

RRC101-IP

Remote Radio Control over IP



Remote control of radios over IP networks

Operation of up to 32 (radio-) units via radio over Internet Protocol (RoIP)

- Radio on the top of a mountain/roof and control head/intercom in the valley/on the ground floor?
- Replacement of leased lines/realization of transmission lines (Üle)?
- Combination of analogue and digital radio?
- Operating of multiple radios/devices simultaneously?
- Operation of multiple dispatchers at one or more radios?
- Or just networked stations?

And all in one device?

The RRC101 IP of Thiesen RoIP product family offers the complete range for connecting one or more devices to one or more remote sites.



Communication center - connection of analogue and digital radio!

Originally intended as a replacement for analogue leased lines, the RRC101-IP has developed into a universal communications center. The field of applications of the RRC ranges from simple point-to-point-connections, such as a remote control head of a radio, to complex networks of analog and digital radios (also in mixed mode). Any radios can be operated, monitored and configured worldwide from a central location.

Communication

The communication between the individual RRCs is served via **IP networks** and therefore easy to integrate into existing network environments, as well as connect them to the Internet. For the transmission of voice, data and signals the specifically for the transmission of radio developed **Radio over Internet Protocol (RoIP)** is used. RoIP is an extension of the established Voice over IP (VoIP). In addition data for connection, PTT, squelch and channel are certainly transmitted at RoIP. Additional information can be transmitted via the **transparent Serial** (full duplex) and the **transparent parallel interface**. Corresponding interfaces can be activated even if the devices (such as radios) are arbitrarily far away - even worldwide over the Internet!

Transmission quality

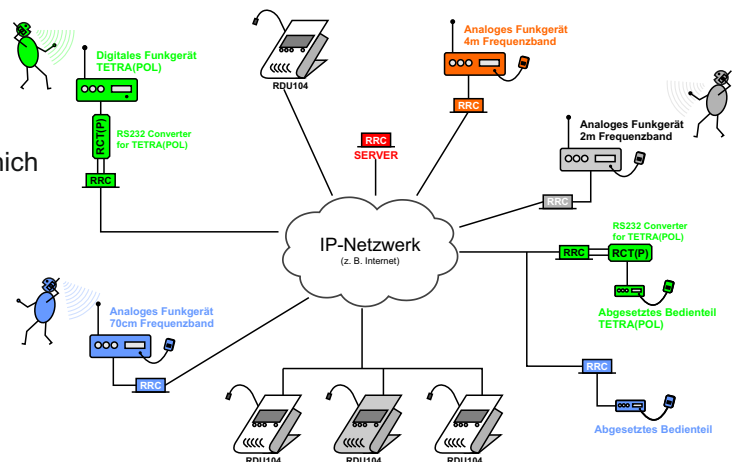
By providing **various codecs** (a-law, mu-law, Speex, Raw), a correspondingly optimized transmission mode can be selected for each application. Additionally the transmission can be adjusted by modulation of the **sampling rate**. **5-Tone, FMS** and **FSK** telegrams are transmitted transparently. Due to the optimized protocol typical runtimes of only 30-50 ms can be achieved.

Server version

In the simplest version, two RRC101-IP establish a point-to-point-connection for connecting two devices (such as radio and dispatcher). With the server version it is possible to connect **up to 32 devices**. On the radio side it does not matter whether it is **analog and/or digital radio**. Even **frequency bands** play no role and can be mixed.

Different radio circuits of various kinds can be switched and linked together.

In addition, it can be determined individually where to which (radio-) unit may hear or speak.



RRC101-IP

Remote Radio Control over IP



RRC101-IP-Product Family



Product Family

The RRC101-IP is available both in black box housing (**RRC101-IP-B**) for individual installation as well as 19-inch slide-in module (**RRC101-IP-19**). For current supply the switching power supply SNT18 is separately available. The two 19-inch housing **RRC101-IP-MCR** and **RRC101-IP-MCR8** expand the product range to include matching 19-inch racks for the RRC101-IP-19. The MCR type can accommodate up to seven RRCs and includes a 12V / 5A power supply for powering the RRCs. The MCR8, however, has no internal power supply, but it can accommodate up to 8 RRCs. The RRC101-IP-Marine (**RRC101-IP-M**) has been developed specially for use with marine-radio. With its saltwater-proofed aluminum housing it is equivalent to IP66 according to DIN EN 60529 and is thus both dustproof as well as protected against powerful water jets. An interface for ICOM Commandmic™ already exists.

