Inband OMNI

Electronically Scoring Target

- User's Manual

InBand **HERTAR OY**
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Contents

1. Safety

In order to safely use Inband OMNI Electronically Scoring Device following guidance must be followed:

- Target is intended to be used only at indoor ranges or fully sheltered outdoor ranges
- Minimum shooting distance is 25m
- Always use good quality bullet catchers with the target
- Use only regulated 12V DC-power suppliers, min 5A.
- Target is intended for typical sport and center fire pistol calibers
- Do not use metal jacket bullets
- Use subsonic bullets only
- Use of eye and ear protection is always strongly recommended when shooting

2. Technical specification

Table 1 Inband OMNI technical spesifications

Model	**Inband OMNI**
Supported calibers	Typical sport and center fire pistol calibers
Operating principle	Acoustical sensing with 4 microphones
Detection area	50cm x 50cm
Power source	12V DC, min 5A
Connectivity	Bluetooth, USB, Ethernet (option)
Shielding	3mm Special strength structural steel
Size and weight	710x750x190mm 22kg (antenna and reflector is down)

3. Target installation

3.1. Sales package content

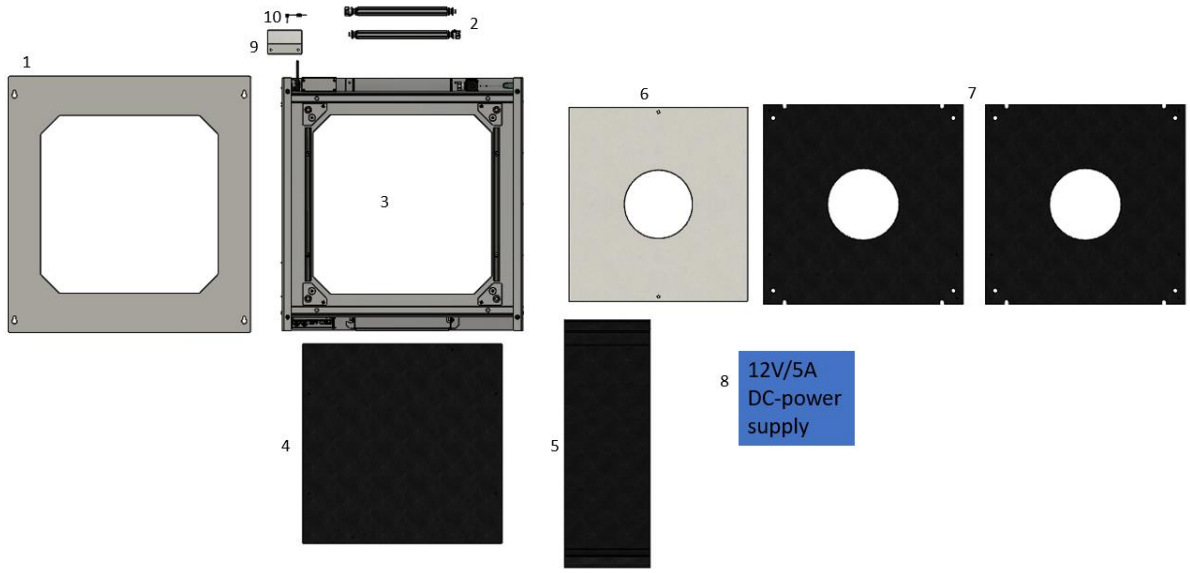


Figure 1 Content of the sales package

Sales package content is shown in Figure 1.

1) Shielding frame; spare part number **0135**
2) Moving rubber holder; spare part number **4401**
3) Main target frame
4) Fixed backside rubber (comes assembled); spare part number **4597**
5) Moving rubber (comes assembled, rolled in one of the rubber holders); spare part number **4604**
6) Aiming masks (order separately)
7) Fixed rubber for frontside, 2 pcs (comes installed); spare part number **4598**
8) Power supply (12V DC, 5A)
9) Red/Green light reflector panel (when ordered with red/green light option); spare part number **4412**
10) Red/green light 3.5mm stereo plug cable 4pc. (Only included when ordering a batch of 5 pieces)
11) Remote control, shown in Figure 2

Note that targets comes with the rubbers already assembled.

3.2. Target connectors and switches

Target has standard 5.5mm DC-power plug on the both side panels as shown in Figure 3. Connect the power supply in to this connector. ***The plugs 5.5mmm on the side panel can be used to chain the power supply to five devices from one transformer.***
Note that also the connector panel (Figure 4) has same power connector which is connected in parallel with the side connector, i.e it can also be used if preferred. Warning! Careless and violent use easily damages the connector panel.

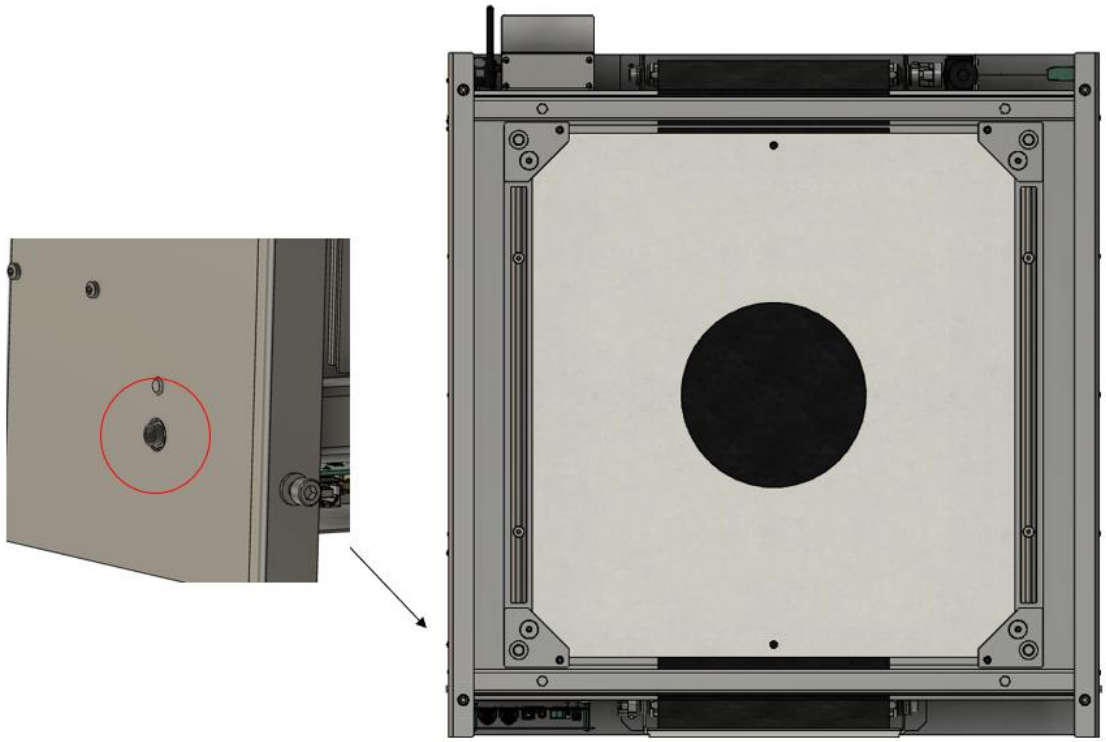


Figure 3 Target power connector (5.5mm standard barrel connector) is located on the left panel of the target

