

Advantech Industrial Wireless Solutions

Robust Performance with Ultimate Reliability
for Industrial Applications

/ Technological Breakthroughs

/ Product Series

/ Design-in Services

/ Wireless Kits

/ Case Studies



Industrial
Grade

Longevity
Support

Flexible Logistic
Supply

Reliable and
Secure



Wireless Design-in Services



ADVANTECH

Enabling an Intelligent Planet

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Meet the Next Generation

Accelerate innovation with 5G and Wi-Fi 6



AIoT Solutions require ubiquitous connectivity, dynamic mobility, and extreme security. Both 5G and Wi-Fi 6 are complementary technologies that deliver higher speeds, lower latency, and increased capacity. Understanding the benefits and usage of these technologies augments AIoT applications.

Advantech Industrial Wireless Solutions (AIW)

Advantech's Industrial Wireless (AIW) Solutions team provides Wi-Fi 5/6, 4G LTE, 5G NR, GPS/GNSS, and Bluetooth technology. Our solutions are divided into four series adaptable to diverse connected platform applications in to AIOT era.

AIW ready-to-use wireless kits reduce costs by adhering to major wireless certifications — such as FCC, CE-RED, and IC. These solutions leverage design-in services to provide a one-stop shop experience that accelerates product development.



Transportation



AGV



Medical



Smart Lighting



Flexible Logistic Supply



Longevity Support



Wi-Fi 5/Wi-Fi 6

AIW 100 Series

ation of Wireless Technology

ADVANTECH
AIWireless
Advantech Industrial Wireless



Bridge



Construction



Aquaculture



Logistics



Industrial Grade



Reliable and Secure



GNSS/GPS

AIW 200 Series



LTE Cat.1/4G/5G

AIW 300 Series



BLE 5.0/BLE 5.1

AIW 400 Series

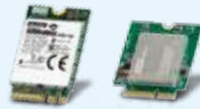
Product Series

Designed for Your AIoT Solutions

Wi-Fi 5/Wi-Fi 6

AIW-100 Series

- Well established standard
- High indoor network coverage
- High-speed connection
- Made for industrial applications



AIW-152 AIW-165



GNSS/GPS

AIW-200 Series

- Precise outdoor positioning
- G-sensor functions
- Wide temperature support



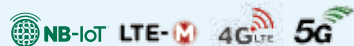
AIW-210



LTE Cat.1/4G/5G

AIW-300 Series

- Wide spectrum efficiency
- High traffic capacity
- Fastest connection speeds
- Excellent longevity support



AIW-344 AIW-355



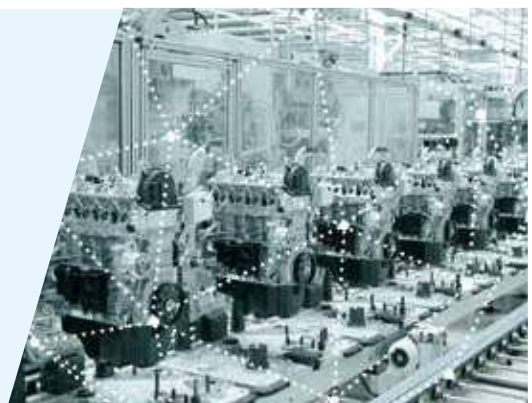
BT 5.0/BT 5.1

AIW-400 Series

- Low power consumption
- Indoor positioning
- Mesh network



AIW-450



Wireless Design-in Services

Your Trusted Partner

Advantech offers streamlined wireless Design-in services that enable intelligent wireless platforms. These services include a wireless module design package with RF certification, optimal antenna and module configuration solutions, wireless system performance verification, and an online document center.

