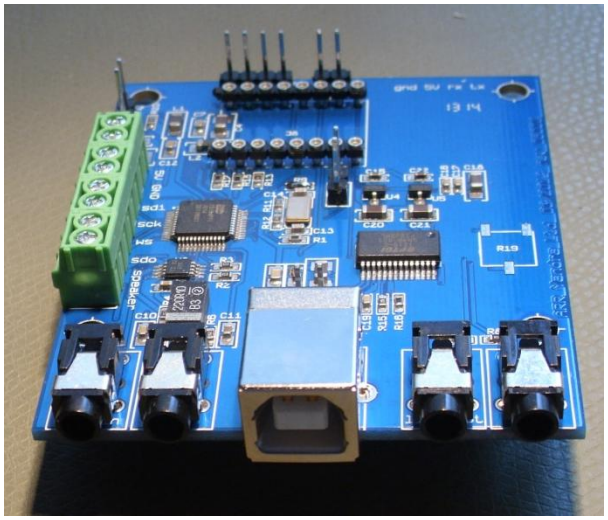
DATA SHEET

AUDIO GATEWAY

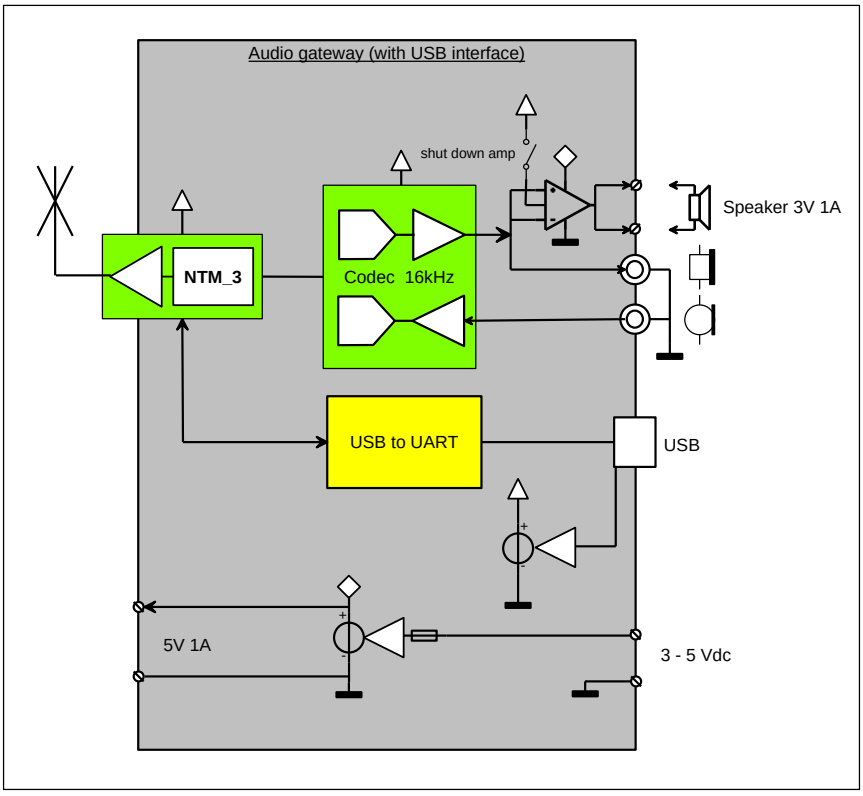
Audio gateway



Article number:	NTM_COMM
Size:	60 x 70 x 18 mm
Function:	Gate between an audio source and the Ninthway Radio Network
Standards:	EN300-220-1 EN300-220-2 EN300-220-3 IEEE 802.15.4 EN54-25 IIC

Specifications

Functional diagram



Audio gateway	
Description	The Audio gateway provides a routing from audio output device to the Ninthway Radio Network. Audio might be analogue or digital I2S.
VORN	It digitizes the analogue audio signal into audio frames that are broadcasted @ 500kpb on the BBN frequency band. The digital signal is compressed into the same size as the digitized analogue signal and is in this way interchangeable with it. It can also transform the digitized audio data from the network and make it available either as an analogue line-out signal for audio equipment, as a I2S digital signal or as audio signal ready for an external speaker. In this way a half duplex audio communication over the Ninthway Radio Network can be set up. Full duplex operation requires the use of two audio bands. In that case all repeater stations need to be equipped with a BBN transceiver that operates on the second audio frequency. The gateway is powered via a USB connector. The USB connector is connected with the NTM transceiver through a USB to UART bridge and can be used to communicate with the transceiver and send/receive data via the backbone frequency of the network.
VORN connections	Audio input • 1Vpp voltage line input socket 3.5 mm. • AGC microphone input socket 3.5 mm. • I2S 4 terminal block (16 bit PCM) bidirectional. Audio output • 1Vpp audio output socket 3.5 mm • Current output socket 3.5 mm • 3V 0.5 A loudspeaker connection (Class D).
Jumpers	J13: prg, to set the NTM in wired programming mode. When removed programming is only possible via remote programming.
Parameters	See application note 5; Manual for the nurse call binary station
Power supply and current consumption	Supply voltage: terminal block 2.5 – 5 V, 0.25 - 1 A. Reverse polarity protected. Primary supply: USB (max 500 mA)

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	Secondary supply: terminal block 2.5 – 5 V, 0.25 - 1 A. Reverse polarity protected.
Radio parameters	Audio data is transmitted real time over the network in 80 frames per second using the CSMA-CA protocol. This is outside the duty cycle regulations for bands like 868 MHz. Therefore VORN operations take place on the 863 – 865 MHz band. This requires gateway and repeater stations to have their BBN transceiver set to the 863 MHz band and their data rate to 500 kbps. The settings for the sensor and actor network band stays @ 868.3 MHz and 100 kbps data rate. A VORN command will set the transceiver on an audio receiving station to the proper BBN band and data rate.
VORN	The NCB mode is activated using function 4.
Mounting instructions	For the best performance of the radio transceiver mount the PCB with the antenna upright when possible.
Additional information	Datasheet NTM_3 Application note 1; Programming the NTM Application note 2; Ninthway high secure radio network Application note 5; Manual for the nurse call binary station