TelecodeTDM

by Unipart Rail

Time Division Multiplexer for railway applications

Telecode TDM is a hardwired very high integrity system that can transmit a large number of controls and indications replicating them at the receiver, with no need for trackside cable.

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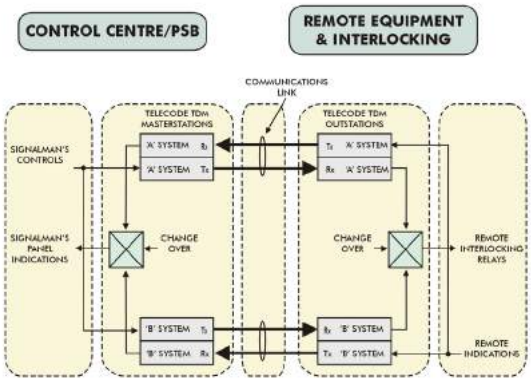
Applications

Typical railway applications include:

- Transmission of CCTV level crossing controls and indications
- Transmission of controls and indications between a panel signal box and remote geographic interlocking
- Multi-pair cable replacement between a signalling control centre and remote interlocking
- Transmission of emergency alarms and signal replacement
- Telephone concentrator TDM
- Power protection - inter-tripping, controls, indications and metering
- Block bell/train staff cable replacement between signal boxes.



TELECODE AUTO CHANGEOVER SYSTEM

Telecode TDM is used in a wide range of applications. Many of these are in the railway industry providing a major light railway power protection scheme, CCTV level crossing remote control, multi-pair cable replacement and E10,000 interlocking control.

With over 10,000 equipment years' experience, Telecode TDM is in service with more than 1,100 systems worldwide.

Compatible with earlier Telecode TDM units, it is not microprocessor based, needs no software, and benefits from its digital principles, which are easy to understand, therefore providing a highly reliable yet low cost system to maintain.

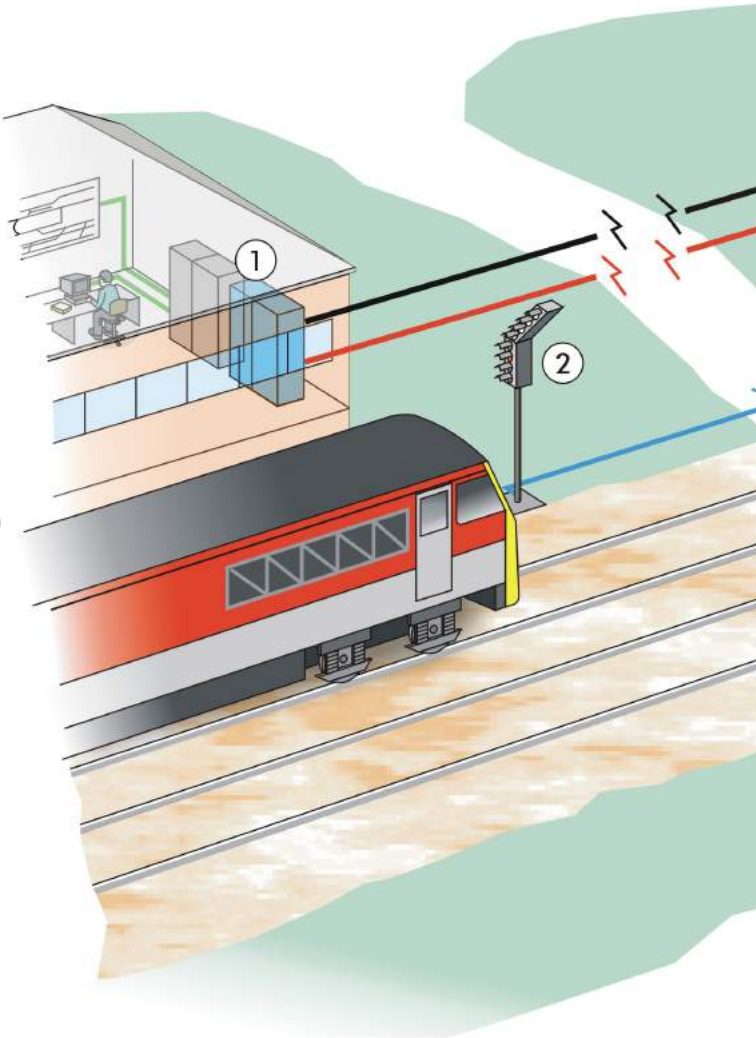
Telecode TDM systems can be commissioned quickly as they use a modular concept that is easily extendable. The systems have a small number of card types; therefore, a small spares holding is required.