Wireless Connection SW

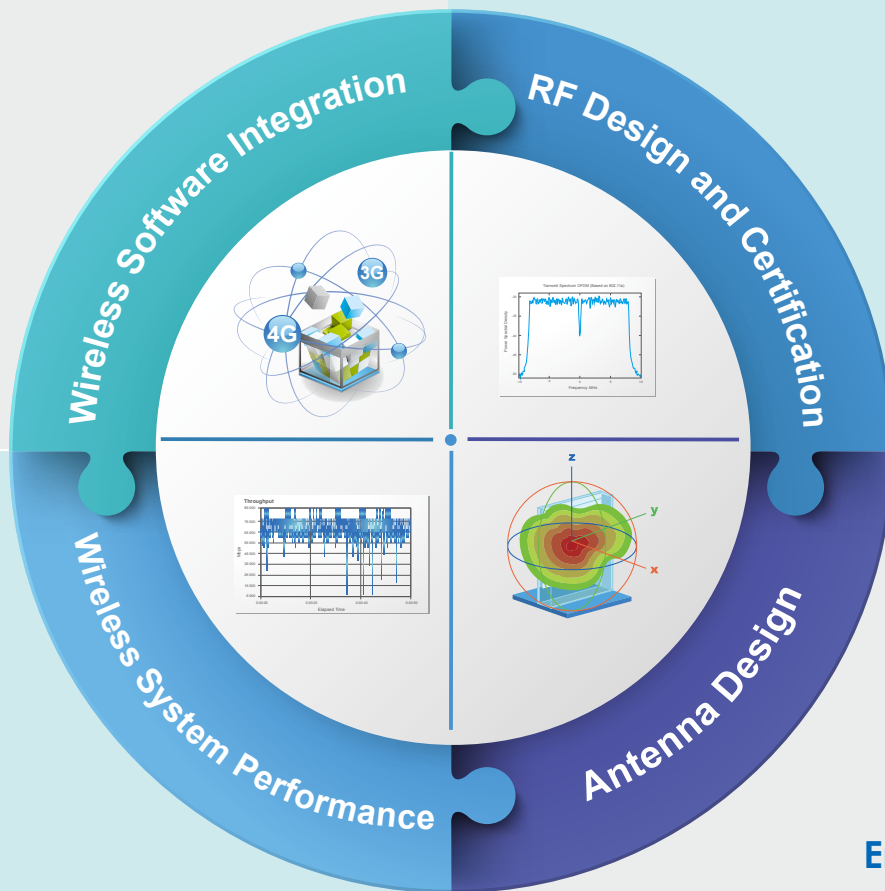
Drivers and Applications

- Multiple OS driver support
- Customized wireless connection

RF Certification Service

Customized Device

- Set up the RF test related SW and tool
- Pre-test at Advantech RF Lab
- RF certification related issues support
- RF certification report review



System Performance

System + Module + Antenna

- Wireless throughput report
- Field test
- Platform compatibility tests

Embedded PIFA Antenna

Customized Design

- Antenna placement
- Antenna type selection
- Antenna radiation report
- Antenna isolation report
- Antenna efficiency report

Industrial Wireless Kits

Fully Certified Solutions Reduce Time-to-Market



Certificate-Ready

Open, agile, and fully certified solutions



High Availability

Integrated package meets diverse needs



Cost Effective

Reduces time and cost

Passing the wireless certification process is a critical step to IoT products on their way to market. With the understanding on differing wireless regulations often proves time consuming and expensive AIW collaborates with DEKRA, an internationally recognized PTCRB testing laboratory, to provide a one-stop testing program for FCC, CE RED, IC, and other wireless certifications.

AIW-166K1 Wi-Fi 6 Wireless Kit

Longevity	2020/Q4~2025/Q3
Form factor	M.2 2230 A-E key
Wireless Standard	802.11AX+BT5.2
Chipset	AX210
Signal Protocol	Wi-Fi: PCI-E Bluetooth: USB 2.0
Antenna	2 x antennas with MHF4 RF connector
Temperature Range	0 ~ 70 °C (32 ~ 158 °F)
O.S. Support	Microsoft Windows 10 and Linux

AIW-351K1 5G Wireless Kit

Longevity	2020/Q4~2025/Q4
Form factor	M.2 3052 B key
Wireless Standard	5G NR Sub-6GHz/GNSS
Chipset	Qualcomm SDX55
Signal Protocol	USB 3.0/3.1
Antenna	4 x antennas with MHF4 RF connector
Temperature Range	Normal operating temperature -30 ~ 75 °C (-22 ~ 167 °F)
O.S. Support	Microsoft Windows 10 and Linux



Wireless Applications

Accelerate AIoT Innovations



LTE Modules Improve Public Transportation Systems

AIW-344 LTE Wireless Module

Application Requirements

While setting up public bike stations, the numbers of city bikes and the connections between each station and the control center are important. Wireless technology effectively reduce constructive cost and increase people's usage rate. AIW-344 LTE Wireless Modules deliver wide temperature support and stable connectivity, just a right fit to this application.

