



# **VIDE COMM TECHNOLOGIES (1156488 ONTARIO INC.)**

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## **INSTALLATION MANUAL FOR THE TMX24120 RADIO MODULE**

**All Models Are Designed and Operate In  
Point To-Point & Omni-Directional Point-To-Multipoint  
Applications**



## FCC REGULATORY COMPLIANCE INTEGRATION AND USE INFORMATION

### INTEGRATION AND INSTALLATION REQUIREMENTS

The **TMX24120** RADIO MODULE is designed exclusively for use in the VideoComm RTWave family of wireless video systems. The **TMX24120** RADIO MODULE will not function in any other system. However, there are certain criteria relative to integrating the radio into the RTWAVE system that must be considered to ensure continued compliance with FCC compliance requirements

The **TMX24120** module was tested and certified to meet FCC Parts 15 in a stand-alone configuration. This demonstrates that the **TMX24120** module complies with Part 15 emission limits regardless of the system into which it may be installed. To simplify system integration of the same Radio Module into different systems and to help keep costs down on future systems using the same module, The **TMX24120** RADIO was FCC approved under the LIMITED MODULAR APPROVAL process for a radio transmitter. The Requirements as outlined in FCC Public Notice DA 00-131407 released June 26, 2000 are intended to afford relief to equipment manufacturers by eliminating the requirement for obtaining a new equipment authorization for the same transmitter when installed in a new device.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

VideoComm as the SYSTEM integrator of the module must follow all installation instructions and cautionary information necessary to comply with FCC RF exposure requirements.

In order to use the **TMX24120** RADIO MODULE without additional FCC certification approvals, the installation must meet the following conditions. Otherwise, additional FCC approvals must be obtained.

VideoComm specifies many SYSTEM models with different power levels and antenna gains. These are provided as part of this manual (see included exhibits for FCC test results) System Labeling will match the specific system as it is assembled.

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

IMPORTANT: The integrator is responsible for its product to comply with IC ICES-003 & FCC Part 15, Subpart. B – Unintentional Radiators. Final product must comply with unintentional radiators before declaring compliance of their final product to Part 15 of the FCC Rules and Industry Canada ICES-003.

**PROFESSIONAL INSTALLATION ADJUSTMENT IS REQUIRED FOR SETTING MODULE POWER AND ANTENNA GAIN TO MEET MAXIMUM EIRP COMPLIANCE as per FCC Sec 15.247(b)(4),. Refer to Antenna table to match type and associated cable loss requirements.**

**INDUSTRY CANADA REGULATORY COMPLIANCE  
INTEGRATION AND USE INFORMATION**

**INTEGRATION AND INSTALLATION REQUIREMENTS**

This device complies with Industry Canada license-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.

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.

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.

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.

This radio transmitter IC:3667A-TMX24120 has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio IC:3667A-TMX24120 a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.



MODEL #	ANTENNA TYPE	ANTENNA GAIN	FREQUENCY RANGE	SEPARATION DISTANCE	Cable Loss	
<b>Point to Multipoint</b>						
RUB-2400	OMNI-DIRECTIONAL	3dBi	2400MHz – 2483MHz	40cm or 15.7 Inches	1.31	4 feet RG174
RUB-243RPS	OMNI-DIRECTIONAL	3dBi	2400MHz – 2483MHz	40cm or 15.7 Inches	1.31	4 feet RG174
RUB-243S	OMNI-DIRECTIONAL	3dBi	2400MHz – 2483MHz	40cm or 15.7 Inches	1.31	4 feet RG174
RUB-5824S	OMNI-DIRECTIONAL	3dBi	2400MHz – 2483MHz	40cm or 15.7 Inches	1.31	4 feet RG174
ANT-2412OD	OMNI-DIRECTIONAL	12dBi	2400MHz – 2483MHz	40cm or 15.7 Inches	1.31	4 feet RG174
<b>Point to Point</b>						
ANT-2415DP	DIRECTIONAL PATCH	20.5dBi	2400MHz – 2483MHz	40cm or 15.7 Inches	2.31	6 feet RG174
PARA-2424	PARABOLIC GRID	24dBi	2400MHz – 2483MHz	40cm or 15.7 Inches	3.31	8 feet RG174

**Fixed and “Mobile” applications**

1. If used with a desktop or other application where the antenna can be easily relocated to meet the 20 cm criteria, then this is considered a “mobile” application. If used in a “mobile” application where the antenna is normally separated at least 40cm (15.7 IN) from the human body during device operation, then an appropriate warning label must be placed on the host unit adjacent to the antenna.
2. The label will contain a statement such as the following:

**WARNING**  
RF exposure: Keep at least 40 cm (15.7 IN) separation distance from the antenna and the human body.

3. The **TMX24120** RADIO MODULE or associated SYSTEM will not be used as a portable device.
4. Host unit user manuals and other documentation must also include appropriate caution and warning statements and information.



