FACTOR
ELECTRONICS

PREMIUMAUDIOVIDEOLIGHTINGANDPOWERPRODUCTS

VT-1 / VT-4
Professional Tuners With RBDS

FACTOR VT-4 Quad Stereo AM/FM Tuner

FM ST   T1   T2   T3   T4

FM106.8

Tune/Tuner Volume

POWER

ON

OFF

FM   1   2   3   4   5   6   TUNER SEL

AM   ST/MONO   SEEK+   SEEK −   AUTO SCAN   MEMORY   CLEAR   STATION ID

Owners Manual

info@factorelectronics.com   www.factorelectronics.com

IMPORTANT NOTE: THIS OWNER'S MANUAL IS PROVIDED AS AN INSTALLATION AND OPERATING AID. FACTOR ELECTRONICS DOES NOT ASSUME ANY RESPONSIBILITY AS TO ITS ACCURACY AND SHALL NOT BE LIABLE IN TORT OR CONTRACT FOR ANY DIRECT, CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE ARISING FROM THE INSTALLATION, USE OR INABILITY TO USE THIS PRODUCT.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS APPLIANCE TO WATER, RAIN OR MOISTURE. THIS APPLIANCE SHOULD NOT DAMPENED BY WATER DROPS OR SPLASHING. CONTAINERS OF LIQUID SUCH AS VASES SHOULD NOT BE PLACED ON THIS APPLIANCE.

Immediately upon receipt, inspect the unit and shipping container for indications of improper handling or in-transit damage. This equipment was carefully inspected and tested before leaving the factory. Notify the Transportation Company, Wholesaler or Retailer immediately if any damage is found. Be sure to save the carton and packing material as evidence of damage for later inspection. DO NOT SHIP the unit back to the factory unless authorized to do so by the factory. IN TRANSIT DAMAGES ARE NOT COVERED BY THE WARRANTY. **DO NOT INSTALL OR ATTEMPT TO OPERATE THIS UNIT IF IT HAS BEEN DAMAGED.**

IMPORTANT SAFETY INSTRUCTIONS
• Read and keep these instructions.
• Heed all warnings and follow all instructions contained within this manual.
• Do not use this unit near water.
• Clean only with dry cloth.
• Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
• Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
• Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
• Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
• Only use attachments/accessories specified by the manufacturer.
• Unplug this apparatus during lightning storms or when unused for long periods of time.
• Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
• Operate the product only with the voltage specified on the unit. Fire and/or electric shock may result if a higher voltage is used.
• Do not modify, kink, or cut the power cord. Do not place the power cord in close proximity to heaters and do not place heavy objects on the power cord and/or the product itself, doing so may result in fire or electrical shock.
• Replace the protective cover over the speaker terminals after installation. Do not touch the 70V speaker terminals as electric shock may result.
• Ensure that the safety ground terminal is connected to a proper ground. Never connect the ground to a gas pipe, as a severe explosion and/or fire may result.
• Be sure the installation of this product is stable, avoid slanted surfaces as the product may fall and cause injury, property damage, electrocution and/or fire.
• Note when the unit is turned off it is not completely disconnected from the wall AC power outlet. Do not open the cover unless the device is unplugged from the wall AC power outlet.

info@factorelectronics.com   www.factorelectronics.com

Introduction

Congratulations and thank you for purchasing Factor Electronics products. The Factor Electronics "VT" series digital tuners are designed and built to provide ultra reliable performance for professional background music and multi-room multi-source audio applications. All Factor Electronics tuners feature color-coded outputs, and ultra low noise components. The "VT" series digital tuners offer RBDS "radio broadcast display system" which displays the station ID, the artist name and song title in the high quality dot matrix display. Also comprehensive PC control is standard via RS232 or USB to RS232. Please read this entire manual to get the most from your Factor Electronics "VT" series tuner.

Unpacking

The V-Series Tuners includes the following parts:

1 x VT-1 or VT-4 Tuner
1 x VT-1/VT-4 Infrared Remote Control
2 x AAA Batteries
1 x AM Antenna
1 x FM Antenna
1 x Product Manual

Quick Start: To get up and running quickly refer to DIAGRAM A on the next page.

