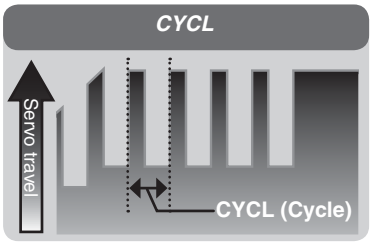
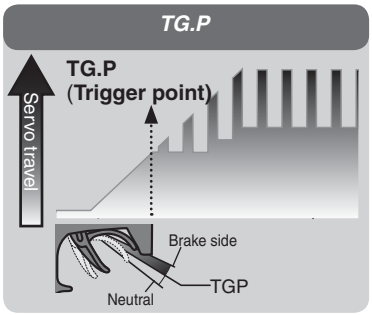
4 (Cycle speed adjustment)
Select setting item "CYCL" by the (JOG) button up or down operation. Use the (+) or (-) button to adjust the pulse speed (cycle).



Cycle speed (CYCL)
1 ~ 30
Initial value: 10
Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.
- Return to the initial value by pressing the (+) and (-) buttons simultaneously (approx. 1 sec).

- The smaller the set value, the faster the pulse speed.

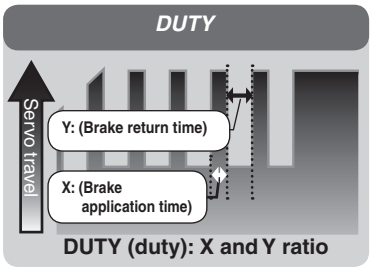
5 (Trigger point setup)
Select setting item "TG.P" by the (JOG) button up or down operation. Use the (+) or (-) button to adjust the operation point.



Trigger point (TG.P)
10 ~ 100
Initial value: 30
Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.
- Return to the initial value by pressing the (+) and (-) buttons simultaneously (approx. 1 sec).

- Sets the throttle trigger position at which the A.B.S. function is performed. The number is the % display with the full brake position made 100.

6 (Cycle duty ratio setup)
Select setting item "DUTY" bby the (JOG) button up or down operation. Use the (+) or (-) button to adjust the duty ratio.



Duty ratio (DUTY)
LOW - MID - HIGH
Initial value: MID
Adjustment buttons
- Use the (+) and (-) buttons to make adjustments.
- Return to the initial value by pressing the (+) and (-) buttons simultaneously (approx. 1 sec).

"LOW" :Brake application time becomes shortest. (Brakes lock with difficulty)
"HIGH" :Brake application time becomes longest (Brakes lock easily)
(Remark) For low grip, set at the LOW side and for high grip, set at the HIGH side.

7 When ending, return to the MENU1 screen by pressing the (JOG) button.

Dial / Trim Setting

The brake return amount (AB.P), delay amount (DELY) and cycle (CYCL) can be controlled with digital dial or digital trim, with the function switch dial function. (See page 65)

Switch setting

Use SW1or SW2 to switch the A.B.S. function ON/OFF.
See the function select switch dial function (See page 65).

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Fail Safe Unit

When the T4PLS is used with the Futaba fail safe unit (FSU), it will operate as described below. However, FSU-1 cannot be used at the high speed mode.

- When the FSU is connected to the throttle channel, and the A.B.S. function has been activated, the FSU LED will flash each time the servo operates. The reason for this is that the FSU responds to sudden data changes caused by A.B.S. function pumping operation. It does not mean that the fail safe function is activated. The servo will not be affected.

Example of A.B.S. function setting when BLS351 / BLS352 used (There will be a slight difference depending on the state of the linkage.)

- Basic setting

AB.P: Approx. 30% (If this value is too high, the braking distance will increase.)

CYCL: 5~7

DUTY: (When grip is low: LOW side, when grip is high: HIGH side)

DELY: 10~15%

TG.P: Approx. 70%

- When the wheels lock, or the car spins, when the brakes are applied fully

AB.P: Increase from 30%

DUTY: Shift to "LOW" side

DELY: Reduce the delay

- When the braking effect is poor and the braking distance is long when the brakes are applied fully

AB.P: Decrease from 30%

DUTY: Shift to "HIGH" side

DELY: Increase the delay

1/5 scale car and other independent brakes and ABS

ABS can be independently set for the brakes which are controlled by the 3rd CH and 4th CH by using the brake mixing (BRAKE MIX) function described on page 68. For more information, read the brake mixing (BRAKE MIX) item.

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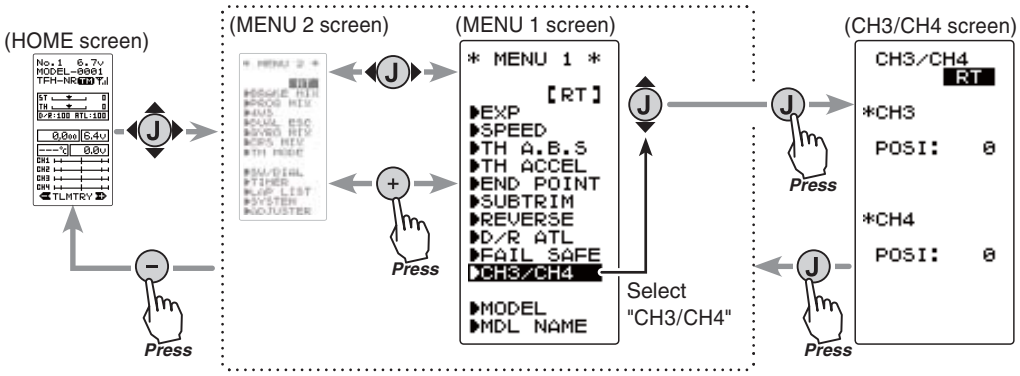
Channel3/4 "CH3/CH4" (3/4 channel)

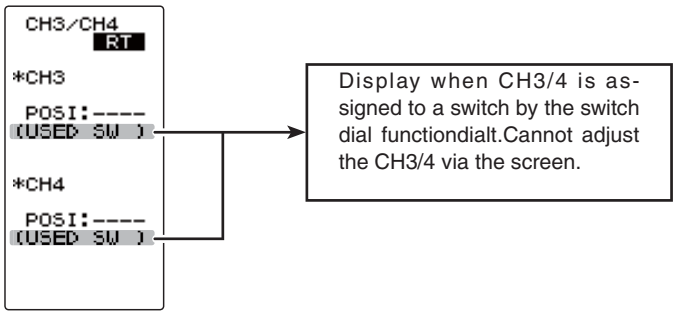
The channel 3/4 servo position can be set from the transmitter. When CH3 is assigned to a dial by the switch dial function (p.65), this setting is linked to that dial.

When CH3/4 is not assigned to a dial, it can be set with this screen.

When CH3/4 is assigned to a switch by the switch dial function (p.65), you cannot adjust the CH3/4 via the screen.

Display "CH3/CH4" screen by the following method:





Rate/position adjustment on channel menu screen

1 (Function selection)

On each CH3/CH4 screen select CH3 "POSI" or CH4 "POSI" by the (JOG) button up or down operation.

2 (Position setting/rate adjustment)

Use the (+) and (-) buttons to adjust the channel 3 or channel 4 position.

3 When ending, return to the MENU1 screen by pressing the (JOG) button.

Channel 3 position (POSI)
Channel 4 position (POSI)
0~100%
Initial value: 0

Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "100" by pressing the (+) and (-) buttons simultaneously for about 1 second.

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Steering Dual Rate/ Throttle ATL "D/R ATL"

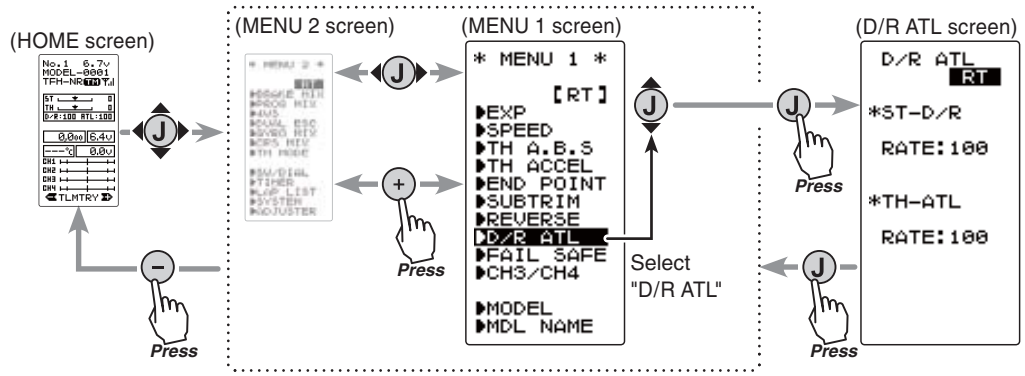
D/R (Steering dual rate)

The steering left and right servo travels are adjusted simultaneously. This setting is linked to transmitter grip dial DT3. When DT3 is assigned another function, dual rate can be adjusted with this screen.

ATL (Throttle ATL)

This function decreases the set value when the braking effect is strong and increases the set value when the braking effect is weak. This function is linked to transmitter grip dial DT4. When DT4 is assigned nother function, this function can be set with this screen.

