

MOTOROLA



<http://www.motorolasolutions.com>

MOTOROLA SOLUTIONS INC.
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SCHAUMBURG, IL 60196

MN000030A01
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Warnings

- This equipment should only be installed by qualified professional installers.
- Read all installation instructions and site survey reports, and verify correct equipment installation before installing this equipment.
- Remove jewelry and watches before installing this equipment.
- Verify proper wiring and grounding for each installation location.
- Verify there is adequate ventilation around the device, and that ambient temperatures meet equipment operation specifications (10° to 40° Celsius / 32° to 104° Fahrenheit).

WARNING! Indicates a condition or procedure that could result in personal injury or equipment damage.

CAUTION Care is required. Disregarding a caution can result in data loss or equipment malfunction.

TS-524 and TW-5xx Specifications	
Wireless Interface	Single radio: 802.11a/b/g/n; 2.4GHz or 5GHz
LAN Ethernet port	2 x IEEE 802.3 10/100MB auto-sensing via RJ-45
Uplink UTP	1 x RJ11 UTP, VDSL2
Pass through phone port	Filtered RJ11 port
Medium	DSSS, OFDM, MIMO
Standards	802.11a, 802.11b, 802.11g, 802.11n draft 2.0, 802.11i, 802.11n-2007
Data rates	802.11b: 1, 2.5, 5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS 0 to 15 up to 300Mbps
Operating frequencies*	2.4GHz: 2400 to 2483.5MHz 5GHz: 5150 to 5250MHz, 5275 to 5850MHz
Transmit power settings*	1dBm to 20dBm, in 1dBm increments
Antenna configuration	Two internal omni-directional, 1x2 or 2x2 MIMO operation 3dBi peak @ 2.4GHz
VLANs	802.1Q tagged VLANs, access or trunk
TS-524 management	Telnet, SSH, HTTPS, Serial Console
TS-524 uplink ports	2 x IEEE 802.3 10/100/1000MB auto-sensing RJ-45
TS-524 UTP ports	1 x RJ21 for PBX connection, 1 x RJ21 for downstream VDSL2

* Operating frequencies and transmit power settings depend on national regulatory limits.

Enabling Line Power

Line power should be enabled after the filters and TW-51x WallPlate have been installed. Line power is safe for use with telephony equipment but it will ring the phones if the filters are not installed first.

To enable line power, enter the following commands into the CLI:

```
interface dsl1-24 line-power
write memory
```

Regulatory Information

This device is approved under Motorola Solutions, Inc. This guide applies to Model Numbers: TS-524, TW-510, and TW-511.

All Motorola devices are designed to be compliant with rules and regulations in locations where they are sold and will be labeled as required.

Local language translations are available at the following website:

<http://www.motorolasolutions.com/support>.

Any changes or modifications to Motorola Solutions equipment, not expressly approved by Motorola Solutions, could void the user's authority to operate the equipment. When Motorola Solutions are professionally installed, the Radio Frequency Output Power will not exceed the maximum allowable limit for the country of operation.

Antennas: Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could cause damage and may violate regulations.

Radio Modules

The **TW-511** contains an approved radio module. This module is identified below.

Wireless Device Country Approvals (TW-511 only)

Regulatory markings, subject to certification, are applied to the device signifying the radio(s) is/are approved for use in the following countries: United States, Canada, Japan, China, S. Korea, Australia, and Europe.

Please refer to the *Declaration of Conformity (DoC)* for details of other country markings. This is available at

<http://www.motorolasolutions.com/doc>.

Note: Europe includes: Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Denmark, Estonia, Finland, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Network Configuration (TS-524)

The following will enable all ports and configure one wireless LAN:

Serial Console Connection	Default IP Address
Speed: 19200 Data Bits: 8 Parity: None Stop Bit: 1 Flow Control: None	192.168.1.3

Log in to the system using Telnet, SSH, HTTP, or Serial Console using the default username and password:

Username: **admin**

Password: **motorola**

Enter the following commands:

```
config
password admin <enter your new password>
country-code <XX = your country>
hostname <enter your hostname>
interface wlan1 ip-address 192.168.1.1/24
wlan Guest
exit
int dsl1-24 no shutdown
int radio1-24_1
channel6
power18
wlan Guest
no shutdown
exit
```

