SF10 PRO

Advanced Radio

User Guide

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Welcome to the world of SF10 PRO

Thank you for your purchase of the Advance Radio Smooth Flite SF10 PRO

The SF10 PRO has amazing programming features and 10-channel flight stabilization, making it the lightest option in its class.
This Gyro system is next-level, allowing you to see up to 32 input channels and assign up to 20 servo outputs (with 2 SF10 PRO units).

It includes groundbreaking features like:
- Fully adjustable Stick Groove™ and Model Feel™
- Individual channel Output Gain Boost™ and Channel Switching.
These tools help advanced pilots easily fly their most complex 3D models.

The SF10 PRO works well with any scale model like war birds, sail planes, turbines and general sports models. It offers flight assist features like **Roll Pop & Heading Hold roll.**

****LET'S GET STARTED!**** In this guide, we'll show you how to connect the SF10 PRO, how to use it, and how to set it up to get the best performance from this advanced stabilization system. Please read and understand this guide before you start installation.

****TOUCH SCREEN****— *The touch screen display supplied with the Smooth Flite 10 PRO makes programming easy, but it should be protected from vibration.* **We don't recommend mounting the Smart Screen in the model.**

****BATTERIES**** — *Before installation please ensure that your batteries are fully charged.* **NEVER FLY WITH BATTERY PACKS THAT HAVE 35% OR LESS CAPACITY** (That's the **RED ZONE** on the battery indicator)

****RECEIVER INSTALLATION****—*Some receivers don't protect against incorrect connections. It's very important to connect the receivers to the Smooth Flite 10 PRO system correctly,* ***pay attention to polarity and pin placement***. *This is your responsibility!*

What's in the Box:

- 1 x SF10 PRO module
- 1 x Touch Screen Smart display
- 2 x Receiver cables
- 1 x Screen cable
- 1 x Adhesive pad to attach the SF10 PRO to your model
- 1 x Acoustic Muffler for Turbine models

Other Items you will need:

- Batteries
- A power switching system, like the AR Multi-switch, AR Pin Flag switch or a Power Expander
- 1 or 2 Receivers (depending on your chosen brand).

SF10 PRO Features:

- Up to **32 input** channels (depending on transmitter capability).
- Up to 10 Gyro controlled Servo outputs per SF10 PRO unit.
- Advanced I/O servo offset routing from TX channels 1—10 or 10—20.
- **Mode A/Mode B input channel offset** for up to 20 servos with 2 x SF10 PRO modules.
- **Switchable Dual Flight Modes** to set up the model exactly how you want it to perform.
- **Professional Frame Rate selection** from 3mSec to 21mSec to match to all servo types.
- **Proprietary Smooth Flite 10 PRO System** with 3 axis Gyro, Accelerometer.
- **AR proprietary Automatic Gain control (AGC)** to minimises gain oscillations.
- Flight Mode **programmable Channel Boost** for additional gain boost to each servo outputs.
- **Channel Switching** to switch gyro On/Off individually for all servo outputs.
- **Variable Stick Groove** for advanced stick priority adjustment.
- **Variable model Feel** to give the Model a 3D loose feel or more Locked In Scale feel.
- **Roll Pop feature** to give that point roll pop look to the model.
- **Heading Hold rolls feature** to assist with rifle rolls, slow rolls and point rolls.
- **Works with all major 2S battery chemistries**. LiFe. LiPo, Lion, NiMh, NiCD. Battery voltage range can be from 6volts to 8.4volts.

Installation and Mounting Instructions

In this section we will explain how to mount both the SF10 PRO and the

Smart Display.

The AR Smart Screen is used for programming, but you don't need it for flying. To keep the weight down, we actually suggest that you disconnect the Smart Screen

Mounting the SF10 PRO

The SF10 PRO comes with a real 3M adhesive pad. Make sure to attach the SF10 Pro firmly to the electronics component plate. If it's not secure, it could cause problems when the Gyro is turned on.

Before sticking the 3M tape, clean the surface with Isopropyl Alcohol to remove any oil or dirt.

Note: *It's also important to put the SF10 Pro in the right position, so be sure to check the Orientation section later in this manual before you mount it.*

Product Support

Our product specialists are available to offer assistance where necessary.

You can contact our specialists via:

- Our Facebook AR Users Group.
- By Email support@boomarc.com or support@advanced-radio.com.
- Contact through our Facebook AR Support page.
- Global PH: +61 242955287 9am to 5pm Australian Eastern Standard Time.
- USA PH: +1 7657443118 between 9am and 5pm US Eastern Standard Time.

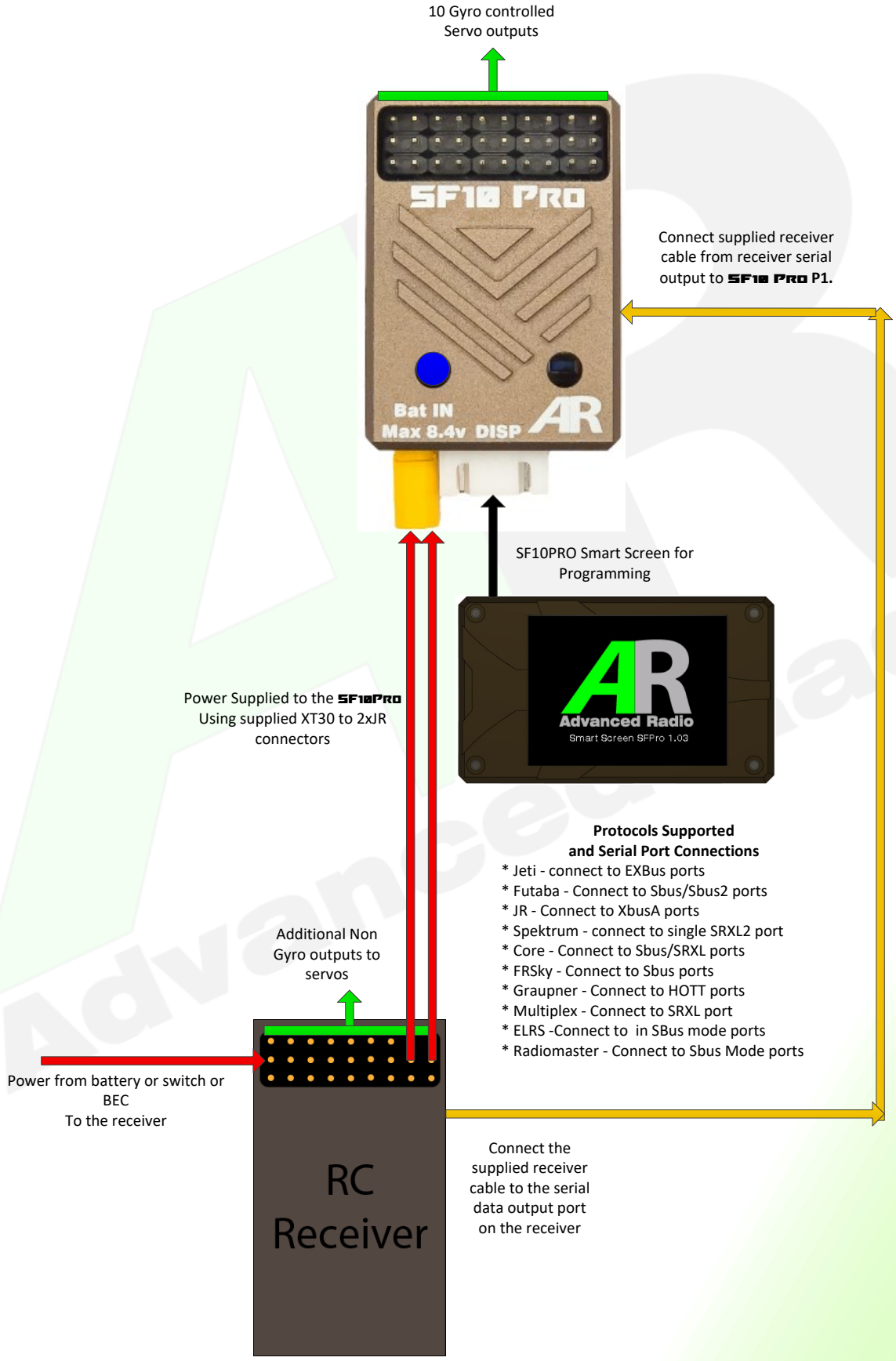
Connections and Wiring the SF10 PRO

In the next pages, we will show you different ways to connect the SF10 PRO.

Please take a moment to look at the wiring diagrams.

