



SNOWsat System for PistenBully GPS for precise slope maintenance



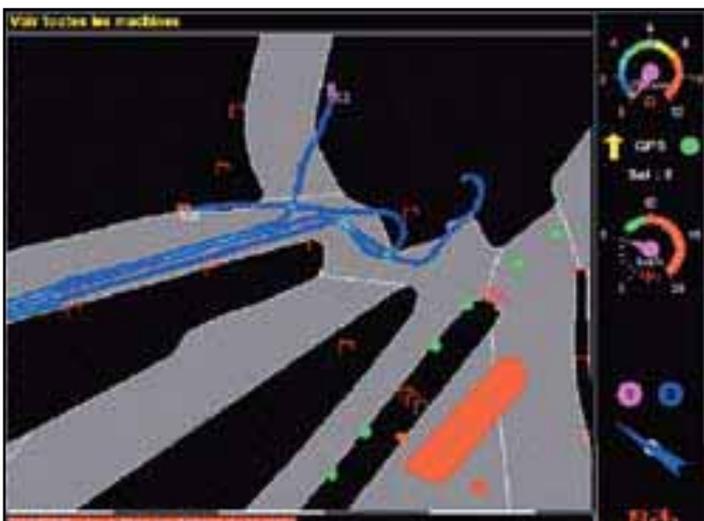
SNOWsat System optimises slope maintenance

SNOWsat is an integrated system for real-time guiding and for the monitoring of slope groomers as well as snowmobiles. The system uses GPS data to generate a cartographic image of the slopes including all cable car poles and snow guns, as well as any potential dangerous spots. The position of the vehicles included is transferred to the cockpit in real time. Optionally, SNOWsat can also be equipped to measure the depth of snow.

Particularly interesting: The SNOWsat System can be used immediately. The integrated solution helps the driver with his work, optimises quality control of the work carried out and improves the safety of the staff during work. SNOWsat is available for the new PistenBully 600 as basic equipment ex works, however it can also be retrofitted at any later point in time.



Clearly arranged monitor display in the cockpit.



Detailed slope chart at headquarters.

The advantages of SNOWsat at a glance:

Improved productivity.

- ✓ Time-saving due to simple position determination and independence of weather and visibility conditions.
- ✓ Driving aid through presentation of already groomed areas in different colours.
- ✓ Optimisation of work processes.
- ✓ Coordination of the work of the whole vehicle fleet.
- ✓ Measurement of depth of snow (optional).
- ✓ Passing on of costs for external services (e.g. transportation jobs for lodge operators).

More safety.

- ✓ Position determination of the vehicles.
- ✓ Display of obstacles and dangerous areas.
- ✓ Display of the vehicles' positions.
- ✓ Display of the cable of winch vehicles.
- ✓ Real-time determination of the own vehicle position with an accuracy of one metre.
- ✓ Traceability of operation conditions, e.g. in case of legal problems.

Information transfer.

- ✓ Monitoring of the condition of groomed areas.
- ✓ Driver can transmit data during work via an interactive menu.
- ✓ Information can be queried over the internet.

Efficient management.

- ✓ Comprehensive analysis of the data and the work carried out.
- ✓ Simplification of the work through computer-based grooming planning.

Special feature for depth of snow determination.

The SNOWsat System can be supplied as a height precision version. The patented solution makes it possible to track the changes in the depths of snow during the season with the help of GPS data accurate to one centimetre. It clearly shows how the depth of snow changes and simplifies resource planning for snow-making installations and helps to decide whether slopes should be opened to the public.

SNOWsat is available in 4 packages

SNOWsat Package 1

Short description.

With the SNOWsat Package 1 you can monitor your vehicle fleet and collect grooming data. The collected data is available for statistical analysis at the control station about one hour after the end of the shift. With a special line, the data can also be transmitted permanently.

Monitoring the routes.

- ✓ Display of the tracks of all fitted vehicles.
- ✓ Vehicle information such as work and downtimes or speed are displayed through a simple mouseclick on the track.

Data available according to vehicle or slope:

- ✓ Groomed overall area.
- ✓ Areas groomed once.
- ✓ Overlapping in hectare and per cent.
- ✓ Time.
- ✓ Groomed overall area per hour.
- ✓ Once groomed area per hour.
- ✓ Overview of the work performed per vehicle (starting and ending times, duration, downtimes, running times, periods without GPS signal, distance covered, area covered, kilometres travelled on slope area, hectares covered on slope area, maximum speed, average speed).

Clearly arranged menu with language/machina selection and much more.



This is what the SNOWsat Package 1 can offer you

Information for the slope boss.

The work carried out becomes traceable. Information on work and downtimes per vehicle and driver as well as the speed of every vehicle at any time of the shift is available.

Cost effectiveness analysis.

Information on the grooming performance per hour and per vehicle, areas covered once, percentage of overlapping, maximum and average speed, fuel consumption. The drivers are provided with information that makes their work more efficient.



Detailed slope display at headquarters.



