

OPTOCOM OPERATORS MANUAL



FRONT PANEL

VOLUME KNOB
SQUELCH KNOB
SQUELCH LED
DATA LED
POWER LED
PHONE JACK

adjusts volume level
adjusts squelch level
yellow light indicates active signal
blinks to indicate that data is being sent to Optocom
red light indicates power On
connect 3.5mm plug stereo headphones

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BACK PANEL

POWER	On/Off switch
DC 12V	connect supplied AC90 power supply
RS-232C	connect supplied serial cable. Data Slicer out on DSR line Pin 6.
EXT SPKR	connect 3.5mm plug, 8 Ohm external speaker
CI-5 JACK	connect another Optocom or CI-V receiver using 3.5mm mono cable
CI-5 JACK	connect another Optocom or CI-V receiver using 3.5mm mono cable
TAPE OUT	connect an RCA plug from tape recorder
AUDIO IN/OUT	stereo jack for discriminator output and audio input to the decoder
CI-5 JACK	connect Scout frequency recorder with 2.5mm mono cable
TAPE PAUSE	allows On/Off function of tape recorder
ANTENNA	50 Ohm BNC antenna connector
ATT	0dB or 10dB attenuator selection

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Frequency Coverage:

- 25-28MHz (HF Hi)
- 28-29.7MHz (10-Meter Amateur Radio)
- 29.7-50MHz (VHF Lo)
- 50-54MHz (6-Meter Amateur Radio)
- 54-72MHz (FM-TV Audio Broadcast, Wide Band)
- 72-76MHz (Land Mobile Service Band)
- 76-88MHz (FM-TV Audio Broadcast, Wide Band)
- 88-108MHz (FM Radio Broadcast, Wide Band)
- 108 -136.975MHz (Aircraft)
- 137-144MHz (Government)
- 144-148MHz (2-Meter Amateur Radio)
- 148-174MHz (VHF Hi)
- 174-216MHz (FM-TV Audio Broadcast, VHF Wide Band)
- 216-224.9875MHz (VHF Hi, 1 1/4 Meter Amateur Radio)
- 225-399.9875MHz (Military Aircraft)
- 400 -450MHz (UHF Lo, 70-Centimeter Amateur Radio, Government)
- 450-470MHz (UHF Lo)
- 470-520MHz (UHF "T" Band)
- 760-805.9875MHz (UHF "T" Band)
- 806-823.9875MHz (UHF Public Service)
- 849.0125-868.9875MHz (UHF Hi)
- 894.0125-956MHz (UHF Hi, 33-Centimeter Amateur Radio)
- 956-1300MHz (Private Fixed Services, Paging, Aircraft Navigation, Experimental, 23 Centimeter Amateur Radio)

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Installation

- Plug the AC90 power supply that came with the Optocom into the DC 12V power jack located on the back of the Optocom.
- Attach the TA100S antenna with right angle BNC to the antenna connector on the back of the Optocom. Alternatively, the Optocom will accept any type of antenna with a BNC connector or 50 Ohm coaxial cable such as RG-58 or RG-8. You may need a PL-259 to BNC antenna plug adapter.
- To turn the Optocom on, locate the POWER switch on back of the Optocom and push it in.
- Adjust Squelch and Volume to see if a signal is present. The Optocom is set to receive the NOAA Weather frequency at 162.55MHz and you should detect it if you are within range of the transmitter.

Note: 162.55 is not active in all areas

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Connecting To The Computer

There is an Optoelectronics full function program on the enclosed utility disk that may be used to verify that the Optocom is working properly. To use the Optocom.exe program follow the instructions.