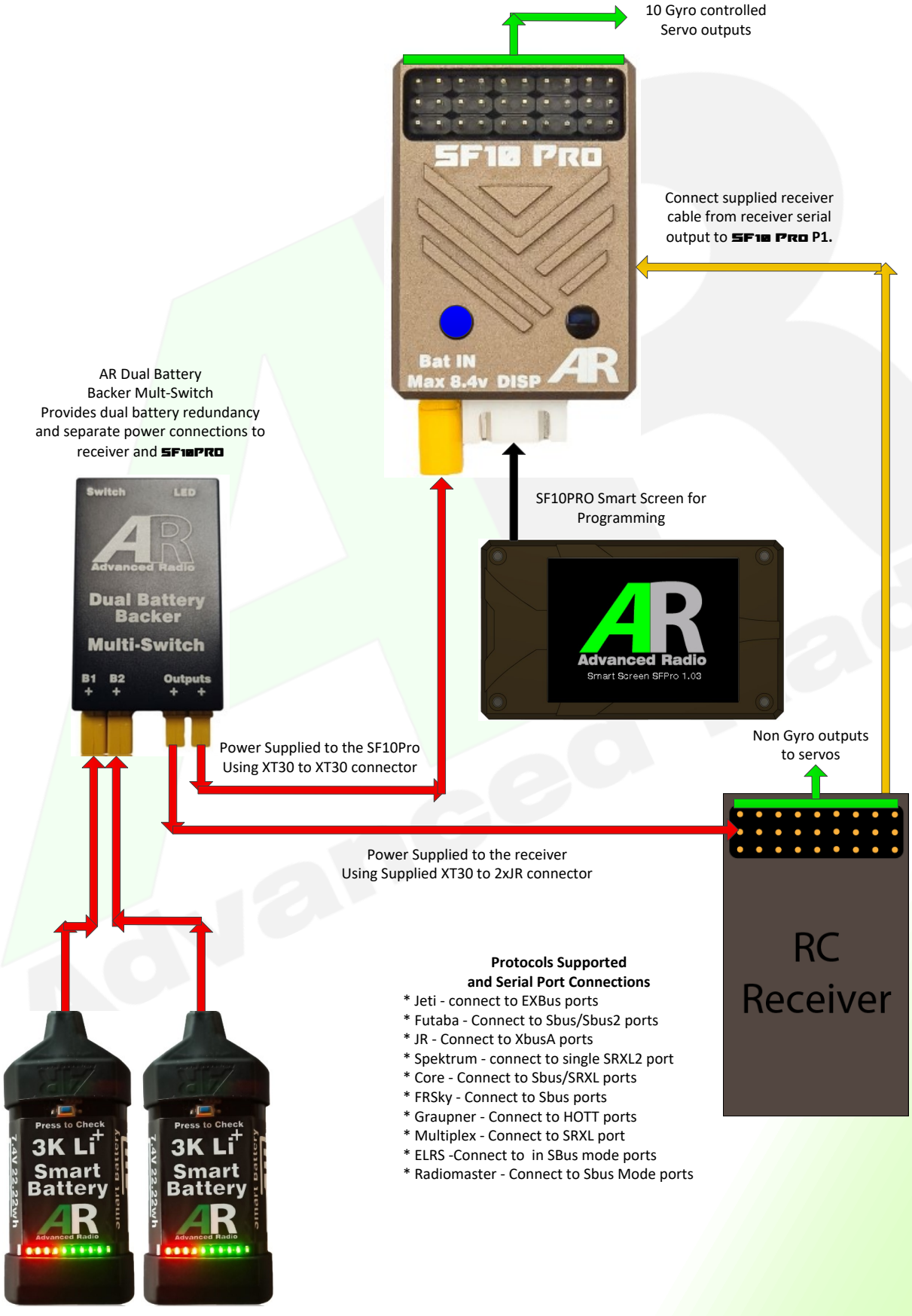
SF10 PRO

Basic Single Receiver Setup for 10 channels



SF10 PRO

Dual Battery Redundant Single Receiver Setup



Dual Batteries for redundancy

SF10 PRO

Basic Dual Receiver Setup

Dual SF10 PRO

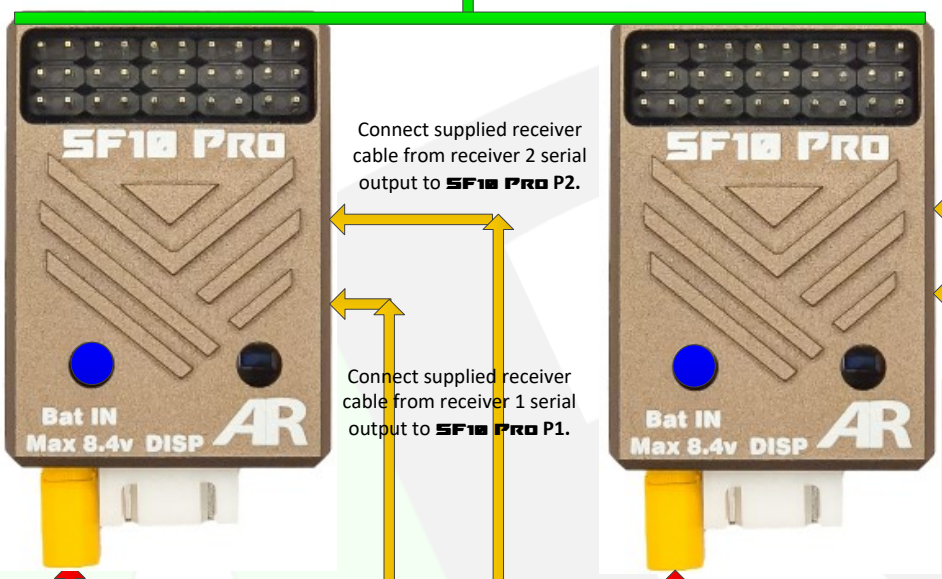
20 Channel Redundant Receiver Expander Setup

*** Using 2 SF10 PRO units and 1 or 2 receivers a 20 channel gyro controlled system (with appropriate transmitter)**

* Set 1st **SF10 PRO** to Mode A to output TX channels 1 - 10

20 Gyro Controlled Servo channels

* Set 2nd **SF10 PRO** to Mode B to output TX channels 11 - 20



Connect supplied receiver cable from receiver 2 serial output to **SF10 PRO P2.**

Connect supplied receiver cable from receiver 1 serial output to **SF10 PRO P1.**

Connect supplied receiver cable from receiver 2 serial output to **SF10 PRO P2.**

Connect supplied receiver cable from receiver 1 serial output to **SF10 PRO P1.**

AR Dual Battery Backer Mult-Switch Provides dual battery redundancy and separate power connections to receiver and **SF10 PRO**

Power Supplied to SF10 PRO 1 and SF10 PRO 2 Using XT30 to Xt30 leads.

Power Supplied to the receivers Through supplied receiver cables. ***DO NOT connect servos directly To receivers**

Protocols Supported and Serial Port Connections

* Jeti - connect to EXBus ports
* Futaba - Connect to Sbus/Sbus2 ports
* JR - Connect to XbusA ports
* Spektrum - connect to single SRXL2 port
* Core - Connect to Sbus/SRXL ports
* FRSky - Connect to Sbus ports
* Graupner - Connect to HOTT ports
* Multiplex - Connect to SRXL port
* ELRS -Connect to in SBus mode ports
* Radiomaster - Connect to Sbus Mode ports

Dual Batteries for redundancy

Receiver 1

Receiver 2

Recommended receivers (but not limited to)

Jeti
All REX receivers 900mHz backup is possible using REX receivers RSAT 2.4gHz

FUTABA
All SBUS receivers 900mHz backup is possible with newer FUTABA receivers

JR
All XBus receivers In Xbus-A mode Recommend RG012BX

PB CORE
All Sbus/SRXL compatible receivers

Specktrum
For Spektrum **only a single Full Telemetry receiver is required with satellites connected to the main receiver**