1. Connect the tuners RCA output jacks to the RCA input on your amplifier or pre-amplifier.

2. Connect the included AM antenna to the back panel AM terminals.

3. Connect the back panel FM input to your cable vision outlet or the FM antenna included with your tuner.

4. Plug in the AC power cord to an AC110V 60 Hz power outlet.

5. Press the front panel power button to the ON position.

6 & 7. Press AM then Auto Scan on the front panel. The tuner will automatically scan all AM stations available in your area and load them into the memory presets in ascending order. Press FM and Auto Scan and the process will be repeated for all FM stations.

8. Adjust the front panel volume knob by turning to achieve the desired volume level.

9.To hear the presets, select AM or FM by pressing the corresponding AM/FM button then press the front panel preset buttons 1-6. The stations will be displayed on the front panel display.

The "VT" series tuners can store up to 48 preset stations. Press the AM/FM buttons repeatedly to cycle through AM1, AM2, FM1, FM2, FM3, FM4, FM5 and FM6. Each AM/FM memory level holds 6 presets.

10. Here's another quick start method. Push then turn the Tune knob and cycle to a station where you know the frequency. Stop on that frequency and the station will be broadcast. To save that station into the memory press the memory button then press a preset button 1-6 then press the memory button again to confirm your selection and the station will be stored in that memory location. This will automatically overwrite the previously stored station in that memory location.

11. If you're not hearing sound, adjust the back panel VOLUME knob which is located beside the RCA output connectors.

Refer to Diagram A on the next page:

**Quick Start Guide
Diagram A**

5 After all your connections are made press the power switch ON

9 Press presets 1 - 6

6 Press the FM button

7 After all your connections are made press the Auto Scan button

8 Adjust the volume

FACTOR   VT-1 Stereo AM/FM Tuner

FM ST

FM106.8

Tune/Turner Volume

POWER

ON

OFF

FM   1   2   3   4   5   6

AM   ST/MONO   SEEK+   SEEK —   AUTO SCAN   MEMORY   CLEAR   STATION ID
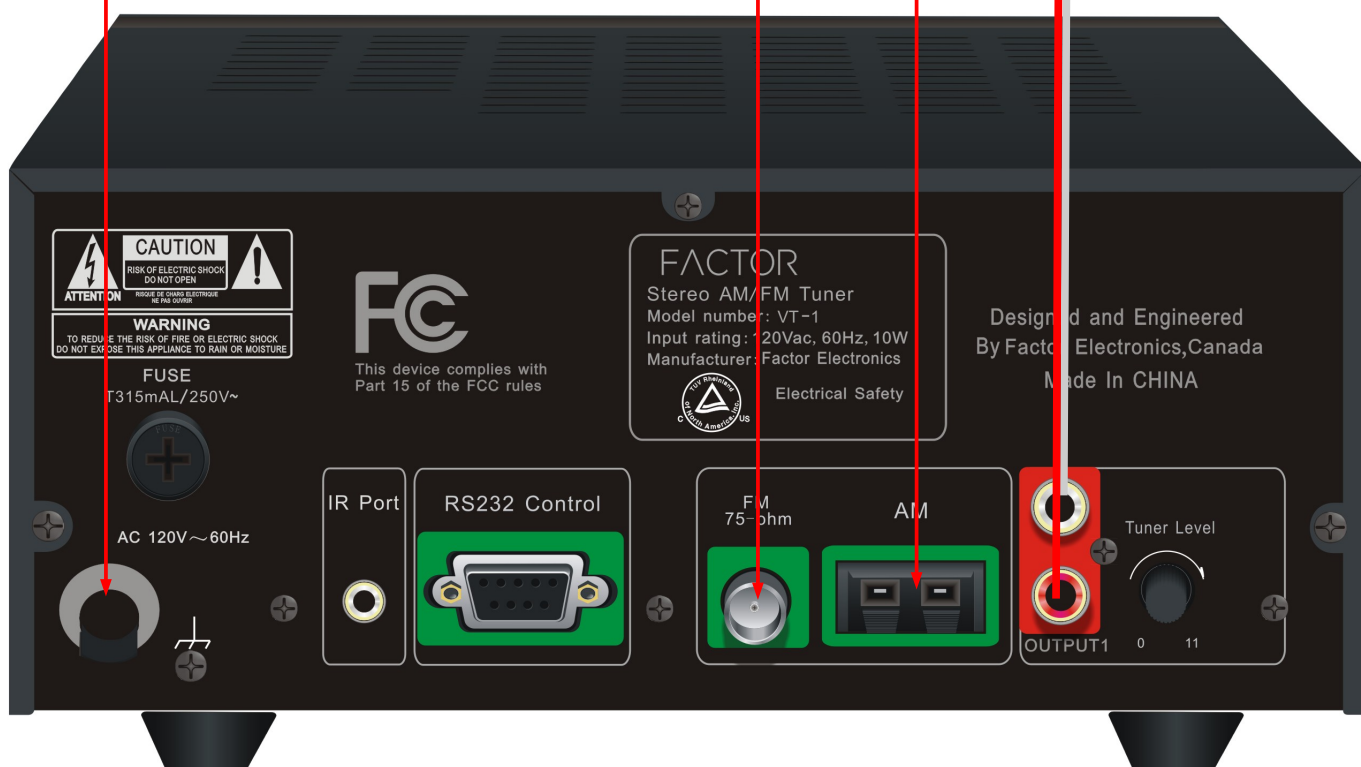
4 After all your connections are made plug the AC power cord in

