IFSC OFFICIAL SPORT EQUIPMENT - SPEED

CATEGORY : SPEED AUTOMATIC TIMING SYSTEMS

IFSC Official Speed Automatic Timing System Specifications

1.1. General

The Speed Automatic Timing System records the elapsed climbing time of each competitor, announces false start, and declares the winner of the race according to the IFSC Rules (see Section 9. Speed here).

The Speed Automatic Timing System devices shall consist of the hardware and configurable software as specified below.

1.2. A central unit including the clock and the hub to connect other equipment

1.2.1. Time keeping for each competitor separately as the difference between the time at which the starting signal is given and the finishing time;

1.2.2. Starting procedure settings;

1.2.3. Record of the reaction time (with back-up for the judge);

1.2.4. False start settings;

1.2.5. Record time as history back-up;

1.2.6. Transmission of time(s) to result-service;

1.2.7. Transmission of time(s) to live streaming (by HDMI connection);

1.2.8. Software configurable in case of rules modifications.

1.3. Starting device

1.3.1. The starter shall activate the Starting procedure (3 beeps);

1.3.2. [Optional] Possibility to use the starting device remotely;

1.3.3. The size of the starting device shall allow for the starter to hold it and to handle it in one hand;

1.3.4. The starting device shall allow for system resetting after climbing rounds;

1.3.5. The starting device shall be connected via wire in order to avoid (reduce) disturbance.

1.4. Starting pads

1.4.1. There shall be one starting pad for each Lane;

1.4.2. The measurement:

    i   The maximum size allowed is 40 cm x 30 cm (size according to the IFSC drawings in the IFSC Speed License Rules) with tolerance +/- 1 cm;

    ii   [Optimal] The sensitive area should be a square: 25 cm x 25 cm with tolerance +/- 5% (1.25 cm);

    iii The pad shall have a maximum of 1.5 cm of non-sensitive area around each side to use to fix the device to the wall;

1.4.3. The thickness of the pad shall not exceed 2 cm (tolerance ±1 cm);

1.4.4. The starting pad shall:

    i   Send signal to the central unit when the contact is released (when the climber leaves the starting pad);

    ii   Send signal when the climber is on the pad with a significant pressure on it (indicators);

    iii Send signal when the climber makes a false start;

    iv Be initiated with a maximum force of 5 daN on the entire sensitive surface of the pad; This force is applied vertically on a round surface of ~20 cm^2
Light check: A full 5l water bottle with cap 5 cm in diameter placed upside-down with the whole surface of the cap overlapping the sensitive surface should trigger the pad

    v   Give feedback on whether the system is harmed or not. For instance, either by a mechanic sound (click) or by including a light system (turns green when the system is harmed; and turns orange when the system is not harmed).

1.5. Finishing pads

1.5.1. There shall be one finishing pad for each Lane;

1.5.2. The measurement:

    i   The maximum size allowed is 40 cm x 30 cm (size according to the IFSC drawings in the IFSC Speed License Rules – see *Figure 1*) with tolerance +/- 1 cm;

    ii   [Optimal] The sensitive area should be a square: 25 cm x 25 cm with tolerance +/- 5% (1.25 cm);

    iii The pad shall have a maximum of 1.5 cm of non-sensitive area around each side to use to fix the device to the wall;

1.5.3. The thickness of the pad shall not exceed 2 cm (tolerance ±1 cm);

1.5.4. The finishing pad shall:

 i Send signal to the central unit when the contact is established (when the climber hit the finishing pad);

 ii Be initiated with a maximum force of 5 daN on the entire sensitive surface of the pad; This force is applied vertically on a round surface of ~20 cm^2
Light check: A full 5l water bottle with cap 5 cm in diameter placed upside-down with the whole surface of the cap overlapping the sensitive surface should trigger the pad

 iii Not be disturbed by the rope's movement, the shakings of the wall or vibration due to a climber hitting out of the pad;

 iv Be located at the distance of 40 cm from the horizontal axis of the last panel with t-nuts, as described in *Figure 1*.
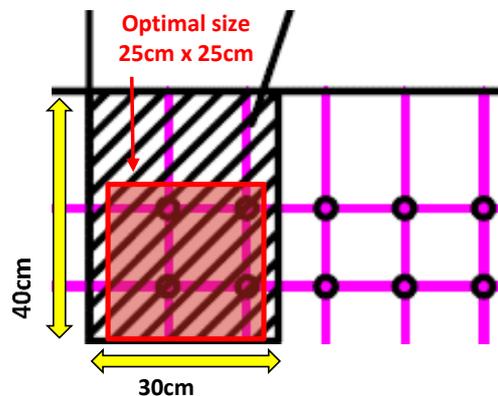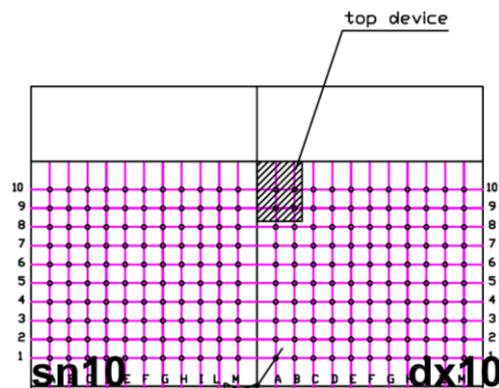