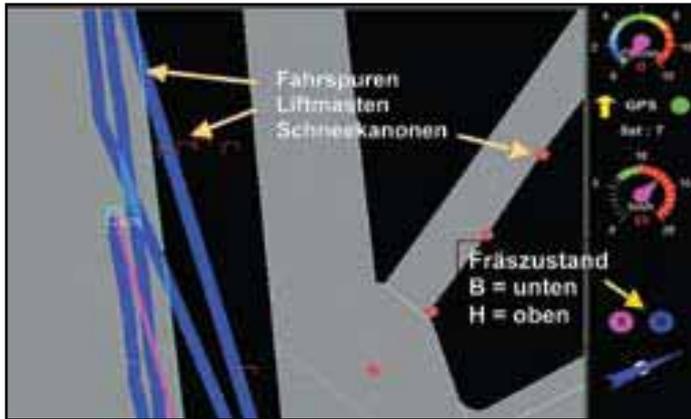
Display of data according to vehicle and slope.

SNOWsat is available in 4 packages

SNOWsat Package 2

Short description.

Additionally to the grooming data of Package 1, the SNOWsat Package 2 offers driver support, grooming management and the cartographic images of the territory on the monitor in the cockpit.



Cartographic image of the territory in the cockpit.

When visibility is bad, the driver can trace areas already groomed with the help of the different colours in which the tracks are displayed. He sees his exact position in the territory in real time. The positions of obstacles, dangerous spots, streets, lakes, lift poles, snow guns, etc. are depicted.

The communication between vehicles and headquarters is only possible with visual contact. That means that other vehicles can only be seen on the monitor when there are no visual barriers in the way. The winch rope is displayed on the monitors if there is visual contact of the vehicles. CAN data such as consumption, speed, target/actual engine speed, tiller depth and pressure as well as the operation conditions of the vehicle can be evaluated.

This is what the SNOWsat Package 2 can offer you

More safety for the driver.

- ✓ Interactive driver support in real time via monitor display of the territory.
- ✓ Orientation guide in the territory during bad visibility conditions.
- ✓ Display of slope limits, lift systems with poles, snow-guns (green = active - red = not active), buildings, water tanks and other dangerous spots.
- ✓ Asking for help from the closest vehicle in case of technical problems.

More efficiency.

- ✓ Traceability of already groomed areas due to coloured display that also shows multiple coverage.
- ✓ Registered streets such as rural roads or passes can be cleared better and thus more cost-efficiently in springtime. Their exact position has no longer to be looked for.
- ✓ Definition of hotspots: Once a vehicle enters a hotspot, the time is captured and the costs can be passed on to external cost centres.
- ✓ Definition of work types (grooming, shifting, winch, transport) for statistical purposes or cost transfer.

SNOWsat is available in 4 packages

SNOWsat Package 3

Short description.

The SNOWsat Package 3 supplements SNOWsat Package 2 and makes it possible to communicate beyond visual barriers. With the help of a relay, data transmission takes place via UHF to a base station.

All vehicles equipped with the SNOWsat Package 3 are displayed on the monitor. Thus the driver is for example able to call the closest vehicle for help in case of technical problems.

For vehicles used with a winch, the rope is shown with anchor point. The winch rope is visible for all vehicles equipped with the SNOWsat Package 3.

The data transmission between the vehicles is carried out in real time. The data is available at the control station with a delay of 10 to 30 minutes.

This is what the SNOWsat Package 3 can offer you

Overcoming of signal barriers.

The SNOWsat Package 3 offers even more safety for the driver since signal barriers can be overcome with relays.

For example, the positions of vehicles separated by a mountain ridge can be shown on the monitor. Winch ropes are visible independently of the position of the vehicles involved.



Cartographic image of the territory in the cockpit with SNOWsat Package 3.

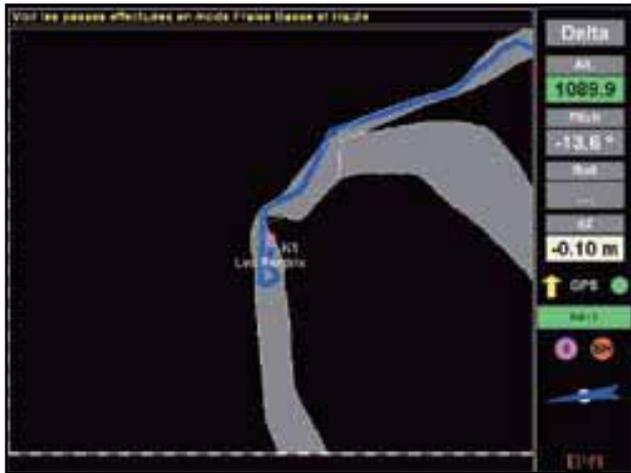
SNOWsat is available in 4 packages

SNOWsat Package 4

Short description.

As an additional feature you are able to determine the depth of snow with the SNOWsat Package 4.

Here the depth of snow underneath the vehicle is indicated as deviation to a reference depth.



Cartographic image of snow depths in the cockpit with SNOWsat Package 4.

This is what the SNOWsat Package 4 can offer you

Determination of the depth of snow and its cartographic image.

- ✓ The driver can see where snow can be taken away for snow-free spots.
- ✓ Avoidance of snow-free areas. Also in spring and in warm periods, solid blankets of snow can be preserved longer.
- ✓ The slope boss can decide whether snow would have to be shifted to critical spots or whether snow guns should be used additionally.
- ✓ Damage to nature can be avoided.
- ✓ Saving of water and electricity costs due to targeted use of snow guns.



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