

What is RETB?

Radio Electronic Token Block, RETB, is a railway signalling system used to ensure safe two-way train operation over single track routes. Token issue and voice messages are sent over a radio network allowing control of large stretches of route from a single manned signalling centre. A Token is issued to the train by the signaller and is shown on a display unit in the cab. Voice communications and use of a unique display unit identifier verify the token exchange which is to SIL level 4.



Comms Design's RETB Next Generation equipment successfully signals over 700km of route in the United Kingdom and is fully product approved by Network Rail.

Why Comms Design?

Comms Design is a electronic product manufacturing organisation and high-tech design consultancy based in Harrogate in the UK. Trusted as a nominated sub-contractor by Network Rail, the UK's track infrastructure owner, Comms Design Ltd has been involved in RETB since 2005.

We develop and manufacture on-train equipment, fixed radio base stations, portable support equipment, signalling desk interfaces and remote asset monitoring software, with the training and in-field support services that provide a full turnkey signalling solution.

Our roots lie in radio systems design, and in building capable, software-defined RF communications products. We have extensive expertise in this area, and have been supplying innovative electronic products to industry and academia since 1991.

We are a dedicated, "hands-on" team; taking great pride in the professional service, innovative engineering and design solutions we offer to our clients around the world.



www.commsdesign.net
sales@commsdesign.net

40 Freeman's Way, Harrogate, North Yorkshire, HG3 1DH. United Kingdom

ARETB
ADVANCED
RADIO ELECTRONIC TOKEN BLOCK

State-of-the-Art Digital Signalling & Train Control...

...now affordable everywhere



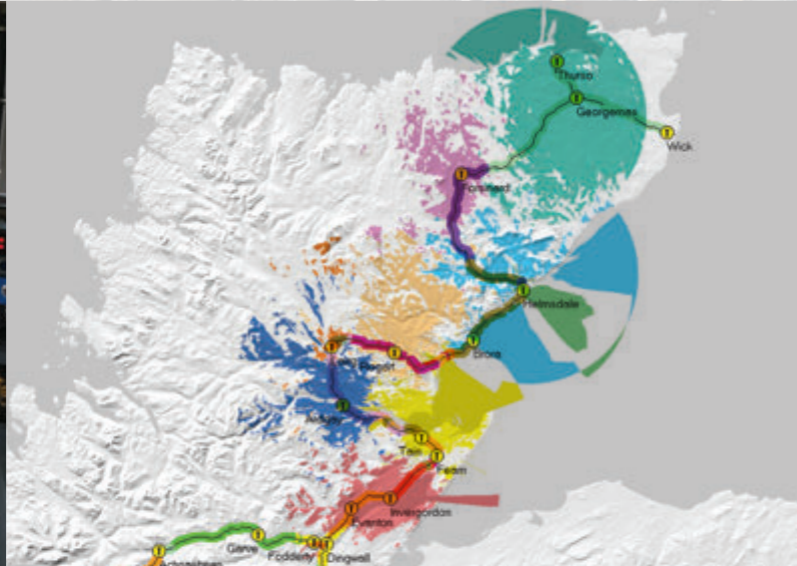


- No track-side infrastructure
- Train Protection & Train Integrity built-in
- Precise Train Control & Positioning whatever the conditions
- Resilient Voice & Data Communications as standard
- Remote Train & Track Condition Monitoring options
- Increased Capacity, Efficiency & Safety

Building on the safe and reliable RETB system and our success with RETB Next Generation, Comms Design Limited has developed a new integrated train control and signalling system that allows reliable and safe movement of trains even on rural, industrial and light use routes that were previously uneconomical to signal.

A-RETB replaces more basic manual train control systems and permits long sections of remote route to be sub-divided and controlled by a single signalling centre, without the need for vulnerable and difficult to maintain track-side infrastructure.

A-RETB can be installed quickly and at a fraction of the cost of traditional signalling and train control systems, giving you a fast return on investment through improved capacity, better efficiency, less disruption due to human error and a safer, more resilient railway.



Backed by our deep understanding of the issues associated with real-world radio communications that has been tested and proven in the rail industry, A-RETB is the solution to safe train operation on unsignalled routes anywhere in the world.

Comms Design is your partner - we have the skill and experience to design, implement and maintain your A-RETB system, assisting and advising on radio propagation planning & licence application, on-train installation, base station siting & antenna rigging and provide comprehensive training for installers & maintenance crews.