3. Tighten the screws until the mounting adapter is securely attached.



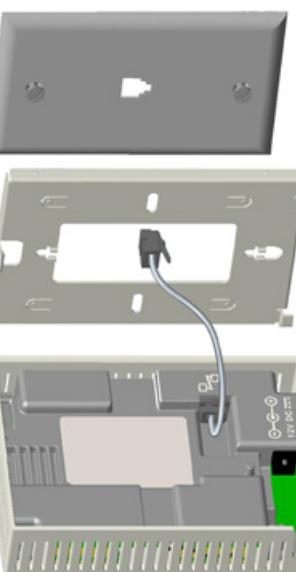
CAUTION Do not over tighten.

- Connect the supplied 10cm cable between the TW-51x bottom mounted RJ11 jack and the existing RJ11 jack.
- Hook the bottom tabs on the mounting adapter to the TW-51x. Rotate and snap the TW-51x onto the adapter.

Installing In-line Filters

The TW-5x Wallplate features a built-in Plain Old Telephone Service (POTS) and Line Power filter for the desk phone. Install an in-line filter on all other phone jacks that will have a phone connected.

The terminated filter has a clipped RJ11 connector. This is purposely done to comply with EN60950 requirements. Use a small flat blade screwdriver to lift the tab if attempting to remove the filter.



If installing a filter on a bathroom phone, use the unterminated filter. Remove the bathroom wall plate and terminate the filter in the wall box using wire beans.



この装置は、クラスA情報技術装置です。この装置を家庭環境で使用する
と電波妨害を引き起こすことがあります。この場合には使用者が適切な
対策を講ずるよう要求されることがあります。

VCCI - A

Chinese Warning Statement for Class A ITE

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取适当的措施。

Australia

Use of 5 GHz WLAN's in Australia is restricted in the following band 5.50 - 5.85GHz.
Brazil

Declaraciones Regulamentares para TW-511 - Brazil

Nota: A marcação de certificação se aplica ao Transceptor, modelo TW-511. Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando com caráter primário.
Para maiores informações sobre ANATEL consulte o site: www.anatel.gov.br

Mexico

Restrict Frequency Range to: 2.460 - 2.485 GHz.

Mexico
La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

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Other Medical Devices

Please consult your physician or the manufacturer of the medical device, to determine if the operation of your wireless product may interfere with the medical device.

**Safety Information****Reducing RF Exposure - Use Properly**

Only operate this device in accordance with the instructions supplied.

International / TW-511 Only

The device complies with internationally recognized standards covering human exposure to electromagnetic fields from radio devices. For information on "international" human exposure to electromagnetic fields refer to the Motorola Declaration of Conformity (Doc) at <http://www.motorolasolutions.com/doc>.

For further information on the safety of RF energy from wireless devices - see <http://responsibility.motorolasolutions.com/index.php/wirelesscommhealth>

EU (TW-511 Only)**Remote and Standalone Antenna Configurations**

To comply with EU RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand alone desktop of similar configurations must operate with a minimum separation distance of 20 cm from all persons.

US and Canada (TW-511 Only)

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or co-located or operating in conjunction with any other transmitter/antenna except those already approved in this filing.

Remote and Standalone Antenna Configurations

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand alone desktop of similar configurations must operate with a minimum separation distance of 20 cm from all persons.

Radio Frequency Interference Requirements - FCC

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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**TS-524 Only****WARNING:** For installation only in a Restricted Access Location by trained service personnel.**WARNING:** Equipment must be connected to an earthed mains socket-outlet.**WARNING:** To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line card.**WARNING:** Voltages present which are above TNV-3(PCT5) limits. A cover must be installed over the punch down blocks with a HV (High Voltage) warning label (supplied).**WARNING:** The maximum operating ambient temperature is 40 degrees Celsius. When installing the Switch in an equipment rack, consider the following potential hazards:
Elevated Operating Ambient Temperature - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature [Imia].

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**TW-510 and TW-511 Wallplates**

Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring.

Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Product designed to be used below 2000 meters altitude.

Label Marking: The Term "IC: before the radio certification only signifies that Industry Canada technical

specifications were met.

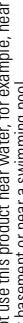
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Product designed to be used below 2000 meters altitude.

**Potentially Hazardous Atmospheres - Fixed Installations**

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.

