

These operating instructions are an integral part of the product, and contain important information and safety notes. Store them in a safe place, and be sure to pass them on to the new owner if you dispose of the product.

1. SPECIFICATION

RX-6-SYNTH light	35 MHz A- and B-band	40 / 41 MHz ¹	35 MHz ²
Order No.	# 5 5876	# 5 5877	# 5 5878
Reception system	FM / PPM single conversion		
Dimensions L x W x H	62 x 25 x 12 mm		
Weight	approx. 14 g		
Available RF channels / frequencies	see page 3		
Servo channel count	6		
Transmitter servo channel count	Compatible with FM / PPM transmitters Minimum 2, maximum 9 servo channels		
Sensitivity	approx. 5 µV		
Operating voltage	3.6 ... 7.5 V ³ ⇒ 4 - 5 NiMH cells		
Current drain	< 16 mA (incl. servos)		
Aerial length	approx. 600 mm		
Permissible operating temperature	-15°C ... +55°C		

¹ 35 and 41 MHz for export only; not approved for use in Germany.
² Low-voltage position guard prevents the receiver operating if battery voltage is initially below 4.5 V. In use the receiver continues to work without error down to a voltage of 3.5 V.

2. SAFETY NOTES

- 1 Read the instructions before using the receiver
- 2 Use only for the intended range of applications (→ 4.)
- 3 Use a receiver battery of adequate capacity (→ 8.)
- 4 Read and observe the installation notes (→ 9.)
- 5 Carry out regular range checks (→ 10.)
- 6 Keep to the correct sequence when switching on and off. First switch the transmitter ON, then switch the receiver ON. First switch the receiver OFF, then switch the transmitter OFF.
- 7 Note: mixed operation
MULTIPLEX RX-SYNTH receivers can also be used with transmitters which do not feature Synthesizer technology, i.e. transmitters with conventional plug-in crystals. Synthesizer technology simply provides a modern, convenient and extremely accurate method of generating a frequency, offering very flexible RF channel selection. All MULTIPLEX RX-SYNTH receivers work on the basis of the universal FM / PPM transmission process, which is compatible across makes. In principle, mixed operation with FM / PPM transmitters made by other manufacturers is possible. However, we cannot guarantee that such systems will work properly because the number of possible combinations is too great.

3. SPECIAL CHARACTERISTICS

- PLL-Synthesizer receiver, no plug-in crystals required
- Simple, rapid method of switching RF channels using automatic channel search with lock-on security through channel checking (confirmation) from the transmitter
- Exploits standardised FM / PPM transmission format for wide compatibility with other makes of equipment

4. APPLICATION

The RX-6-SYNTH light receiver is a radio control receiver designed exclusively for modeling applications. The unit must not be used for other purposes, e.g. in industrial equipment or any machine designed to carry humans.

5. INITIAL USE

5.1 Setting the RF channel

With the RX-6-SYNTH light receiver the RF channel is set using an RF channel search. The receiver searches for the RF channel generated by the most powerful transmitter. For this reason you must ensure that your own transmitter, set to the RF channel you wish to use, is located immediately adjacent to the model (receiver) when you initiate the channel search. Make sure that other transmitters, if switched on, are at least 3 m away.

Sequence:

1. Switch the transmitter on.
Set the transmitter to the RF channel you wish to use.
2. RF search
- Hold the "SET" button on the receiver pressed in.
- Switch the receiver ON.
- Release the "SET" button.
⇒ The RF channel search starts, and the LED flashes:



The RF channel search is concluded when the LED glows constantly:



3. Confirm the RF channel
Move the Channel 2 stick on the transmitter steadily to the same end-point four times in sequence.
⇒ the LED should go OFF / ON in sequence with the stick movement. This confirms that the receiver is locked on to the correct RF channel.

The process is complete when the LED flashes the confirmation signal:



4. Switch the receiver OFF, then ON again.
Switch the receiver OFF, then ON again.
⇒ the receiver is ready for use, and will operate on the selected RF channel. The LED flashes as follows:



The set channel is stored permanently in the receiver until such time as you initiate a new search.

Note

The RF channel search generally takes about two seconds. If the process takes substantially longer, this indicates that there is no clear transmitter signal present. Check that your transmitter is switched on, and is located immediately adjacent to the receiver, then repeat the procedure from Step 1.

Extreme settings at the transmitter (e.g. servo travels, mixer settings or Dual Rates) may cause the Channel 2 servo signal (confirmation signal) to be insufficient to confirm the selected RF channel (see Step 3: Setting the RF channel). In this case you should return these settings to the default values, and repeat the process starting from Step 1.

No signals are passed to the servo outputs while the RF channel search is in progress, i.e. the servos do not move, and are "soft". If the signal is absent, any modern electronic speed controller will keep the motor switched OFF. Nevertheless it makes sense to secure the model and keep a safe distance away.