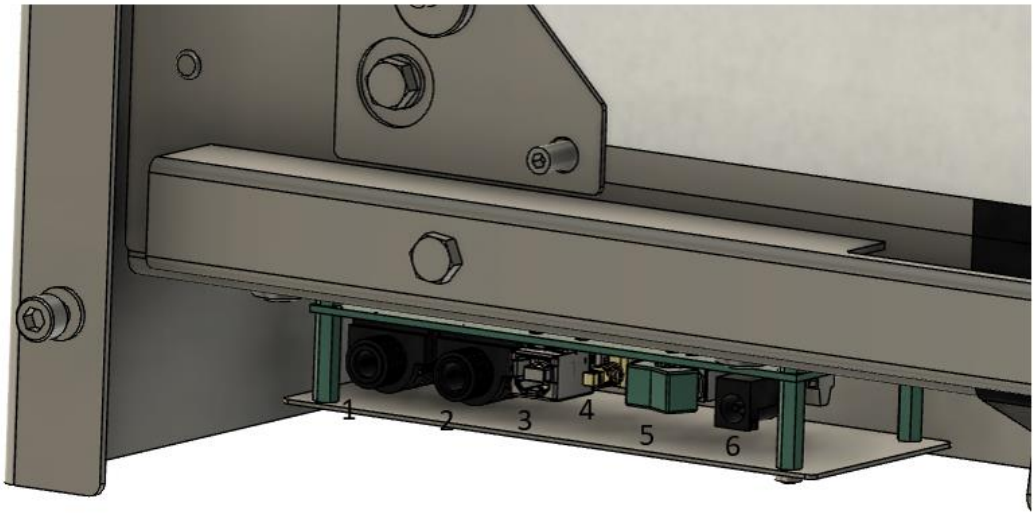


Figure 4 Connector panel. 1-Control In 2-Control out 3-USB 4-Rubber manual feed 5-power switch 6-Alternative power connector

All other needed connectors (except for the red/green light) are located in the connector panel as shown in Figure 4. The connectors and switches in this panel have following function:

1) Control out. This connector is used to output the red/green control signal. The first target in the chain that does not have its input (2) connected will act as a "master" for the rest of the targets.
2) Control In. This is connector is used when several targets are connected in chain for synchronization of the red/green control lights. The cable used is regular 6.3mm **stereo** audio jack cable. When this connector is connected, the target operates in "slave" mode, i.e the red/green lights cannot be independently controlled by the shooter.
3) USB. This connector is mostly used for maintenance/service. It can also be used to connect the target to the Inband Scoring SW running in laptop.
4) Rubber manual feed. This button can be used to turn the motor that is used for feeding the rubber. It is needed when the moving rubber is being installed to get the rubber rolling into the shaft.
5) Power switch
6) DC-power in (12V 5A). This is alternative power connector for the target. Warning! Careless and violent use easily damages the connector panel.

3.3. Setting the target in stand

Target can be installed on stand or other support using the horizontal aluminium bars in the back of the target, see Figure 5

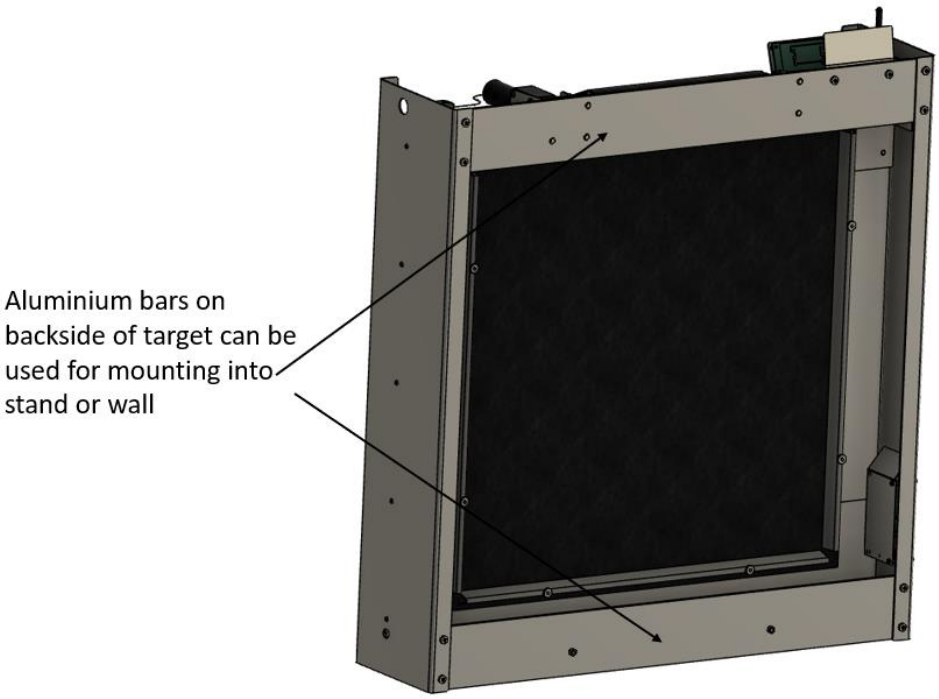


Figure 5. Target mounting to stand or wall can be done using the aluminium horizontal bars on the backside of the target

Installation of the target must take into account following:

1) Target stand must be rigid enough not to fall if target is accidentally shot to its shielding.
2) Inband OMNI target is not intended to be used outdoors. Only indoor or sheltered installations are allowed.
3) Good quality bullet catcher must be placed at sufficient distance behind the target to prevent any bullet ricochet or lead dust from hitting the target from backside.
4) To avoid any ricochet from bullets accidentally shot at target shielding reaching the firing line, minimum shooting distance of 25m must be used.

3.4. Installation of the red/green light assembly

The reflector panel and LED-cable must be assembled by the user as shown in Figure 6.

