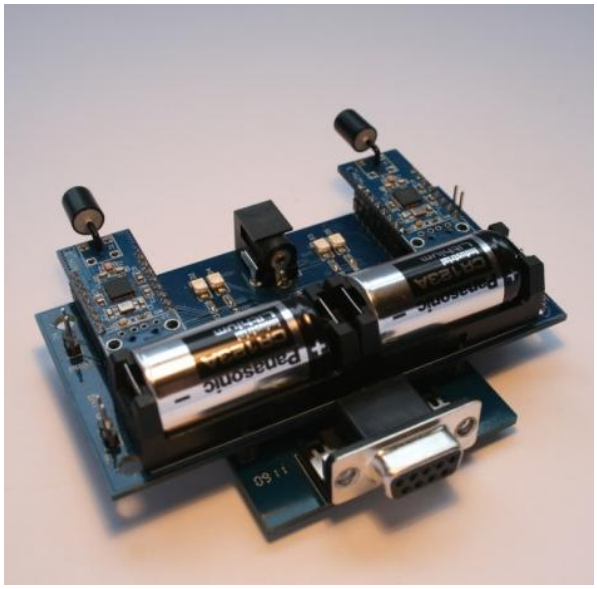
Ninthway Radio Network Technology

DATA SHEET

MCK4000 NHSRN GATEWAY

Gateway



Article number:	NGM_1
Size:	100 x 50 x 18 mm
Function:	I/O device between a controller and the Ninthway High Secure Radio Network
Standards:	EN300-220-1 EN300-220-2 EN300-220-3 IEEE 802.15.4 EN54-4 EN54-18 EN54-25

Specifications

Description

A radio link in the Ninthway radio network transmits digital information in packages called frames.

Gateways provide a connection between the radio network and an application controller. It is similar to the Ninthway repeater except for the gateway connection and it does not repeat received frames.

The radio network operates on two frequency bands called SAN and BBN. The gateway houses an NTM for each frequency band. The two NTM's are linked via a high speed I2C connection.

Both NTM's operate in function 3 mode. The SAN NTM communicates with local sensor and actor devices; the BBN NTM provides a separate link between repeater stations and other gateways.

The gateway is set up like any other device in the radio network. It needs:

- a house code (Network ID)
- a gateway number
- a device number
- an actor or control group number
- a low voltage detection level
- status timing period
- power level of the transceivers

Gateway	
	For setup either use a remote programmer or use the wired link of the gateway module.
Synchronisation	The SAN transceiver on the Gateway emits a beacon signal to synchronise the communication between the gateway and surrounding actor devices. To save power, actors are normally switched off, to be awoken by its internal clock, just in time to receive the beacon signal. The beacon signal will tell the actor whether or not more data is to be expected and it should stay awake or go back to sleep again. Data provided by the gateway module is broadcasted on both bands. Data frames are transmitted immediately by both transceivers. Control (MAC)frames are immediately transmitted by the BBN transceiver and directly after the beacon signal by the SAN transceiver. Data received is filtered on: • House code (Network ID) • Gateway number • OEM number
A Ninthway radio network has room for 15 gateways **Gateway nr 1 - 15** **Each gateway can handle up to 4095 devices**	The gateway relays only frames to the gateway module that have the same gateway number and the same OEM number as the gateway. So devices from different manufacturers of wireless devices using NTM transceivers, can only communicate with gateways from the same manufacturer. Within a network there is room for 15 different gateways each handling a maximum of 4095 devices. It is a modular design, consisting of a pcb carrying a 40 pin connector to connect to a gateway module that provides the hardware connection to an external link. A number gateway modules are available: • Serial module providing RS232 link • USB module, providing a client USB link • ESP module, simulating a Hochiki ESP loop I/O device for 255 network devices
Connections	Power Jack 2.5 mm male Module connector: Samtec TFC-120 mating with SFC-120 or similar
Indicators	At both side of the power jack there are 2 leds D2 and D5 indicate proper functioning of the NTM D4 and D3 indicate failure in connection between the NTM's The LED under the power jack is the charge indicator for the rechargeable batteries. LED on means charging.

Gateway	
Jumpers	NO_BAT jumper overrides presence detection of batteries. In case no batteries are placed. BAT_ON jumper links batteries to the power supply of the repeater. When omitted power must come from power jack. The Prog jumper connects the adjacent NTM to the serial pins on the Semtec connector.
Power supply and current consumption	Via power jack pin is + Voltage 9-12V DC Current Non charging: approx.: 100 mA Current charging: 1 A Current limited input PCB contains 2 CR123 battery holders for rechargeable batteries. The gateway will not power-up unless these batteries are placed or power is provided through the gateway module or the NO-BAT jumper is placed. *Non rechargeable batteries may be used, provided there is no power supply on the power jacket.*
NTM modes	For gateway functioning the NTM's are set to function 3
Mounting instructions	Housing has a damping effect on the transceivers. For optimal performance either use a housing that exposes the JJB antenna or request for NTM's with MCX connector instead of the JJB antenna. This will allow the use of external optimized antennae.
Additional information	Datasheet NTM_3 Application note 1 Programming the NTM Application note 2 Ninthway High Secure Radio Network