2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

3. Do not use the telephone to report a gas leak in the vicinity of the leak.

Warnings for Use of Wireless Devices

You are reminded of the need to observe restrictions on the use of radio devices in fuel depots, chemical plants etc. and areas where the air contains chemicals or particles (such as grain, dust, or metal powders).

**Pacemakers**

Pacemaker manufacturers recommended that a minimum of 15cm (6 inches) be maintained between a handheld wireless device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with independent research and recommendations by Wireless Technology Persons with Pacemakers:

- Should ALWAYS keep the device more than 15cm (6 inches) from their pacemaker when turned ON.
- Should not carry the device in a breast pocket.
- Should use the ear furthest from the pacemaker to minimize the potential for interference.
- If you have any reason to suspect that interference is taking place, turn OFF your device.



Select only the country in which you are using the device. Any other selection will make the operation of this device illegal. The US version of the Access Point will operate only if US country code is selected. The US version will be sold / used in the US protectors: American Samoa, Guam, Northern Marianas, Puerto Rico, US Virgin Islands.

Frequency of Operation - FCC and IC

The use in the UNII (Unlicensed National Information Infrastructure) band 1 (5150-5250 MHz) is restricted to Indoor Use Only, any other use will make the operation of this device illegal.

Industry Canada Statement

Caution: The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-Channel mobile satellite systems. High power radars are allocated as primary users meaning they have priority of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

Avis d'assurance: Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité sur les bandes 5250-5350 MHz et ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

2.4 GHz Only

The available channels for 802.11 b/g operation in the US are Channels 1 to 11. The range of channels is limited by firmware.

Health and Safety Recommendations

The available channels for 802.11 b/g operation in the US are Channels 1 to 11. The range of channels is limited by firmware.

Co-located statement

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or co-located or operating in conjunction with any other transmitter/antenna except those already approved in this filing.

Remote and Standalone Antenna Configurations

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand alone desktop of similar configurations must operate with a minimum separation distance of 20 cm from all persons.

EU (TW-511 Only)

To comply with EU RF exposure requirements, antennas that are mounted externally at remote locations or co-located or operating in conjunction with any other transmitter/antenna except those already approved in this filing.

US and Canada (TW-511 Only)

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or co-located or operating in conjunction with any other transmitter/antenna except those already approved in this filing.

Remote and Standalone Antenna Configurations

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand alone desktop of similar configurations must operate with a minimum separation distance of 20 cm from all persons.

Radio Frequency Interference Requirements - FCC

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Radio Transmitters (Part 15) - (TW-511 Only)
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.

The use of 5 GHz WLAN's, for use in the US , have the following restrictions**• Notched Band 5.60 - 5.65 GHz**

Radio Frequency Interference Requirements - Canada
This Class A digital apparatus complies with Canadian ICES-003.

Radio Transmitters - (TW-511 Only)**• Restricted Band 5.60 - 5.65 GHz**

L'utilisation de RIAN de 5.60 à 5.65 GHz pour utilisation au Canada est soumise aux restrictions suivantes:
1. Bande Restreinte de RSS 210 de l'Industrie Canada. Opération est sujet to the following two conditions: (1) This device complies with RSS 210 of Industry Canada. Operation is subject to the following two conditions: (1)

• Bande Restreinte de RSS 210 de l'Industrie Canada. 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. Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) il doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Label Marking: The Term "IC: before the radio certification only signifies that Industry Canada technical specifications were met.

General Safety Warnings
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

• Maximum radiated transmit power of 100 mW EIRP in the frequency range 2 400 - 2 485 GHz.

Motorola hereby declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. A Declaration of Conformity may be obtained from <http://www.motorolasolutions.com/doc>

Statement of Compliance for Non-Wireless Devices (TS-524 and TW-510)

Motorola hereby declares that this device is in compliance with all the applicable Directives, 2004/108/EC and 2006/95/EC. A Declaration of Conformity may be obtained from <http://www.motorolasolutions.com/doc>

Turkish WEEE Statement of Compliance

EEE Yönetmeliğine Uygundur

General Information

Obtain additional information by contacting Motorola Solutions at:

Telephone (North America): 1-800-722-6234

Telephone (International): +1-631-738-5200

Website: <http://www.motorolasolutions.com>

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