



HUSKY **FM**

2 Channel FM Radio Control System

USER'S GUIDE

Proton Control Systems Inc.

Table of Contents

Features

Preparation

Husky

Adaptation for Left-hander
Antenna Installation
Loading the Batteries
Charging
Power switch
Direct Servo Control
USB Connection
Standing
Specification

Ken

Installation
Frequency Setting
Specification

Safety

Transmitter and receiver
Operating
Frequency
Battery
Maintenance

Data Setting

Control panel
Normal display
Function map

Direct Access Functions

Digital Trim
Dual Rate
Stopwatch

System Mode Functions

Model Name
Trim Rate
LCD Contrast
Frequency
Data Copy

Pit Mode Functions

Model Select
Setting Level
Servo Reverse
Sub Trim
Data Reset

Circuit Mode Functions

End Point Adjustment
Response
Steering Speed
2-Step Steering Speed
Throttle Speed
2-Step Throttle Speed
Start
3-Step ABS
ABS
Auto Steering Control
Punch
Idle Up

Limited Warranty

Approvals

Thank you for purchasing a Proton Control Systems product. Before operating your Husky transmitter and Ken receiver, please read this manual carefully. Then retain it for future reference.

1. Features

No crystal needed to change frequencies

The frequencies of most transmitters and receivers are adjusted by changing the crystals. Enthusiasts who want to change frequencies must purchase extra crystal sets to prevent interference between same frequencies. To complicate matters further there are so many types of crystals based on modulation (FM/AM, PPM/PCM), conversion type (Single/Dual) and Radio makers.

To solve this problem, Proton Control Systems adapted PLL (Phase Loop Lock) technology to your Husky transmitter and Ken receiver. The preferred frequencies are selectable simply by pressing buttons.

Works with all popular FM transmitters & receivers

Your Husky transmitter and Ken receiver are each compatible with all popular FM transmitters and receivers. These include A class (*FutabaTM*, *HitecTM*) and B class (*JRTM*, *SanwaTM*, *KOTM*). This flexibility allows you to use different brand transmitters and receivers.

USB port for PC game control

Your Husky is more than a transmitter for your R/C models. Use your Husky transmitter to control your PC games too! Husky comes with a built-in USB port for connecting to your personal computer. Now you can practice at home before the big race. Better still, your race will never be rained out.

Easy to change grip direction for left or right-hander

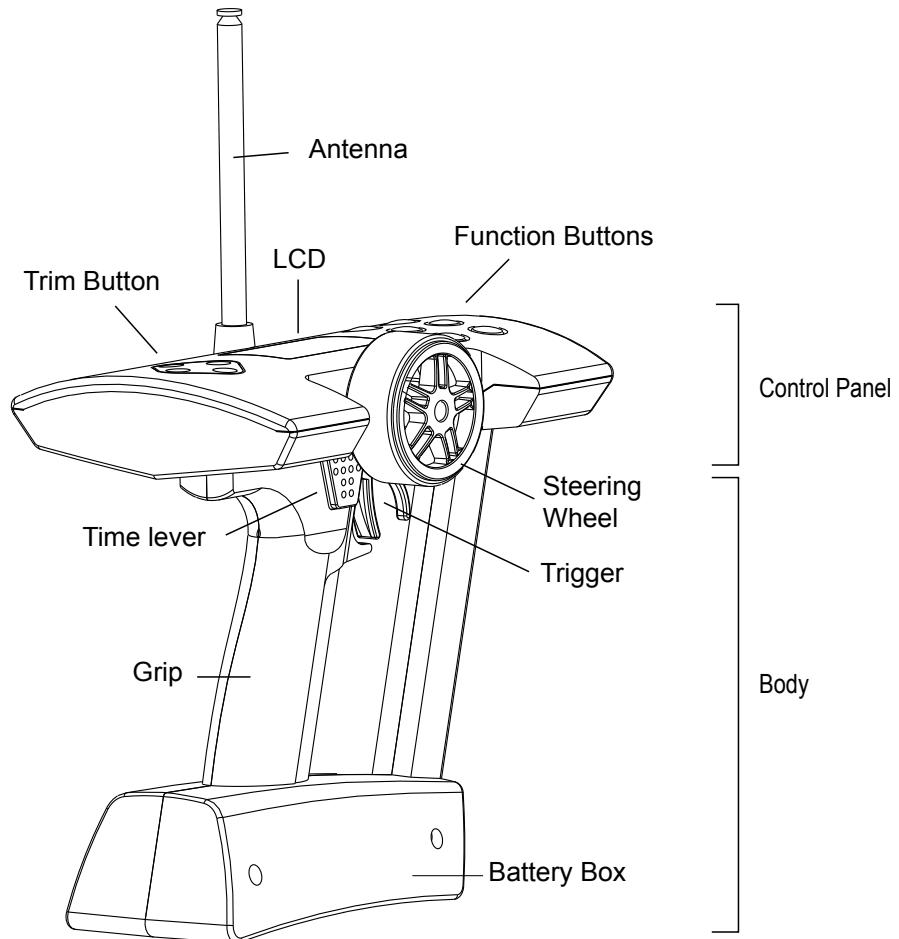
Husky's symmetrical design allows you to quickly change format from right- to left-hand grip. Just unscrew 4 screws and rotate the body 180° degrees. Who's better than Husky?

