

Tracker / DSP TNC

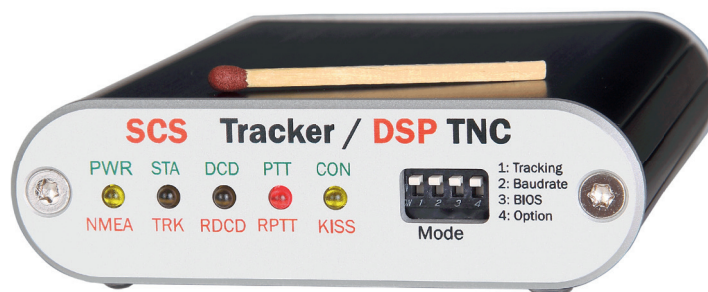


Robust Packet Radio (RPR) Tracker / DSP TNC

www.scs-ptc.com
www.robust-packet.net

The “Tracker / DSP TNC” combines the functions of an intelligent **APRS**¹ position and telemetry tracker with a universally applicable AX.25-“Packet Radio” TNC. As a special outstanding feature, the modem can use the waveform “Robust Packet Radio” (RPR) and thus allows unlimited operation via **shortwave**, i.e. over very long distances. RPR distinguishes itself with its high resistance to typical shortwave signal distortion. Typical uses are position tracking of vehicles, ships and even aircraft. For this the Tracker is connected with a GPS receiver. The sent data can be processed at the base

station with special software and (for example) displayed on the internet. Using the AX.25 function for example, e-mails can be exchanged via a worldwide network of open “RMS” servers, or over a private SCSmail server. The small, attractive metal case, as well as the optically decoupled USB port, are the guarantees for good passive as well as active resistance against high frequency influence, and ensure reliable long-term operation. Support for the KISS protocol allows the use of “Tracker / DSP TNC” with a great number of compatible programs.



Universal...

Modulation types:

- Robust Packet Radio (RPR)
- 300 Bd AFSK
- 1200 Bd AFSK
- 9600/19200 Bd FSK (G3RUH)

Protocols:

- AX.25 (Level 2)
- APRS¹

¹APRS is a registered trademark of APRS Engineering LLC, USA.

Robust (RPR)...

- 600 Bit/s net in 480 Hz bandwidth
- Highly robust/interference-resistant (coded OFDM)
- Fading- and “multipath”-resistant (perfect for shortwave)
- adaptive (2-Speed-level-automatic)
- Fully AX.25-transparent
- KISS-compatible

High performance...

The built-in fast DSP allows unbeatable characteristics, e.g. an automatic lock-in range of ± 400 Hz at 300 Bd AFSK on shortwave. All time critical functions are implemented in hand optimized DSP-assembly language.

Easily configurable...

The included software “TRConfig” allows the configuration of the equipment. All parameters can be permanently saved in the equipment, so that e.g. for APRS tracking, no further software is required (“stand-alone operation”). The 4 DIP switches support the basic configuration.



Technical Data

www.scs-ptc.com

Hardware	
Tracker / DSP TNC:	Universal AX.25 TNC and APRS position tracker with DSP (100 MIPS), 4 DIP switches for basic configuration, 5 dual colour LED's, high stability TCXO for system clock. Attractive, strong metal casing, low current draw, small size.
Connections:	Standard Mini-DIN connector for the radio connection, optically isolated USB connector for configuration as well as data transfer with software, NMEA-in/out (GPS/ext. display), "+5V" output for GPS mouse, Power supply connector, relay switching output for the radio equipment power supply.
Power supply / Size / Weight:	10...20 V DC, max. 100 mA at 10 V, approx. 70 mA at 13,8 V, 15 mA in Tracking Sleep Mode, 82 x 24 x 98 mm, 161 g.

Modulation types/ Operating modes	
RPR:	300/600 Bd "Robust Packet", 8-tone PSK, 480 Hz bandwidth, automatic frequency adjustment (RX) ± 240 Hz, high resistance against interference and typical shortwave signal distortion, high adaptivity (2 speedlevels).
300 Bd AFSK:	Older "HF packet" standard with newly developed multi-detector: DSP searches a receiving range of ± 400 Hz automatically for 300 Bd signals and receives - where required - multiple transmissions parallel within this range! No more exact frequency tuning by the user required, and still always perfect reception! A most important feature, especially for automatically operating APRS shortwave gateways.
1200 Bd AFSK:	1200 Bd AFSK, special filtering (no adjacent channel interference, no reception degradation from hum signals etc.).
9600/19200 Bd FSK:	Direct-FSK (G3RUH), optimum "DC removal" through the DSP.
DUAL-Mode:	RPR and 300 Bd AFSK quasi-simultaneous or alternating, so that as many "gateways" as possible can be reached in shortwave APRS channels.
Standard TNC Operation :	Full AX.25 compatibility, extended WA8DED Hostmode, KISS, simultaneous APRS tracking possible.
APRS Tracking Mode:	DIP switch activated position-tracking mode. "Fixed" or via NMEA connector (GPS) received position transmitted at freely defined intervals in APRS format. The Tracker then operates in so-called "sleep mode" and requires only approx. 15 mA of current (at 13.8 V). Shortly before the next APRS transmission, the Tracker "wakes up", switches on the transceiver, checks the channel occupation ("DCD") and transmits the APRS datagram as soon as the channel is free. Afterwards, the transceiver is switched off again, and the Tracker goes back to its "sleeping" current saving mode.

