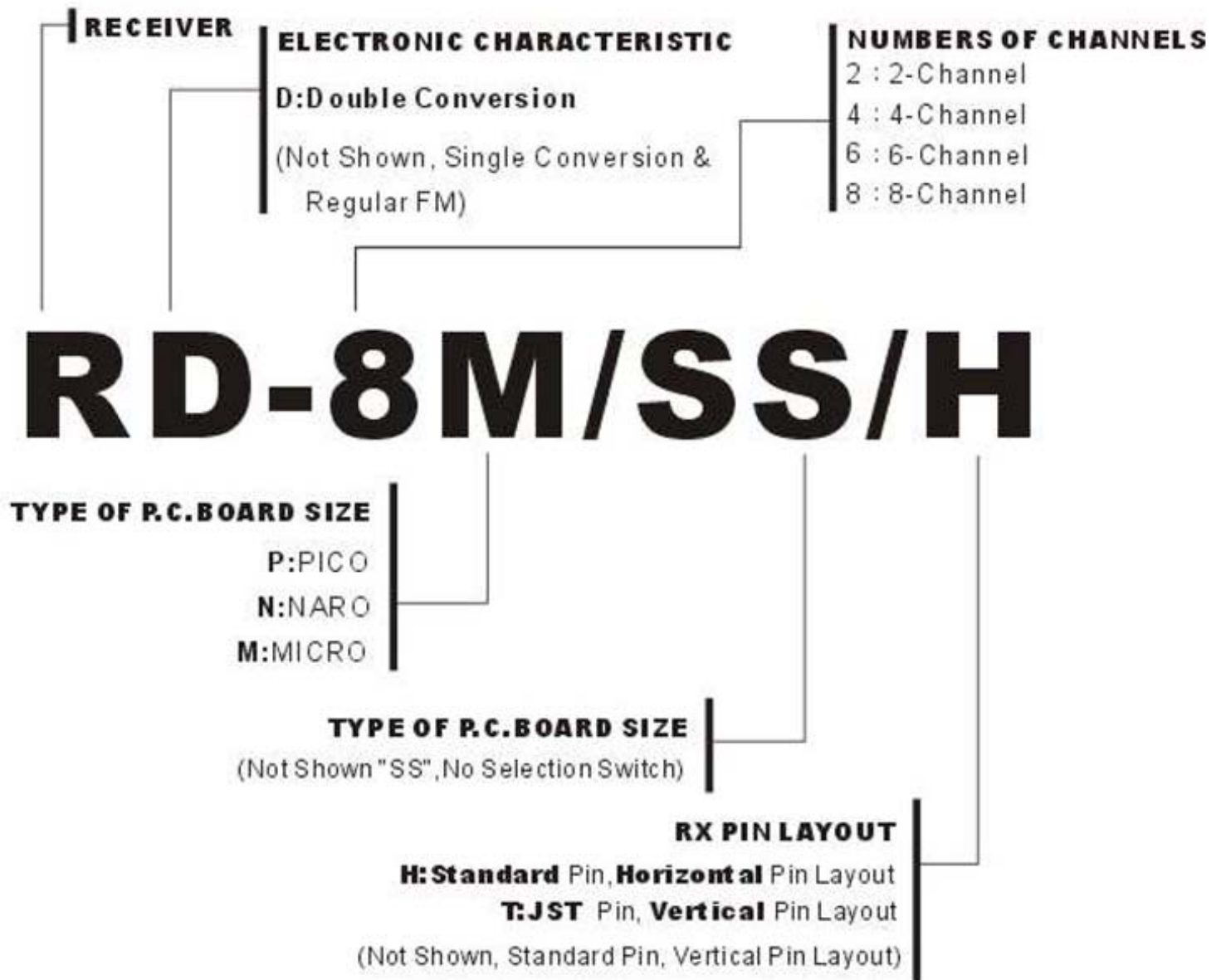


# GWS RECEIVER DESIGNATIONS AND ITS MEANING



## PRECAUTIONS

1. Check that your transmitter and receiver are operating on the same frequency.
2. Check the polarity and integrity of connections when plugging servo connectors into your receiver.
3. Always carry out a range check prior to flight.
4. In order to safely and properly operate your R/C equipment, please read thoroughly all manufacturer's manuals and instructions.
5. Always turn the transmitter on first, then the receiver. When you turn the system off, always turn the receiver off first then transmitter.