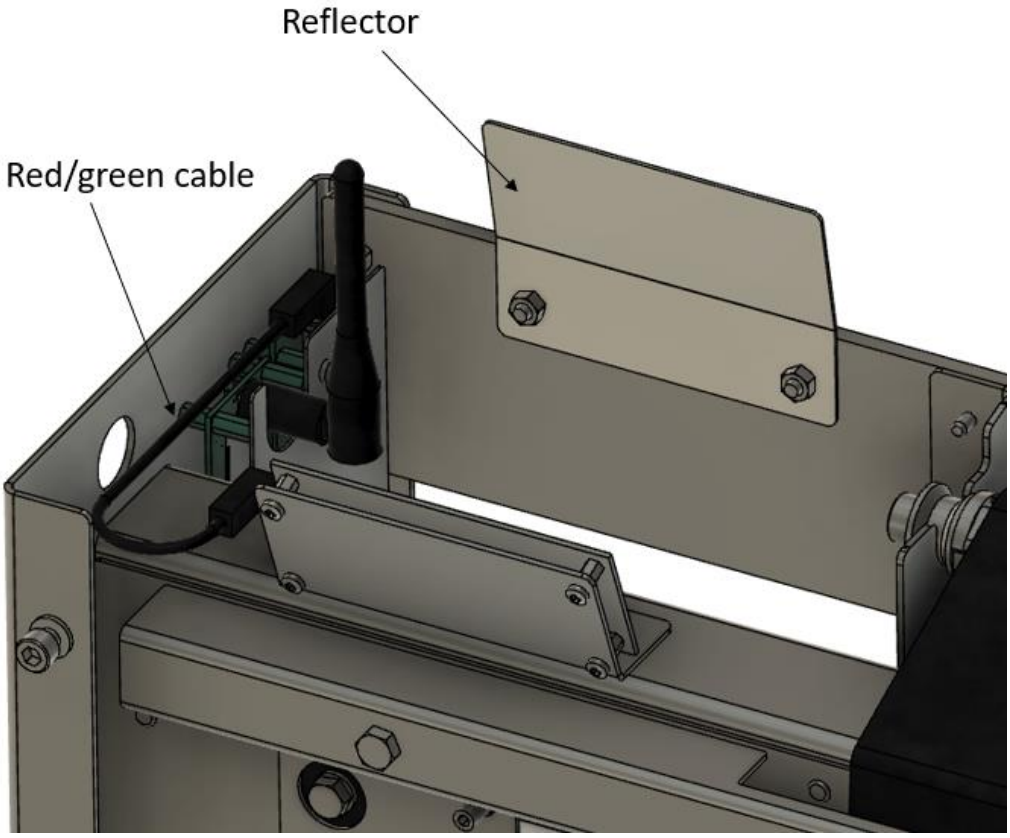


Figure 6. Installation of red/green lights cable and the reflector

3.5. Installation of the fixed rubber sheets

Inband OMNI uses one fixed rubber sheet in the back of the target and two fixed rubber sheets in the front. All fixed rubbers come readily installed in the sales package.

When replacing the rubbers, remove the thumb screws and the brackets holding the rubber. After changing the rubber make sure to tighten then screws properly.

The details of the rubber fixing are shown Figure 7 and Figure 8. Before removing the rubbers make note of how the rubbers are fixed.

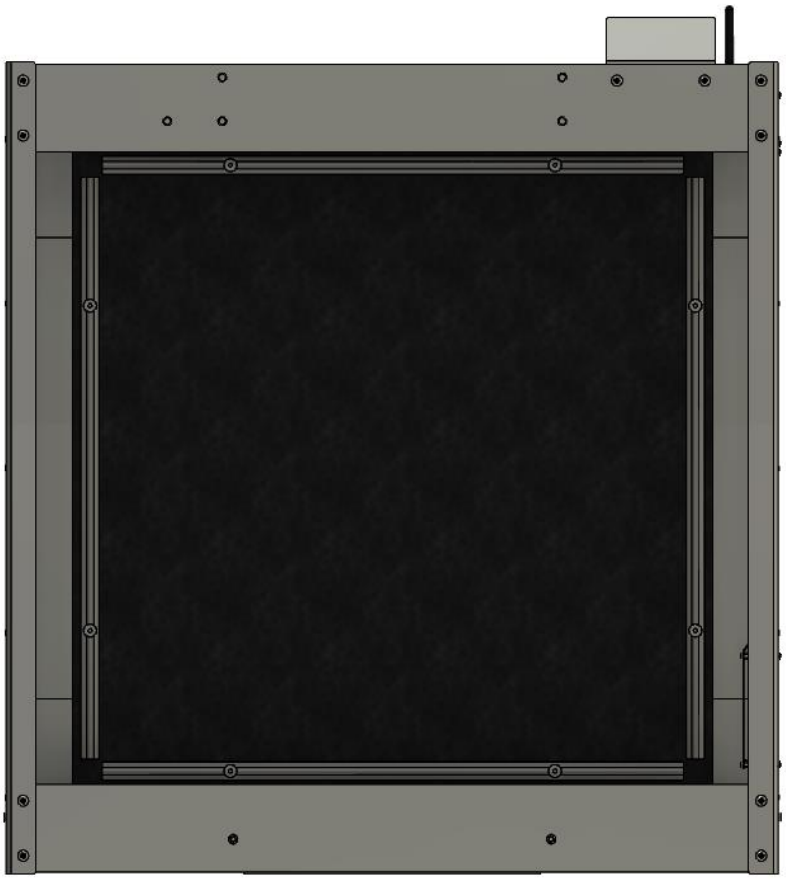


Figure 7 Backside fixed rubber. To replace remove the 8 finger screws and the brackets holding the rubber.