FRSKY
All SBus receivers

ELRS
All Sbus receivers

Graupnet
All HOTT receivers

Multiplex
All SRXL 16 receivers

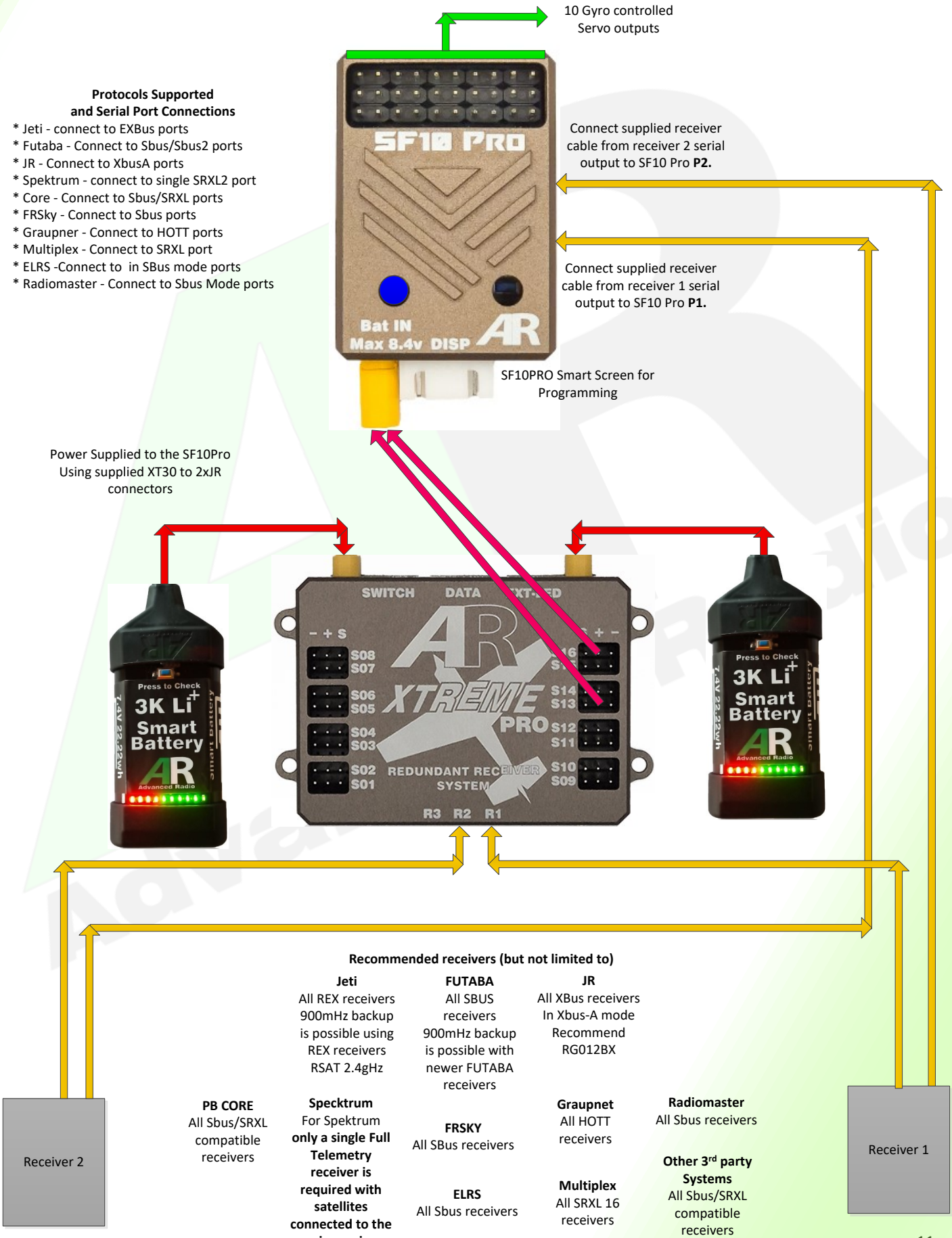
Radiomaster
All Sbus receivers

Other 3rd party Systems
All Sbus/SRXL compatible receivers

SF10PRO

Extreme Pro

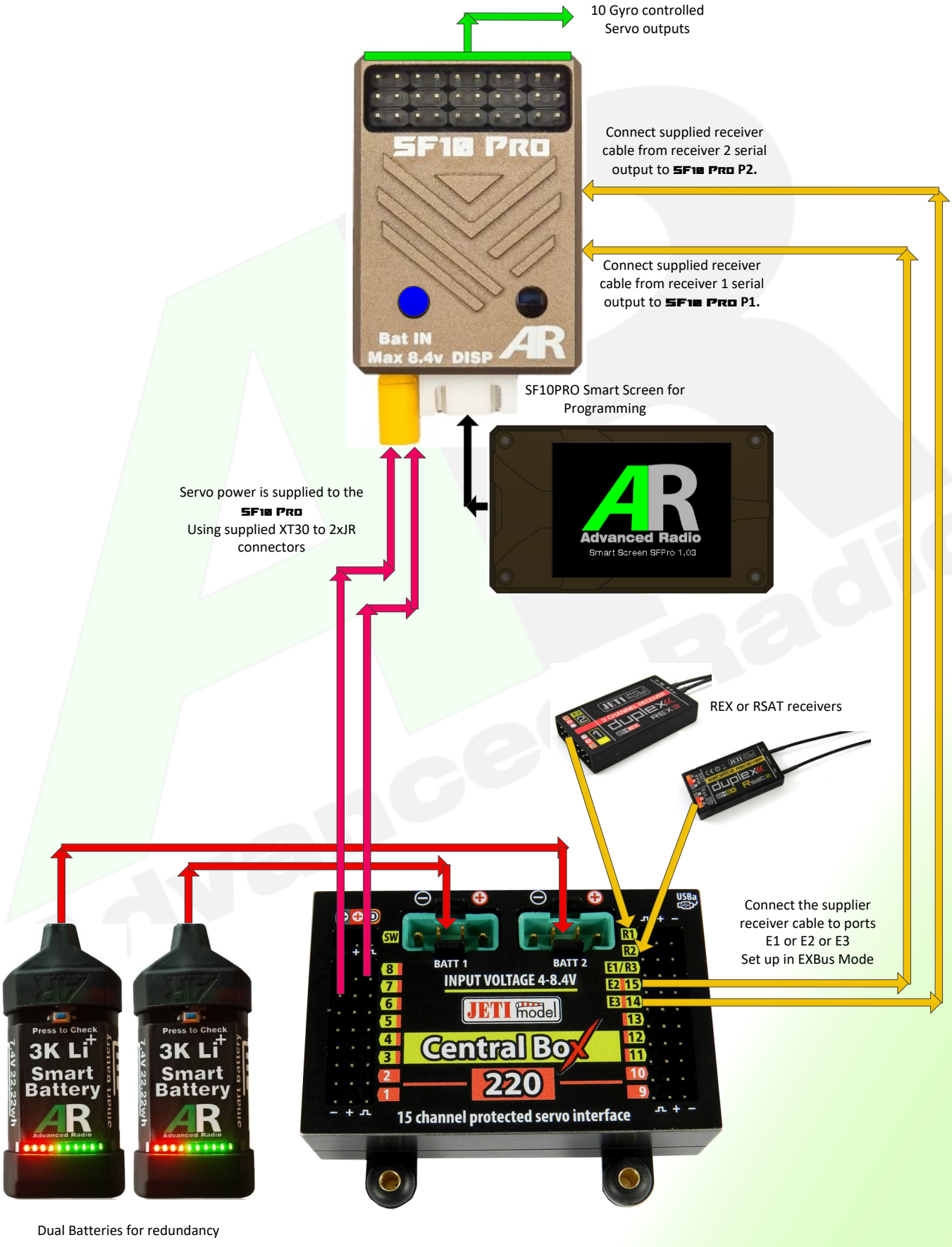
Dual Receiver Set Up



SF10 PRO

Jeti Central Box CB2, CB3, CB4 Set Up

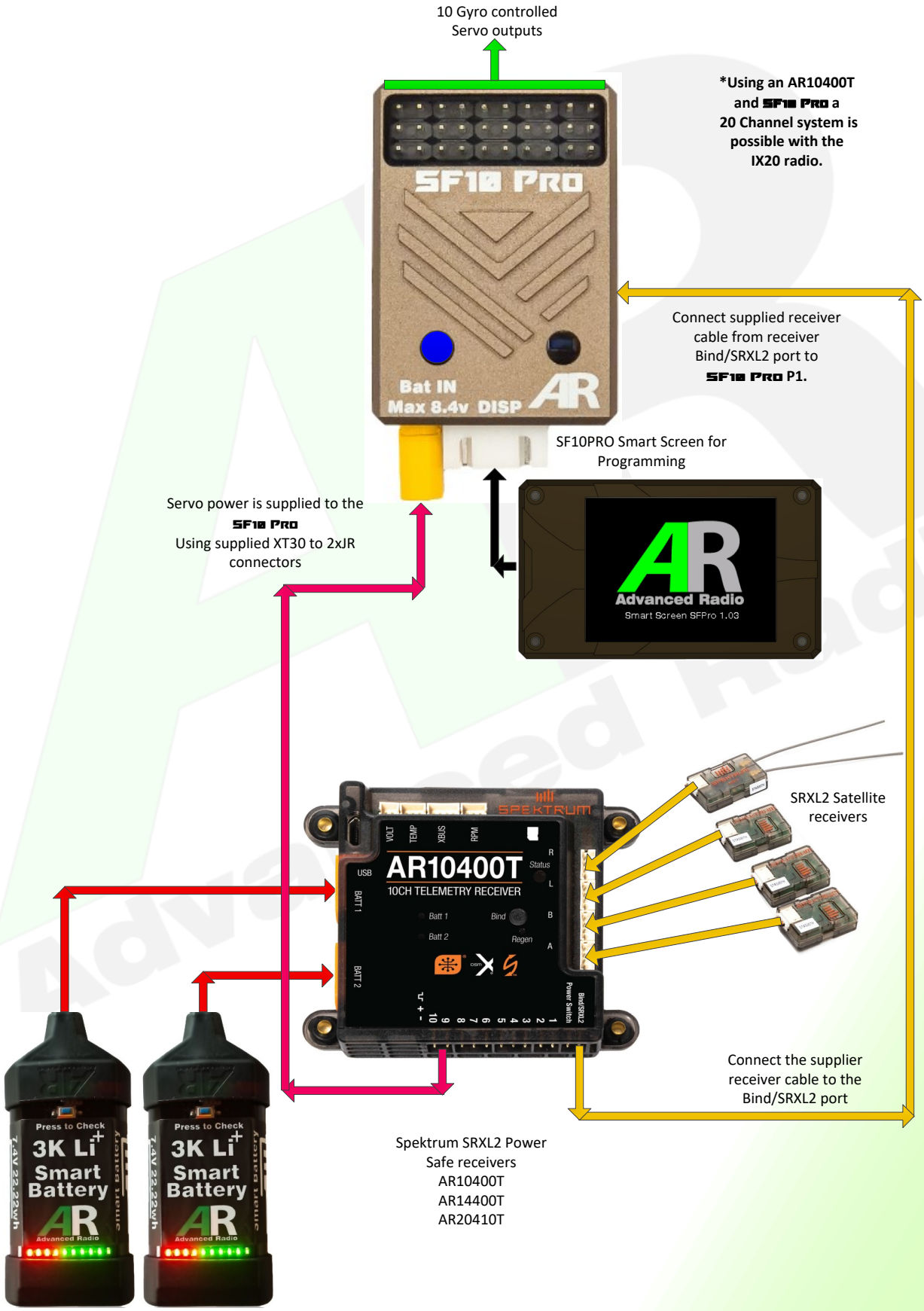
***Using a REX10 and SF10 PRO a 20 Channel system is possible.**



Dual Batteries for redundancy

SF10 PRO

Spektrum Power Safe Receiver setup



SF10 PRO

JR 11BPX/16BPX Power Distributor setup

*Using a JRBPX11 and SF10 PRO a 21 Channel system is possible with Elite or Matrix Transmitter

10 Gyro controlled Servo outputs

Connect supplied receiver cable from receiver 1 serial output to SF10 PRO P1.

SF10 PRO Smart Screen for Programming

Servo power is supplied to the SF10 PRO Using supplied XT30 to 2xJR connectors

Connect the supplied receiver cable to the XBus 1,2 or 3 port

Dual Batteries for redundancy

JR11BPX
JR16BPX

All Xbus Receivers In Xbus-A mode

Dual Batteries for redundancy

SF10 PRO Programming Principles & WIZARD

The SF10 PRO combines the famous Smooth Flite Gyro Systems with a new way of programming that uses all the features of your Transmitter, which can have up to 32 channels. It also includes advanced gyro programming with tools like Channel Boost, Channel Switching, and our special Stick Groove and Model Feel features. These new tools will help you fly your model even better.