**Grand Wing Servo-tech Co., Ltd.**

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<http://www.gws.com.tw> <http://www.grandwing.com.tw> 2002.04

# GWS RADIO CONTROL RECEIVERS

Thank you for choosing a GWS R/C receiver. GWS receivers have been designed and developed using the latest manufacturing technologies and incorporate the finest modern precision electronic components. GWS receivers are compatible with FM transmitters from Futaba, JR, Sanwa/Airtronics and Hi-tec.

**Please read these instructions carefully in order to obtain safe operation and maximum performance from your GWS receiver.**

## TECHNICAL SPECIFICATIONS

	PICO	NARO	MICRO	DUAL CONVERSION
<b>Model Type:</b>	R-4P R4P/H R4P/T	R-4N R4N/H R6N R6N/H	R-8M R-8M/H R-8M/SS R-8M/SS/H	RD-8 RD-8/SS
<b>Modulation</b>	FM	FM	FM	FM
<b>Channel</b>	4-Channel	4/6-Channel	8-Channel	8-Channel
<b>Sensitivity</b>	5 $\mu$ volts	5 $\mu$ volts	3 $\mu$ volts	3 $\mu$ volts
<b>Selectivity</b>	10KHz/50dB	10KHz/50dB	10KHz/60dB	10KHz/65dB
<b>Operating power</b>	4.8~6.0V	4.8~6.0V	4.8~6.0V	4.8~6.0V
<b>Current Drain</b>	5mA	7mA	9mA	13mA
<b>Size</b> mm in	H/15.0x25.0x8.6 15.0x25.0x9.5	H/20.0x30.0x8.6 20.0x30.0x9.5	H/32.8x48.0x16.0 32.8x41.7x16.0	32.6x44.0x18.0
	0.59"x1"x0.37" 0.59"x1"x0.34"	0.79"x1.18"x0.37" 0.79"x1.18"x0.34"	1.29"x1.64"x0.63 1.29"x1.89"x0.63	1.28"x1.73"x0.71"
<b>Weight</b>	3.6~4.8g 0.13~0.17oz	7.6~8.2g 0.27~0.29oz	19.2~20.4g 0.68~0.73oz	22.8g 0.81oz

## RECEIVER AND SERVO CONNECTIONS (AIRCRAFT)

(TX=Transmitter / RX=Receiver)

	Futaba TX	JR TX	SANWA (Airtronics) TX	Hi-tec TX
<b>GWS RX 8/B</b>	Aux.3/Battery	Aux.3/Battery	Aux.3/Battery	Aux.3/Battery
<b>7</b>	Auxiliary 2	Auxiliary 2	Auxiliary 2	Auxiliary 2
<b>6/B</b>	Aux.1/Battery	Aux.1/Battery	Aux.1/Battery	Aux.1/Battery
<b>5</b>	Landing Gear	Landing Gear	Landing Gear	Landing Gear
<b>4/B</b>	<b>Rudder/Battery</b>	<b>Rudder/Battery</b>	<b>Rudder/Battery</b>	<b>Rudder/Battery</b>
<b>3</b>	Throttle	Elevator	Elevator	Throttle
<b>2</b>	Elevator	Aileron	Aileron	Elevator
<b>1</b>	Aileron	Throttle	Throttle	Aileron