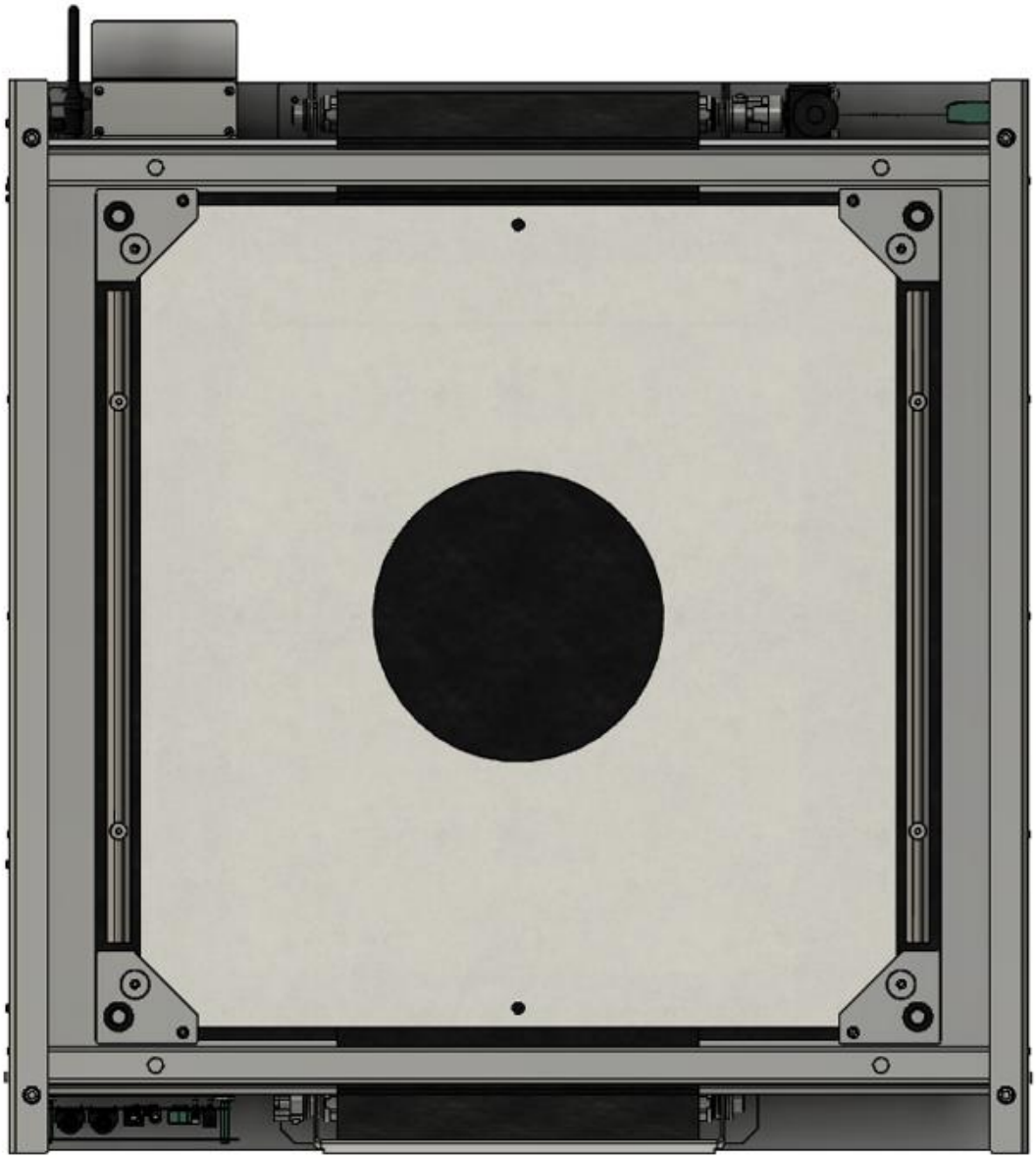


Figure 8 Frontside fixed rubbers

3.6. Installation of the moving rubber

Note: Target should be powered on when moving rubber is installed, as it will be necessary to manually run the motor during the installation.

Inband OMNI uses moving rubber sheet that advances after every shot. Depending on how accurately the target is shot (how consistently shots land in the middle of the target) it is possible to re-use the rubber few times before the target accuracy starts to degrade.

Rubber is moved by a motor placed on top of the target (i.e the rubber is moving down to top). Rubber is moving between the two fixed rubbers in front of the target. For the accuracy of the target it is important that the rubber is relatively tight.

Target is supplied with two identical shafts which are used on both up (motor side) and downside.

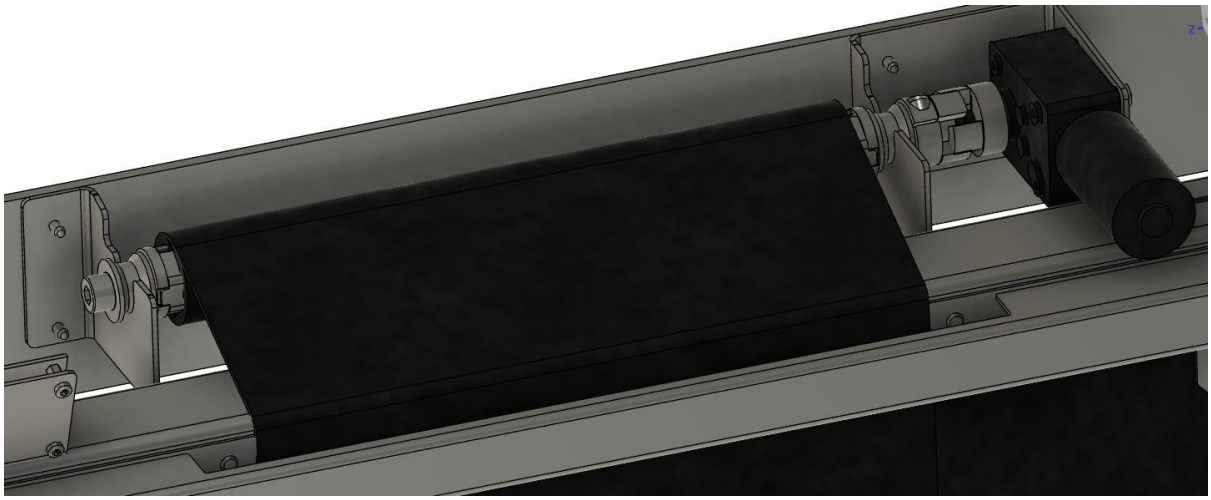


Figure 9. Installation of the moving rubber into motor (up) end of the target

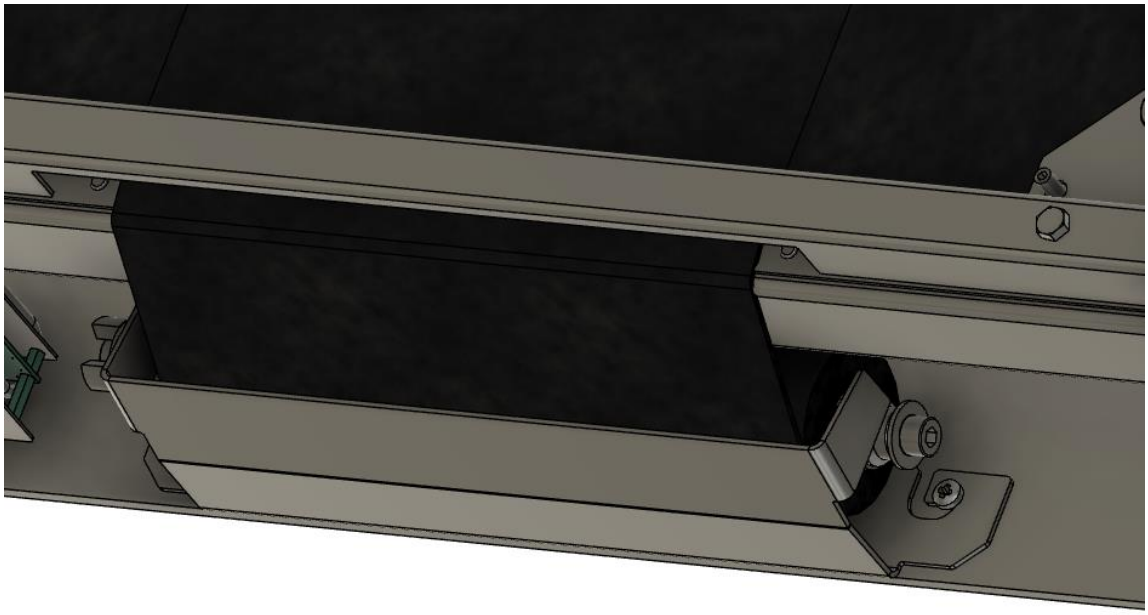


Figure 10 Installation of the moving rubber into free (low) end

If the same rubber is used multiple times, it is possible to simply take the full roll of the rubber from the upper (motor) side shaft when the full roll has went trough, and then simply remove the holder from the motor coupling and place this roll to the bottom holder of the rubber (Figure 10)

The connection of the rubber roll to the motor uses a simple mechanical connector. The roll can simply be removed or installed just by manually (by hand) rotating the roll to correct position. When the motor is being run and the rubber is tight, the connector will stay locked.

