

TRX-900F-4 Bracelet Transceiver Operational Description

The TRX-900F-4 is a small ankle worn device designed for offender monitoring applications..

The device comprises a printed circuit board (PCB) that includes a RF transceiver module with an integral antenna and a microcontroller that controls its operation.

The TRX-900F-4 has one 418MHz RF channel over which it communicates with its allocated home unit and/or GPS tracking device

The unit is powered by an internal 3.6V Lithium Thionyl Chloride battery.

The TRX-900F is attached to the ankle of the offender by means of a fiber optic strap. When attached to the offender, the strap is connected in such a way that the optical fiber is facing an IR transmitter on one side and an IR receiver on the other. The IR transmitter sends light signals periodically via the fiber. The reception of these signals by the IR receiver proves the integrity of the strap.

When activated, the TRX-900F-4 transmits signals separated by a pseudorandom interval of between 15 and 16 seconds. After each transmission, the TRX-900F listens for an acknowledge signal in order to ascertain whether its home unit/tracking device is within range. If a defined timeout has expired without receiving an acknowledge signal, the TRX-900F-4 activates an internal vibrator so as to warn the offender that they are out of range before a violation event is generated.

As per section 15.231(a)(3), being a security and safety of life equipment this device transmits supervision transmissions, including data (e.g. battery ok, strap not cut, etc), to determine the device integrity. The total duration of transmissions does not exceed more than two seconds per hour: $60 \text{ minutes} \times 4 \text{ transmissions per minute} \times 6 \text{ mSec (max.)} = 1.44 \text{ seconds.}$