WMS-30
User Guide

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PRELIMINARY

NOTICE

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Chapter 1 – WMS-30 Operation

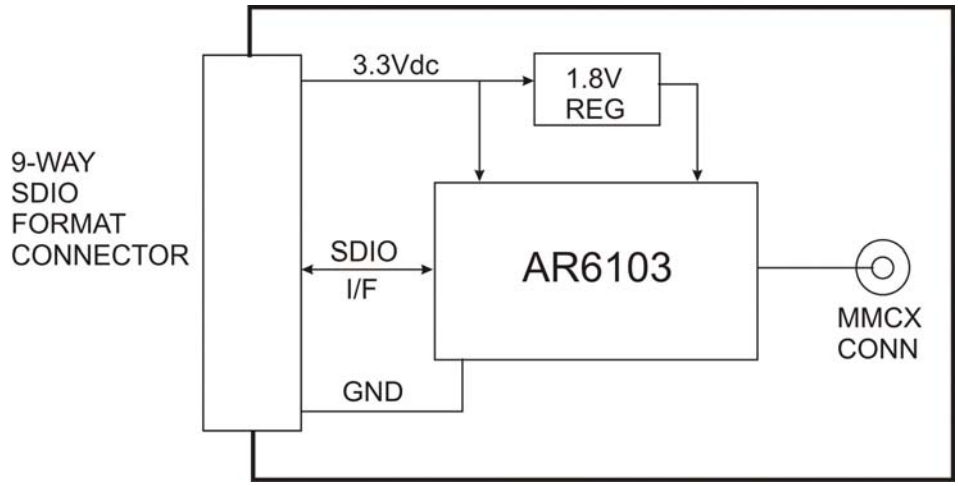
1.1 Overview

The WMS-30 is single band (2.4GHz) 802.11b/g/n SDIO wireless LAN module based on the Qualcomm Atheros AR6013 integrated wireless chip.

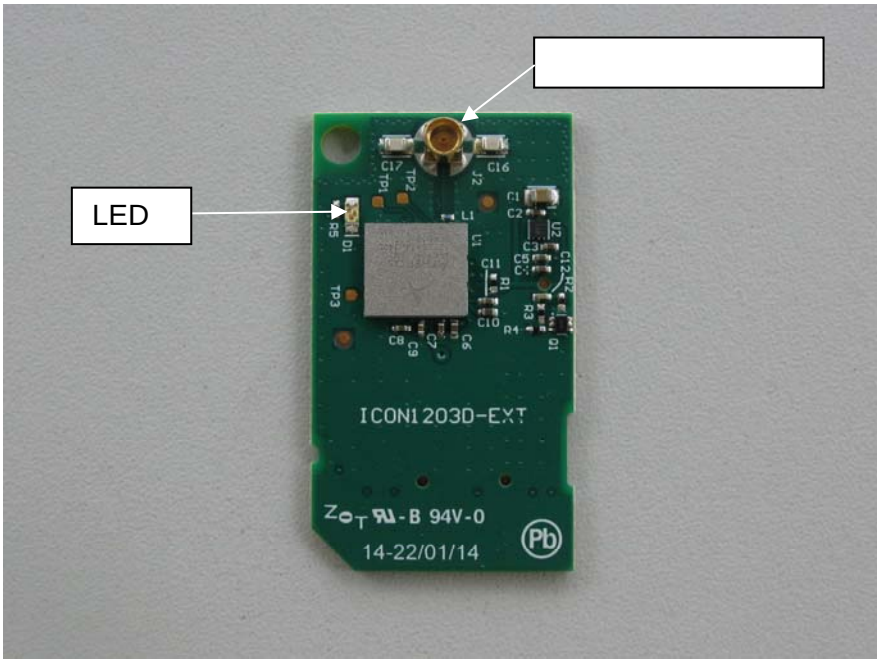
It is designed for use with a single external omnidirectional antenna up to a maximum gain of 5dBi. The connector is a type MMCX which can support direct connection to an antenna or indirect connection via a suitable cable assembly.

The device is designed for integration into a host system which runs an appropriate driver for the installed operating system, or runs bespoke embedded software. The device has full modular certification so can be incorporated into a host device without further testing provided that the installation and regulatory compliance rules in this manual are followed.

A block diagram of the device is shown below. As can be seen, it is a highly integrated design which results in a compact and low power solution for wifi communication.



A photograph of the unit is shown below. It fits into a standard size SDIO socket. A mounting hole, diameter 3.5mm is provided in the upper left corner to assist with locking the unit in place, if desired. Always use plastic mounting hardware. A green LED is fitted below the mounting hole which illuminates when power is applied.



1.2 Specification

Wireless

Operational frequency range	2.4Ghz to 2.483GHz

SDIO

Host Interface	Supports SDIO 1.x and 2.0
Speed	50MHz (4-bit and 1-bit)
Power Input	3.3V +/-5%

Environmental

Dimensions	42.0mm x 24.0mm
Operating temperature	-20°C to +85°C

1.3 Type of Antenna

The WMS-30 module can be used with any omnidirectional antenna with a maximum gain of 5dBi. No allowance is made for losses in any interconnecting cable (ie. losses are assumed to be 0dBi). The WMS-30 is fitted with a gold-flashed MMCX jack connector (part number MMCX-J-P-H-

ST-SM1 from Samtec, impedance 50 ohm). A mating 50 ohm impedance connector and interconnecting cable must be used.

One recommended antenna is the OD24M-5 from Laird. This is incorporates an N-type connector. Therefore a MMCX-to-N-type cable assembly is required. This is available from Icon Research, or Icon Research can provide assistance for you to have this manufactured to the length you require.

Chapter 2 – Setting Up

2.1 Regulatory Power Settings

The WMS-30 responds to channel calibration and power level settings as specified in .bin files that are available from Icon Research Ltd. **The OEM installer must ensure that the correct .bin file is installed in the host device to meet the regulatory requirements of the geographical area in which the device is to be used**.

Contact Icon Research for issue of the .bin file(s) that you require.

2.2 Information for OEM Installers

The following points must be followed when installing the WMS-30 in a host system or device:

1. The WMS-30 device must be professionally installed.
2. A label must be fitted to the outside of the final system or host device identifying the FCC ID of the WMS-30. Suitable wording is *Contains FCC ID: RO7-WMS30* or *Contains transmitter module FCC ID: RO7-WMS30.*
3. The same label must contain the IC ID of the WMS-30. Suitable wording is *Contains IC: 12031A-WMS30* or *Contains transmitter module IC: 12031A-WMS30.*
4. The WMS-30 module must be installed and used in strict accordance with the manufacturer's instructions. Attention is especially drawn to the type of antennae allowed.

Chapter 3 – Compliance Statements

3.1 FCC Compliance Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

The antenna must be installed to provide a separation distance of at least 20 cm from all persons.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3.2 IC (Industry Canada) Compliance Statements

English

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

French

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte

que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

3.4 Agency Label Information

FCC ID: RO7-WMS30

IC: 12031A-WMS30