CPS Mixing "CPS MIX"

This function controls the Futaba CPS-1 channel power switch.

Normally, when using the CPS-1 unit to power the vehicle lights etc (LED) the CPS-1 unit with LED connected is connected to a vacant switch channel and the LEDs are turned on and off by the switch while the vehicle is running. However, when the CPS-1 mixing (CPS MIX) function is used, the LED can be turned on and off and flashed in step with steering and throttle operation, as well as being turned on and off by switch. The flashing speed (cycle) can also be set.

For instance, the LED can be flashed as a brake light when the brakes are operated.

Setting Special mixings

When the 4th CH was set to ACT at Brake Mixing or when Dual ESC Mixing is used, CPS mixing cannot be used.

Display "CPS MIX" screen by the following method:

(HOME screen)　(MENU 1 screen)　(MENU 2 screen)　(CPS MIX screen)

Select "CPS MIX"
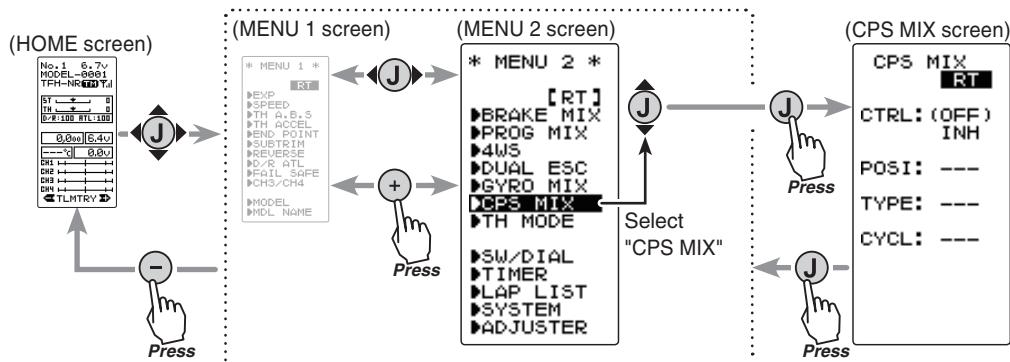
Setup items
MODE : Function ON/OFF, control mode
POSI : ON/OFF position
TYPE : ON/OFF type
TCYCL : Flashing speed

CPS mixing adjustment

(Preparation)

- Connect the CPS-1 to the 4th CH of the receiver.

- When the LEDs are turned on and off by switch, use the function select switch dial function to set the switch to be used.

Function SW
CH4
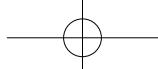
1 (Control system setup)

Operate the (JOG) button up and down and select the setting item "CTRL". Use the (+) or (-) button and select the function.

"INH"   : Function OFF
"CH4 FUNC" : ON/OFF by switch set at the 4th CH
"STR NT" : ON at steering neutral
"STR END" : ON at both sides of steering
"THR NT" : ON at throttle neutral
"THR FWD" : ON at throttle forward side
"THR BRK" : ON at throttle back (brake) side
"TH NT+BK" : ON at throttle neutral and back (brake) sides

Function selection (MODE)
  INH, CH4 FUNC, STR NTR, STR END, THR NT, THR FWD, THR BRK, TH NT+BK

Select button
- Select with the (+) or (-) buttons.

2 (ON/OFF switching position selection)

Select the setting item "POSI" using the (JOG) button up or down operation. Use the (+) or (-) button and select the ON/OFF position. Since the ON/OFF state is displayed at the right side of the setting item "CTRL", setting can be confirmed while operating the function to be controlled (for example, throttle).

```
CPS MIX
      RT
CTRL:( ON)
    STR NT
POSI:  50
TYPE:FLSH
CYCL:  50
```

→ Shows the ON/OFF state

ON/OFF Position (POSI)
  5 ~ 95
  Initial value: 50

3 (ON/OFF type setup)

Select the setting item "TYPE" using the (JOG) button up or down operation. Use the (+) or (-) button and select the type of LED lighting. Normal ON/Off type or flashing can be selected.

"NORMAL" : Normal ON/OFF type
"FLASH" : Flashing display

Function selection (TYPE)
  NORMAL, FLASH

Select button
- Select with the (+) or (-) buttons.

4 (Flashing cycle setting)

When flashing type "FLASH" was selected at the setting item "TYPE" the flashing speed (cycle) can be set.

Select the setting item "CYCL" using the (JOG) button up or down operation. Use the (+) or (-) button and select the flashing speed (cycle).

Flashing cycle (CYCL)
  1 ~ 100
  Initial value:50

Adjust button
- Use the (+) and (-) buttons to make adjustments.
- Return to the initial value by pressing the (+) and (-) buttons simultaneously for about 1 second.

5 When completed, return to the MENU2 screen by pressing the (JOG) button.
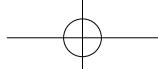
Function

This menu has the following 4 functions:

- Servo neutral mode, which sets the throttle neutral ratio to 7:3 or 5:5

- Idle up, which raises the idling speed when starting the engine to improve engine starting performance of a gasoline car (boat)

- Neutral brake, which applies the brakes at the neutral position of the throttle stick

- Throttle off (engine cut), which stops the engine of a boat, etc. by operating the throttle servo to the low side regardless of the position of the throttle stick.

Display "TH MODE" screen by the following method:


Setup items

SXNT	: Throttle servo neutral position	NTBRK	: Neutral brake rate
IDLUP	: Idle-Up rate	THOFF	: Throttle off (engine cut) position
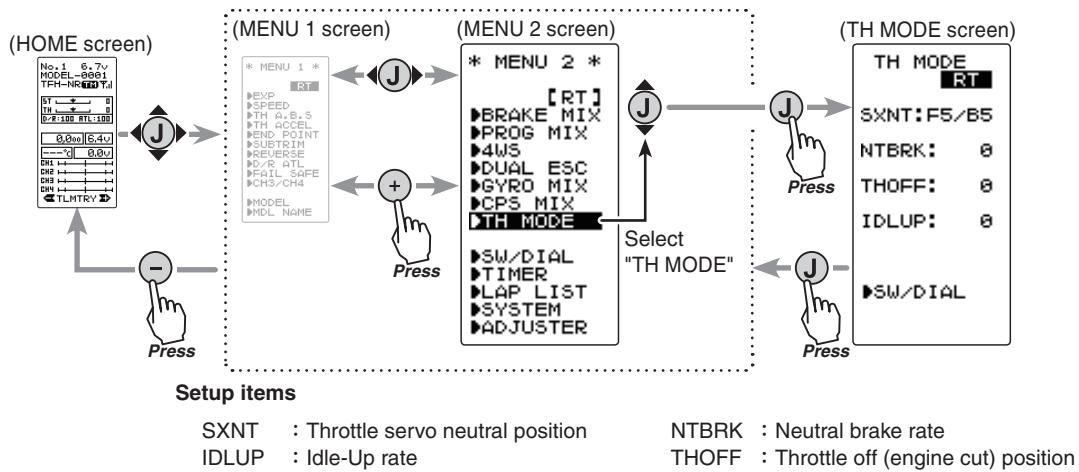
Throttle servo neutral position "SXNT" *This function is not available in "TH-STK : F10 mode".

-This function allows selection of the forward side and brake (reverse) side operation ratio from 7:3 or 5:5 by changing the neutral position of the throttle servo.

F5/B5   **F7/B3**

Forward side   Brake side   Forward side   Brake side

5 : 5   7 : 3
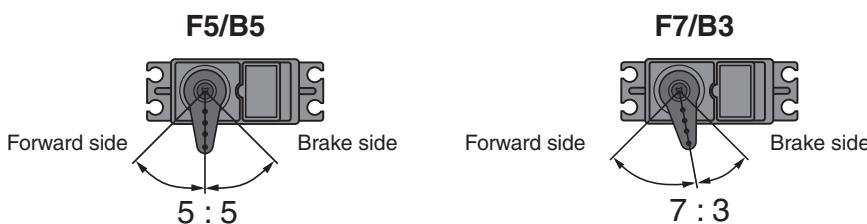
Selecting the throttle servo neutral position

1 (Mode selection)

Select the setting item "SXNT" by (JOG) button. Select "F5/B5" or "F7/B3" by (+) or (-) button.

"F5/B5"   =Forward 50% : Back50%
"F7/B3"   =Forward 70% : Back30%

Mode selection (SXNT)
F5/B5, F7/B3

Select button
- Select with the (+) or (-) buttons.

2 When completed, return to the MENU screen by moving the cursor to the positions other than SW/DIAL and pressing the (JOG) button.
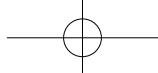
Function

Idle-Up "IDLUP"

This is a function select switch dial function. The idle up switch must be set.

This function is used to improve engine starting performance by raising the idling speed when starting the engine of a gasoline car (boat). It is also effective when you want to eliminate any braking effect when the power is turned off during running, due to the effect of your gear ratio setting and choice of motor when operating an electric car. However, considering safety, and to prevent the motor from rotating instantly when the power was turned on, the MC950CR, MC851C, MC602C, MC402CR, and other Futaba MC (Motor Controllers) will not enter the operation mode if the neutral position is not confirmed. When using the MC950CR, MC851C, MC602C, MC402CR, or other Futaba MC, confirm that the MC is in the neutral position and the set is in the operation mode before setting the idle up function switch to ON.

Operation

The throttle neutral position is offset to the forward side. There is no linkage locking, etc. because there is no change near the maximum operation angle even when the neutral position is offset by this function.

Operation Display

While this function is ON, the LED blinks.

< NO SW >
If function's ON/OFF switch is not selected, <NO SW> is displayed.

The function select switch dial screen can be displayed from this screen.

```
TH MODE
    [RT]
SXNT:F5/B5
NTBRK:    0
THOFF:▓    0
IDLUP:    0
  <NO SW>
▶SW/DIAL
```

If the power switch is turned on while the idle-up switch is on, an audible alarm will be heard. Immediately set the Idle-Up switch to OFF.

```
WARNING
MIX WARN

IDLE UP
  or
THOFF
  or
NEUTRAL
 BRAKE
```
Warning display

Idle-Up function adjustment

(Preparation)

- Use the function select switch dial to select the switch.

1 (Idle-Up rate)

Select the setting item "IDLUP" using the (JOG) button. Use the (+) and (-) buttons to set the Idle-Up rate.

2 When completed, return to the MENU screen by moving the cursor to the positions other than SW/DIAL and pressing the (JOG) button

Dial / Trim Setting

The function select dial function can control the Idle-up rate with digital dial or digital trim.

Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "0" by pressing the (+) and (-) buttons simultaneously for about 1 second.

Idle-Up rate (IDLUP)
D50 ~ D1, 0, U1 ~ U50

Initial value: 0
"D": Brake side
"U": Forward side
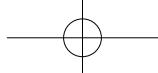
Function

Neutral Brake "NTBRK"

This is a function select switch dial function. The neutral brake function ON/OFF switch must be set.

The neutral brake, which applies the brakes at the neutral position of the throttle stick, can be set. However, when using the MC950CR, MC851C, MC602C, MC402CR, or other Futaba MC (Motor Controller), confirm that the MC is in the neutral position and the set is in the operation mode before setting the neutral brake function switch to ON, the same as the idle up function. In addition, when the idle up function or throttle off function is set, these functions have a higher priority than the neutral brake function.

Reference

The ESC neutral brake function and T4GRS neutral brake function can be used simultaneously. However, when setting is difficult to understand, we recommend that only one neutral brake function be used.

Dial / Trim Setting

When the neutral brake function is "ON", the neutral brake rate adjustment is automatically assigned to the throttle trim (DT1/2/3/4 or DL1).

Operation display

An LED blinks while the neutral brake function is active.

< NO SW >
If function's ON/OFF switch is not selected, <NO SW> is displayed.

The function select switch screen can be displayed from this screen.

```
TH MODE
    [RT]
SXNT:F5/B5
NTBRK:▮▮▮ B
THOFF:   B
IDLUP:   B
  <NO SW>
▶SW/DIAL
```

If the power switch is turned on while the neutral brake switch is on, an audible alarm will be heard. Immediately set the neutral brake switch to OFF.

```
WARNING
MIX WARN

IDLE UP
  or
THOFF
  or
NEUTRAL
BRAKE
```
Warning display
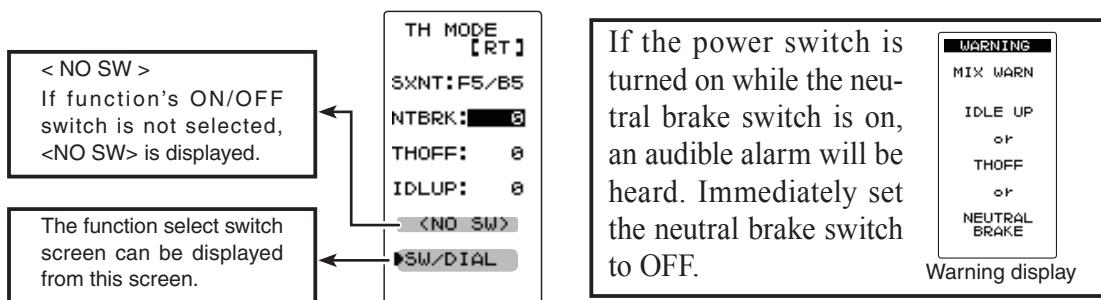
Neutral Brake function adjustment

(Preparation)

- Use the function select switch dial to select the switch.

1 (Neutral brake rate)

Select the setting item "NTBRK" using the (JOG) button. Use the (+) and (-) buttons to set the neutral brake rate.

2 When completed, return to the MENU screen by moving the cursor to the positions other than SW/DIAL and pressing the (JOG) button

Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "0" by pressing the (+) and (-) buttons simultaneously for about 1 second.

Brake rate (NTBRK)
0 ~ B100
Initial value: 0

Effect of set value of other functions on neutral brake

Throttle side EPA function, or ATL function setting, also affects neutral brake side operation.
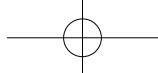
Function

Throttle Off (engine cut) "THOFF"

This is a function select switch dial function. The throttle off function ON/OFF switch must be set. The engine cut function stops the engine of a boat, etc. by operating the throttle servo to the slow side by switch regardless of the position of the throttle stick and the setting of other functions (reverse function setting is effective).

Dial / Trim Setting

The function select dial function can control the throttle-off position can be controlled with digital dial or digital trim.

Operation display

An LED blinks while the neutral brake function is active.

```
TH MODE
      [RT]
SXNT:F5/B5
NTBRK:   0
THOFF:   0
IDLUP:   0
    <NO SW>
►SW/DIAL
```

< NO SW >
If function's ON/OFF switch is not selected, <NO SW> is displayed.

The function select switch screen can be displayed from this screen.

