

Respirator Voice Amplifier

RVA (C.02, FW version 4.00 and newer)

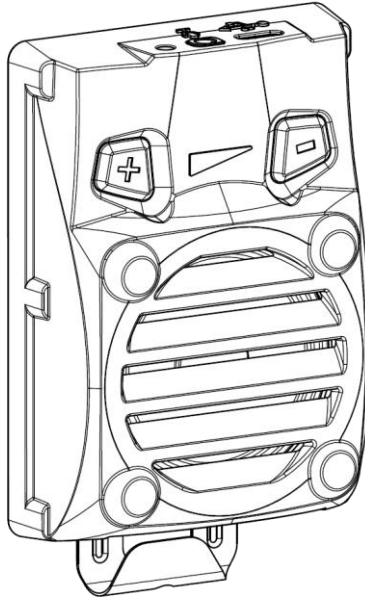


Figure 1: RVA (C.02)

The Respirator Voice Amplifier (RVA, Figure 1) is a wearable rugged voice communication device designed for professionals who need to clearly and loudly talk with the CBRN respiratory mask fitted (there is no need to remove it). The RVA withstands temperature, vibration, water, salt fog and dust.

The RVA provides the interface (standard TRS 3.5 mm Jack connector) for the CBRN respiratory full/half face mask microphone (like Tactical Air Purifying Respirator Microphone, TAPRM) mounted in the exhalation valve cover of the mask.

The RVA is equipped with integrated rechargeable battery (via standard USB Type-C interface) including sophisticated charging/battery management and visual status indicator. There are two control buttons to adjust the voice output (including Boost Mode) as well as to turn the device on and off.

It can be attached to tactical gear via the MOLLE compatible clip or pouch.

An acoustic feedback may occur if the RVA gets close to the microphone – increase the distance between the RVA and the microphone, reduce the output volume or disconnect and reconnect the microphone.

Interfaces (Figure 2)

Control + and – Buttons

Long Press (≥ 2 s) of any Button	RVA ON
Long Press (≥ 2 s) of any Button	RVA OFF
Short Press (≥ 250 ms) of any Button	VOLUME CONTROL
Long Press (≥ 2 s) of both Buttons	Boost Mode

The audio output level can be adjusted in a range of 0 dB to 22 dB (5 steps) with the same volume level on turned on as it showed before turned off. Each step is announced by short flash of the blue Visual Status Indicator.

The Boost Mode which doubles the maximum volume level is announced by triple flash of the blue Visual Status Indicator. Pressing any "+" or "-" button terminates this mode (boost level is not stored in the device's memory for the further RVA turning on).

The RVA is equipped with automatic detection and evaluation of the correct functionality of the microphone – if the connected microphone is functional, its connection/disconnection is signalized by a short flash of the blue Visual Status Indicator when the RVA is turned on.

If the RVA is turned on without a microphone connected and neither button is pressed nor a microphone is connected, it will automatically turn off after 10 minutes.

If the microphone is disconnected while the RVA is turned on and neither button is pressed nor the microphone is (re)connected, the RVA is automatically turned off after 10 seconds.

The RVA is automatically turned off after 8 hours if a microphone is connected and no button is pressed within this period.

Automatic shutdown of the RVA can also occur if the built-in continuous test identifies any device fault or if the internal battery voltage drops too low and a functional battery charger is not connected.

Respiratory Mask Microphone Connector

Panel Connector Type:
Jack Female TRS 3.5 mm (3 pins)

Connector Pinout:
Tip Microphone Signal (MIC +)

Ring 1
Ring 2 Microphone Ground (MIC -)
Sleeve

Battery Charging Connector

Panel Connector Type:
USB Type-C Receptacle

Connector Pinout:
A4, A9, Battery Charging (PWR +)
B4, B9

A1, A12,
B1, B12 Battery Charging Ground (PWR -)

Charging standard USB Type-C Cable (USB Type-C to USB Type-A) is included.