- Plug the male end of the DB9 to DB9 serial cable that came with the Optocom into the RS-232, 9 pin connector on the back of the Optocom.
- Plug the Female end of the DB9 cable into an available COM port on the back of the computer.
- Install the utility disk into the A: drive of your computer.
- Select Run from your Windows Program Manager (3.1) or from the Start menu (95 and 98).
- In the RUN dialog box type A:\Optocom.exe
- You will now be in the program. Next, select the correct Com Port from the screen.
- If the Optocom communicates with the program the control screen will appear with the default frequency of 162.5500MHz in the top left hand corner.
- If unable to communicate the screen will say "Unable to communicate with Optocom". If unable to communicate check to make sure that the serial cable is attached properly and that COM PORT setting is correct.

535 Emulation Mode

The Optocom is supported by many third party software programs. Each program will have different requirements that can not be addressed in this manual but should be addressed in each specific program. Please refer to the software you are using for any special configuration requirements.

The Optocom is compatible with existing software programs under a special mode called 535 emulation mode. This mode allows the Optocom to be configured as an OS535, so as to be compatible with programs that supported an OS535, but that do not yet support the Optocom. To change the Optocom to 535 emulation mode using the Optocom.exe program proceed as follows.

- Enter the Optocom.exe program as described on the previous page.
- When the main screen comes up, press the M key to toggle between Optocom and 535 emulation mode.
- Exit the program by pressing CTRL X.

The Optocom is now able to be controlled by existing programs as an OS535. Radio Manager for Windows, which came with the Optocom, may be used with the Optocom under 535 emulation mode.

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Using the Optocom when not connected to a computer

Store and Scan

While the Optocom is used primarily for computer controlled scanning and monitoring, it can be used while not attached to a PC. The Store and Scan feature allows for the uploading of up to 100 different frequencies into the non-volatile, internal memory of the Optocom. Once the frequencies are uploaded through the computer the Optocom may be disconnected from the computer for non-PC operation at 60 channels per second.

Note: *Once the Optocom has been put in Store and Scan mode through TrakkStar and turned off, it will default to that mode when powered on again. If you want to use a software program other than TrakkStar you will need to disable Store and Scan mode. Enter the Optocom.exe program to disable Store and Scan.*

Upload Frequencies

- Connect the Optocom to the computer using the supplied serial cable.
- Load Trakkstar and open the Data Manager
- Choose FILE in the Data Manager Window
- Choose NEW/GROUP, choose OPEN/GROUP for a stored SWG file
- At the New Group window choose OK and name the New Group (example: Your Name.SWG)
- At the Group window double click the numbered location and type the frequency at the blinking cursor, followed by entering as many frequencies as needed
- Choose RADIO/ TRANSFER COMPUTER TO RADIO or F8
- Enter the total number of frequencies to transfer and choose enter
- Would you like to enable the OptoCom stand alone feature? Choose YES

Note: *If the Optocom encounters a blank memory location it will stop at that point and start scanning from the first frequency. This allows the monitoring of a single frequency without scanning additional memory locations.*

Scout® Reaction Tune

The Optoelectronics Scout, Super Scout and Mini Scout can interface to the Optocom for the purpose of Reaction Tuning. The Scout, Super Scout and Mini Scout lock onto the strongest frequency in the nearfield of the transmitter and automatically tune the Optocom to that frequency. Reaction Tuning is ideal for locating and monitoring unknown frequencies that are close by. The Optocom will only interface to the Scout, Super Scout or Mini Scout when not connected to the computer.

- Connect the Scout, Super Scout or Mini Scout using the optional CBRT cable (2.5mm to 2.5mm mono) from Optoelectronics.
- The CBRT cable connects to the CI-5 jack on the Scout, Super Scout or Mini Scout and to the 2.5mm CI-5 jack on the Optocom.
- Be sure that the Scout, Super Scout or Mini Scout are in CI-5 mode.
- Turn Optocom on first and then turn on the Scout, Super Scout or Mini Scout.

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Connecting additional equipment

Connecting Headphones

Optional headphones may be connected via the PHONE jack located on the front panel of the Optocom. Use headphones with a mono 3.5mm plug. Connecting headphones will disable the internal speaker of the Optocom.