If the power switch is turned on while the throttle-off switch is on, an audible alarm will be heard. Immediately set the neutral brake switch to OFF.

```
WARNING
MIX WARN

IDLE UP
  or
THOFF
  or
NEUTRAL
BRAKE
```
Warning display
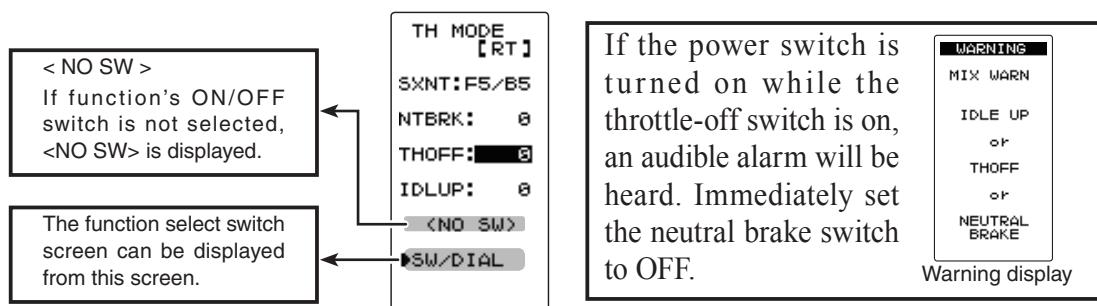
Engine Cut function adjustment

(Preparation)

- Use the function select switch dial to select the switch.

1 (Preset position setup)
- Select the setting item "THOFF" using the (JOG) button. Use the (+) and (-) buttons to set the preset position of the throttlle servo.

2 When completed, return to the MENU screen by moving the cursor to the positions other than SW/DIAL and pressing the (JOG) button

Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value by pressing the (+) and (-) buttons simultaneously (approx. 1 sec).

Preset position (THOFF)
0 ~ B100
Initial value: 0

⚠ Caution

❗ Always check carefully before using this function.

While switch with preset function set is in the ON state, the servo (motor controller) is locked in the preset position and does not operate even if the throttle stick is operated. If the servo was operated at the wrong setting, you may lose control of the car (boat).
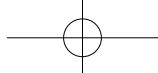
ESC Link Function "MC LINK"

This is a special function which lets you set the contents of the Link software in Futaba speed controller (ESC), MC960CR, MC940CR, MC950CR, MC851C, MC602C, MC402CR, etc, with variable frequency and other data changes at the T4GRS transmitter. However, some data changes require a PC and Link software. This function is used by connecting ESC directly to the transmitter. The T4GRS power switch is set to the display side. Use the various optional servo extension cords according to the distance between the transmitter and ESC. The last data read from ESC to T4GRS or the last data written from T4GRS to ESC is saved to the T4GRS. Since the data for each model memory can be saved, the data of up to 40 models can be saved.

-When the T4GRS battery voltage drops, the display switches to low battery display. Therefore, use this function when there is ample battery capacity remaining.
-Also connect the battery at the ESC side.
-**Note:** Do not read to the T4GRS an MC940/960CR whose speed was set to over 99990rpm by Link software side Boost Angle rpm setting.

Connection diagram

ESC receiver connector

Communication port

Connecting ESC receiver connector to the transmitter Communication port

(DISP MENU screen)   (MC LINK screen)

Select "MC LINK"   *Press*

Press

MC402CR   MC602C   MC851C   MC950CR

MC960CR   MC940CR
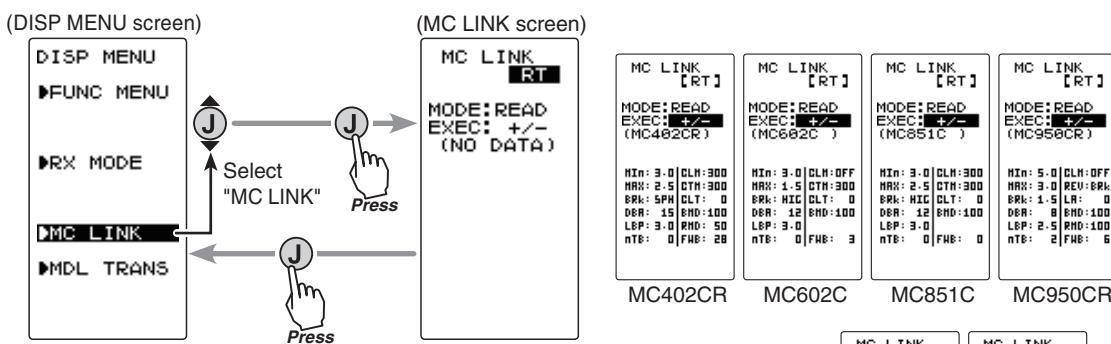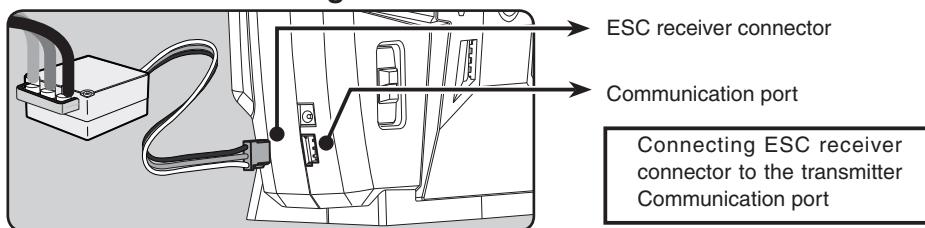
Using the ESC Link function

(Preparation)

-Connect the T4GRS and ESC in accordance with the connection diagram, and connect the battery to ESC.

1 Set the transmitter power switch to the display side (DISP).

Display the MC LINK function screen in the above manner.

2 (ESC read)

Execute this function to read the connected ESC type and the data currently set at the amp. To save the ESC data to the T4GRS, rewrite the read data.

When you want to write the data saved in the T4GRS to an ESC of the same type, execute the following "WRITE"(write) without executing "READ"(read).

Function

a -Select the setting item "MODE" using the (JOG) button, and select "READ" by (+) or (-) button.

b -Select the setting item "EXEC:+/-" using the (JOG) button, and press the (+) and (-) buttons simultaneously for 1 second or longer.

-"COMPLETE!" blinks on the screen and the ESC type and currently set contents are read.
- If "LINK ERROR" blinks on the screen, communication with the amp is not being performed normally. Check the T4GRS and ESC connection and the battery connection to ESC and the ESC power switch and repeat steps a→b.

3 (Writing to ESC)

Execute this function to write the setting data to ESC.

a -Select the setting item "MODE" using the (JOG) button, and select "WRITE" by (+) or (-) button.

b -Select the setting item "EXEC:+/-" using the (JOG) button, and press the (+) and (-) buttons simultaneously for 1 second or longer.

-"COMPLETE!" blinks on the screen and the setting data is written to ESC. If "LINK ERROR" blinks on the screen, communication with the amp is not being performed normally. Check the T4GRS and ESC connection and the battery connection to ESC and the ESC power switch and repeat steps a→b. In addition, if (NO DATA) is displayed on the T4GRS screen, "WRITE" cannot be selected because there is no setting data to be written.
- Different type ESC data cannot be written. If writing is attempted, "TYPE ERROR" will link on the screen to show that the ESC type is wrong.

4 (Initialization)

This function writes the MC setting data set at the factory to the connected MC and T4GRS. Perform "READ" before performing initialization.

a -Select the setting item "MODE" using the (JOG) button, and select "RESET" with the (+) or (-) button.

b -Select the setting item "EXEC:+/-" using the (JOG) button, and press the (+) and (-) buttons simultaneously for approximately 1 second

- "COMPLETE!" blinks on the screen and the initial data is written to the ESC. If "LINK ERROR" blinks, communication with the amp was not performed normally. Check the T4GRS and ESC connection and the battery connection to ESC and the ESC power switch, and repeat steps a→b. In addition, when (NO DATA) is displayed on the T4GRS screen "RESET" cannot be selected because there is no written initial data.
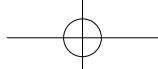
Function

ESC function setup (MC601/602/850/851C, 401/402/950CR)

1 Select the setting item using the (JOG) button.
Set the value by (+) and (-) button.

```
MC LINK
    [RT]

MODE:READ
EXEC: +/-
(MC402CR)
PWM FREC MIn=kHZ

MIn:3.0 CLM:300
MAX: 2.5 CTM:300
BRk: 5PH CLT:  0
DBA: 15 BMD:100
LBP:3.0 RMD: 50
nTB:  0 FWB: 2B
```
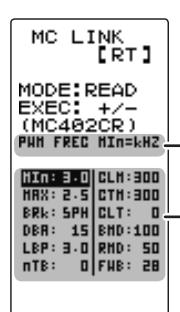
The currently set item is displayed here.

The item indicated by the highlighted cursor is selected.

Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.
- Return to the initial value by pressing the (+) and (-) buttons simultaneously (approx. 1 sec).

Setup item

MIn-(PWM FREC MIN LD) 100Hz~10000Hz (10kHz)
      MC950CR:500Hz~30000Hz (30kHz)

Same as Link software PWM frequency (at Min. load),
MIn sets the "0"A PWM frequency at minimum load.

MAX-(PWM FREC MAX LD) 100Hz~10000Hz (10kHz)
      MC950CR:500Hz~30000Hz (30kHz)

Same as Link software PWM frequency (at Max. load).
MAX sets the PWM frequency at maximum load at the output current limit value set by Current Limiter.

```
MC LINK
    [RT]

MODE:WRITE
EXEC: +/-
(MC402CR)

MIn: 3.0 CLM:300
MAX: 2.5 CTM:300
BRk: 5PH CLT:  0
DBA: 15 BMD:100
LBP:3.0 RMD: 50
nTB:  0 FWB: 2B
```

BRK-(PWM FREC BRK LD) nOR(2000Hz)/ HIG(1000Hz)/ SPH(500Hz)
      MC950CR:500Hz~30000Hz (30kHz)

Same as Link software Brake PWM at frequency.
This setting can set the brake PWM frequency.

nTB-(NEUTRAL BRAKE) 0%(OFF)~100%

Same as Link software Neutral Brake.
Use this setting when you want to use the brakes at the neutral throttle (OFF) position by throttle operation. The larger this value, the greater the braking force. When you want to use the neutral brake, set this value to "0%".

CLM-(CURRENT LIMIT) 50A~300A (MC950CR:50A~300A), OFF Same as Link software Current Limiter.

Current Limiter sets the current value at maximum load here.
Since setting of the MAX is based on the output current limit value set by Current Limiter, Current Limiter does not have to be turned OFF except when a current exceeding 300A is generated.

"**MIn**" which sets the frequency when the load is small, is set to the high frequency side (large value) when extension is desired after straightaway and curves.

"**MAX**" which sets the frequency when the load is large, is set to the high frequency side (large value) when you want to suppress the rise from low speed and when motor heating and commutator roughness are sensed.

When the rise from low speed is poor, and becomes bad even when "**MAX**" is set to the low frequency side, use the log data to check if there was a momentary voltage drop. When you want to suppress the overall power, lengthen the run time, and otherwise improve efficiency, set both "**MAX**" and "**MIn**" to the high frequency side. When you want to set a fixed PWM frequency at full range regardless of the load current, set PWM frequency (at Max. load) and PWM frequency (at Min. load) to the same value.

Function

LBP-(LOW BATTERY VOLT) 2.5V~6V

2.5V~7.5V for MC950CR

Same as Link software Low Bat Protection

This setting cuts off the output to the motor when the main battery voltage drops to the set voltage. This stops the receiver ceasing operation when the power to the receiver becomes insufficient whilst running due to a drop in the power supply voltage. When the power supply voltage recovers, power is supplied to the motor once more.

DBA-(DEAD BAND) ±2μs~±50μs

Same as Link software Dead Band.
This sets the range (neutral point range) over which the ESC does not respond to transmitter throttle operation.
The larger the set value, the wider this range.

Position at which motor starts to run

Dead Band

Throttle neutral position

Point at which brakes start taking effect

```
MC LINK
     [RT]

MODE:WRITE
EXEC: +/-
(MC402CR)

MIn:3.0 CLM:300
MAX:2.5 CTM:300
BRk:5PH CLT:  0
DBA: 15 BMD:100
LBP:3.0 RMD: 50
nTB:  0 FWB: 28
```

CTM-(C.L. TIME LIMIT) 50A~300A /CLT-(C.L. TIMER) 0sec(OFF)~240sec (except MC950CR)

Same as Link software Current Limiter (Time Limit)/Current Limit timer.

The output current can be limited up to a set time from the start of running. This is effective in preventing the motor from outputting wasted energy when the voltage is high immediately after the power battery was recharged.

- "CTM" (Time Limit) sets the maximum output current for the time the output current is limited.

- "CLT" sets the time the output current is limited. This function is disabled when set to "0" sec.

Since the Current Limit Timer starts when the throttle stick is pushed forward and current is output to the motor, this function begins to operate when the motor is run during trim adjustment, etc.

FWB-(FORWARD BOOST) 0~100 (except MC850C)

Same as Link software Forward Boost

Operation near the throttle stick (stick) neutral position becomes a sharp increase.
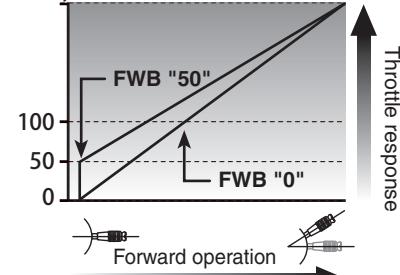
FWB "50"

100
50
0

FWB "0"

Throttle response

Forward operation

**BMD-(BRAKE MAX DUTY) 0%~100%**

Same as Link software Brake Max. Duty.

This setting can set the braking force between the neutral point and Max brake point. The larger this value, the greater the braking force. When set to "0%", the brakes are not effective.

RMD-(REVERSE MAX DUTY) w/back only 0%~100%

Same as Link software Reverse Max. Duty

This setting can set the reverse power between the neutral point and Max reverse point. The larger this value, the greater the reverse power. When set to "0%", reverse is not effective.

100 %

50

0

Braking force
Reverse Power

Brake (Reverse) operation
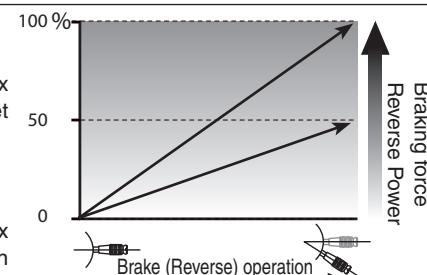
MC950CR only setup item

```
MIn: 5.0 CLM:OFF
MAX: 3.0 REV:BRk
BRk: 1.5 LA:   0
DBA:   8 BMD:100
LBP: 2.5 RMD:100
nTB:   2 FWB:  6
```

REV-(REV CANCEL) BRk /REV   Same as Link software Reverse Cancel.

When set to BRk, reverse operation is disabled.

LA-(LEAD ANGLE) 0~1500   Same as Link software Lead Angle.

The lead angle of the motor can be set at the MC950CR side. However, we recommend that it is normally "0". Since this setting is based setting by referring to the speed log by the Link software, independent use of the MC LINK function of the T4GRS is recommended.

Function

ESC function setup (MC940CR, MC960CR)

1 Select the setting item using the (JOG) button.

Set the value by (+) and (-) button.

Operate the following (JOG) button and switch between Page1 and Page2 of the setup screen.

Setup item selection
- Select by the (JOG) button.

Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.
- Return to the initial value by pressing the (+) and (-) buttons simultaneously (approx. 1 sec).

