SHOOMS

DEVICE 03 / 08

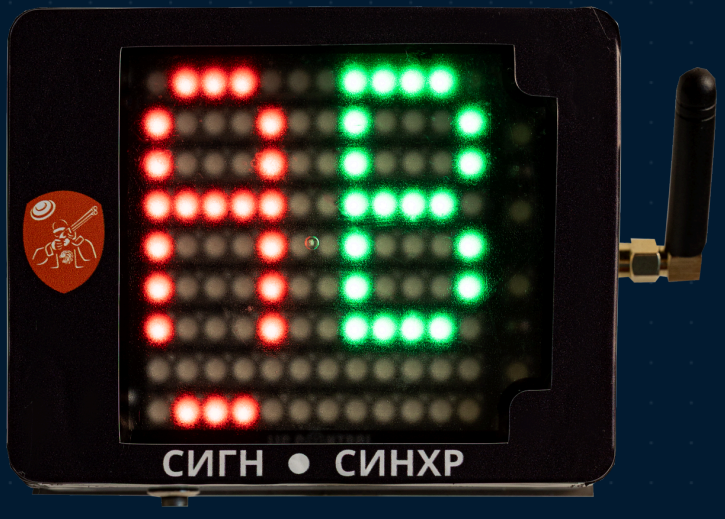
TECHNICAL DOCUMENTATION

sp-mcp_mdp

Microphone module

Voice release | Shooter display | Repeat button | 12 V

Installation, connection, daily operation and maintenance guide for range technicians and range operators.



DOCUMENT	VERSION	FIRMWARE	DATE
DOC-MC-EN	1.0	2.7.18	09.2026

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DOC-MC-EN · V1.0

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CHECK THE CONTENTS BEFORE INSTALLATION

Check the contents immediately after unpacking. Report any missing or damaged item to your supplier before installation.

AT A GLANCE

1	12 V	IP65	12 mo
Per shooting station	Power	Enclosure rating	Warranty

COLOUR CODING

Warning
Important information that needs particular attention. Read it before you act.

Note
A clarification or useful additional information.

Tip
Useful recommendations.

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01 Overview and key specs

The microphone module is installed at a shooting station. It listens for the shooter's call and for the shot, passes both to the SHOOMS server, and shows the shooter on an LED display what concerns their turn: which targets are in the current pair and what result the system recorded.

2	1	IP65
Symbols on the display	Repeat button	Enclosure rating

Purpose

- Voice release: the module recognises the shooter's call and passes it to the server, which releases the target.
- Shot detection: the sound of the shot is separated from speech and noise and reported to the server for scoring.
- Shooter display: two symbols, an underline beneath each and four vertical LEDs show the current pair, the result and whose turn it is.
- Repeat button: the shooter asks for a repeat without having to call the referee over.

What it consists of

The module sits in an enclosure with a transparent lid — inside are the sound analyser board and the LED display. A digital microphone in its own housing with a windshield and a mushroom-head repeat button connect to it on separate cables. Everything mounts on a stainless steel stand.

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Fig. 1. The module on its stand: display, microphone and repeat button

MARKING	ELEMENT	DESCRIPTION
Display	**LED matrix**	Visible through the transparent lid. Two large symbols, an underline beneath each and four vertical LEDs at the side.
МІКРОФОН	**SP13 connector, 6 pins**	The digital microphone in its own housing with a windshield, on a cable.
КНОПКА	**SP13 connector, 2 pins**	The mushroom-head repeat button.
12V ↑ / 12V ↓	**Power connectors SP13, 2 pins**	Two connectors: the 12 V supply in, and the run onward to the next module on the range.
Antenna	**External Wi-Fi antenna**	The link to the range network.

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ONE MODULE PER STATION

Every shooting station has its own microphone module. The modules on a range are fed from one 12 V line and daisy-chained through their power connectors.

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02 What's in the box

CHECK THE CONTENTS BEFORE INSTALLATION

Check the contents immediately after unpacking. Report any missing or damaged item to your supplier before installation.

QTY	ITEM
1	Microphone module sp-mcp_mdp in an enclosure with a transparent lid, with the LED display
1	Digital microphone in a housing, with windshield and a cable with an SP13 connector (6 pins)
1	Repeat button (mushroom head) with cable and SP13 connector (2 pins)
1	Wi-Fi antenna, 2.4 GHz
1	Stainless steel stand with brackets (to order)

POWER COMES FROM THE RANGE LINE

The module runs on 12 V DC from the range's shared line. No separate power adapter is included: the source and the line cabling are defined during range design.

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03 Safety and warranty

ONLY SHOOMS STAFF OPEN AN ENCLOSURE

Removing a lid and doing anything inside the enclosure of any device in the system is for authorised SHOOMS personnel only. The customer and third parties must not open an enclosure, press buttons on the board, move any parts, or unplug connectors or cables inside it. Interfering breaks the enclosure's seal, voids the warranty and can cause a trap to fire unexpectedly.

THE MODULE RELEASES TARGETS

A recognised call from the shooter makes a trap throw a target. Before working on the range, make sure the system is stopped and the traps are powered down.

