TS800
Digital Data Radio

DESCRIPTION

TS800 Digital Data Radio is a P2P and MESH network communication device containing the Wi-SUN®/FAN protocol stack, which works with GFSK modulation and OFDM technology. TS800 also operates on GFSK, O-QPSK and OFDM technology outside of the Wi-SUN® stack, acting as a transparent communication module, capable of operating in the Sub-GHz and 2.4GHz unlicensed ISM bands.

This device can be used for Smart Energy network communication, commonly used in telemetry deployments as well as Machine to Machine (M2M) applications operating together with a Wi-SUN® / FAN (Field Area Network) stack.

TS800 has in its architecture an advanced processing which provides data rates of up to 800 kb/s, also with expandable flash memory used for processing the entire application. In addition, it has two IEEE 802.3 standard 10/100 ethernet interfaces, providing flexibility and easy control support.

TS800 Digital Data Radio is used for any P2P, MESH networking application with special attention to complex wireless solutions, telemetry and other M2M applications.

TECHNICAL ESPECIFICATIONS
TS800 DIGITAL DATA RADIO

SW FEATURES

Local and remote configuration through WEB (Control and Diagnostics) server with Event Log and Port Forwarding

SNMP v1 / HTTP & HTTPS / IPv4 & IPv6 Supports

Status: Lock PLL, RSSI, Direct Power, Reflected Power, Current, Temperature, Channel Analysis

SYSTEM DESCRIPTION

Network Topology: P2P, Wi-SUN® Mesh (802.15.4g)

Operation Mode: Half-Duplex

Frequency Range (Operational): Sub-GHz or 2.4GHz

Frequency Stability: ± 500 ppb

Frequency Resolution (Fine Resolution): Sub-GHz → 200 Hz / 2.4GHz → 400 Hz

RMS Output Power Level: -15 dBm to +30 dBm (Configurable in 1 dB steps)

Modulation & Technologies: Standard → 2/4 GFSK / OFDM / OQPSK | Wi-SUN® → 2/4 GFSK, OFDM Technology

Adjacent Channel Power: < -40 dBc

Spurious Emission: <-60 dBc

Receive Channel Size: 160/200/320/500/1000/1250/1600/2000 kHz (configurable by software)

Forward Error Correction (FEC) / Interleaving

Phase Noise	**Data Rate**
offset 1 KHz: -90 dBc/Hz (Sub-GHz) / -80 dBc/Hz (2.4 GHz) **offset 100 KHz:** -105 dBc/Hz (Sub-GHz) / -98 dBc/Hz (2.4 GHz) **offset 10 KHz:** -100 dBc/Hz (Sub-GHz) / -90 dBc/Hz (2.4 GHz) **offset 1 MHz:** -120 dBc/Hz (Sub-GHz) / -112 dBc/Hz (2.4 GHz)	**OFDM:** Option 1: 100,200,400,800 (kb/s) Option 2: 50,100,200,400,600,800 (kb/s) Option 3: 50,100,200,300,400,600 (kb/s) Option 4: 50,100,150,200,300 (kb/s) **2/4 GFSK:** 50,100,150,200,300 e 400 (ksymbol/s) **OQPSK:** 100 kchip/s: 6.25,12.5,25,50 kb/s 200 kchip/s:12.5,25,50,100 kb/s 1000 kchip/s: 31.25,125,250,500 kb/s 2000 kchip/s:31.25,125,250,500 kb/s
Sensitivity (PER <10%) 2 GFSK 50 ksymbol/s: -114 dBm (Sub-GHz) / -115 dBm (2.4 GHz) 100 ksymbol/s: -103 dBm (Sub-GHz) / -104 dBm (2.4 GHz) 150 ksymbol/s: -102 dBm (Sub-GHz) / -103 dBm (2.4 GHz) 200 ksymbol/s: -102 dBm (Sub-GHz) / -102 dBm (2.4 GHz) 300 ksymbol/s: -100 dBm (Sub-GHz) / -101 dBm (2.4 GHz)	**RX Lock / Desensitization (± 2 MHz / ± 10 MHz) 2 GFSK** 50 ksymbol/s: 61 dB / 69 dB 100 ksymbol/s: 57 dB / 65 dB 300 ksymbol/s: 52 dB / 59 dB
Sensitivity (PER <10%) 4 GFSK 100 ksymbol/s: -99 dBm (Sub-GHz) / -99 dBm (2.4 GHz) 200 ksymbol/s: -96 dBm (Sub-GHz) / -95 dBm (2.4 GHz)	**RX Lock / Desensitization (± 2 MHz / ± 10 MHz) 4 GFSK** 100 ksymbol/s: 48 dB / 55 dB
Sensitivity (PER <10%) OQPSK 100 kchips/s: -117 dBm (Sub-GHz) / -117 dBm (2.4 GHz) 200 kchips/s: -115 dBm (Sub-GHz) / -115 dBm (2.4 GHz) 1000 kchips/s: -101 dBm (Sub-GHz) / -102 dBm (2.4 GHz) 2000 kchips/s: -96 dBm (Sub-GHz) / -96 dBm (2.4 GHz)	**RX Lock / Desensitization RX (±2 MHz / ±10 MHz) OQPSK** 100 kchips/s: 70 dB / 76 dB 200 kchips/s: 67 dB / 73 dB 1000 kchips/s: 49 dB / 66 dB 2000 kchips/s: 37 dB / 63 dB
Sensitivity (PER<10%) OFDM Option 1 / MCS 3: -104 dBm (Sub-GHz) / -105 dBm (2.4 GHz) Option 2 / MCS 5: -101 dBm (Sub-GHz) / -102 dBm (2.4 GHz) Option 3 / MCS 6: -97 dBm (Sub-GHz) / -98 dBm (2.4 GHz) Option 4 / MCS 6: -101 dBm (Sub-GHz) / -102 dBm (2.4GHz)	**RX Lock / Desensitization RX (±2 MHz / ±10 MHz) OFDM** Option 1 / MCS 3: 45 dB / 63 dB Option 2 / MCS 5: 52 dB / 60 dB Option 3 / MCS 6: 50 dB / 57 dB Option 4 / MCS 6: 53 dB / 60 dB

GENERAL

Input Voltage: +4.5 V to +20 VDC (+12V nominal)

Dimensions: 172.0 x 148.7 x 65.0 mm / Weight: 1.35Kg

Protection: IP20

Operation Range: -40°C to +85°C

INTERFACES

2x RJ45 Ethernet ports

3x USB Ports

1x Antenna SMA connector

Status LEDs: ON, MODE, CON, ERROR