To right side on Page2

The cursor positions "EXEC +/-"

Page1

To left side on Page1

Page2
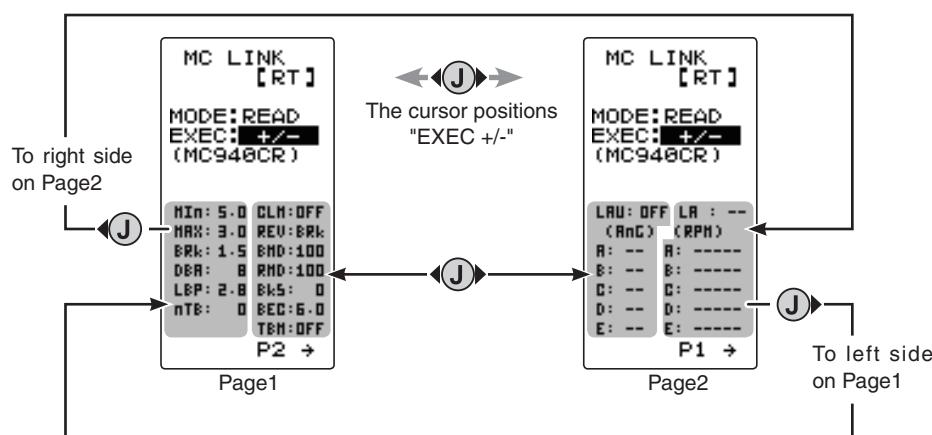
Setup item

MIn-(PWM FREC MIN LD) 1kHz(1000Hz)~30kHz (30000Hz)

Same as Link software PWM frequency (at Min. load),
MIn sets the "0"A PWM frequency at minimum load.

Page1

MAX-(PWM FREC MAX LD) 1kHz(1000Hz)~30kHz (30000Hz)

Same as Link software PWM frequency (at Max. load).
MAX sets the PWM frequency at maximum load at the output current limit value set by Current Limiter.

BRK-(PWM FREC BRK LD) 1kHz(1000Hz)~30kHz (30000Hz)

Same as Link software Brake PWM at frequency.
This setting can set the brake PWM frequency.

nTB-(NEUTRAL BRAKE) 0%(OFF)~100%

Same as Link software Neutral Brake.

Use this setting when you want to use the brakes at the neutral throttle (OFF) position by throttle operation. The larger this value, the greater the braking force. When you want to use neutral brake, set this value to "0%".

CLM-(CURRENT LIMIT) 50A~500A

Same as Link software Current Limiter.

Current Limiter sets the current value at maximum load here.

Since setting of the MAX is based on the output current limit value set by Current Limiter, Current Limiter does not have to be turned OFF except when a current exceeding 300A is generated.

ESC Link Function "MC LNK"

Function
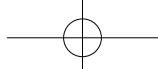
"**MIn**" which sets the frequency when the load is small, is set to the high frequency side (large value) when extension is desired after straight-aways and curves.

"**MAX**" which sets the frequency when the load is large, is set to the high frequency side (large value) when you want to suppress the rise from low speed and when motor heating and commutator roughness are sensed.

When the rise from low speed is poor, and becomes bad even when "**MAX**" is set to the low frequency side, use the log data to check if there was a momentary voltage drop. When you want to suppress the overall power, lengthen the run time, and otherwise improve efficiency, set both "**MAX**" and "**MIn**" to the high frequency side. When you want to set a fixed PWM frequency at full range regardless of the load current, set PWM frequency (at Max. load) and PWM frequency (at Min. load) to the same value.

LBP-(LOW BATTERY VOLT) 2.5V~7.5V

Same as Link software Low Bat Protection

This setting cuts off the output to the motor when the main battery voltage drops to the set voltage. This stops the receiver ceasing operation when the power to the receiver becomes insufficient whilst running due to a drop in the power supply voltage. When the power supply voltage recovers, power is supplied to the motor once more.

DBA-(DEAD BAND) ±2µs~±50µs

Same as Link software Dead Band.

This sets the range (neutral point range) over which the ESC does not respond to transmitter throttle operation.

The larger the set value, the wider this range.

Position at which motor starts to run

Dead Band

Throttle neutral position

Point at which brakes start taking effect

Page1
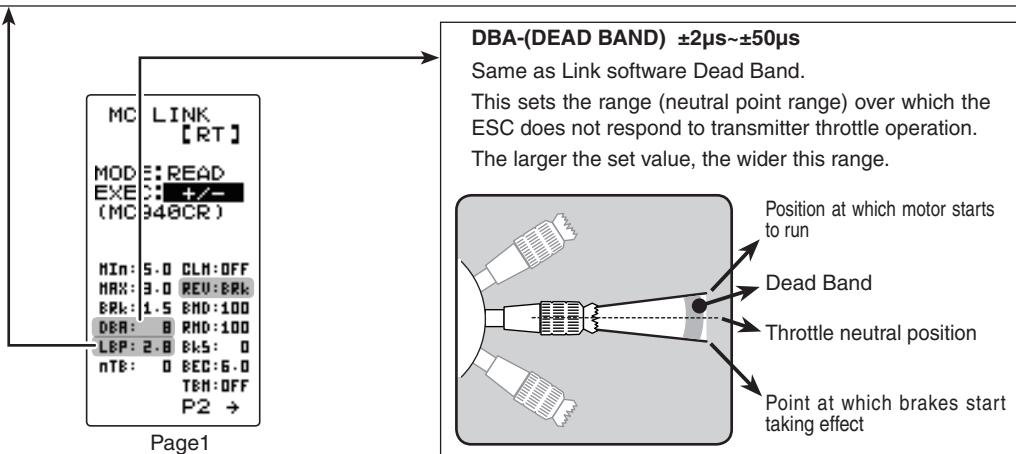
REV-(REV CANCEL) BRk /REV
Same as Link software Reverse Cancel.
When set to BRk, reverse operation is disabled.

BMD-(BRAKE MAX DUTY) 0%~100%

Same as Link software Brake Max. Duty.

This setting can set the braking force between the neutral point and Max brake point. The larger this value, the greater the braking force. When set to "0%", the brakes are disabled.

RMD-(REVERSE MAX DUTY) w/back only 0%~100%

Same as Link software Reverse Max. Duty

This setting can set the reverse power between the neutral point and Max reverse point. The larger this value, the greater the reverse power. When set to "0%", reverse is disabled.

100 %

50

0

Braking force
Reverse Power

Brake (Reverse) operation

BKS-(BRAKE SLOPE) 0~300 (Only when used TBM-LEV2)

Same as Link software Brake Slope.

This function adjusts the braking effect when the throttle is returned (throttle off). It eliminates the effect known as "engine braking" in full sized vehicles.

BEC-(BEC VOLT) 6.0V / 7.4V

Same as Link software BEC Volt.

The receiver BEC voltage can be selected from 6.0V and 7.4V. Match the voltage to the rating of the servo connected to the same receiver. This BEC voltage cannot output a voltage higher than the input voltage.
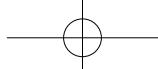
Page1

Function

```
MC LINK
      [RT]

MODE:READ
EXEC: +/-
(MC940CR)


MIn: 5.0 CLM:OFF
MAX: 3.0 REU:BRk
BRk: 1.5 BMD:100
DBA:   B RMD:100
LBP: 2.8 Bk5:  0
nTB:   0 BEC:6.0
         TBM:OFF
           P2 →
```

Page1

TBM-(TURBO MODE) OFF /LV1 /LV2

Same as Link software Turbo Mode

This function sets the turbo mode. More power can be enabled using the turbo mode. Depcompleted on the setting, the motor and ESC may be damaged so use this setting carefully.

(Note) When LAU (LEAD ANGLE USE) is off, lead angle setting will not operate even if set to LEV1 or LEV2. (Turbo mode disabled, TBM=OFF)

OFF mode: (No Lead Angle mode) Lead angle - No

When used in races in which the lead angle setting function is inhibited by ESC, set to this mode. The lead angle function is disabled in the same manner as if LAU (LEAD ANGLE USE) was turned off.

When the lead angle function is disabled by the method described above, the MC960CR shows that the lead angle function is off by flashing a blue LED at an ON 0.1 second, OFF 0.9 second cycle at the neutral point.

LV1 turbo mode: (Lead Angle mode) Lead angle – Yes

The output can be increased by setting a lead angle.

Depcompleted on the set value, the motor may be damaged so increase the lead angle value in steps from a small value while observing the result.

Turn on LAU (Lead Angle Use) and adjust the lead angle by LA-(LEAD ANGLE) and A, B, C, D, E BA-(A, B, C, D, E BOOST ANGLE) value.

LV2 power mode: (Power Mode) Lead angle – Yes

Displays still more power than a turbo.

However, since even a motor applies a large load on the ESC, make the lead angle larger in steps from a small value while observing the result.

Turn on LAU (LEAD ANGLE USE) and adjust the lead angle by LA-(LEAD ANGLE) and A, B, C, D, E BA-(A, B, C, D, E BOOST ANGLE) value.

When "LAU" (LEAD ANGLE USE) is turned on "LA" (LEAD ANGLE) is the lead angle can be set. In addition, the "BOOST ANGLE" and "BOOST ANGLE RPM" can be set.

```
MC LINK
      [RT]

MODE:READ
EXEC: +/-
(MC940CR)
LEAD AnGLE USE

LAU: OFF --
 (AnG) (RPM)
A: --  A: -----
B: --  B: -----
C: --  C: -----
D: --  D: -----
E: --  E: -----
         P1 →
```
Page2

"LAU" turned on →

```
MC LINK
      [RT]

MODE:READ
EXEC: +/-
(MC940CR)
LEAD AnGLE USE

LAU: On  LA :  0
 (AnG) (RPM)
A:  0  A:    0
B:  0  B:    0
C:  0  C:    0
D:  0  D:    0
E:  0  E:    0
         P1 →
```
Page2

"LA" (LEAD ANGLE) is displayed and the lead angle can be set.

The BOOST ANGLE and BOOST ANGLE RPM which can set the lead angle of 5 points relative to the speed.
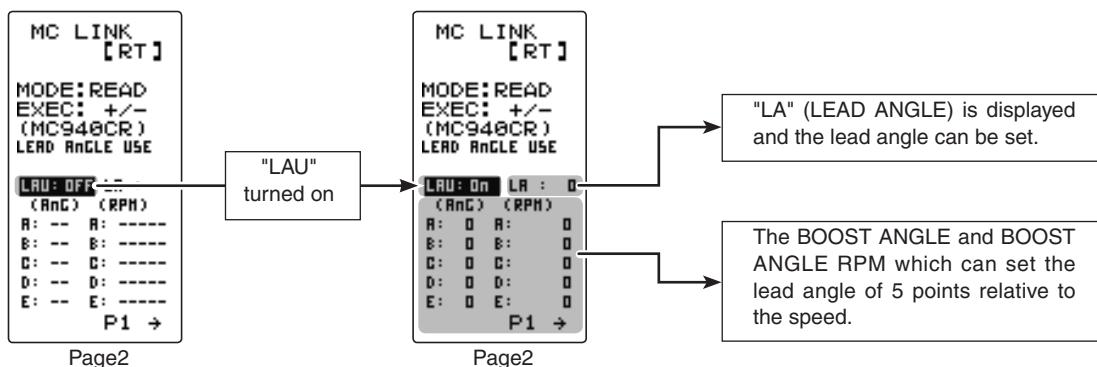
Function

LAU-(LEAD ANGLE USE) ON /OFF
Same as Link software Lead Angle Use

This function is effective when TBM (Turbo Mode) is LEV1 or LEV2 and sets whether or not lead angle is used. This setting has priority over the TURBO MODE setting. When using in races in which the lead angle function is inhibited by the ESC set this function to OFF.

OFF : Lead angle function not used.

ON : Lead angle used
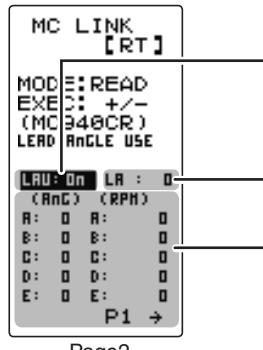
LA-(LEAD ANGLE) 0~59 deg
Same as Link software Lead Angle

When LAU (LEAD ANGLE USE) is turned on the motor lead angle can be set at the MC960CR. The lead angle can be set up to 59 degrees in 1 degree increments.

A,B,C,D,E BA-(A,B,C,D,E BOOST ANGLE) 0~59 deg
Same as Link software Boost Angle

**A,B,C,D,E RPM-(A,B,C,D,E BOOST ANGLE RPM) 0~99990 rpm**
Same as Link software Boost Angle rpm

When LAU (LEAD ANGLE USE) is turned on the lead angle versus motor speed of the 5 points A to E can be set. The lead angle can be set up to 59 degrees in 1 degree increments.

Note: Do not read to the T4GRS an MC940/960CR whose speed was set to over 99990rpm by Link software side Boost Angle rpm setting.

Page2

The LA-(LEAD ANGLE) and A, B, C, D, E BA- (A, B, C, D, E BOOST ANGLE) relationship is shown on the graphs below. Graph [A] shows the relationship when the same value is set at points A, B, C, D, E BA-(A, B, C, D, E BOOST ANGLE) of [A] and [B] and the LA-(LEAD ANGLE) was set to "0" and graph [B] shows the relationship when a value other than "0" was set at LA-(LEAD ANGLE).

As shown in the graphs, [B] is added to the A, B, C, D, E BA-(A, B, C, D, E BOOST ANGLE) set lead angle and [A] is added to the LA-(LEAD ANGLE) set lead angle. For example, if "3" is set at ABA and LA of [B] is set to "2", the actual ABA becomes 3+2=5 (deg). Since LA of [A] is "0", the actual ABA also becomes 3+0=3 (deg).
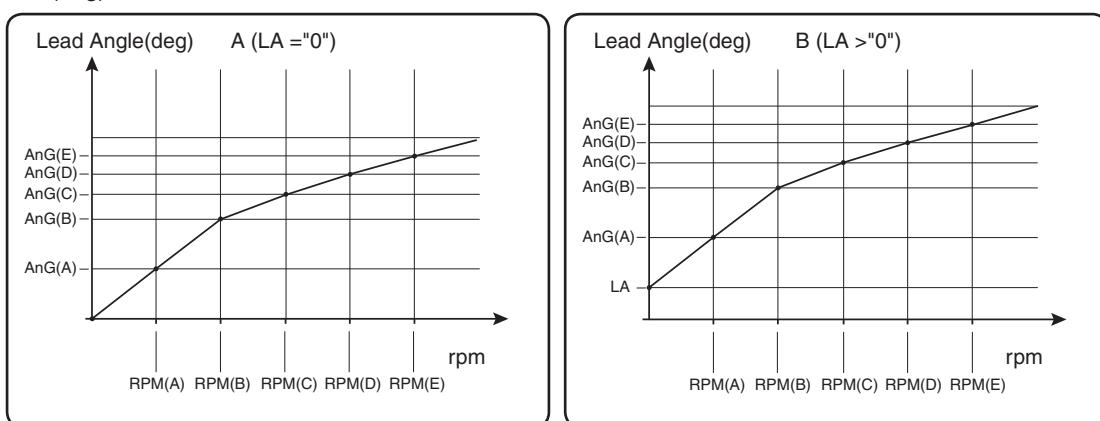
When using in races in which the lead angle setting function is inhibited by the ESC, set LAU (LEAD ANGLE USE) to OFF. The LAU setting has priority over TBM-(TURBO MODE). If LAU is set to "OFF", the lead angle setting function can be turned off even if TBM is set to "LV1" or "LV2".

The MC940,960CR shows that the lead angle setting function is OFF ("0" timing) by flashing an LED.
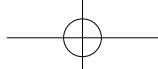
Function

Data Transfer "MDL TRANS"

This function copies the model memory data of one T4GRS to another T4GRS. Connect the communication port of both T4GRS together with the optional DSC cord for T4PK. Use this function with the T4GRS power switch set to the display side.