With the new SF10 PRO series, you set up your model completely in the transmitter first. After that, you run the SF10 PRO WIZARD, which automatically finds and assigns the main control channels for things like the Elevator, Ailerons, Rudder, Elevons, Vtail, and Master switch.

OUTPUT ASSIGNMENTS

SF10 PRO Servo Output Assignments follow exactly 1 to 1 with the transmitter channels i.e.

TX channel 1 will present on servo output 1
TX channel 2 will present on servo output 2
TX channel 3 will present on servo output 3
and so on...

TX channel 10 will present on servo output 10

WIZARD Setup

After you set up & adjust the model in the transmitter, it's time to use the SF10 PRO Wizard to capture the signals from the transmitter. If you need help with programming your transmitter, make sure to check your Transmitter users guide.

****WIZARD PRECHECK****

Have you read the entire manual to understand how to use the SF10 PRO?

We really recommend that you read the full manual (RTFM) before starting the Wizard.

Have you set up the Ailerons, Elevators, and Rudders/Steering in your transmitter?

Have you assigned a 3-stage Gyro master and a flight mode switch in the transmitter?

Have you connected the receivers to the SF10 PRO and chosen the right protocol?

Have you checked the SF10 PRO receiver page to see if it's getting signals from the receiver?

Have you looked at the SF10 PRO monitor to see the channel information on the display?

Have you connected the servos to the SF10 PRO outputs and adjusted all the servos to the right positions?

Have you made sure that the Ailerons, Elevators, and Rudders/Steering controls on your model are moving the correct way?

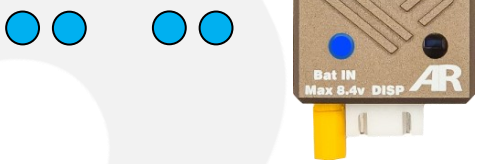
If you answered yes to all these questions, then let’s get started with the SF10 PRO WIZARD !

SF10 PRO WIZARD Contintued

WIZARD—To begin using the Wizard, turn on the SF10 PRO.

Then, take a thin non-conductive object and press the small button inside the SF10 PRO.

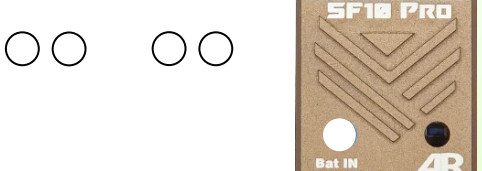
SF10 PRO will show a **BLUE double flashing LED**. Pull the **Elevator** stick all the way back to the up elevator position and then release the elevator stick back to centre. Please ensure you only move the **Elevator** stick.



SF10 PRO will show a **GREEN double flashing LED**. Push the **Aileron** stick all the way back to the up right position and then release the **Aileron** stick back to centre. Please ensure you only move the **Aileron** stick.

SF10 PRO will show a **Red double flashing LED**. Push the **Rudder** stick all the way back to the right position and then release the **Rudder** stick back to centre. Please ensure you only move the **Rudder** stick.

SF10 PRO will show a **WHITE** light that flashes twice. Make sure to move the 3-stage Master switch to all three positions and then back again. Remember, only move the 3-stage Master switch.



SF10 PRO will show a flashing RED light, then a solid BLUE light when it's done. The setup is now finished!

If you go to the Input Monitor page, you should see the Transmitter **Elevator** channels in **BLUE**

the Transmitter **Aileron** channels in **GREEN**,

the Transmitter **Rudder** channels in **RED**.

This colour system is used in all menus of the SF10 PRO.

General Usage and Main Screen Information

***Important**: The Smart Screen Display supplied with the SF10 PRO is a touch screen display. It is used for setup and provides feedback to the user about settings and features.*

Main Screen Display

AR Logo and Product designation

The **SF10 PRO** *has 2 different Flight Modes & an option to turn off the Gyro. Flight Mode 1 (FM1) is for low sensitivity, while Flight Mode 2 (FM2) is for high sensitivity. You can customize these modes using advanced Gyro settings, which will be explained in more detail later in this manual.*

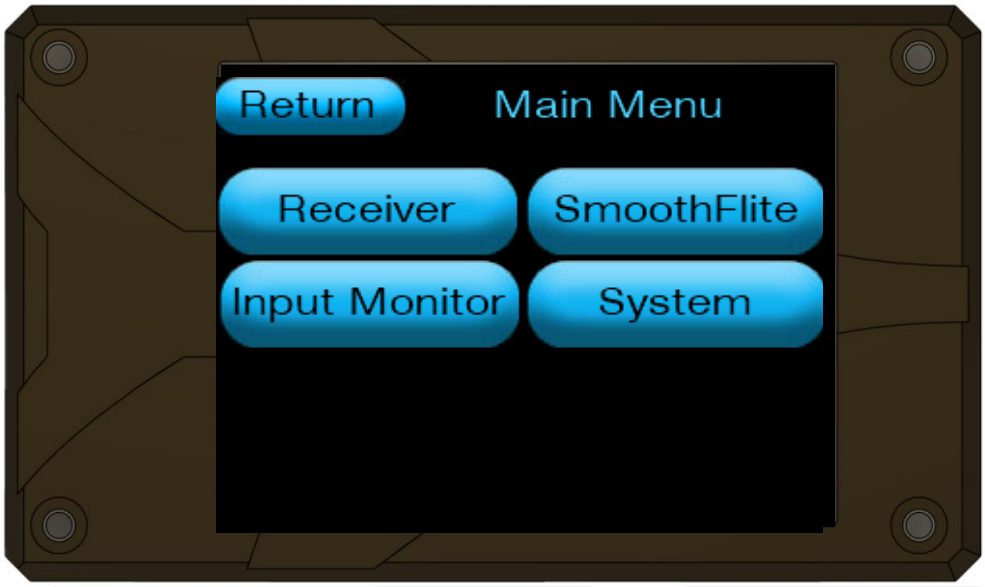
Gyro FM1— Gain A=XX E=XX R=XX indicate Gain levels in FM1 (low gain) set for Ailerons (Y Axis), Elevators or (X Axis) and Rudder or (Z Axis) .

Gyro FM2— Gain A=XX E=XX R=XX indicate Gain levels in FM2 (high gain) set for Ailerons (Y Axis), Elevators or (X Axis) and Rudder or (Z Axis). If Heading Hold is applied in FM2 you will also see HH.

Protocol
Shows the selected (or discovered) protocol.

Version X.XX X.XX
Shows the current software and bootloader versions. Useful when requesting assistance from AR Specialists.

Smart Screen SF10 PRO x.xx
Gives feedback about the attached Smart Screen version.



Main Menu

Return— Returns back to the previous screen.

Receiver—This button brings you to the receiver, Protocol, failsafe setup, I/O routing and frame rate settings.

Smooth Flite—This button brings you to the Smooth Flite gyro page XYZ Gain settings and gyro special features.

Input Monitor—This button brings you to the transmitter input channels page to view up to 32 transmitter channel information.

System—This button brings you to the system page where you can adjust settings for things like Heading Hold, Model Feel, Automatic Gain Control (AGC), Professional mode, and help page options.

System Global Settings

Global features are selected by checking, (blue check box) = feature selected or Unchecking = (white check box) = feature unselected.

Heading Hold, Auto gain and Model Feel can be globally set or individually set for each Gyroscope (XYZ) Axis.

Heading Hold is Global

To make the Heading Hold feature work for all directions in flight mode 2 (FM2), check this box. You still need to select Heading Hold on the axis gain page, but if you do, it will apply to all three directions (X, Y, and Z). If you uncheck this box, you can choose to turn on Heading Hold for each direction (X, Y, or Z) separately. **MAKE SURE TO READ MORE ABOUT HEADING HOLD IN THE INDIVIDUAL GAIN PAGES.** The default setting from the factory is ON (which is shown by a blue checked box).

Auto Gain is Global

Checking this feature make Automatic Gain Control (AGC) global. If selected in any axis then AGC will apply to all (XYZ) axis. Unchecking this feature makes AGC individually selectable for each Gyro X or Y or Z axis. Factory default setting is ON (blue checked box).

System Global Settings Continued

Model Feel is Global

When you check this option, Stick Groove and Model Feel will apply to all axes (X, Y, and Z). If you move the Stick Groove slider or the Model Feel slider on any axis page, it will change for all of them. If you uncheck this option, you can choose Stick Groove and Model Feel separately for each gyro axis (X, Y, or Z). The default setting is ON, (which is shown by a blue checked box.)

Professional Mode

The SF10 PRO has ***Advanced Gyro features*** like Output Boost and Channel Switching. For regular flying, you usually don't need these advanced features, The default setting has these features turned off, which will show as a white checked box.

Show Help Messages

The SF10 PRO has built-in help messages to help you get started quickly. If you want, you can turn these messages off once you are familiar with SF10 PRO. The default setting when you first use the SF10 PRO is ON, (which is shown by a blue checked box.)

Receiver Menu

The SF10PRO checks the link between the Receiver and the transmitter. This helps you find the best spot to place your receiver(s) when setting your model up.

SF10Pro will run with 1 or 2 receivers depending on your chosen receiver brand.

FRAMES—On the receiver page, you can see the number of **FRAMES** for each receiver. This shows how many good packets of information were sent from the receiver to the SF10PRO.

DROPS— These are packets that the receiver got from the transmitter, but they have a wrong checksum. Because of this, the frame is not useful.