Display "D/R ATL" screen by the following method:



Dual rate adjustment

1 (Dual rate adjustment)

Select the setting item ST-D/R "RATE" by (JOG) button up or down operation. Adjust the servo travel with the (+) and (-) buttons.

2 When ending, return to the MENU1 screen by pressing the (JOG) button.

D/R rate (RATE)
0~100%
Initial value: 100

Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "100" by pressing the (+) and (-) buttons simultaneously for about 1 second.

ATL function adjustment

1 (Brake amount adjustment)

Select the setting item TH-ATL "RATE" by (JOG) button up or down operation. Adjust the servo travel with the (+) and (-) buttons.

2 When ending, return to the MENU1 screen by pressing the (JOG) button.

ATL rate (RATE)
0~100%
Initial value: 100

Adjust button
- Adjust with the (+) and (-) buttons.
- Return to the initial value "100" by pressing the (+) and (-) buttons simultaneously for about 1 second.

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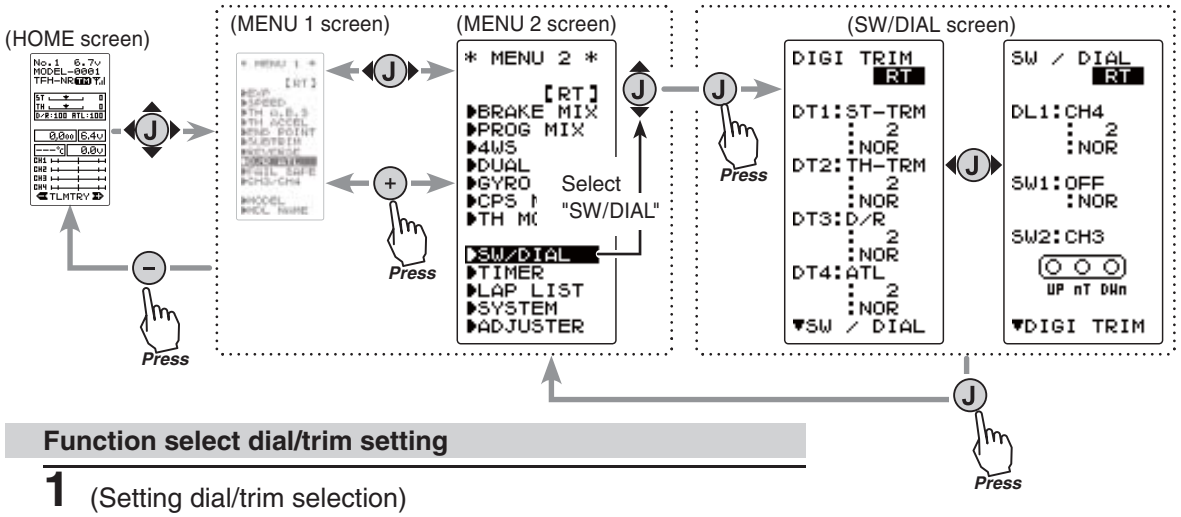
Select Switch Dial Function "SW/ DIAL"

Selection of the function to be performed by digital trim (DT1, DT2, DT3, DT4) dial (DL1) and switch (SW1, SW2).

- The functions that can be assigned to dial, digital trim and switch are listed on the next page.
- The dial and digital trim are step amount can be adjusted. (The relationship between set value and step amount is shown in the table on the next page.)
- The direction of operation of the servos can be reversed. (NOR/REV)
- SW1 alternate operation (operation which switches between ON and OFF each time the switch is pressed) is possible.

NOR (Normal) -ON only while pressed, OFF when released.
ALT (Alternate) -Switched between ON and OFF each time pressed.

Display "SW/DIAL" screen by the following method:



Function select dial/trim setting

1 (Setting dial/trim selection)

Select the dial or trim you want to set by the (JOG) button up or down operation.

2 (Function setting)

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

- Refer to the list on the next page for the abbreviations of the functions.

(Step amount setting)

Select the step amount you want to set by the (JOG) button up or down operation. Use the (+) or (-) button to set the step amount.

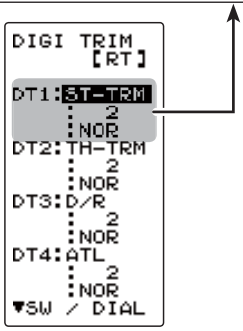
- Refer to the next page for the relationship between set value and step amount.

(Changing the direction of operation)

Select the Direction of operation you want to set by the (JOG) button up or down operation. Use the (+) or (-) button to trim/dial the direction.

3 When ending, return to the MENU1 screen by pressing the (JOG) button.

*Function selection
*Step amount setting
*Direction of operation setting



Adjust button

Adjust with the (+) and (-) buttons.

- Return to the initial value "2" by pressing the (+) and (-) buttons simultaneously for about 1 second.

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Function select switch setting

1 (Setting SW selection)

Select the SW you want to set by the (JOG) button up or down operation.

2 (Function setting)

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

-Refer to the list for the abbreviations of the functions.

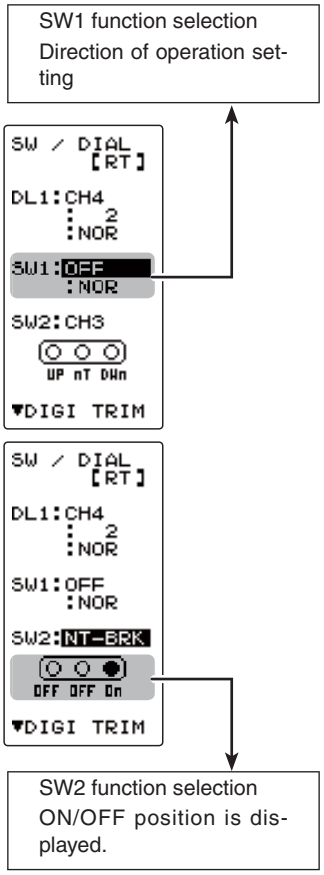
(Changing the SW1operation system)

Select DIR of <SW1> by the (JOG) button up or down operation. Select ALT or NOR with the (+) or (-) button.

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

Adjust button

Adjust with the (+) and (-) buttons.



Set table functions (DL1, DT1/DT2/DT3)	
Abbreviation used on setup screen	Function name, etc
D/R	Dual rate function
ATL	ATL function
EXP-ST	Steering EXP
EXP-FW	Throttle EXP (Forward side)
EXP-BK	Throttle EXP (Brake side)
SPD-TN	Steering speed (Turn side)
SPD-RN	Steering speed (Return side)
ABS.PS	A.B.S. function (Return amount)
ABS.DL	A.B.S. function (Delay)
CYCLE	A.B.S. function (cycle speed)
ACC-FW	Throttle acceleration (Forward side)
ACC-BK	Throttle acceleration (Brake side)
TH-SPD	Throttle speed
ST-TRM	Steering trim
TH-TRM	Throttle trim
CH3	Channel 3
CH4	Channel 4
SUBTR1	Sub trim (CH1)
SUBTR2	Sub trim (CH2)
SUBTR3	Sub trim (CH3)
SUBTR4	Sub trim (CH4)
IDLE	Idle up function
ESC-RT	Dual ESC mixing (4ch ESC rate)
TH-OFF	Throttle off (engine cut)
PMX-A	Program mixing (RGHT/BRAK/DOWN sides)
PMX-B	Program mixing (LEFT/FWRD/UP sides)
BK3-RT	Brake mixing (3ch brake rate)
BK4-RT	Brake mixing (4th brake rate)
4WS-RT	4WS mixing (3ch steering rate)
ESC-MD	Dual ESC mixing (Drive mode select)
GYRO	Gyro mixing (Gain rate)
OFF	Not used

Relationship between set value and step amount

(Setting range: 1~10, 20, 30, 40, 50, 100, 2P)

-Steering trim/throttle trim

When set to the minimum "1", the total trim operating width is 200 clicks. For "100", the total operating width is 2 clicks and for 2P, the total operating width is 1 click.

-Rate, etc. setting

This is the % value which is operated by 1 click relative to the set value of each rate. Since the total operating width of functions having a rate of -100~0~+100 is 200%, when set to "100", the total operating width is 2 clicks. Since the total operating width of functions with a 0~100 rate is 100%, "100" and 2P are operated by 1 click.

-Channel 3/4

When set to the minimum "1", the total operating width of channel 3 is 200 clicks. For "100", the total operating with is 2 clicks and 2P is operated by 1 click.

