



**AR10400T, AR14400T, and AR20400T
PowerSafe™ User Guide**

**Bedienungsanleitung AR10400T, AR14400T,
und AR20400T PowerSafe**

**Guide de l'utilisateur AR10400T, AR14400T, et
AR20400T PowerSafe**

**Manuale utente AR10400T, AR14400T, e
AR20400T PowerSafe**

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit horizonhobby.com or towerhobbies.com and click on the support or resources tab for this product.

Meaning of Special Language

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.



WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not attempt disassembly, use with incompatible components or alter product in any way without the approval of Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

Age Recommendation: Not for children under 14 years. This is not a toy.



WARNING AGAINST COUNTERFEIT PRODUCTS

Always purchase from a Horizon Hobby, LLC authorized dealer to ensure authentic high-quality Spektrum product. Horizon Hobby, LLC disclaims all support and warranty with regards, but not limited to, compatibility and performance of counterfeit products or products claiming compatibility with DSM® or Spektrum™ technology.

NOTICE: This product is only intended for use with unmanned, hobby-grade, remote-controlled vehicles and aircraft. Horizon Hobby disclaims all liability outside of the intended purpose and will not provide warranty service related thereto.

User Guide

- PowerSafe™ receivers covered in this manual are updatable using a micro USB cable and a PC.

IMPORTANT: The AR10400T, AR14400T and AR20400T PowerSafe receivers use four remotely mounted receivers. Each aircraft installation requires careful planning to optimally place the remote receivers to provide the best possible RF link.

Specifications	AR10400T	AR14400T	AR20400T
Type	DSM2/DSMX PowerSafe Telemetry Receiver		
Dimensions (LxWxH)	66 x 62 x 17mm	66 x 56 x 17mm	69 x 65 x 18mm
Weight	54g	80g	86g
Channels	10	14	20
Resolution Ch 1-12	2048		
Resolution Ch 13-20	512		
Frame Rate Ch 1-12	22ms*		
Frame Rate Ch 13-20	variable		
Band	2.4GHz		
Voltage Range	3.5-10V		
Cont Current	35 Amps		
Max Current	50 Amps		
14 Channel Mode (Capable transmitters, see Spektrumrc.com for more information)			
Resolution Ch 14	2048		
Frame Rate Ch 14	22ms		

*11ms mode is available for channels 2,3,4, and 6, but channel output in 11ms mode is limited to 10 channels.

AR10400T Included Items		AR14400T, AR20400T Included Items	
1	DSMX Remote Receiver (SPM4651T)	1	DSMX Remote Receivers (SPM4651T)
2	DSMX Remote Receiver (SPM9747)	3	DSMX Remote Receiver (SPM9747)
1	6" SRXL2 Remote Receiver Extension (SPM9100)	1	6" SRXL2 Remote Receiver Extension (SPM9100)
1	12" SRXL2 Remote Receiver Extension (SPM9102)	1	12" SRXL2 Remote Receiver Extension (SPM9102)
1	24" SRXL2 Remote Receiver Extension (SPM9103)	1	24" SRXL2 Remote Receiver Extension (SPM9103)
1	Soft Switch (SPM9150)	1	36" SRXL2 Remote Receiver Extension (SPM9104)
2	Battery IC3 connectors (SPMXCA302)	1	Soft Switch (SPM9150)
2	Charge receptacles	2	Battery IC3 connectors (SPMXCA302)
1	Aircraft Telemetry Volt Sensor (SPMA9570A)	2	Charge receptacles
		1	Aircraft Telemetry Volt Sensor (SPMA9570A)

NOTICE: Disconnect receiver battery(s) at the end of every flying or testing session. Failure to do so may cause over-discharge of your receiver packs, resulting in permanent damage.

