SPECIAL FEATURES

The *Sky Limit* has two additional features that are used only under special circumstances – **LCD Contrast Adjustment** and **Elevator Mode**. To avoid accidental changes, the following procedure must be followed to access these feature screens:

1. Unplug the BLUE Programmer cable.
2. With the receiver power on, press and hold both push buttons while plugging in the BLUE cable.
3. Continue to hold these buttons for at least 5 seconds (until the "Contrast" screen appears).

```
Contrast
 Norm   →
```

Contrast

This screen allows you to select Normal or High contrast for the LCD display. Select High for receiver voltages less the 4.5V.

```
Channel
 Thro   →
```

Channel (Elevator Mode)

See the *Sky Limit* instructions for details and warnings regarding the Elevator Mode.

SPECIFICATIONS

Display:
8 Character X 2 Line LCD

User Input:
2 Push Button Control

Connector:
3-pin R/C (JR-type)

Size & Weight:
1.7x1.7x0.5 in. (43x43x13 mm)
0.7 oz. (20 grams)

Power:
Powered through *Sky Limit* device
(4.2V - 10V) no batteries needed

Sky Limit™
PROGRAMMER

Programmer/Display for the *Sky Limit* Altitude Limiter

- Programs Altitude Limit, Timer and Other Features
- Displays Flight Altitudes
- Sturdy Plastic Enclosure
- Requires a *Sky Limit* Airborne Unit (sold separately)

Sky Limit™
PROGRAMMER

Sky Limit™
P R O G R A M M E R

The *Sky Limit* **Programmer** is used to set the altitude limit, timer, and other features of the *Sky Limit* airborne circuit. It also displays the settings and altitude information from your last flight.
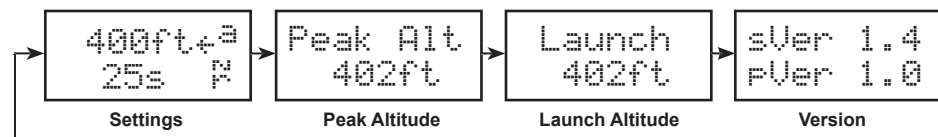
This instruction sheet guides you step-by-step through all the functions of the programmer. Another instruction sheet (packaged with the *Sky Limit*) describes installation and operation of the airborne circuit. Be sure to read both instruction sheets before using the *Sky Limit* in your plane.

> For safety, do not plug in the Programmer when the engine is running on your gas- or glow-powered model. On electric-powered models make sure the propeller path is clear and the model is secure. **When the Programmer is plugged in, the *Sky Limit* passes the throttle signal from the receiver to the throttle servo or speed control. Your model will react to the throttle stick just as it would if the *Sky Limit* was not installed.**

To turn on the Programmer, simply plug the BLUE connector from the *Sky Limit* into the port on the side of the Programmer and turn your receiver on. Follow the polarity marks on the case. The brown wire should align with the − symbol, the red wire to the + symbol, and the orange wire to the ⌐ (signal) symbol. If you plug the connector in backwards the display will not come on, but no damage will be done.

You can plug in the Programmer at any time – with the receiver power on or off. Similarly, you can also unplug it with the power on or off.
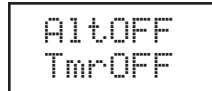
STATUS SCREENS

The initial display shows you all your settings at a glance. This **Settings** screen allows you to review and confirm your settings without pressing any buttons or entering setup mode. The figure at the top of the next page details the **Settings** screen.

Since the initial factory settings have the Altitude Limit, Timer, and special features turned off, your initial **Settings** screen may look like the image to the right.

```
AltOFF
TmrOFF
```

Pressing the **SEL** button will cycle through four status screens:

1. **Settings Screen** (see next page)

2. **Peak Altitude** – The maximum altitude of your most recent flight AGL (Above Ground Level).

3. **Launch Altitude / Starting Height** The max altitude between takeoff and 10 seconds after motor shutoff (used primarily for F5J-style glider contests).

4. **Version Info.** – *Sky Limit* (sVer) and Programmer (pVer) version numbers.

Status Screens

```400ft←ᵃ``` ```25s ᴹ```	```Peak Alt``` ```402ft```	```Launch``` ```402ft```	```sVer 1.4``` ```pVer 1.0```
Settings	Peak Altitude	Launch Altitude	Version

Settings Screen
Symbol Details

Altitude Limit (feet or meters)
`AltOFF` if limit disabled

Time Limit (seconds)
`TmrOFF` if timer disabled

Arrow – points to the limit that occurred first during your flight (in this case 400ft before 25 sec.)

MOV   SEL
— setup —

blank = Anti-zoom OFF
`ⴰ` = Anti-zoom ON, Z-factor zero
`ⴲ` = Anti-zoom ON, Z-factor active

blank = Restart ON (Restarts allowed)
`NR` = No Restart (Restart OFF, low-altitude safety restart ON)
`NS` = No Safety (Restart OFF, low-altitude safety restart OFF)
`e` = Elevator mode

SETUP MODE

Setup mode allows you to change limits and features. To enter setup mode, press both the MOV and SEL buttons at the same time. Hold the buttons down for at least 1/2 second until you see "Setup Mode" on the display.