Challenges

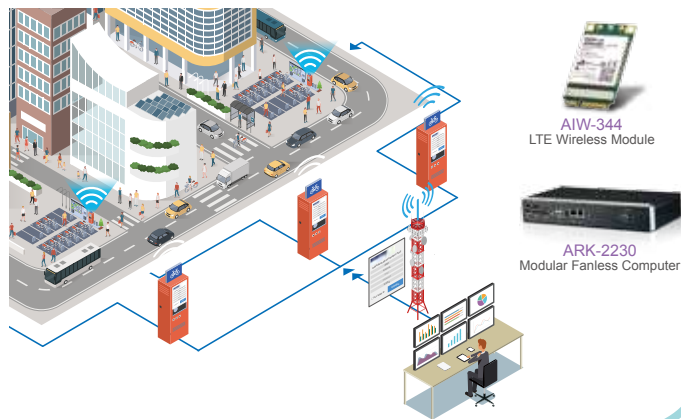
- Enduring harsh outdoor environments
- Supporting stable wireless connections across wide areas

Success Factors

- High-performance IPC via Advantech ARK-2230 and 4G LTE AIW-344
- HW/SW/RF total solution and integration services

Solution

- Solution based selling eases Design-in process



Globally Certified Wireless Kits for Smart Hospitals

AIW-192K1 Wi-Fi Wireless Kit

Application Requirements

Automated medicine dispensing machines make drug management/delivery safer and more efficient. Advantech's AIW-192K1 Wireless Kit efficiently connects medical equipment and provides globally certified solutions.

Challenges

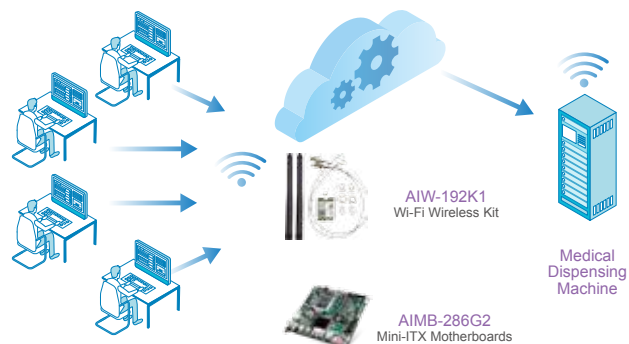
- Pre-tested sets shorten project development
- Wireless solution software integration requires professional support

Success Factors

- Advantech's pre-tested AIW kit is paired with an AIMB mainboard
- Product longevity commitment

Solution

- Advantech's pre-tested set made product development more efficient
- Solution based sales eases Design-in process



Industrial Wireless Solutions

4G LTE CAT4



Model Name	AIW-344		
Part Number	AIW-344FQ-N01	AIW-344FQ-E01	AIW-344FQ-J01
Form Factor	mini PCI-e FMC	mini PCI-e FMC	mini PCI-e FMC
SIM Slot	no	no	no
Radio Technology	CAT4	CAT4	CAT4
Downlink/ Uplink	150Mbps/50Mbps	150Mbps/50Mbps	150Mbps/50Mbps
Frequency Band	LTE FDD: Band 2,4,5,12,13,17,66,71 WCDMA: Band 2,4,5	FDD-LTE: Band 1,3,5,7,8,20,28 TDD-LTE: Band 38,40,41 HSPA/UMTS: Band 1,5,8 GSM/GPRS/EDGE850/900/1800MHz	LTE FDD: band1,3,8,11,18, 19,21,26,28 LTE TDD: Band41 WCDMA/HSPA+: Band1,6,8,19
Main Chipset	Qualcomm MDM9X07	Qualcomm MDM9X07	Qualcomm MDM9X07
Operating Temperature	Extended: -40 ~ 85 °C (-40 ~ 185 °F)	Extended: -40 ~ 85 °C (-40 ~ 185 °F)	Extended: -40 ~ 85 °C (-40 ~ 185 °F)
Signal Protocol	USB 2.0	USB 2.0	USB 2.0
Support Area	US	EU	JP