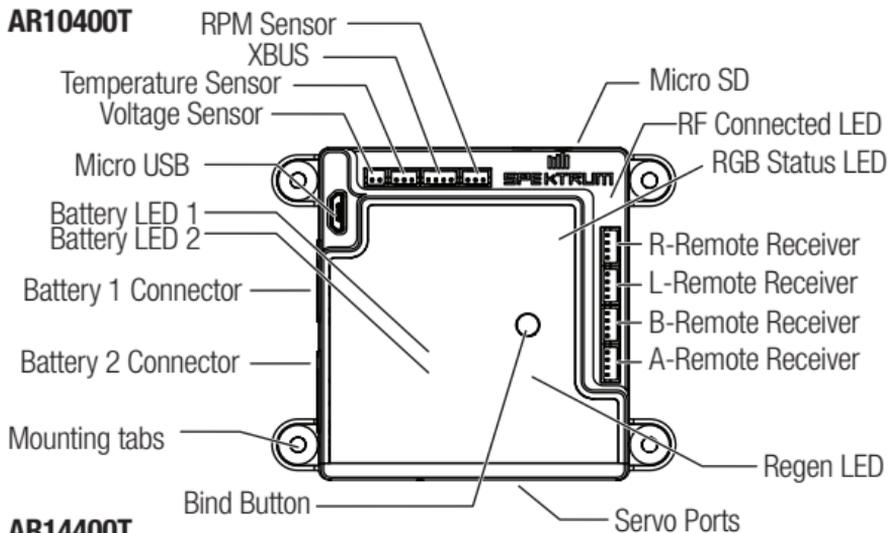
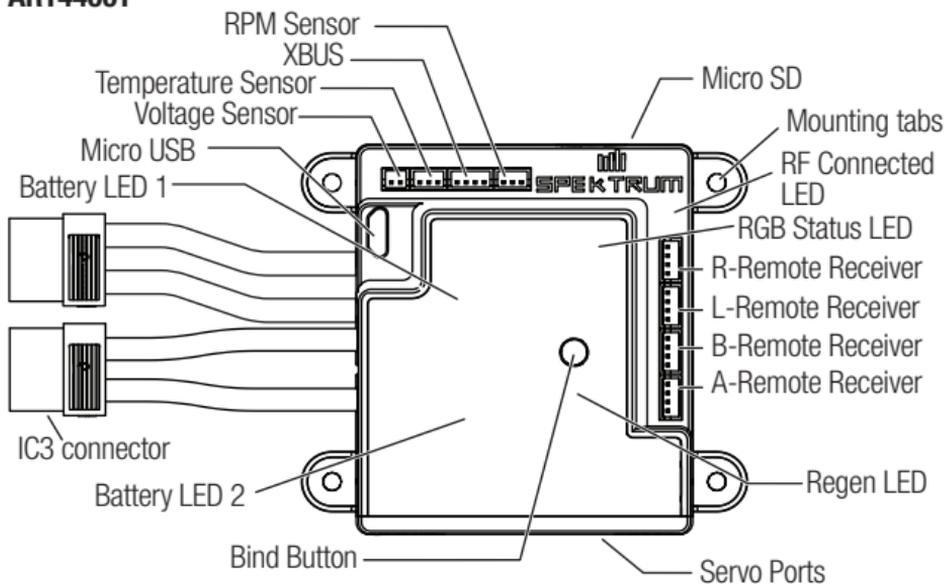
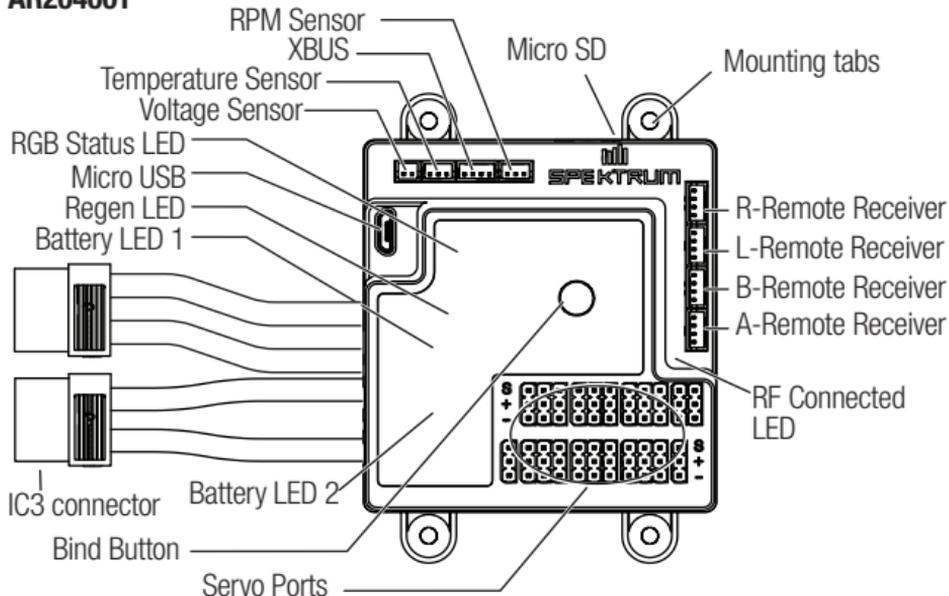
Smart Throttle