```
Setup
Mode     →
```

> Throughout the setup process you will use the **MOV** button to **move** the cursor (the underline under a character) and the **SEL** button to **select** or change a value.
> Selecting the right arrow will move you to the next screen.

Press SEL to move to the next screen. If your transmitter and receiver are on you should see the "Throttle to Idle" display. However, if your transmitter is off or your receiver is not producing a valid throttle signal, you will see a "Signal Error!" warning. In this case, press SEL to exit setup mode and check your power and connections.

```
Signal
Error!   →
```

```
Throttle
to Idle→
```

Throttle to Idle

When you see this screen, move your transmitter stick down to idle position. **This is extremely important!** The *Sky Limit* will measure the throttle control pulse and use this setting when you reach your altitude or time limit. Make sure your throttle stick and trim are in the position that will shut off your electric motor or give you a good idle for gas or glow engines. Then press the SEL button to proceed. **Failure to properly adjust your throttle position in this step can result in an unwanted and possibly dangerous condition when the altitude or time limit is triggered.**

Altitude Limit

> Whenever a screen displays two down arrows, press the button under the desired arrow.

```
AltLimit
↓OFF ON↓
```

To turn on the Altitude Limit, press the right button.

The next screen lets you specify your limit altitude and units. Press the MOV button to move the cursor and the SEL button repeatedly to change the value. You can also change the units between feet and meters. The altitude range is 50 to 9999 ft (15 to 3050m) AGL.

```
AltLimit
0400ft  →
```

Time Limit (Timer)

Enable the Time Limit and adjust its values using the same method used for altitude. The timer is used primarily for motor glider contests where the motor is shut off at a specific time or altitude – whichever occurs first. If you don't want to use the timer, select OFF. The timer range is 5 to 9999 seconds.

```
Timer
↓OFF ON↓
```

```
Timer
0025sec→
```

> See the *Sky Limit* instruction sheet for full details on the operation of the timer and other features.

ADDITIONAL FEATURES

If you only needed to adjust your altitude or time limits you can exit the setup mode by selecting "Done" (right button). The *Sky Limit* will exit setup and the **Settings** screen will be displayed. To change additional features select "More" by pressing the left button.

```
↓More
    Done↓
```

Restart Feature

In most cases you will want Restart **ON**. This allows you to restart your motor or engine after reaching an altitude or time limit. If you turn Restart **OFF**, you will not be able to restart your motor or engine. This is useful for contests where restarting your motor is not allowed. The 'NR' (No Reset) symbol `NR` will appear on the **Settings** screen if you turn Restart off.

```
Restart
↓OFF ON↓
```

Safety Restart

If you turned the Restart feature off, you will see the "50ft Rst" (or "15m Rsrt") screen. This is a low-altitude safety restart feature. With this ON, you will be able to restart your throttle whenever your plane is below 50ft (15m) – even if the normal Restart is off. If you turn this safety restart feature OFF, after an altitude or time limit, your throttle will remain off until you land and cycle the receiver power or plug in the programmer. A 'NS' (No Safety) symbol `NS` will be shown on the **Settings** screen instead of the 'NR' symbol.

```
50ft  Rst
↓OFF ON↓
```

```
15m  Rsrt
↓OFF ON↓
```

Anti-Zoom (Anticipator)

Normally, the *Sky Limit* will shut down the throttle when your plane reaches the Altitude Limit you set. However, your plane will not stop climbing instantly. Its momentum will carry it higher until its climb is stopped by gravity and air resistance. It will overshoot (or zoom past) your limit by some amount. The Anti-Zoom feature reduces overshoot by calculating the rate-of-climb and triggering the altitude limit sooner. When the Anti-Zoom feature is on an 'ⴰ' symbol will appear on the **Settings** screen.

```
AntiZoom
↓OFF ON↓
```

Z-Factor

The Z-Factor adjustment allows you to fine tune the Anti-Zoom response for your specific plane. You can enter a value between 0.0 and 9.9. Any non-zero value will cause a 'ⴲ' symbol to appear on the **Settings** screen.

```
Z-Factor
  0.0    →
```

Setup Complete

Setup is now complete. If you want to change your settings, select "Back". This will return to the start of setup mode. Selecting "Done" will exit setup and display the **Settings** screen. You can now unplug the Blue connector from the *Sky Limit* Programmer.

```
↓Back
    Done↓
```