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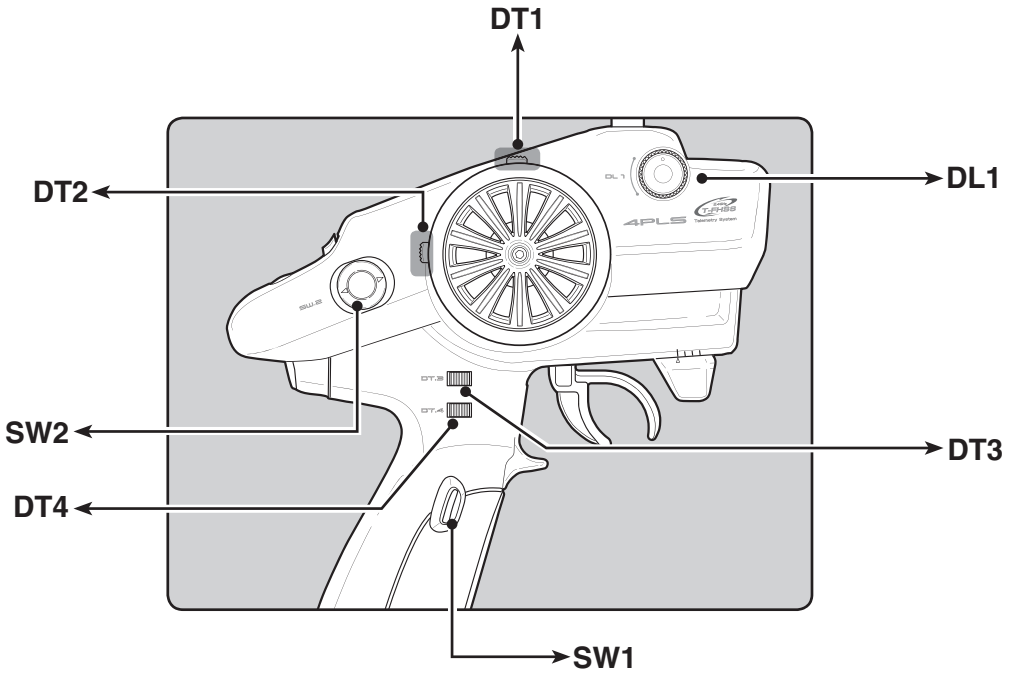

Set table functions (SW1)	
Abbreviation used on setup screen	**Function name, etc**
NT-BRK	Neutral brake function ON/OFF
ABS	A.B.S function ON/OFF
IDLE	Idle up function ON/OFF
PRGMIX	Program mixing function ON/OFF
TH-OFF	Throttle off (engine cut) function ON/OFF
CH3	channel 3
CH4	channel 4
4WS MIX	4WS mixing type select
TIMER	Timer function start/stop
LOGGER	Telemetry log start/stop
GYRO	Switching GYRO mode
OFF	Not used

Set table functions (SW2)	
Abbreviation used on setup screen	**Function name, etc**
NT-BRK	Neutral brake function ON/OFF
ABS	A.B.S function ON/OFF
IDLE	Idle up function ON/OFF
PRGMIX	Program mixing function ON/OFF
TH-OFF	Throttle off (engine cut) function ON/OFF
CH3	channel 3
CH4	channel 4
OFF	Not used

Function Select Trim Dial "TRIM DIAL"

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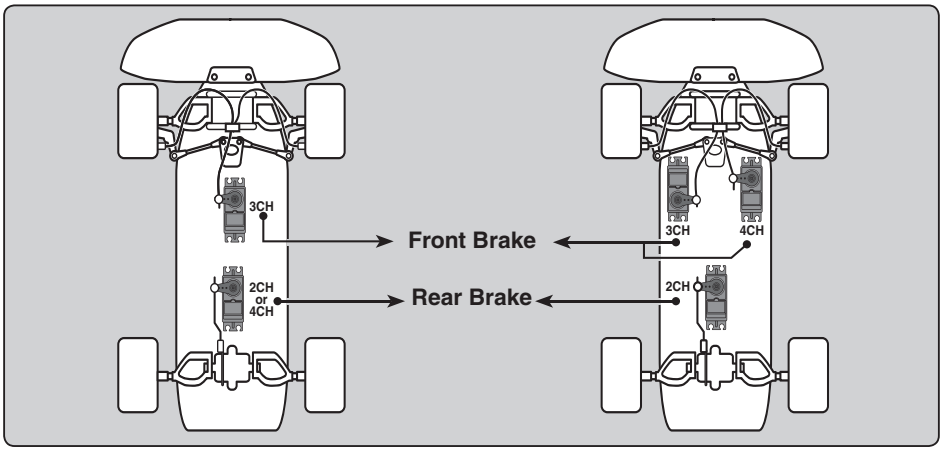
Brake Mixing "BRAKE MIX" (Throttle, 3rd /4th channel system)

This function is used when the front and rear brakes must be adjusted independently such as a 1/5 scale GP car. This mixing uses the 2nd CH for the rear brakes and the 3rd or 4th CH for the front brakes, or controls the front brakes with the 3rd CH and 4th CH servos, or controls the 2nd CH by independent throttle and controls the rear and front brakes with the 3rd CH and 4th CH.



Operation

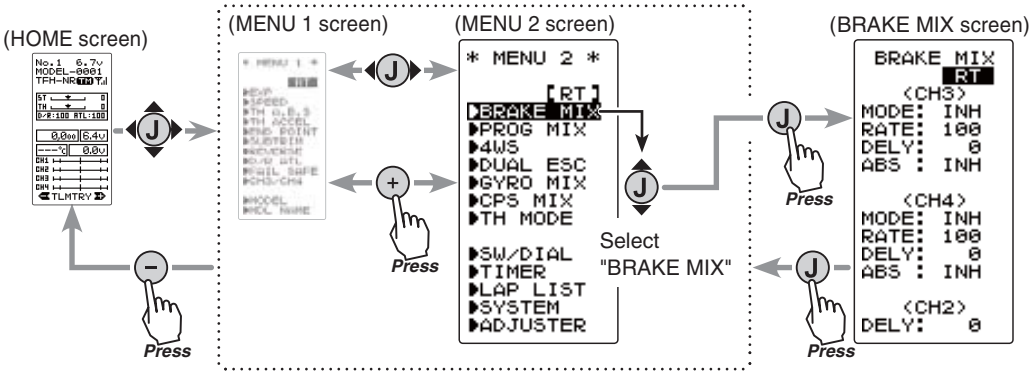
-When braking, mixing is applied to 2nd CH→3rd CH, 4th CH.

-3rd CH and 4th CH brake amount, 2nd CH, 3rd CH, and 4th CH brake delay, and 3rd CH and 4th CH brake ABS can be set.

CH3/4 brake ABS function

The ABS function can be used independently at the CH3 and CH4 sides even when the CH2 side ABS function is OFF. The amount of pumping speed (CYCL), operation point (TG.P), and duty ratio (DUTY) can be set in common with the CH2 side ABS function. (CH3 and CH4 brake return (AB.P) is fixed at 50.)

Display "SW/DIAL" screen by the following method:



Setup item

<CH3>		<CH4>		<CH2>	
MODE	: Brake function ON/OFF	MODE	: Brake function ON/OFF	DELY	: Delay amount
RATE	: Brake rate	RATE	: Brake rate		
DELY	: Delay amount	DELY	: Delay amount		
ABS	: ABS. function ON/OFF	ABS	: ABS. function ON/OFF		

Brake Mixing "BRAKE"

Function

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Brake mixing adjustment

1 (Brake mixing function ON/OFF)

Using the (JOG) button, select "MODE" of <CH3> for CH3 brake and "MODE" of <CH4> for CH 4 brake.

Use the (+) or (-) key and set the function to the "ACT" state.

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

- When "(4WS>OFF)" is displayed below <CH3>ABS, the CH3 brake cannot be used if the 4WS function is not set to "ACT".

- When "(ESC>INH)" is displayed under <CH4>ABS, the CH4 brake cannot be used if the dual ESC function is not set to "INH".

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

2 (Brake rate)

Using the (JOG) button, select "RATE" of <CH3> for CH3 brake and "RATE" of <CH4> for CH 4 brake , and use the (+) and (-) buttons to adjust the Brake rate amount.

Brake rate (RATE)
0 ~ 100
Initial value:100

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

3 (Delay amount setup)

Using the (JOG) button, select "DELY" of <CH3> for CH3 brake, "DELY" of <CH4> for CH 4 brake and "DELY" of <CH2> for CH 2 brake. Use the (+) and (-) buttons to adjust the delay amount.

"0" : No delay
"100" : Maximum delay amount

Delay amount (DELY)
(CH3) 0 ~ 100
(CH4) 0 ~ 100
(CH2) 0 ~ 100
Initial value:0

4 (3rd & 4th channels brake-A.B.S ON/OFF)

Using the (JOG) button, select "ABS" of <CH3> for CH3 brake and "ABS" of <CH4> for CH 4 brake.

Use the (+) or (-) key and set the function to the "ACT" state.

Function ON/OFF (ABS)
INH, ACT
Select button
- Select with the (+) or (-) buttons.

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

Setting the 4WS mixing/dual ESC function

To use CH3 of the brake mixing function, 4WS mixing (p.72) must be set to "INH".
To use CH4 of the dual ESC function (p.74) and CPS mixing (p.78) must be set to "INH".

Dial / Trim Setting

The function select switch dial function can control the 3rd/4th channels. Brake rate (RATE) can be controlled with digital dial or digital trim, using the function select dial function. (See page 65)

Brake Mixing "BRAKE"

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Programmable Mix "PROG MIX" (All channels)

This function allows you to apply mixing between the steering, throttle, channel 3 and channel 4.