Programming features

The program settings on your Husky consist of 3 levels (Expert, Standard, Basic) and 3 modes (System, Pit, Circuit). The programs are simple to set, but offer many powerful functions.

2. Preparation

- Husky, 2 Channel FM transmitter



Adaptation for Left-hander

Huskies are produced for right-handers. However the grip direction can be changed for left-handers.

1. Make sure that the Power switch in set to OFF.
2. Carefully remove the 4 screws from the bottom cover of the control panel.
3. Separate control panel and body
4. Rotate head 180° degrees and reinstall the 4 screws being careful not over tighten them.

Antenna Installation

The antenna included with your Husky is safely stored in a slot under the control panel. To remove the antenna, pull back the plastic retainer cap located at the front of your Husky transmitter, then slide the antenna out. Insert the base of the antenna into the antenna receptacle at the top of the control panel. Then screw the antenna clockwise until it is firmly attached. Be careful not to over tighten the antenna.

NOTE The antenna should be fully extended while transmitting. Otherwise the operating range of the system will be reduced and loss of control may occur.

Loading the batteries

Your Husky transmitter requires 8 AA batteries (not included). Alkaline batteries will provide power for approximately 7 hours of use. The battery box is located at the bottom of the transmitter body.

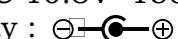
1. Make sure that the Power switch is set to the OFF position.
2. Release the hook and pop up automatically the battery cover.
3. Pull down the battery holder and disconnector from the battery case and install the batteries into the holder.
4. Plug in the connector and replace battery holder into the battery case and push down the battery cover until it locks in place.

Charging

The changing jack is located on the back side of control panel and marked "12V ". Before start charging, make sure the rechargeable NiCd batteries are installed and power switch is set to the OFF position. For charging the transmitter, the charger must have below specification. Otherwise it may damage the transmitter or not be charged.

Input voltage : 110V 60 Hz for USA, 230V 50 Hz for Europe

Output voltage : DC 10.8V 150 mAh

Charge jack polarity : 

Typical slow charge rates are DC 10.8V, 150mA for 12 hours, while most Sanyo brand AAs can be charged at up to 1 Amp.

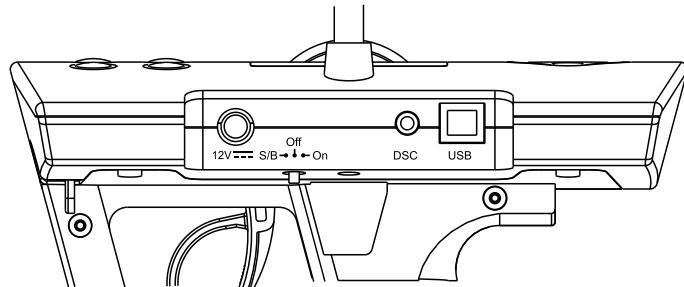
NOTE Never charge a dry cell type (Non-NiCd) battery. Charging a non NiCd battery may damage the transmitter, and could cause the battery electrolyte to leak and cause additional damage.