*Note: If the number of **DROPS** (dropped frames) is unusually high, might mean there's a problem with the receiver or where it's placed inside the model.*

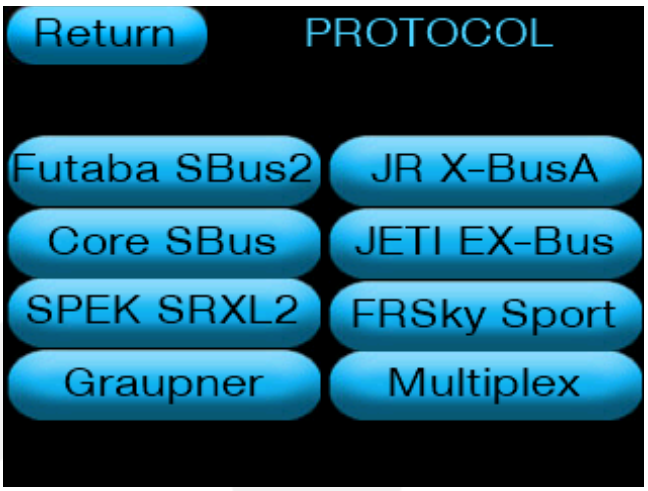
Note: It's normal to see these numbers above 0, but if you're noticing very high drop rates, you should talk to the manufacturer of your receiver for more information on where to place it.

FAILSAFE—The third column shows **FAILSAFE**, which means the number of times the receiver didn't send signals when it was supposed to. This number tells us how many times the Smooth Flite was waiting for messages but the receiver stopped sending them.

***Important:** If you see a lot of FAILSAFE events during ground tests or after landing, do not fly the model until you figure out why this is happening. IMPORTANT: If you turn off the transmitter before turning off the model, the Smooth Flite will show more FAILSAFE events. This is because the Smooth Flite can't receive a signal from the transmitter anymore.*

Receiver Menu Continued

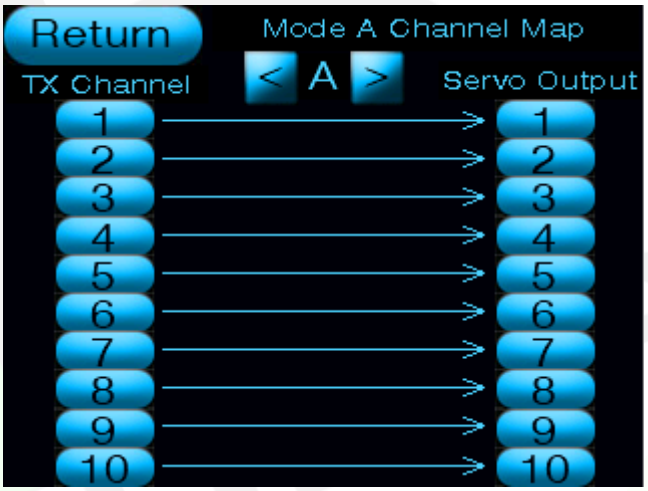
Protocol—To choose a protocol, click on the protocol button from the receiver page. This will lead you to the protocol page. From there, pick the protocol that works with your radio system. The SF10 PRO is compatible with most big brands, and many of these brands also use the Sbus protocol.



IO Routing—The SF10 PRO has a special feature which lets you change how the transmitter channels connect to its 10 outputs.

Channel Map A connects transmitter channels 1-10 to the SF10 PRO's servo outputs 1-10.

Channel Map B connects transmitter channels 11-20 to the SF10 PRO's servo outputs 1-10.

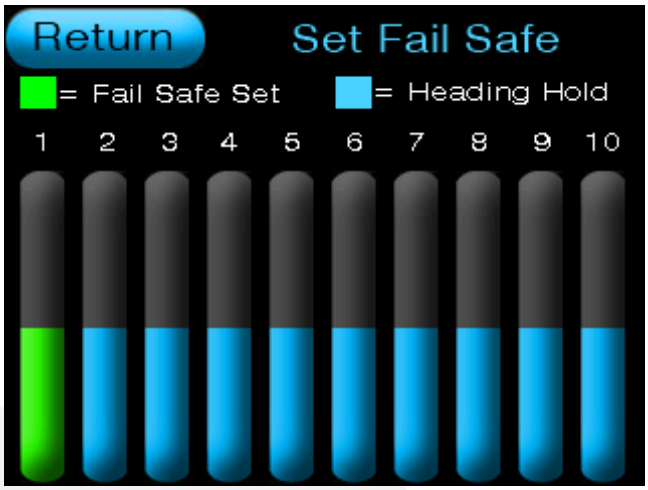


***Note**: This means you can use the SF10 PRO as a way to add more channels. If you use 2 SF10 PRO modules, you can have up to 20 outputs that are controlled by a Gyro.*

Fail Safe—The SF10 PRO has a failsafe setting for all 10 outputs.

To set the failsafe for any output, move the transmitter stick to the failsafe position and tap the channel bar for that output.

- **Green = (Go to Failsafe position)**
- **Blue = (Hold last position or Heading Hold)**

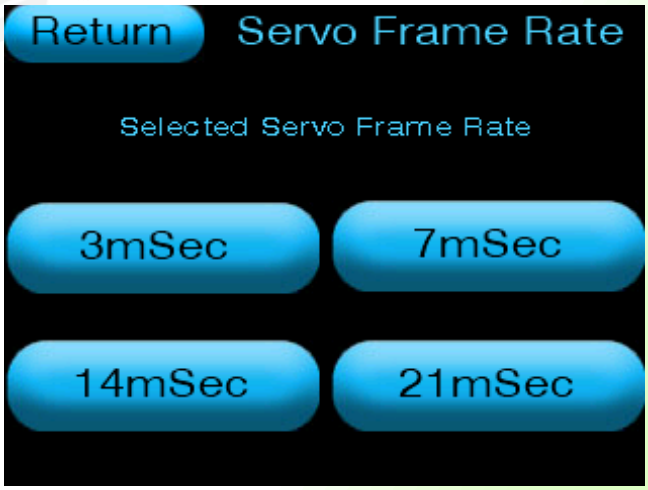


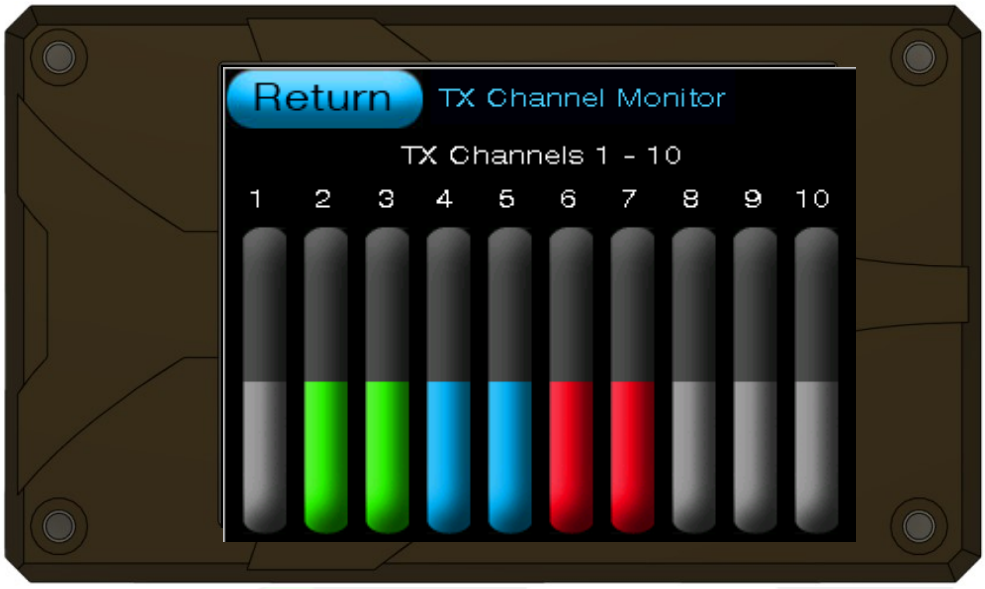
For Example: If you want the throttle on channel 1 to go to idle during a failsafe situation, pull the throttle to idle on the transmitter and then tap the channel bar for channel 1.
Note: Check the picture for more details.

Servo Frame Rate—The SF10 PRO has 4 different Frame Rates that you can use to match your servos. Most good digital servos, like our AR Series, work well at 3mSec, but you might need to increase the frame rate for some other models.

***Always** use **21mSec** for **analogue servos**.*

IMPORTANT: *Changing the frame rates happens right away, but you might notice a small adjustment needed when switching between different rates. After you pick a frame rate, it's easy to retune a channel in the transmitter.*





TX Input Channel Monitor

On the TX monitor pages, we have used different colours to help you easily identify each input channel. Here's what each colour means:

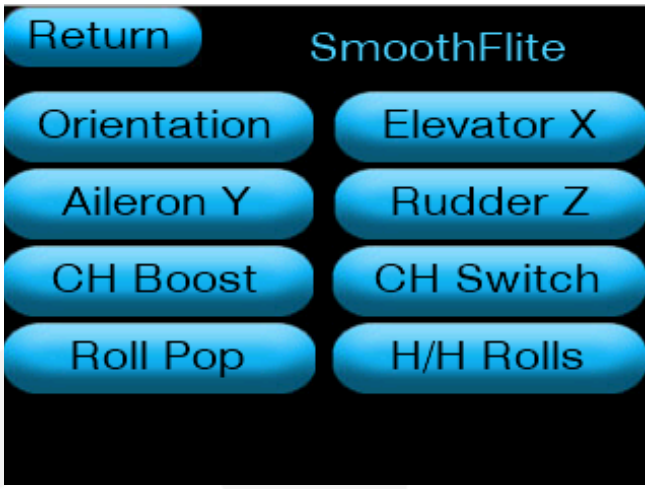
- **Gray** = This channel is either a CONTROL channel or not assigned.
- **Green** = This is an **AILERON** input channel.
- **Blue** = This is an **ELEVATOR** input channel.
- **Red** = This is a **RUDDER** input channel.