Model Name	EWM-C176FL0*E			
Part Number	EWM-C176FL01E	EWM-C176FL05E	EWM-C176FL07E	EWM-C176FL09E
Form Factor	Full-size Mini PCIe	Full-size Mini PCIe	Full-size Mini PCIe	Full-size Mini PCIe
SIM Slot	No SIM card slot	No SIM card slot	With SIM card slot	With SIM card slot
Radio Technology	LTE CAT4+GPS	LTE CAT4+GPS	LTE CAT4+GPS	LTE CAT4+GPS
Downlink/ Uplink	FDD LTE Max150Mbps(DL) / 50Mbps(UL)	FDD LTE Max150Mbps(DL) / 50Mbps(UL)	FDD LTE Max150Mbps(DL) / 50Mbps(UL)	FDD LTE Max150Mbps(DL) / 50Mbps(UL)
Frequency Band	4G LTE bands: 2/4/5/12/13/14/25/26/66/71 UMTS bands: 2/4/5	4G LTE bands 1/3/8/11/18/19/21 UMTS bands 1/6/19	4G LTE bands: 1/3/7/8/20/28 UMTS bands: 1/8 GSM/GPRS/ EDGE : 900/1800 MHz	4G LTE bands: 1/3/5/7/8/28 UMTS bands: 1/5/8 GSM/GPRS/ EDGE : 900/1800 MHz
Main Chipset	Qualcomm	Qualcomm	Qualcomm	Qualcomm
Operating Temperature	-40 ~ 85 °C (-40 ~ 185 °F) (Operating)	-40 ~ 85 °C (-40 ~ 185 °F) (Operating)	-40 ~ 85 °C (-40 ~ 185 °F) (Operating)	-40 ~ 85 °C (-40 ~ 185 °F) (Operating)
Signal Protocol	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Support Area	US	JP	EU, Taiwan	ANZ, Brazil, Korea

Industrial Wireless Solutions

5G



Model Name	AIW-355		
Part Number	AIW-355DQ-N01	AIW-355DQ-E01	AIW-355DQ-C01
Form Factor	M.2 3052 B-key	M.2 3052 B-key	M.2 3052 B-key
SIM Slot	no	no	no
Radio Technology	5G NR SUB6/LTE FDD/LTE TDD/WCDMA	5G NR SUB6/LTE FDD/LTE TDD/WCDMA	5G NR SUB6/LTE FDD/LTE TDD/WCDMA
Downlink/Uplink	Max DL peak rate 4.1 Gbps DL 4*4 NR Sub6 EN-DC Max UL peak rate 525Mbps	Max DL peak rate 4.1 Gbps DL 4*4 NR Sub6 EN-DC Max UL peak rate 525Mbps	Max DL peak rate 4.1 Gbps DL 4*4 NR Sub6 EN-DC Max UL peak rate 525Mbps
Frequency Band	NR: n2, n5, n7, n12, n14, n25, n41, n48, n66, n71, n78 LTE FDD: Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 29, 30, 66, 71 LTE TDD: Band 41, 42, 43, 48 LAA Band 46 Receiver only WCDMA: B1, 2, 4, 5, 8 GNSS: Support GPS, GLONASS, BDS, Galileo, QZSS	NR: n1,n3,n5,n8,n20, n28, n38,n41, n77, n78, n79 LTE FDD: Band 1,3,5,7,8,19,20,28 LTE TDD: Band 38,40,41,42,43 WCDMA: B1, 3, 5, 8,19 GNSS: support GPS, GLONASS, Galileo, BDS, QZSS	NR: n1, n28, n41, n77, n78, n79 LTE FDD: Band 1,2,3,5,7,8 LTE TDD: Band 34,39,40,41 WCDMA: B1, 2, 5, 8 GNSS: support GPS, GLONASS, Galileo, BDS, QZSS
Main Chipset	Qualcomm SDX55	Qualcomm SDX55	Qualcomm SDX55
Operating Temperature	Normal operating temperature: -30 ~ 75 °C (-22 ~ 167 °F) Extended operating temperature: -40 ~ 85 °C (-40 ~ 185 °F)	Normal operating temperature: -30 ~ 75 °C (-22 ~ 167 °F) Extended operating temperature: -40 ~ 85 °C (-40 ~ 185 °F)	Normal operating temperature: -30 ~ 75 °C (-22 ~ 167 °F) Extended operating temperature: -40 ~ 85 °C (-40 ~ 185 °F)
Signal Protocol	USB 3.0/3.1	USB 3.0/3.1	USB 3.0/3.1
Support Area	US	EU	China