Power switch

The Power switch is a small toggle switch located back of the Control Panel near the base of the antenna. It can be set to On, Off and Standby (S/B) modes. Power On and Off is same as any other electronic device. Standby (S/B) allows you to program all functions without transmitting a signal. This is useful for making adjustments while not affecting others that may be on the same frequency. Standby (S/B) mode also uses about 2/3 less power. If you plan to work in a programming mode for any length of time or use your Husky as a PC game controller, using Standby will extend your battery life. "STB" appears on the LCD display in Standby (S/B) mode.

Battery voltage is displayed both numerically and graphically on the LCD display. The graphical depiction is a vertical bar on the right side of the display. The length of the power level bar is gradually reduced according to current consumption. When voltage drops below 8.7 volts, the bar flashes and an alarm will sound.

NOTE At low voltage, immediately stop the model and change the batteries. Otherwise loss of model control may result.



Direct Servo Control (using optional cable)

DSC allows you to operate the servos and speed controller in your system without transmitting (RF) radio frequency. This is ideal for pit checking your radio setup while others are operating on the same frequency.

To operate, plug the radio connector end of the DSC cable into the DSC jack located behind the control panel of your Husky. The other male end of the DSC cable is inserted in the battery slot on your Ken receiver.

USB Connection (using optional cable)

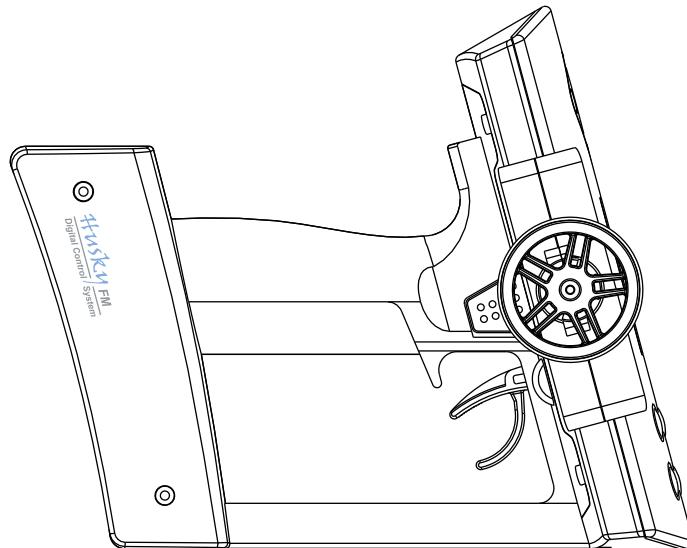
Your Husky has a USB port located behind the control panel. It allows connecting Husky to your computer to control PC games. To transfer control data from your Husky transmitter, you need to connect the transmitter to your computer. With the transmitter switch on standby position, plug the "B" type end of the USB cable into the USB port located on the back of your Husky.

The "A" type end of the USB cable plugs in the USB slot on the back of your computer.

NOTE USB cables are available in a variety of lengths at your local computer store.

Standing

The large control panel at the top of your Husky makes the unit somewhat top-heavy. We recommend your Husky stands as illustrated right. This allows better stability, grip direction and easy of pick-up.



Specifications

Number of Channels 2

Modulation FM, PPM

Size 190 X 185 X 118 mm (7.48" X 7.28" X 4.65")

Weight 500 g (17.64 oz) w/o batteries

Output power less than 0.75 W

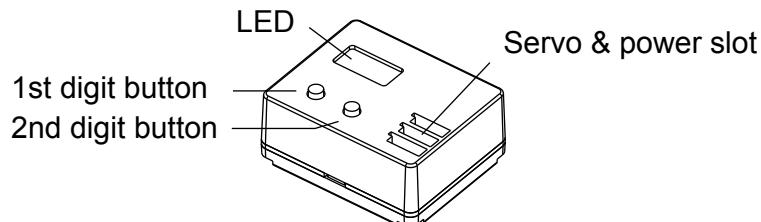
Current drain Approx. 250 mA

Power requirements DC 12V (1.5V X 8, "AA" Size Alkaline batteries)

DC 9.6V (1.2V X 8, "AA" Size NiCd batteries)

Operating temperature 0 °C ~ 40 °C

- Ken, 2 Channel FM Receiver



Installation

For best performance, your Ken receiver should be firmly affixed and connected on the model according to the procedure below.

