Customer and application description
NICOLAS is the global market leader in construction of specialized vehicles for transport and heavy lifting. Among its range of vehicles, NICOLAS designs radio controlled cable drum transporters that can support a weight of up to 500 tons.

Problem and requirements
One of the requirements for radio control of such vehicles is that the speed must be monitored with SIL 3 according to IEC 62061 and in case of a signal loss the machine must stop. In order for the machine to safely stop, the brakes must be activated, the motor stopped and the hydraulic steering deactivated.

Solution
The radio control transmits a SIL 3 rated signal to the vehicle. A Pluto D20 is placed on the vehicle to compare the analog output signal of the radio receiver and the analogue sensors measuring the actual speed of the vehicle. If they don’t match, the emergency stop function is activated. BT51 expansion relays are used in order to increase the number of safe outputs so that the brakes can be applied, the engine shut off and the hydraulic steering deactivated.

Products used

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Advantages
Pluto makes it easy to comply with the SIL 3 requirements of IEC 62061

The solution saves installation time, since several relays used in the old solution were deleted and the compact size of Pluto simplifies the wiring in the control cabinet of the vehicle

Pluto offers advanced functionality to an affordable price which makes it a cost effective solution

Conclusion
“The expertise of ABB has fully satisfied our requirements, and this solution has been implemented in all our cable drum transporters” says Mr Potron from NICOLAS.