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General rules

Mount the module and the microphone outside the target's flight path and outside the fall zone of shot and fragments.

Do not open the enclosure during operation. There are no user-serviceable parts inside.

Do not remove the windshield from the microphone: without it the wind reads as noise and calls are missed.

Cable glands and connectors must be tightened; otherwise the IP65 rating is void.

Do not aim pressurised water at the module and do not wipe the display with solvents.

Route the cables where they cannot be caught by a foot or a gun.

Warranty

The warranty period is 12 months from the date the module is put into service. It does not cover damage from shot and clay fragments, lightning, overvoltage on the supply line, water entering through untightened connectors, or mechanical tampering with the enclosure.

For a warranty claim provide: the serial number (four digits on the enclosure sticker), a description of the fault and, if possible, a photo or video.

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04 Installation at the station

Choosing the position

- Set the stand at the shooting station so the display is in the shooter's field of view but does not block the line of fire.
- Place the microphone near where the shooter stands and point it towards them; the repeat button should be within arm's reach.
- Avoid positions where wind blows on the microphone constantly or where noisy equipment runs nearby.
- The module must be within good Wi-Fi coverage of the range.

Mounting steps

1. Set up the stand and fix the module, the microphone and the repeat button to it.
2. Screw on the Wi-Fi antenna.
3. Connect the microphone to the «МІКРОФОН» connector and the button to the «КНОПКА» connector.
4. Connect 12 V power to the input connector; if the line runs on to the next station, connect it to the second power connector.
5. Apply power and confirm that the display lights up and the module appears in the SHOOMS system.
6. With a SHOOMS engineer, check that a shooter's call releases a target, that the shot is detected, and that a press of the repeat button reaches the server.

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TEST WITH YOUR VOICE ON SITE

Check the microphone's distance and direction with a real call from where the shooter stands, not from arm's length: that is how the module will work during a series.

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05 Connection

Every external connection uses a sealed SP13 connector. They are hard to mix up: each has its own pin count and its own marking on the enclosure.

POWER

Two power connectors: one is the 12 V line in, the other carries it on to the next module. All modules on a range run from one line.

12 V

Microphone

The digital microphone connects on a cable with a six-pin connector. It has its own housing and a windshield, which must not be removed. Route the cable so that it is not pulled tight when the stand is turned.

Repeat button

The mushroom-head button connects with a two-pin connector. A press is sent to the server as a repeat request; the display briefly shows an acknowledgement.

Network

The module joins the range's outdoor router as a Wi-Fi client. The network settings are entered by SHOOMS support during commissioning; nothing needs configuring on the customer's side.

A DAISY CHAIN HAS A LIMIT

How many modules one 12 V line can carry depends on the cable cross-section and the power supply. The range's power scheme is worked out during design — do not add modules to a line yourself.

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06 Daily operation

Switching on

Power is applied to the whole range line. After power-up the display briefly shows a start screen, then switches to working mode — from that moment the module is listening to its station.

During a series

The shooter calls, the module recognises the call and passes it to the server, and the server releases the target. The shot is detected separately: that is how the system knows the shooter has fired. The display shows the shooter the current pair and the recorded result.

Repeat button

If a target flew wrong or the call was not heard, the shooter presses the mushroom-head button. The request goes to the server, and the referee or the system decides according to the range's rules.

Switching off

Modules are powered down together with the range line — overnight or for the season. Settings are retained.

THE MODULE DECIDES NOTHING

The microphone module only reports what it recognised. What to score and which target to release is decided by the SHOOMS system.

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07 The shooter display

What the shooter sees is entirely driven by the server: the module shows the symbols and colours the system sends it. The combinations below are the ones in customary use on a range.

ON THE DISPLAY	WHAT IT MEANS
Two symbols	The targets of the current pair, left and right. The symbol is a letter or digit according to the range layout.
Colour of a symbol	The state or result of that target: green — a hit was recorded, red — a miss.
Underline beneath a symbol	Marks the target the current action concerns — for example, which target is released next.
Four vertical LEDs	Turn: when they are lit, this station is the one shooting.
Green plus filling the screen	A brief acknowledgement of a recorded action.
Red minus filling the screen	A brief acknowledgement of a miss or a cancellation.