Note: If the T4GRS battery voltage drops, the display switches to low battery display. Therefore, use this function when there is ample battery capacity remaining.

Note: Since the receiving side writes the new contents of the currently selected model memory, always check the model number before executing this function.

Data is not interchangeable with another type of transmitter.

Communication port

Connect the communication port of both T4GRS with the optional DSC cord.

DSC cord for T4PK (option)
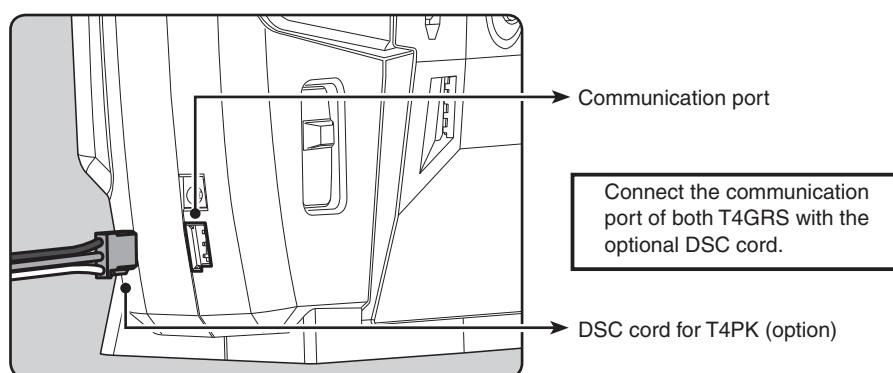
Display "MDL TRANS" screen by with the T4GRS power switch at the display setting using following method:

(DISP MENU screen)

DISP MENU
▶FUNC MENU

▶RX MODE

▶MC LINK

▶MDL TRANS

Select "MDL TRANS"

(MDL TRANS screen)

MC LINK
   RT

MODE:READ
EXEC: +/-
(NO DATA)

Press

Press
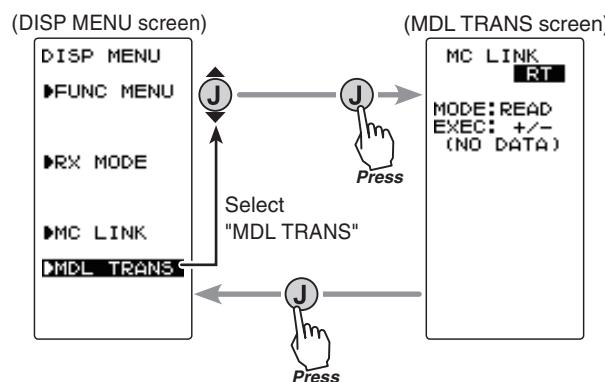
Using the Data Transfer function

(Preparation)

- Connect the communication port of both transmitters together with the optional DSC cord for T4PK.

1 Set the power switch of both transmitters to the display (DISP) setting.
Use the (JOG) button and (+) button to display the "MDL-TRN" at both transmitter.

2 (Select the setting item)

"MODE" by the (JOG) button up or down operation, and select the transfer side and receive side by (+) or (-) button.

"TRAN":Data transfer side
"RECV":Data receive side
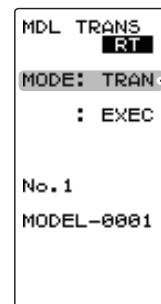
Mode selection
"TRANSFER" "RECEIVE"
Setup item selection
- Select by (JOG) button up or down operation.

Mode change button
- Use the (+) and (-) buttons to make adjustments.

3 (Data transfer execution)

Select the setting item "EXEC" using (JOG) button up or down operation of both transmitter.

First, press the receive side "RECV" transmitter (+) and (-) buttons simultaneously. The message "RCV WAIT.." appears and count down begins.
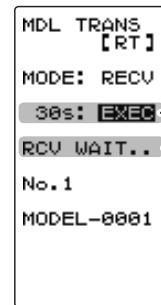
Transfer execution button
- (+) and (-) buttons pressed simultaneously for about 1 second.
- 30 seconds wait is displayed on the receive side screen.

Within 30 seconds, press the transfer side "TRANS" transmitter (+) and (-) buttons simultaneously. (If data transfer is not executed within 30 seconds, an error will be displayed at the receive side "RECV" transmitter.)

"COMPLETE!" is displayed.

-"COMPLETE!" is displayed on the screen of the receive side "RECV" transmitter and data transfer is ended.
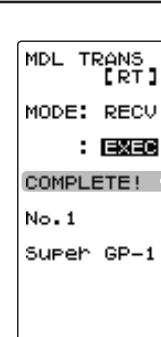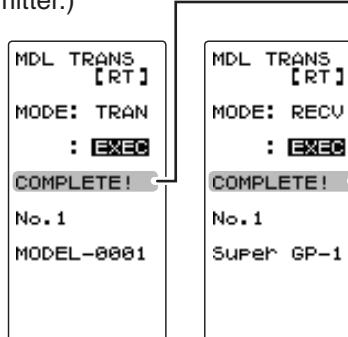
-If "RCV ERROR!" is displayed on the screen of the receive side "RECEIVE" transmitter, data transfer was not performed normally. Check the connection and repeat steps 1→3. Since the transfer side "TRANS" transmitter only sends, "COMPLETE!" is displayed even when data transfer was not performed normally.
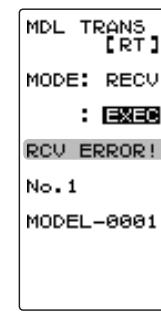
"RCV ERROR!" is displayed.

Data transfer can also be canceled before the end of transfer by operating the (JOG) button at a T4GRS that is waiting to receive data.

When completed, return to the DISP MENU screen by pressing the (JOG) button.
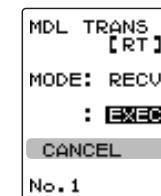
"CANCEL" is displayed.

Timer Function "TIMER"

Use the timer by selecting one of the three timers UP TIMER, DOWN TIMER, and LAP TIMER.

Display "TIMER" screen by the following method:

TIMER Disply

UP TIMER	FUEL DOWN TIMER	LAP TIMER
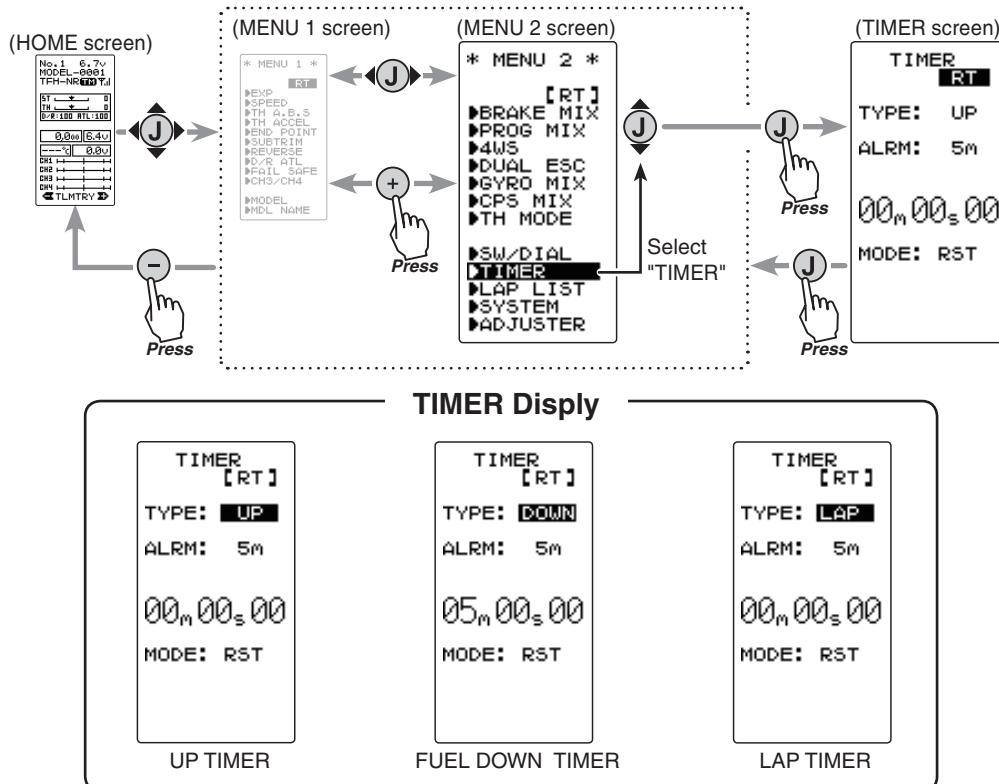
UP TIMER function

Up timer function

- This function can be used to count the time between start and stop, etc.

- The timer repeatedly starts and stops each time the switch is pressed and accumulates the time between each start and stop. When the count reaches 99 minutes 99 seconds, the count returns to 00 minutes 00 seconds and is repeated.

- The first start operation can be linked to the throttle stick.

- The passage of time is announced by sounding of a buzzer (beep) each minute after starting.

> - Alarm   :Beep sounds at the set time (minute).
> - Prealarm   :Alarm advance announcement sound. Beeping begins 5 seconds before the alarm.(beeps)

- After starting, the timer continues to count and can be stopped by switch even when the LCD switches to another screen.
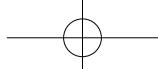
FUEL DOWN TIMER function

Fuel down timer function

- This function is primarily used to check the refueling time of a gasoline car. (The remaining time is displayed.)

- Each time the switch is pressed, the timer is restarted and the set time is reset. The start time becomes the alarm set time. (When counted down to 00 minute 00 second, the down timer becomes an up timer.)

- The down timer can be initially started by throttle stick.

- The passing of time is indicated by sounding of a buzzer (beep) each minute after starting.

```
TIMER
    [RT]
TYPE: DOWN
ALRM:  5m

05m00s00
MODE: RST
```

- Alarm   :A beep sounds at the set time (minute).
- Prealarm   :Alarm advance announcement sound. Beeping begins 5 seconds before the alarm.(beeps)

- After starting, the timer continues to count even if the LCD switches to another screen.
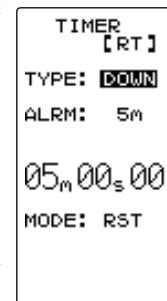
LAP TIMER

Lap timer function

- Each lap time can be memorized by switch operation. (100 laps)

- The race time can be set. Switch operation after the time set by alarm has elapsed automatically stops the timer. The passing of time is indicated by sounding of a buzzer (beep) each minute after starting.

```
TIMER
    [RT]
TYPE: LAP
ALRM:  5m

00m00s00
MODE: RST
```

-Alarm   :Beep sounds at the set time.
Prealarm   :Alarm advance announcement sound. Sounding begins 5 seconds before the alarm. (beeps)

- The lap timer can be initially started by throttle stick.
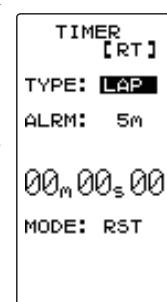
(LAP TIMER operation)

- The lap timer is started by switch or throttle stick.

- Number of laps (LAP): After starting, the timer is counted up and the lap time blinks for 3 seconds each time the switch is pressed. To prevent erroneous counting, switch operation is not accepted during this period. When 1 lap exceeds 10 minutes, counting is repeated from 0.

- Lap list: Up to 100 lap times are memorized beginning from lap list 1. After lap memory "No.100", operation returns to lap memory "No.1" and the lap memories are overwritten.

- The lap time data memorized in the lap memories can be checked with the lap list screen. The entire lap list data is cleared the next time the lap timer is started.

- TIME: For the first 3 seconds, the preceding lap time is displayed. After that the current lap time is displayed.

Function

Timer screen

```
    TIMER
       [RT]

TYPE:  UP

ALRM:  5m


00m 00s 00

MODE: RST
```

Timer selection
First, select the type of timer at the "TYPE" item. The setup screen varies depcompleted on the type of timer. This figure shows the UP TIMER setup screen.

Time display
Minute display (m)
Second display (s)
1/100 second display

```
    TIMER
       [RT]

TYPE:  UP

ALRM:  5m


00m 03s 53

MODE: RUN
```

Status display
RST : Reset state
RDY : Throttle stick operation wait
RUN : Timer running
STP : Timer stopped

Racing timer type selection

(Preparation)

Assign the "TIMER" switch using the function select switch .

1 (Racing timer type selection)

Select the setting item "TYPE" using the (JOG) button. Use the (+) or (-) button and set the racing timer type.

Timer selection (TYPE)
UP   : Up timer
DOWN   : Down timer
LAP   : Lap timer

Setup item selection
- Select by the (JOG) button.

Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.

2 When completed, return to the MENU2 screen by pressing the (JOG) button.

Function
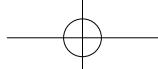
Using the up timer

(Preparation)

Select the setting item "TYPE" using the (JOG) button.

Press the (+) or (-) button and select "UP".

---

1 (Alarm time setting)

Select the setting item "ALRM" using the (JOG) button and set the alarm time with the (+) or (-) button.

```
  TIMER
      [RT]

TYPE:  UP

ALRM:  5m

00ₘ00ₛ00

MODE: RST
```
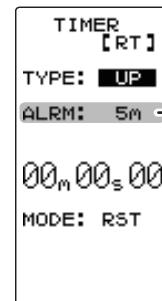
Alarm time (ALRM)
OFF, 1 ~ 99 m
Initial value: 5 m

---

2 (Timer start/stop operation)

Start the timer by pressing the switch ("TIMER") set by function select switch function.

Stop the timer with the same switch ("TIMER") as start.

- Linking start only to the throttle stick

Select the setting item "RST" using the (JOG) button and press the (+) and (-) buttons simultaneously for approximately 1 second. When the set beeps and the status display switches from "RST" to blinking "RDY", the system enters the stick operation ready state. When the stick is operated in the forward direction, the timer starts. (Status display "RUN")

If the (JOG) button is pressed while the timer is operating, the LCD returns to MENU2 screen.
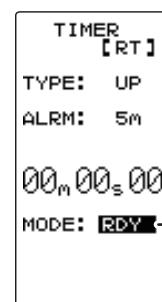
Switches
Time start / stop

```
  TIMER
      [RT]

TYPE:  UP

ALRM:  5m

00ₘ00ₛ00

MODE: RDY
```

Status display
RST :Reset state
RDY :Throttle stick operation wait
RUN :Timer running
STP : Timer stopped

---

3 (Timer reset operation)

Select a status display ("RUN", "STP", or "RDY") direction the (JOG) button and press the (+) and (-) buttons simultaneously for approximately 1 second. A beep is generated and "RST" appears on the status display and the timer resets.
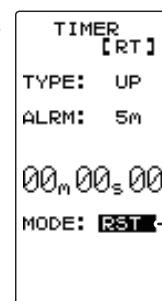
```
  TIMER
      [RT]

TYPE:  UP

ALRM:  5m

00ₘ00ₛ00

MODE: RST
```

Status display
RST :Reset state
RDY :Throttle stick operation wait
RUN :Timer running
STP : Timer stopped

Function
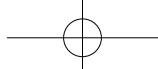
Using the fuel down timer

(Preparation)

Select the setting item "TYPE" using the (JOG) button.

Press the (+) or (-) button and select "DOWN".

