



TRXPTC

The Transceiver integrated PACTOR® Modem



SCS
the pactor creators

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More and more often modern and inexpensive data communication requires traditional radio technologies on HF and VHF frequencies. Reliable transceivers from well-known manufacturers like ICOM, YAESU and KENWOOD are the core of such systems. But often one faces problems when fitting an external modem into the system, e.g. lack of space or cable length. However, many transceivers still have space for an additional PCB inside the device. For this reason SCS now fitted the well-tried PTC-IIusb modem with Bluetooth option on a 80 x 90 mm, double-sided PCB. Because of the standard connections, radio amateurs, radio technicians and manufacturers are able to build the modem into the transceiver easily, for upgrading the device with the functions of a High Speed PACTOR®-III modem.

The bluetooth module

The only mechanical change on the housing of the transceiver is the opening for the Bluetooth antenna, which is usually brought on at the back of the appliance. This 19.5 x 6 mm sized hole is necessary, because otherwise the ultrahigh frequency antenna of the 32 x 30 mm measuring Bluetooth board would be shielded by the housing. A plastic cap protects the antenna from external effects.



Bluetooth Modul of the TRXPTC

Interference free communication

All cables, that are usually shielded with ferrits, when used with external modems, run now inside the transceiver and are therefore protected against 3rd party interferences. The power supply is provided by an internal connection to the transceiver's power supply or by a digitally regulated +5V supply. With a consumption of 1,8 watts only, the TRXPTC lies within the usual restrictions of radio and communication systems. The TRXPTC is able to remote control transceivers manufactured by ICOM, KENWOOD, YAESU, SGC, Rohde & Schwarz. In other words, after initializing the TRXPTC, its firmware is controlling the radio, even including switching of antennas.



The Bluetooth stick for the PC

Thanks to Bluetooth technology, there is no external static connection. Communication with the computer is done wireless in the GHz range, which is 100 percent interference free to HF and VHF operations. The Bluetooth software (being supplied with the Bluetooth USB stick) puts a new, virtual COM port at one's disposal, which all known and new software systems can access.



Typical installation for an ICOM 78 Transceiver by yachtfunk.com

The special concept of filtering

To avoid any interference between the modem board and the HF-transceiver electronics, all signals and all connectors are excessively filtered. Separate grounds are distinguished this way, the modem's internal ground, the transceiver's ground and the ground signal for the communication interface connector. All grounds are decoupled by inductors. The power supply ground is routed to the internal ground via a common mode filter, which also routes the +power supply.

The connectors

Transceiver control interface

Depending on the requirements of the transceivers, the plug for the different TRX control interfaces are connected here. The connections are the same you find in the PTC-IIusb modem.

Communication interface

Here the provided cable to the Bluetooth controller is being put on. Alternatively an RS232 cable or a USB port can be connected to provide access to firmware and BIOS.

Transceiver interface

Standardized interfaces for PTT, audio in- and output are set up here. In addition to this, also the power supply for the modem and the typical NMEA data input are found here.

The Hard- and Software

Visually the modem will only show its activity with three LEDs on the topside of the PCB.

For the understanding of the function of the modem and the Bluetooth unit, as well as to help with the installation, the manual of the PTC-IIusb and the installation guide for the BT module is at one's disposal. Current technical information about the TRXPTC can be found here:

<http://www.scs-ptc.com/download/TRXPTC-en.pdf>

Every software, under which the PTC-IIusb modem works, also runs with the TRXPTC in full speed and quality. Does the software ask for a special modem, the PTC-IIusb should be specified if in doubt. An extensive collection with compatible software comes with the modem.

