




Ballistic Manager Simple (BallMan Simple)

Version 01.2.0



Meyton Elektronik GmbH
BallManSII 01.2.0

5,60 calibre [mm]

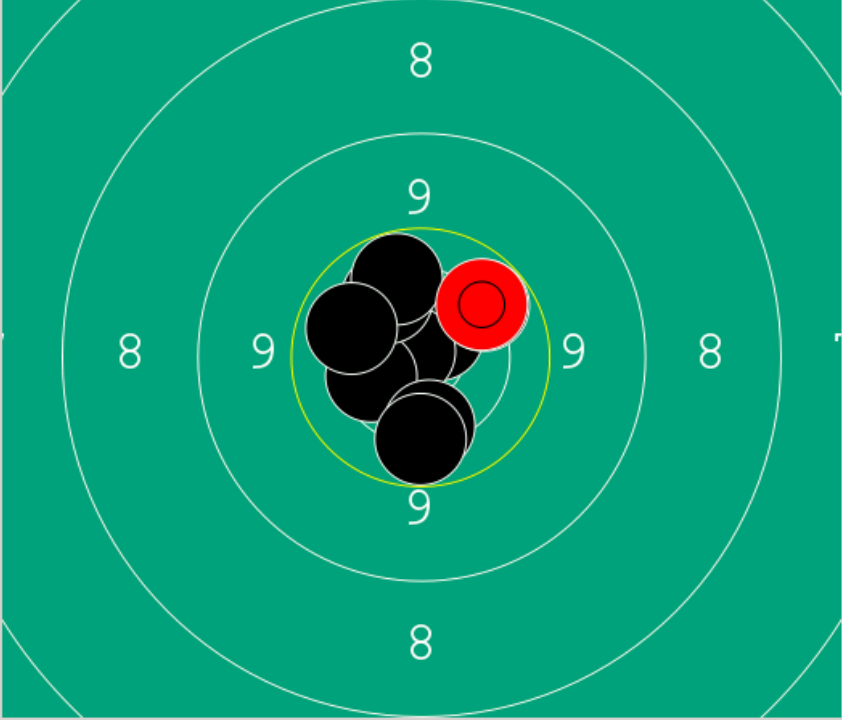
inside or outside diameter
 inside outside

automatic
 automatic

3 sighting shot no
 10 competition shot no

new target

F1 - Switch to Textscreen



Results	Target	Frame	Settings	RS232c			
Dmax	Hmax	Bmax	H+B	Sx	Sy	Sa	No
15.24	9.44	7.79	17.23	2.43	3.04	2.75	10

User Manual

© Meyton Elektronik GmbH 2012
Version 1.1.0 Roman Geile
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About BallMan

The Ballistic Manager (BallMan) is a special product for statistical hit analysis. It is used in the quality assurance of weapon and ammunition manufacturer and in customer test shooting ranges to determine the best ammunition for a weapon under different environmental conditions (e.g. different temperatures) or between different ammunition production batches.

The BallMan software calculates the following statistical hit values:

- **Dmax:** This is the diameter [1/100mm] of the smallest circle which contains all hits of the target.
- **Hmax:** This is the height of the hit area [1/100mm]. It's the distance between the highest and the lowest hit border.
- **Wmax:** This is the width of the hit area [1/100mm]. It's the distance between the hit border of the leftist and rightist hit.
- **H+W:** Sum of Hmax and Wmax.
- **Sx, Sy:** These are the standard deviation of the hit positions in horizontal (Sx) and vertical (Sy) direction in 1/100mm.
- **Sa:** This is the quadratic mean of Sx and Sy.

RS232c Serial Port Communication

Over the included RS232c serial port you can send commands to the BallMan System and receive data from it. To communicate with the BallMan over the RS232c serial port you have to use following connection settings:

- 19200 baud
- 8 data bits
- 1 stop bit
- none parity

All commands you send to the BallMan have to start with the character STX (0x02) and have to end with ETX (0x03):

```
<STX><command><ETX>
```

The BallMan answers with:

```
<STX><answer><ETX>
```

Following commands are accepted:

- **Start:** The actual target is deleted before the insertion of the next shot.
- **QuickCheck:** The Measuring frame performs a quick check. If no errors were detected **Okay** is sent within 10 seconds. Otherwise an error message is displayed.

Example:

```
receive: <STX>QuickCheck<ETX>
```

```
answer: <STX>Okay<ETX>
```

- **Coordinate:** When the option **send coordinates after each shot** in the **RS232c** tab of the BallMan window is enabled, the x- and y-coordinates, the time stamp and the hit number of each hit is sent via RS232c right after a shot was measured. The hit data is sent in following format:

```
<STX><x>,<y>,<timestmap hh:mm:ss.ttt>,<hit number nn><ETX>
```

The unit of the x- and y-coordinate is [mm] and the origin of the coordinate system is the center of the Measuring Frame and target. The timestamp is the system time of the BallMan device. The hit number is the number of measured hits on the actual target after last delete.

