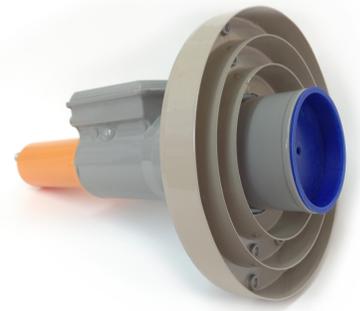


# Titanium Satellite

CK1S Combo C & KU Bands LNBF

Install Guide: Prime Focus Dish



Congratulations on your purchase of a Titanium Satellite LNBF. For best performance, the LNBF must be correctly installed on your dish to gather the most signal from the target satellite and reject unwanted signals and noise from adjacent satellites and terrestrial transmissions. The LNBF is shipped with a flat scalar that is suitable for mounting on a prime focus dish (centered feedhorn). If the LNBF is to be mounted on an offset type dish, purchase the optional Titanium Satellite CS1 Conical Scalar kit.

## LNBF Kit Parts:

1. Flat Scalar
2. Mounting Screws
3. Dielectric Slab
4. Hex Tool (optional)

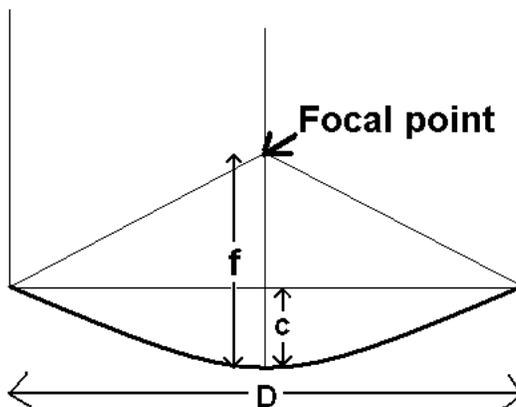


This guide assumes that the satellite receiver has been correctly configured with each target C-band satellite's menu setting: LO Frequency = 5150MHz, LNB Voltage = ON, Polarity = Automatic 13/18 and programmed for any inline switches or motor control. Each target KU-band satellite's menu setting: LO Frequency = 10750MHz, LNB Voltage = ON, Polarity = Automatic 13/18 and programmed for any inline switches or motor control. The LNBF signal polarity selection is switched by the receiver outputting 13Vdc to tune Vertical polarity transponders and 18Vdc for Horizontal. An optional 22KHz or DiSEqC switch is necessary to be installed to allow automatic switching between the C and KU bands.

**Check Reflector Parabola Accuracy:** The dish must be checked for accuracy and be perfectly shaped. Use a measuring tape and measure across the diameter of the dish in three directions. All measurements should be identical. Tie two or more pieces of string across the edges of the dish in two or more directions. The strings should just touch at the center of the dish. If the strings are pushed hard against each other or fail to touch then the dish is either not properly assembled or warped. If the parabola shape is not perfect, the reflected signals will not merge into a focal point to enter the feedhorn. With a warped dish, it will be very difficult to track the arc accurately and adjacent satellites may cause interference.

## Calculating & Setting the Focal Length / FD Ratio: Prime Focus Parabolic Reflector

Before mounting the LNBF, you will need to know the dish Focal Length and the FD ratio. These two specifications are provided by the dish manufacturer. If these specifications are not available, they may be calculated with two measurements of the width and depth of the reflector.



**Focal Length = f**

**Depth = c**

**Diameter = D**

$$f = (D * D) / (16 * c)$$

**FD Ratio = f / D**

Measure the depth (c) using a fishing line or a string stretched tight edge to edge (D) across the face of the reflector.

**Online FL / FD Calculator:**

<http://www.satellite-calculations.com/Satellite/reflector.htm>

The Focal Length measurement is from the center of the reflector surface to 1/4" (6mm) inside the feedhorn throat. The FD ratio is the position that the scalar attaches to the feedhorn. The sides of the feedhorn have the FD Scale markings. Align the back edge of the scalar mounting ring with the appropriate FD number then tighten the three screws to clamp the feedhorn into the scalar.

**Important notice:** To prevent damage to the feedhorn do not over-tighten.



**Example: Focal Length 102"**



**Example: FD Ratio .36**

Don't assume that the support legs or button hook holding the scalar ring are the correct length. The scalar and feedhorn must be the correct distance from the reflector, parallel to the dish and perfectly centered and aimed into the exact center of the dish. Failure to set the correct distance and center the feedhorn/scalar will decrease signal strength and reduce performance. Measure from the edge of the reflector to the scalar in three or more directions to assure that it is exactly centered. Match these measurements to be within 1/16" (3mm). A small torpedo level with 90 degree laser placed across the scalar and feedhorn opening is a great tool for verifying that the scalar and feedhorn are correctly aimed into the center of the reflector.

### **Setting Polarity / Skew: Linear Polarity Satellites**

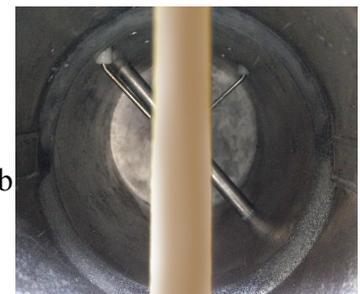
The probes inside the feedhorn must be aligned to match the polarity of the satellite signal. On the back of the LNBF housing is a scale for setting the polarity and skew. The "V" line aligns with the vertical polarity probe. The "H" line aligns with the horizontal polarity probe. When installing on a polar mount, drive the dish to the highest point of the arc and align the "V" line with the vertical axis of the dish (12 / 6 o'clock position (straight up and down)). If installing on a fixed dish mount, rotate the LNBF clockwise or counterclockwise to align the "V" line with the satellite's calculated skew rotation position.

### **Vertical Polarity Probe "0" Skew**



### **Circular Polarity Satellites**

The LNBF is capable of receiving either linear or circular polarity C-band signals. A dielectric slab is included to insert into the feedhorn for receiving circular polarity C-band signals. The dielectric slab should only be used with circular polarity satellites; otherwise, linear signals will be attenuated by 3dB. **To install:** Remove the feedhorn cover and completely insert the dielectric slab into the slots located at a 45 degree angle between the vertical and horizontal probes. The STB now will receive C-band Right polarity on Vertical setting (13V) and C-band Left polarity on Horizontal setting (18V)



**Dielectric Slab Installed**

**Email:** [support@titaniumsatellite.com](mailto:support@titaniumsatellite.com) or **Call:** 530-652-4405