The AR10400T, AR14400T and AR20400T receivers throttle port includes Smart Throttle. When equipped with Smart Throttle the normal servo connector delivers the throttle signal to the ESC, plus the ESC can send telemetry data like voltage and current back to the receiver. The AR10400T, AR14400T and AR20400T receivers throttle port will automatically detect when a Smart Throttle compatible ESC is plugged in and the throttle port will begin to operate in Smart Throttle mode.

ESCs with Smart Throttle and IC3® and IC5® connectors can also pass along battery data from compatible Spektrum Smart batteries.

If a standard ESC or servo is plugged into the throttle port on the AR10400T, AR14400T and AR20400T receivers, the throttle port will operate normally (PWM signal) like any conventional RC system. The AR10400T, AR14400T and AR20400T receiver is compatible with the Spektrum Avian line of ESCs for Smart Throttle.

For Smart Throttle to function you must have a Smart Throttle ESC paired with a Smart Throttle telemetry receiver, and a Spektrum DSMX transmitter with telemetry. An update for your transmitter may be required for Smart features. See www.spektrumrc.com to register and update your transmitter.

AR10400T**AR14400T****AR20400T**

NOTICE: When using Y-harness or servo extensions with Spektrum equipment, do not use reversing harnesses. Using reversing Y-harnesses or servo extensions may cause servos to operate erratically or not function at all.

To access channels above 12, you are required to enable X-Plus mode on your transmitter. On DX18 transmitters, channels 11 and 12 will be locked at center if X-Plus mode is not enabled.

To access 14 channel mode, you must select this option in compatible transmitters.

NOTICE: When using X-Plus to get up to 20 channels, Channels 13-20 have 512ms resolution and a variable frame rate. They are intended for auxiliary functions such as retracts, lights, etc. We do not recommend using Channels 13-20 for flight control surfaces. Note: If using 14 channel mode in compatible transmitters, in 14 channel mode, all 14 channels are 22ms at 2048 resolution and can be used for flight control channels.

Note: Check your transmitter manual or receiver web site for compatibility for 14 channel mode. 14 Channel mode is accessed through the Frame Rate menu and will show in compatible transmitters. Transmitters may need to be updated to add this feature if available.

See your Transmitter manual for more information about X-Plus mode

Getting Started

1. Install the receiver system in your aircraft.
2. Bind the receiver to your transmitter.
3. Complete model setup on your transmitter.
4. Conduct thorough ground testing.
5. Re-bind to set failsafe settings.
6. Range check.
7. Control surface check before flying.
8. Unplug receiver battery(s) at the end of every flying or testing session.

Installation

1. Find a secure mounting location on a mounting tray or bulkhead
2. Self tapping mounting screws are provided to use the integrated mounting tabs and grommets.
3. We recommend drilling a pilot hole for the mounting screws to prevent the mounting surface from splitting.

TIP: If the screw is threading into a soft material such as balsa wood, harden the threads with thin CA before final mounting.

4. It is not necessary to compress the grommets tightly. Use a 2mm hex driver to install the mounting screws so the grommets are gently compressed.
5. Secure the remote receivers so they are perpendicular from each other and located away from conductive materials. It is best to locate the remotes in different parts of the aircraft for best performance.

TIP: If you have telemetry link performance issues, inspect and/or relocate the SPM4651T remote receiver to optimize performance in your aircraft.