Additional Functions

-When the steering or throttle channel is the master channel (channel that applies mixing), trim data can be added. (Trim mode)

- The mixing mode selection. (Master mixing mode)

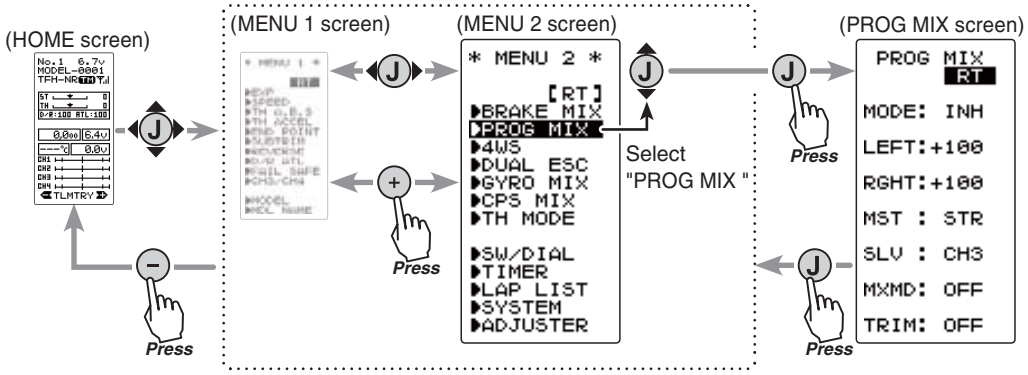
Relating function

steering	:EPA, STR EXP, D/R, SPEED, 4WS
throttle	:EPA, THR EXP, ATL, ABS, SPEED, BRAKE MIX, NT-BRK, ESC MIX, TH ACCEL
CH3	:EPA,BRAKE MIX,4WS
CH4	:EPA,BRAKE MIX,ESC MIX

Movement of the slave channel side

The movement of the master channel side will be added to the movement of the slave channel side.

Display "PROG MIX" screen by the following method:



Setup items

MODE	: Function ON/OFF	SLV	: Slave channel
LEFT	: Mixing rate (Left side)	MXMD	: Mix mode
RGHT	: Mixing rate (Right side)	TRIM	: Trim mode
MST	: Master channel		

Program mixing adjustment

(Preparation)

- When "PROG MIX" is turned ON and OFF by switch, set the switch by select switch dial function (p.65).

Function SW
PROGMIX

1 (Mixing function ON/OFF)

Select the setting item "MODE" by the (JOG) button up or down operation. Use the (+) or (-) and set the function to the "ON" or "OFF" state.

"INH" : Function OFF
"ON" : Function ON. When the switch is OFF, "OFF" is displayed.

Function ON/OFF (MODE)
INH,ON(OFF)
Select button
- Select with the (+) or (-) buttons.

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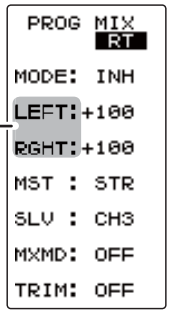
2 (Master channel)

Select setup item "MST" y the (JOG) button up or down operation, and select the master channel by pressing the (+) or (-) button.

These setup items are different depending on the master channel.
Upper side : LEFT/FWRD/UP
Lower side : RGHT/BRAK/DOWN



Program mixing function

Channel selection (MST)
STR, THR, CH3, CH4
Initial value :STR
Select button
- Select with the (+) or (-) buttons.

3 (Slave channel)

Select setup item "SLV" by the (JOG) button up or down operation, and select the slave channel by pressing the (+) or (-) button.

Channel selection (SLV)
STR, THR, CH3, CH4
Initial value :CH3
Select button
- Select with the (+) or (-) buttons.

4 (Left, forward or up side mixing amount adjustment)

Select the setting item "LEFT", "FWRD", or "UP" by the (JOG) button up or down operation. Use the (+) or (-) button and adjust the left, forward, or up side mixing amount.

Mixing amount
-120~0~+120
Initial value: +100
Adjust button
- Use the (+) and (-) buttons to make adjustments.
- Return to the initial value "100" by pressing the (+) and (-) buttons simultaneously for about 1 second.

5 (Right, brake or down side mixing amount adjustment)

Select the setting item "RGHT", "BRAK", or "DOWN" by the (JOG) button up or down operation. Use the (+) or (-) button and adjust the right, brake, or down side mixing amount.

Mixing amount
-120~0~+120
Initial value: +100

6 (Mixing mode setup)

Select setup item "MXMD" by the (JOG) button up or down operation, and use the (+) or (-) button to select the mixing mode.

"OFF" :Mixing proportional to master channel operation.
"MIX" :Mixing by master channel another function considered.

Mixing mode (MXD)
OFF, ON
Initial value: OFF
Select button
- Select with the (+) or (-) buttons.

7 (Trim mode setup)

Select setup item "TRIM" by the (JOG) button up or down operation, and use the (+) or (-) button to select the mixing mode.

"OFF" :Trim is removed.
"ON" :Trim is added.

Trim mode (TRIM)
OFF, ON
Initial value: OFF
Select button
- Select with the (+) or (-) buttons.

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

Switch / Dial / Trim Setting

Select the program mixing function ON/OFF switch with the function select switch dial function. Mixing rate (RATE) can be controlled with digital dial or digital trim, using the function select switch dial function. (See page 65)

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4WS Mixes "4WS" (Steering, 3rd channel system)

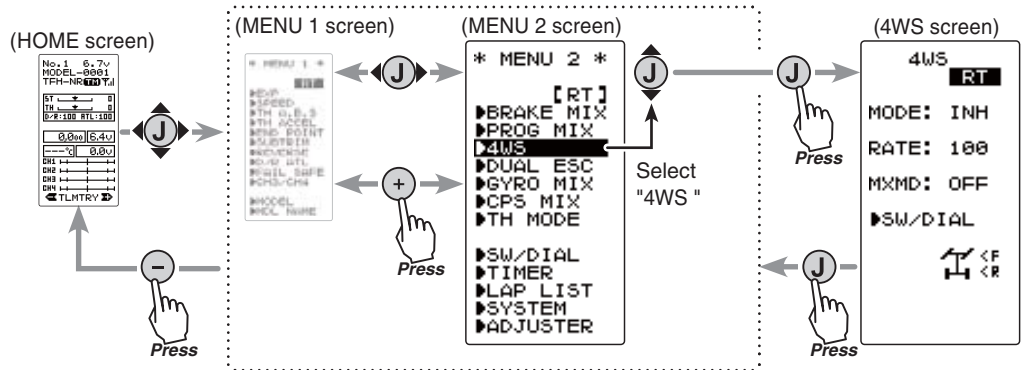
This function can be used with crawlers and other 4WS type vehicles. It is mixing which uses the 1st CH to control the front side steering and the 3rd CH to control the rear side steering.

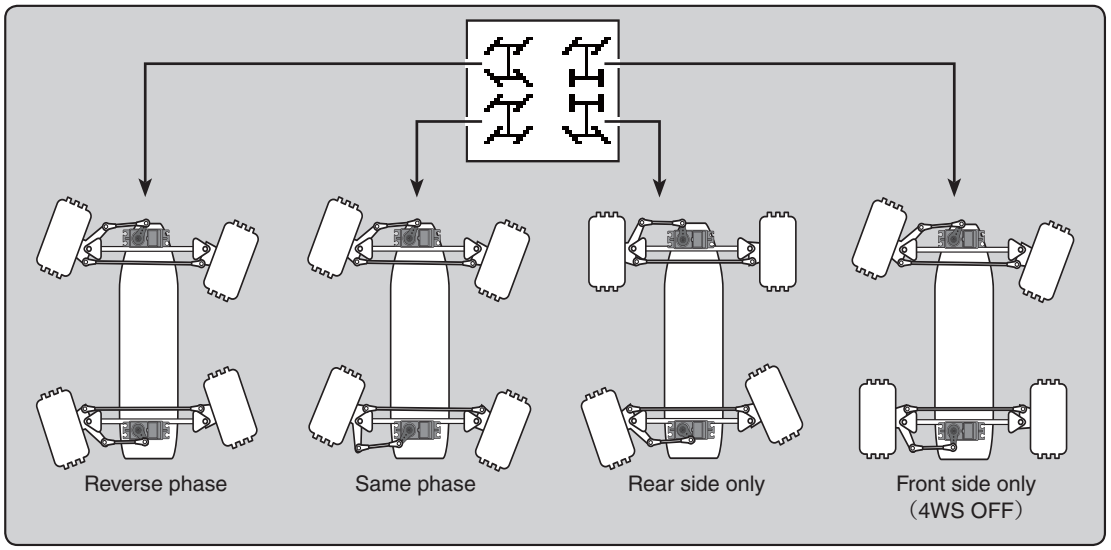
OFF (front side only), reverse phase, same phase, rear side only and other 4WS type switching is used by selecting SW1 with the function select switch function (p.65). If not selected, <NO SW> is displayed. Therefore, select SW1.