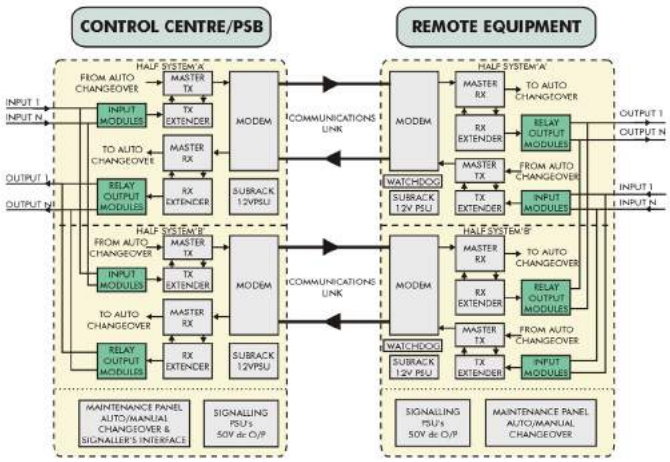
KEY:

1. TELECODE 80 Control Centre/Panel Signal Box Cubicle
2. Signal
3. Points Machine
4. Track Circuit
5. Signalling Relays (Interlocking)
6. TELECODE 80 Remote Cubicle
7. Relocatable Equipment Building
8. CCTV Cameras
9. Barrier Machines and Booms
10. Floodlights
11. Barrier Warning Lights

Large Telecode Duplicated System

Single Duplicated System





TELECODE DUAL A/B TDM LINK

Description of Operation

The Telecode TDM is a high integrity, point-to-point telecontrol system, using Time Division Multiplex (TDM) principles to transmit and/or receive a number of indication or control bits of information to/from remote equipment along a dedicated communications link.

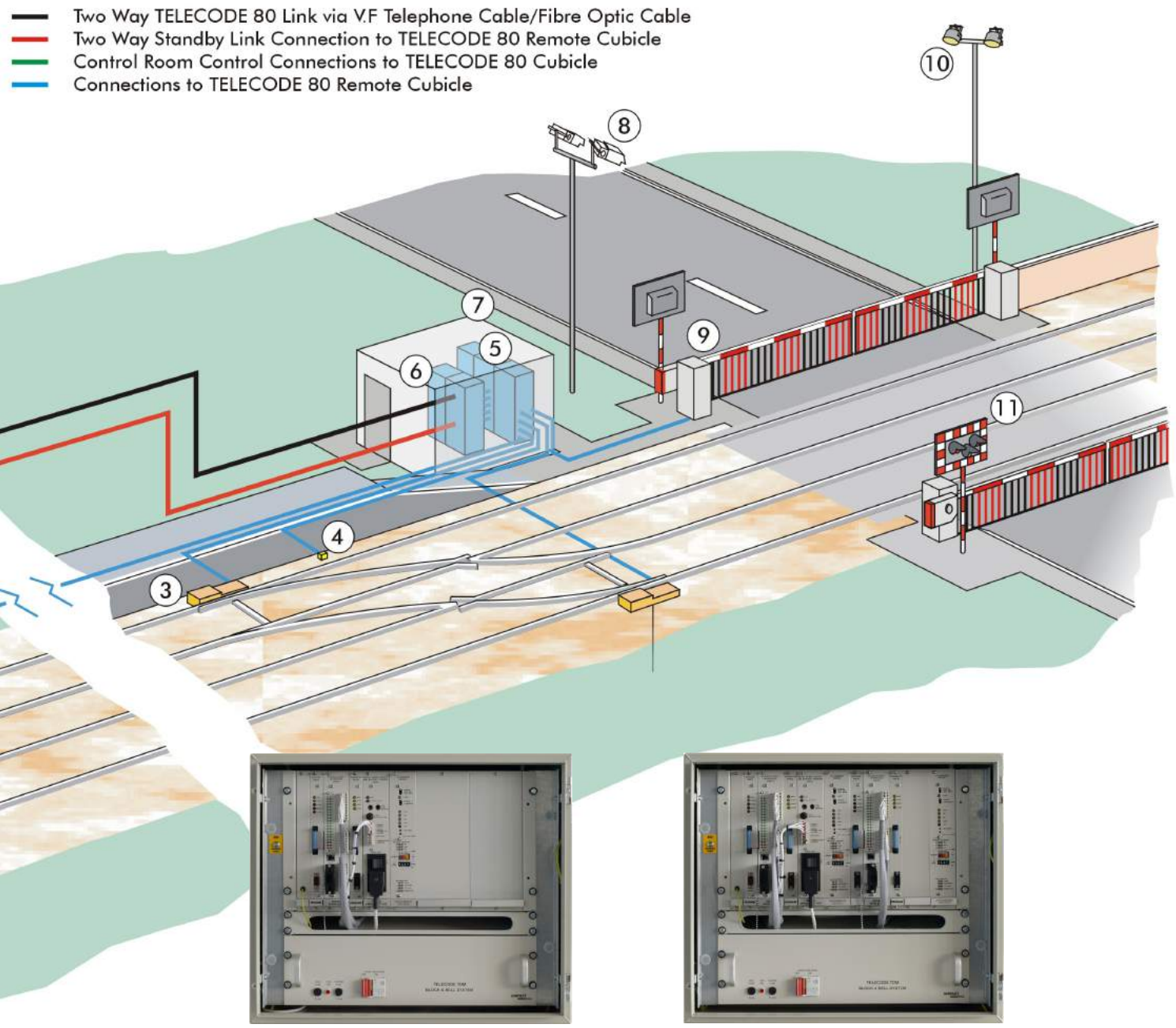
The transmitted information is binary encoded data relating to the ON/OFF state of single contacts. The system is modular and can be easily expanded to accept additional digital and even analogue signals.