2 Connect the included AM antenna

3 Connect the included FM antenna

1 Connect the RCA outputs to your amplifier

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
ATTENTION
RISQUE DE CHARG ELECTRIQUE
NE PAS OUVRIR

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE

FUSE
T315mAL/250V~

FC
This device complies with
Part 15 of the FCC rules

FACTOR
Stereo AM/FM Tuner
Model number: VT-1
Input rating: 120Vac, 60Hz, 10W
Manufacturer: Factor Electronics

Electrical Safety

Designed and Engineered
By Factor Electronics, Canada

Made In CHINA

AC 120V~60Hz

IR Port   RS232 Control

FM
75-ohm   AM

Tuner Level

OUTPUT1   0   11

info@factorelectronics.com   www.factorelectronics.com

VT-1 VT-4 IR Remote Control - The VT-1 and VT-4 tuners include an IR remote control. All the front panel buttons on the tuners are repeated on the remote control. Use the remote to control the tuner functions within 30 feet of the tuner maintaining line of sight for best results. The VT-1 VT-4 remote can also be used with IR repeater systems, which support IR frequencies between the ranges of 36K to 56K.

1. Tuner Select

2. Station Presets

3. Auto Scan
4. Memory
6. AM/FM

8. Mute

10 Station

12. Volume - +
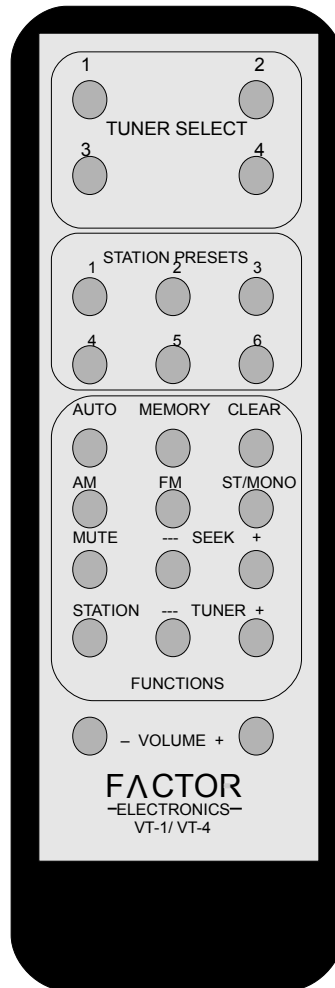
5. Clear

7. ST/Mono

9. Seek + Seek -

11. Tuner - +

1   2
TUNER SELECT
3   4

STATION PRESETS
1   2   3
4   5   6

AUTO   MEMORY   CLEAR

AM   FM   ST/MONO

MUTE   --- SEEK +

STATION   --- TUNER +

FUNCTIONS

– VOLUME +

FACTOR
—ELECTRONICS—
VT-1/ VT-4

Additional VT-1/VT-4 remote controls are available for purchase at your local Factor Electronics dealer.

VT-1/ VT-4 Remote Functions

1   Tuner Select
The VT-4 provides 4 independent tuners. Press tuner buttons 1,2,3 or4 to select the tuner you wish to control. When using the VT-1 tuner these buttons will have no effect.

