

# Beam Trainer QF11A-T and QF11-S

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## *User's Manual*

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### Purpose of use

Beam Trainer QF11A-T and QF11-S devices form a time measuring system. They consist of infra-red photo cell technology, where the athlete breaks the infra-red beam that marks the starting time, finish and intermediate time. A complete system can be used for:

- Measuring sprint time (athletic competition time measurements)
- Testing in fast sports (athletics, football, basketball, tennis or similar)
- Assistance at trainings, like carrying out specific drill exercises for agility improvement or reaction time measurements)

## Precautions

Read this manual carefully before use, especially the warnings. In the case of not fulfilling the recommended instructions for use, we do not take any responsibility for any damage or injury what so ever. The guarantee in these cases is invalid.

Please consider the following instructions:

- **Do not use Beam Trainer devices in rainy weather. They are only resistant to light water sprinkle. In the case of use in rain, follow instructions under "Storing and maintenance".**
- **Do not expose devices to mechanical burdens and keep from mechanical damage.**
- **Do not expose Beam Trainer devices to extreme temperatures.**
- **Do not expose Beam Trainer devices to direct sun for longer periods.**
- **You need to insure the Beam Trainer devices against high humidity, inflammable substances, vapors and fumes.**
- **Immediately turn off devices in case of mechanical damage, exposure to high humidity or inappropriate use and discontinue further use.**
- **Use with care to avoid eventual incorrect function and to prolong life time.**



## Change of batteries

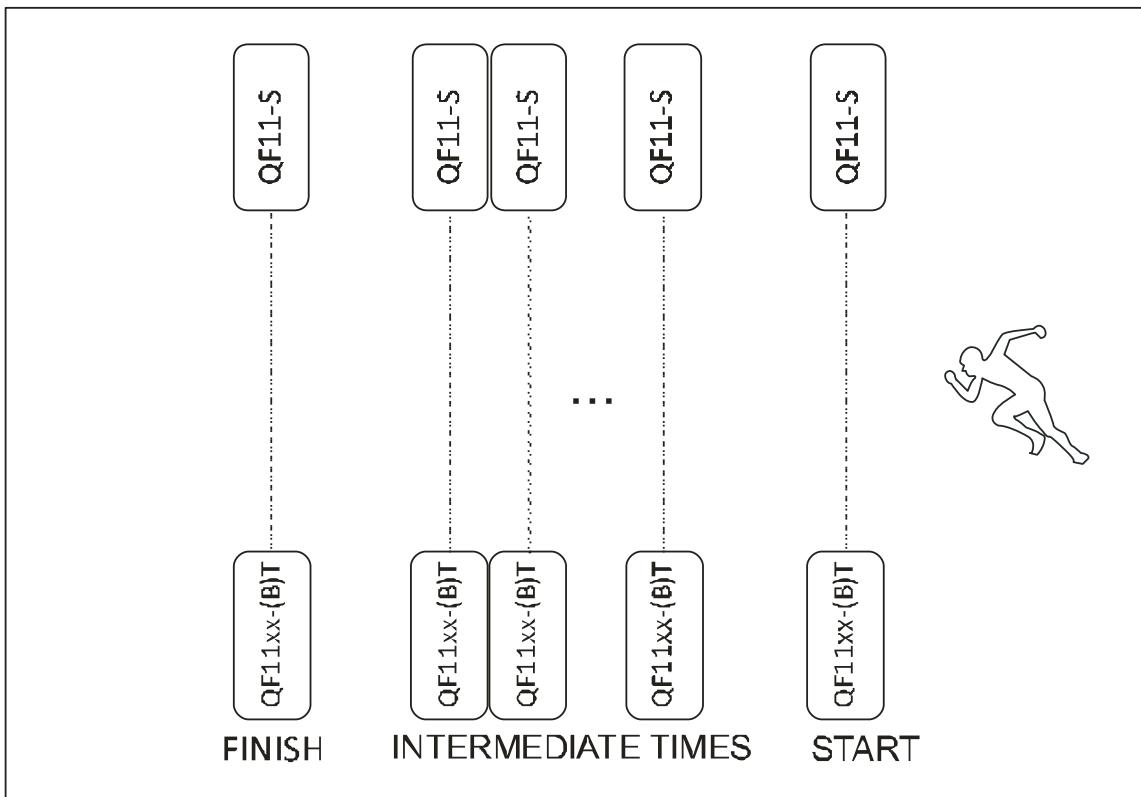
Press lightly on the marked battery supporter space lid and pull slightly. In order to remove batteries, pull a strip that is lying under the batteries. When inserting batteries, take care with correct polarity and positioning of the strip that has to lie underneath them.