Setting Special mixings

When the 3rd CH was set to ACT at Brake Mixing (p.68) or when Gyro Mixing (p.76) is used, 4WS mixing cannot be used.

Display "4WS" screen by the following method:





4WS mixing adjustment

(Preparation)

Since this function is used by switching the type of 4WS with a switch, the switch used by the function select switch dial function (page 65) is set.

Setup items

MODE : 4WS Type
RATE : 3ch rate (Rear side)
MXMD : Mix mode

Function SW

4WS

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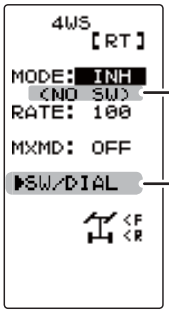
1 (4WS type selection)

Select the setting item "MODE" by the (JOG) button up or down operation. Use the (+) or (-) and set the function to the "ON" or "OFF" state.



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

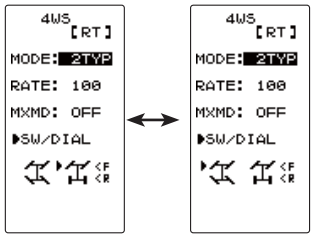
The function select switch screen (P65) can be displayed from this screen.

"INH" :Function OFF (front only)
"2TYP" :Front side only, reverse phase switching
"3TYP" :Front side only, reverse phase and same phase switching
"4TYP" :Front side only, reverse phase, same phase, and rear side only switching

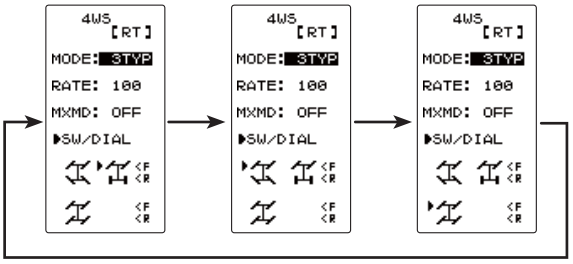
Function ON/OFF (MODE)
OFF, 2TYP, 3TYP, 4TYP

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

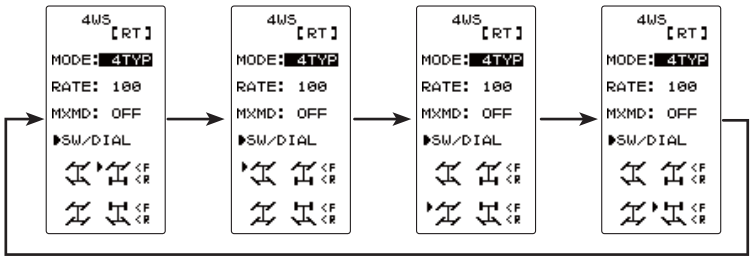
Switched in the order shown in the figure below by set SW



"2TYP" : Front side only and reverse phase switching



"3TYP" : Front side only, reverse phase, and same phase switching



"4TYP" : Front side only, reverse phase, same phase, and rear side only switching

2 (Rear side travel adjustment)

Select setting item "RATE" by the (JOG) button up or down operation. Adjust the rear side travel with the (+) or (-) button.

Rear rate (RATE)
0 ~ 100
Initial value:100

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

3 (Mix mode setting)

Select setting item "MXMD" by the (JOG) button up or down operation. Set the mix mode with the (+) or (-) button.

"OFF" :The EXP function of the 1st CH and other settings are not mixed.
"ON" :The EXP function o the 1st CH and other settings are mixed.

Mixing mode (MXMD)
OFF, ON
Initial value: OFF

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

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

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Dual ESC Mixing "DUAL ESC" (Throttle system)

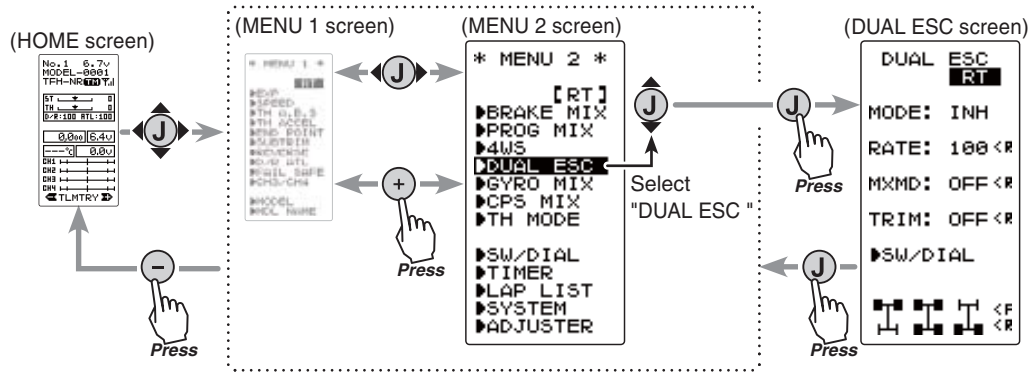
This function is mixing used with crawlers and other 4WD type vehicles and uses the 2nd CH to control the front motor controller and the 4th CH to control the rear motor controller.

Front drive only, rear drive only, or both front and rear drive can be selected using any programmed DT (digital trim) button.

Setting Special mixings

When the 4th CH was set to ACT at Brake Mixing (p.68) or when CPS Mixing (p.78) is used, Dual ESC mixing cannot be used.

Display "DUAL ESC" function screen by the following method:.



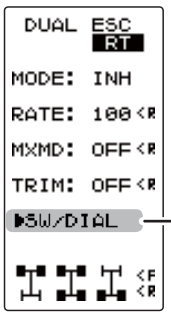
Setup items

MODE : Function ON/OFF
RATE : 4ch rate (Rear side)
MXMD : Mix mode
TRIM : Trim mode

Dual ESC mixing adjustment

(Preparation)

- This function is used to switch between front drive/4WD/rear drive using one of the dial (trim). Set the desired dial (trim) for this function using the SW/DIAL screen (p.65).



Function SW

ESC-MD

The function select switch screen (P65) can be displayed from this screen.

1 (Dual ESC setting)

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

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

Function ON/OFF (MODE)

INH, ACT

Select button

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

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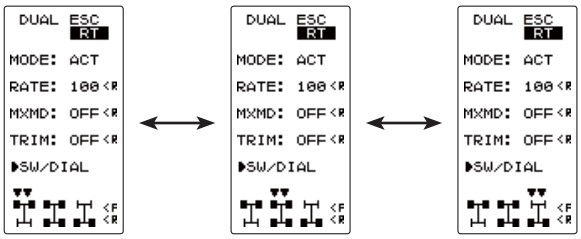
The programmed DT button is used to select the drive type as shown in the figure below.



2 (Rear side travel adjustment)

Select the setting item "RATE" the (JOG) button up or down operation. Use when applying a rotation difference to the front and rear wheels by adjusting the rear (CH4) motor controller travel with the (+) or (-) button.

Rear rate (RATE)
0 ~ 120
Initial value:100

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

3 (Mix mode setting)

Select the setting item "MXMD" the (JOG) button up or down operation. Set the mix mode with the (+) or (-) button.

"OFF" : CH2 EXP function and other settings are not mixed.
"ON" : CH2 EXP function and other settings are mixed.

Mixing mode (MXMD)
OFF, ON
Initial value: OFF

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

4 (Trim mode setting)

Select the setting item "TRIM" the (JOG) button up or down operation. Set the trim mode with the (+) or (-) button.

"OFF" : Front side (CH2) trim data is not included.
"ON" : Front side (CH2) trim data is included.

Trim mode (TRIM)
OFF, ON
Initial value: OFF

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

5 When ending, 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 4th channel's ESC (Rear side) rate (RATE) with digital dial or digital trim, using the function select switch dial function. (See page 65)

Note:

As this function drives 2 separate motor controllers simultaneously, a mutual load is applied. Use this function carefully so that the motor controllers are not damaged. Futaba will not be responsible for motor controller, motor, and other vehicle trouble due to use of this function.

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Gyro Mixing "GYRO MIX" (Steering system)

This function is a remote gain function which adjusts the sensitivity of the Futaba car rate gyro at the T4PLS side, and is mixing that uses the 3rd CH to adjust the gyro sensitivity.

When using the T4PLS by switching the AVCS and normal modes use SW1 with the function select switch function (p.65).

For a description of the car rate gyro mounting method and handling, refer to the rate gyro instruction manual.