5.2 Automatic servo channel count detect

When you are setting the RF channel, the receiver also picks up the transmitter's transmission format, i.e. how many servo channels are being transmitted (e.g. PPM 5, PPM 9) and the pulse rate, and stores these (transmitter signature).

Every time it is switched on, the receiver checks the transmitter signature and compares it with the stored values. If they do not coincide, the receiver does not switch itself on.

LED Code 1: [continuous glow]

Note

Every time you change the servo channel count or the transmitter's operating mode (or if you wish to use a different transmitter), you must repeat the receiver's RF channel selection procedure (→ 5.1).

The servo channel count or the transmitter's operating mode can be changed in different ways, e.g. with the MULTIPLEX ROYAL evo by changing the servo assignment (e.g. PPM 6, 7, 8 or 9) or with PROFI mc 3000 / 4000 series transmitters by changing the operating mode, e.g. PPM 7, PPM 9.

6. OVERVIEW OF THE LED CODES

LED Code 0	[LED OFF]	Operating voltage too low
LED Code 1	[continuous glow]	When setting the RF channel: RF channel search concluded. In regular operation: no signal or no valid signal picked up
LED Code 2	[10 short pulses, 1 long pulse]	RF channel search in progress
LED Code 3	[10 short pulses, 1 long pulse]	Receiver is ready for use
LED Code 4	[10 short pulses, 1 long pulse]	Confirmation signal when RF signal setting is complete

7. RECEIVER CONNECTIONS / SOCKETS

The RX-6-SYNTH light receiver is fitted with the universal UNI connector system, which is compatible with the connectors used by most radio control system manufacturers (HITEC, Robbe/Futaba, Graupner/JR, ...).

- Socket B: Receiver battery socket
Sockets 1, 2, 3 ... 6: Servo sockets, channels 1, 2, 3 ... 6

When connecting the receiver battery, servos, speed controller etc., take care to maintain correct polarity, especially when using products made by other manufacturer

ers, i.e. plug the right way round, pin assignment correct. (see symbol on the receiver [BATT]).

8. POWER SUPPLY

The RX-6-SYNTH light receiver works with a broad voltage range of 3.6 ... 7.5 V (→ 4 - 5 cell NiMH receiver battery).

The receiver battery can be connected to socket B, or to any vacant servo socket 1 ... 6.

Note

When it is switched on, the receiver checks the operating voltage, which must be at least 4.5 V. If this is not the case, the receiver does not switch itself on.

LED Code 0: [LED OFF]

Check and observe the maximum permissible voltage for the units connected to the receiver (servos etc.).

Please note that many servos are only approved for use with four NiMH cells (4.8 V).

Note

A power supply in good condition, and of a capacity to suit the application, is fundamentally essential to the reliable function of the RC system, and therefore to the safe operation of the model.

- Use only high-quality, well maintained receiver batteries with properly balanced and fully charged cells. The pack must be of adequate capacity.
- Ensure that cable conductors are of adequate cross-section, and keep all wiring as short as possible. Do not fit extra connectors unless absolutely unavoidable.
- Use high-quality switch harnesses exclusively.
- Voltage collapses below 3.6 V can cause your RC system to malfunction. These can occur due to a receiver battery which is flat, too weak or defective, or cables with inadequate conductor cross-section, poor connector contact or an overloaded or faulty BEC system.

9. INSTALLATION NOTES

- Receivers contain components which are vulnerable to vibration. Protect the unit from vibration by packing it loosely in foam; this is particularly important in any model powered by an internal combustion engine.
- When installing the receiver, keep it as far as possible (at least 150 mm) from electric motors and other electronic components such as electric motor speed controllers, flight batteries, etc.
- Keep high-current cables, e.g. those attached to the speed controller, motor and flight battery, as short as possible.
- Conventional electric motors (not brushless types) must be properly suppressed, e.g. using the suppressor set # 8 5033.
- If you have to use servo extension leads longer than 60 cm, use separation filters, e.g. # 8 5035.
- In many cases, receiver interference caused by speed controllers can be reduced by fitting a ferrite ring (e.g. # 8 5036); the receiver lead attached to the controller should be looped six or seven times through the ferrite ring as close to the controller as possible.
- Do not alter the length of the aerial. Wherever possible, route the aerial directly out of the model; do not coil it up. Do not deploy the aerial parallel to servo leads, high-current cables or electrically conductive components (e.g. metal pushrods). Do not deploy the aerial inside or on any model component which is clad or reinforced with a conductive material such as carbon fibre, metal-loaded paint etc. (shielding effect).

Illustration: RX-6-SYNTH light # 5 5876 (07-07-2004) • Even use connectors equipped • © MULTIPLEX

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