NOTICE: Do not cut the antenna wire or allow it to kink on the SPM4651T remote receiver. The last 31mm of the wire is the active portion of the antenna. The coaxial wire leading up to antenna will be damaged if it is cut or kinked.

6. Mount the soft switch on the side of your aircraft and insert the switch plug in the port marked SWITCH.*

Soft Switch

*The PowerSafe receiver uses a specific switch. Conventionally wired switches are not compatible with the PowerSafe receiver.

- The Soft Switch is a failsafe switch, it opens the circuit to power ON the receiver. If a switch failure occurs during operation, the system will fail to the ON position.
- The trickle current when the receiver is powered OFF is negligible and will not affect the charge status during a flying session. However, always unplug the batteries from the receiver at the end of a flying session.
- Connect the lead labeled Switch into the receivers Switch port. The second lead labeled LED PWR can be connected to any of the receiver ports that are powered to provide power to the switches LED which can be used to see at a glance that the system is powered on from the switch. The switch LED is optional, if not used simply secure the LED PWR lead.

NOTICE: Failure to unplug the receiver batteries after a flying session will result in a trickle current that will slowly drain the receiver battery. An over-discharged battery should never be recharged.

Mounting the Remote Receivers

Orientation of the Remote Receivers

Mount the remote receivers in a location that allows for the best possible signal reception when the aircraft is in all possible orientations. Three remote receivers are included with the AR10400T and four are included with the AR14400T and AR20400T, we recommend having one mounted with the antennas oriented vertically, one horizontally in-line with the fuselage and one horizontally perpendicular to the fuselage.

Locating the Remote Receivers

Find locations for the remote receivers as far from each other and metal, electronics, carbon fiber, batteries or fuel as possible. Mount the remote receivers securely in your aircraft, and plug them into the receiver ports.

A remote must be connected to remote port A, and at least 2 remotes must be connected to the receiver for the receiver to connect to the transmitter and output to the servos.

Greater antenna separation improves path diversity (RF link performance) in critical environments. Do not extend remote receivers greater than 36" from the main receiver.

If remote receivers are added to the system or if the remote receiver setup is changed after initial binding, the system must be re-bound.

At minimum 1 - SPM4651T remote receiver must be installed (one is included in every receiver) to have full range telemetry.

Battery Requirements

Battery Voltage

Select a battery for your system based on your servo selection. Ensure your servos are rated to handle the voltage you intend to run. The low voltage threshold for the receiver is 3.5 volts. We recommend selecting a battery rated between 6.0 and 10.0 volts to leave a buffer under heavy loads. If input voltage is above the 10.0 volt threshold the receiver will not connect power to the servos. LiPo, Lilon, LiFe, NiMH, and NiCAD batteries may be used, but we do not recommend using 4 cell NiMH or NiCAD batteries.

Voltage Regulators

Regulators may be used to supply power to the receiver. They provide a constant voltage supply under varying current loads. If you are using two batteries with regulators, each battery needs to have its own dedicated regulator plugged into separate battery ports on the receiver.

When installation is complete, we recommend thoroughly testing the batteries under load to verify they can sustain the demands, before committing the aircraft to flight.

Using One Battery

When using one battery it may be plugged into either battery port. If you are using one battery, secure the unused battery input connector. A single blue LED will remain illuminated when the receiver is powered by one battery.

Using Two Batteries

The PowerSafe receivers have a redundant dual battery system, each pack functions independently and is isolated from the other. If one pack should fail for any reason (open circuit, short-circuit, or become discharged) the other battery will provide power to operate the system. When using dual batteries, it's important both batteries are the same voltage, capacity, age, and condition.

It is normal for only one blue LED (Batt 1 or Batt 2) to be illuminated when the system is not under a heavy current load, depending on which pack is providing more power. You may see a difference in the capacity put back in during subsequent charging. Generally the difference is negligible, less than 10%.

Battery Capacity

Select batteries with more than adequate capacity to provide the necessary flight time. To leave a buffer, prevent dropping the batteries below 40% of their rated capacity during use.

