User Guide

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Preamble

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Introduction

The timers have been designed to work in a dog agility arena and record the time elapsed between the start of a course and the end of it. They cope with both single, combined and multi gate variations with the ability to use a horn and/or voice command, timed countdown ring walking and exit time.

The timing is based on the breaking of an infra-red beam between the two gate units. The beam is generated as a “cone” from the transmitter gate which allows easy location of the receiver gate. When the beam is broken a signal is transmitted to the control panel in which a clock is running. When the signal is received, the time is read and stored. The difference between the times at which the start gate and the finish gate beams are broken is the time taken to complete the course.

Both of the gate units, transmitter and receiver, are powered – we do not use reflector technology as it makes alignment more difficult.

The system uses modern technology for both electronics and optics which enables it to be light, have low power consumption and be produced at much lower cost than older products. The system is accurate to one hundredth of a second.

The gate unit uses a radio signal to transmit information to the control panel. These radio signals operate within the legally prescribed frequency band for the UK. Within this band, we provide eighteen alternative frequencies or “channels” so that up to eighteen sets of timing systems can be used in close proximity to each other.

We have endeavored to make the system easy to set-up and operate; we have a development program of continual improvement and enhancement so we would be very interested in any feedback about the product or this documentation.

Batteries

The low power consumption of the control panel allows it to operate using 1 light weight 6 volt Lithium-Ion battery which has a fully charged life of about 24 hours. Consequently, it can be carried around the arena to check that the gate units are working correctly and it may be used in locations without mains electricity.

The same batteries are also used in the gate units and work at low voltage and low current; therefore, they pose no electrical risk to users. Lithium-Ion batteries should be disposed of properly as their constituents are toxic so please use appropriate methods described by your council. The batteries last for several years so it is not an immediate problem.

Resilience

The gate units are strong but they do contain optical and electronic components which will not withstand abuse so please handle with care.

The units are designed to be water resistant and will function in quite heavy rain but they are not water proof and should not be immersed. If the rain is torrential, the units can be protected by

covering each unit where the switches and connectors reside with a plastic bag or something similar. Secure it with an elastic band.

The external display is water resistant and will operate in heavy rain.

Charging the Batteries

All the units have to be charged before using the system and we supply a USB charger with 5 ports so that you can charge all of them simultaneously – 4 Gate Units and the Control Panel. The Control Panel will display the battery condition when it is switched on: 4.1 Volts is the fully charged setting and 3.1 Volts is the lowest setting after which it should be re-charged. All the gate units and the control panel contain1 battery giving the system an operational life of around 24 hours – it is not possible to be precise as it depends on the number of dogs going through the system.

On each device, the gates and the control panel, you will find a mini-USB port as shown below:

There are five “USB A > Mini USB cables supplied together with a 5 Port Dedicated USB Charging Station”. First plug the charging station transformer into the mains and then plug the lead from the transformer into the charging station.

Plug the mini USB end of the cables into the devices and the USB A end into the charging station. You can charge up to 4 gate units and one control panel simultaneously. Some of the ports are labelled 2 Amp and others 1 Amp. You can use either for any device – the 2 Amp ports will charge faster.

On each device beside the mini USB port is a small light. The light is illuminated red while the unit is charging and it changes to green when fully charged. Make sure you have charged the control panel as well as the gate units.

Charge all the units until the lights are green and then make sure they are switched off using the small red button on the devices.

Charging time from flat is about 8 hours so the usual practice is to leave them charging overnight before a competition.

Setting up the Gate Units

Each pair of gates consists of a receiver and transmitter gate. The transmitter gate is easily identified by having two additional buttons. Place each individual gate into the feet supplied. Using the small red button, turn on each gate. Using the small red button, turn on each gate. The LED displays 'on' and then if the gate are aligned correctly the display will show two flashing horizontal lines. If there is a misalignment, the lines appear flashing diagonal and there is an audible alarm sound until alignment is correct. Repeat this process for all pairs of gate units.

PLEASE POINT THE GATES AT EACH OTHER AS ACCURATELY AS YOU CAN. One of the advantages of WFH system is that they are easy to align because of the wide cone emitted by the transmitters; however, please do not abuse this by plonking them down with little regard to how they are aligned. The danger of this is that you might be on the edge of the beam and so a little wind or movement could misalign the gates. Aim them at each other and then test them by moving the receiver a little to the left and right and up and down until you are certain that the receiver is in the middle of the beam; they are then very resilient to wind and small movements.

Using the "Mode" button on the transmitter gate, press once to set required gate sequence which is pre-programmed as "S" (start). Use the "Value" button to choose the other three options which are;

"F" = finish.

"SF" = start & finish (same gate).

"SP" = split times (used in conjunction with start and finish gate(s).

Press "Mode" button twice to display channel. This can be changed using "Value" button to be the same as the console. There are 19 available channels frequencies.

Press "Mode" button three times to display battery level.

Once the required set-up is complete, leave the gates switched on so you can test them with the control panel. Do this by having someone able to walk through the gates in the correct order. Make sure that when they break the beam, it registers on the control panel.

Gate Sensitivity

The gates have to cope with widely differing sized dogs from Jack Russells to Greyhounds. The smaller dogs will probably only break one beam while the large dogs can break several. As the beams emit a cone of light a small dog may only break part of the beam causing it not to register in the control panel. To cope with this we enable modification of the power of the beam which alters the size of the cone.