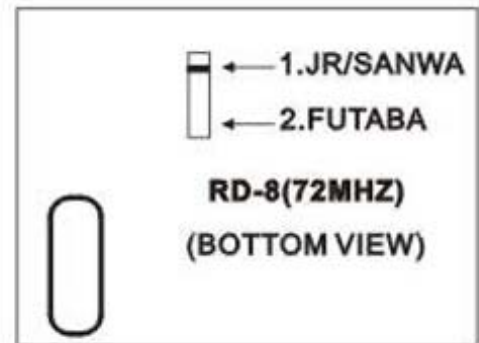
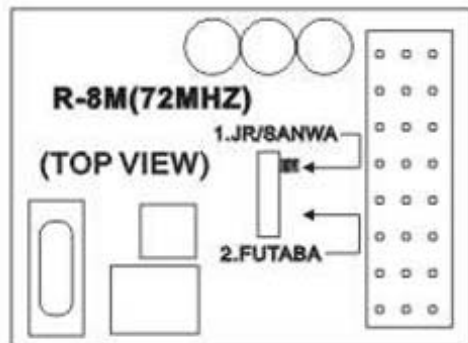
## INSTALLATION AND OPERATION

**1. CRYSTAL:** Please choose a high quality standard FM crystal from GWS (HC-50U), Futaba, JR etc. For MICRO and DUAL CONVERSION receivers. For PICO and NARO receivers, you need to choose a micro FM crystal (UM-1) available only from GWS.

**2. RX INSTALLATION:** To protect the receiver we strongly recommend you wrap it in vibration absorbing foam rubber. When installing your receiver in boats or environments unfriendly to precision electronic equipment; ensure that your receiver is adequately protected from moisture/liquids. Install your receiver in your model and fix it securely.

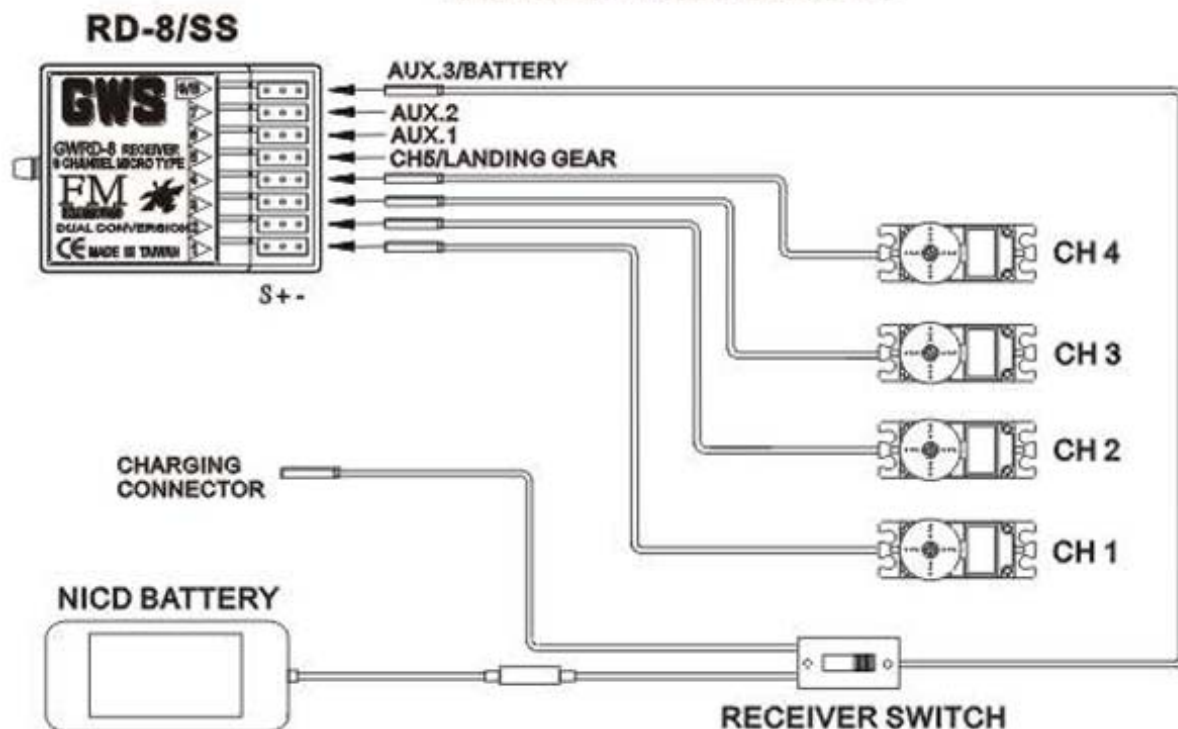
**3. SHIFT SELECTION SWITCH (GWS receiver designation "SS"):** There is a shift selection switch installed on MICRO and DUAL CONVERSION receivers (72Mhz only), you can select Futaba or JR/Sanwa at you discretion. For proper selection, please refer to the following drawings (**Position 1: JR/SANWA/Position 2: FUTABA**). You can change the shift position externally for RD-8 receiver as shown below, but it is needed to open case to select the shift on R-8M receiver.

