

Dedicated Freight Corridor projects in India

The Dedicated Freight Corridor (DFC) projects have been constructed and operated by the Dedicated Freight Corridor Corporation of India Ltd., under the Ministry of Railways of India. Kyosan group is in charge of a total of 6 sections with a total length of 1,130 km, the largest number of sections awarded among signal system suppliers participating in the DFC projects.

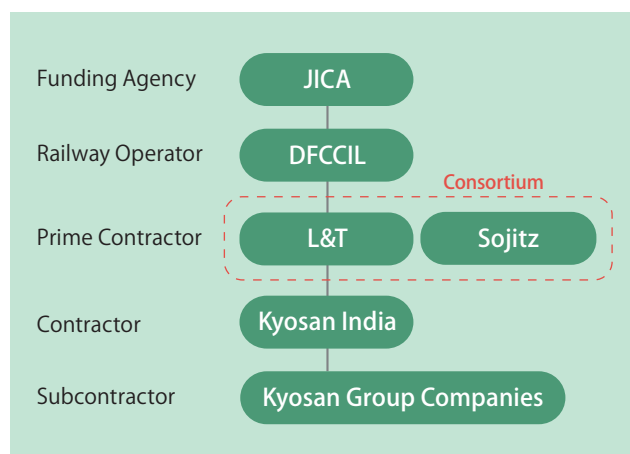
For Western DFC projects funded by Japan International Cooperation Agency (JICA), Kyosan group has received orders from Sojitz Corporation – Larsen & Toubro Limited consortium for signaling equipment. For Eastern DFC projects (except Mughalsarai ~ Sonnagar / Chirailapathu section) funded by International Bank for Reconstruction and Development (World Bank), Kyosan Electric Mfg. Co., Ltd, Japan has formed consortium with Larsen & Toubro Limited and designed and supplied signaling equipment as a main contractor.

For these projects, Kyosan utilized its knowledge as the signal manufacturer of expertise in Japan for design, construction management, and sales of some of the equipment.

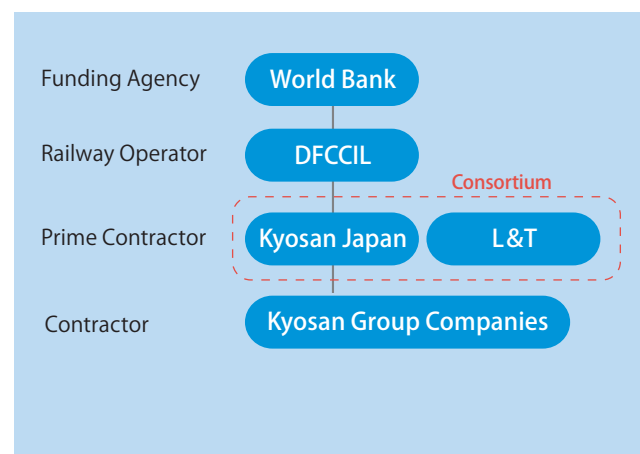
While our subsidiary Kyosan India Pvt. Ltd. manufactured, procured and inspected the signaling equipment on site, together with Kyosan group company TVM Signalling and Transportation Systems Pvt. Ltd.



Western DFC



Eastern DFC (CP105 / 304 / 305)



Delivered Equipment

1. Electronic Interlocking (EI) System: The interlocking system is a plant that governs safe, smooth operation of trains in a station or depot area controlling all varieties of signaling equipment installed in the area, such as point machines, track circuits, signals, etc., by electrical/electronic means.

a. Logic Rack and Electronic Terminal Rack

Our EI model K5BMC features a dual-system configuration and meets Safety Integrity Level 4 standards, ensuring high availability rate. It can accommodate a range of station sizes, from major yard to smaller stations.

b. Relay Rack

Provides flexibility for interfacing with various wayside equipment, such as signal indicators and point machines.

c. Maintenance Console

Monitors the condition of each piece of equipment during operation and records any failure events for analysis, enabling faster recovery and maintaining a high availability rate.



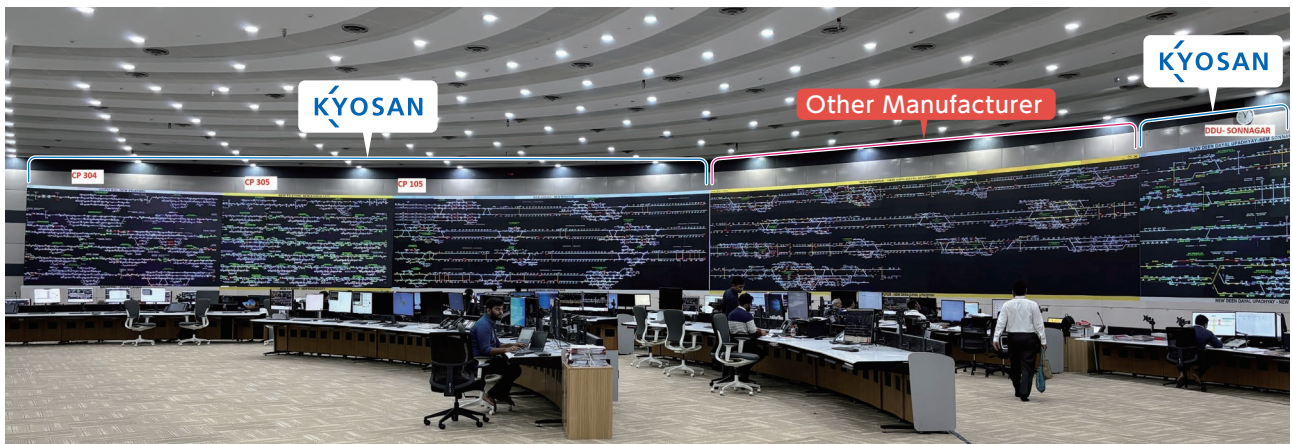
Logic Rack



Electronic Terminal Rack

2. Train Monitoring and diagnostic System (TMS): TMS is installed in the Operations Control Centre (OCC) of the both Western DFC (Ahmadabad, Gujarat) and Eastern DFC (Allahabad, Uttar Pradesh) and is a system that monitors train operation status and equipment status from OCC.

In addition to displaying train locations and route configurations, TMS has the ability to create train operation plans and crew operation plans. Also TMS is upgradable to Centralized Traffic Control system which is able to control EIs remotely.



TMS of Eastern DFC Operations Control Centre

3. Digital Axle Counter

Delivered Section

Section	Tender Package Number	Corridor	TMS control distance	Nos of EI stations
Vadodara ~ JNPT Port	STP-17	West	422 km	12
Rewari ~ Dadri	CTP-14	West	125 km	5
Dadri ~ Khurja	CP-105	East	47 km	1
Khurja ~ Pilkhani	CP-305	East	225 km	21
Pilkhani ~ Sahnewal	CP-304	East	175 km	14
Mughalsarai ~ Sonnagar / Chirailapathu	MGS-DGO & KWDN-CPBH-SEBN	East	136 km	4
Total			1,130 km	57