To achieve the required level of systems availability, the scheme uses two fully duplicated half systems working simultaneously but independently of each other, with the facility for both automatic and manual changeover between the two.

The inputs are common to the whole system, but split internally so that each half system receives and processes exactly the same input information, but outputs at the receiving end are only taken from one chosen system.

Each half system has independent battery backed subrack power supplies plus the ability to provide clean, smoothed 50V supplies to the first signal relays.

Communication between opposite ends of each Telecode TDM link can be via 4-wire private or leased lines at up to 1,200 baud, or fibre optic or digital circuits at up to 64 kilobits per second. Communication between ends is also via diverse routes for each half system.



Block & Bell Single Cabinet

Block & Bell Dual Cabinet

Examples of Telecode TDM railway installations

1. SWISS4 Wimbledon LC's
Remote control for 5 CCTV level crossings (SSI diverse)

2. London Docklands Light Railway
Traction power protection across whole network

3. London Bridge – Ashford
Transmission of emergency alarms

4. London Bridge – Elmers End
TDM, remote signalling interlocking control, 47 x 79 bit

5. Colchester - Norwich
Telephone concentrator TDM 15 systems

6. Cardiff – Rumney River Bridge
150 pair cable replacement, duplicated TDM, remote signalling interlocking control, 128 x 256 bit

7. Bristol Temple Meads – Bristol Parkway
Duplicated TDM, remote signalling interlocking control, 190 x 300 bit

8. SWISS5 Guildford LC's
Duplicated CCTV remote control for 3 level crossings

9. Cardiff – Wentloog
Duplicated TDM, remote signalling interlocking control, 48 x 128 bit

10. Swindon – Appleford LC
Duplicated remote control for CCTV level crossing

11. Basingstoke - Bramley LC
Duplicated remote control for CCTV level crossing

12. Chichester - Drayton LC
Duplicated remote control for CCTV level crossing

13. Feltham - Pooley Green LC
Duplicated remote control for CCTV level crossing

14. Swindon – Kemble
Duplicated TDM, remote signalling interlocking control, 64 x 96 bit

15. Ashford Wye Minster
Duplicated remote control for 4 level crossings including 2 CCTV crossings

16. Bristol Temple Meads – Filton Abbey Wood
Duplicated TDM, remote signalling interlocking control, 64 x 128 bits

17. Newport - East Usk
Cable replacement, duplicated TDM, remote signalling interlocking control, 144 x 192 bit

18. Newport – Severn Tunnel East
Duplicated TDM, remote signalling interlocking control, 64 x 96 bit

19. Havant – Cosham LC
Duplicated remote control for CCTV level crossing

20. Evesham – Morton In Marsh – Ascott Under Wychwood
Absolute Block and Bell system

21. Pontrilas – Abergavenny
Absolute Block and Bell system

22. Craigendoran and Banavie
Replacement for Temel 30 BICU system to enable the passing of electronic RETB tokens.

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