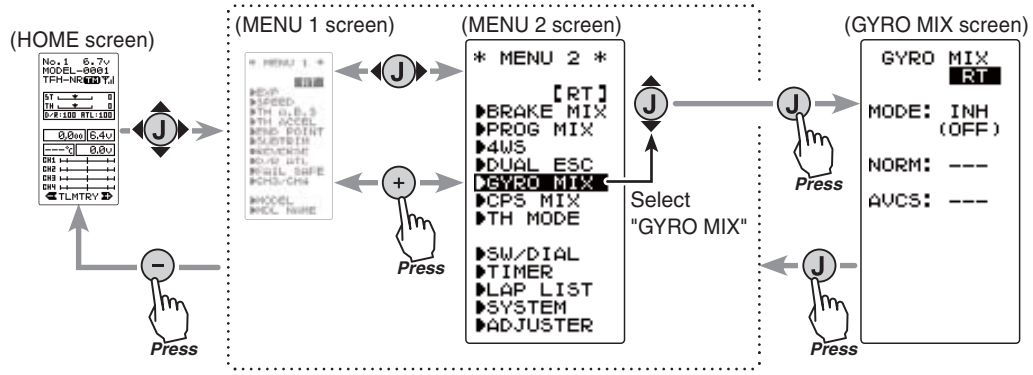
Setting Special mixings

When the 3rd CH was set to ACT at Brake Mixing (p.68) or when 4WS Mixing (p.72) is used, Gyro mixing cannot be used.

Dial / Trim Setting

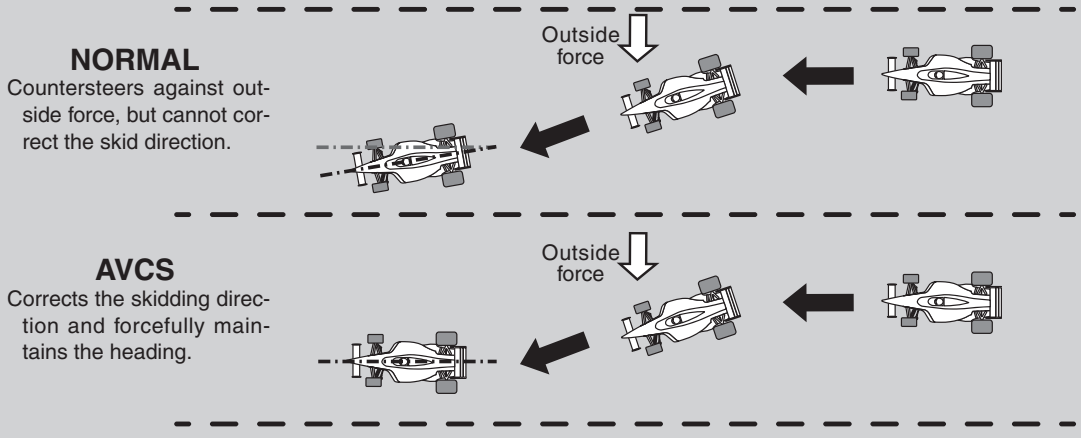
The gain amount can be adjusted by using the function switch dial function (p.65).

Display "GYRO MIX" screen by the following method:



AVCS / NORMAL Modes

The gyro has 2 operating modes: NORMAL mode and AVCS mode. In the AVCS mode, the angle is controlled simultaneously with NORMAL mode rate control (swing speed). The AVCS mode increases straight running stability more than that of the NORMAL mode. Because the feel of operation is different, choose your favorite mode.



Gyro mixing "GYRO MIX"

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Gyro mixing adjustment

(Preparation)

- Refer to the gyro instruction manual and connect the gyro to the receiver. When using remote gain, connect gyro sensitivity adjustment to the 3rd CH of the receiver.

- When using gyro mixing by switching between the NORM (normal) and AVCS modes, use the function select switch dial function (p.65) to set the switch to be used.

Setup items
MODE : Gyro mode
NORM : Normal mode gain
AVCS : AVCS mode gain

Function SW
GYRO
SW type
ALT

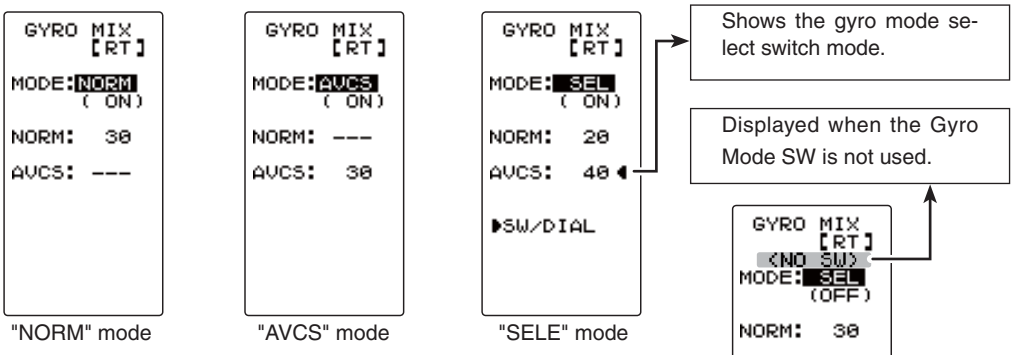
1 (Gyro mixing setting)

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

Function selection (MODE)
INH, NORM, AVCS, SEL

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

"INH" : Function OFF
"NORM" :NORMAL mode gain
"AVCS" :AVCS mode gain
"SEL" :Switching Normal mode and AVCS mode
(Displayed <NO SW> when the Gyro Mode SW is not used.)



2 (NORMAL side gain adjustment)

Select the setting item "NORM" by the (JOG) button up or down operation. Adjust the NORMAL side gain with the (+) or (-) button.

(AVCS side gain adjustment)

Select the setting item "AVCS" by the (JOG) button up or down operation. Adjust the AVCS side gain with the (+) or (-) button.

NORMAL / AVCS gain (NORM / AVCS)
0 ~ 120
Initial value:30

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

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

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CPS Mixing "CPS MIX"

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

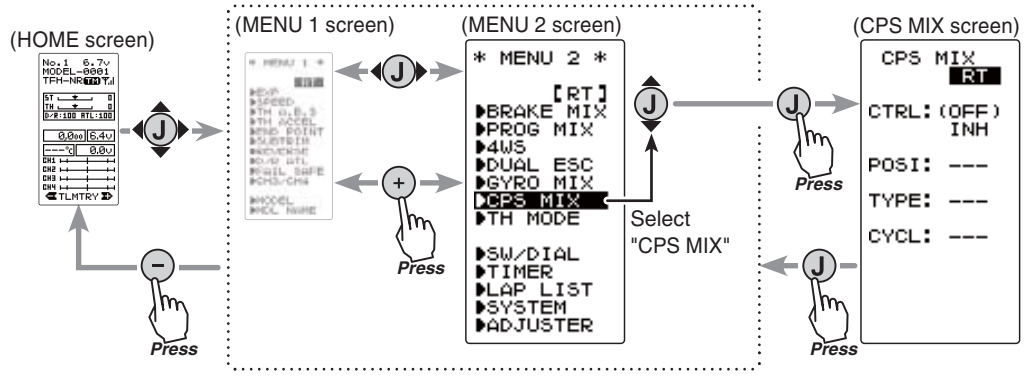
Normally, when using the CPS-1 unit to light the vehicle dress-up and other illumination (LED) the CPS-1 unit with LED connected is connected to a vacant switch channel and the LEDs are turned on and off by switch while the vehicle is running. However, when the CPS-1 mixing (CPS MIX) function is used, 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 by throttle brake side operation.

Setting Special mixings

When the 4th CH was set to ACT at Brake Mixing (p.68) or when Dual ESC Mixing (p.78) is used, CPS mixing cannot be used.

Display "CPS MIX" screen by the following method:



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 (p.65) to set the switch to be used.

Function SW
CH4

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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.

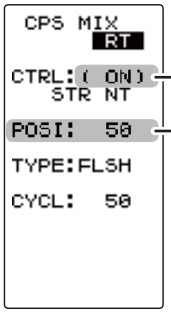
"INH" : Function OFF
"CH4 FUNC" : ON/OFF by switch set at the 4th CH
"STR NT" : ON at steering neutral
"STR END" : ON at both sides of steering
"THR NT" : ON at throttle neutral
"THR FWD" : ON at throttle forward side
"THR BRK" : ON at throttle back (brake) side
"TH NT+BK" : ON at throttle neutral and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



Shows the ON/OFF state

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

3 (ON/OFF type setup)

Select the setting item "TYPE" by 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" by 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 ending, return to the MENU2 screen by pressing the (JOG) button.

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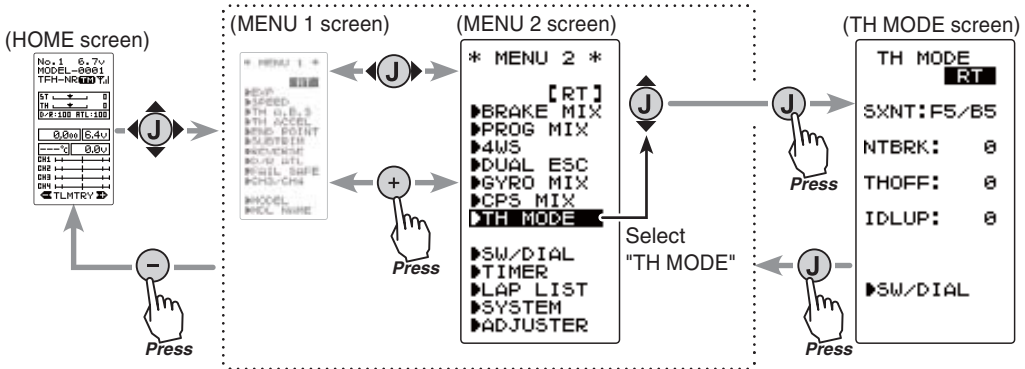
Throttle Mode "TH MODE" (Throttle system)

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 trigger
- 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 trigger.