Installing the Batteries

Spektrum batteries are pre-wired with EC3™ or IC3™ connectors and plug directly in. Two IC3 battery connectors are included which you can solder to your battery or regulator as necessary to complete the connection. Mount the batteries securely and protected from vibration. Connect the battery(s) to the PowerSafe receiver when you are ready to fly, and unplug at the end of your flying session.

Binding

The AR10400T, AR14400T and AR20400T PowerSafe receivers must be bound to the transmitter before they will operate. Binding is the process of linking the transmitter to the receiver, and defines SmartSafe™ settings. The binding and SmartSafe process may be completed with the bind plug or the bind button.

1. Connect the remote receivers and any telemetry sensors to the main receiver. At least 2 remotes must be connected, and 1 must be connected to port A.
2. Bind the transmitter to the receiver with low throttle.
3. Complete your model setup and configuration on your transmitter and conduct a thorough ground test of all functions.
4. Before flying, re-bind the transmitter and receiver to set the SmartSafe in the desired positions.

Failsafe

The AR10400T, AR14400T and AR20400T PowerSafe receivers have three failsafe features: Pre-Connect Failsafe, Preset Failsafe and SmartSafe™.

Pre-Connect Failsafe: Prevents a servo signal from being generated before the receiver connects to a transmitter. It is not affected by failsafe bind settings. If the receiver is powered ON with no connection, it will remain in standby mode with no output pulses to the servos, until a bound transmitter connects.

Failsafe positions are set through forward programming. In the unlikely event that the radio link is lost during use, the receiver will drive all channels to their pre-programmed failsafe positions. The blue battery LEDs remain illuminated in failsafe modes, but the orange LEDs on the main and remote receivers will not be illuminated when a transmitter is not connected.

Preset Failsafe: With preset failsafe, you can set the specific control surface positions you want to use if the signal is lost. When the receiver detects the signal from the transmitter, normal aircraft operation resumes.

Only available through Forward Programming

Testing Failsafe: Secure the aircraft on the ground and remove the propeller. Test Failsafe settings by turning the transmitter RF output off and noting how the receiver drives the control surfaces.

Receiver Power Only

- If the receiver is turned when no transmitter signal is present, the throttle channel will not have a control signal to avoid operating or arming the electronic speed control.
- All other channels have no output until the receiver has linked to the transmitter.

Forward Programming

Verify your transmitter is updated your transmitter to the latest Spektrum AirWare™ software to take advantage of Forward Programming. See your transmitter manual for updating instructions.

In your transmitter menu select **Forward Programming** ->

Other Settings ->

- Select **Failsafe** -> Select each channel and assign it to Preset or Hold Last. When you select a different channel for Output, a new group of settings appears. **Capture Failsafe Postions** ->

Hold the control sticks in the desired failsafe positions and select Apply. Channel selections must be individually set in Forward Programming to apply the preset positions or each channel will default to Hold Last. The value captured will be reflected in the position shown for each channel.

- **Initiate Receiver Bind Mode**

Gives you the option of putting the receiver into Bind Mode from this menu.

• Frame Rate

Gives you the option of adjusting the update rate from the receiver to the servos (this does not change the frame rate from the transmitter to the receiver.) When set to INH, the default frame rate from the transmitter will be the servo update rate. Additional setting options are 5.5ms, 11ms, and 22ms. Some servos cannot handle fast update rates such as old analog servos. The update rate can be selected for each output allowing different settings per output channel allowing for high speed update rates to servos that can handle the faster frame rates and lower update rates to servos that cannot handle fast frame rates.

In Forward Programming -> PowerSafe Telemetry ->

Dual Battery Capacity Monitoring

The PowerSafe receivers feature dual battery capacity monitoring through telemetry when used with Spektrum AirWare™ transmitters. Activate the Auto Config function on the telemetry page in your transmitter to display the capacity consumed by the receiver. The capacity used is stored flight to flight and adds until reset. The capacity can be automatically reset when the battery is charged, allowing easy battery capacity monitoring.

Automatic Reset

With automatic Reset you can select inhibit or active. When set to inhibit you must manually reset the capacity used after charging the battery/ies. When set to active the receiver will detect when the battery voltage has raised sufficiently after a battery charge and automatically reset the capacity. The pack voltage must drop sufficiently for automatic reset to function, typically a couple flights are enough.