When installing the rubber, place the free end of the rubber to the holder in the bottom (low) end of the target. Then slide the rubber trough the mechanical guide on the bottom, then between the two fixed rubbers and again trough the mechanical guide at the top. Then push the free end of the rubber to the slot in the rubber holder and attach the rubber holder to the motor connector. Then use the rubber feeding button on the connector panel to turn the motor at lest half-full rotation to secure the rubber in its place.

3.7. Installation of the aiming mask

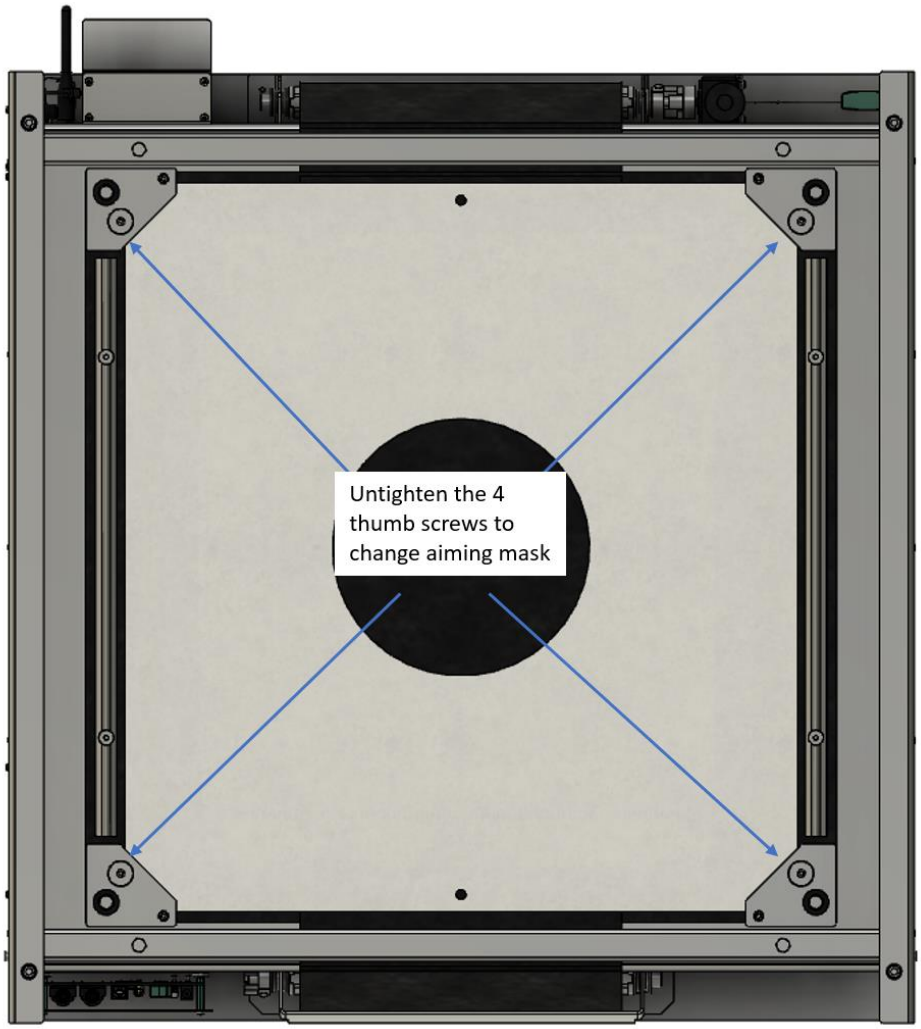


Figure 11. Installation of the aiming mask

In order to change the cardboard aiming mask, untighten the four thumb screws shown in Figure 11 to make the mask loose. Note that it is not necessary to to remove the screws completely, it is enough to just loosen them.

4. Software setup

4.1. Software download

Inband Scoring SW is used to control the target and display the shooting results. The latest version of the SW can be downloaded from the www.inband.fi (in the DOWNLOADS tab/ Inband Setup)

When downloading the package, note that there might be some warnings issued by the security software installed on your system that must be approved.

4.2. Pairing the Bluetooth

When using the target via Bluetooth connection, the target must first be paired with the computer.

In windows 10/11 this is most easily done by going into to Bluetooth Devices settings, which is most convenient to locate by writing "Bluetooth" into the windows search field (the "magnification glass").

In the Bluetooth settings press "Add Device" button and act according to instructions of the windows. Inband Target Bluetooth modules are always named with IBHxxxxxxx (where xxx is number), so it will be easy to select the right Bluetooth device.

4.3. Starting the software for the first time

When the Inband Scoring is started for the first time, the software will try to search for connected targets. **Note that in the first startup this may take some minutes and issue "No Target" red warning, just be patient.** In the next startup the connection will happen much faster.