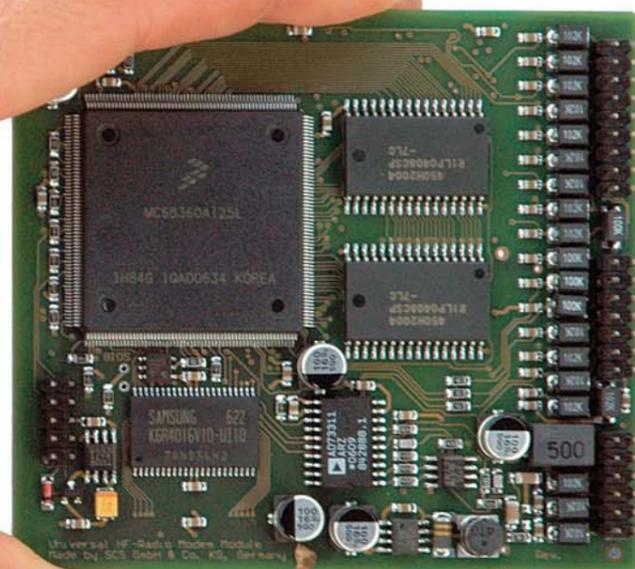
Our Service

SCS does not produce installations with built-in modems, but provides the know-how of over 20 years of PACTOR® modem technology, in other words, the ready to go PCB including cables, Bluetooth antenna, protection cap and necessary software and drivers.

There are several SCS dealers, who will put the TRXPTC into your radio, test your own work or provide ready made installations.

A current list of those partners you will find on the web under:

<http://www.scs-ptc.com/trxptc/>



The TRXPTC in original size

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The TRXPTC is designed for the internal installation in all radios that provide enough space. This addition to the SCS appliance family also allows a direct connection to your notebook via bluetooth. The TRXPTC is technically almost identical with the PTC-IIusb and will find its preference with clients, who want to use the modem as an extended function of the radio. The TRXPTC should be primarily built into radios that can be controlled by the unit.

The Hardware

- Fully compatible to existing software by using a virtual COM port assigned by the Bluetooth driver.
- Least possible interferences regarding to Bluetooth communication with the PC and transceiver internal installation.
- Transceiver control for ICOM, YAESU, SGC, KENWOOD and Rohde&Schwarz, including RS232 for modern transceivers.
- Supported by Airmail/GetFax.
- Packet-Radio with 300, R600, 1200, 9600 and 19200 baud with built-in DSP.
- With two high performance processors from Freescale, the PTC-IIusb achieves outstanding flexibility.
- Sophisticated signal processing and analyzing maintains a stable HF link even during difficult propagation conditions.
- Temperature compensated crystal oscillator.
- 2 MB of static RAM.
- Electronic (silicon) serial number.
- Noise free HF reception by use of HF suitable construction, 6 layer multilayer board and filtering of all inputs and outputs.
- Compact SMD assembly.
- Flash-ROM for easy firmware updates.
- Dimensions: 80 W x 15 H x 90 D mm, 0.59 H x 3.14 W x 3.54 D inches.
- Weight: 60 g
- Power Supply: +9 to +16 V DC, 1,8 Watt.

PACTOR®-II

- Max. 1200 Bit/s, incl. data compression.
- Automatic adaption to the channel quality in 4 speed levels.
- Bandwidth 500 Hz.
- Use of the most modern transfer mode technics: convolutional coding, Viterbi-decoder, soft-decision and Memory ARQ allows error free data transfers even with inaudible signals.
- Automatic frequency correction of ± 80 Hz.
- Automatic adaption of the radio's transmit power to the channel quality is possible.

PACTOR®-III*

Like PACTOR®-II, but:

- max. 5200 Bit/s, incl. data compression.
- Automatic adaption to the channel quality in 6 speed levels.
- Bandwidth 2400 Hz.



PACTOR®-User in profile:

German Yacht 'Iron Lady'
On circumnavigation since 2000
Michael Wnuk,
KD7SVU/DL1JD

SCS dealer since 2001. www.lunatronic.net
ICOM 710 & 706, TRXPTC, PACTOR®III,
SP: Winlink, Sailmail, X-Net, weather fax,
RTTY, grib files.

"The combination of the well-tryed M710
with built-in TRXPTC is the best option for
worldwide connection at low cost."

Robust HF-Packet

- Newly developed very robust modulation for HF-Packet-Radio and APRS.
- Max. 600 Bit/s.
- Automatic frequency correction of ± 250 Hz.

APRS

- Fully automatic APRS-Beacon.

Includes installation manual, CD-ROM, cables and power plug.

*PACTOR®-III – Optional over license code.

SCS
the pactor creators

**SCS Spezielle Communications Systeme
GmbH & Co. KG**

Roentgenstraße 36
D-63454 Hanau

Phone: +49(0)6181/850000
FAX: +49(0)6181/990238

We accept Master- and Visa-Cards

www.scs-ptc.com
mail: info@scs-ptc.com