2   Station Presets
The pre-set buttons provide access to the tuner per-sets and work in conjunction with the AM/FM, Auto Scan, Memory and Clear buttons. Press pre-set buttons 1-6 to instantly recall stations once stations are stored in the pre-set memory. To instantly store a station, navigate to the desired station by pressing then turning the tune knob on the front panel then press the memory button. Now press one of the pre-set buttons 1-6 then press the memory button to confirm and the station will be automatically stored in that location. NOTE: there are 4 pre-set levels and 48 pre-sets that can be stored in the internal memory.

3   Auto Scan
Press and hold the AUTO SCAN button for three seconds, the tuner will scan all available AM or FM stations and load them into the internal memory in ascending order. This will overwrite all saved presets. (Note; if the tuner is in AM mode before pressing the AUTO SCAN button, the unit will scan and save AM stations only. If the tuner is in FM mode before pressing the AUTO SCAN button, the unit will scan and save FM stations only.

4   Memory
The memory button provides access to the internal pre-set memory locations. This feature is handy for changing memory locations. Navigate to a station. Press MEMORY and the preset memory location will flash. Press the desired pre-set location button 1-6. Press memory again and the station will be moved to the newly selected location. This is an easy way to store your favourite stations in locations that are easy to remember like memory location # 1.

5   CLEAR
The CLEAR button clears stations from presets 1-6. Press clear and the selected station will flash. Press and hold the CLEAR button for approximately 5 seconds to instantly clear the station from the pre-set memory.

6   AM/FM
The AM/FM buttons provide access to the AM band (press AM) and the FM band (press FM). Press these buttons repeatedly to access the 2 x AM and 6 x FM pre-set levels.

7   ST/MONO
The VT series tuner is a stereo device. In some commercial sound applications it will be advantageous to change the output to mono. Switching the tuner to MONO will provide two mono line level outputs per tuner that can be used to feed multiple amplifiers.

8   MUTE
Pressing the MUTE button on the remote control will mute the tuner output. (no sound will be broadcast). Press the MUTE button again and the audio will resume. NOTE: if there is no tuner output, check the MUTE button to insure the tuner is not in its muted state.

9   SEEK + SEEK- -
Press Seek + and the tuner will scan to the next valid station in ascending order.
Press Seek – and the tuner will scan to the next valid station in descending order.
Continue pressing Seek +/- until you find the station you are searching for.

info@factorelectronics.com   www.factorelectronics.com

10 STATION ID- The Station ID button displays the radio station ID for 3 seconds. Example FM105.7. If the currently selected station does not broadcast RBDS then "RDS N/A" will be displayed for 3 seconds. The default display status displays RBDS information constantly when RBDS is broadcast from the selected station. If the currently selected station does not broadcast RBDS The station ID will be constantly displayed.

11 TUNER + -
The tuner **+** and **–** buttons will adjust the tuners frequencies in 0.10 steps. This provides the ability to cycle up or down to find the stations you are searching for. The operation of the remote control TUNER **+ -** buttons operates the same as the front panel (push turn) Tune knob.

12 VOLUME + - The volume **+ -** buttons will adjust the tuner volume up or down. Please note that the back panel provides a secondary rotary volume control which will not be affected by the volume **+ -** buttons located on the remote control. It should also be noted that the VT-4 provides four independent tuners. Adjusting the volume on tuner #1 will not affect the volume of the other three tuners. Make sure you have selected the correct tuner with the tuner select buttons before attempting to adjust the tuner.

Front Panel Operation and Connections

Power On/Off - The Power switch applies power to the tuner.

Tune/ Tuner Volume Knob - This push/turn knob has dual functions. 1) Turn the knob clockwise or counter clockwise to adjust the output level of the tuner (radio) source. 2) Push then turn the knob clockwise or counter clockwise to cycle up or down through the radio frequencies. Stop on a frequency and that station will be broadcast.

info@factorelectronics.com   www.factorelectronics.com

Front Panel Operation and Connections

Preset Buttons 1-6 - The pre-set buttons provide access to the tuner per-sets and work in conjunction with the AM/FM, Auto Scan, Memory and Clear buttons. Press pre-set buttons 1-6 to instantly recall stations once stations are stored in the pre-set memory. To instantly store a station, navigate to the desired station by pressing then turning the tune knob then press the memory button. Now press one of the pre-set buttons 1-6 then press the memory button again to confirm your selection. The station will be automatically stored in that location. NOTE: there are 4 pre-set levels and 48 pre-sets that can be stored in the internal memory. Press the AM/FM buttons to cycle from AM1, AM2, FM1, FM2, FM3, FM4, FM5 and FM6 with 6 memory locations in each level.

