The Industrial Wi-Fi Shop

Industrial Wireless Security Quick Reference

Protocol	Base Standard	Encryption Types	Additional Security Measures
WiFi	802.11	WEP (64-256 bit) WPA (256 bit) TKIP/AES WPA2 (256 bit) TKIP/CCMP/AES WPA3 (192-384 bit) AES/SAE/OWE	Enterprise 802.1x Authentication VLAN segmentation Role Based Access wIDS/wIPS
6LoWPAN	802.15.4	AES-CCM (128 bit)	TLS/DTLS for upstream communications
Bluetooth LE	Bluetooth SIG	AES-CCM (128 bit)	OOB pairing using NFC passkeys for secure pairing Numeric Comparison for secure pairing
LoRaWAN	LoRaWAN open standard	AES-CMAC/CTR (128 bit)	Specialized AppKey infrastructure
WirelessHART	802.15.4	AES-CCM (128 bit)	Message Integrity Checks (link and session layers) Secure Authentication for joining devices Security Manager
ZigBee	802.15.4	AES-CCM (128 bit)	Frame Counter Trust Center (TC) usually the network coordinator
Z-Wave	802.15.4	AES-CCM (128 bit)	S2 Security Framework
WiFi-ah (HaLow)	802.11	WPA2 (256 bit) TKIP/CCMP/AES WPA3 (192-384 bit) AES/SAE/OWE	TLS connections for upper layer data transfer