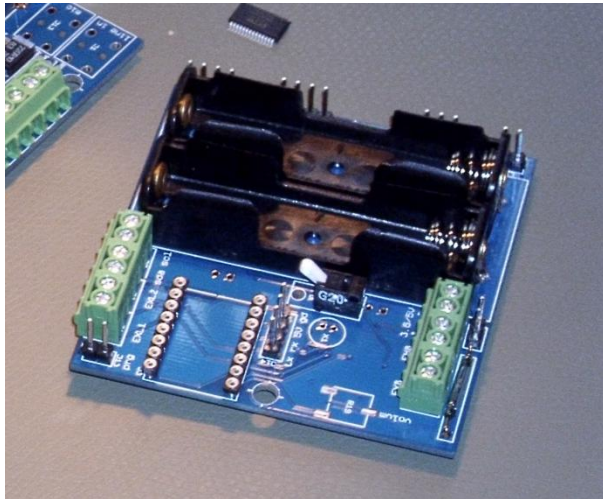


NURSE CALL AUDIO STATION

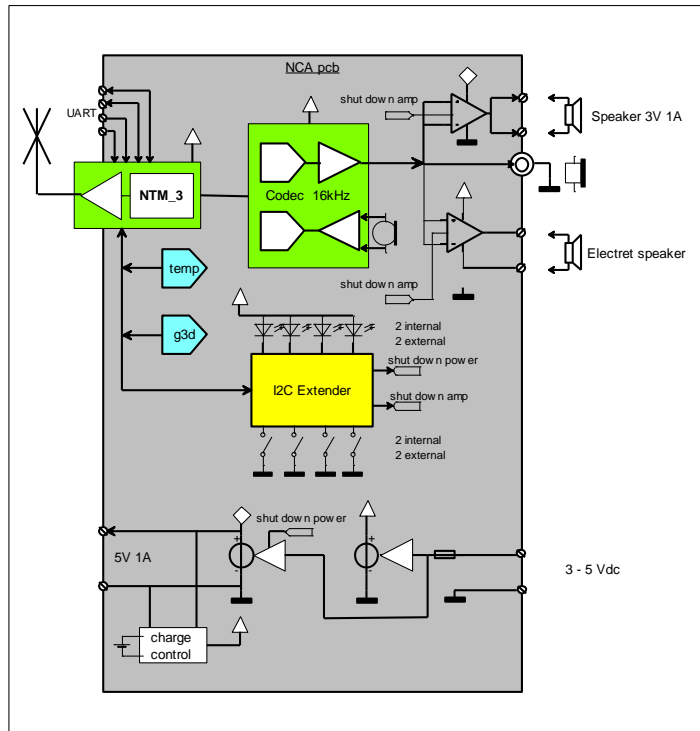
NCA



Article number:	NCA VORN_basic NCA VORN_aux NCA VORN_sensor
Size:	65 x 65 x 18 mm
Function:	Interface between digital signalling inputs and a digitized audio stream 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



NURSE CALL AUDIO STATION

NCA															
Description	<p>The NCA combines the Voice Over Radio Network capability with the functionality of the NCB, the multipurpose warning station.</p> <p>It can be applied as a two way audio warning and communication station or as a one way announcement or evacuation device.</p>														
NCB warning	<p>It uses an 8 channel I2C extender of which four channels are dedicated as switch. Two input switches are already built in.</p> <p>Change of one or more inputs, triggers the NCB, depending on the set flavour, to set the indicators and transmit a frame with a two bytes payload.</p> <p>The NCB comes with a number of pre settable operation modes called flavours that couple the input signals to the indicators.</p> <p>Flavour:</p> <table border="0"> <tr> <td>1. Offuse</td> <td>simple I/O device</td> </tr> <tr> <td>2. Door</td> <td>door/window contact</td> </tr> <tr> <td>3. Indicator</td> <td>wireless side indicator</td> </tr> <tr> <td>4. Alarm</td> <td>two button warning station</td> </tr> <tr> <td>5. Nsalarm</td> <td>two button warning station</td> </tr> <tr> <td>6. Triple pull</td> <td>pull cord warning station</td> </tr> <tr> <td>7. Syncalarm</td> <td>synchronized two button warning station to be used with wireless Indicator</td> </tr> </table> <p>The pcb provides 4 LED indicators. Two are mounted on the PCB; two are available via terminal blocks.</p>	1. Offuse	simple I/O device	2. Door	door/window contact	3. Indicator	wireless side indicator	4. Alarm	two button warning station	5. Nsalarm	two button warning station	6. Triple pull	pull cord warning station	7. Syncalarm	synchronized two button warning station to be used with wireless Indicator
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VORN	<p>The NCA houses a codec that can either play pre-recorded messages or open an audio path from the NTM transceiver to several audio outputs.</p> <p>In reverse an audio path can be set up that conveys audio signals from the built-in microphone to the NTM transceiver.</p> <p>In this way a half duplex audio communication over the Ninthway Radio Network can be set up.</p> <p>The codec samples the audio signal at 16 kHz and compresses it using an ADPCM protocol. The digitized audio signal is transmitted @ 500kpb on the BBN frequency band.</p> <p>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.</p>														
Warning station connections	<p>Built in pull cord switch.</p> <p>Built in reed switch.</p>														

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NCA	
	<p>2 terminals for external emergency button.</p> <p>2 terminals for extra external button.</p> <p>2 sets of 2 terminals for external indicators.</p> <p>4 UART pins, gnd, 5V, rxd, txd.</p>
VORN connections	<p>Electret microphone with built-in AGC.</p> <p>Output pinheads:</p> <ul style="list-style-type: none"> • 1V pp voltage line output. • Current source line output. • 3V 1A loudspeaker connection (Class D). • 4 pinhead I2S digital audio I/O. • 36 V electret speaker output
Options	<p>Temperature sensor MCP9800. -10 to +85 °C.</p> <p>3d Accelerometer ADXL345.</p>
Jumpers	<p>J13: prg, to set the NTM in wired programming mode. When removed programming is only possible via remote programming.</p>
Parameters	<p>See application note 5; Manual for the nurse call binary station</p>
Indicators	<p>LD1 Green LED</p> <p>LD2 Red LED</p>
Power supply and current consumption	<p>Supply voltage: 2.5 – 5 V, 0.25 - 1.5 A. Reverse polarity protected.</p> <p>Primary supply: for NTM, NCB and codec: @ 250 mA.</p> <p>Secondary supply: for built in audio amplifier using same power supply input @1.5A This supply is software controllable and provided as a 5V 1A output for external use.</p> <p>Option: Auxiliary power with 500 mA charger, Li-ion A-cell (1200 mAh) when secondary supply present.</p>
Radio parameters	<p>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.</p> <p>This requires gateway and repeater stations to have their BBN transceiver set to the 863 MHz band and their data rate to 500 kbps.</p> <p>The settings for the sensor and actor network band stays @ 868.3 MHz and</p>

NURSE CALL AUDIO STATION

NCA	
	100 kbps data rate. Only during VORN operation will the transceiver on the NCA set itself to the BBN band and data rate.
NTM mode	The NCB mode is activated using function 7.
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