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 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.

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

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Idle-Up "IDLUP"

This is a function select switch dial function. The idle up ON/OFF switch must be set. (P65)

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 prevent the braking when the power was 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

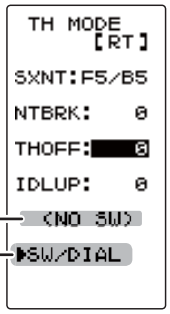
The throttle neutral position is offset to the forward side or brake side. There is no linkage locking, etc. because there is no change near the maximum operation angle even when the neutral position is offset by this function.

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 (p.65) can be displayed from this screen.



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 display

Idle-Up function adjustment

(Preparation)

- Use the function select switch dial to select the switch. (p.65)

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

2 When ending, 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.

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

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

Dial / Trim Setting

The function select dial function can control the Idle-up rate with digital dial or digital trim. (See page 65)

Throttle Mode "TH MODE"

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Neutral Brake "NTBRK"

This is a function select switch dial function. The neutral brake function ON/OFF switch must be set. (P65)

The neutral brake, which applies the brakes at the neutral position of the throttle trigger, 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 (P81). In addition, when the idle up function or throttle off function (P83) is set, this function has a higher priority than the neutral brake function.

Reference

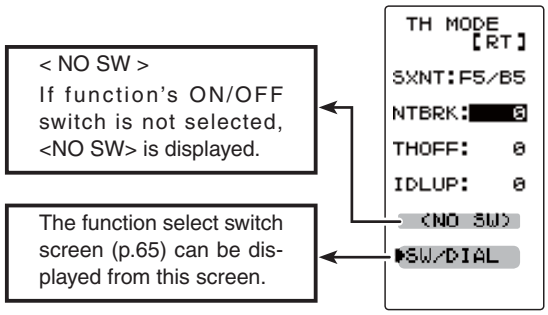
The ESC neutral brake function and T4PLS neutral brake function can be used simultaneously. However, when setting is difficult to understand, we recommend that only one neutral brake function be used.

Dial / Trim Setting

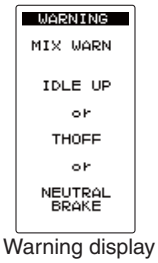
When the neutral brake function is "ON", the neutral brake rate adjustment is automatically assigned to the throttle trim (DT1/2/3/4 or DL1).

Operation display

An LED blinks while the neutral brake function is active.



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 display

Neutral Brake function adjustment

(Preparation)

- Use the function select switch dial to select the switch. (p.65)

1 (Neutral brake rate)

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

2 When ending, 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.

Throttle Mode "TH MODE"

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Throttle Off (engine cut) "THOFF"

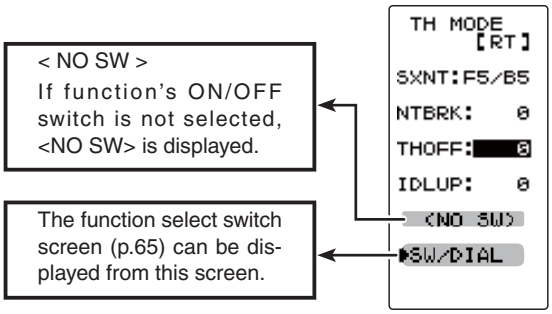
This is a function select switch dial function. The throttle off function ON/OFF switch must be set. The engine cut function stops the engine of a boat, etc. by operating the throttle servo to the slow side by switch regardless of the position of the throttle trigger and the setting of other functions (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. (See page 65)

Operation display

An LED blinks while the neutral brake function is active.



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 display

Engine Cut function adjustment

(Preparation)

- Use the function select switch dial to select the switch. (p.65)

1 (Preset position setup)

- Select the setting item "THOFF" by the (JOG) button. Use the (+) and (-) buttons to set the preset position of the throttle servo.

2 When ending, 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 operate 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 trigger is operated. If the servo was operated at the wrong setting, you may lose control of the car (boat).

Throttle Mode "TH MODE"

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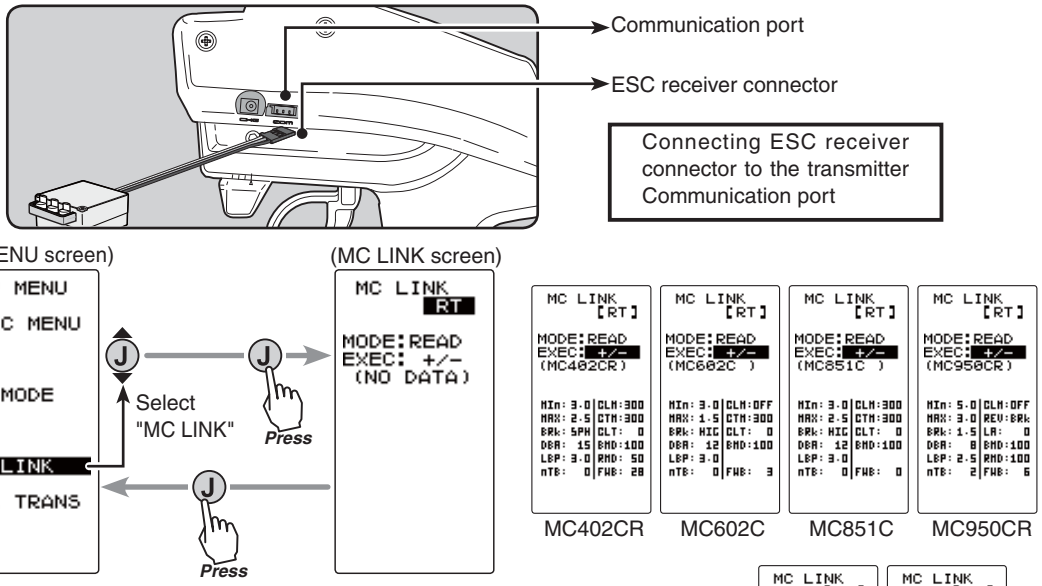
ESC Link Function "MC LINK"

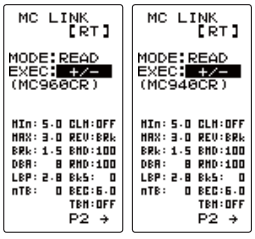
This is a special function which lets you set the contents of the Link software which performs Futaba speed controller (ESC), MC960CR, MC940CR, MC950CR, MC851C, MC602C, MC402CR, etc. variable frequency and other data changes at the T4PLS transmitter. However, some data changes require a PC and Link software. This function is used by connecting ESC directly to the transmitter. The T4PLS power switch is used at 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 T4PLS or the last data written from T4PLS to ESC is saved to the T4PLS. Since the data for each model memory can be saved, the data of up to 40 models can be saved.

-When the T4PLS 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 T4PLS an MC940/960CR whose speed was set to over 99990rpm by Link software side Boost Angle rpm setting.

Connection diagram



MC402CR MC602C MC851C MC950CR



MC960CR MC940CR

Using the ESC Link function

(Preparation)

-Connect the T4PLS 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 T4PLS, rewrite the read data.

When you want to write the data saved in the T4PLS to an ESC of the same type, execute the following "WRITE"(write) without executing "READ"(read).

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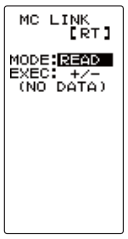
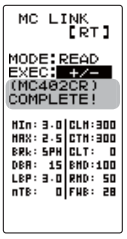
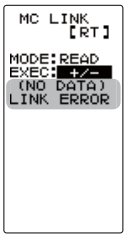
a -Select the setting item "MODE" by the (JOG) button, and select "READ" by (+) or (-) button.

b -Select the setting item "EXEC:+/-" by 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 T4PLS and ESC connection and the battery connection to ESC and the ESC power switch and repeat steps a→b.







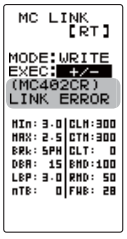
3 (Writing to ESC)

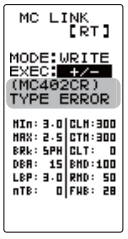
Execute this function to write the setting data to ESC. See pages 84~85 for the setting data contents.

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

b -Select the setting item "EXEC:+/-" by 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 T4PLS 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 T4PLS 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.





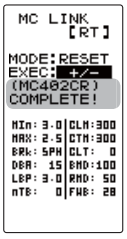
4 (Initialization)

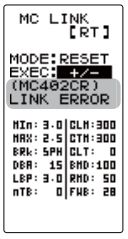
This function writes the MC setting data set at the factory to the connected MC and T4PLS. Perform "READ" before performing initialization.

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

b -Select the setting item "EXEC:+/-" by 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 T4PLS 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 T4PLS screen "RESET" cannot be selected because there is no write initial data.





