



250+
Break-In systems in
operation world-wide


PANEDA ALL-IN-ONE HARDWARE

The Paneda Break-In system PBS is a complete system for DAB+ developed for road tunnels.

UNIQUE FEATURES

- No GPS is required—the system locks onto the off-air signal and maintains synchronization in both time and phase internally.
- The most compact solution on the market: a single Paneda PBS unit contains two complete break-in systems.
- Built-in selective amplifier ensures minimal interference.
- Fully car receiver-compatible, enabling seamless switching between off-air and break-in signals.
- No limitations on the number of services (encoders).
- During a break-in, in addition to the break-in signal itself, the Paneda system also uses standardized Alarm Announcement signalling, ensuring that receivers switch from FM, Bluetooth, or other media sources to DAB.

KEY FEATURES

- The Paneda system replicates ALL services exactly as is from off-air with all audio settings preserved.
- Realtime status monitoring.
- Trigger via API, I/O or via webinterface.
- SNMP
- Advanced metadata. Support for alert messages using DLS Text and SLS graphics.

SUPPORT


Paneda offers superior support agreements, including optional 24/7 support for customers who require around-the-clock assistance.

DAB+ Radio Break-In systems

A break-in system is a solution designed to interrupt ongoing radio transmissions in road tunnels or other public areas where people must be notified in the event of an emergency, such as fires or accidents. These systems are primarily developed for use in road tunnels, but they are also suitable for environments like train stations, parking garages, shopping centers, or other locations where broadcast interruption may be needed—not only for emergencies but also for general information.

Overview

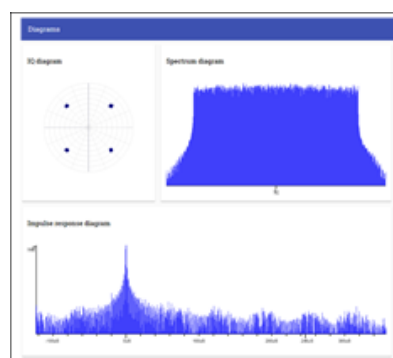
The Paneda tunnel break-in system is a complete system for DAB break-in with audio replaced with important messages. The unit supports dual ensembles simultaneously and includes dual COFDM modulators with approximately 0db output. To avoid interference and that unwanted RF signals are Re-broadcasted in the tunnel, the unit included a dual selective amplifier which filter out the two needed DAB frequencies from the off-air signal. The system support reference clock from GPS (10 MHz) but is developed to work without using an internal clock synchronization handling, phase locked to the off-air signal. The system uses a modern HTML5 web interface with real-time data presented for all status. The system support DAB Alarm announcement, forcing a receiver to switch to DAB even if they are using another media as FM, Bluetooth or USB. (Not all receivers support this feature)

Security

With a Paneda system, you can be confident that the solution meets the highest standards of IT security. All internal and external connections are encrypted using TLS/HTTPS, and the system supports two-factor authentication as well as the installation of custom certificates. Paneda uses a lightweight Linux kernel and designed according to the ‘all ports closed’ security principle.”

User Interface

Paneda offers an intuitive interface where all information is presented in real time, including RF status, audio status, statistics, metadata, buffer levels, and more. Advanced management, audit logs, and event history are just a few of the many other features appreciated by our users.