After the connection is established the screen will look as shown in Figure 12

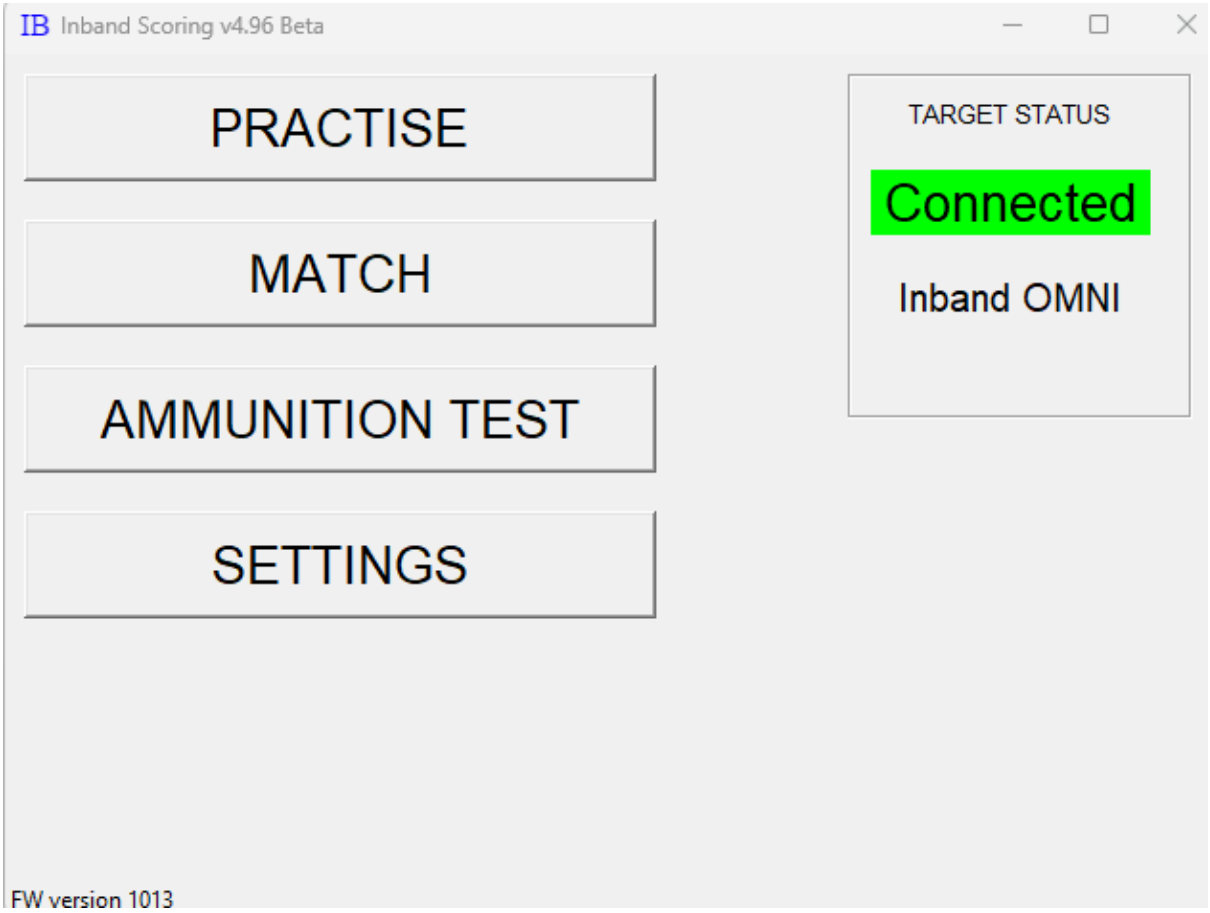


Figure 12 Startup screen with target connected

4.4. Software settings

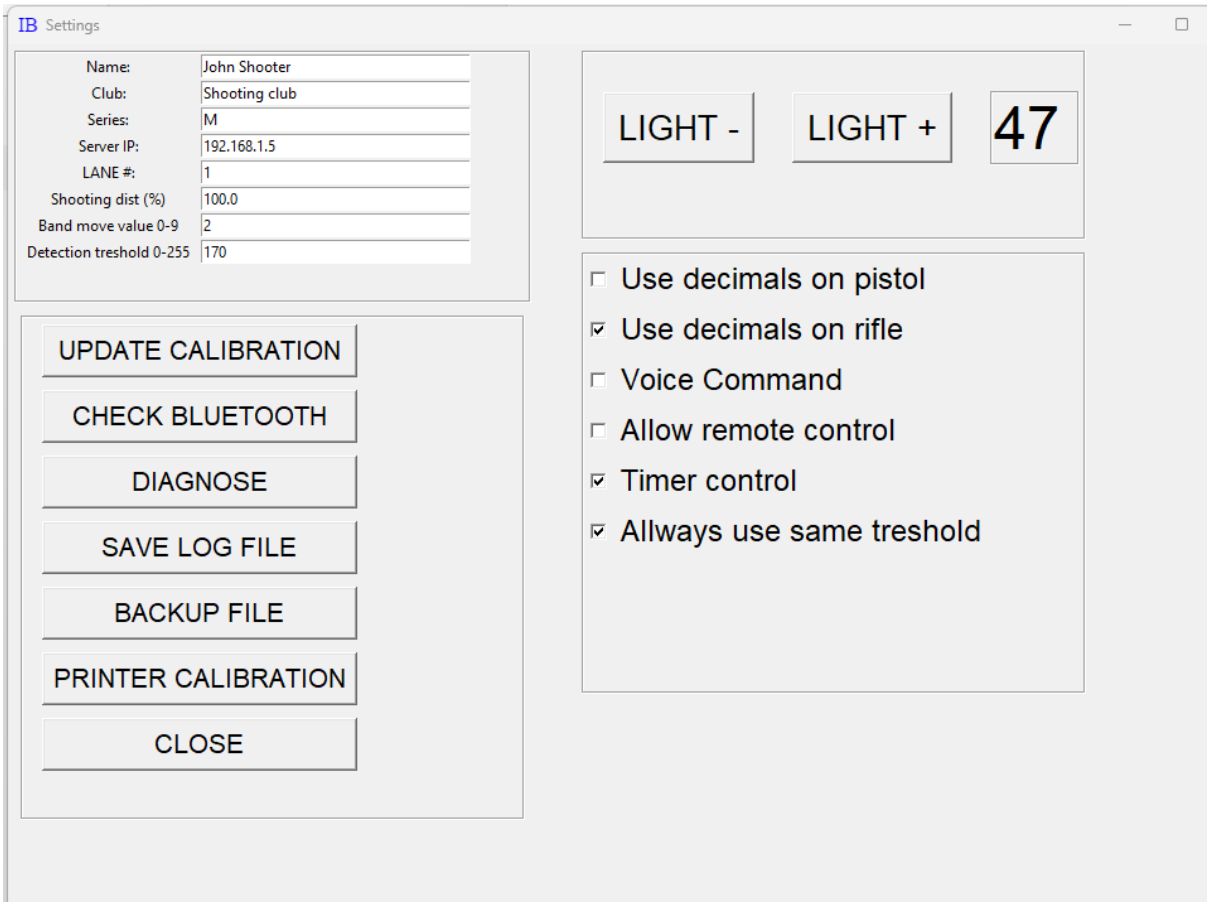


Figure 13 Inband Scoring settings. Typical settings for Inband OMNI are shown.

Name,Club,series:Shooter name, club and series
Server IP: When used with external control SW, this is the IP address of the master PC

LANE: Lane number of the shooter

Shooting distance: Use this number to scale the target size to different than standard shooting distances. Number given in percents of the nominal distance. For instance if shooting 50m pistol from 25m distance set this value to 50%

Band move value (0-9): Use this to set how much the rubber moves between shots. Typically with good quality rubber value 0 is still OK (it still moves the rubber little)

Detection threshold: This sets the detection threshold for the microphones used to detect the shots. A higher value here will make the target slightly less accurate but more robust against external loud noises. At outdoor ranges a typical value is about 160-170, in small indoors ranges especially when shooting with center-fire pistols (loud bang) the value can be increased up to 210.

LIGHT +/- At Inband OMNI target this controls the brightness of the red/green lights (At Inband Air target the same setting is used for controlling the white LED's brightness).

Use decimals on pistol: When checked, decimals are used in all pistol disciplines
Use decimals on rifle: When selected, decimals are used on all rifle disciplines

Voice commands: When selected, a voice will be reading aloud the scores after each shot. This function was developed by the request from visually impaired shooters.

Allow remote control: When selected external control is allowed. Needed when target is controlled by external computer.

Timer control: When selected the red/green timer controls become visible in the software. I.e select this if red/green lights are used.

Always use same threshold: When selected the detection threshold set in the settings is used for all disciplines. If not checked the system will use its predefined values. It is recommended to have this selected with Inband OMNI.

5. Basic use without traffic lights

Without the traffic lights the use of the Inband Scoring is very straightforward. In the the startup screen first select "PRACTISE" (Note that match function does not currently support all the disciplines, use of PRACTISE mode is recommended).

A new window opens (Figure 14) for selecting the discipline. Select the right discipline and press the START button.

When the shooting window opens, everything is ready to start shooting.

The +/- buttons on the bottom-left can be used to zoom the target picture in/out.

Save PDF button can be used to create PDF report of the shooting session.

QUIT Closes the window and returns to start screen
RESET Zeros the scores and starts over
SIGHTERS ON This activates the sighter mode. In this mode the shots are displayed with their value but the scoretable is not updated.

