SAM BallTracker – Specifications & Checklist

A: General specifications

For proper function SAM BallTracker requires specific environment conditions:

1. **Light conditions**

   As the product is a camera based optical system proper light conditions are crucial.

   Basically this is the right light intensity and the uniformity of the brightness on the putting surface.

   Light intensity:

   Intensity of light should be in a normal range (100 to 350 lux, if BallTracker is used in conjunction with SAM Projection light level should be on the lower side 100 to 200 lux)

   No daylight on the tracking area, windows need to be shaded or darkened to avoid variations in brightness.

   Uniformity:

   If the putting area appears in uniform brightness to the human eye this will be sufficient. Depending on daylight conditions there should not be any visible bright spots on the surface. Any significant variation in brightness can affect the detection quality of SAM BallTracker.

2. **Camera mounting and position**

   The camera needs to be positioned in the center of the putting area that should be covered by the system.

   Depending on the size of this area the camera needs a certain minimum height to achieve full coverage. This needs to be checked with Science & Motion before order of the system. More details on this in the Checklist part of this document.

3. **Computer requirements**

   A computer with sufficient performance is essential to run SAM BallTracker with best tracking quality.

   The minimum requirements are dependent on which SAM Studio apps are

running.

For the minimum Studio with PuttLab and 3D and BallTracker this would be:
Intel i7 Gen 9 or higher or AMD Ryzen 5, at least 6 cores, 8 GB RAM, 256 GB
SSD
(no CPU models with T, U or Y suffix)

For the full Studio including SAM Video and Projection this would be:
Intel i7 Gen 9 or AMD Ryzen 7, at least 8 cores, 16 GB RAM, 1 TB SSD
(no CPU models with T, U or Y suffix)

B: Environment checklist

Some parts of the SAM BallTracker delivery are specific to the room environment.
Before delivery we need to know all relevant details of the environment to
assemble the package.

1. **Camera location**
   The camera needs to be straight above the center of the tracking area.
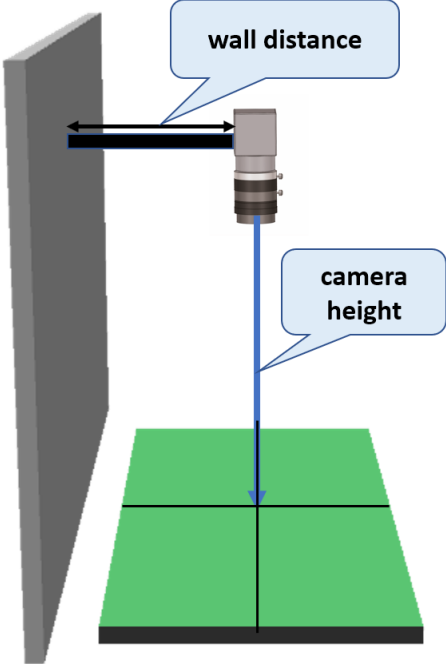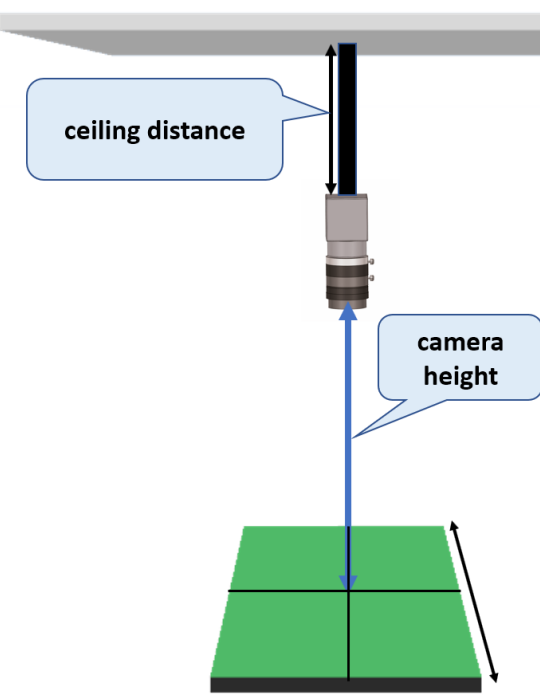   **There are three different options to mount the camera:**
   - wall mount
   - ceiling mount
   - truss mount (in case of SAM Projection combo, not covered in this
   document!)

