White Paper
Trane® Air-Fi® Wireless Security

Air-Fi® Wireless Network Security

Air-Fi® Wireless is secured using Advanced Encryption Standard AES-128 (FIPS Pub 197) and HMAC (FIPS Pub 198). The Trane WCI operating as a Trust Center will create a randomly generated 128-bit network security key for each ZigBee®[1] network. This network security key is required to decrypt communications from the network. In order to join the secured Air-Fi network, the network must first be "opened" or set to allow devices to join. A device requesting to join the network is given a transport key which must be decrypted by the joining device before it can communicate on the Air-Fi network. The Air-Fi® network will automatically close or prevent new devices from joining the network one hour after it was opened.

Isolation from Intellectual Property or Business Systems

Air-Fi® Wireless is either a stand-alone network or it is connected to a Trane Tracer® SC. Tracer® SC can be connected to a building IP LAN to provide remote information to building operators. Many security options are available at the IP network level and IP security policies are implemented and enforced by the customer's IT department. Many customers will put Tracer® SC on their building LAN and secure access to their IP network using a VPN (Virtual Private Network). Other customers will setup a VLAN (Virtual Local Area Network) for Tracer® SC or use a

separate IP network infrastructure from their building IP network.

Key Facts Regarding Air-Fi® Wireless Security

Encryption requirements are similar to Wi-Fi

- All wireless traffic is encrypted!
- The Coordinator creates a randomly-generated 128-bit security key

The network needs to be open to allow new devices to join

- Devices must first be allowed into the network to obtain the encrypted network key
- The network will only stay open to allow new devices to join for 60 minutes

Requires an IEEE 802.15.4 radio

- Not commonly available like Wi-Fi or Bluetooth®

The WCI will only allow BACnet®/ZigBee® communications

- Cannot be used to communicate to business systems

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[1] ZigBee is a registered trademark of the ZigBee Alliance.