NOTE: *The input monitor bars will be greyed out If you have not yet run the set up wizard. This is simply because the SF10 PRO does not yet know the TX channel for the flight Mode switch. Running the Wizard will capture the flight mode switch. You can run the wizard as many times as required during setup.*

The SF10 PRO can monitor up to 32 transmitter channels, but this depends on the type and brand of your radio. Only the channels that your transmitter has will work.

For example, if you have a 9-channel transmitter, only 9 input channels will be active. If you have a 24-channel transmitter, then all 24 channels will be operational.

SF10 PRO Menu



Orientation—Is used to set the orientation of the SF10 PRO in the model.

Elevator X —Is used to set gyro parameters for the Elevator (or X axis) input channels.

Aileron Y —Is used to set gyro parameters for the Aileron (or Y axis) input channels.

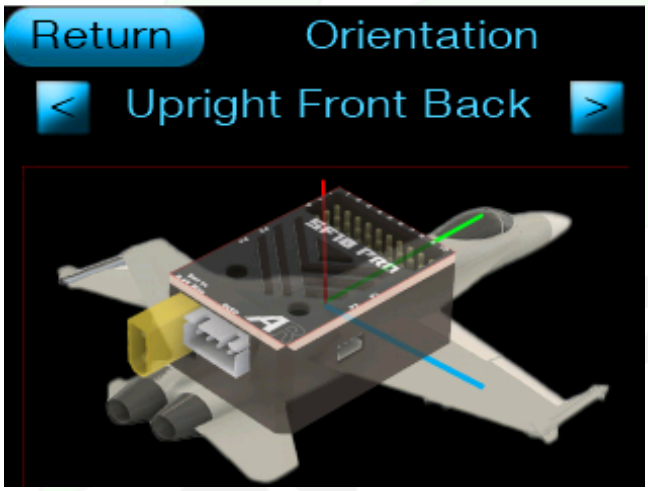
Rudder Z —Is used to set gyro parameters for the Rudder (or Z axis) input channels.

Ch Boost— Press this button will bring you to the channel boost page.

CH Switch— Press this button will bring you to the Channel Switch page

Roll Pop— Press this button will bring you to the roll pop page.

H/H rolls— Press this button will bring you to the Heading Hold rolls page.



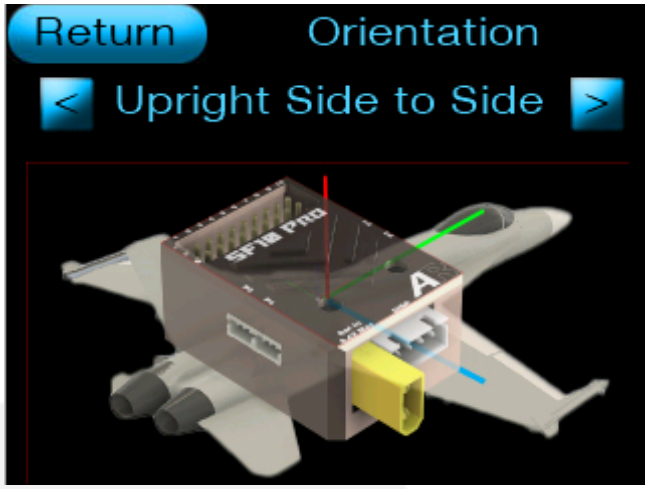
Orientation—It's IMPORTANT to set up the SF10 PRO correctly so that features like gyro correction work the way they should.

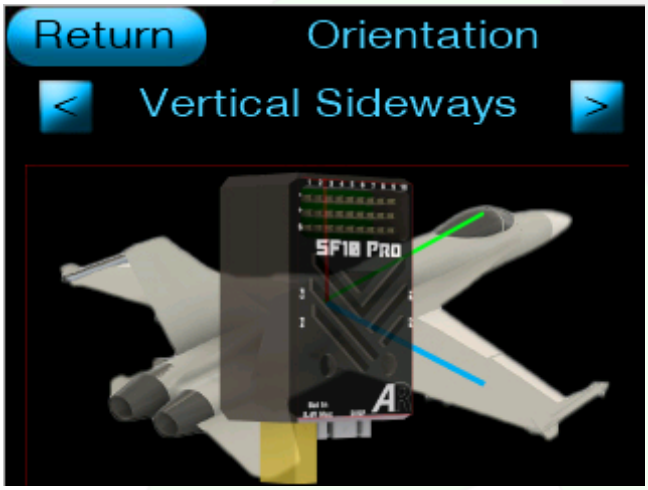
NOTE: Gyro direction can reversed in each individual XYZ page.

Upright Front Back— As shown in the picture above, the **SF10 PRO** should be mounted upright with the front facing the back.

Note: *This is the default orientation.*

Upright Side to Side— The SF10 PRO is mounted Upright East West in the model.

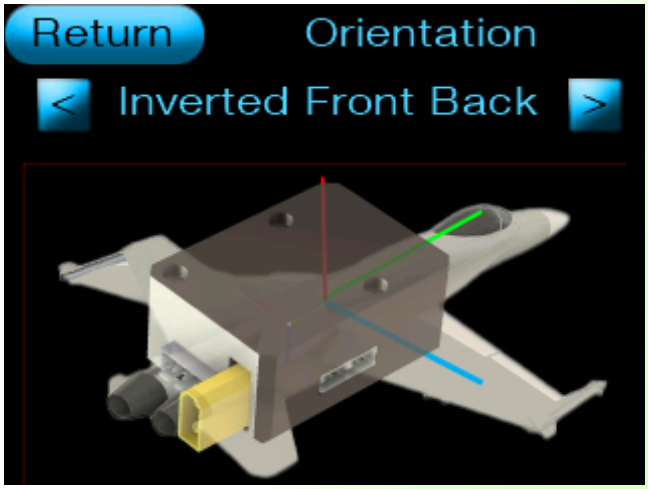




Vertical Sideways—SF10 PRO is mounted vertically in the model.

Inverted Front Back– SF10 PRO is set up upside down, which works well for certain warbirds.

IMPORTANT: *Make sure to check how the gyro responds before you fly the model.*



Elevator X, Aileron Y, Rudder Z Gains for Flight Modes FM1 and FM2

SF10 PRO offers individual gain control pages for each axis of Elevator X axis, Aileron Y axis and Rudder Z axis. Each page is color coded for easy identification as follows:

BLUE = Gain controls for **ELEVATOR**.
See picture left
Green = Gain controls for **AILERONS**.
RED = Gain controls for **RUDDER**.

The SF10 PRO has two flight modes that allow you to switch between **FM1** (which has low gain settings) and **FM2** (which has high gain settings). The picture above shows an example of the gain settings for the **Elevator** on the X axis in Flight Mode 1 (**FM1**). To change between **FM1**, Gyro OFF, and **FM2**, you just need to flip the **Gyro master switch.**

NOTE: *If you haven't used the wizard yet, the gain pages will be greyed out and won't respond when you move the Gyro master switch. This happens because the SF10 PRO doesn't know about the Master Switch channel yet. By running the wizard, it will recognize the flight mode switch. You can run the wizard as many times as you need to.*

All 3 axis—Elevator (X axis), Aileron (Y axis) and Rudder (Z axis) feature the following advanced controls

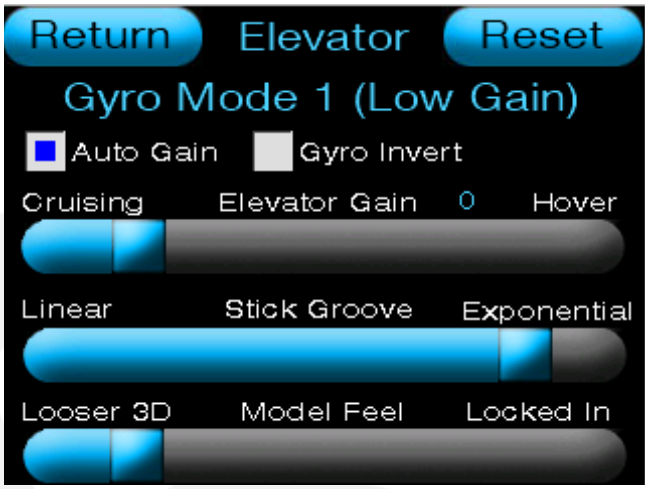
Auto Gain (AGC)—(check box coloured = active) ***We suggest keeping this setting ON (check box coloured).*** **AGC** helps reduce oscillations in the model by dynamically reducing and varying the gain for each surface. You can set this feature for each axis separately.

Note: *It can also be set for all axis at once on the system global page. If you set it to global there, choosing this feature for one axis will apply to all the others too.*

Elevator X, Aileron Y, Rudder Z Gains for Flight modes FM1 and FM2 continued:

Gyro Invert— (**check Box coloured = invert**) will change the direction of the gyroscope's response. If you have set the Gyro orientation correctly, you probably won't need to change this setting because the SF10 PRO will automatically adjust the response direction for you.

***Note**: Before your first flight, **ALWAYS** check the gyro direction on each axis*



Heading Hold (HH) — (**check Box coloured = active**) helps keep your model stable while hovering by locking its direction. This feature works when the control sticks are in the center position. If you move any control stick (like aileron, elevator, or rudder), the SF10 PRO will switch back to normal mode (**FM2**) without **Heading Hold**.