5G Antenna



Part Number	175009372-01
Size(cm)	16.7*2.5
Support frequency	5G(sub 6GHz) dipole antenna
Antenna gain	1.78 dBi @ 699~960MHz 3.27 dBi @ 1710~2700MHz 0.18 dBi @ 3300 MHz 4.02 dBi @ 5150~5850MHz
Polarization	Linear
Connector	SMA Male
Impedance	50 ohm

Wi-Fi 6



Model Name	AIW-166K1
Part Number	AIW-166K1
Form Factor	M.2 2230 A-E key
Wireless Standard	802.11 a/b/g/n/ac/ax+BT5.2
Chipset	AX210
Signal Protocol	PCI-e/USB 2.0
Antenna	2 x antennas
Operating Voltage	3.3V
Temperature Range	0 ~ 70 °C (32 ~ 158 °F)
Dimensions (LxWxH)	22 x 30 x 2.2 mm (.86 x 1.18 x .086 in)
Security	WEP 64-bit and 128-bit encryption with H/W TKIP processing WPA/WPA2 (Wi-Fi Protected Access); WAPI
SISO/MIMO	MIMO
Data Rate	1201Mbps in 802.11ax
Bluetooth	BT 5.2
O.S Supported	Windows 10/Linux
Host Connector Type	M.2 2230

Industrial Wireless Solutions

Wi-Fi and Bluetooth Combo



Model Name	AIW-152	EWM-W162	EWM-W163	EWM-W190	EWM-W159
Part Number	AIW-152BQ-001	EWMm-W162M201E	EWM-W163M201E	EWM-W190H01E	EWM-W159M201E
Form Factor	M.2 2230 A-E key	M.2-2230 (A-E key)	M.2-2230(A-E key)	Half Size Mini PCI-e	M.2 2230 A-E key
Wireless Standard	802.11 a/b/g/n/ac + BT 4.2	802.11 ac/a/b/g/n + BT 4.2	802.11a/b/g/n/ac + BT4.2	802.11a/b/g/n/ac + BT 4.2	802.11 ac/a/b/g/n + BT 5.0
Chipset	QCA6174A	88W8897	Atheros QCA6174A-5	Atheros QCA6174A-5	RTL 8822CE-CG
Signal Protocol	PCI-e/USB 2.0	Wi-Fi: PCIe BT: USB Differential	Wi-Fi: PCIe BT: USB Differential	Wi-Fi: PCIe BT: USB Differential	PCI-e/USB 2.0
Antenna	2 x antenna	2 x I-PEX MHF4 connectors	2 x I-PEX MHF4 connectors	2*U.FL connectors	2 x antenna
Operating Voltage	3.3V	DC 3.3V ± 5%	DC 3.3V ± 5%	DC 3.3V±5%	3.3V
Temperature Range	-40 ~ 85 °C (-40 ~ 185 °F)	-30 ~ 85 °C (-22 ~ 185 °F) (Operating)	Extended operating temperature: -20 ~ 85 °C (-4 ~ 185 °F)	-30 ~ 85 °C (-22 ~ 185 °F) (Operating)	0 ~ 70 °C (32 ~ 158 °F)
Dimensions (L x W x H)	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	26.6 x 29.8 x 2.7 mm /1.09 x 1.17 x 2.75 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in
Security	WEP 64-bit and 128-bit encryption with H/W TKIP processing WPA/WPA2 (Wi-Fi Protected Access); WAPI AES-CCMP hardware implementation as part of 802.11i security standard	64/128-bit WEP, WPA, WPA2, 802.1x, TKIP and AE	WAPI, 64/ 128-bit WEP, WPA/WPA2 TKIP and AES	WAPI, 64/ 128-bit WEP, WPA/WPA2 TKIP and AES	WPA/WPA2 (Wi-Fi Protected Access) / WAPI / WEP 64-bit with H/W TKIP
SISO/MIMO	2T2R MIMO	2T2R MIMO	2T2R MIMO	2T2R MIMO	2T2R MIMO
Data Rate	867Mbps	867Mbps	867Mbps	867Mbps	867Mbps
O.S Supported	Windows 10	Windows 7/8/8.1/10	Window 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8.x/10