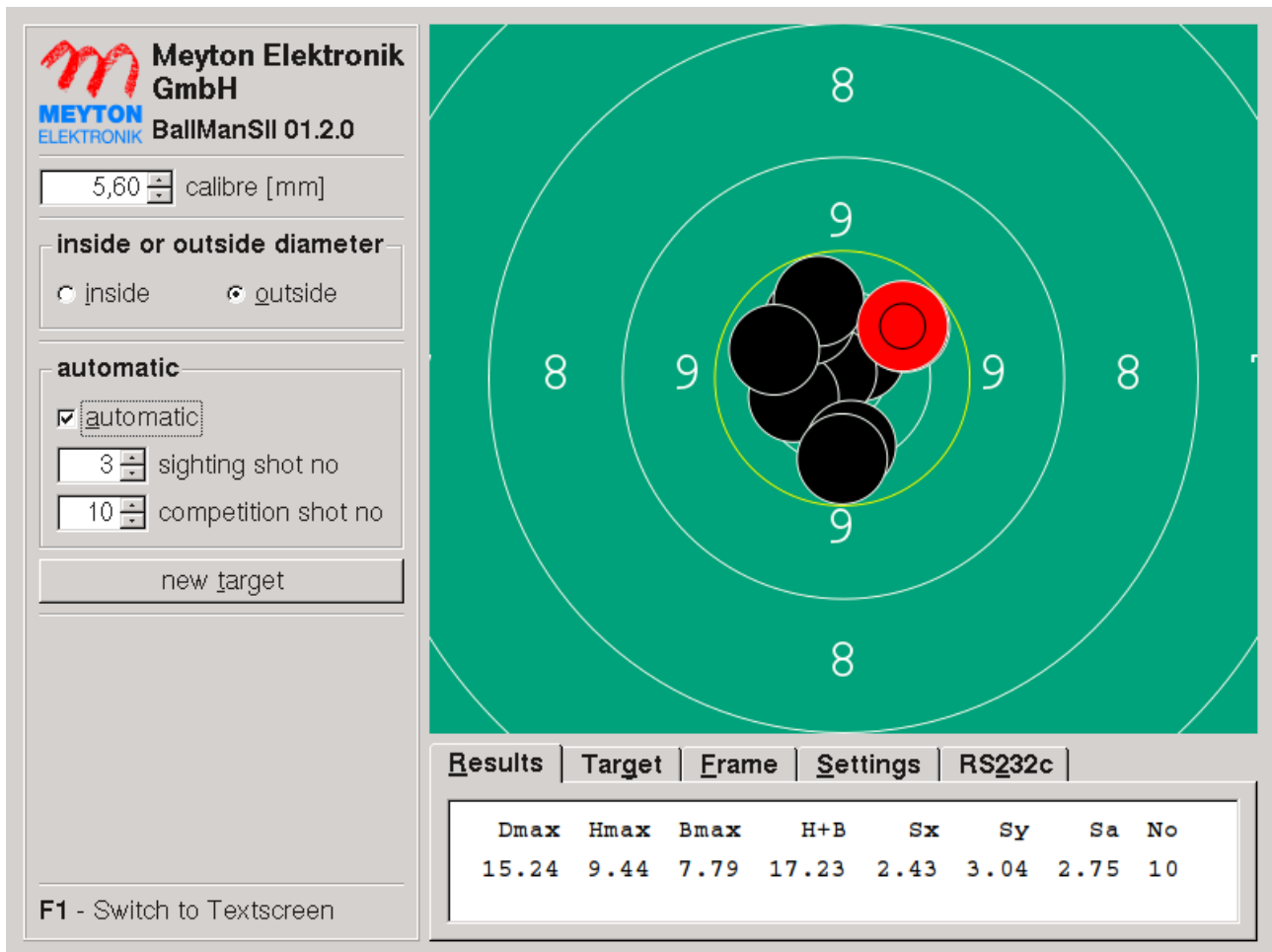
If you send the command **Coordinate** to the BallMan repeats the hit coordinates of the last measured shot.

Example:

```
receive <STX>Coordinate<ETX>
```

```
answer: <STX>-130,560,13:34:53.347,3<ETX>
```

User Interface



The screenshot displays the BallMan user interface. On the left is a settings panel with the following elements:

- Logo for Meyton Elektronik GmbH and BallManSII 01.2.0.
- Calibre input: 5,60 mm.
- Selection for 'inside or outside diameter' (radio buttons for 'inside' and 'outside').
- 'automatic' mode checkbox (checked).
- Sighting shot number input: 3.
- Competition shot number input: 10.
- 'new target' button.
- 'F1 - Switch to Textscreen' label.