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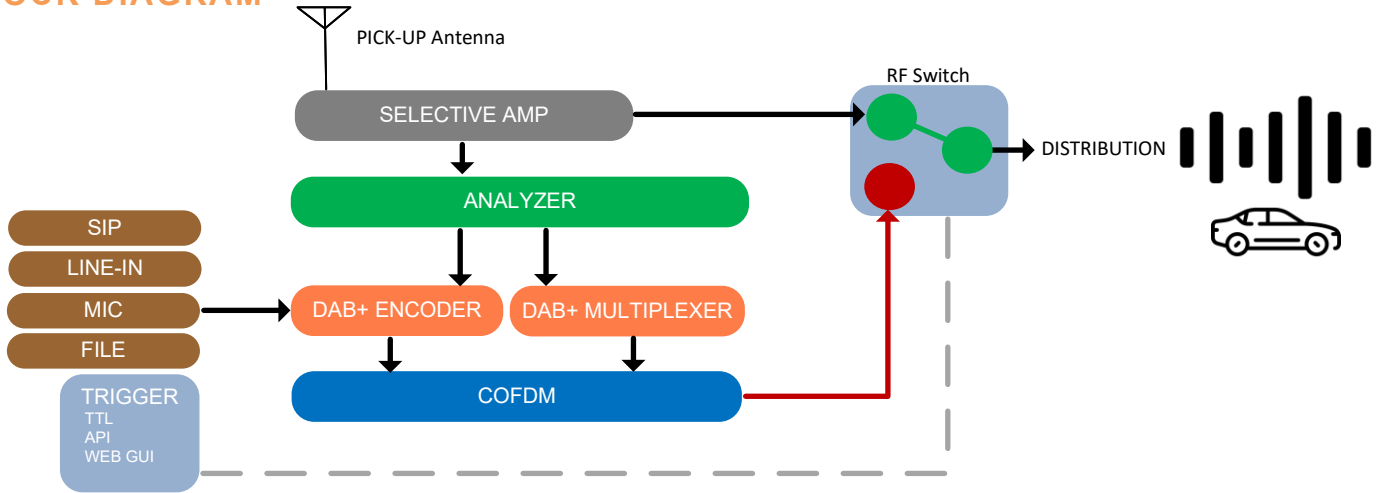
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BLOCK DIAGRAM

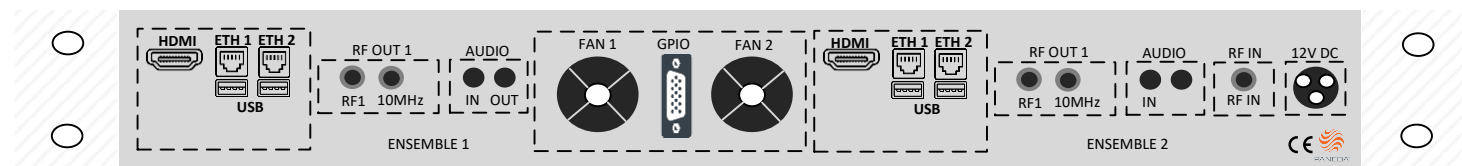
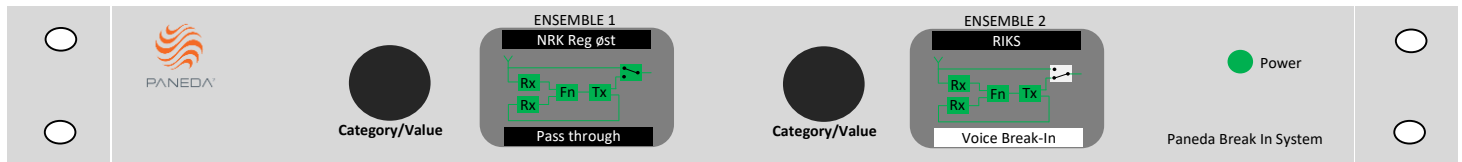


Front view

The TFT display show summary status of the complete system.

Rear view

Connection for inputs and outputs available at the rear side.



RF INPUTS		EXTERNALSYNCHRONIZATION INPUT	
Input type	1x SMA, 50 Ohm	Reference frequency	Not needed, 10MHz supported
Level	Typical -80dbm ~ -15dbm	ENVIRONMENT AND MECHANICAL DATA	
Frequency Range	175MHz ~240MHz	Temperature range	+5 to +50 °C
RF Outputs		Housing	19" cabinet, 1 height units
Output type	2x SMA, 50 Ohm (1 per Ensemble)	Depth	250 mm
Level	0dbm	Weight	3kg
Band III	174.928 ~239.200 MHz	POWER SUPPLY	
Audio Input		Mains voltage	+12V DC External PSU 100-240 VAC, incl.
Connector	3,5mm LINE-IN	Frequency	48-64 Hz
IP	SIP support	Power consumption	30W
Network		STANDARDS	
Type	RJ45 x 2 with Gbps	DAB+ (ETSI 102 563)	
General		DAB (ISO/IEC 13818-3)	
Monitoring	SNMP, TRAPS	STI (ETS 300 797)	
Storage	M-Sata SSD 60GB	Display	TFT
CPU	Intel i5 2.3GHz or higher	PSU	5A @ 12VDC, MTBF 176.000h
OS	Embedded Linux Arch	Filter	Built in selective amplifier with AGC
Dimensions	482x44x250 mm	EMC	CE, EN55022, EN55024
		GPIO	15P DSUB (for trigger and status)

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