Wireless Kit



Model Name	EWM-W192		
Part Number	EWM-W192K1	EWM-W192K2	EWM-W192K5
Form Factor	M.2 2230 A-E key	M.2 2230 A-E key	M.2 2230 A-E key
Wireless Standard	802.11 a/b/g/n/ac+BT5.0	802.11 a/b/g/n/ac+BT5.0	802.11 a/b/g/n/ac+BT5.0
Chipset	Intel® AC9260(no vPro)	Intel® AC9260(supports Intel vPro)	Intel® AC9260(no vPro)
Signal Protocol	PCI-e/USB 2.0	PCI-e/USB 2.0	PCI-e/USB 2.0
Antenna	2 x antenna	2 x antenna	2 x antenna
Operating Voltage	3.3V	3.3V	3.3V
Temperature Range	0 ~ 70 °C (32 ~ 158 °F)	0 ~ 70 °C (32 ~ 158 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Dimensions (LxWxH)	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in
Security	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP,EAP-SIM, EAP-AKA, EAP-AKA) 64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 128-bit and 256-bit AES-GCMP Wi-Fi Direct* Encryption and Authentication WPA2-PSK, AES-MIMO	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP,EAP-SIM, EAP-AKA, EAP-AKA) 64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 128-bit and 256-bit AES-GCMP Wi-Fi Direct* Encryption and Authentication WPA2-PSK, AES-MIMO	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP,EAP-SIM, EAP-AKA, EAP-AKA) 64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 128-bit and 256-bit AES-GCMP Wi-Fi Direct* Encryption and Authentication WPA2-PSK, AES-MIMO
SISO/MIMO	MIMO	MIMO	MIMO
Data Rate	802.11ac:up to1200 Mbps	802.11ac:up to1200 Mbps	802.11ac:up to1200 Mbps
O.S Supported	Windows 10	Windows 10	Windows 10
Package	Intel AC9260 dual band 802.11AC 2*2 WiFi/BT5.0 M.2 2230 module card*1+ cables*2+certification ready dipole antenna*2	Intel AC9260 dual band 802.11AC 2*2 WiFi/BT5.0 M.2 2230 module card*1+ cables*2+certification ready dipole antenna*2	Intel AC9260 dual band 802.11AC 2*2 WiFi/BT5.0 M.2 2230 module card*1+ cables*2+certification ready dipole antenna*2

Industrial Wireless Solutions

GPS



Model Name	EWM-G109	EWM-G110
Part Number	EWM-G109H01E	EWM-G110H01E
Form Factor	Half Size Mini PCI-e	Half Size Mini PCI-e
GPS Type	Hardware standalone	Hardware standalone
Signal Protocol	USB	USB
Chipset	NEO-M8N	NEO-M8U+3D inertial sensors
Operating Temperature	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
RF Receiver Type	GPS module, multi-GNSS (GPS, Beidou, GLONASS, Galileo, QZSS and SBAS)	GPS module, multi-GNSS (GPS, Beidou, GLONASS, Galileo, QZSS and SBAS)
GPS Acquisition	Cold starts: 26s / Aided starts: 2	Cold starts: 26s / Aided starts: 2
GPS Accuracy	Aided starts: 2	Aided starts: 2
GPS Sensitivity	Tracking: -167 dBm / Cold starts: -148 dBm / Reacquisition: -160 dBm	Tracking: -167 dBm / Cold starts: -148 dBm / Reacquisition: -160 dBm

Optional Antenna Selection



Part Number	1750008717-01	1750008303-01
Dimensions	10.9 x 1 cm/4.29 x .393 in	16.7 x 2.5 cm/6.57 x 0.98 in
Support Frequency	Wi-Fi dual band antenna (2.4Ghz and 5Ghz)	4G LTE dipole antenna
Antenna Gain	2.89 dBi @ 2.4-2.5GHZ 3.58dBi @ 5.15-5.85GHZ	0.9 dBi @ 700 ~ 960 MHz 2.0 dBi @ 1710 ~ 2700 MHz
Polarization	Linear	Linear
Connector	RP-SMA male	SMA Male
Impedance	50 ohm	50 ohm

Wi-Fi Extension Cable



Part Number	1750008767-01
Length (cm)	150 cm/59 in
Cable Type	Wi-Fi cable
Cable Loss	0.62dB@2500MHz for 1Meter
Polarization	Linear
Connector	SMA(F)/SMA(M)
Impedance	50 ohm

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Stockholm	46-0-864-60-500
Poland	
Warsaw	48-22-31-51-100
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	8-921-575-13-59
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Turkey-Bursa	90-224-413-3134

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