To configure this “sensitivity” press the red button of the transmitter pole and hold it down until a number between 1 and 20 appears. Short presses of the button will increase the value up to 20 when it will recycle round again. The gates are initially set to 3 which is at the high power end of the spectrum, but move them to a higher value (which is a lower powered beam) to cope with small dogs. You can use the control panel displays shown in (4 h) below to see how the changes affects the triggering of the timer.

Gate Misalignment

If the gates become misaligned during use, the receiver unit tone will sound continuously; however, this may not be heard by the judge so a message is displayed ‘misaligned’ on the control panel for the timer.

Setting the Channel

It is important that all gate units, the display and the control panel are set to the same channel. If you are running multiple rings then the units for each ring should be set to a different channel so that no interference occurs. If other rings are using different timing systems, then you need to ensure that no interference occurs by trying different channels.

The Control Panel

On the back of the control panel (CP) there is an antenna, a red power switch, an LED for charging purposes, a jack socket for connection to an amplifier or PA system and a mini-USB port for charging the battery.

When the CP is switched on, by holding down the red power button, it will display for a short time the software version number, the serial number of the display and the channel number. (1. below shows channel 4). These then disappear and are replaced by the screen shown below (2) where you need to check each gate. The battery condition is in the top left (4.1 is fully charged). Once checked, the system is waiting for the first run (3).

1) When first turned on.

2) Awaiting start and finish gate check.

3) System checked and awaiting first

On the front of the control panel, there are buttons and lights and these are described below:

1) **Last Result:** Displays last nine times.

2) **Horn**: This button sounds a tone for 1 second which is sent to your PA system using the jack plug on the back of the unit. The sound made can be set in the configuration menu (see below).

   For the horn to work, the system has to be connected to a PA system or amplifier. This is done using the jack plug on the back of the control panel. Please note that the output is a “line output” rather than a “microphone output”. Consequently, it should be connected to a “line input” (sometimes called an “auxiliary input”) rather than a microphone input.

   Note that at the beginning of a session, pressing the start/stop switch begins the countdown and sounds the bell simultaneously if the “Bell Auto” setting is set to “Yes” otherwise, the horn is controlled manually.

3) **Count down:** This button is used to activate pre-determined ‘Walking Time’ and ‘Exit Time’ times. These are accessed via the configuration menu and can be set to however many minutes is required for walking the course and then exiting.

4) **Config**: When pressed this button enables configuration of the system where it is used in conjunction with other buttons as described below. Once you have entered the Configuration mode, the “Horn” and “Count Down” buttons moves you through the available options while the “Resume” and “Start/Stop” buttons change the values. Pressing “Config” again takes you out of the configuration system.

   When the Config button is pressed it displays:

a) **Horn:** Using the ″Resume″ and ″Start/Stop″ adds or reduces the time required in seconds. This function is available to indicate end of course time (ie: NFC run).

b) **Number of dogs:** Using the “Resume” and “Start/Stop” enables you to change the number of dogs for a run. Useful during team events. Just select the number of dogs required and the timing gates adjust.

c) **Countdown Walking Time:** Using the “Resume” and “Start/Stop”, adds or reduces the time required in minutes for allocated course walking times.

d) **Exit Time:** Using the “Resume” and “Start/Stop”, adds or reduces the time required in minutes for competitors to leave the ring.

e) **Bell Sounds:** Using the “Resume” and “Start/Stop”, select from four options. This sound is activated by the “Horn” button.

f) **GO Sounds:** Using ″Resume″ and ″Start/Stop″, select from the three options. This is linked to the sound activated manually by the “GO” button.

g) **Radio Channel:** Using the “Resume” and “Start/Stop”, select the desired channel. Number selected has to match the gates.

h) **Remote Status:** This is used to display the signal strength of the radio or wireless system and of the beams. The settings are:

    a. Beam Status – this displays a line of “0” or “X” characters indicating if the beam is broken or not. When a dog passes through the beam one or more of the “0”s will change to an “X”
    b. No = nothing is measured of displayed
    c. RSSI (Received Signal Strength Indicator) Value. The strength of the signal is displayed in Decibels.
    d. RSSI (Received Signal Strength Indicator) Label. The strength of the signal is displayed as “excellent”, “good”, “fair” and “poor”.

i) **Gate Config - Beam Count 9:** This is the predetermined number of beams in operations on each gate.

j) **Gate Config - Beams Break Event 1:** This is the number of beams that needs to be broken to start and stop timing.

k) **Beam Debounce:** This is a time in milliseconds between two beam breaks below which the gate will not trigger on the second break. When a dog breaks the beam, his legs may cause multiple beam breaks fractions of a second apart. If set to 200

milliseconds, anything that breaks the beam less than 200 milliseconds after the beam has already been broken will not be counted as a new timing event.

l) Misalignment:
If the poles are knocked and become misaligned, the control panel will beep and display the message “misaligned”. The problem is to distinguish a misalignment from a dog breaking the beam so time is used. A dog will break the beam for only a fraction oif a second but a misaligned pole will have broken beams continually. The time here in milliseconds is the time we wait when a beam is broken before reporting it as a misalignment.

5) **Resume**: Enables you to continue last run even if stopped manually or by gate.

6) **Start/Stop:** facility to manually start and stop time.

7) **GO**: This button is used to manually activate ″GO Sounds″. This voice command is confirmation to the competitor to start their run.

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