1 (Alarm time setting)

Select the setting item "ALRM" using the (JOG) button and set the alarm time with the (+) or (-) button.

```
TIMER
    [RT]
TYPE: DOWN
ALRM:  5m
05m00s00
MODE: RST
```
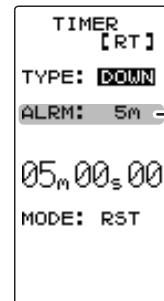
**Alarm time (ALRM)**
OFF, 1 ~ 99 m
Initial value: 5 m

2 (Alarm start/restart operation)

When the switch ("TIMER") set by function select switch function is pressed, the timer starts. When the same switch ("TIMER") is pressed while the timer is operating, the timer is reset and simultaneously restarted. (Restart)

Switches
Timer start / restart

- Linking start only to the throttle stick

Select the setting item "RST" using the (JOG) button and press the (+) and (-) buttons simultaneously for about 1 second. When the set beeps and the status display switches from "RST" to blinking "RDY", the system enters the stick operation ready state.

```
TIMER
    [RT]
TYPE: DOWN
ALRM:  5m
05m00s00
MODE: RDY
```

Status display
RST :Reset state
RDY :Throttle stick operation wait
RUN :Timer running
STP : Timer stopped

When the stick is operated in the forward direction, the timer starts. (Status display "RUN")

If the (JOG) button is pressed while the timer is operating, the LCD returns to MENU2 screen.

3 (Timer reset operation)

Select a status display ("RUN") using the (JOG) button and press the (+) and (-) buttons simultaneously for approximately 1 second. A beeping sound is generated and "RST" appears on the status display and the timer resets.

```
TIMER
    [RT]
TYPE: DOWN
ALRM:  5m
05m00s00
MODE: RST
```

Status display
RST :Reset state
RDY :Throttle stick operation wait
RUN :Timer running
STP : Timer stopped

Timer Function "TIMER"

Function
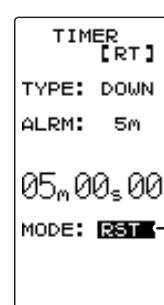
Using the Lap timer

(Preparation)

　Select the setting item "TYPE" using the (JOG) button.

　Press the (+) or (-) button and select "LAP".

1 (Alarm time setting)

Select the setting item "ALRM" using the (JOG) button and set the alarm time with the (+) and (-) buttons.
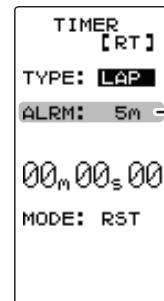
```
TIMER
    [RT]
TYPE: LAP
ALRM:  5m
00ₘ00ₛ00
MODE: RST
```

Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.
- Press the (+) and (-) buttons simultaneously (approx. 1 sec) to return to the HOME screen.

Alarm time (ALRM)
OFF, 1 ~ 99 m
Initial value: 5 m

2 (Timer start/ lap count/ stop operation)

When the Timer switch (set in the Function select menu) is pressed, the timer starts. During operation, the same switch becomes the lap switch and when the set time elapses, the timer is stopped by the same switch (TIMER)

- Linking start only to the throttle stick

Select the setting item "RST" by the (JOG) button and press the (+) and (-) buttons simultaneously for about 1 second. When the set beeps and the status display switches from "RST" to blinking "RDY", the system enters the stick operation ready state. When the stick is operated in the forward direction, the timer starts. (Status display "RUN")

When the switch (TIMER) is pressed after the time set by alarm has elapsed, the timer stops and the lap time and total time are memorized. The status display becomes "GOAL".

If the (JOG) button is pressed while the timer is operating, the LCD returns to MENU2 screen.

```
TIMER
    [RT]
TYPE: LAP
ALRM:  5m
00ₘ00ₛ00
MODE: RST
```

Switches
　Timer start / Lap count

Status display
RST ：Reset state
RDY ：Throttle stick operation wait
RUN ：Timer running
GOAL: Timer stopped

3 (Timer reset operation)

Select a status display ("GOAL") using the (JOG) button and press the (+) and (-) buttons simultaneously for approximately 1 second. A beeping sound is generated and "RST" appears on the status display and the timer resets.

- If the reset operation was performed before the "ALRM" set time had elapsed, the total time is not memorized.
- The lap memory data can be checked with the lap list screen.
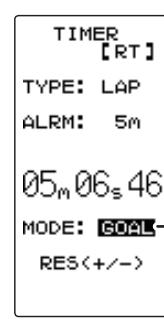
```
TIMER
    [RT]
TYPE: LAP
ALRM:  5m
05ₘ06ₛ46
MODE: GOAL
  RES(+/-)
```

Status display
RST ：Reset state
RDY ：Throttle stick operation wait
RUN ：Timer running
GOAL: Timer stopped

Function
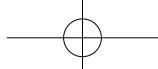
Lap List "LAP LIST"

The lap list is displayed when checking the lap memory data (lap times) memorized by lap timer operation.

- After the lap timer starts, the lap times are memorized sequentially each time the switch is operated.

- If the timer is stopped after the set ALRM time has elapsed, the final lap time is memorized and the total time after the last lap is automatically written.

   - When the timer was stopped before the set ALRM time has elapsed, the total time is not memorized.

Display "LAP LIST" screen by the following method:

(HOME screen) (MENU 1 screen) (MENU 2 screen) (LAP LIST screen)

Select "LAP LIST"

Press

Lap memory No. display

Total time display

Lap time display
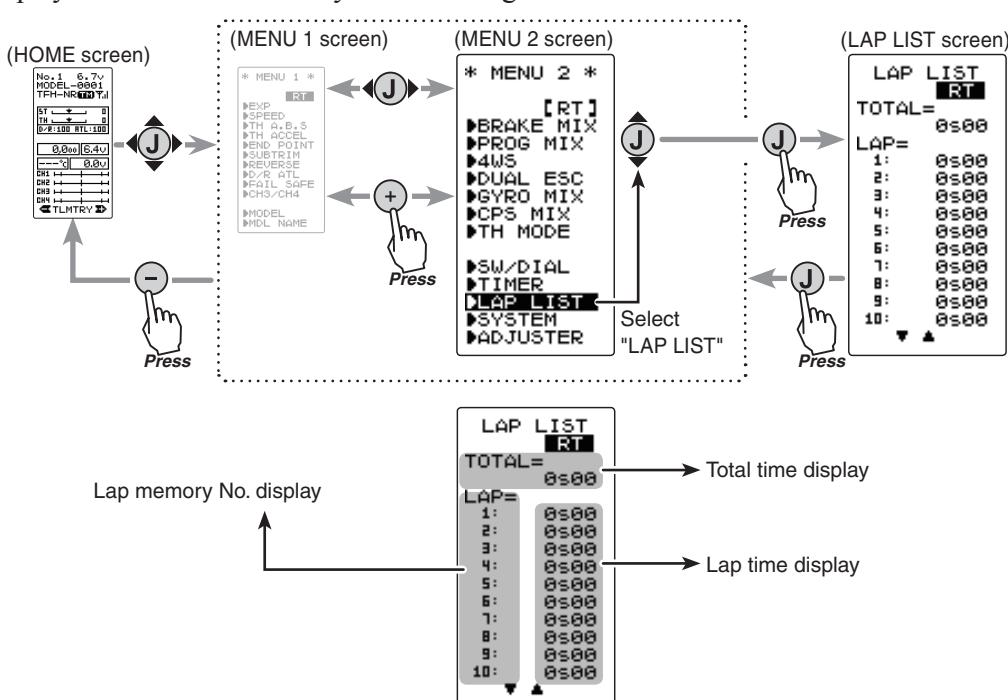
Using the lap memory

1 (Lap memory check)

When the (JOG) button is pressed, the list is scrolled every 10 laps and each lap time can be checked.

2 (Lap memory total data reset)

Press the (+) and (-) buttons simultaneously for approximately 1 second. A beeping sound is generated and all the data is reset.

Reset button
- Reset by pressing the (+) and (-) buttons simultaneously for about 1 second.

3 When completed, return to the MENU2 screen by pressing the (JOG) button.

System Functions "SYSTEM"

The graphic liquid crystal screen display mode, buzzer sound and menu character mode, etc. can be set.

- "CONTRA"---Liquid crystal screen contrast adjustment (20 steps)
- "BK-LHT"---Liquid crystal screen backlighting display mode setup
      (OFF, ON at button operation, normally ON)
- "LHT-TM"---Setting of ON time (1~30 secs) when [ON at button operation] was selected above.
- "LHT-PM"---Liquid crystal screen backlighting brightness adjustment (30 steps)
- "BATT"---Battery type setting (LiFe2/NiMH5/DRY4)
  The T4GRS can use an optional rechargeable battery. However, the battery alarm setting is different from that of the dry cell battery (alkaline battery recommended). Therefore, always set the battery type to match the power source used.
  If used with the incorrect setting, the normal low battery alarm function will not work and the system may stop before a battery alarm is generated. The usage time may also become extremely short.
- "BUZZER"---Buzzer sound tone adjustment (OFF, 100 steps)
- "OPE-TM"---Alarm Setting if Tx is left switched ON (OFF, 10 m)
- "MENU"---Item which displays the basic menu screen in katakana characters for Japanese use.
- "TH-STK"---This is used, when the neutral adjuster of throttle stick is changed, or when it is changed into ratchet.(5:5, 7:3, F10)
- "DISP"---HOME screen display mode setting (Telemetry data, Timer, Users name)

Display "SYSTEM" screen by the following method:
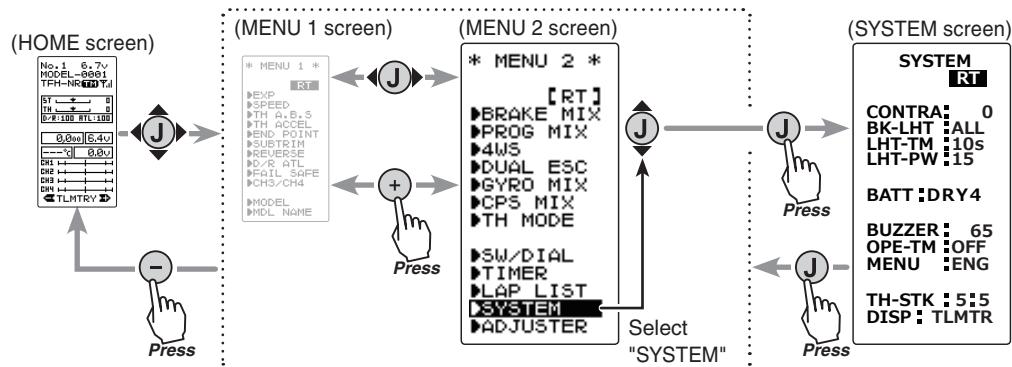
System function setup

1 (Setting of each item)

**(Adjusting the liquid crystal contrast)**

Select the setting item "CONTRA" using the (JOG) button, and use the (+) and (-) buttons to adjust the screen contrast.

- Adjust to an easy-to-see contrast.

When completed, return to the MENU2 screen by pressing the (JOG) button.
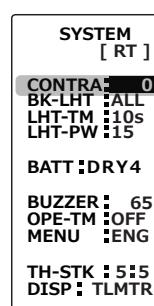
Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.
- Press the (+) and (-) buttons simultaneously (approx. 1 sec) to return to the initial value.

Contrast (CONTRA)
   -10~0~+10
   Initial value: 0

System function setup
(Setting the liquid crystal backlighting mode)

Select the setting item "BK-LHT" using the (JOG) button, and select the mode by pressing the (+) or (-) button.

"KEY" :Fixed time backlighting ON after button operated.
"ALL" :Backlighting always ON
"OFF" :Backlighting OFF

When completed, return to the MENU2 screen by pressing the (JOG) button.

```
SYSTEM
      [ RT ]
CONTRA:    0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15
BATT :DRY4
BUZZER:   65
OPE-TM :OFF
MENU  :ENG
TH-STK : 5:5
DISP:  TLMTR
```
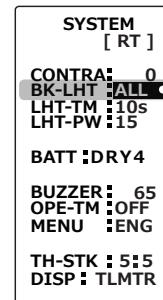
→ **Backlight mode (**BK-LHT**)**
    KEY, ALL, OFF

(Setting liquid crystal backlighting time)

Select the setting item "LHT-TM" using the (JOG) button, and use the (+) and (-) buttons to set the ON time.

- When "KEY" is set at the preceding item, this ON time becomes effective.

When completed, return to the MENU2 screen by pressing the (JOG) button.

```
SYSTEM
      [ RT ]
CONTRA:    0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15
BATT :DRY4
BUZZER:   65
OPE-TM :OFF
MENU  :ENG
TH-STK : 5:5
DISP:  TLMTR
```
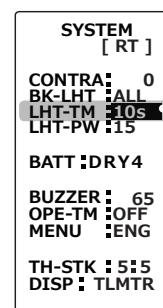
→ **Backlighting time (LHT-TM)**
    1~30
    Initial value: 10

(Setting liquid crystal backlighting brightness)

Select the setting item "LHT-PW" using the (JOG) button, and use the (+) and (-) buttons to set the ON time.

-If too set too bright, the battery will quickly be flattened.

When completed, return to the MENU2 screen by pressing the (JOG) button.

```
SYSTEM
      [ RT ]
CONTRA:    0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15
BATT :DRY4
BUZZER:   65
OPE-TM :OFF
MENU  :ENG
TH-STK : 5:5
DISP:  TLMTR
```
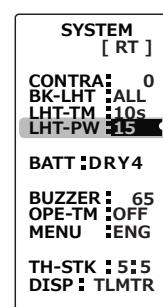
→ **Backlighting brightness
(LHT-PW)**
    1~30
    Initial value: 15

(Setting the battery type)

Select the setting item "BATT" using the (JOG) button, and select the mode by pressing the (+) or (-) button. When changing the battery type, press the (JOG) button after thoroughly checking that the correct battery type has been entered. An electronic beeping sound is generated and the setting is changed.

Note: If the battery type is changed to the wrong setting, the low battery alarm will be generated immediately after the change and operation will become impossible.
When the low battery alarm was generated, turn off the power and replace the battery with a fully charged battery or a new dry cell battery and then reset the battery type.

```
SYSTEM
      [ RT ]
CONTRA:    0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15
BATT :DRY4
BUZZER:   65
OPE-TM :OFF
MENU  :ENG
TH-STK : 5:5
DISP:  TLMTR
```
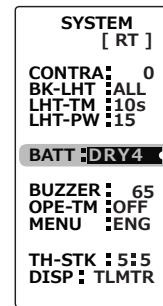
→ **Battery Type (BATT)**
    LiFe2, DRY4, NiMH5

Note: If used with the incorrect setting, a normal low battery alarm will not be generated and the system may stop before the battery alarm is generated. The usage time may also become extremely short.

"LiFe2"   :Futaba LiFe type battery (FT2F1700BV2 / 2100BV2)
"NiMH5"   :Futaba MiMH type battery (HT5F1800B)
"DRY4"   :Dry cell battery (alkaline battery recommended) 4 batteries

Voltage display
When BATT is set to dry cell use DRY4 or LiFe2/NiMH5, the voltage display of the HOME screen changes.
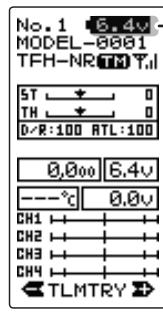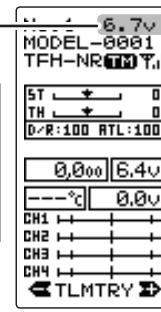
DRY4   LiFe2, NiMH5

When completed, return to the menu screen by pressing the (JOG) button.

