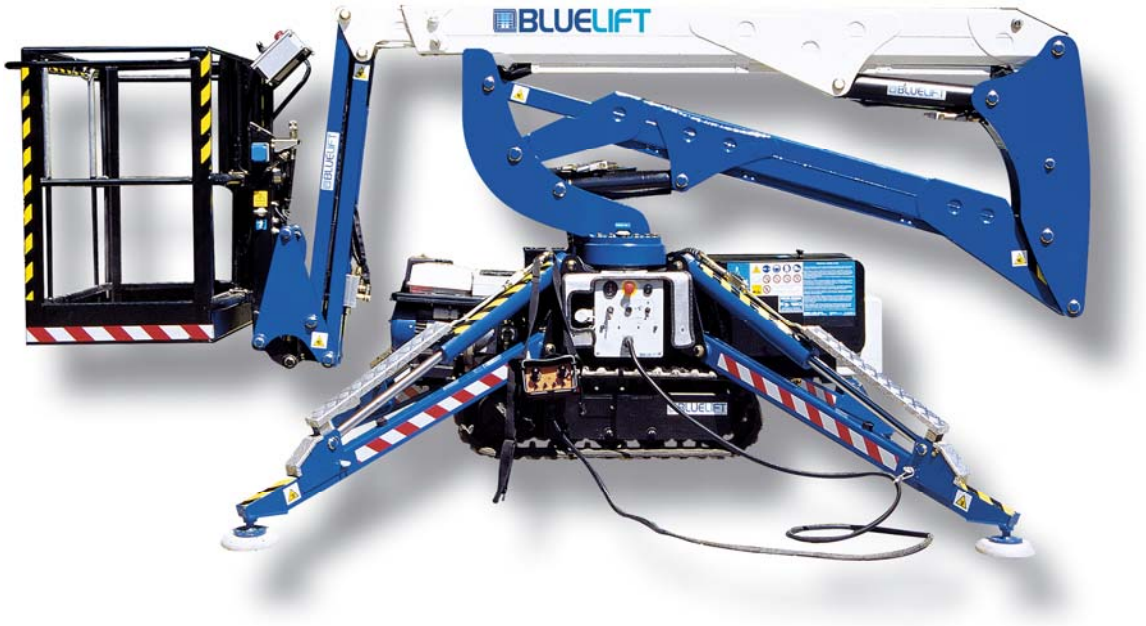

Electronic Control Systems for Aerial Platforms

Trucked Aerial Work Platforms by BLUELIFT

Submitted by:

CERVIS INC.

TTControl

TTControl and Cervis recently announced that Cervis will be a North American partner for TTTech Off-Highway focusing on the mobile equipment markets. Cervis will engineer standalone applications with TTControl ECUs and Vision systems as well as compliment the controls with wireless solutions offering OEMs complete high quality wireless and electronic control solutions.

Trucked Aerial Work Platforms by BLUELIFT was developed by TTControl and is an excellent example of the solutions that are now available in North America as part of the partnership.

“As our aerial platforms are up to 21 meters high, we must insist on the highest safety standards for electronic control of the machine. TTControl has significant experience in industries where safety is a stringent requirement. Its hardware fits our needs perfectly.”

Gianni Marti, Sales Manager at BLUELIFT S.r.l.

TTControl – TTTech Off-Highway provides complete electronic control systems for off-highway vehicles. BLUELIFT S.r.l. is dedicated to producing equipment that guarantees the maximum safety of all aerial operations. TTControl is cooperating with BLUELIFT to developing electronic control systems for compact aerial platforms. BLUELIFT’s complete range of trucked aerial work platforms is designed, built and certified in full compliance with national and international safety standards.

Control systems for BLUELIFT aerial platforms are completely electronic. The BLUELIFT 16 mts compact has a maximum working height up to 21 meters. As a result, safety is a critical issue. TTControl’s TTC 200 unit controls all driving movements of the crawler trucks, the translation of the vehicle, as well as the lifting and automatic stabilization of the machine. This unit constitutes the technical core of the electronic BLUELIFT system.

The TTC 200 is a standard ECU that is especially suitable for control of all safety-critical functions in the machine. It is designed to fulfill safety-integrity levels (SIL) 2 and 3 of the IEC 61508 standard. This supports BLUELIFT’s internal safety programs as well as production of the machines according to the EN 280 standard. The BLUELIFT 16 mts compact uses a CAN bus network with CAN pressure sensors and CAN angle sensors and joysticks. CAN buses reduce the wiring and make it possible to connect two TTC 200 units in a distributed system.

"Because of our know-how in machine control and TTControl's advanced electronic systems we are in a position to serve BLUELIFT with the best value for their aerial platform."

