## LOW COST   LOCAL ASSET TRACKING   SHORT TEXT MESSAGING

### The TRACKER SM150 is a low cost local asset tracking solution.

o **AIS Receiver**
o **MURS Receiver**
o **MURS Transmitter**
o **12-channel GPS**
o **VHF antenna**
o **GPS antenna**
o **Contained in a 25 inch tube**
o **Mounts on a standard marine base**

The transmission of vessel name, call sign, size, position, and navigational status makes the **TRACKER SM150** a comprehensive tracking system.  And now, with **Short Text Messaging** (STM), communication is easier than ever.

## FEATURES

o **Local Asset Tracking**
o **Installs in minutes**
o **Low Cost**
o **Short Text Messaging (STM)**

## INTERFACE

o **AIS:** NMEA 0183 HS V3.0 / IEC 61162
o **MURS:**  RS232

This device has not been authorized as required by the rules of the Federal Communications Commission.  This device is not, and may not be, offered for sale or lease, or sold or leased, until authorization is obtained.

### WHY MURS?

**Multi-Use Radio Service, or MURS**, is a group of VHF frequencies reserved for private, two-way communications.  The **TRACKER SM150** utilizes these frequencies for the automatic transmission of vessel identification data, making it a cutting-edge tool to assist with asset tracking, collision avoidance, law enforcement, and port security.  Though a majority of commercial vessels are required to operate an **AIS**, Class A systems are expensive, complicated, and not required on all vessels, and Class B systems are not yet available.

By transponding on **MURS** channels and receiving on **AIS** channels the **TRACKER** provides boaters with an **immediately available, low cost** solution for tracking commercial marine activity as well as their own vessel and other assets like life rafts and kayaks.  And unlike the **AIS** channels, **MURS** channels allow for **STM** activity, enabling you to stay in touch through text messages much like the internet or a cell phone.

**PENDING FCC CERTIFICATION**

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# TRACKER SM150

## Low Cost **AIS/MURS Transponder**

### System Specifications

- **Designation:** MURS Transponder/AIS Receiver
- **Physical Serial interface:** RS232 or IEC 61162
- **Power Supply:** 12.6V
- **Power Consumption:** Less than 10 watts
- **Temperature:** (per IEC 60945)
  -25°C to +70°C (Exposed)
- **Compass Safe Distance:** 1 meter

### Navigation Specifications

- **12 channel internal GPS and antenna**

### Dimensions and Weights

- **Diameter:**     2.0 in.
- **Height:**     25.0 in.
- **Weight:**     3 lbs.

### Frequencies and Channel Bandwidth

- **RX AIS:** 161.975 – 162.025 MHz
  at 25 kHz channel spacing
- **RX MURS:** 151.820 MHz, 151.880 MHz,
  151.940 MHz at 11.25 KHz channel spacing
  154.570 MHz, 154.600 MHz
  at 20 KHz channel spacing

### MURS Transmitter

- **TX MURS:** 151.820 MHz, 151.880 MHz,
  151.940 MHz at 11.25 KHz channel spacing
  154.570 MHz, 154.600 MHz
  at 20 KHz channel spacing
- **Power Output:** ≤ 2 watts
- **Harmonic Emission:** ≤ -53 dBc
- **Spurious Emission:** ≤ -53 dBc
- **Frequency Accuracy:** +/- 3ppm

### MURS Receiver

- **Data Rate:** 9,600 bps
- **Error Rate:** ≤20% at –107 dBm
- **Adjacent Channel Rejection:** 60 dB
- **Blocking:** 70 dB
- **Intermodulation:** 60 dB
- **Large Signal PER:** <1%
- **Image Rejection:** 70 dB for 20% PER
- **Spurious Rejection:** 70 dB for 20% PER

### AIS Receiver

- **AIS Data Rate:** 9,600 bps
- **Sensitivity:** ≤20% PER at –107 dBm
- **Adjacent Channel Rejection:** 60 dB at 25 kHz
- **Blocking:** 70 dB
- **Intermodulation:** 60 dB
- **Large Signal PER:** < 1%
- **Image Rejection:** ≥ 70 dB for 20% PER
- **Spurious Rejection:** ≥ 70 dB for 20% PER

### Short Text Messages (STM)

- **Transmission Protocol:** CSTDMA
- **STM Types:**

  **Private:** for communication with a specific unit
  **Broadcast:** for communication with any unit set to listen to broadcast messages
  **Group:** for communication with units that have selected the sender as part of their defined group.

For additional information on the construction and transmission of STM please contact info@shinemicro.com

### Logical Serial Interface Details:

The logical serial interface of the SM150 is a subset of IEC specification 61993-2, using a 38.4 kbps connection to a host computer.  The received AIS messages are output using the VDM sentence, and GPS location data is output using the NMEA 0183 sentences.

To request full serial interface specifications, please e-mail info@shinemicro.com or call Shine Micro at (360) 437-2503.

### Simple Marine Installation

1. Attach the SM150 to a standard 1" x 14 threaded antenna mount.
2. Connect the power cable to a 12 volt power source.
3. Connect the ground lug to a solid ground.

Optionally connect the serial interface cable to a PC for STM applications and visual display.

## WARRANTY INFORMATION

Shine Micro warrants its products to be free from defects for one full year from the date of purchase.  Shine Micro will, at its sole discretion, repair or replace any components that fail in normal use.  Labor and material costs for such repairs or replacement will be free of charge. This warrantee does not cover failures due to abuse, misuse, accidents, or unauthorized alterations or repairs

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