Capture Charged Voltage

When this is selected the receiver will store the current voltage as the fully charged voltage of your battery/ies connected. Just below the Capture Charged Voltage button/bar are the charged voltage settings currently saved, if you press capture charged voltage just after a charge, these values will show the set points saved. These must be set for the receiver to perform an automatic reset if active.

12V Servo Bus

Activate this if using 12V servos and 12V battery pack/s, this will allow the receiver to operate at 12V and disable regenerative servo support. With this active the servo bus will not activate if the voltage exceeds 13V. Note that any servos connected to the servo bus must be capable of handling 12V if using 12V battery/ies and this function is active. If not using a 12V battery system and 12V servos, leave this setting set to inhibit. When set to inhibit, the receiver will not power the servo bus if the voltage supplied is over 10V and the regenerative servo support will be active. Warning: If 12V Servo Bus is active, standard servos and other devices not able to handle 12V may burn out or otherwise be damaged.

Reset Capacity

From the Forward Programming->PowerSafe Telemetry menu, press NEXT to see the manual reset capacity button. Press this to reset the stored capacity used manually. Use this when not using Automatic Reset after a charge to reset your battery capacity used. In addition to being able to reset the capacity through forward programming, you can also reset the capacity by pressing the bind button while the receiver is on and connected to a transmitter.

SmartSafe Options

Preset Failsafe: If signal loss occurs, the receiver will move all the channels to their failsafe positions.

SmartSafe + Hold Last: If signal loss occurs, SmartSafe™ technology moves the throttle channel to its preset failsafe position, and all other channels hold their last position. When the receiver detects a signal from the transmitter, normal aircraft operation resumes.

If at any time you turn on the system and it fails to connect, verify the correct model memory is selected in the transmitter.

After Connection

When the transmitter and receiver are connected, the orange LEDs on the main receiver unit and remote receivers will remain illuminated. If for any reason a failsafe is triggered, the system will immediately regain control upon the connection being restored.

Flight Log

Flight Log data can help you optimize the control link for your aircraft. Flight Log data is displayed on telemetry capable Spektrum transmitters.

Using the Flight Log

A - Fades on remote receiver connected to A port.

B - Fades on remote receiver connected to B port

L - Fades on remote receiver connected to L port

R - Fades on remote receiver connected to R port

F - Frame losses

H - Holds

Fades

Represents the loss of one bit of information on one receiver. Fades are used to evaluate the performance of each individual receiver. If any single receiver displays higher fade values it should be inspected and the antenna repositioned to optimize the RF link.

Frame Loss

A frame loss occurs when one complete data packet is missed. A single frame loss does not represent a loss of control, but frame losses should be monitored. In the air it's normal to experience as many as 100 frame losses per minute of flight. On the ground the number of frame losses will be higher because the signal is hampered by earth and moisture.

Hold

A Hold occurs when 45 consecutive frame losses occur. This takes about one second, and in this event the receiver moves the channel outputs to the failsafe settings. If a hold ever occurs, it's important to re-evaluate the system and check every component. If your system displays a hold taking place, diagnose the cause and resolve the issue before flying again.

It is normal to see a hold logged if you power OFF your transmitter and back ON.

IMPORTANT: The Spektrum Flight Log (SPM9540) is not compatible with the PowerSafe receivers.

Micro SD Card

When a micro SD card is inserted into the receiver, during operation, flight information will be logged onto a file on the card including flight log data, battery status and other telemetry data stored over time. If not deleted, older data logs recorded will be deleted, keeping the most recent logs. This can be a handy tool to review flight data over time which can be helpful for diagnosis of performance.

Micro USB Updating

The PowerSafe receivers feature a Micro USB connector which can be used with a micro USB cable (available separately) to update both the main receiver firmware as well as any connected remotes making it very easy to update the receiver and any attached remote receivers. Simply connect the receiver with a micro USB cable and use the Spektrum PC programmer to update the receiver and any attached remote receivers. **Note:** The Spektrum Programmer USB cable must be disconnected from the computer for the micro USB connection to work. Please make sure to use the Spektrum Programmer application v3.6 or newer.

