



Standardized Control Platform for Snow Groomers

ECUs, I/O Modules and
HMIs for PRINOTH

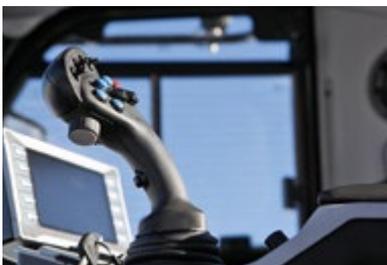


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www.ttcontrol.com/snow-groomers

“ The controller platform from TTControl is a state-of-the-art solution that has led to more efficiency as well as cost reductions in the areas of purchasing, production, logistics and after-sales. We view our close cooperation with TTControl as an excellent means to equip ourselves for the future. ”

*Martin Kirchmair
Head of R&D Snow Groomers at PRINOTH*



TTControl has been selected by PRINOTH to develop a standardized control platform for the entire range of snow groomers that complies with the highest requirements of quality, safety and performance. The platform is supposed to provide the greatest synergy between individual vehicles in order to reduce PRINOTH's development, production, logistics and after-sales service costs. At the same time, the system should be flexible to meet varying customer demands.

The joint development project began by analyzing the vehicles with regards to safety requirements. Each machine was subjected to a hazard and risk analysis in cooperation with the PRINOTH engineering team. The resulting safety requirements of the control system are met by TTControl devices, which are certified according to ISO 13849 up to performance Level d.

TTControl paid special emphasis towards programming the application software in order to create as high a degree of standardization as possible. At PRINOTH's request the controller was programmed in C/C++ in order to integrate already existing software blocks into the new application software. The CODESYS® environment was used for the provided display. A three-member team from TTControl worked closely with PRINOTH throughout the software development process and is also available during series production to make optimizations, improvements and adjustments.

“ Snow groomers are technically demanding vehicles with very complex control functions. It was an interesting challenge for us to equip the Prinoth fleet with systems and we are glad that we could demonstrate our experience and know-how in the field of off-highway electronics. ”

*Roberto Ferrari
Director Services & Operations at TTControl Brixen*

TTControl provides the HY-eVision² operator interface for PRINOTH's snow groomers. The exceptional performance of the display allows for the development of a highly modern graphical HMI. Three dimensional displays, overlay and transparency effects as well as processes are among the standard functions of the HY eVision² and are used exclusively to display information relevant to driving or the working situation. Clarity and transparency have been optimized for the driver, thereby avoiding unnecessary distractions. The incredible luminosity and the non-reflective glass ensure that the display remains readable even with direct sunlight.

PRINOTH further uses different ECUs and I/O modules from TTControl for their snow groomers, including the HY-TTC 94 electronic control unit. This ECU is designed to comply with the ISO/EN 13849 international standard. It comprises a main CPU for executing the user application and a smaller diagnostic CPU, which continuously monitors the main CPU and the safety-critical inputs and outputs. Safety features prevent uncommanded movements of the vehicle and equipment, thereby ensuring safe working conditions. HY-TTC 94 fulfills PL d (Performance Level d) requirements.



▶ CUSTOMER / PROJECT

PRINOTH's entire range of snow groomers

▶ CHALLENGE

The customer needed a standardized control platform that complied with the highest quality, safety and performance requirements while reducing development, production and after-sales costs.

▶ SOLUTION

TTControl supplied PRINOTH with suitable controllers and I/O modules, ranging from simple models with 30 inputs and outputs to complex controllers with over 100 I/Os, programming the application software to ensure a high degree of standardization. TTControl further provided the operator interface HY-eVision² with a focus on user friendliness, easy maintenance and cost-effective development of graphical HMIs.

Constructing Efficient Working Environments with High-Performance Control Solutions

About TTControl

TTControl, a joint-venture company of TTTech and HYDAC International with locations in Vienna and Brixen, offers control systems and operator interfaces for mobile machinery and off-highway vehicles, such as fork lifts, cranes, municipal vehicles and snow groomers, construction and agricultural equipment. Being leaders in functional safety, TTControl's software and hardware platforms enable equipment manufacturers to develop highly reliable electronic control systems quickly and economically.

Further information on TTControl available at www.ttcontrol.com



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About PRINOTH

From the very beginning, PRINOTH has been a synonym for snow groomers of only the highest quality. Innovative technology and pioneering design characterize the snow groomers, which are able to cope with world demands. To make snow grooming as efficient as possible, PRINOTH relies on resource-efficient use of the snow groomers. In conjunction with specialized training for snow groomer drivers, the ideal combination is provided to use the vehicle efficiently in order to achieve the maximum result – the perfect piste.

Further information on PRINOTH is available at www.prinoth.com

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