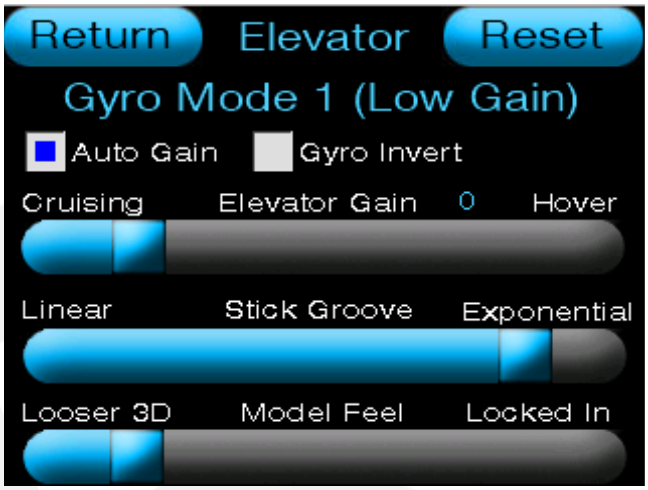
This is a great safety feature for skilled pilots who want to hover or perform nice point rolls.

You can set the **Heading Hold** option for each control axis separately or for all of them at once on the system's global page. If you choose to set it globally, turning on the feature for one axis will apply it to all the others.

***NOTE: Heading Hold** can only be activated in Flight Mode 2 (**FM2**)*

Elevator, Aileron and Rudder Gain—(slider) sets the overall gain level for the selected between **Cruising** (**lower gain**) and **Hover** (**high to very high gain**)
Each axis may have its own Gain level for each Flight mode. **FM1** (low gain) and FM2 (High Gain).

Elevator X, Aileron Y, Rudder Z Gains for Flight Modes FM1 and FM2 Cont2.



Stick Groove —(**slider**) controls how the gyro feels and how the gyro effect fades when you move the stick away from the center.

If you set the slider to Linear, the gyro effect will decrease evenly as you move the stick away from the center.

If you set the slider to Exponential, the gyro effect will fade away more quickly at first, then slow down as you move the stick away from the center.

You can move the slider to any spot between these two Stick groove positions to adjust how the stick feels to your liking. Plus, you can set the Stick Groove differently for each axis. If you want the same Stick Groove for all axis, you can choose the Global option in the System Global page.

Model Feel —(**slider**) is a special feature found only in the AR SF PRO series of products.

It improves how the model feels when you fly it by building on the dual Gyro setting from the original Smoot Flite.

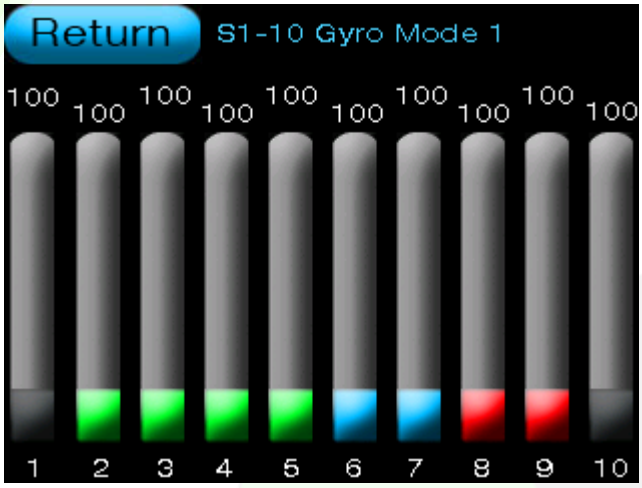
When you set the slider to 3D, the model can perform exciting, high-energy 3D flying. The gyro reacts much quicker, making the model feel like it's really alive in your hands.

On the other hand, if you set the slider to Locked In, the gyro takes more control, giving the model a more realistic flying experience. You can adjust the Model Feel slider to any position that suits your preferences. Also, if you want the same feel across all axis, you can set the Model Feel to **Global** in the **System Global page**.

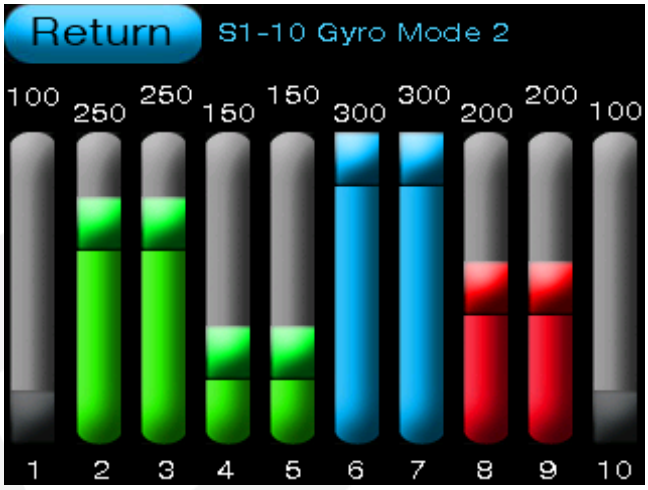
Individual Channel Gain Boost

SF10 PRO comes with several **Professional** features. Thus the name SF10 PRO.

One of the PRO features is Channel Boost.



Example: Channel Boost for Flight Mode 1 where all channels are set to unity i.e. no additional gyro gain boost



Example: Channel Boost for Flight Mode 2 where several channels are set to boost at different levels for additional gyro boost.

Channel Boost is a brand new feature which lets you add extra gyro gain boost (up to **300%**) to each channel and its servo outputs.

In simple terms, Channel Boost means you can get the benefits of several gyros in one system, which is great for stabilizing your model when it's hovering or flying at a high angle. Each flight mode on the SF10 PRO can have a different amount of boost for each channel.

***Note**: See pictures above to see examples of boost in **FM1** and **FM2**.*

For example, if you have a turbine model, you can set it up for regular flight so it feels stable and controlled. You can then give a little extra boost to the thrust vector channels in FM1, making the model very stable during normal flight. When it's time to perform tricks, like hovering or flying at a high angle, you can switch to FM2 for a lot more boost to keep the model steady while hovering.

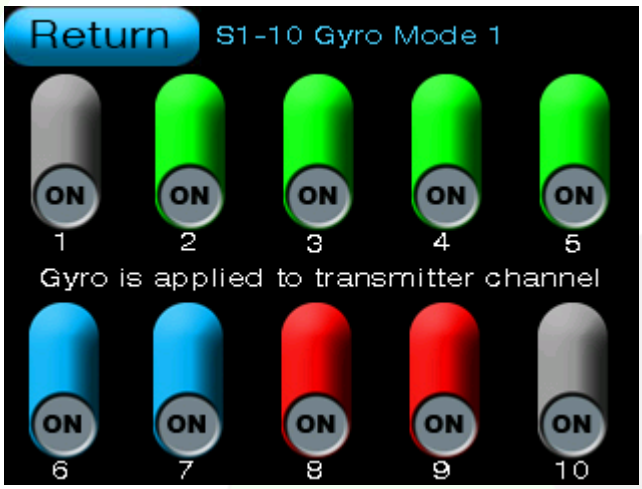
Smart pilots will quickly see the possibilities with the SF10 PRO **boost** feature. Plus, with two flight modes, you can adjust the boost for each channel separately in each mode.

As with all our axis colouring, channel Boost is also colour coded:

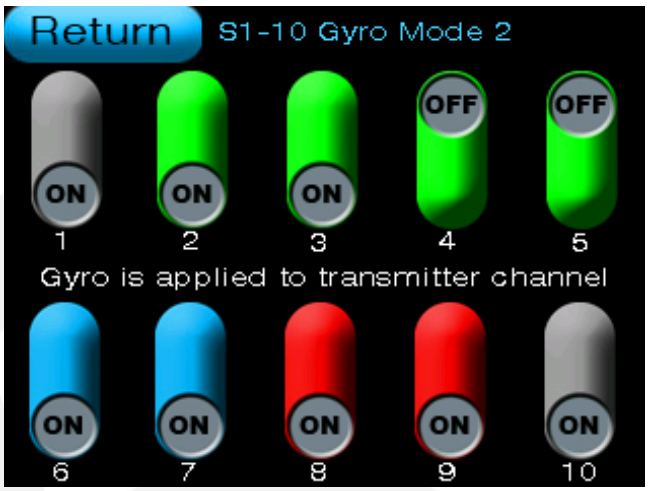
BLUE = Boost for **ELEVATOR channels**.
Green = Boost for **AILERON channels**.
RED = Boost for **RUDDER channels**.
GRAY= CONTROL channels (=No effect).

Individual Channel Switching

SF10 PRO comes with several **Professional** features. Thus the Name **SF10 PRO**. One of the Pro features is **Channel Switching**.



Example: Gyro Channel switching for Flight Mode 1 where all channels are set to ON and operate normally.



Example: Gyro Channel Switching for Flight Mode 2 where channels 4 and 5 have the gyro function switched OFF.

Channel Switching is a feature that lets you turn the gyro effect ON or OFF for each channel, which affects how the servos work. You can see examples of this in the pictures above showing boosts in **FM1** and **FM2**.

One common example of channel switching is when a pilot wants to turn off the aileron gyro effect on elevons. Some pilots like to keep the aileron function for their wings while turning it off for the elevons to help with smooth axial rolls. With the SF10 PRO, you can easily switch the gyro function ON or OFF.

Another example is when you have a model, like the F18 or F111, that has wings that can move back. You might want to turn off the gyro function when the wings are swept back.

A third example might be the ability to switch out the Thrust Vector gyro function on TV models.

The SF10 PRO makes these changes simple to do. Smart pilots will quickly see all the options they have with the channel switching feature on the SF10 Pro.

As with all our axis colouring, channel Boost is also colour coded:

BLUE = channel switching for **ELEVATOR channels**.
Green = channel switching for **AILERON channels**.
RED = channel switching for **RUDDER channels**.
GRAY= CONTROL channels (=No effect).

Aileron Roll Pop

SF10 PRO comes with several Professional features. Thus the Name SF10 PRO.