5. If the FCC ID for the **TMX24120** Radio is not visible when installed in the host platform, then a permanently attached or marked label must be displayed on the host unit referring to the enclosed radio.
- 6.

For example, the label should contain wording such as:

**Contains: TMX24120 Radio transmitter module**  
**FCC ID: SU5-TMX24120 / IC : 3667A-TMX24120**  
**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**

**Contains FCC ID: SU5-TMX24120**  
**IC : 3667A-TMX24120**  
**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.**

7. All supplied antennas have been tested to comply with FCC requirements
8. The transmitter and antenna must not be co-located or operating in conjunction with any other antenna or transmitter. Violation of this would allow a user to plug another transmitter in to the product and potentially create an RF exposure condition.

**WARNING**  
**The transmitter and antenna must not be colocated or operating in conjunction with any other antenna or transmitter. Failure to observe this warning could produce an RF exposure condition.**



## PROFESSIONAL INSTALLATION

The **TMX24120** RADIO MODULE will be installed into its system only by VideoComm. The system once assembled will be known as **2.4GHz Frequency Hopping Spread Spectrum (FHSS)** (family of products)

The **2.4GHz Frequency Hopping Spread Spectrum (FHSS)** (family of products) wireless systems are designed and marketed for professional installation. This is ensured by VideoComm through the very nature of its marketing strategies and distribution network.

All of VideoComm's marketing and sales are directed to the professionals within the many industries we supply. These include Law enforcement, Government, Military, Industry, Manufacturing, Education and Industrial to name a few.

VideoComm sells its products to Master Distributors and Dealers only. These dealers and distributors sell only to industry professionals who have experience in the installation of products like those manufactured by VideoComm. VideoComm's distributors do not sell to the general public. These distributors are generally trade only.

Please contact us if you have any additional questions.

Best Regards  
Jeff Johnson  
President

A handwritten signature in black ink that reads "Jeff Johnson".

VideoComm Technologies



## **TMX24120 MODULE INSTALLATION INSTRUCTIONS**

The **TMX24120** radio will be packaged in a pink anti-static plastic bag. It is critical that it only be opened at an ESD safe work station and the technician be properly instructed on how to handle ESD devices and be grounded with an approved tested wrist strap.

The Module will be accompanied by a MASTER BUILD SHEET when removed from inventory and given to a technician for assembly into a SYSTEM. The Radio MODULE will be marked externally with its SERIAL number and this number must be copied to the master build sheet for the system. Additional Serial number labels will also accompany the MODULE to be attached to the outside of the SYSTEM enclosure.

As the technician installing the module you must clearly indicate on the build sheet your ID number for QC purposes.

The radio will be packaged with the following accessories to complete the installation. (This may vary with SYSTEM model being assembled, see BUILD SHEET)