(Adjusting the buzzer tone)

Select the setting item "BUZZER" using the (JOG) button, and use the (+) and (-) buttons to adjust the tone.

- Decide by referring to the tone at adjustment.

When completed, return to the menu screen by pressing the (JOG) button.

```
SYSTEM
    [ RT ]
CONTRA:    0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15

BATT :DRY4

BUZZER :   65
OPE-TM :OFF
MENU   :ENG

TH-STK : 5:5
DISP : TLMTR
```
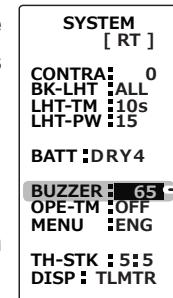
Buzzer tone (BUZZER)
OFF, 1~100
Initial value: 85

(Changing the Alarm Setting if Tx is left switched ON)

Select the setting item "OPE-TM" using the (JOG) button, and use the (+) and (-) buttons to select the alarm setting if Tx is left switched ON mode.

"10m"   :If an operation is not performed within 10 minutes while the power is on, an audible alarm sounds.
"OFF"   :Alarm setting if Tx is left switched ON is OFF

When completed, return to the menu screen by pressing the (JOG) button.

```
SYSTEM
    [ RT ]
CONTRA:    0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15

BATT :DRY4

BUZZER :   65
OPE-TM :OFF
MENU   :ENG

TH-STK : 5:5
DISP : TLMTR
```

The power off forgotten alarm (OPE-TM)
10m, OFF

Function

(Changing the menu character display)

Select the setting item "MENU" using the (JOG) button, and set the basic menu character display with the (+) or (-) button.

"ENG" : Basic menu displayed in Alphabetic character.
"カナ" : Basic menu displayed in katakana character.

```
     SYSTEM
      [ RT ]
CONTRA:     0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15

BATT :DRY4

BUZZER:   65
OPE-TM :OFF
MENU   :ENG

TH-STK : 5:5
DISP: TLMTR
```
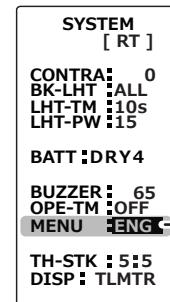
➤ **Menu character (MENU)**
  ENG, カナ

When completed, return to the menu screen by pressing the (JOG) button.

(When the neutral adjuster of throttle stick is changed)

Select the setting item "TH-STK" using the (JOG) button, and set the neutral adjuster position mode with the (+) or (-) button.

"5:5" :Normal
"7:3" :Forward stick travel is increased
"F10" :When ratchet is being used (for GP boat)

Press the (JOG) button after thoroughly checking whether or not the mistake was made again. An electronic beeping sound is generated and the setting is changed.

When completed, return to the menu screen by pressing the (JOG) button.

```
     SYSTEM
      [ RT ]
CONTRA:     0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15

BATT :DRY4

BUZZER:   65
OPE-TM :OFF
MENU   :ENG

TH-STK : 5:5
DISP: TLMTR
```
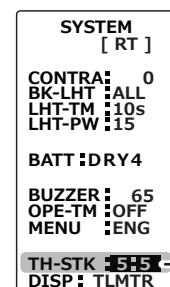
➤ **Throttle stick (TH-STK)**
  5:5, 7:3, F10 (forward only)

When changed into **F10** (forward only), brake set-up cannot be activated.
The display of **"NO BRAKE"** or **" − − − "** comes out on each screen, and a setup is impossible.

(Changing the HOME screen display mode)

Select the setting item "DISP" using the (JOG) button, and set the HOME screen display mode with the (+) or (-) button.

"TLMTR" :Telemetry data is displayed
"TIMER" :Timer is displayed
"USER" :User name is displayed

Only the T-FHSS system can display telemetry data. Nothing is displayed with an S-FHSS/FHSS system.

```
     SYSTEM
      [ RT ]
CONTRA:     0
BK-LHT :ALL
LHT-TM :10s
LHT-PW :15

BATT :DRY4

BUZZER:   65
OPE-TM :OFF
MENU   :ENG

TH-STK : 5:5
DISP : TLMTR
```
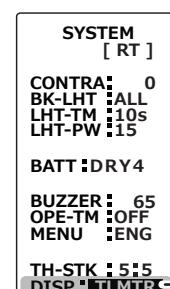
➤ **HOME screen mode (DISP)**
  TLMTR, TIMER, USER

TLMTR   TIMER   USER

Function
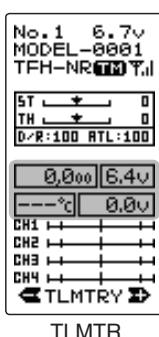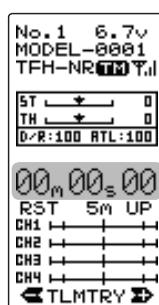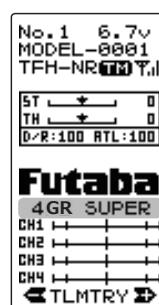
Adjuster "ADJUSTER"

Steering stick and throttle stick neutral position and servo operating angle correction can be applied. This is used when a mechanical offset has occurred for some reason.

 *However, when correction is made, the set value of all the setting functions must be rechecked.

Display the adjuster screen from the system menu.

(HOME screen)　(MENU 1 screen)　(MENU 2 screen)　(ADJUSTER screen)
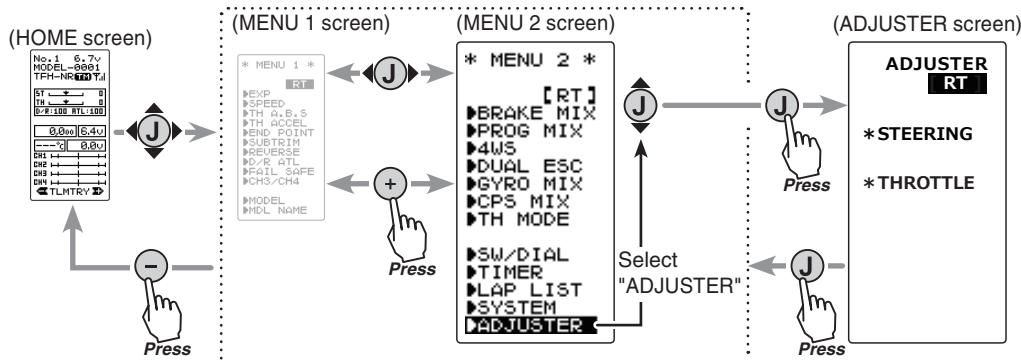
Select "ADJUSTER"

Steering adjustment

(Preparation)

On the ADJUSTER screen, select the setting item "Steering" using the (JOG) button, and pressing the (JOG) button.
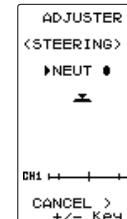
fig-1

1 (Steering neutral adjustment)

In the neutral setup screen (fig-1) state, pull the stick back slightly then allow to return to neutral and press the (JOG) button whilst ensuring the stick is not touched.
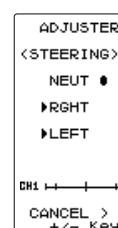
2 (Steering throw adjustment)

In the throw setup screen state (fig-2), lightly turn the stick fully to the left or right and when button mark (fig-3) is displayed, pressing the (JOG) button.
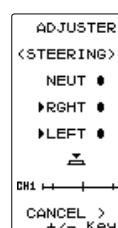
Internal check is performed automatically. When each adjustment point is within a fixed range, correction is performed and "COMPLETE" (fig-4) is displayed.

If an adjustment point is not within a fixed range, correction is not performed and the correction data is not updated.

When button mark is not displayed even though correction was performed again, please contact a Futaba Radio Control Customer Center.

fig-2　fig-3

fig-4

**3** When completed, return to the MENU2 screen by pressing the (JOG) button.

**Function**
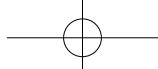
Throttle adjustment

(Preparation)

On the ADJUSTER screen, select the setting item "THROT-TLE" using the (JOG) button, and press the (JOG) button.

Throttle adjustment will not be made if it has been converted to ratchet operation. It is necessary to return to a self neutral.

---

1 (Throttle 5:5 neutral adjustment)

Neutral adjuster is set to 5:5 by the Neutral Adjuster switch. In the 5:5 neutral setup screen (fig-1) state, pull the stick back slightly then allow to return to neutral and press the (JOG) button whilst ensuring the stick is not touched.

---

2 (Throttle 7:3 neutral adjustment)

Neutral adjuster is set to 7:3 by the Neutral Adjuster switch. In the 7:3 neutral setup screen (fig-2) state, pull the stick back slightly then allow to return to neutral and press the (JOG) button whilst ensuring the stick is not touched.

Note that both the 5:5 and 7:3 neutral adjustment procedures have to be completed as part of the set-up process. Once complete the required option should be selected.

---

3 (Throttle throw adjustment)

In the throw setup screen state (fig-3), gently move the stick fully to the brake side and the forward side and when button mark (fig-4) is displayed, pressing the (JOG) button.

Internal check is performed automatically. When each adjustment point is within a fixed range, correction is performed and "COMPLETE!" (fig-5) is displayed.

If an adjustment point is not within a fixed range, correction is not performed and the correction data is not updated.

When button mark is not displayed even though correction was performed again, please contact a Futaba Radio Control Customer Center.

---

4 When completed, return to the ADJUSTER screen by pressing the (JOG) button.

---

5 Next, move the cursor to [RT] using the (JOG) button, and press the (JOG) button.

**(Throttle stick)**

Neutral Adjuster
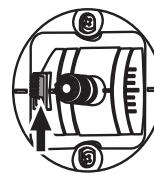
5 : 5   7 : 3
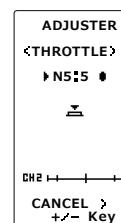

fig-1   fig-2

fig-3   fig-4

fig-5

Function
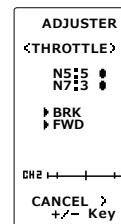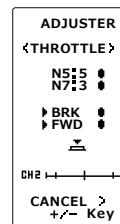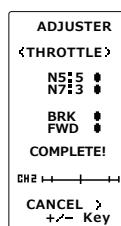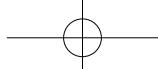
Telemetry "TELEMETRY"

With the telemetry system, the running status can be displayed at the transmitter and also recorded as a data log by mounting various sensor units to the chassis.

The telemetry related screens are only displayed when the T4GRS power switch is in the PWR ON position. When the power switch is in the DISP position, the telemetry related screens are not displayed.

(HOME screen)

The T4GRS displays four kinds of information on the HOME screen; receiver power source (battery) voltage, external power supply (drive battery) voltage, speed, and temperature.

> *The telemetry function is compatible with only the T-FHSS system.
> *The telemetry function requires a corresponding receiver (R304SB,R304SB-E).
> *Only T4GRS with R304SB(-E) ID registered have a telemetry display.
> *Multiple sensors of the same type cannot be used.

The sensor data can be checked at the transmitter by connecting the telemetry sensor sold separately to the S.BUS2 connector of the R304SB(-E) receiver.
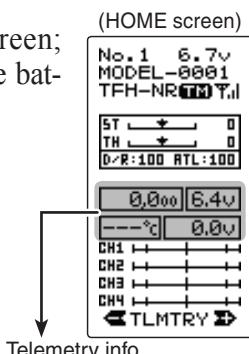
Telemetry info

The figure is an example of connection of a telemetry sensor. The data of up to the following 3 types of sensors and the receiver power supply voltage can be transmitted by using the 3-way extension cord or double extension cord sold separately.

The receiver power supply can also be connected to the S-BUS2 connector or each of CH1-4. A receiver power supply voltage sensor is unnecessary.

*The S-BUS2 system exerts control by connecting multiple gyros, servos and other devices corresponding to one S-BUS2 connector. Each device is separately controlled by setting the channel No. or slot No. individually for each device.
A slot No. is also set for telemetry sensors. With the T4GRS system, each slot No. of a telemetry sensor must be set to its initial value. Since the slot No. can be changed for other aircraft type transmitters (T18MZ, etc.), sensors with changed slot No. will not operate if not returned to their initial slot No. When using a sensor that is used with transmitters other than a T4GRS, whether or not the slot No. is set to the initial value given in the sensor instruction manual must be checked at the changed transmitter (T18MZ, etc.). With the T4GRS, the set slot No. cannot be checked or changed. So, essentially, if a sensor has been used in an 18MZ, and you want to use the same sensor with your T4GRS, you must first change the slot number through the 18MZ or it will not work in your T4GRS.

Connection diagram

voltage
Info

Power battery voltage is displayed at the transmitter.

Temperature Sensor (SBS-01T)
RPM Sensor (SBS-01RM)
Voltage Sensor (SBS-01V)

Voltage Sensor

Info

Temperature Sensor

HUB

RPM Sensor

Transmitter

Signal

Info

Info

Switch

HUB

Info

T-FHSS Receiver

HUB

Connect to S.BUS2 Connector

Battery voltage is displayed at the transmitter.
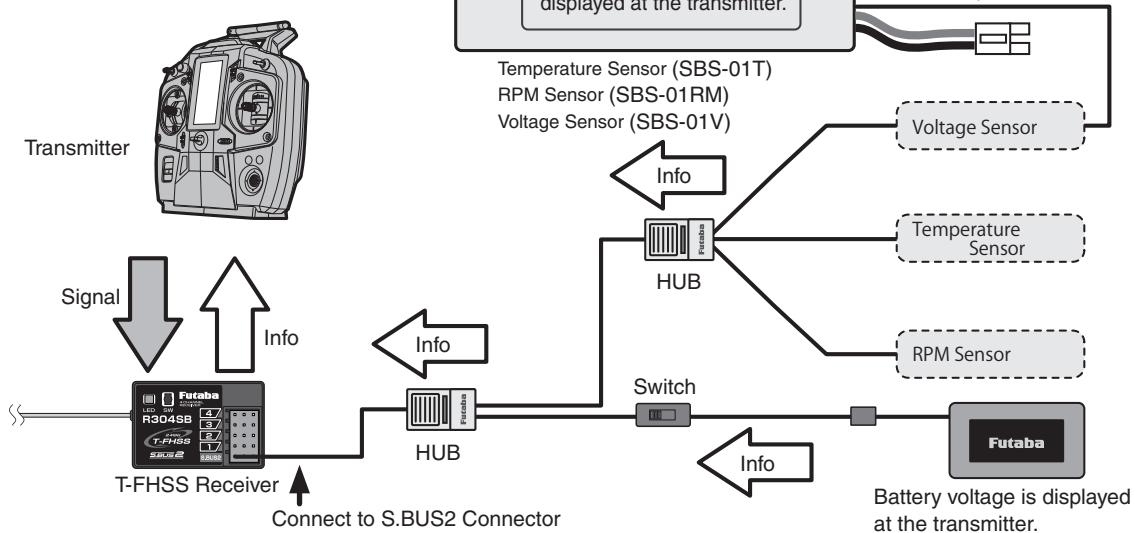
Function

