STEALTH TELECOM

93 - SERIES **ANTENNA ACCESSORIES**

CPS-9300 SW PACK

USER GUIDE

Thank you for purchasing the Stealth 93XX Automatic Tuning Whip Antenna.

This guide in conjunction with the supplied CPS-9300 Antenna Configuration Software will assist you to configure your antenna for correct operation with your selected HF-transceiver.

IMPORTANT!
Correct installation of an antenna is a very important factor for achieving utmost of your antenna system performance and operation of your transceiver. Please read thoroughly the 93-series antenna **Quick Guide** for mechanical installation instructions. For installation of the CPS-9300 Configuration Software onto your PC, please refer **ReadMe File** on the CD supplied.

■ PRECAUTIONS

⚠ **THIS ANTENNA OPERATES FROM 12V DC! NEVER** connect your antenna to a power source with greater than 16 Volt DC.

NEVER reverse polarity when connecting the antenna to the DC source. This may cause damage of external wiring, or fire.

DO NOT transmit from the antenna if not **installed properly, without whip and ground terminal connection to the vehicle chassis.**

NEVER touch the antenna whip, antenna housing or ground terminal while transmitting. Avoid staying closer than 1 m to the antenna.

AVOID tuning or transmitting to the antenna with USB cable connected. This may cause firmware malfunction or damage to your PC.

■ CONNECTIONS

⚠ This chapter is written for 93-series antennas wired with SEAC7 wiring system. Those antennas are equipped with 7-pin Bayonet type connector installed on the base and with 7-pin connectors on the control and adaptor cables. If your antenna and cables equipped with 8-pin connectors, please refer separate SEAC8 USER GUIDE written for 8-line cable accessory part numbers.

⚠ All modifications to your antenna original cables or fabrication of custom cables shall be carried out by experienced technicians.

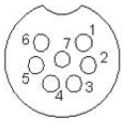
A) If your antenna is supplied with one of predetermined Adapter listed in the Tab 1 below, please install and connect your antenna according to guidelines described in the 93-series antennas QUICK GUIDE and proceed to section [TRANSCEIVER SELECTION] in the overleaf.

Manufacturer	Tuner Model	CPS-9300 Interface Item	DC Power Requirement	Tuning RF-Power	Adapter Cable STEALTH P/N
ICOM	AT130/140	INTB/ICOM AT140-EXT PWR	(13.6V DC from external battery)	5 to 60 W	9300.B17.064
		INTB/ICOM AT140-TRV PWR	(13.6V/3A DC from transceiver)	5 to 60 W	9300.B17.075
YAESU/VERTEX	FC30\FC40	INTC/YAESU FC30\FC40	(13.6V/3A DC from transceiver)	5 to 60 W	9300.B17.070
KENWOOD	KAT-1	INTB/KENWOOD KAT-1	(13.6V/3A DC from transceiver)	5 to 60 W	9300.B17.068
CODAN	9350\3040	INTB/CODAN 9350/3040	(13.6V/3A DC from transceiver)	10 to 30 W	9300.B17.065
BARRETT	911	INTB/BARRETT 911	(13.6V/3A DC from transceiver)	10 to 30 W	9300.B17.067
BARRETT	2019	INTB/BARRETT 2019	(13.6V/3A DC from transceiver)	15 to 30 W	9300.B17.067
MICOM\ELBIT	F2265	INTA/MICOM F2265\WIMA	(13.6V DC from external battery)	5 to 20 W	9300.B17.069
NOT SPECIFIED	NOT SPECIFIED	INTA/SMART TUNE MODE	(13.6V DC from external battery)	10 W (min)	9300.B17.005

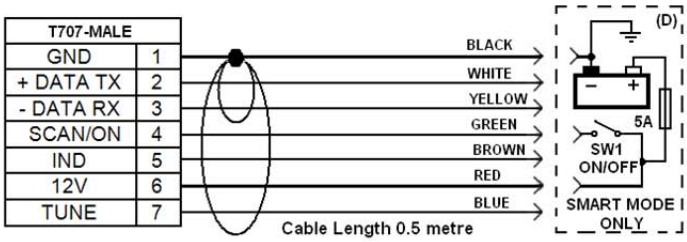
Tab 1.

B) If your antenna is supplied with the default Universal Open Wire Adapter (P/N 9300.B17.005), and your transceiver or tuner model is listed in the Tab 1, you can construct one of standard Adapter Cable listed in the Tab 1 using suitable substitute plug or direct fly-wire solder connections. Read your transceiver User Manual, or contact suppler to verify your transceiver's external tuner port pin-outs and DC-power capability. Please refer below diagrams for the Antenna, Control and Adapter cable connector's pin-outs. For schematic diagrams of all Adapter Cables listed in the Tab 1, please refer to CPS-9300 Accessory Menu, or contact your Dealer.