Battery Status and Charging Visual Status Indicator

In Operation (Green Indicator):

ON	Charged Battery
Flash	Long (≥ 8 hours of operation) Middle (≥ 4 hours of operation) Short (≥ 1 hour of operation)

Charging (Blue Indicator):

Flash	Short (Fast Charging) Long (Charged in ≤ 15 minutes)
ON	End of Charging (Battery ≥ 95 %)

Battery and Charging Data

Battery Specification:

Lithium Polymer
3.7 V / 1200 mAh, 4.44 Wh

Battery Charging Input:

(4.5 ÷ 6.5) V_{DC}
(designed for standard USB Charger)

Operating Time:

≥ 50 Hours (for maximum audio output level and continuous voice input)

≥ 150 Hours (depending on idle time)

Standard Charging Time (I_{IN} up to 1 A):

≤ 2 Hours
(from 0 % to 95 % battery capacity, dependent on charging current I_{IN})

Cycle Life (one charge/discharge period):

≥ 500 Times

Audio and Acoustic Data

Audio Input Impedance (1 kHz):

150 Ω ± 10 %

Frequency Response:

(300 ÷ 3,400) Hz

Maximum Audio Output Power:

2.5 W

Maximum Sound Pressure Level (at usual voice level):

83 dB_{SPL} @ 1 m

Environmental and Other Data

Colour:

Black (RAL 9005)

Weight:

150 g ± 10 %

Dimensions:

Refer to Figure 2

Attachment:

MOLLE Clip

Operating Temperature:

(-20 to +60) °C

Battery Charging Temperature:

(0 to +45) °C

Storage Temperature:

(-20 to +45) °C

ES Declaration of Conformity:

EMC Directive 2014/30/EU

CBRN:

Designed in accordance with
ČSN EN 140

Ingress Protection (IEC standard 60529):

IP67

Flame Retardant Properties (UL 94):

Min. Level V2

Calculated Mean Time Between Failures (MTBF):

≥ 2,000 Hours

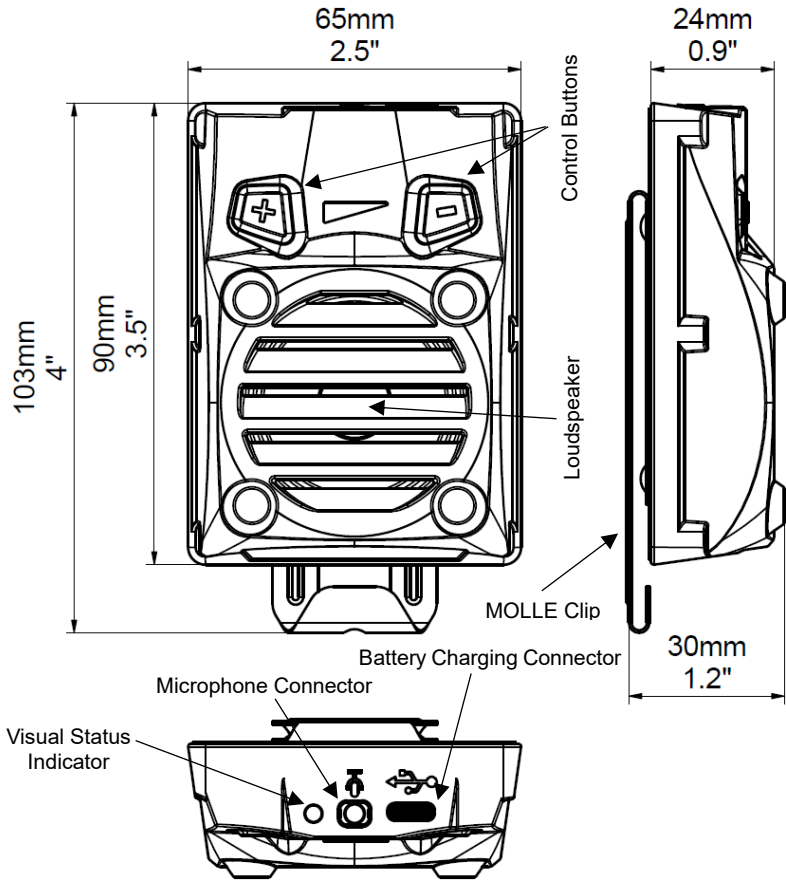


Figure 2: RVA (C.02) Description and dimensions