

TRXS-860 Bracelet Transceiver Operational Description

The TRXS-860 is a small ankle worn device designed for offender monitoring applications.

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

The TRXS-860 has one 318MHz 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 TRXS-860 is attached to the ankle of the offender by means of a metal conductive strap. When attached to the offender, the 2 stripes are connected to one another through a conductive rubber.

When activated, the TRXS-860 transmits signals separated by a pseudorandom interval of between 20 to 22 seconds. All signals transmitted are encrypted with a special key that is created between the TRXS-860 and its home unit. After each transmission, the TRXS-860 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 TRXS-860 sends encrypted signal with general key, known by all home units.

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: $60 \text{ minutes} \times 3 \text{ transmissions per minute} \times 6 \text{ mSec (max.)} = 1.08 \text{ seconds}$.