2. **First step is to determine the needed camera height above the putting**
   surface based on the desired size of the tracking area:

Please select	Size of tracking area	Camera height
☐	13 x 10ft (4 x 3m)	8ft (2.5m)
☐	16 x 12ft (4.8 x 3.6m)	10ft (3m)
☐	18 x 14ft (5.6 x 4.2m)	11ft (3.5m)

If you know the installation height you need to decide if wall mount or ceiling mount is the better option for your room.

Wall mount	
	max. supported distance from wall to camera: 8ft (2.5m) *Please note: camera needs to be positioned above center of tracking area*
Ceiling mount	
	max. supported distance from ceiling to camera: 8ft (2.5m) *Please note: camera needs to be positioned above center of tracking area*

Please select the preferred mounting option and enter the needed wall or ceiling distance:
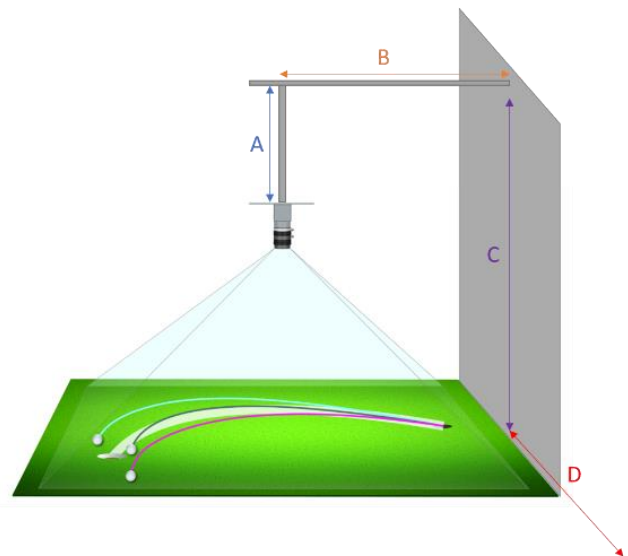
Please select	Enter distance and dimension
☐ **Wall Mount**	**wall distance:**
☐ **Ceiling Mount**	**ceiling distance:**

3. **USB cable length**

   Total cable length from camera to computer is needed. Cables up to 30 feet/10m are part of the standard package. Longer cables available on request.

   Please note: no standard USB3 cables and extensions can be used

USB cable length
A (to ceiling):
B (to wall):
C (to floor):
D (to computer):
Sum:

4. **Putting Green**

   Please give some basic information about the putting green that is used.

Please select type of green	Please comment
☐ Moveable platform	Vendor:
☐ Plane turf	Vendor:
☐ Other	please describe:
☐ Spots or marks printed on the green?	please describe:

Additional information:
Turf Color:
Stimp:
Green Size (length and width):
Number of fixed holes:
Hole Positions:

5. **Light conditions**
   Light conditions need to be stable and uniform on tracking area.
   Please confirm the following requirements:

☐ no daylight on putting area or daylight can be shaded
☐ brightness is in normal range (e.g. for office work)
☐ no bright spots or shadows visible on tracking area

6. **Computer requirements**
   These are the minimum computer requirements to run SAM Studio with PuttLab, 3D-Putt, SAM Video and BallTracker:

	Minimum requirements:
CPU:	**Intel i7 or AMD Ryzen 5, at least 6 physical cores. (no models with U / Y / T suffix)** *If you plan to add SAM Projection a i7 or Ryzen 7 with 8 physical cores is recommended.*
Operating system:	**Windows 10**
System memory	**8 GB (16 GB recommended)**
USB ports	**1 USB 3 for BallTracker, 1 USB 2/3 for PuttLab** *One additional USB 3 port if you want use SAM Video*
Disk storage	**256 GB (SSD recommended)** *For SAM Video: 1 TB SSD recommended*
Video	**no special need for performance.** *Please note: If you want to run multiple displays and/or SAM Projection you need enough graphics outputs (HDMI or Displayport). Graphics boards with up to 4 outputs are available.*

*To run the BallTracker a PuttLab 6 or 7 install is needed.