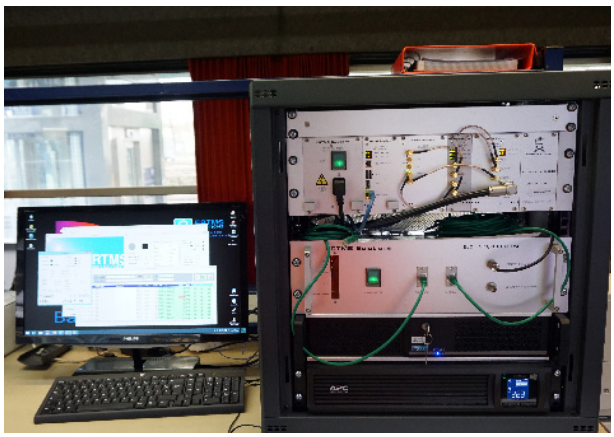
BaliseLifeCheck

A key to preventive maintenance

The BaliseLifeCheck is a preventive balise measurement instrument that can be used on both diagnostic and commercial trains. While capable of measuring Eurobalise, the BaliseLifeCheck is also highly customizable and can be set-up to deliver preventive maintenance to any 'legacy' Automatic Train Protection (ATP) balises, regardless of if they are fitted with ERTMS or not.

The BaliseLifeCheck is, for all intents and purposes, a moving laboratory which allows for the automation of balise maintenance for Infrastructure Managers, without sacrificing the quality of the assessment. Highly detailed signal quality information is produced by the BaliseLifeCheck every time it passes over a balise, and it is able to deliver a level of signal information that, previously, was only available when sending the balises to ERTMS certification laboratories.



- Compatibility with all Eurobalises' manufacturers
- Compatibility with legacy KER balises (KVB, Ebicab, RSDD)
- Key metrics computed per Eurobalise
- Big Metallic Masses (BMM) detection
- Detection of possible Big Metal Masses on the track that will affect BTM performances
- Computation of a signature on key metrics
- Auto-marking on all Eurobalises matching signature
- Geolocalization of the balises and creation of a cartography

RINA

BaliseLifeCheck successfully passed RINA tests

ERTMS Solutions consistently creates innovative products that alter the railway signaling world. This is what has made us an industry leader. We not only operate as the only company of our kind to offer testing, maintenance, and software protocol services that are compatible with the European railway signalization standards ERTMS/ETCS but also, maintain the agility to tailor our products to existing national standards.

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Unique Strengths of The BaliseLifeCheck

ELECTRICAL SPECIFICATIONS	
POWER SUPPLY	230 V AC, protected by 1500 VA online UPS. Total average power consumption 500 W. Option: +72 V DC available according to EN50155 Class S2.
ANTENNA	• External antenna is SIEMENS ANT5A Eurobalise/BTM antenna • Single cable antenna using RG214 coaxial cable for both Telepowering and Uplink signals. Maximal length is 30m
COEXISTENCE WITH ON-BOARD SYSTEMS	Completely independent from already existing onboard balise reading systems. Full compatible with existing systems if antenna installation complies with SUBSET 040 Engineering Rules.
TELEPOWERING EMISSION	• Balise telepowering emission at the balise antenna according to EMC requirements of SUBSET 036 v.3.0.0 and ETSI EN 302 608 • Telepowering Level Configurable from Φ d1 to Φ d4 – 3 dB • Configurable frequency from 27.090 to 27.100 MHz in steps of 1 kHz • CW signal (Eurobalises) and Toggling/Non-Toggling Amplitude modulation (KER Balises) available, at configurable modulating pulse frequency from 40 to 60 kHz, and modulation depth from 0 to 100%
BALISE UPLINK	• Eurobalise and KER Balises dual mode detection system • Full automatic balise signal analysis with SUBSET 036/085 electrical characteristics analysis • Uplink signal measurement available range 10 dB greater than the balise transmission dynamic range • Uplink signal is digitized up to 500 MSa/s with 1 GHz analog bandwidth. No spectral truncation for deeper RF measurements
RADIO COMMUNICATIONS	Full UMTS/3G data link available for remote monitoring and maintenance through RF MODEM.
ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS	
TEMPERATURE RANGE	• Indoor sub-rack Units: 0 to +70°C cubicle internal temperature • Outdoor antenna: -40 to +85°C external temperature
SHOCK & VIBRATION	According to EN 61373 with EN50155 specific requirements for electrical equipment installed in rolling stock (certification pending).
HUMIDITY/DUST	Outdoor Antenna: IP66 with proper protective conduit for cable and connector protection.
PHYSICAL DIMENSIONS	• External antenna is 445 mm x 385 mm x 100 mm, 10kg • Onboard measurement instruments: 19” standard rack mount, 510mm depth, 12U vertical height • Antenna cable: coaxial RG-214, Ø 11.2mm EN 45545-2 compliant
SUBSET 036/085 AND TSI MEASUREMENTS	
UPLINK SIGNAL ENVELOPE	• Full assessment of uplink signal transmission envelope with contact distance evaluation according to specific operational requirements • Uplink signal level evaluation according to pre-defined calibration levels
UPLINK MODULATION	**EUROBALISES (ETCS)**: full FSK electrical parameters evaluation (Centre Frequency, Frequency Deviation, Mean Data Rate, Modulation Amplitude Jitter and Maximum Time Interval Error MTIE) according to test & measurement specifications of SUBSET 085. **KER BALISES**: Full ASK electrical parameters measurements (Carrier Frequency, Bit Duration, Exponential Decay Time, Data Rate, and Amplitude Variation) according to SUBSET 100 signal requirements.
MEASUREMENT PRECISION	All physical quantities measured are precise with less than 1% of relative error.
TELEGRAM EXTRACTION	**EUROBALISES (ETCS):** • Full telegram detection and decoding analysis according to requirements of SUBSET 036 • Telegram content analysis according to SRS (SUBSET 026) with all variables and packets extraction **KER BALISES:** Full telegram decoding and decoding for analog and digital balises.
DATABASES	• Real-time balises analysis during train movement • RAW data of all -balises analyzed are stored in database for further analysis if required
BALISE POSITIONING	All balises are stored with precise balise location using either: • GPS data coupled to Inertial Measurement Unit (IMU) for sub-meter precise positioning, or • Using longitudinal track (KP) positioning based on odometry units (Wheel sensor, Doppler radar)
PREVENTIVE & PREDICTIVE MAINTENANCE	Possibility of predictive maintenance based on multi-data of the same balise in time and deviation analysis. Realtime alarms pver GSM/GPRS network possible on-demand.

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