Figure 1: Location and size of the finishing pad

Maximum allowed size 40cm x 30cm (black box) & Optimal size 25cm x 25cm (red box)

1.6. Sound system

1.6.1. The sound system shall clearly announce the beeps:
- i Two low and one high pitched sound following the starting procedure described in *Figure* 2;
- ii Low pitch sounds shall be 880 Hz (first and second beep);
- iii High pitch sound shall be 1760 Hz (third beep);
- iv All beeps shall be 90 DB.

Note: During competitions, the level should be adjusted depending on the crowd ambient noise
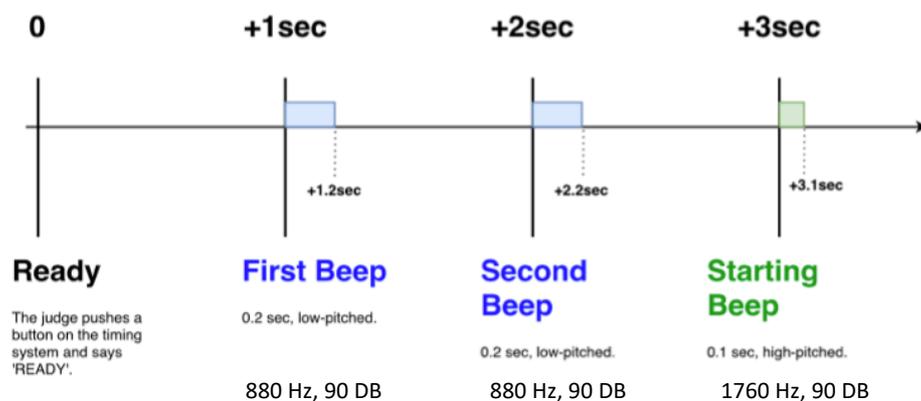
1.6.2. The sound system shall be connectable to the venue sound system and settable separately;

1.6.3. The sound system shall be placed close to the competitors; the speaker(s) must be positioned at the same distance from each competitor;

1.6.4. The sound system shall clearly announce a false start informing climbers to stop climbing:
- i An immediate beep shall start right after false start is detected;
- ii The beep shall be 1568 Hz;
- iii The beep shall be intermittent sound that can be stopped by the judge or stay at least 8 seconds;
- iv The beep shall be 90 DB.

Speed climbing starting procedure

0	+1sec	+2sec	+3sec
	+1.2sec	+2.2sec	+3.1sec

Ready
The judge pushes a button on the timing system and says 'READY'.

First Beep
0.2 sec, low-pitched.
880 Hz, 90 DB

Second Beep
0.2 sec, low-pitched.
880 Hz, 90 DB

Starting Beep
0.1 sec, high-pitched.
1760 Hz, 90 DB

Note : False start if climber begins between 0 and 3.1 sec.

Figure 2: Speed climbing starting procedure

1.7. Indicators

1.7.1. There shall be (at least) one indicator on each Lane;

1.7.2. Each indicator shall have green, orange and red colours, it can consist of three (3) different lights or one (1) light which can change colour;

1.7.3. Clearly show when the climber is on the pad (continuous orange light/red light before);

1.7.4. Clearly flashing when the starter presses the button of ready, then at first beep and second beep (green light flashing);

1.7.5. Clearly show the start signal (continuous green light);

1.7.6. Clearly show the winner (continuous green light);

1.7.7. Clearly show the loser (no light);

1.7.8. Clearly show the false start (flashing red for the false start, flashing green for the other);

1.7.9. No lights (switch-off) when resetting.

1.8. Displays

1.8.1. One displays for each Lane;

1.8.2. [Optimal] Size should be 0.8 m x 0.30 m;

1.8.3. Format: 5 digits separated by a dot as 00.000;

1.8.4. Show the time with 1/100 sec and, in case of ties, it shows the 1/1000 sec;

1.8.5. Show the false start by flashing red colour for the climber who made the false start time (flashing green with 00.00 for the other), according to 8.4.4;

1.8.6. Show 00.000 in red during resets;

1.8.7. Show in continuous green light the recorded time of the winner;

1.8.8. Show in continuous red light the recorded time of the loser.