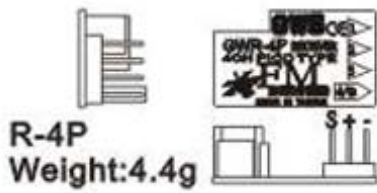
### SHIFT SELECTION SWITCH



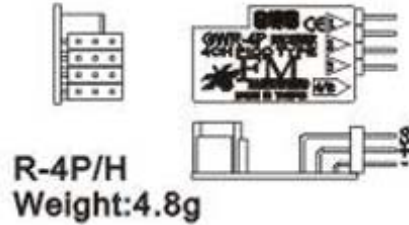
**4. CONNECTION:** Connection example and polarity of the receivers are shown below. Check the polarity and integrity of connections when plugging servo connectors into your receiver.

### CONNECTION EXAMPLE





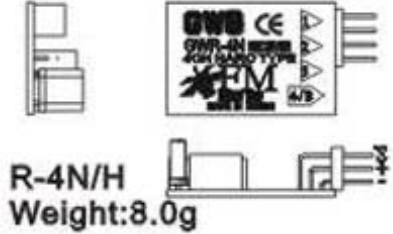
R-4P  
Weight:4.4g



R-4P/H  
Weight:4.8g



R-4N  
Weight:7.6g



R-4N/H  
Weight:8.0g



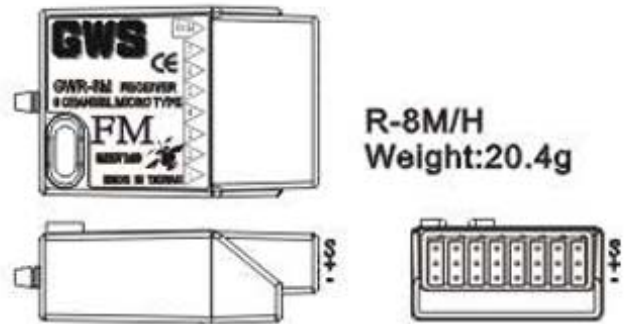
R-6N  
Weight:7.8g



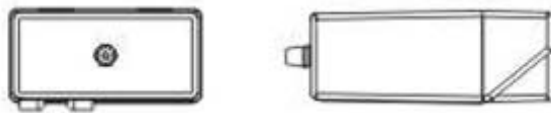
R-6N/H  
Weight:8.2g



R-8M  
Weight:19.2g



R-8M/H  
Weight:20.4g



RD-8/SS  
Weight:22.8g

Weights shown includes RX Crystal

Unit: g



**5.RECEIVER ANTENNA:** The length of antenna is 100cm. Do not shorten the antenna or coil it as range will be reduced. Always carry out a range check prior to flight. Always ensure the receiver antenna is positioned securely and safely in your model.

**For small indoor or pack flyers, you may cut the antenna on the PICO receiver to a half (50cm), but remember that the range will also be reduced to 100-150meters depending on transmitter's output power, do not use it for regular size aircraft.**

**6.RX ADAPTER:** If you need to use 4thchannel (PICO and NARO 4-ch), 6thchannel (NARO 6-ch) or 8thchannel(DUAL CONVERSION), please purchase separately a GWS RX ADAPTER that allows you to connect a battery pack and one servo to a GWS receiver.