AM/FM - The AM/FM buttons provide access to the AM band (press AM) and the FM band (press FM). Press these buttons repeatedly to access the 2 AM and 6 FM pre-set levels.

ST/MONO - The VT series tuners are stereo devices. In some commercial sound applications it will be advantageous to change the output to mono. Switching the tuner to MONO will provide up to two mono line level outputs per tuner that can be used to feed multiple amplifiers.

SEEK + SEEK- Press Seek + and the tuner will scan to the next valid station in ascending order. Press Seek – and the tuner will scan to the next valid station in descending order. Continue pressing Seek +/- until you find the station you are searching for.

Front Panel Operation and Connections

Auto Scan – Press the Auto Scan button and hold for three seconds. The tuner will scan all AM or FM stations and load them into the internal memory in ascending order. This will overwrite all saved pre-sets. Note: if the tuner is in AM mode before pressing the Auto Scan button only AM stations will be scanned. If the tuner is in FM mode before pressing the Auto Scan button only FM stations will be scanned.

Memory - The memory button provides access to the internal pre-set memory locations. This feature is handy for changing memory locations. Navigate to a station. Press MEMORY and the preset memory location will flash. Press the desired pre-set location button 1-6. Press memory again and the station will be moved to the newly selected location. This is an easy way to store your favourite stations in locations that are easy to remember like memory location # 1.

CLEAR - The CLEAR button clears the currently selected station from the memory. Press clear and the selected station will flash. Press and hold the CLEAR button for approximately 5 seconds to instantly clear the station from the pre-set memory.

STATION ID- The Station ID button displays the radio station ID for 3 seconds. Example FM105.7. If the currently selected station does not broadcast RBDS then "RDS N/A" will be displayed for 3 seconds. The default display status displays RBDS information constantly when RBDS is broadcast from the selected station. If the currently selected station does not broadcast RBDS the station ID will be constantly displayed.
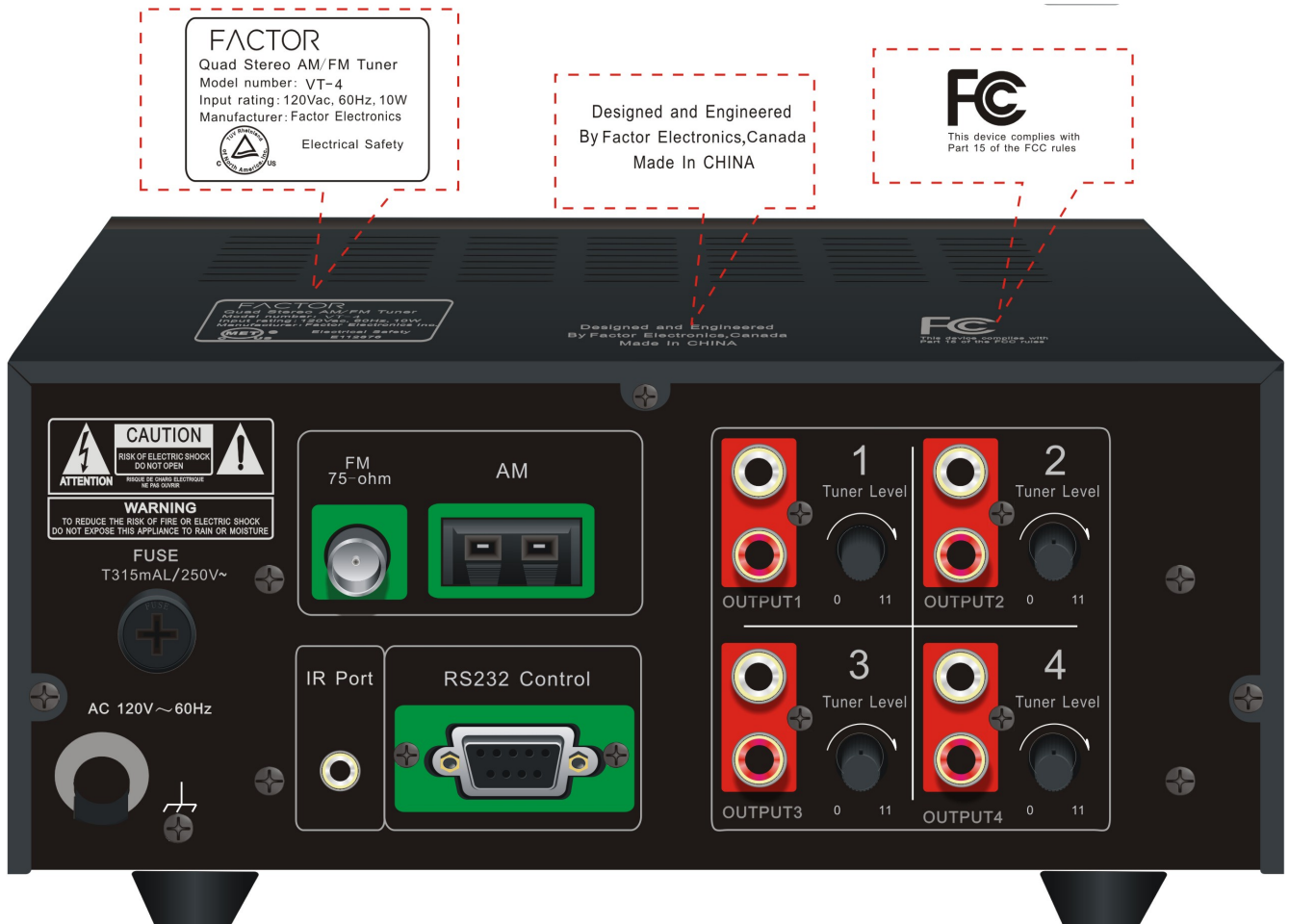
TUNER SEL - The VT-4 provides 4 individual tuners. Each tuner operates independently and shares the same front panel and GUI controls. Press the Tuner Select button to navigate between tuners 1-4.