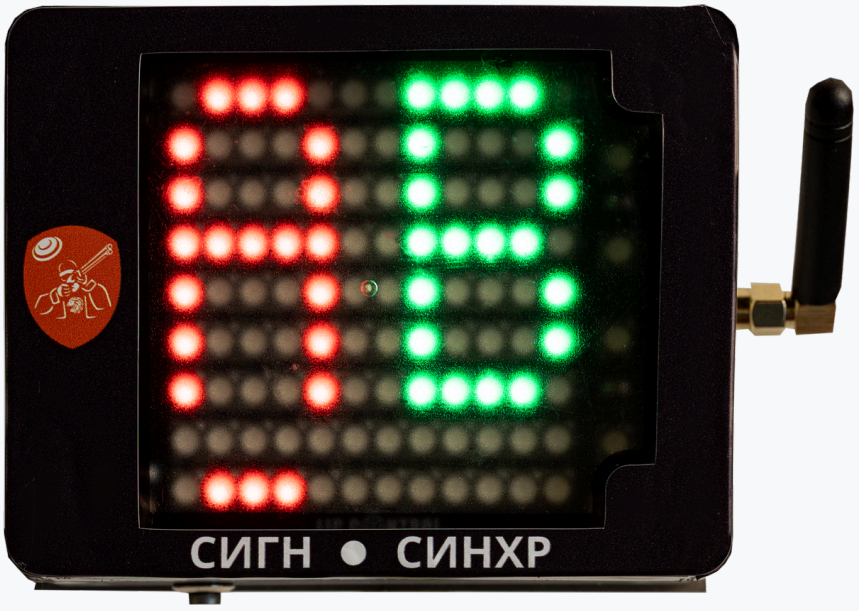


Fig. 2. The display in working mode: symbols of the current pair

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BRIGHTNESS AND SYMBOLS COME FROM THE SYSTEM

Display brightness, symbols and colours all arrive from the server. There are no display controls on the module itself.

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08 Troubleshooting

SYMPTOM	LIKELY CAUSE	FIX
The display is dark	No power on the line or at this module	Check the 12 V line and the power connectors on this module and on its neighbours.
Calls are never recognised	The microphone is not connected or its cable is damaged	Check the «МІКРОФОН» connector and the cable along its whole length.
Calls are recognised only sometimes	Wind, noise, or the microphone too far from the shooter	Check the windshield, the position and the direction of the microphone. If that does not help, contact support: the recognition threshold is adjustable.
The module reacts to somebody else's call	The microphone is hearing the neighbouring station	Change the direction of the microphone; ask support to check the thresholds.
Shots are not scored	The shot is not being separated from the noise	Contact SHOOMS support — the sound analysis needs adjusting.
The repeat button has no effect	The button is not connected, or there is no link to the server	Check the «КНОПКА» connector. Check whether the module is online at all — are the other stations working?
The display is lit but shows nothing	No link to the server	Check that the range router is running; contact support.

WHAT TO TELL SUPPORT

The station number and the module's serial number, whether the neighbouring stations work, and how the fault shows itself — constantly or from time to time.

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09 Maintenance and cleaning

INTERVAL	TASK
Daily	Look at the microphone's windshield: it must be in place, dry and clean.
Weekly	Inspect the enclosure, the transparent lid, the cables and the button for damage from shot and fragments.
Monthly	Wipe the display lid with a damp, solvent-free cloth. Check the tightness of the connectors and of the mounting on the stand.
Each season	Check the condition of the cables where they bend and at the connectors; check that the stand is steady.
Before winter	If the range is idle for over 2 months, power the line down; store the microphone and windshield indoors in a dry place.

THE WINDSHIELD IS A CONSUMABLE

A wet, dust-clogged or damaged windshield hurts recognition more than any setting can fix. Replace it without waiting for shooters to complain.

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10 Technical specifications

PARAMETER	VALUE
POWER	
Input voltage	12 V DC
Power connectors	Two SP13, 2 pins, IP68: line in and line onward
Source	The range's shared 12 V line
SOUND	
Microphone	Digital, in its own housing with a windshield
Microphone connector	SP13, 6 pins, IP68
Recognition	The shooter's call and the sound of the shot
DISPLAY	
Type	LED matrix behind a transparent lid
Symbols	Two main symbols with an underline
Extra indication	Four vertical LEDs
Control	Entirely from the SHOOMS server
REPEAT BUTTON	
Type	Mushroom head, vandal-resistant
Connector	SP13, 2 pins, IP68
CONNECTIVITY	
Wi-Fi	IEEE 802.11 b/g/n, 2.4 GHz
Antenna	External
Network name	sp-mcp_mdp-‹serial number›
ENCLOSURE AND ENVIRONMENT	

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PARAMETER	VALUE
Enclosure	Plastic, 115 × 90 × 55 mm, transparent lid
Ingress protection	IP65 with the connectors tightened
Mounting	Stainless steel stand
Placement	Outdoors, at the shooting station
Operating temperature	–20 … +50 °C
CONTROL	
Controller	ESP32-S3
Serial number	Four digits, sticker on the enclosure

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11 Firmware and changelog

The firmware version is shown on the cover. Updates are performed by SHOOMS support; the client provides access to the range network for this. There is no self-service update.

VERSION	DATE	CHANGES
2.7.18	09.2026	First production release.

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APPENDIX A

A Appendix: SHOOMS device family

Every SHOOMS device has its own manual in the same structure (sections 01–11).

1 · DOC-MM

Media module

Media module: TV and sound

2 · DOC-RB

Release module

Target release module

3 · DOC-MC

Microphone

Microphone module

This document

4 · DOC-RF

Card reader

Shooter card reader

5 · DOC-TR

Terminal

Self-service terminal

6 · DOC-WR

Wireless receiver

Wireless release receiver

7 · DOC-WT

Transmitter

Wireless release transmitter

8 · DOC-BS

Base station

Range server and network

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