One of the Pro features is Roll Pop.

Roll Pop is a new feature that is usually used with 4 or 8 Point rolls. To use it, you move the aileron stick to roll your aircraft, and when you let go of the stick (bringing it back to the center), the SF10 PRO adds a small pop effect to the aileron channel. Many pilots really like this feature

Since **Roll Pop** is only for ailerons, the coding for this part is **GREEN**.

You can turn on the **Roll Pop** effect by clicking the checkbox. Once you do that, you have two choices for how it will work.

Coloured Check Box = ON.

White Check Box = OFF.

Option 1: Just activating the feature will apply the feature 100% of the time.
Option 2: Adding a CTRL SW channel and switch position on the transmitter to switch the feature ON/OFF remotely from your transmitter. Lets show how to select a control switch for Option 2.

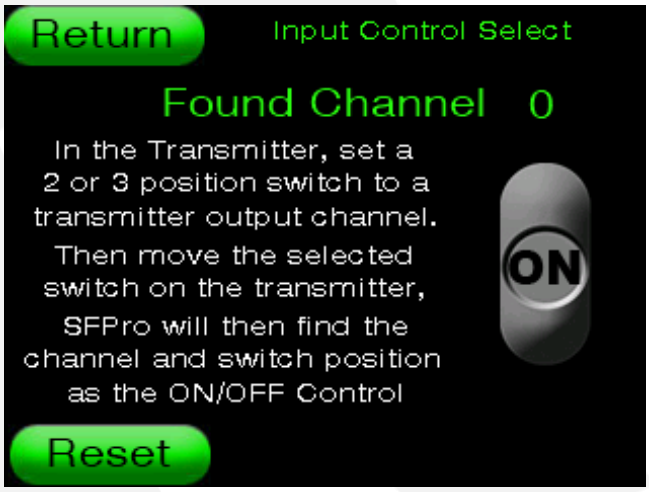
To select a control switch press the **CRTL SW** button. This will open the **Input Control Select page** where you will be given easy instructions on how to select the desired control. Please see the picture below.

***Note**: You must assign a control channel in your transmitter before the SF 10 PRO will discover the input control*

Aileron Roll Pop continued:

Once on the Input control select screen, simply move your designed transmitter control switch. The channel found will be displayed above the switch icon. Leave the control switch in the desired position as this will be see as the on position by the SF10 PRO.

Pressing return will save the found channel.



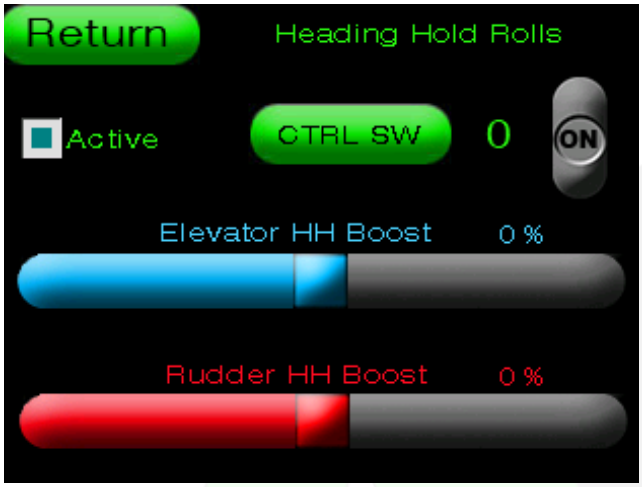
***Note**: To deactivate the switching feature, press the Reset button. This will return "Found Channel" to 0 and deactivate the switching feature.*

Roll Pop Speed—A slider is also provided to adjust the speed of the of Roll Pop. This will effect the speed of the "pop effect".

Roll Pop Amount—You can use this slider to change how much Roll Pop you want to add to the aileron function. The amount of Roll Pop also depends on how much you move the stick. This helps reduce Roll Pop when you're making normal turns with small stick movements. However, during point rolls where you move the stick more, a bigger stick movement will create more Roll Pop.

Heading Hold Rolls

SF10 Pro comes with several Professional features. Thus the Name SF10 PRO. One of the Pro features is Heading Hold Rolls.



Heading Hold Rolls is a new feature that helps with rolling manoeuvres. When you turn on Heading Hold Rolls, the Rudder and Elevators work in heading hold mode, while the ailerons stay in regular gyro mode. This makes it easier to control the rudder and elevator when rolling. If you move the rudder or elevator stick away from the center, the heading hold function will turn off, allowing for normal flying. To turn the feature back on, just return the rudder or elevator stick to the center position.

Heading Hold Rolls effect is activated by clicking the checkbox. When you activate HH Rolls you have 2 options in the way it will operate.

You can turn on the **Roll Pop** effect by clicking the checkbox. Once you do that, you have two choices for how it will work.

Coloured Check Box = ON.

White Check Box = OFF.

Option 1: Just activating the feature will apply the feature 100% of the time.
Option 2: Adding a CTRL SW channel and switch position on the transmitter to switch the feature ON/OFF remotely from your transmitter. Lets show how to select a control switch for Option 2.

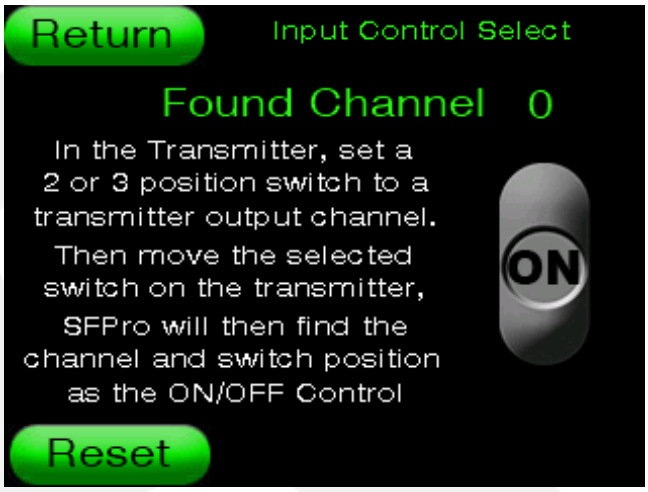
To select a control switch press the **CRTL SW** button. This will open the **Input Control Select page** where you will be given easy instructions on how to select the desired control. Please see the picture below.

***Note**: You must assign a control channel in your transmitter before the SF 10 PRO will discover the input control*

Heading Hold Rolls Continued:

Once on the Input control select screen, simply move your designed transmitter control switch. The channel found will be displayed above the switch icon. Leave the control switch in the desired position as this will be see as the on position by the SF10 PRO.

Pressing Return will save the found channel.



***Note**: To deactivate the switching feature, press the Reset button. This will return "Found Channel" to 0 and deactivate the switching feature.*

To deactivate the switching feature, press the Reset button. This will return "Found Channel" to 0 and deactivate the switching feature.

Elevator Heading Hold Boost—A slider is provided to adjust the amount Gain boost to apply to the elevator channels in Heading Hold mode. Applying larger amounts of boost will help lock in the elevator function but too much may cause some elevator oscillation.

BLUE = Boost for **ELEVATOR channels**.

Rudder Heading Hold Boost—A slider is provided to adjust the amount Gain boost to apply to the rudder channels in Heading Hold mode. Applying larger amounts of boost will help lock in the rudder function but too much may cause some rudder oscillation.

RED = Boost for **RUDDER channels**.

Notes

SF10 PRO 1 Year Replacement Warranty

At Advanced Radio our products are designed and tested to very high standards. We use only the highest quality electronic components sourced from reputable manufacturers; ST Micro, BOSCH, TDK, Linear Technology, Texas Instruments, Cypress Semiconductor Corp and NPX. Our circuit boards are assembled to the highest standards in a certified ISO900-2008 management quality assurance environment.

At Advanced Radio we understand the value of the models that run our RC division of electronics. During our many years of operation we have focused on and developed a high quality product and reputable testing regime. Our QC process has been developed from many years of experience designing and working in the RC industry and medical systems. We understand completely the processes involved to achieve a very high quality and reliable product.

Warranty does cover repair or replacement at the discretion of the Manufacturer.

Warranty does not cover Shipping charges related to any warranty claim and are at the expense of the user.

Warranty does not cover over voltage or over current damage beyond stated specification. Warranty does not cover damage due to negligence, abuse, accident, improper installation or improper mounting.

Warranty does not cover loss of time, inconvenience, loss of model, or other incidental or consequential damages.

SF10 PRO Design and Usage Statement

SF10 PRO employs state-of-the-art components to bring you the best possible flight experience for your giant scale model. It is also built on our trued and proven Smooth Flite technology.

Smooth Flite technology is a highly technical product and so it is important that you fully understand the usage of a gyro based system prior to usage. This is not a toy. Incorrect setup of gyro parameters in any gyro system can lead to loss of control of a model. If you are unsure of the usage of gyro based systems then seek assistance from more experienced pilots.

Advanced Radio has extensively tested all supported radio protocols with our AR servo range. These high voltage servos are design proven with superior reliability specifically for giant scale models and work excellently with all AR power distribution products. We highly recommend trying these servos. They really are superior by design. We have also tested with several other leading brands of servos with excellent results.

Smooth Flite servo outputs are protected. This allows the usage of long servo lead lengths however we strongly advise the usage of high quality servo leads like the AR Pro Line Series which are capable of carrying currents experienced with today's high power high voltage servos.

While every attempt has been made to provide complete user instructions, it is impossible to cover every possible combination of servos, radio type and battery type. If you would like to discuss the set up of your new model please feel free to contact us by Facebook (Booma RC), Telephone +61 242955287 or Email support@boomarc.com.

We trust you will enjoy using the Advanced Radio SF10 PRO.

Rick and Brendan Gell
AR Design Team.