info@factorelectronics.com   www.factorelectronics.com

Rear Panel Operation and Connections

Rear panel VT-1

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
ATTENTION
RISQUE DE CHARG ELECTRIQUE
NE PAS OUVRIR

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE

FUSE
T315mAL/250V~

AC 120V~60Hz

FCC
This device complies with
Part 15 of the FCC rules

FACTOR
Stereo AM/FM Tuner
Model number: VT-1
Input rating: 120Vac, 60Hz, 10W
Manufacturer: Factor Electronics

Electrical Safety

Designed and Engineered
By Factor Electronics, Canada
Made In CHINA

IR Port   RS232 Control   FM 75-ohm   AM

OUTPUT1   Tuner Level   0   11

Rear panel VT-4

FACTOR
Quad Stereo AM/FM Tuner
Model number: VT-4
Input rating: 120Vac, 60Hz, 10W
Manufacturer: Factor Electronics

Electrical Safety

Designed and Engineered
By Factor Electronics, Canada
Made In CHINA

FCC
This device complies with
Part 15 of the FCC rules

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
ATTENTION
RISQUE DE CHARG ELECTRIQUE
NE PAS OUVRIR

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE

FUSE
T315mAL/250V~

AC 120V~60Hz

FM 75-ohm   AM

IR Port   RS232 Control

1   Tuner Level   OUTPUT1   0   11
2   Tuner Level   OUTPUT2   0   11
3   Tuner Level   OUTPUT3   0   11
4   Tuner Level   OUTPUT4   0   11

info@factorelectronics.com   www.factorelectronics.com

NOTE: Rear Panel color coding

GREEN = Input
RED = Output

Line Level Outputs RCA – The Line Level Output section offers stereo unbalanced RCA +4 dB outputs and a rotary level control to match output levels with other audio devices like amplifiers and mixers. The VT-4 provides four RCA stereo output jacks and four independent level controls. All VT-4 RCA outputs are active providing four constant stereo outputs or eight MONO outputs with the front panel MONO feature engaged. This is a handy feature when distributing audio signals to multiple amplifiers. The VT-4 tuners can broadcast four different radio stations simultaneously.