Status LED

The Status LED will give information about the status of the receiver and give warning codes if there is an issue or condition detected: Differentiate codes/modes by flashing count. **Note:** Check the website for any future updates.

- **White Blinking/Breathing** - Initializing, not ready to fly
- **Red** - Failure, failure where you can't fly. Check power or RF.
- **2 blinks** - 3S Power Detected/Protection engaged
- **1 blink** - No remote detected in port A or not enough remotes detected, need at least 2 remotes connected and one must be in port A.
- **Solid Blue** - Ready (w/ recording). Ready to fly recording w/ SD
- **Solid Green** - Ready (w/o recording). Ready to fly, not recording to an SD card.

Range Testing

Before each flying session, and especially with a new model, it's important to perform a range check. All Spektrum aircraft transmitters incorporate a range testing system, which reduces the output power to allow a range check.

1. With the model resting on the ground, stand approximately 100 feet (30 meters) away from the model.
2. Face the model with the transmitter in your normal flying position and put your transmitter into range test mode.
3. You should have total control of the model in range test mode at 100 feet.
4. If control issues exist, call Horizon Product Support for further assistance.

Advanced Range Testing

The Standard Range Testing procedure is recommended for most sport aircraft. For sophisticated aircraft that contain significant amounts of conductive materials (e.g. turbine powered jets, scale aircraft with matalized finishes, aircraft with carbon fuselages, etc.), the following advanced range check will confirm that all receivers in the system are operating optimally as installed. This advanced range check allows the RF performance of each receiver to be evaluated independantly. A telemetry equipped Spektrum Transmitter is required for the advanced range test.

1. Stand approximately 100 feet away from the model.
2. Face the model with the transmitter in your normal flying position and put your transmitter into range test mode.
3. Have a helper position the model in various orientations (nose up, nose down, nose toward the transmitter, nose away from the transmitter, etc.).
4. Observe the telemetry on your transmitter. Note any orientations that cause higher fades or frame loss values. Perform this step for at least one minute.
5. Re-position any remote receivers showing higher fades as necessary.
6. Re-test to verify satisfactory results.
7. Repeat as neccesary.

After one minute, advanced testing should yield:

H - 0 holds

F - less than 10 frame losses

A, B, R, L - Fades will typically be less than 100. It's important to compare the relative frame losses. If a particular receiver has a significantly higher frame loss value (2 to 3X) then the test should be redone. If the same results occur, move the offending receiver to a different location.

TIP: Use the fade values for any SPM4651T remote receivers to investigate the performance of the telemetry link.

The SPM9604 Receiver sensor is not compatible with PowerSafe receivers because its function is already built into the receiver.

For information on Spektrum Telemetry Sensors visit:
<http://www.spektrumrc.com>

Telemetry

The Spektrum AR10400T, AR14400T and AR20400T PowerSafe telemetry receivers features 4 integrated telemetry ports that are compatible with Spektrum telemetry capable transmitters.

- No telemetry module required. Telemetry is built into the receiver.
- No sensor is required to receive Flight Log or receiver pack voltage directly on any telemetry capable Spektrum transmitter.

IMPORTANT: The SPM4651T must be connected and operating in order for the receiver to transmit Telemetry at full range.

IMPORTANT: Additional SPM4651T remotes can be used to offer redundant full range telemetry (system will use the strongest link to transmit data) but 1 is required for full range telemetry and is included.

- The PowerSafe telemetry receivers include the SPMA9570A Aircraft Telemetry Flight Pack Voltage Sensor which is rated up to 60v (14s LiPo) input.
 1. Plug the Aircraft Telemetry Flight Pack Voltage Sensor into the VOLT Telemetry Port on the PowerSafe Receivers.
 2. Splice the other end into the flight battery pack noting polarity. If you are powering the receiver through a regulator you may need to disconnect the negative (black) lead for the voltage sensor to operate reliably.

Dual Battery Capacity Monitoring

The PowerSafe receivers feature dual battery capacity monitoring through telemetry when used with Spektrum AirWare™ transmitters. Activate the Auto Config function on the telemetry page in your transmitter to display the capacity consumed by the receiver. The capacity used is stored flight to flight and adds until reset. The capacity can be reset when the battery is charged, allowing easy battery capacity monitoring.

