

Customer Success Story



Safety Critical

railway control system



Safety critical railway control system

Poland's rail system is one of the largest in Europe, but in terms of quality and safety, there is a need for modernization. One of the companies employed for this is Zakłady KOMBUD Automation, a Polish company that offers overall solutions for railway automation, covering system design, production, implementation and maintenance.

A new safety system covering 100 km of railway line in central Poland has been built in two steps. A chain of 15 DDW-220 SHDSL Ethernet extenders connecting to a number of cabinets with traffic control equipment were installed in the first step. In the next step 15 DDW-221s were been added alongside the tracks of the Centralna Magistrala Kolejowa (Central Rail Bus line).

The safety system update on this route has resulted in increased safety on many levels, and by making use of pre-existing cabling, they have been able to keep the cost down. In contrast to previously used devices, the Wolverine series has several advantages – The wide variation of operating temperature (–40 to +70°C) as well as the Transient Blocking Unit on each line interface that provides both over-current and over-voltage protection thus allowing the line to handle indirect lightning strike transients are just some of them.

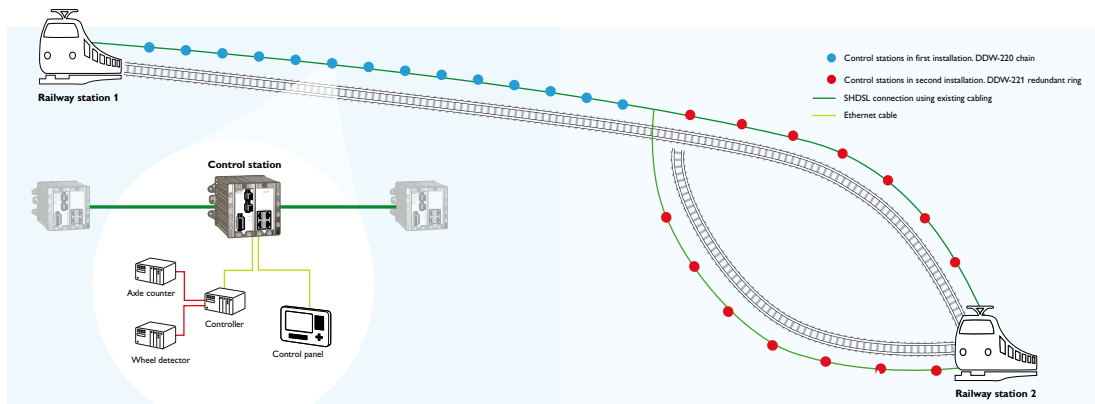
The railway control system is divided in sections covering about 2 km (1.24 mi) each. At the end of every section there is a control station

Manufacturer



Product provider





Part of the Centralana Magistrala Kolejowa (Central Rail Bus line)

First installation – completed May 2008: A chain of 15 DDW-220 link the control stations with SHDSL technology. Existing cabling was used. Distance between control stations 2 to 4 km. **Second installation – completed December 2008:** A series of DDW-221 in a redundant ring configuration were added to the system.

that monitors the traffic and prevents conflicting movements. This makes ongoing movement of traffic impossible unless the route is proved to be safe. Signalling systems provide information of nearby trains and suggest a safe speed. Axle counters provide accurate information as to whether another train is in the same section. A start and reset detection point is installed in every section, and if the count is evaluated as zero the section is presumed to be clear for a second train. The decision to use pre-existing cabling to provide the data communication in this safety critical application worried the customer at first. Parts of the cables were in bad shape and some of them were up to 30 years old.

Westermo distributor, Tekniska, performed on-site tests using DDW-220s which were connected to the actual cables and achieved perfect communication. Today this application uses more than 30 Wolverine Ethernet extenders installed over sections 2 to 4 km in distance.

There have been no reports of disruption to the communications in spite of poor cabling, harsh weather conditions and extreme temperature variations. Previous problems with equipment being damaged by lightning transients have completely stopped.





A product range to meet every demand

Westermo provides a full range of data communication solutions for such demanding applications as railways, aeronautics, defence, water treatment, substation automation, roads and tunnels. The staff at Westermo can provide the highest levels of service and technical support to help our customers to choose, configure and install the best solution for each specific application requirement. Our knowledge goes far beyond our own product range; we have a unique competence regarding your environment whether it is on a train, in an aeroplane, on the seabed or in a substation. To ensure a close relationship with the customer, Westermo has a local presence in more than 35 countries. The Westermo product line includes more than one thousand different types and versions of our modems, switches, routers, time servers and converters.

DDW-22x Ethernet Extenders

The DDW-22x is a set of three Ethernet Extenders in the Wolverine series with different function levels. The units utilise SHDSL technology over twisted pair cables to establish a high-speed remote connection between two Ethernet networks. All three units have a built-in four-port switch and extended type approvals and depending on which unit you choose there are also features like FRNT/RSTP redundancy protocol, Serial to IP conversion and much more.

- ⌘ Up to 5.7 Mbit/s data transmission
- ⌘ Up to 15 km (9.3 mi) on twisted pair
- ⌘ FRNT/RSTP redundancy protocol
- ⌘ Extensive line protection
- ⌘ Wide temperature range (-40°C to +70°C)
- ⌘ Galvanic isolation and transient protection