Telemetry/Log Screen Map

(HOME screen)

```
No.1   6.7v
MODEL-0001
TFH-NR TM Y,l

ST  ⊢  +     0
TH  ⊢  +     0
D/R:100 ATL:100

  0.0oo  6.4v
 ---°c   0.0v
CH1 ⊢   +   ⊣
CH2 ⊢   +   ⊣
CH3 ⊢   +   ⊣
CH4 ⊢   +   ⊣
  ◀ TLMTRY ▶
```

Press (−)

Press (−)

(Telemetry Function ON/OFF Screen)
p.117

The cursor on [RT]

Press (+)

Press (+)

```
TELEMETRY
TM Y,l   RT
  MODE:ON
  ID=130100008
*RX VOLT
    6.6v
*TEMP
    ---°c
*R.P.M
          0
*EXT VOLT
  ---.-V
```

The cursor on [RT]

Press (−)

Press (+)

(Sensor Set Screen)
p.118

```
SENS MODE
      RT
*RX VOLT
 ALRM:OFF
 VOLT:---V




*EXT VOLT
 ALRM:OFF
 VOLT:
    ---.-V

← SENS2 →
```

◀ J ▶

```
SENS MODE
      RT
*TEMP
 UNIT:°C
 ALRM:ON
 TEMP:100
 TYPE:
   SBS-01T
*R.P.M
 RATIO:
    1.000

← SENS1 →
```

Press (−)

Press (+)

(Log Data Screen)

◀ J ▶

```
  RX VOLT
01/20  RT
(M:S: )
00:00:0>  6.3v
00:00:1>  6.3v
00:00:2>  6.3v
00:00:3>  6.3v
00:00:4>  6.3v
00:00:5>  6.3v
00:00:6>  6.3v
00:00:7>  6.3v
00:00:8>  6.3v
00:00:9>  6.3v
00:01:0>  6.3v

↑↓TIME  TYPE←→
```

◀ J ▶

```
  R.P.M
01/20  RT
(M:S: )
00:00:0>   000
00:00:1>   000
00:00:2>   000
00:00:3>   000
00:00:4>   000
00:00:5>   000
00:00:6>   000
00:00:7>   000
00:00:8>   000
00:00:9>   000
00:01:0>   000

↑↓TIME  TYPE←→
```

◀ J ▶

```
  TEMP
01/20  RT
(M:S: )
00:00:0>   ---°c
00:00:1>   ---°c
00:00:2>   ---°c
00:00:3>   ---°c
00:00:4>   ---°c
00:00:5>   ---°c
00:00:6>   ---°c
00:00:7>   ---°c
00:00:8>   ---°c
00:00:9>   ---°c
00:01:0>   ---°c

↑↓TIME  TYPE←→
```

◀ J ▶

```
  EXT VOLT
01/20  RT
(M:S: )
00:00:0>  0.0v
00:00:1>  0.0v
00:00:2>  0.0v
00:00:3>  0.0v
00:00:4>  0.0v
00:00:5>  0.0v
00:00:6>  0.0v
00:00:7>  0.0v
00:00:8>  0.0v
00:00:9>  0.0v
00:01:0>  0.0v

↑↓TIME  TYPE←→
```

(Log Set Screen)
p.120

Press (+)

Press (+)

Press (+)

```
LOG MODE
      RT

STATE:---

MODE: INH

CYCL: 1.0s

*END TIME
  0h03m20s

ALRM: OFF
```

Press (+)

Telemetry "TELEMETRY"

Telemetry Function ON/OFF

The telemetry data can be viewed at the HOME screen and telemetry ON/OFF screen. The telemetry function can also be turned on and off at the telemetry ON/OFF screen. The telemetry ON/OFF and communication status can be checked at the HOME screen.

The reception strength

[TM Yıl] High
[TM Yı]
[TM Y.]
[TM Y] Low

[TH-OFF]

No signal reception

[Yıl] Receiver -> Transmitter:
The reception strength is shown.
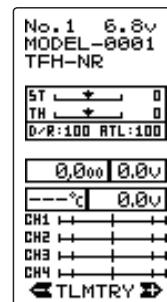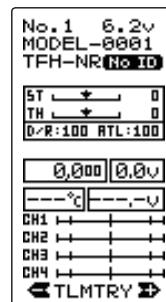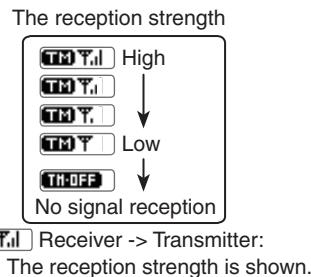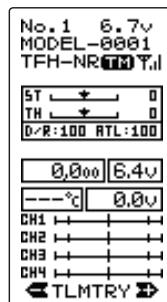
- Telemetry function :ON
- Receiver ID setting complete.
- Data receiving sensitivity display.
- [TH-OFF] shows that data cannot be received because it is outside the data receiving range or because of the effects of an obstruction or the receiver power is OFF after receiver ID check.

- Telemetry function :ON
- Receiver ID before setting or ID mismatch.
- When the receiver ID is set, before ID check in the receiver power OFF state.

Telemetry function :OFF

Refer to the map on page 116 for the telemetry ON/OFF (telemetry) screen display.

(HOME screen)

(TELEMETRY ON/OFF screen)

RPM Sensor info

Receiver voltage info

Temperature Sensor info

Voltage Sensor info

Receiver voltage info

Temperature Sensor info

RPM Sensor info

Voltage Sensor info
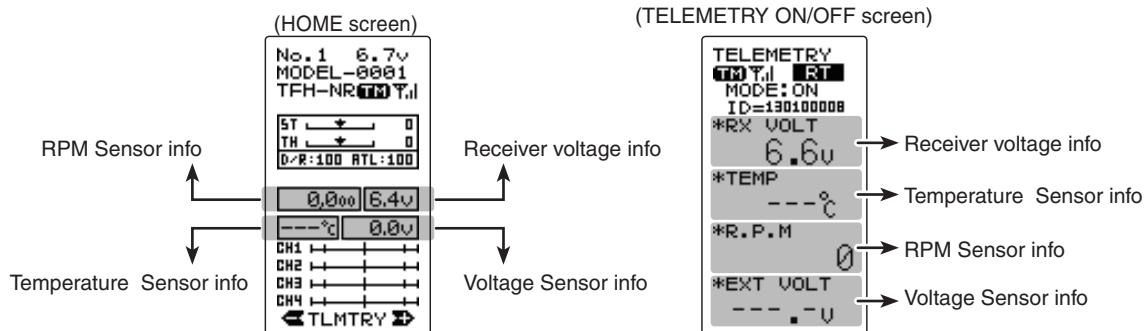
Telemetry function ON/OFF

(Preparation)
- On the HOME screen, open the TELEMETRY ON/OFF screen by pressing the (+) button.

1 Select the setting item "MODE" using the (JOG) button up or down operation. Set the function by pressing the (+) or (-) button.

"OFF" : Function OFF
"ON"   : Function ON
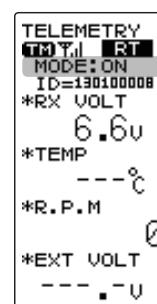
Telemetry turned ON, LED of the jog key will blink twice.

Function ON/OFF (MODE)
INH, ACT

Select button
- Select with the (+) or (-) buttons.

2 When completed, move the cursor to [RT] by the (JOG) button, and return to the HOME screen by pressing the (JOG) button.

Function
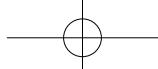
Telemetry Sensor Setting

An audible alarm can be generated by the T4GRS from the data from a telemetry sensor. This setting sets alarm ON/OFF and the alarm conditions.

Refer to the map on page 116 for the sensor setting (SENS MODE) screen display.

There are receiver power source (battery) voltage and external power source (drive battery) voltage settings on page 1 of the sensor setting screen and temperature and speed settings on page 2. Pages 1 and 2 are switched by (JOG) button left or right operation.

Receiver power supply voltage setting

External power supply Voltage sensor setting

Page1

Temperature sensor setting

RPM sensor setting

Page2
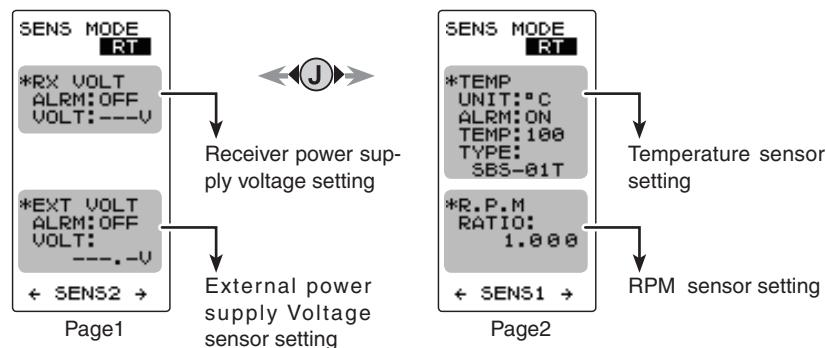
Setting method

(Setting of each item)

Setting the receiver power supply voltage alarm

Display page 1 using (JOG) button left or right operation.

Select "ALRM" of the "*RX VOLT" setting items using (JOG) button up or down operation, and set alarm ON/OFF with the (+) button or (-) button.
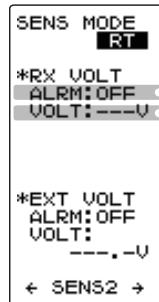
Alarm ON/OFF

ON, OFF
- Select with the (+) or (-) buttons.

Voltage alarm

3.8V~8.0V
Initial value: 5V

Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "0" by pressing the (+) and (-) buttons simultaneously for about 1 second.

"OFF"   : Alarm OFF
"ON"   : Alarm ON by a voltage drop below the specified voltage

Select "VOLT" of the "*RX VOLT" setting items using (JOG) button up or down operation, and set the voltage at which the alarm begins to sound with the (+) button or (-) button. The number of digits can be shifted using (JOG) button left or right operation.

When completed, move the cursor to [RT] using the (JOG) button, and return to the HOME screen by pressing the (JOG) button twice.

Function
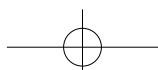
Setting external power supply voltage alarm

Display page 1 using (JOG) button left or right operation.

Select "ALRM" of the "EXT VOLT" setting items using (JOG) button up or down operation, and set alarm ON/OFF with the (+) button or (-) button.

"OFF" : Alarm OFF
"ON" : Alarm ON by a voltage drop below the specified voltage

Select "VOLT" of the "*EXT VOLT" setting items using (JOG) button up or down operation, and set the voltage at which the alarm begins to sound with the (+) button or (-) button. The number of digits can be shifted using (JOG) button left or right operation.

When completed, move the cursor to [RT] using the (JOG) button, and return to the HOME screen by pressing the (JOG) button twice.

```
SENS MODE
        RT
*RX VOLT
 ALRM:OFF
 VOLT:---V


*EXT VOLT
 ALRM:OFF
 VOLT:
     ---.-V
← SENS2 →
```
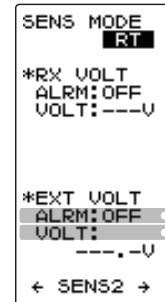
Alarm ON/OFF
ON, OFF
- Select with the (+) or (-) buttons.

Voltage alarm
0.0V~90.0V
Initial value: 5V
Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "0" by pressing the (+) and (-) buttons simultaneously for about 1 second.

Setting the temperature alarm

Display page 2 using (JOG) button left or right operation.

Select "UNIT" of the "*TEMP" setting items using (JOG) button up or down operation, and select Celsius or Fahrenheit temperature display with the (+) button or (-) button.

"°C" : Celsius display
"°F" : Fahrenheit

Select "ALRM" of the "*TEMP" setting items using (JOG) button up or down operation, and set alarm ON/OFF with the (+) button or (-) button.

"OFF" : Alarm OFF
"ON" : Alarm ON at the specified temperature

Select "TEMP" of the "*TEMP" setting items using (JOG) button up or down operation, and set the temperature at which the alarm begins to sound with the (+) button or (-) button. Select "TYPE" of the "*TEMP" setting items using (JOG) button up or down operation, and set the type of sensor with the (+) button or (-) button

"SBS-01T" : Option sensor
"Temp 125" : Option sensor for Europ

When completed, move the cursor to [RT] by the (JOG) button, and return to the HOME screen by pressing the (JOG) button twice.

```
SENS MODE
        RT
*TEMP
 UNIT:°C
 ALRM:ON
 TEMP:100
 TYPE:
     SBS-01T
*R.P.M
 RATIO:
     1.000
← SENS1 →
```

Display type
°C, °F
- Select with the (+) or (-) buttons.

Alarm ON/OFF
ON, OFF
- Select with the (+) or (-) buttons.

Temperature alarm
-20~200°C/ -4~392°F
Initial value: 200°C/ 212°F
Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "0" by pressing the (+) and (-) buttons simultaneously for about 1 second.

Sensor type
SBS-01T, Temp 125
Select button
- Select with the (+) or (-) buttons.

Function
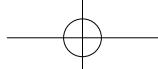
Setting the gear ratio

Display page 2 using (JOG) button left or right operation. Select "RATIO" of the "R.P.M" setting items using (JOG) button up or down operation, and set the location the sensor is to actually measure and the gear ratio of the motor and engine with the (+) button or (-) button. There is no alarm function.

```
SENS MODE
      RT

*TEMP
 UNIT:°C
 ALRM:ON
 TEMP:100
 TYPE:
  SBS-01T
*R.P.M
 RATIO:
     1.000

← SENS1 →
```
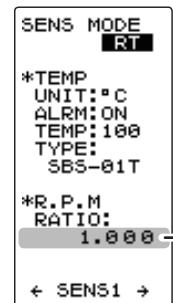
Gear ratio (moderating ratio)
0.001~64
Initial value: 1
Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "0" by pressing the (+) and (-) buttons simultaneously for about 1 second.

When completed, move the cursor to [RT] using the (JOG) button, and return to the HOME screen by pressing the (JOG) button twice.

Log Setting Start/Stop

The data from a telemetry sensor can be saved to the T4GRS as a data log. Since the data is sequentially updated, when data logging is performed, the old data is erased. Only 1 data is saved.

The interval at which the data is acquired can be selected from a minimum 0.1 second to a maximum 60 seconds. Because the maximum count is 200, if the count is made 200 counts at 0.1 second intervals, 20 seconds worth of data is acquired, and if the count is made 200 counts at 60 second intervals, 3 hours 20 minutes worth of data is acquired.

Data logging is started and stopped by setting SW1 set by SW/Dial function to "LOGGER" and by switch (SW1). If the switch (SW1) is not set, data logging is started by throttle stick from the log setting screen.

Data logging can also be started by throttle stick from this screen and stopped by switch (SW1) set by SW/dial function.

Refer to the map on page 116 for the log setting (LOG MODE) screen display.

Log setting method

(Preparation)

When using a switch (SW1) to start and stop data logging, set SW1 to "LOGGER" by SW/dial function.

- On the HOME screen, open the LOG MODE screen by pressing the (-) button.

1 (Log function ON/OFF)

Move the cursor to the "MODE" setting item using (JOG) button up or down operation, and turn on the log function by setting "MODE" to "ACT" by pressing the (+) button or (-) button.

If "MODE" is not set to "ACT", the log function will not be performed even if the switch etc, is operated.

```
LOG MODE
      RT

STATE:---

MODE: INH

CYCL: 1.0s
 *END TIME
  0h03m20s

ALRM: OFF
```
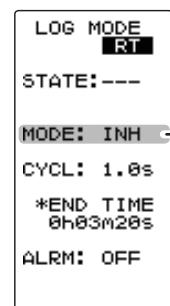
Function ON/OFF (MODE)
INH, ACT
- Select with the (+) or (-) buttons.