Alessandro Passera, General Manager at Universal Controls S.r.l.

A 3x5 TTControl control panel is implemented in the cage of the vehicle. It is used to input commands for advanced machine functions. Universal Controls S.r.l. developed the complete software package for TTC 200. TTControls provided training on the CoDeSys® programming environment, which is available for flexible configuration of the TTC 200. This user-friendly environment reduces field maintenance problems, since it allows the end user to reconfigure the system without any special tools.

As a system integrator for global electronic solutions in mobile machines, Universal Controls integrated the TTControl hardware into the electrical/electronic system of the BLUELIFT platforms. TTControl's high-level ECUs, together with the in-depth experience of Universal Controls in the area of electronic solutions for mobile machines, are formidable assets. They provide the maximum benefit to the BLUELIFT 16 mts compact.

The electronic control system of the BLUELIFT platforms offers maximum flexibility. Users can freely program the control units with CoDeSys, the C language as well as with MATLAB®/Simulink® libraries. The machines also provide multiple upgrade capabilities. New functions can be implemented by changing the software. This provides enormous flexibility and considerable time savings to system developers.

"Because of our know-how in machine control and TTControl's advanced electronic systems we are in a position to serve BLUELIFT with the best value for their aerial platform."

Alessandro Passera, General Manager at Universal Controls S.r.l.

A 3x5 TTControl control panel is implemented in the cage of the vehicle. It is used to input commands for advanced machine functions. Universal Controls S.r.l. developed the complete software package for TTC 200. TTControls provided training on the CoDeSys® programming environment, which is available for flexible configuration of the TTC 200. This user-friendly environment reduces field maintenance problems, since it allows the end user to reconfigure the system without any special tools.

As a system integrator for global electronic solutions in mobile machines, Universal Controls integrated the TTControl hardware into the electrical/electronic system of the BLUELIFT platforms. TTControl's high-level ECUs, together with the in-depth experience of Universal Controls in the area of electronic solutions for mobile machines, are formidable assets. They provide the maximum benefit to the BLUELIFT 16 mts compact.

The electronic control system of the BLUELIFT platforms offers maximum flexibility. Users can freely program the control units with CoDeSys, the C language as well as with MATLAB®/Simulink® libraries. The machines also provide multiple upgrade capabilities. New functions can be implemented by changing the software. This provides enormous flexibility and considerable time savings to system developers.

About Cervis

Cervis provides customers with safe, reliable industrial grade machine control systems in the Industrial and Off-Highway mobile equipment markets. Specializing in wireless and embedded logic controllers, Cervis has the unique ability to provide dynamic machine control solutions to original equipment manufacturers. Cervis designs and manufactures wireless and custom electronic controls and is the North American Partner for TTControl, TTTech Off-Highway and the US partner for Ikusi of San Sebastian, Spain. These strategic alliances allow us to provide additional high quality control solutions to a wide variety of markets and customers.

Further information on Cervis Incorporated is available at **www.cervisinc.com**

About TTControl S.r.l. – TTTech Off-Highway

TTControl offers electronic control systems for off-highway vehicles, such as agricultural and construction machinery, fork lifts, cranes, snow groomers, and ice resurfacing machines. TTControl's software and hardware platforms enable manufacturers of off-highway vehicles to develop reliable electronic control systems quickly and economically. TTControl is a subsidiary of TTTech Computertechnik AG.

Further information on TTControl is available at **www.ttcontrol.com**

About BLUELIFT S.r.l.

BLUELIFT is a dynamic company in the Rimini area that builds its own products, from initial product design to construction and assembly of the components. By controlling the entire design and construction process, the company is able to achieve its objective of providing streamlined, refined designs for trucked aerial platforms with safe, reliable and modern electronic and hydraulic systems.

Further information on BLUELIFT is available at **www.bluelift.it**

About Universal Controls S.r.l.

Universal Controls is a system integrator for global electronic solutions in mobile machines. The company delivers complete electric/electronic systems consisting of steering column, wiring harness, sensors, human machine interface devices such as joysticks, as well as keyboards and customized application software.

Further information on Universal Controls is available at **www.universalcontrols.it**

Cervis, Inc
170 Thorn Hill Road, Warrendale, PA 15086
Tel: +1 724-741-900, Fax: +1 724-741-9001
E-mail: sales@cervis.net

TTControl

TTControl S.r.l. – TTTech Off-Highway
Kravoglstrasse 11, I-39042 Brixen, Italy
Tel.: +39 0472 2680-11, Fax: +39 0472 2680-14
E-mail: office@ttcontrol.com