of manual rate application. Without any of the BSC units the farmer can still see on the map which application sector he is in and adjust the application rate accordingly.

**Trailed Machinery Option**

**Realistic Trailer Behavior**
Primarily designed for section controllers to achieve a higher accuracy of overlap avoidance by realistically 3D modelling the behavior of the machinery. However, further accuracy is achieved in all farm works with a trailer.

**Advanced Graphic Options**

**Shadows and Ground Textures**
An exciting esthetical function where the showing of ground texture and the shadow of the 3D models can be enabled.
MachineryGuide Orchard

MachineryGuide is proud to introduce the world novelty MachineryGuide Orchard. There are a variety of guidance applications made for crop agriculture work, however orchard farms have been left to use precision guidance technology which were not designed for orchard use. MachineryGuide stands out by filling the need for the orchard farmers to have their own precision guidance solution which focuses on the specific needs of field work in an orchard.

Orchard Visualizaton Options:
- High-End User Interface
  No expense was spared when designing the interface of the app in order to achieve the best user experience while working in the orchard with the MachineryGuide system.
- Session and Field Handling
  - Detailed statistics
  - PDF and KML export function
  - Cloud-based data management integration
- Night View Mode
  Working under poor visibility due to adverse weather conditions
  Customizable display settings
  - 3D or 2D view
  - Color settings for navigation lines
- Realistic 3D Models
  When working with a trailer sprayer, the application can realistically model the movement of the machinery to provide for an even more accurate field work.
Data stored on the tablet can be synchronized with the CLOUD service, so all the data of saved fields and jobs can be displayed and managed on any computer or smartphone at any time. The service has several functions that make data management easier. Cultivated areas, paths, overlaps and many other information can be displayed, what makes the managing of the farming diary much more simple or could even replace it.

Browser Based Service
MachineryGuide CLOUD is a browser based service, so no installation is needed to use it. This makes it highly mobile and comfortable to use. The CLOUD service can be synchronized with other MachineryGuide apps, so all the saved jobs even from multiple devices can be managed within one service.

After Login
All the saved fields of the farm can be seen on the starting page after login. Previously saved jobs can be checked by clicking on its corresponding field.

Fields Menu
All the saved fields of the farm are shown in a list for easy access. Individual field with their data can be checked by selecting it from the list.

Sessions Menu
All the saved work areas of the farm are shown in a list. The path of the used machinery and the saved sessions can be managed upon selection.

Adding a New Area
There are several ways to add new areas to the service, for example by marking the boundary coordinates on the map or by importing KML, KMZ or SHP files.
Bluetooth GNSS receivers provide the connected Android device with highly accurate GPS coordinates for guidance. It is fairly easy to install the receiver and the antenna to any kind of agricultural machinery, there is no need for special adapters or connectors. The only requirements are a cigarette plug or a three pin plug as the DC source and a magnetic surface to mount the antenna.

**DM1 GNSS Unit**
DM1 GNSS solution provides centimeter pass-to-pass accuracy, which is suitable for the most precise agricultural field activities. The external antenna and receiver processes GPS and SBAS signals, and uses RTK real-time calculations to provide high precision positioning data with a 10Hz update rate.

- GPS, GLONASS and SBAS signals
- EGNOS/WAAS/MSAS correction
- Bluetooth 2.0 connectivity
- 10 Hz position update rate
- Antenna Gain LNA: 40 dB typ.
- RF connector type: SMA
- Durable connections and aluminium case
- Centimeter Pass-to-pass accuracy (<2-3 cm)
- Absolute position accuracy: <2-3 cm
- Application: all agricultural activities

**CM1 RTK Unit**
CM1 RTK solution provides centimeter pass-to-pass accuracy, which is suitable even for the most precise agricultural field activities. The external antenna and receiver processes GNSS signals and uses RTK correction to provide high precision positioning data with a 10Hz update rate.

- GPS L1, GLONASS L1OF frequency
- Bluetooth 2.0 connectivity
- 10 Hz position update rate
- Antenna Gain LNA: 40 dB typ.
- RF connector type: SMA
- Durable connections and aluminium case
- Centimeter Pass-to-pass accuracy (<2-3 cm)
- Absolute position accuracy: <2-3 cm
- Application: all agricultural activities

**CM2 RTK Unit**
CM2 RTK dual band solution provides centimeter level pass-to-pass and absolute accuracy when receiving the RTK correction. Due to its dual band feature without receiving any correction the CM2 is still able to provide an accuracy level which is suitable for a number of farming field works. The update rate is up to 20 Hz.