"INH" : Function OFF
"ACT" : Function ON

Telemetry "TELEMETRY"

Function

2 (Recording cycle setting)

Select the "CYCL" setting item using (JOG) button up or down operation, and set the data acquisition interval from a minimum 0.1 second to a maximum 60 seconds with the (+) button or (-) button.

The maximum recordable time set by CYCL is displayed at END TIME shown below.

```
LOG MODE
    RT
STATE:---

MODE: INH

CYCL: 1.0s

 *END TIME
  0h03m20s

ALRM: OFF
```
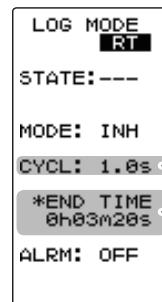
Log recording cycle
0.1~60s(sec)
  0.1~10s(sec)0.1s step
  10s~60s(sec)1s step
  Initial value: 1.0sec
Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "0" by pressing the (+) and (-) buttons simultaneously for about 1 second.

3 (Count alarm ON/OFF)

Select the "ALRM" setting item using (JOG) button up or down operation. To sound an electronic beep at each log count, set "ALRM" to ON with the (+) button or (-) button.

"OFF" : Alarm OFF
"ON" : Alarm ON at each log count

```
LOG MODE
    RT
STATE:---

MODE: INH

CYCL: 1.0s

 *END TIME
  0h03m20s

ALRM: OFF
```

Log recording time
20s (seconds)~3h 20m (3 hours 20 minutes)
The maximum recordable time set by CYCL is displayed automatically.

Alarm ON/OFF
ON, OFF
- Select with the (+) or (-) buttons.

When completed, move the cursor to [RT] using the (JOG) button, and return to the HOME screen by pressing the (JOG) button twice.

Log function start/stop operation

1 (Log start operation)
-Start by switch (SW1)

When the switch (SW1) set by SW/dial function is pressed, data logging starts.

-Starting by throttle stick

Display the log setting (LOG MODE) screen and select the "STATE" setting item using (JOG) button up or down operation, and press the (JOG) button for approximately 1 second.

```
LOG MODE
   [RT]
STATE:STP
( ⊥ →RDY)
MODE: ACT

CYCL: 1.0s

 *END TIME
  0h03m20s

ALRM: OFF
```
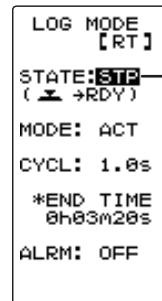
Status display
RDY :Throttle stick operation wait
STA :Logger running
STP : Logger stopped

An electronic beeping sound is generated and the "STATE" display switches from "RST" to blinking "RDY", and the logger enters the stick operation wait state. When the stick is operated in the forward direction, data logging begins. (STATE display "STA") When the end time arrives, an electronic beep sounds and data logging stops. To return to the HOME screen during data logging, move the cursor to [RT] using (JOG) button up or down operation, and press the (JOG) button or (+) button.

2 (Log forced end)

To abort logging, press the switch (SW1), in the same way as starting, or display the log setting (LOG MODE) screen and select the "STATE" setting item using (JOG) button up or down operation and press the (JOG) button for approximately 1 second. An electronic beeping sound is generated and logging is stopped.

Function

Log Data List

The log data list can be called up when checking the log data memorized by logging operation .

The maximum log data is up to 200 counts.

Example: Receiver power supply voltage log list screen.

Displays the type of log data.

Displays the log data elapsed time.

Displays the data
Receiver power supply voltage.

Receiver power supply voltage log.
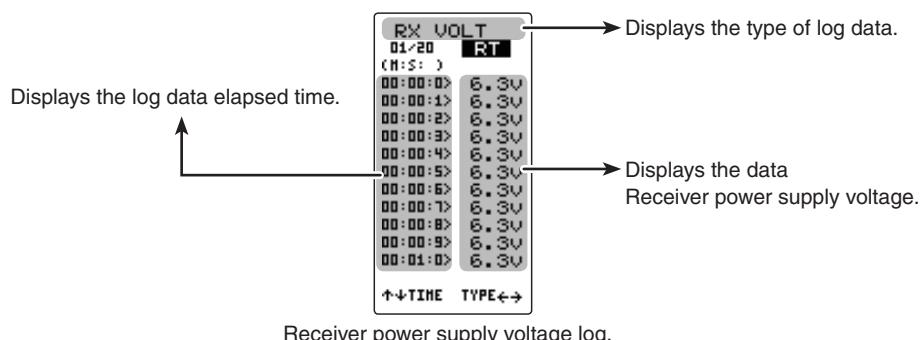
Refer to the below map for the display method of each log list screen.

Receiver power supply
voltage log

External power sup-
ply voltage log

Temperature sensor log

RPM sensor log
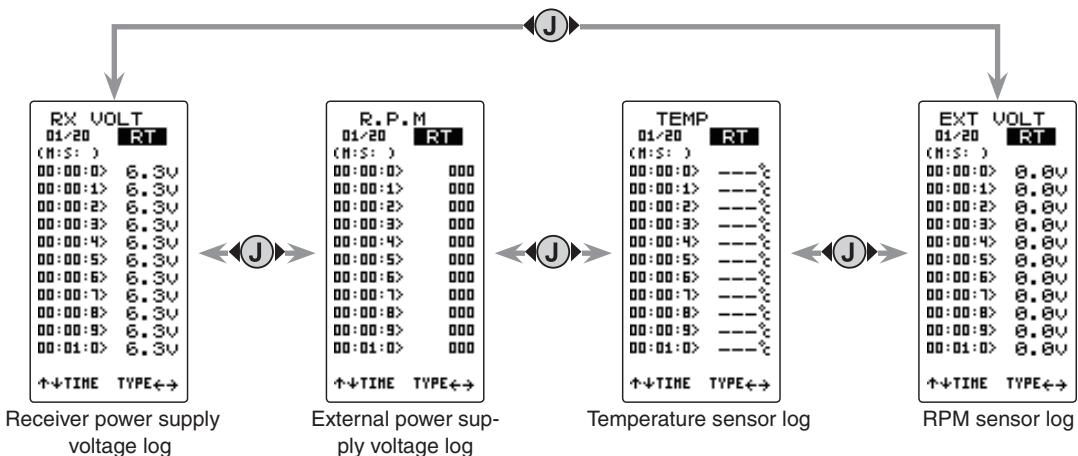
Log list check method

1 (Log memory check)

Each time the (JOG) button is operated up or down the list is scrolled 10 counts and each log data can be checked up to 200 counts.

2 When completed, return to the HOME screen by pressing the (JOG) button.

Telemetry "TELEMETRY"

Function

Ratings

*Specifications and ratings are subject to change without prior notice.

Communication method: One-way operation system
Maximum operating range:100m (Optimum condition)
For safety: F/S, B-F/S, ID

Transmitter T4GRS-2.4G

(T-FHSS/S-FHSS/FHSS system, 2 stick type, 4 channels)
Transmitting frequency:
  2.4GHz band
Power requirement:
  AA Dry cell batteries x 4 (6V)
Current drain:
  150mA or less
Transmission antenna:
  1/2λ di-pole

Receiver R304SB: (T-FHSS system, 4 channels)

Power requirement:
  4.8V~7.4V battery / 3.5 ~ 8.4V useable
  (Dry cell battery cannot be used.)
Receiving frequency:
  2.4GHz band
System:
  T-FHSS system (auto detection)
Size:
  1.38x0.91x0.33" (35.1x23.2x8.5mm)(excluding a projection part)
Weight: 0.23oz. (6.6g)

⚠ Caution

❶ When using the T4GRS in the T-FHSS (HIGH) and S-FHSS (HIGH) mode, always use it under the following conditions:

Servos   :Futaba digital servo (including BLS Series brushless servos)

Receiver's battery   :Matched to the ratings of the receiver and connected digital servo (dry cell battery cannot be used).

Transmitter mode   :RX MODE

Under other conditions, the set will not operate, or the specified performance will not be displayed even if it operates. In addition, it may cause servo trouble. Futaba will not be responsible for damage, etc. caused by combination with the products of other companies.

In addition, the FSU Fail Safe Unit cannot be used because the system is different. Use the fail safe function of the transmitter.

❶ When using analog servos, always switch the T4GRS servo response to the "NORM" mode.

Transmitter mode:"T-FHSS(NORM)", "T-FHSS(NORM)"and FHSS mode .

Receiver's battery   :Matched to the ratings of the receiver and connected servo (dry cell battery cannot be used).

The set cannot operate in the "HIGH" mode. Operation in this mode will cause trouble with the servo and other equipment.

Digital servos (including BLS Series brushless servos) can also be used in the "NORM" mode.

Reference
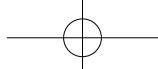
Warning Displays

Backup Error

LCD screen:

```
7=KJT LiFe
  MEMORY

  BACK UP

  ERROR


INITIALIZE

[████      ]
     41%
```
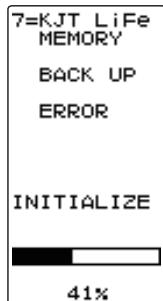
If the data is lost for an unknown reason, an audible alarm will sound and "MEMORY BACK UP ERROR" will be displayed on the LCD screen.

Audible alarm:
Tone will sound (9 times), then repeat.

⚠ **Warning**

❶ When a backup error is generated, immediately stop using the system and request repair from the Futaba Service Center.

If you continue to use the system, the transmitter may malfunction and cause loss of control

Low Battery Alarm

LCD screen:

```
  ALARM
   5.7v
 BATTERY
   LOW
 VOLTAGE
```
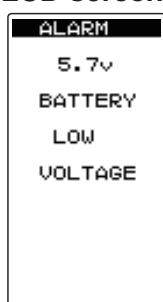
If the transmitter battery voltage drops to 4.1V(when using Futaba rechargeable type battery: 4.9V) or less, an audible alarm will sound and "BATTERY LOW VOLTAGE" will be displayed on the LCD screen.

Audible alarm:
Continuous tone.

⚠ **Warning**

❶ When a low battery alarm is generated, cease operation immediately and retrieve the model.

If the battery goes dead while in operation, you will lose control.

Power supply and low battery alarm

The T4GRS can use an optional rechargeable battery. However, the battery alarm setting is different from that of the dry cell battery (alkaline battery recommended). Therefore, always set the battery type to match the power source used. Always set the battery type to "N5/L2" especially when using a Futaba rechargeable type battery. If the set is used at "DRY4" setting, the time from low battery alarm to system stopping will become extremely short.

Memory Error

LCD screen:

```
6.1v
MAIN
MEMORY
ACCESS
ERROR
```
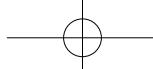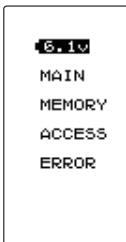
If the data in the transmitter is not transferred normally when the power is turned on, an audible alarm will sound and "MAIN MEMORY ACCESS ERROR" will be displayed on the LCD.

- To stop the alarm, turn off the power.
- Turn the power back on. If the alarm is not generated again, there is no problem.

Audible alarm:
Tone sounds (7 times) and stops (repeated)

MIX Warning

LCD screen:

```
WARNING
MIX WARN

IDLE UP
or
THOFF
or
NEUTRAL
BRAKE
```
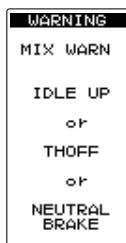
When the power switch is turned on while the idle-up, preset (engine cut) or neutral brake function switch is on, an audible alarm will sound and "MIX WARN" will be displayed on the LCD. When that function switch is turned off, the alarm will stop.

Audible alarm:
Tone sounds (7 times) and stops (repeated)

MIX Warning

LCD screen:

```
ALARM

POWER  SW
<<ERROR>>

PLEASE
CYCLE
POWER
```
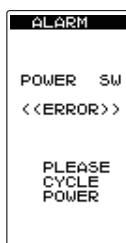
If the power switch is quickly switched from the DISP mode to the PW ON mode or vice versa, the switch error shown at the left may be generated. If this occurs, cycle the power.

Audible alarm:
Tone sounds (7 times) and stops (repeated)

Power off forgotten warning

LCD screen:

```
WARNING

OPE WARN

NOT
OPERATED
FOR A
LONG TIME
```
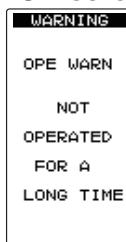
If the T4GRS is not operated for 10 minutes, an audible alarm is sounded and "OPE WARN" is displayed on the screen. The audible alarm stops when the steering stick, throttle stick, and any dial, switch, or edit button is operated. If you are not going to use the transmitter, turn the power off.

Audible alarm:
Tone sounds (7 times) and stops (repeated)

Throttle stick warning   *This function only operates when in "TH-STK : F10" mode.

LCD screen:

```
WARNING




THROTTLE
STICK
```
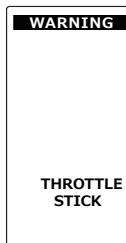
If the transmitter is switched on with the throttle stick above the slow position and alarm will sound. The alarm will stop when the stick is moved to the slow position. Ensure that the throttle stick is in the slow position when the transmitter is switched on.

Audible alarm:
Tone sounds (7 times) and stops (repeated)
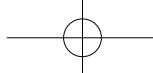
Optional Parts

The following parts are available as 4GRS options. Purchase them to match your application. For other optional parts, refer to our catalog.

Transmitter Battery

When purchasing a transmitter battery use the following:

Part name

HT5F1800B (6V/1800mAh) NiMH battery

FT2F1700V2(6.6V/1700mAh)/2100BV2 (6.4V/2100mAh) LiFe battery

Please do not use the transmitter batteries HT5F1800B and FT2F1700V2/2100BV2 as the receiver's battery.

Since the transmitter's battery has an overload protection circuit, the output power will be shut down when the high current load is applied. This may result in runaway or fatal crash.

Temperature Sensor (SBS-01T)

RPM Sensor (SBS-01RM)

Voltage Sensor (SBS-01V)

When requesting repair

Before requesting repair, read this manual again and recheck your system. Should the problems continue, continue as follows.

(Information needed for repair)

Describe the problem in as much detail as possible and send the letter along with the system in question.

- Symptom (Including the conditions and when the problem occurred)
- R/C System (Send transmitter, receiver and servos)
- Model (Type of model, brand name and model number or kit name)
- Detailed packing list (Make a list of all items sent in for repair)
- Your name, postal and e-mail address and telephone number.

(Warranty)

Read the Warranty card.

- When requesting warranty service, send the card or some type of dated proof purchase.
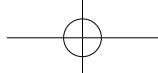
Federal Communications Commission Interference Statement (for U.S.A.)

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.

Compliance Information Statement (for U.S.A.)

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.

(3) This module meets the requirements for a mobile device that may be used at separation distances of more than 20cm from human body. To meet the RF exposure requirements of the FCC this device shall not be co-located with another transmitting device.

The responsible party for the compliance of this device is:

Futaba Service Center

3002 N Apollo Drive Suite 1, Champaign, IL 61822 U.S.A

TEL (217)398-8970 or E-mail: support@futaba-rc.com (Support)

CAUTION:

To assure continued FCC compliance:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Exposure to Radio Frequency Radiation

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be located or operating in conjunction with any other antenna or transmitter.