A-RETB is made possible by Comms Design's research & development in two key areas:

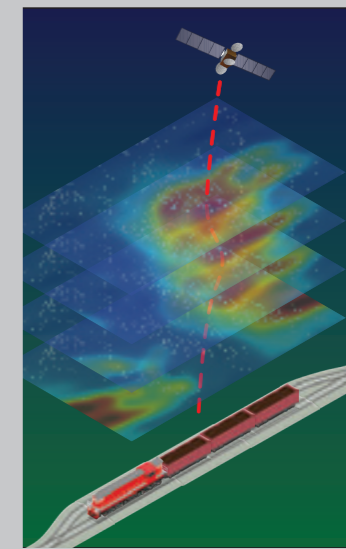
Resilient Communications

Reliable communications over long distances in any conditions are essential in a modern rail signaling system, but when access to track-side infrastructure is limited or non-existent Comms Design's Resilient Communications leverages the latest spread spectrum technology and strong AES encryption to bring unparalleled reliability to low cost train control and signalling, whatever the environment, location or terrain.

Comms Design understands real-world communication issues and how they apply to the rail sector. We are ideally placed to give you the robust and reliable communication system needed to support an A-RETB installation on your railway.



Resilient Positioning



To enable reliable and safe control you need to know precisely where trains are at all times under all conditions.

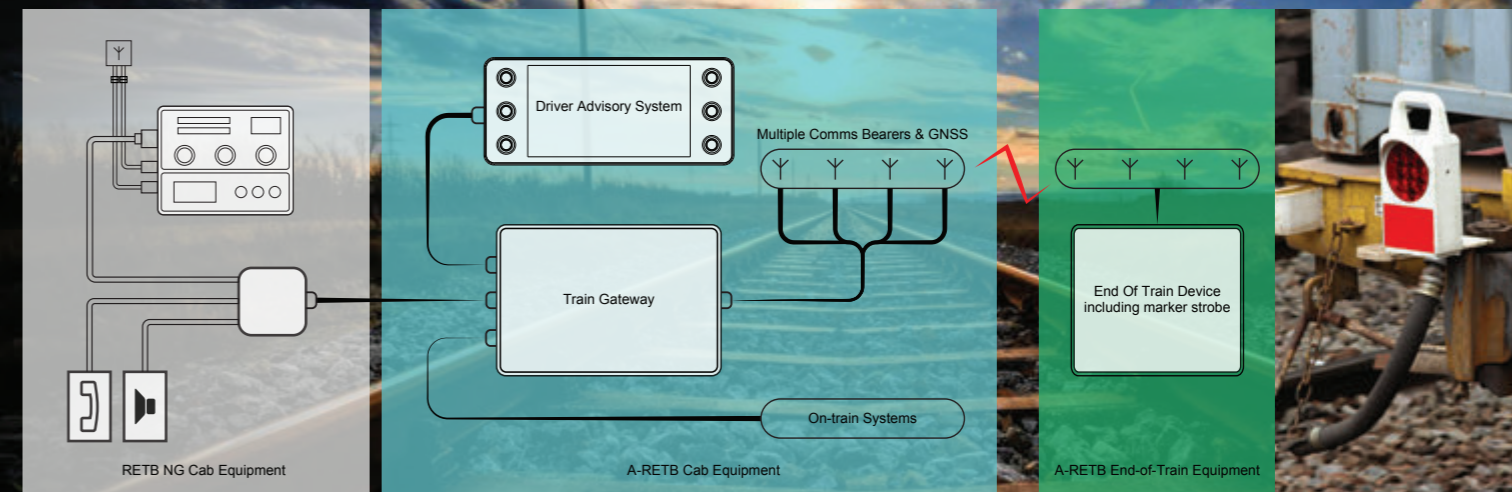
Ionospheric scintillation, urban canyons, cuttings, tunnels, poor weather and other interferers can degrade the accuracy of the GNSS service.

Using the latest developments in augmented GNSS, Comms Design's Resilient Positioning can pin-point the location of both the head and end of train, even when satellite signals are not available.

The A-RETB low cost signaling and train control system can provide drivers, signallers, track workers and route controllers with automated collision warning, accurate track status information, track permission limit alerts and train integrity monitoring.



The high resolution Driver Advisory System for A-RETB gives ultra-clear information on train and route status



The A-RETB system integrates with Comms Design's proven RETB NG signalling system, adding train protection, integrity and control capabilities