

ARG WiFi Modem

802.11 b/g/n / BLE 4.2 Connectivity Module · u-blox NINA-W131 · ARG IP

Rev A · March 2026

Status: In Production

Used in: G360, C50

OVERVIEW

The ARG WiFi Modem is a fully integrated 802.11 b/g/n / BLE 4.2 connectivity module built around the u-blox NINA-W131. Like the ARG Cell Modem, it exposes the identical ARG Common Host API protocol — the host application cannot distinguish which radio is active, enabling transparent failover between WiFi and cellular.

All messages from the Cell Modem spec apply. Additional WiFi-only messages:

Type	Name	Dir	Description
0x03	ENDPOINT_SET	H→M	Override MQTT broker endpoint URL. Saved to NVS; takes effect on next connect.
0x05	WIFI_CONFIG_SET	H→M	Provision WiFi SSID and password. Saved to NVS. Modem connects when identity (CONFIG_SET) is also valid.
0x83	FAULT	M→H	WiFi-specific codes: 0x05 WIFI_NO_AP (no access point found), 0x06 WIFI_AUTH_FAIL (wrong credentials).

DUAL-MODEM OPERATION (G360)

In G360, both the WiFi Modem and Cell Modem are mounted on the same host board. The host Modem Manager powers only one modem at a time, preferring WiFi for lower cost and higher throughput, with automatic failover to cellular if WiFi is unavailable for more than 120 seconds. Both modems share the same physical connector footprint and ARG Host API protocol.

Parameter	Value
Primary modem	WiFi Modem (USART2) — lower cost, 802.11n bandwidth
Backup modem	Cell Modem (USART1) — always available, global coverage
Failover trigger	WiFi offline > 120 s on initial connect; > 5 min at runtime
Modem detection	ADC-based ID resistor on each module (WIFI_MODEM_ID / CELL_MODEM_ID)
Power control	WIFI_MODEM_PWR_EN / CELL_MODEM_PWR_EN — only one active at a time

USED IN

Parameter	Value
G360	Industrial control system — primary WiFi, cellular fallback
C50 / iPM3	Power analyzer — local network connectivity variant