SEAC7 ANTENNA WIRING & PIN OUT

ANTENNA BASE (Bayonet)		CONTROL CABLE (Circular)		
	F		1	GND
	E		2	+ DATA TX
	D		3	- DATA RX
	C		4	SCAN/POWER ON
	B		5	IND
	A		6	12V
MIL-DTL5015	G	T707	7	TUNE

9300.B17.005 Universal Open Wire Adapter Cable



C) If your HF transceiver brand is not specified or not listed in the Tab 1, but has "ACC" terminal with relay-keyed +13.6V contact, connect this output to the GREEN (C-4) wire of 9300.B17.005 adapter cable. Connect the BLACK (F-1) wire to the "(-)" terminal, and the RED (A-6) wire to the "(+)" terminal of 13.6V battery or power supply. Cut off or insulate unused 5 wires of the 9300.B17.005 to prevent short connection. When used the SMART TUNE mode under this connection, your antenna will be turned ON/OFF automatically every time you turn ON/OFF your transceiver.

D) If your transceiver does not have "ACC" terminal with +12V output, connect RED and GREEN wires to "(+)" terminal of battery or power supply via suitable toggle switch SW1 and 5A fuse, as shown in the dotted diagram above. Install SW1 in a convenient place, close to your HF transceiver front panel. This switch will serve for powering your antenna ON/OFF manually. Connect the antenna to your transceiver with RG-58 coaxial cable provided. After selecting INTA/SMART TUNE mode, your antenna is configured to operate in with any HF transceiver in PTT-tuning style. For reliable tuning apply not less than 10 W PEP in AM, CW or RTTY mode.

E) Regardless your transceiver is listed in the Tab 1 or not, as well as no any listed adaptor cable available, you can temporally use your antenna in Smart Tune mode. Before your Adaptor Cable is arrived, connect your antenna (6-A) pin to +13.6V/3A and 1-F) pin to "(-)" or GND using quality AWG12 wire cable, and RG-58 coaxial cable connections as per D) recommendations above.

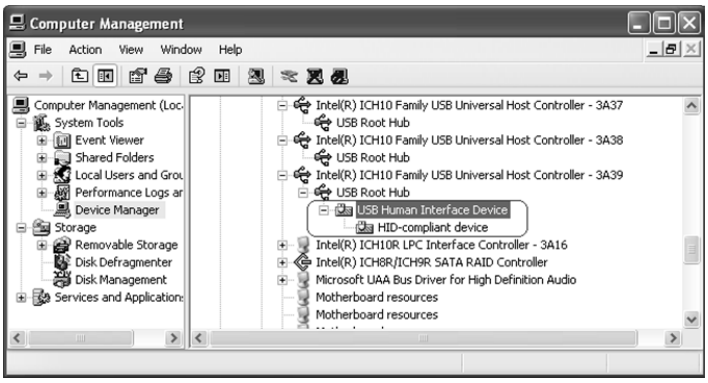
◙ CPS-9300 SW PACK SEAC7 ANTENNA-TRANSCEIVER INTERFACING

■ TRANSCEIVER SELECTION

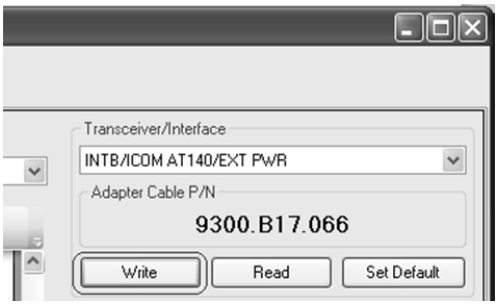
INTERFACING WITH TRANSCEIVER: Most of manufacturers support their HF transceiver product line with few proprietary external antenna tuner (coupler) models, which normally operate, with some exceptions, under identical protocol for cross-compatibility between new and older models. Tuners interfaces of different manufacturer are not compatible. To ensuring correct interoperation with variety of transceivers, 93-series antennas are capable to emulate operating protocol and functions of all known antenna tuners, as well as to operate in PTT-style tuning by full or reduced RF-power.