After each shot the text in the lower right corner (green "ready" on Figure 15) will display a green text "detection accuracy OK". In the event there is some issue with the detection a red text with warning may be issued either warning that detection accuracy may be compromised or the shot detection was not possible at all.

If the red warning happens often it may indicate that the rubbers are too worn out and should be replaced. In very small indoor ranges it is also possible that the loud bang of the gun interferes with the detection. In this case the detection threshold value in the settings should be increased.

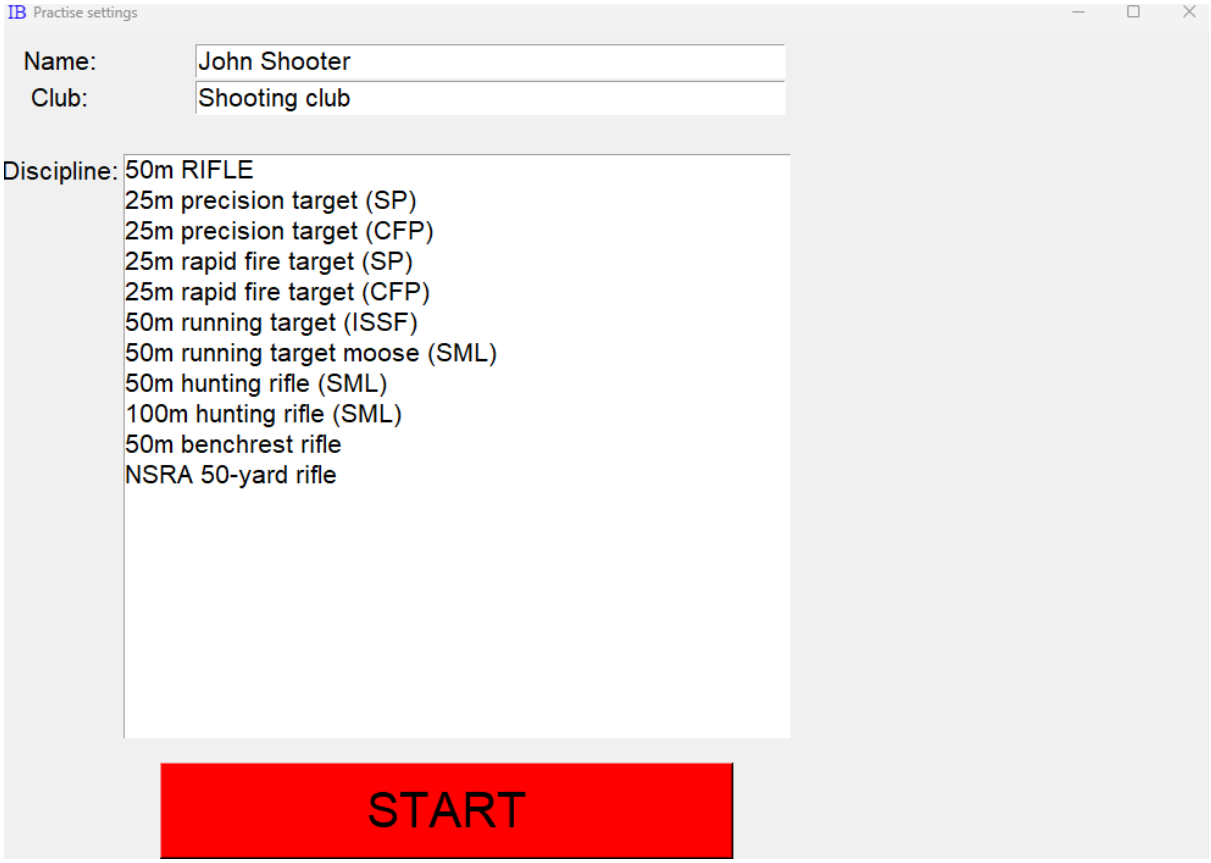


Figure 14. Drop down list for selecting the discipline

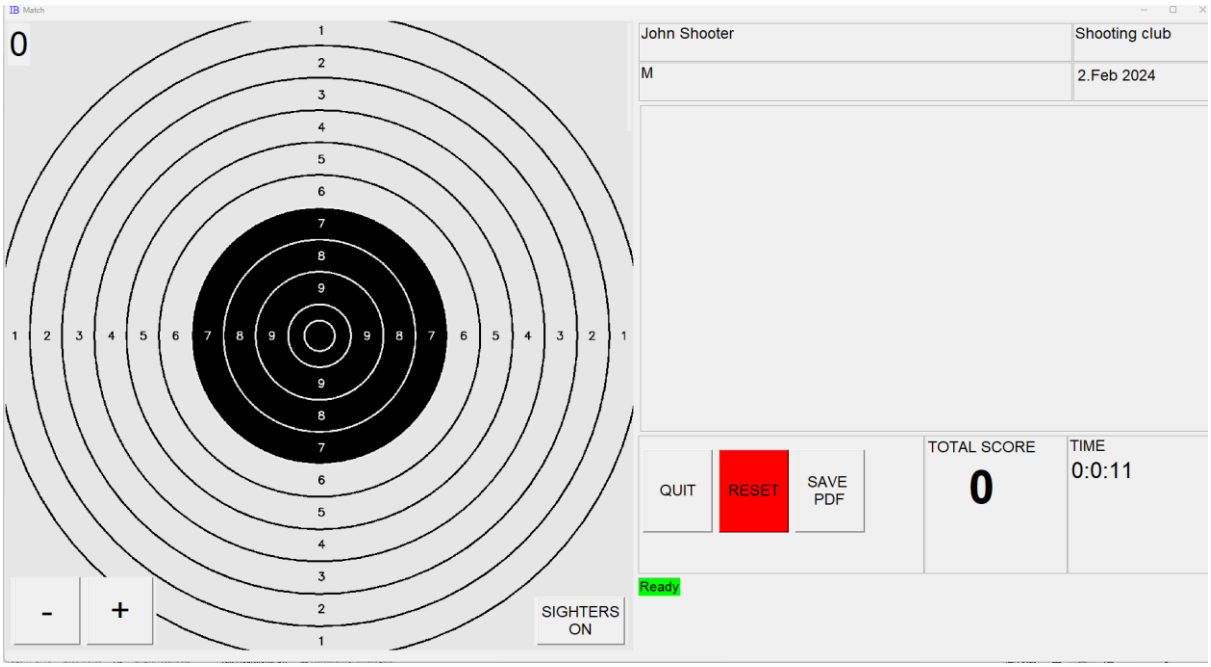


Figure 15 Shooting window

6. Advanced Use

6.1. Using the traffic lights from Inband Scoring

The "timer control" tick should be checked from the settings.

Now in shooter's window a extra panel of buttons is added to the bottom right corner of the view as shown in Figure 16.

