

STAR1800 – STAT1800

Licence free wireless digital audio link 1795-1800MHz EN 301 357

The STAT1800 accepts balanced XLR audio and encodes this to digital audio (Vorbis). A digital stream is created which adds Forward Error Correction (FEC) and interleaving. This stream is GFSK modulated directly to the 1.8GHz VCO-PLL system. The GFSK signal has a useful bandwidth of 300kHz (98.7% of power) and an EN301-357 mask bandwidth of 480kHz. The 'TX Octenna' forms an integral part of the transmit system and is connected via a 75 Ohm coax to the indoor unit (STAT1800). The programmed output power is not affected by the coax loss as long as this is within the range 0dB to 14dB. To accomplish this, a power measurement inside the active antenna is performed and sent digitally over the coax to the indoor unit which compensates for the coax loss and stabilises output power in a control loop.

The receiving system is made up of the RX Octenna connected via coax to the STAR1800 indoor unit. The coax loss can be 0 to 14dB without any loss in sensitivity. The RX Octenna contains a high gain antenna, bandfilters and LNA's. This combination creates an extremely low noise figure with an excellent out of band rejection and large dynamic range. In the STAR1800 the signal is again bandfiltered and amplified. The whole system forms a large dynamic range receiver, which is capable to receive the smallest signals even in the presence of large in-band signals. The STAR1800 demodulates the GFSK, does the de-interleaving and error correction and decodes the digital audio back to analog audio. The stereo audio is output on balanced XLR connectors.

Both the STAT1800 and the STAR1800 have a RS232 (5V level) debug output port. It constantly gives all internal measurement results. This can be used to monitor the link by logging the results with a PC.

The STAR/STAT1800 contain a lot of watchdog systems to reach a very high level of reliability. If case there is no audio on the link, or if the reception falls away, a backup audio source will be switched in automatically.

The display gives the status of the unit in words: e.g. 'normale werking' or 'coax kortgesloten', ...

Two measurement screens visualise all important parameters.

Technical specs (typ.)

STAT1800:

Audio input: XLR balanced. (can be used unbalanced, ground unused input)

Impedance: 600Ohm / 10kOhm choice

Input level: 3 ranges: 2/5/12V_{ptp} (= 0/8/16dBu)

Audio coding: high bit rate Vorbis (approx. 180Kbit/s)

Audio bandwidth: 10Hz -15.1 kHz (-0.5dB)

Output connector towards TX Octenna: F female 75 Ohm

Acceptable coax loss for full power range: 0 to 14dB

Power TX Octenna can be set within: -3dBm to +13dBm (=0.5mW to 20mW) EIRP

Modulationtype: GFSK

Bandwidth: 300kHz (98.7% of power), 480kHz according to spectrum mask EN301-357

Frequency: 1795.3 to 1799.7 MHz in 100kHz steps
Temperature range: 0 ... 40°C, for TX Octenna: -20 ... +50°C
Further technical specifications: according EN301-357

STAR1800:

Audio output: XLR balanced (can be used unbalanced, leave unused one open)
Output level: fixed, 3V_{rms} differential, with 50% input level in STAR1800
Input for backup audio: cinch, stereo, level adjustable, audio is switched
Output for backup: 230V/50W_{max}, switched in when backup needs to work
Acceptable coax loss without degradation of sensitivity: 0 to 14dB
Sensitivity at (internal) antenna connection: -2dBuV (-109dBm) (for perfect stereo, fadingmargin= 0)
Typical sufficient reception level, inclusive fadingmargin: +5dBuV (-102dBm)
Maximum signal at (internal) antenna connection without saturation effects: -20dBm
Frequency: 1795.3 to 1799.7 MHz in 100kHz steps
Temperature range: 0 ... 40°C, for TX Octenna: -20 ... +50°C
Further technical specifications: according EN301-357