The main display area shows a green target with concentric circles labeled 8 and 9. A cluster of black bullet marks is centered, with one red bullseye mark. A yellow circle highlights the cluster.

At the bottom right, a data table is shown with the following structure:

Results	Target	Frame	Settings	RS232c			
Dmax	Hmax	Bmax	H+B	Sx	Sy	Sa	No
15.24	9.44	7.79	17.23	2.43	3.04	2.75	10

On the left side of the BallMan user interface you can set following parameters:

- **calibre:** Here you can set the calibre [mm] of the used bullets.
- **inside or outside diameter:** Here you can choose if the calculation algorithm should use the bullets center position or the bullets outer border position for calculating Dmax, Hmax, Wmax, H+W, Sx, Sy and Sa (s. section **About BallMan**)
- **automatic:** If you turn on the automatic mode the BallMan switches automatically after the specified number of shots between sighting and competition target.
- **new target:** With this button you can delete the shots on the actual target.

On the bottom of the window you can access following options through the tab interface:

- **Results:** Here the results of the statistical hit analysis are displayed. The meaning of these values is described in the section **About BallMan**.

<u>R</u> esults	<u>T</u> arget	<u>F</u> rame	<u>S</u> ettings	<u>R</u> S232c			
Dmax	Hmax	Bmax	H+B	Sx	Sy	Sa	No
15.24	9.44	7.79	17.23	2.43	3.04	2.75	10

- **Target:** Here you can choose the target you want to fire at. With the input fields **Target Origin** you can move the targets center within the measuring frame.

<u>R</u> esults	<u>T</u> arget	<u>F</u> rame	<u>S</u> ettings	<u>R</u> S232c
Target Type		Target Origin		
50 Meter Rifle Target		0,0 x [mm]		
		0,0 y [mm]		

- **Frame:** Here informations abouts the connected Measuring Frame are displayed. With with button **quick check** you can start a quick check of the Measuring Frame. With the button **long check** an intense Measuring Frame test can be started. With the button **show status of LED's** you can open a window which in displays the current status of the Measuring Frame LED's. With this function you can test if the measuring frame is solided.

<u>R</u> esults	<u>T</u> arget	<u>F</u> rame	<u>S</u> ettings	<u>R</u> S232c
Frame type: MF4R3 - 550x550 mm		<input type="button" value="quick check"/> <input type="button" value="long check"/>		
		<input type="button" value="show status of LED's"/>		

- **Settings:** Here you can change following parameter of the BallMan system:

<u>R</u> esults	<u>T</u> arget	<u>F</u> rame	<u>S</u> ettings	<u>R</u> S232c
Local Area Network		GW-Address		Language
192.168.1 .141		192.168.1 .127		english
255.255.0.0		<input type="button" value="connectToMeyton"/>		

- **Local Area Network:** In this area you can change the IP address and the netmask of the BallMan device. In the first input field the BallMan's actual local IP address is displayed. You can change the IP address by editing the input field. To confirm the new address you have to press the **Enter** key afterwards.

Below the IP address field you can find the netmask settings. With the netmask you can specify in which subnet (class B or class C) the BallMan device is located within the network. You can change the netmask by choosing another value within this box.

- **GW-Address:** In this field the local network address of the internet gateway is displayed. The internet gateway is a device in the local network which is connected to the internet. In most cases you have to type the local IP address of the ADSL Router into this field. This is the IP address over which you can access the configuration tool of the ADSL router over an internet browser. The local IP address of the ADSL router varies by manufacturer. In many cases 192.168.0.1 or 192.168.2.1 is used. For further information look into the instruction manual of your ADSL router.
- **Language:** Here the actual system language of the BallMan device is displayed. You can change the language by choosing another value within this box. Actually the following languages are supported: English, German.
- By activating the **connectToMeyton** button the BallMan system connects to the Meyton support server. After the connection is established, the Meytons Service Team can administrate the BallMan system through the Internet.
- By activating the **disconnect** button the connection to the Meyton support server is closed.
- **RS232c:** Here the connection settings of the BallMan RS232c serial connection are displayed. If you activate the option **send coordinates after each shot** shots coordinates are transmitted through RS232c interface after each shot. More details you can find in the section **RS232c Serial Port Communication**.

Results	Target	Frame	Settings	RS232c
19200 Baud, 8 Data Bits, 1 Parity Bit, none Stop Bit				
<input type="checkbox"/> send coordinates after each shot				