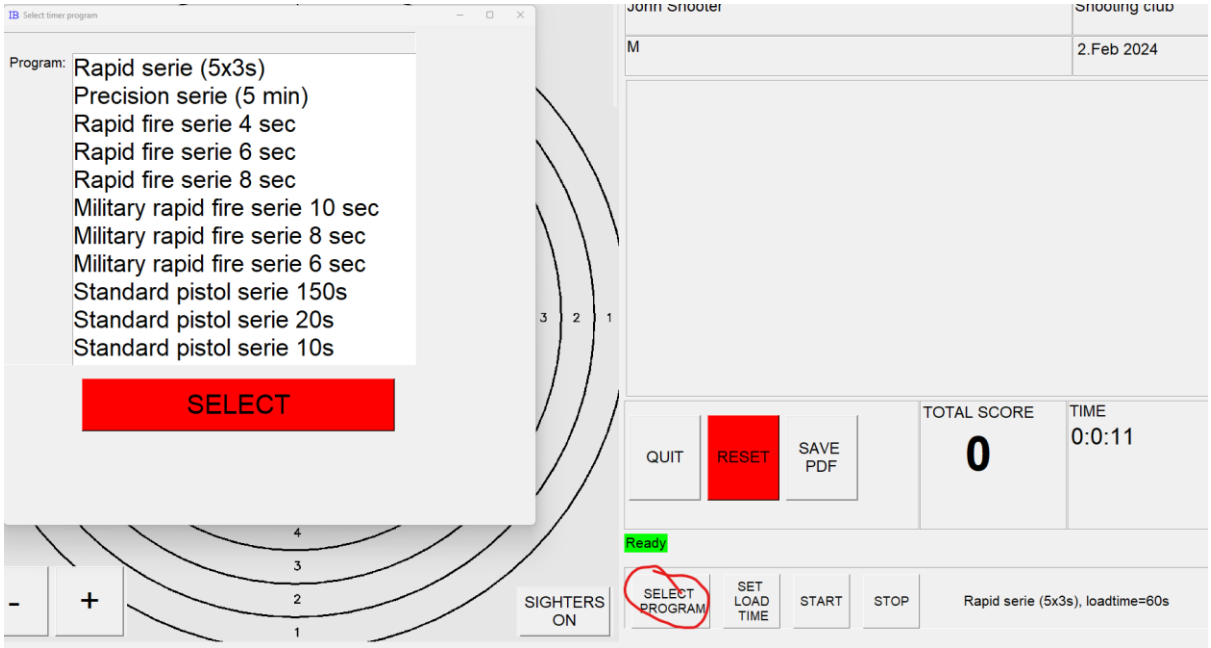


Figure 16. Shooter screen with timer control activated and "SELECT PROGRAM" button pressed

SELECT PROGRAM: Pressing this opens the list of available red/green timer programs. Select the one from the list and press SELECT

SET LOAD TIME: This is by default 60s according to ISSF rules, but for practise shooting the load time can be set shorter. Press this button to open a window to set new load time

START: Starts the sequence. A countdown timer will display on the screen for the loadtime, and after the load time has expired the timer program will launch. **Note: Program can also be started by pressing the SPACE key on keyboard, or pressing the "A" key on the remove controller.**

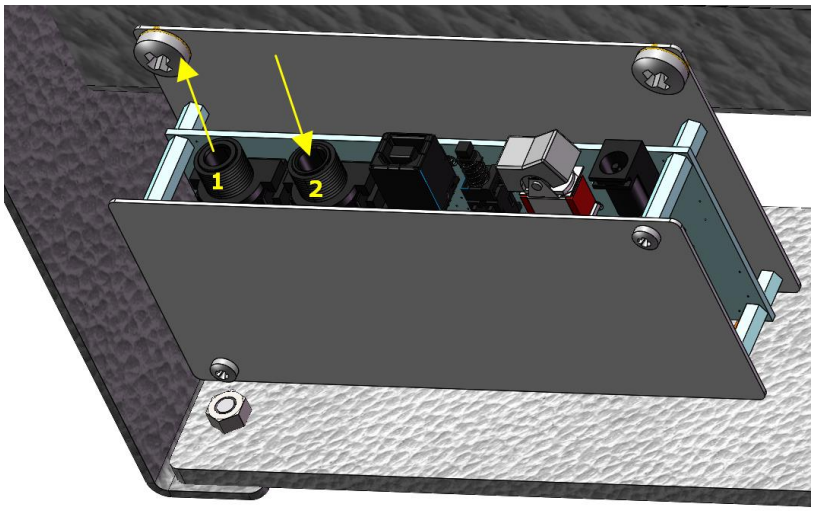
STOP: With STOP button the timer program can be cancelled in the middle of its run. **Note: on the "rapid" disciplines where the green light is on for only some seconds, the STOP will only engage when the red ligh comes on. On slower programs (like Precision serie 5mins) the stop can be pressed at any time.** Program can also be stopped with the remote control by pressing the red "D" button.

6.2. Using the remote control

Remote control can be used to conveniently start the red/green sequence.
The timer program must always be first time initiated from the Inband Scoring SW. After this, by pressing the A button on the remote control the **last selected program** will be started. I.e shooter must always first select the program and run it once from the software, and only after this it can be used on remote control.

Figure 17 Remote control for controlling the red/green lights. A) Starts the previously shot program D) Stops program

6.3. Chaining multiple targets



The plugs 5.5mmm on the side panel can be used to chain the power supply to five devices from one transformer.
Red/green timer control can be synchronized by multiple targets by chaining the targets. The first target in the chain is the "master" and controls all the other targets.

This is done using the "control in" and "control out" connectors in the connector panel. Connect a 6.3mm stereo audio cable from master target "control out" to the "control in" of the next target and chain the targets down to the last target.

Important note: Target detects whether it is in the "slave" or "master" mode by detecting the presence of "control in" cable. This is done only at the power-on of the the target. **It is important to connect the control cables while the targets are powered off, otherwise the chaining of the targets may function not properly.**

7. Maintenance

Most usual maintenance operation is the change of the fixed or moving rubbers. The rubber changing cadence of the fixed rubbers depends on how much there are bullet holes in the fixed rubbers. Good indication of the rubber replacement need is if the red warning on shot detection accuracy starts to show off often when shooting.

When the fixed rubbers are removed for change, it is good idea to clean up the inside of the target from any rubber/dirt that may have entered the target.

If there is lead dust on the surfaces of the target, they should be cleaned. **Note that gathering of lead dust on the target is a sign of poorly functioning bullet catcher. Lead is highly harmful substance and proper personal protection should always be worn when cleaning targets from lead dust.**

8. DECLARATION OF CONFORMITY

Inband Hertar ltd hereby declares that this device is in compliance with the essential requirements and other relevant provisions of directives 2014/30/EU (EMC), 2014/53/EU (RED) and 2011/65/EU (RoHS).

This device contains:

FCC ID: XPYNINAB22
IC: 8595A-NINAB22

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference
(2) this device must accept any interference received, including interference that may cause undesired operation.

9. SPARE PART RECOMMENDATION

(same set for each device)

Fixed backside rubber	1pc	spare part number 4597
Moving rubber	1pc	spare part number 4604
Fixed rubber for frontside	2pc	spare part number 4598
Moving rubber holder	1pc	spare part number 4401