Always insert alkaline 1.5 V AA size batteries. Take care that the batteries are the same and both new. In cases of no use of Beam Trainer devices for a longer period taking batteries out, is recommended.

## Functional description

Beam Trainer devices QF11A-T contain an infra-red sensor that senses the interruption or breaking of the infra-red beam positioned e.g. on the finish line as the athlete crosses it. QF11A-T devices have a radio transmitter to deliver timing information of beam breaking moment to other devices, which receives and analyzes this information.

Every QF11A-T has to be in a pair with QF11-S (as shown below) that forms the timing gate.



**Attention: the devices must be facing each other by the red windows to form the timing gate.**

## How is the Beam Trainer system used

### Switching it on

The Beam Trainer system is switched on by pressing the POWER/MODE button for about half a second. As the LED light goes on, pressure to it should be discontinued.

### Switching it off

The Beam Trainer system is switched off by pressing the POWER/MODE button for about three seconds. After that the LED light turns on which means that the system will eventually turn off, after we release the button.

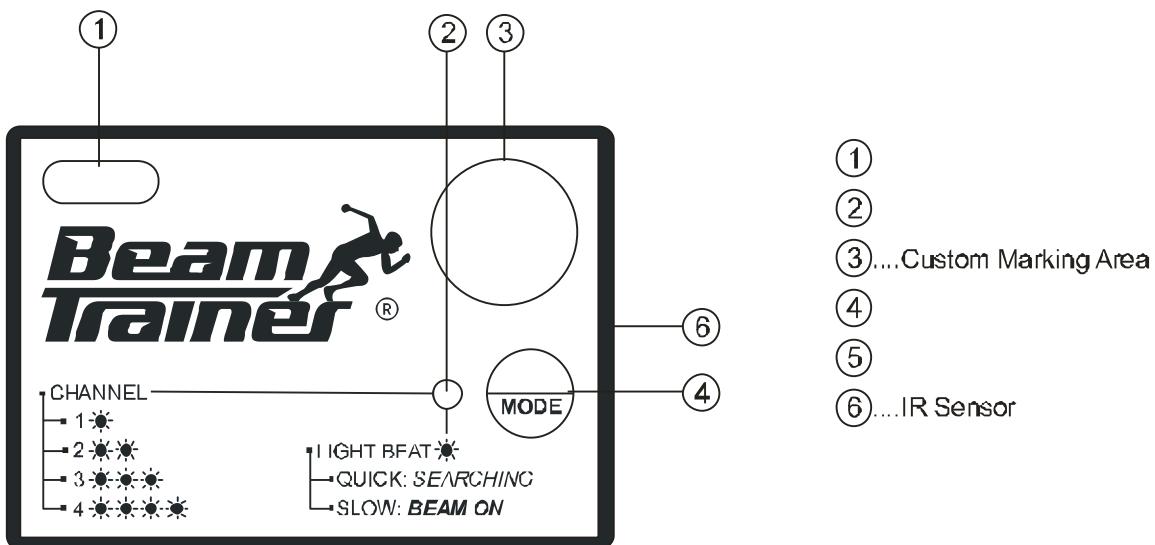
### Selecting a channel

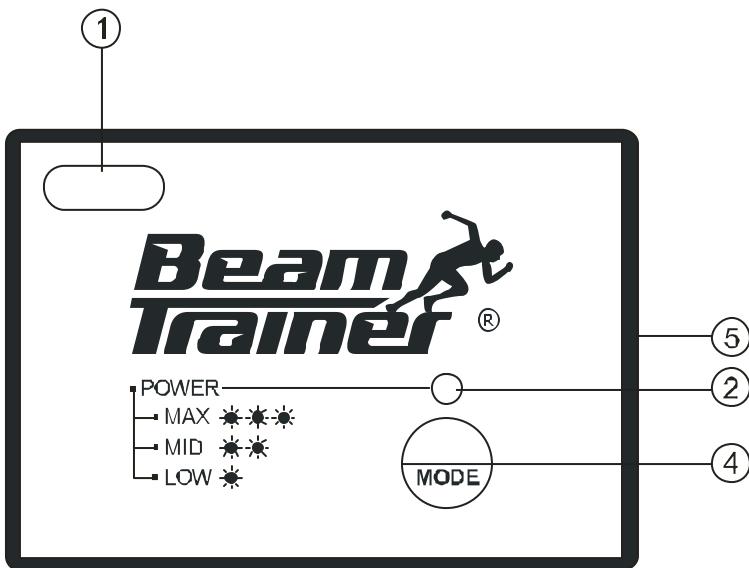
The Beam trainer device QF11A-T needs radio wave connection with the frequency of 915MHz. Four channels are available. After the device is switched on, the first channel is chosen. One LED blink denotes the first channel selected. If a change of channel is needed, pressing the “POWER/MODE” button is necessary to choose the next one which is noticed by the appropriate number of LED blinks.