Specifications

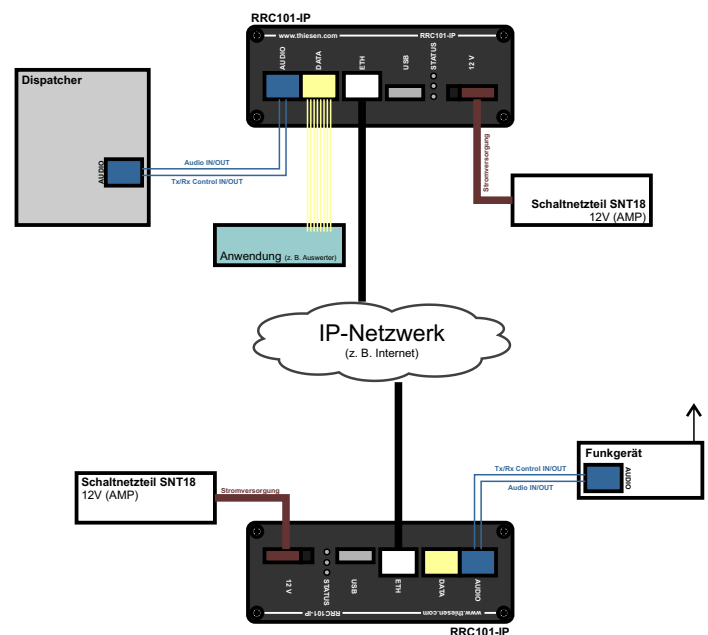
- +9 to +16 V operating voltage, nominally 12 V, max. 300 mA
- Operating temperature -20 to + 60 ° C
- Size (H x W x D) / Weight
Blackbox : 50 x 105 x 185 mm / approx. 560 g (dimensions without mounting bracket)
19-inch rack : 3 HE x 10 x TE 85 TE / approx. 560 g
- Configuration via web interface / USB-Stick
- Digital input , galvanically isolated, overvoltage protection (Squelch)
- Digital output , galvanically isolated, max . 250 mA (PTT)

- RS232, transparent transmission , asynchronous, full duplex , 4,800 to 115,200 bits/s, RJ45 connection
- 7-fold port, either input or output , 3.3 volt technology, max. 50 mA
- 14-fold port , each port individually configurable as input or output
- FMS, FFSK and 5-tone sequences can be transmitted due to the adjusted and optimized codecs.
The delay times are typ. less than 20 ms in the internal network and typ. less than 50 ms with ADSL 1000 in Internet.

- Audio
Input resistance 10 kOhm, output resistance min. 20 Ohm, 35 Ohm nominal
Input voltage 400 mV (70-800 mV adjustable)
Output voltage 400 mV (2.0 to 1000 mV adjustable)
Frequency response (input and output) 60 Hz to 3400 kHz (-2 dB)
Signal-to-noise ration (SNR) (Input and Output) better than 60 dB

- Tx / Rx Control In (PTT):
Opto-Isolator / 1 KOhm input resistance
Polarity active low or high (adjustable via jumper)
Threshold 1.5 V nominal / overvoltage protection +/- 30 V

- Tx / Rx Control Out (Squelch):
Solid state relay switches to ground or +12 V (selectable by jumper)
Max . Current 250 mA (AC or DC)



Made in Germany

Technische Änderungen und Irrtümer vorbehalten



Thiesen
Hardware- & Software - Design GmbH
Im Tiegel 9
D - 36367 Wartenberg

Fon : +49 (0) 66 41 / 979-0
Fax : +49 (0) 66 41 / 979-299
eMail: pmr@thiesen.com

www.thiesen.com