Connecting External Speaker

Use an 8-Ohm external speaker that is capable of handling over 2.5 watts of power. Using a mono cable, plug the external speaker into the EXT SPKR jack located on the back of the Optocom. Using an external speaker disables the internal speaker of the Optocom.

Connecting Tape Recorder

Wire a mono cable from the audio or microphone input of the tape recorder to an RCA plug for input to the TAPE OUT jack on the back of the Optocom. The TAPE PAUSE connector on the back of the Optocom may be used to control the On/Off function of the tape recorder. Use a mono cable to plug from the tape remote jack on the tape recorder to the TAPE PAUSE jack on the Optocom.

Connecting CI-5 Devices

The Optocom is equipped with (1) 2.5mm and (2) 3.5mm CI-5 jack connectors.

The 2.5mm jack can be used for interfacing to the Scout Frequency Recorder for the purpose of Reaction Tuning. Use the 2.5mm CBRT mono cable available from Optoelectronics.

The 3.5mm jacks can be used for interfacing multiple Optocom's or other CI-5 receivers. Use a 3.5mm mono cable. Some software may not support multiple receiver capability.

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Connecting external decoders

The Optocom is one of only a few receivers that is equipped with a discriminator audio output, located at the AUDIO IN/OUT jack on the back of the Optocom. The Optocom may decode audio from an external source by using the audio IN jack. The Optocom can supply discriminator audio out through the audio OUT jack. Since audio IN and audio OUT are on the same jack, the input is wired to RING and the output is wired to TIP. Plugging into this jack disconnects the internal decoder.

Connecting to external battery

Using the Optocom from Automotive 13.8V power with an adapter is possible. The adapter must have a 2.1mm coax plug, center positive (not sold through Optoelectronics). Using a power cable that does not meet these specifications could cause serious damage to the Optocom and any repair costs will not be covered under warranty. Under no circumstances should you apply more than 13.8volts.

Using the Data Slicer output

The Optocom is equipped with a built-in two level data slicer. The data slicer is used for decoding by third party FSK decoding programs. The data slicer output is located on the DSR line, Pin 6 of the DB9 connector, on the back panel of the Optocom.

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Specifications

Frequency Range: 25-520MHz, 760-823.995MHz, 849.005-868.995MHz, 894.005-1300MHz

Sensitivity: **AM (20dB S/N with 60% modulation)**
2uV@25-520MHz, 760-1000MHz, 5uV@1000.005-1300MHz
NFM (20dB S/N at 3kHz deviation)
0.5uV@25-520MHz, 760-1000MHz, 3uV@1000.005-1300MHz
WFM (30dB S/N at 22.5kHz deviation)
3uV@25-520MHz, 760-1000MHz, 10uV@1000.005-1300MHz

Selectivity: **AM:** -6dB@ +/-6kHz, -50dB@ +/-12kHz
NFM: -6dB@ +/-10kHz, -50dB@ +/-20kHz
WFM: -6dB@ +/-150kHz, -50dB@ +/-300kHz

Scanning Rate: Up to 65 channels per second

IF Rejection: 612MHz@ 70MHz(NFM) / 60dB, 612MHz@ 1000MHz(NFM) / 60dB

Built-in Speaker: Audio Output Power (10% THD) / 1.3 Watts Nominal

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Specifications Cont.

Squelch Sensitivity:	AM/NFM Threshold 0.5uV@25-520MHz, 760-1000MHz, 3uV@1000.005-1300MHz AM/FM Tight 25dB@25-520MHz, 760-1000MHz, 20dB@1000.005-1300MHz WFM Threshold 3uV@25-520MHz, 760-1000MHz, 15uV@1000.005-1300MHz WFM Tight 40dB@25-520MHz, 760-1000MHz, 40dB@1000.005-1300MHz
Antenna Impedance:	50 Ohms
Power Requirements:	DC 12 Volts, 10 Watts, Power Supply Included
Audio Output Power:	Headphone Jack: 16mW EXT SPKR Jack: 1.8Watts Tape Out Jack (Z=10Kohm) 600mV Nominal