**Advice: channels should be changed only in two cases:**

- When the communication between devices is not working (another device of unknown origins uses the channel)
- If we use more testing setups in the same range, it can be helpful to separate them by different channels. Please note, however that the device from another setting cannot affect our measurements even if it uses the same channel, because each Beam Trainer QF11A-T device has its unique serial number to identify with.

**Important: when we change the channel on one of the devices, we must do the same on all others within the same setup.**





## The meaning of LED blinking (QF11A-T)

LED state	Meaning
Long slow (1 to 4) blinks after pressing the "POWER/MODE" button	The number of flashes shows the appropriate channel: 1 blink 1. channel 2 blinks 2. channel 3 blinks 3. channel 4 blinks 4. channel
Short fast repetitive blinks	The device is searching for the <u>IR</u> transmitting signal. The QF11-S should be switched on and directed upon QF11A-T with red windows facing.
Short slow repetitive blinks	The device is in a normal operation mode and waiting for a beam break.
A longer blink after breaking the beam	The beam brake has been acknowledged, and the corresponding timing information delivered
LED is on constantly for several seconds	Batteries are empty; the device will turn off

## Choosing the strength of IR beam (QF11-S)

The Beam trainer device QF11-S allows three levels of IR beam transmitting power. That offers the possibility to adjust the strength of the beam to momentary circumstances and adjustment of battery life duration. After powering the device, the middle level is set, two LED flashes indicate that. Changing IR beam power level is possible with pressing the "POWER/MODE" button. One LED blink means minimal power, two blinks medium power and three maximum power of IR beam transmission.

**Advice:** if the distance between transmitting QF11-S device and QF11A-T receiver device is less than 5 m the default medium level is appropriate. In the case of longer distance maximum level should be chosen. For distances below 3 m, the minimum level can be used, which extends the battery life the most.

## The meaning of LED blinking (QF11-S)

LED state	Meaning
Long slow (1 to 3) blinks after pressing the "POWER/MODE" button	The number of flashes shows the IR beam strength: One blink Minimum strength Two blinks Medium strength Three blinks Maximum strength
Short slow repetitive blinks	The device is in the normal operation mode
LED lits constantly for several seconds	Batteries are empty; the device will turn off

## Storing and maintenance

Beam trainer QF11A-T in QF11-S devices have standard photograph winding to fasten the tripod to it. We advise the use of the originally enclosed Beam Trainer tripod; however some other tripods with the same winding can be used as well. The devices are stored into our bag together with a tripod, winding or unwinding is not necessary. Before storage devices should be dry and clean. In the case of any signs of humidity, drying properly is necessary.

### Caution!

If devices get wet because of rain or humid weather do according to the following instructions:

- The devices should be left to stand vertically fastened to the tripods and dried well with an absorptive cloth or paper towels.
- The batteries should be taken out carefully while device is left in a vertical position.
- In the case of signs of humidity or drops dry carefully as instructed.
- Remove the devices from tripods and check for signs of humidity or drops and wipe as instructed.
- Let devices dry thoroughly (without batteries and lid) in a dry place for at least 24 hours, for hidden humidity to dry out.
- After that device can be switched on and used again.
- Inform our technical staff in case of any other inconvenience.

## Environment-friendly disposal

Handle for disposal according to your local laws for electronic devices. Batteries should be disposed of environment-friendly separately from devices and according to your local legislation. Flat batteries should be returned to collecting spots for batteries. This way you contribute to protecting the environment.

## FCC Regulatory Compliance Information

FCC ID: 2ADRPQ1C1

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, and
2. this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**CAUTION: Any changes or modifications not expressly approved by Domago d.o.o. could void the user's authority to operate this equipment.**

## Technical data

	<b>QF11A-T</b>	<b>QF11-S</b>
Working voltage	3V / DC	
Batteries	2 x AA (alkaline)	
Dimensions (WxLxD)	70x90x27 mm	
Weight (without batteries)	96 g (3.4 oz)	82 g (2.9 oz)
Radio connection	FSK, 915 MHz	No radio
Number of radio channels	4	/
Radio connection range (eye-of-sight)	250 m (275 Yd)	/
Timing accuracy	within 1/1000 of a second	/
Batteries life time (typical)	50 hours	50 hours