1. Clean surface where your Ken is to be mounted.
2. Mount Ken with double-side adhesive tape (included) as close to the antenna mast as possible.
3. Run the antenna wire up through the plastic antenna tube.
4. Put servo plugs into slots 1 & 2; power plug into slot B. (Your Ken receiver accepts standard Futaba, JR, Hitec, new Ko and Sanwa Z connectors).

NOTE Do not cut or bundle the receiver antenna. Cutting, bundling or routing the receiver antenna near any device that produces noise (RF) will reduce the operating range of the system and result in loss of control.

Some drivers remove the case to reduce weight, but this can cause serious damage to the circuitry from dirt or water. Removing the case will void Proton Control System's product warranty.

Frequency setting

The Ken is a crystal-free receiver. It does not need crystals for changing frequencies. Each available frequency has been assigned a two-digit channel number, which you can locate at the back of this manual. There is a two-digit LED display on your Ken receiver with corresponding adjustment buttons. Select the correct channel number from the back of this manual and then enter that number into your Ken receiver using the adjustment buttons. When power is first applied to the receiver, the LED will light for 3 seconds and then turn off. Pressing either adjustment button will light the display again.

NOTE The receiver frequency should be changed on same frequency transmitting. Otherwise it casue servo damage and unexpected accident.

Specification

Number of Channel 2

Modulation FM, PPM

Voltage range 3.5 ~ 10.0 V

Size 38.1X 30.5 X 16.5 mm (1.5" X 1.2" X .65")

Weight 18.70 g (0.66 oz)

Antenna length 450 mm (17.75")

2. Safety

Transmitter and receiver

- Do not operate two or more models on the same frequency at the same time. This will cause interference and loss of control of both models. AM, FM(PPM) and PCM are different methods of modulation. Nonetheless the same frequency cannot be used at the same point in time, regardless of the signal format.
- Extend the transmitter antenna to its full length. If the transmitter antenna is not fully extended the operating range of the radio will be reduced.
- Always perform an operating range check prior to use. Problems with the radio control system as well as improper installation in a model could cause loss of control.
- Check the transmitter antenna to be sure it is not loose. If the transmitter antenna works itself loose, or is disconnected while the model is running, signal transmission will be lost. This will cause you to lose control of your model.
- Be sure to turn on power switches in the proper sequence. At startup, turn on transmitter first, then the receiver. At shutdown, turn off the receiver first, then the transmitter.

NOTE Before powering on, always check the throttle trigger on the transmitter to be sure it is at the neutral position. When turn off the system power switches always be sure the engine is not running. If the power switches are turned off in reverse order, your model may unexpectedly and dangerously run out of control.

The signal is transmitting after 5 seconds from turning on the power switch. The 5 seconds are needed for synthesizing the frequency. So receiver power is turned on at least after 5 seconds from the transmitter power on.

Operating

- Use this product in surface models only. (Car, Boat etc.)
- Do not operate outdoors on rainy days, run through puddles of water or when visibility is limited. Should any type of moisture (water or snow) enter any component of the system, erratic operation and loss of control may occur.
- Do not operate your R/C system when you are tired, not feeling well or under the influence of alcohol or drugs. Your judgment is impaired and could result in serious injury to yourself as well as others.
- Do not operate your R/C model in the following places: sites where you may interfere with other radio control activity, where the general public can be found, on public roads and near high-tension power lines or communication broadcasting antennas.
- Do not leave your R/C system or model within the reach of small children. A small child may accidentally operate the system and injuries may result.