- GPS L1/C/A L2C, GLONASS L1OF L2OF, GAL E1B/C E5b, BDS B1I B2I, QZSS L1/C/A L2C
- Bluetooth 2.0 connectivity
- Update rate: RTK up to 20 Hz
- Antenna Gain LNA: 40 dB typ.
- RF connector type: SMA
- Durable connections and aluminium case
- Centimeter Pass-to-pass accuracy (<2-3 cm)
- Absolute position accuracy: <2-3 cm
- Application: all agricultural activities
MachineryGuide  

Section Controllers

The MachineryGuide application enables automatic section control when connected with the BSC or the BSC Plus section controllers. When the BSC Pres or the BSC Flow is used however, the available work functions include automatic section control, automatic application rate control and variable rate control as well.

BSC Unit

BSC unit is an automatic boom section controller, with the ability to control the connected electric valves in both manual and automatic mode.

Specifications:
- Section control up to 12 valves
- Supports one master valve
- Compatible with 2-wire and 3-wire electric valves
- Supports multiple displays
- IP66 durable plastic case
- Wireless (WiFi) and serial interface
- Easy installation
- Ideal solution to upgrade manual valves

BSC Plus Unit

BSC Plus unit is an automatic boom section controller, with the ability to control the connected electric valves in both manual and automatic mode and measure pressure. The unit also gives the option to manually control the volumetric valve.

Specifications:
- Section control up to 12 valves
- Supports one master valve
- Pressure sensor handling
- Volumetric valve control
- Compatible with 2-wire and 3-wire electric valves
- Supports multiple displays
- IP66 durable plastic case
- Wireless (WiFi) and serial interface
- Easy installation
- Ideal solution to upgrade manual valves

MachineryGuide

The MachineryGuide application can be connected to all BSC units to make work on the field more effective. When connected to the BSC unit, the application detects overlaps and automatically turns the sections on and off to minimize wasted spray.

Displayed Measurements:
- Actual speed
- Actual application rate
- Covered area
- Volume valve pressure

BSC Application

BSC app is the application which controls the BSC, BSC Plus. For manual section control and remote pressure control.
The System 1

MachineryGuide Application Rate Controller

BSC Pres Unit
BSC Pres is a pressure measurement based automatic application rate controller and section controller module. The unit handles 2 and 3-way electric valves, a shut-off valve, a volumetric valve, and a pressure sensor. Speed information is received from the highly accurate GPS receiver to avoid the complex wheel-proximity sensor and its calibration.

BSC Flow Unit
BSC Flow is a flow measurement based automatic application rate controller and section controller module. The flow sensor makes the functioning and measurements of the unit highly accurate. The unit handles 2 and 3-way electric valves, shut-off valve, volumetric valve, and pressure sensor. Speed information is received from the highly accurate GPS receiver to avoid the complex wheel-proximity sensor and its calibration.

Supported Nozzles:
- ISO-01
- ISO-015
- ISO-02
- ISO-025
- ISO-03
- ISO-04
- ISO-05
- ISO-06
- ISO-08
- ISO-10
- ISO-15
- ISO-20

Additional options to create a custom nozzle library

Applications:
- Sprayer
- Liquid Fertilizer Applicator
- Orchard Sprayer

Enclosure Options:
- 75 mm Small Casing
- 190 mm Normal Casing
- 150 mm Normal Casing
- 220 mm Normal Casing

Main features

<table>
<thead>
<tr>
<th>Feature</th>
<th>BSC Pres</th>
<th>BSC Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sections up to 4</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sections up to 12</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Volumetric valve</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Master valve</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Pressure sensor</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Flow meter</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Implement switch</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Serial output for BHC</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

MachineryGuide application rate and section controllers are designed to be installed on any sprayer equipped with compatible electric valves. The BSC modules have an Android application, so the user can control the valves from the cabin of the machinery. The application also helps the user to maintain the set application rate at any speed. If connected to the MachineryGuide guidance software, the controller works as an automatic section controller, detects overlaps and automatically controls the valves accordingly.
MachineryGuide is the brand product of Budapest, Hungary based Affield Ltd. The development of our products started in 2014 and since then have reached international interest and are being used all around the world, helping thousands of farmers in making their work more efficient. Our aim for the future is steadfast in continuing development, while we also welcome the opportunity to connect and cooperate with local distributors and manufacturers in the sphere of agriculture.

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