To reset the capacity used:

1. Power on the transmitter and receiver and allow the receiver to connect to the transmitter.
2. Once connected to the transmitter, either press the bind button on the receiver or connect a bind plug to the bind port.
3. Capacity used will now be reset.

NOTICE: The capacity will only reset if the transmitter and receiver are connected before pressing the Bind button or connecting a bind plug. If the receiver is not connected, capacity used will not be reset, and the receiver may enter bind mode, indicated by the flashing orange LEDs.

Regenerative Servos

The PowerSafe receivers can support up to 3 regenerative servos which back feed power to the receiver. If using more than 3 servos, please add additional devices to absorb the additional power input. When the PowerSafe receivers have receivers back feeding power to the receiver, the Regen LED will illuminate.

Telemetry Sensors and Accesories	
SPMA9571	Spektrum DSMX/DSMR Telemetry Temperature Sensor
SPMA9574	Aircraft Telemetry Airspeed Indicator
SPMA9569	Aircraft Telemetry RPM Sensor and Bracket
SPMA9558	Brushless RPM Sensor
SPMA9587	Aircraft Telemetry GPS Sensor
SPMA9605*	Aircraft Telemetry Flight Pack Batt Energy Sensor
SPMA9551	12" Aircraft Telemetry Extension
SPMA9552	24" Aircraft Telemetry Extension

*For use with electric power system batteries that are separate from the receiver battery(s).

1-Year Limited Warranty

What this Warranty Covers - Horizon Hobby, LLC, (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship for a period of 1 year from the date of purchase.

What is Not Covered

This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations.

OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

Purchaser's Remedy

Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law

These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

WARRANTY SERVICES

Questions, Assistance, and Services

Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please visit our website at www.horizonhobby.com, submit a Product Support Inquiry, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

Inspection or Services

If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. An Online Service Request is available at http://www.horizonhobby.com/content/service-center_render-service-center. If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

NOTICE: Do not ship LiPo batteries to Horizon. If you have any issue with a LiPo battery, please contact the appropriate Horizon Product Support office.

Warranty Requirements

For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

Non-Warranty Service

Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website http://www.horizonhobby.com/content/service-center_render-service-center.

ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.

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Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	2904 Research Rd. Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com	
		877-504-0233	
	Sales	websales@horizonhobby.com 800-338-4639	
EU	Horizon Technischer Service	service@horizonhobby.de	Hanskampring 9 D 22885 Barsbüttel, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	

FCC ID: 6157A-QSTMRX2 • BRWDLRXL2RR1

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

When operating your Spektrum receiver, please be sure to maintain a separation distance of at least 20 cm between your body (excluding fingers, hands, wrists, ankles and feet) and the antenna to meet RF exposure safety requirements as determined by FCC regulations.

SUPPLIER'S DECLARATION OF CONFORMITY

SPMAR10400T / SPMAR14400T/ SPMAR20400T DSMX Telemetry Receiver

 This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Horizon Hobby, LLC
 2904 Research Road,
 Champaign, IL 61822
 Email: compliance@horizonhobby.com
 Web: HorizonHobby.com

IC Information

CAN ICES-3 (B)/NMB-3(B)

IC: 6157A-QSTMXX2 • 6157A-DLSSRXL2RR1

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Compliance Information for the European Union



Hereby, Horizon Hobby, LLC declares that the device is in compliance with the following: 2014/30/EU EMC Directive; RoHS 2 Directive 2011/65/EU;

RoHS 3 Directive - Amending 2011/65/EU Annex II 2015/863.

The full text of the EU declaration of conformity is available at the following internet address: <https://www.horizonhobby.com/content/support-render-compliance>.



Instructions for Disposal of WEEE by Users in the European Union

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.



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The Spektrum trademark is used with permission of Bachmann Industries, Inc. JR is a registered trademark of JR Americas. All other trademarks, service marks and logos are property of their respective owners.

US 7,391,320. US 9,930,567. US 10,419,970. US 10,849,013.

Other patents pending.

Created 11/21

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SPMAR10400T / SPMAR14400T / SPMAR20400T