AM ANTENNA INPUT – Connect the included AM antenna to receive AM radio stations by inserting the wires into the push terminals. The input terminals are not polarity sensitive. Note: It is impossible to receive AM signals without connecting an AM antenna.

FM 75-OHM INPUT – This is a coaxial 75ohm terminal. Connect your cable-vision output to this jack or use the included external FM antenna for the best FM reception. NOTE: It is impossible to receive FM signals without an FM antenna. In areas of low radio signal strength, use a good quality outdoor FM antenna.

RS232 Control – This jack provides remote control of all tuner functions using a personal computer. Connect the RS232 jack of your computer to the RS232 jack on the back panel or use a USB to RS232 (DB9) converter to access these functions. The VT series tuners include free software on the Factor Electronics website at www.factorelectronics.com
Installing the tuner control software on your PC is easy. Simply download the Free software and follow the instructions provided with the installation wizard. The VT control software is compatible with Windows XP, Vista and Windows 7. After connecting the RS232 port to your computer, download the program. Then follow the installation wizard prompts. Once the program is successfully installed you will have control of all tuner functions: Select AM/FM , select specific AM/FM frequencies, select AM/FM presets, Auto Scan, Seek+ Seek-, Memory functions and tuner volume, RBDS on/off and tuner 1-4 select for the VT-4.

IR This jack is a 3.5mm female two contact jack. Use this jack to connect wired Infrared systems directly to the VT-1 or VT-4. All tuner functions except ON/OFF can be controlled through the IR port. The VT-1 and VT-4 Infrared frequency rage is 36K to 56K. This feature allows the VT-1 and VT-4 to be controlled remotely from another room or building with a compatible Infrared repeater system.

POWER CORD - Connect the AC power cord to 120V AC outlets only. Do not connect the power cord until all audio connections are made. Serious damage may result if the tuner is connected to AC line voltages other than 120V AC.

FUSE - TYPE T6, 315mA/250V - Always use the correct fuse for replacement. Failure to use the correct fuse or shorting the fuse could result in fire and serious damage. Using the wrong fuse will void your warranty.

Specifications	VT-1	VT-4
Tuner Specifications FM		
Line level Outputs	2VRMS	2VRMS
Tuning Frequency	87.5MHz to 108 MHz	87.5MHz to 108 MHz
Usable Sensitivity	Less than 12uv	Less than 12uv
S/N ratio	Better than 50 dB	Better than 50 dB
THD	0.2 percent	0.2 percent
Frequency Response	30Hz-15,000 Hz	30Hz-15,000 Hz
Stereo Separation	≥30dB @ 1kHz	≥30dB @ 1kHz
Tuner Specifications AM		
Line level Outputs	0. 5VRMS	0. 5VRMS
Tuning Frequency Range	530kHz to 1710kHz	530kHz to 1710kHz
THD	0.2 percent	0.2 percent
Usable Sensitivity	Less than 20uv	Less than 20uv
S/N Ratio	Better than 48 dB	Better than 48 dB
Others		
Rack Height	2U	2U
Power Requirements AC	AC120V/60Hz	AC120V/60Hz
Power Consumption AC	≤10W	≤10W
Dimensions	8.5''W x 4''H x 11.25''D	8.5''W x 4''H x 11.25''D
Shipping Weight	3.25KG	3.4KG
Optional Accessories	Rack Kit RK2.5	Rack Kit RK2.5

In an effort to constantly provide our customers with the latest advancements in technology Factor Electronics specifications are subject to change from time to time.

Contact Information
Factor Electronics
#108, 19232 Enterprise Way
Surrey B.C. Canada V3S 6J9
E-mail: info@factorelectronics.com
Website: www.factorelectronics.com
Warranty
Factor Electronics "VT" Series tuners are warranted to be free from defects in workmanship and materials for a period of three (3) years without charge for parts or labour. The warranty applies only to the original owner. The owner's responsibilities are to provide proof of purchase and transportation to the dealer the unit was purchased from or transportation to the Factor Electronics factory. This warranty does not apply to units, which have been subject to misuse, abuse, neglect or improper installation, and does not apply to repairs or alterations made by unauthorized personnel. This warranty specifically excludes responsibility for consequential damage. Retention of your dated ORIGINAL BILL OF SALE is required to obtain service under the terms of the warranty.