Battery

- Ni-Cd batteries can be very dangerous when mishandled and cause chemical damage.
- In the unlikely event that battery fluid leaks onto your skin, immediately wash the contaminated skin with soap and plenty of water. Contact your local health care provider.
- In the unlikely event that battery fluid leaks inside the transmitter. Contact the PCS service center.
- When the model is not being used, always remove or disconnect the Ni-Cd Battery. Should the battery be left connected this could create a dangerous situation if someone accidentally turns on the receiver power switch. Loss of control would occur.
- Always follow your battery manufacturer's directions fully. Do not attempt to disassemble, short circuit, or subject the battery to high temperature or fire.
- Your transmitter has been designed to operate correctly using a variety of AA-size batteries currently available. These include 1.5 volt alkaline and rechargeable 1.2 volt Nickel Cadmium (Ni-Cd) batteries.
- Replace all batteries of a set at the same time. New batteries should not be mixed with used ones. Do not mix rechargeable and non-rechargeable batteries. Do not mix alkaline or Ni-Cd types of batteries. Do not mix different grades or brands of batteries. Failure to observe this precaution may result in some batteries in a set being driven beyond their normal exhaust point and increase their possibility of leakage.
- Always check to be sure your batteries have been charged prior to operating the model. Should the battery go dead while the model is operating loss of control will occur and create a very dangerous situation.
- When disposing of batteries, follow the manufacturer's instructions and all federal, state, and local regulations. PCS suggests customers take advantage of any community battery-recycling programs that may exist in your area. Contact your local waste remover or recycler for details.

Maintenance

- To keep from damaging your transmitter, avoid exposing it to moisture, extreme temperatures, direct sunlight, vibration and dust.
- Clean the outside of the transmitter by wiping with a clean, dry cloth. Never use harsh or abrasive cleaners or organic solvents on the transmitter.
- Do not expose plastic parts to fuel, motor spray, waste oil or exhaust. These will penetrate and damage the plastic.
- Never disassemble or touch the inside of the transmitter. This could result in electrical shock.
- If you notice smoke or a burning smell coming from the transmitter, immediately turn off the transmitter, wait a few minutes until the transmitter cools, and then remove the batteries.

4. Limited Warranty

Proton Control Systems, Inc. guarantees your Husky and Ken to be free from defects in materials and workmanship for a period of 120 days from original date of purchase (verified by dated, itemized sales receipt). Warranty does not cover incorrect installation, components worn by use or excessive force, altering the antenna, exceeding the recommended input voltage, using the Ken without its case, tampering with the electronics, allowing water, moisture, or any foreign material to enter your Husky and Ken or come in contact with the PC board, incorrect installation, or any damage caused by vibration, shock, or a crash. In no case shall our liability exceed product's original cost. We reserve the right to modify warranty provisions without notice. Because Proton Control Systems, Inc. has no control over connection and use of receiver, no liability may be assumed nor will be accepted for damage resulting from the use of this product. Every Husky and Ken are thoroughly tested and tuned before leaving our facility, and is therefore considered operational. By the act of connecting/operating Husky and Ken, the user accepts all resulting liability.

5. Approval

CE

The R&TTE (Radio Equipment & Telecommunications Terminal Equipment) directive is the new European directive relating to radio equipment and telecommunications transmission equipment. It also covers the collective recognition of the conformity of such equipment. One part of the R&TTE directive regulates the introduction and operation of radio systems in the European Community. An important change is the abolition of approval. The manufacturer or importer must subject radio equipment to a conformity appraisal process before that equipment is introduced.

The CE symbol is attached to the device to indicate that it conforms with the valid European norms.

CE 0197 ①

An exclamation mark is also to be attached to radio transmitting equipment, to indicate that the permissible frequencies are not yet uniform throughout Europe. This requirement applies to all the countries included in the list attached. It is essential to note that these radio control systems may only be operated on the approved frequencies, as listed in the table.

Please note that the user bears the responsibility for compliance with this requirement, and for ensuring that the radio system complies with the directives. In Germany the requirement to purchase a licence for the operation of 35 MHz systems remains in effect; please refer to the operating instructions, or the separate sheet included with them.



Proton Control Systems Inc.
182-4 Dodang-dong Wonmi-ku Bucheon-city
Kyounggi-do, South Korea, 420-130
Tel : 82-32-684-6964-7, Fax : 82-32-684-6968
e-mail : support@teamproton.com