Case Study:

Railway – transmission of commands in Prague surroundings

Branch:

Railway

Customer:

Správa železniční dopravní cesty - SŽDC

Country:

Czech Republic

Project target:

Replacement of metallic cables for the command transmission between distance protection of NS feeder stations

Solution:

PCM30U-OCH/3U and TP10 teleprotection equipment

Result:

Obsolete metallic cables were replaced by advanced, fast and reliable communication between NS feeder stations.

Customer: SŽDC

SŽDC is a Czech national organization that administers the state owned railways, and executes the function of railways owner and operator by course of Railway Act, ensures the operation, serviceability, upgrading and development of the railway infrastructure. It also allocates the capacity of the transport route on the nationwide runway and the regional railways owned by the Czech Republic. It belongs among the largest Czech companies by number of employees.

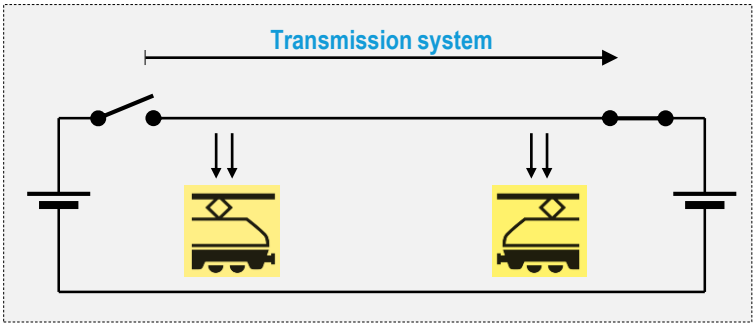

Fig. 1

The transfer of commands between feeder stations NS is used for DC traction where the individual sections are fed from both sides. In the event of one side failure, the information is transmitted to the opposite feeder station in a binary command and the whole section switches to the reduced power mode (Figure 1). In the Czech Railways network, a system is used for the connection of feeders between the substations, which transmits the signals on the principle of a two-wire current loop over the metallic cables, the input / output being the contacts / coils of the controller relays of the feeders. When upgrading the transmission technology, these devices are replaced by digital systems.

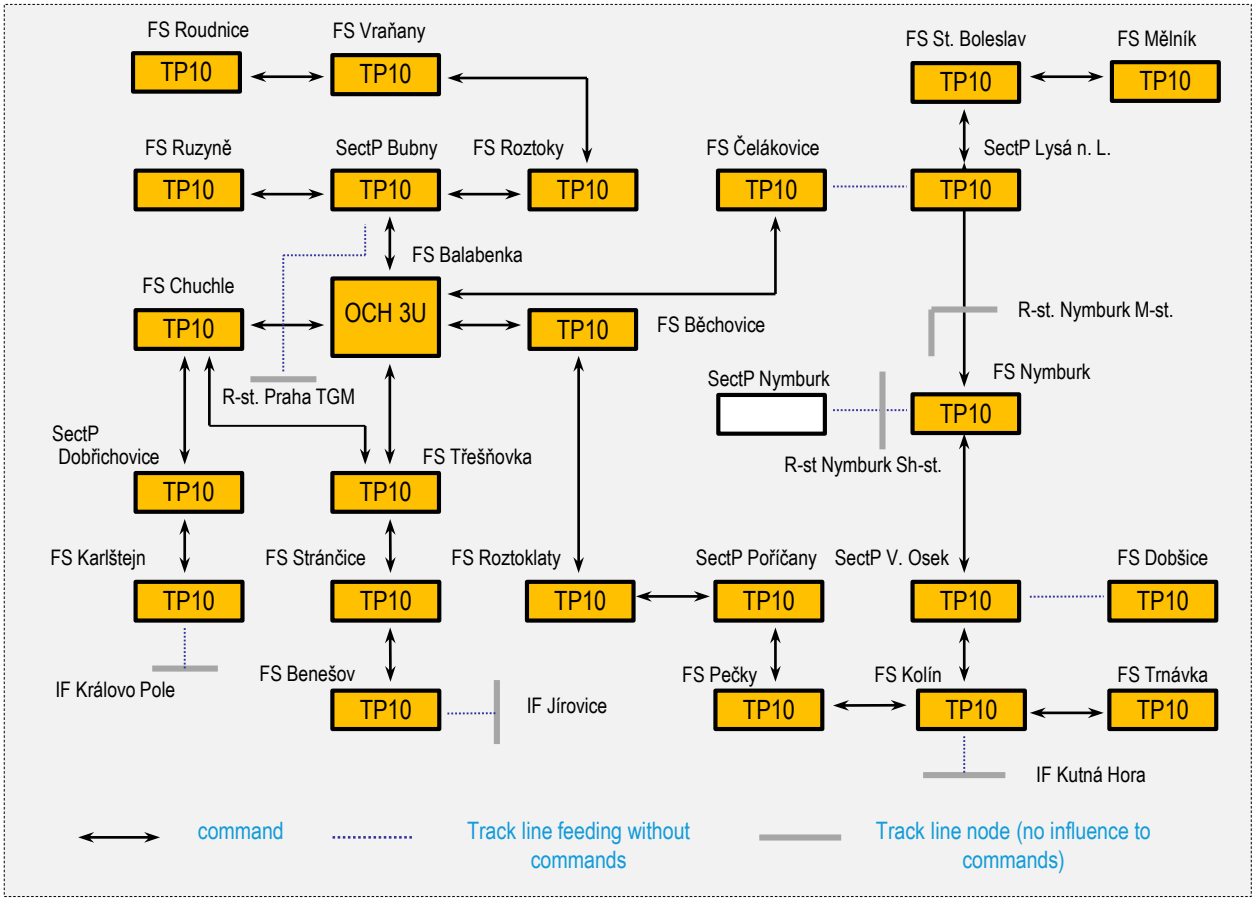

Fig. 2

The PCM30U-OCH family transmission systems transmit the status of a contact using a highly secured protocol in the digital signal and meet all other RIA requirements. Transferring commands between feeder stations is a combination of point-to-point transmission and more complex topologies, where there are demands to transmission system modes – add/drop and transit at the intermediate station, and branching at network nodal points.

To meet these requirements, the most convenient and economical combination of the 3U PCM30U-OCH device and the TP10 device has been shown to enable the construction of an extensive network of command transfer between the feeder stations in Prague and the surrounding area, as shown in Figure 2. With respect to the available transmission media of individual sections, it is a direct connection through an optical cable or a connection to the existing SDH network over E1 electrical interface.

"Thanks to the installation of our PCM30U-OCH and TP10, our customer has solved the problem of faulty metallic cables, and has gained a fast and maximum secured transmission of the necessary communication between feeder stations, including detailed monitoring of statuses of transmission paths, and the command timing recording equipment, and a fault database."

Libor Jedlička
Product Manager TTC Marconi