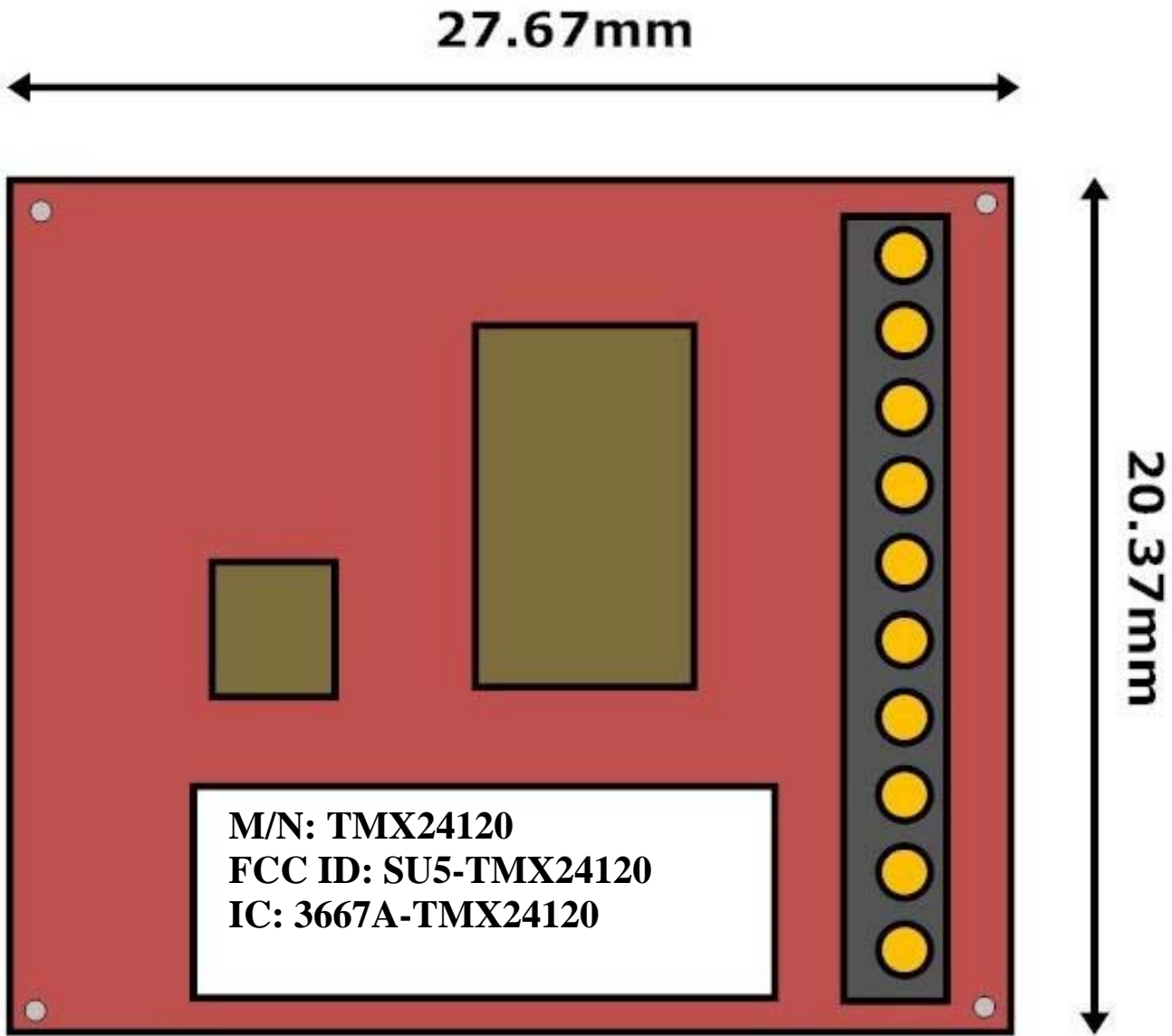
1. 1 piece of (foam center) 2 sided mounting tape to help secure the module within the MINI PCI connector.
2. 1 set of FCC labels to be installed on the approved MODULE.
3. 1 set of FCC labels to be installed on the outside of the finished SYSTEM.
4. 1 amplifier assembly (depending on SYSTEM model).
5. Antenna or antennas configured for the SYSTEM on the build sheet.
6. 6 tie wraps to secure wiring.



**Installation is as follows:**

1. First attach the 2 sided foam tape within the marked area on the PCB shown on the master build sheet. Trial fit the radio module on the PCB and ensure it locks in place. (Adjust the PCI fingers to ensure a good fit if needed). Release the Radio and peel off the 2<sup>nd</sup> protective layer of the 2 sided tape and install the RADIO MODULE (press to make good contact with the tape).
2. Attach the SMA jumper cables to the module (follow the build sheet) using the special 8mm Wrench installation tool. Attach the other end to where the build sheet indicates (amplifier, antenna or antennas). Follow wiring diagram very carefully.
3. Confirm all cables are connected as indicated on your build sheet.
4. Attach the MAIN SYSTEM PCB (with the module installed) on the metal mounting plate (be careful not to get any wires caught on the mounting studs. Put in the 3 pieces of 4-40 screws. Tighten with torque set screwdriver until it clicks.
5. Route the antenna wires to their appropriate place indicated on the build sheet. Secure with Tie Wraps
6. (if build sheet indicates amplifier) the amplifier comes attached to a heatsink with its power supply attached but not connected. Attach wires as indicated in the diagram. (see attached exhibits)
7. Route power wires from main PCB to the mounting plate connections. Secure any loose wiring with Tie Wraps.
8. Install any RCA cable jumpers from the main PCB to the mounting plate. Secure any loose wires with Tie Wraps.
9. Confirm all wiring is connected as described on the build sheet and there is no loose wiring.
10. Initial to confirm all wiring steps.
11. Install the mounting plate with attached PCB and module into the enclosure. Secure with 3 screws and ensure they are snug only. Don't over tighten or you will strip the plastic threads.
12. Pass the system to the test bench.





1. Turn on the server and client power supplies and verify a link is established.
2. Observe the video latency, link rate and current consumption of each system; observe the quality of the video picture. Note your findings on the build sheet.
3. Turn off the 2 systems and disconnect the power supplies
4. Recheck all connections and confirm all loose wires are secure, all connectors (Power and RF) are snug. Note any errors on the build sheet.
5. For the Omni Antenna versions (Rubber Duck), leave the antennas loose to be packed in the box. For IP (internal Patch) antennas, secure the antenna to the internal mounting plate making sure the screws are secure and SMA connectors are securely attached to its mating cable or amplifier (as per the build sheet).
6. Close the top of the enclosure and **attach all necessary identification labels as indicated. Attach the FCC labels as indicated on the back of the enclosure (See Below).**
7. Wrap the front face of the enclosure with low tack protective sticky plastic.
8. Pass the system (PAIR) and any accessories to the packaging department with the serial number labels to be placed on the outside of the box and hand in the build sheet.

### FCC & IC Label for Exterior Placement