⚠*Center fed 93-series whip antennas produce significantly higher radiation efficiency than equally short whip antenna end-fed by any antenna tuner at the bottom.*

CPS-9300 ANTENNA CONFIGURATION SOFTWARE: The CPS-9300 is the PC-aided tool for selecting required tuner from profiles stored in your antenna firmware. To configure your antenna all you need is to select your transceiver brand name in the Tuner/Interface menu and verify whether tuner model offered is supported by your transceiver model. Please refer Tab1 for all major manufacturer names and their standard antenna tuners. Compatible tuner models of one manufacturer are listed in one line. These tuners are identical in signaling protocol and do not require any settings change the transceiver. Tuner models of one manufacturer listed in separate lines require settings change in the both transceiver menu and the CPS-9300. If more than one antenna tuner from your transceiver manufacturer is listed, read your transceiver's User Manual and select one in transceiver's configuration menu. Please follow instructions below:



1. **Connect antenna SEAC7 port as described under A) to E) scenarios explained in the overleaf. Connect antenna GND-terminal to vehicle chassis and RF-port to your transceiver with the RG-58 coaxial cable supplied. Prepare your PC with installed CPS-9300 and the USB cable supplied.**
2. **Connect your PC to the mini-USB port in the antenna base and power ON the antenna. A short distinctive sound from the antenna indicates that initializing process passed successfully. Operating System will start installing appropriate drivers. The 93-series antennas use standard Windows HID Driver. New HID Device can be viewed after drivers are installed in the Windows Device Manager.**
3. **Run CPS-9300. Note antenna parameters reading via USB connection will be reflected in the STEALTH SPLASH SCREEN.**

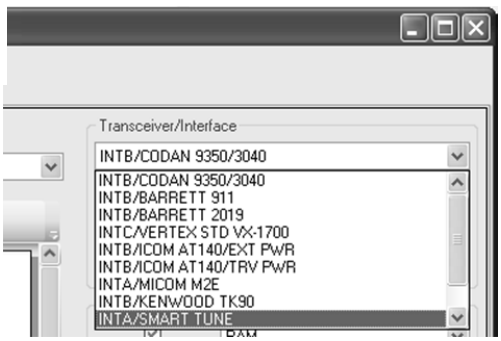


4. **When your antenna is successfully recognized, the CPS-9300 will open User Page with all controls activated. Antenna model, status of USB connection, antenna serial number and uploaded firmware version will be displayed in the status string at the bottom of the program, as shown on the screenshot above.**
5. **If your transceiver brand is listed in the Tab 1, and your transceiver model supports operation with one of standard tuners, please select this tuner/Interface item in the drop-down listbox of the CPS 9300, and press "Write" button to confirm selection. Antenna will respond with confirmation message. Adapter Cable P/N required for your radio will be displayed. Order, if necessary.**

6. **Disconnect USB cable, close mini-USB connector protection cap and toggle antenna power supply. After reinitializing your antenna is ready for operation.**

OPERATING THE ANTENNA: Under A) scenario connection and appropriate tuner interface selection your antenna will operate same style as your transceiver's proprietary antenna tuner. Same buttons and controls allocated by your transceiver firmware shall be used. Please read your transceiver's USER MANUAL (How to Use Antenna Tuner). To avoid your vehicle battery discharge, please switch OFF your transceiver when not in use.

OPERATING ANTENNA IN SMART TUNE MODE: If your antenna is connected under C), D) or E) scenarios, please select "INTA/SMART TUNE" in the CPS 9300 transceiver/interface list and press "Write" button in the "Transceiver/Interface" area to confirm your selection. In this configuration your antenna algorithm obtains frequency data only from RF coaxial cable connection. For reliable operation we recommend to set your transceiver RF-output within 10-50W in AM, CW or RTTY mode. In the SSB mode tuning is possible under full 100W PEP power by pronouncing loud "B" into microphone for 1-2 seconds. Although antenna is capable to operate up to 200W PEP SSB, we do not recommend using full RF power for tuning.



GLOSSARY:

- **LNA** - Low Noise Amplifier. Enhances antenna sensitivity in SCAN and FREE TUNE modes.
- **INTA** - bidirectional single line level logic via coaxial cable center conductor. SEAC7 antenna programmed for operation with INTA transceivers shall be reprogrammed to another interface type while still connected to INTA transceiver. Alternatively, to recover MCU from sleeping mode and to activate USB connection, an external +9V DC battery must be connected to coaxial cable center conductor and GND terminal.
- **INTB** - bidirectional 3-line level-logic. Supports ALE with built-in LNA via control cable.
- **INTC** - serial interface UART/RS-485. Supports SCAN, ALE, channel tracking etc. via control cable.
- **INTD** – Stealth proprietary serial interface UART/RS-485 plus 3-line level-logic via control cable.
- **SEAC**- Stealth External Antenna Control – proprietary antenna interface wiring system, available in SEAC 7 and 8-line configurations. SEAC8 antennas can be CPS-9300 configured using only USB-connection, no external +13.6V for reprogramming is required.