



Homeland Security & Critical Infrastructures

## **ACCESS BOX**

### **WI-FI TELECOMMUNICATION SYSTEM FOR MASS TRANSIT APPLICATIONS**

The Selex ES Access Box provides infrastructure radio equipment for turnkey mass transit applications using IEEE 802.11a/b/g technology. It comprises Commercial-Off-The-Shelf devices configured to provide the high grade performance required for working in railway and subway environments, outdoors as well as inside tunnels.

The Access Box is typically set up to provide a 2.4/5GHz Wi-Fi radio interface to authorised mobile clients/routers, an electrical Ethernet interface to IP ground fixed devices (like videosurveillance cameras) and an optical Ethernet interface to the trackside transport backbone.

Many different HW/SW configurations are available depending on customer requirements and/or specific installation constraints; the solution is also fully on site scalable from the simplest to the most comprehensive.

#### **MAIN FEATURES**

##### **Radio**

- One or two Access Points per Access Box, single AP equipped with both radios, IEEE802.11b/g (2.4GHz) and IEEE802.11a (5GHz) working independently of each other
- Up to  $54 \times 2 \times 2 = 216$  Mbit/s combined capacity on radio interface with 2 AP, 2 radios per AP
- Radio channels and transmit power settings available for almost every regulatory domain in the world
- Two or four directional dual-polarization antennas, for single band or dual band operations
- RF coverage of two sectors (typically both track directions in trackside installations) under two corresponding separate cells or, alternatively, under only one macro-cell
- Light Wave Access Point Protocol working mode available on the Access Points for remote centralized management of the wireless network by means of a Wireless LAN Controller

## Wireless Access Security

- IEEE 802.1X with Extensive Authentication Protocol (EAP): Cisco LEAP, EAP-Flexible Authentication via Secure Tunneling (EAP-FAST), Protected EAP-Generic Token Card (PEAP-GTC), PEAP-Microsoft Challenge Authentication Protocol Version 2 (PEAP-MSCHAP), EAP-Transport Layer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS), and EAP-Subscriber Identity Module (EAP-SIM)
- IEEE 802.11 WEP static and dynamic keys of 40 and 128 bits
- Wi-Fi Protected Access (WPA) with Temporal Key Integrity Protocol (TKIP) and Message Integrity Check (MIC) or Wired Equivalent Privacy (WEP) with or without Pre-shared Key Passphrase
- IEEE 802.11i WPA2 Advanced Encryption Standard - Counter with Cipher block chaining Message authentication code (AES-CCM)
- Authentication, authorization and accounting through RADIUS server (AAA/RADIUS)
- MAC Address filtering
- SSID Broadcasting deactivation

## Electrical/Optical Ethernet

- IEEE 802.3 (Ethernet), 802.3u (Fast Ethernet), 802.3x (Full Duplex e Flow Control), 802.1D (MAC bridges)
- Spanning Tree Protocol (STP) (both standard 802.1W for Rapid STP and proprietary)
- Virtual LAN (VLAN) (802.1Q)
- Quality of Service (QoS) management (CoS and ToS inspection, default port priority)
- SNMP (v1, v2, v3) Management Protocol



## TECHNICAL DATA

2.4GHz band radio (ETSI regulatory domain)	2,400-2,483MHz, 13 channels, 20 dBm max EIRP IEEE 802.11b/g, ETSI EN 300 328
5GHz band radio (ETSI regulatory domain)	5,150 - 5,350MHz: 8 channels, 5,470 - 5,725MHz: 11 channels; Dynamic Frequency Selection; 30 dBm max EIRP IEEE 802.11a, ETSI EN 301 893
2.4GHz Antenna	Polarization: dual slant, $\pm 45^\circ$ 3dB beamwidth: H $40^\circ$ 3dB beamwidth: V $35^\circ$ Windload: 57N @ 160km/h
5GHz Antenna	Polarization: dual linear, V/H 3dB beamwidth: H $17^\circ$ 3dB beamwidth: V $17^\circ$ Windload: 104N @ 220km/h
Ethernet electrical	At least 2 FastEthernet RJ-45 10/100Base-T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X
Ethernet optical	2 FastEthernet SC MultiMode 100BaseFX Or 2 Gigabit Ethernet LC MonoMode 1000BaseLX/ZX
Power input	Input terminal blocks with breaker protection and control against overloads and short-circuits 100-240VAC 50-60Hz Max Input Current 1A (Access Box only) Max Input Current 3A (Access Box with two external 100W IP cameras connected)
Power output	Two independent AC power outputs protected by breakers against overloads and short-circuits for supplying external IP
Dimensions (HxWxD, mm)	650 x 405 x 200 (only box) 1080 x 755 x 275 (configured with 4 antennas)
Weight	Less than 30kg
Level of Protection	IP65
Installation	Wall mounting by means of four M10 screws
Box case	Fiberglass reinforced polyester halogen free and fire resistant EN 50267-2-2, EN 60439-1 GWT 960 °C
Environmental conditions	Operating temperature: -20 to 50 °C Storage temperature: -40 to 70 °C Humidity from 10 to 90 % non condensing Altitude up to 2,000 m asl.
EMC	CEI EN 50121-4
Safety	EN60950
EMF Protection	EN 50385
CE	99/5/CE (R&TTE) 2002/95/CE (RoHS)
MTBF	103,000h

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SSD MM08412 11-14