Function

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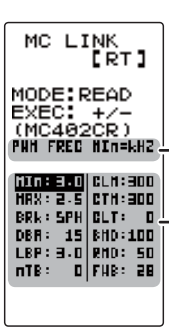
ESC function setup (MC601/602/850/851C, 401/402/950CR)

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

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



The currently set item is displayed here.

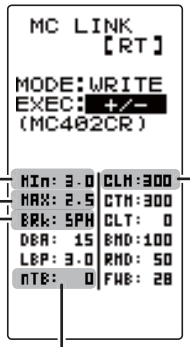
The item indicated by the reverse displayed cursor is selected.

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.



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.
Make 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 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.

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

2.5V~7.5V for MC950CR

Same as Link software Low Bat Protection

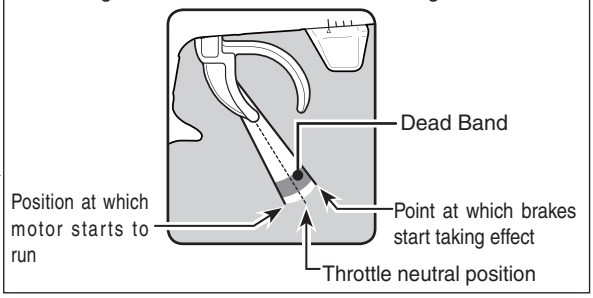
This setting cuts off the output to the motor when the running battery voltage drops to the set voltage to prevent the receiver from stopping operation when the supply of voltage to the receiver becomes in sufficient while running due to a drop in the power supply voltage. When the power supply voltage recovers, power is supplied to the motor once more.

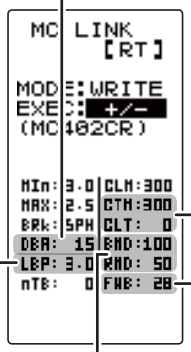
DBA-(DEAD BAND) ±2µs~±50µs

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.





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 the set time lapse 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.

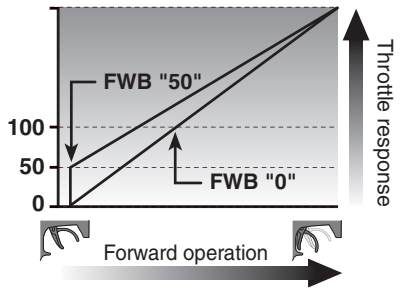
- "CTM" (Time Limit) sets the maximum output current within the time the output current is limited.
- "CLT" sets the time the output current is limited. This function is disabled when set to "0" sec.

Since the Current Limit Timer starts when the throttle is operated to the forward side 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 trigger (stick) neutral position becomes a sharp rise.



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

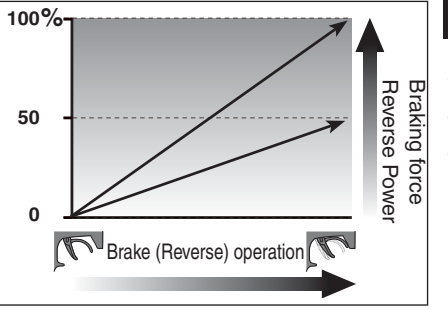
Same as Link software Brake Max. Duty.

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.

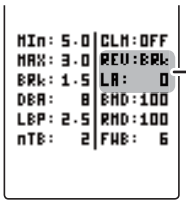
RMD-(REVERSE MAX DUTY) w/back only 0%~100%

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%", the reverses are not effective.



MC950CR only setup item



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

When set to BRk, reverse operation is not performed.

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 normally be set to "0". Since this setting is premised on setting by referring to the speed log by the Link software, independent use of the MC LINK function of the T4PLS is recommended.

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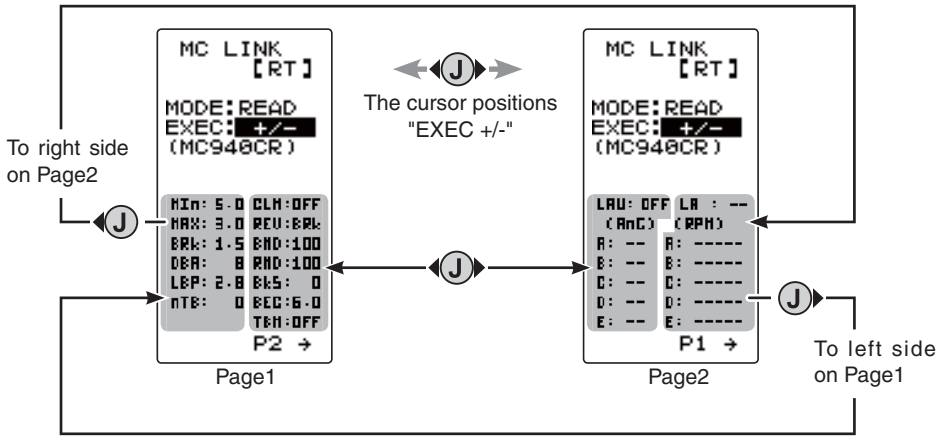
ESC function setup (MC940CR, MC960CR)

1 Select the setting item by 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).



Setup item

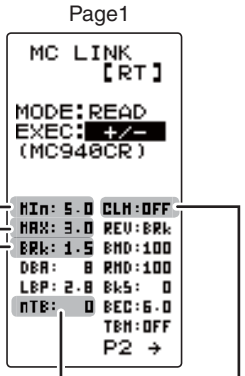
MIn-(PWM FREC MIN LD) 1kHz(1000Hz)~30kHz (30000Hz)
Same as Link software PWM frequency (at Min. load),
MIn sets the "0"A PWM frequency at minimum load.

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.
Make 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~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.



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"**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.

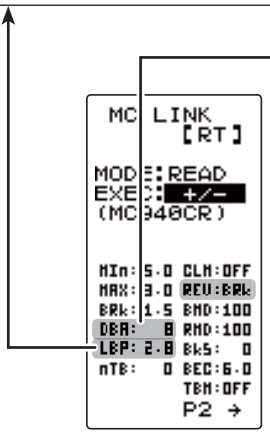
"**MAX**" which sets the frequency when the load is large, is set to the high frequency side (large value) when you want to suppress the rise from low speed and when motor heating and commutator roughness are sensed.

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 running battery voltage drops to the set voltage to prevent the receiver from stopping operation when the supply of voltage to the receiver becomes in sufficient while running due to a drop in the power supply voltage. When the power supply voltage recovers, power is supplied to the motor once more.



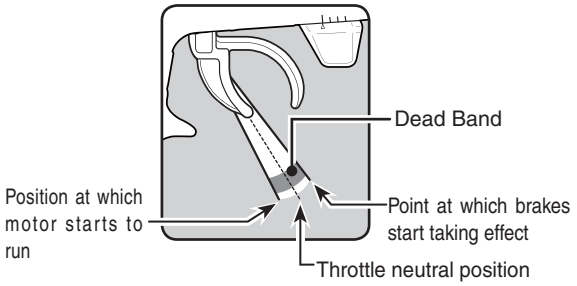
Page1

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.



REV-(REV CANCEL) BRk /REV

Same as Link software Reverse Cancel.

When set to BRk, reverse operation is not performed.

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

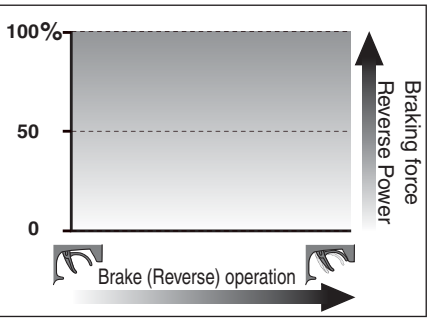
Same as Link software Brake Max. Duty.

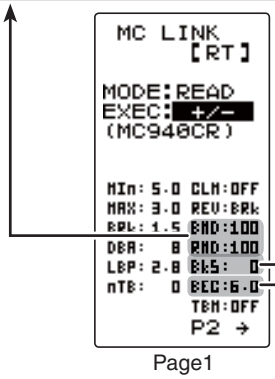
This setting can set the braking force between the neutral point and Max brake point. The larger this value, the greater the braking force. When set to "0%", the brakes are not effective.

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%", the reverses are not effective.





Page1

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 was returned (throttle off). It cancels operation like that called engine brake of actual vehicles.

BEC-(BEC VOLT) 6.0V /7.4V

Same as Link software BEC Volt.

The receiver BEC voltage can be selected from 60V and 74V. 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.

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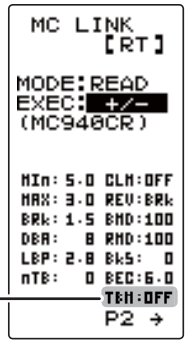


Page1

TBM-(TURBO MODE) OFF /LV1 /LV2

Same as Link software Turbo Mode

This function sets the turbo mode. More power can be displayed by using the turbo mode. Depending on the setting, the motor and ESC may be damaged so make 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 the same as if LAU (LEAD ANGLE USE) was turned off.

When the lead angle function was disabled by the method described above, the MC960CR shows that the lead angle function is off by blinking 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.

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

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

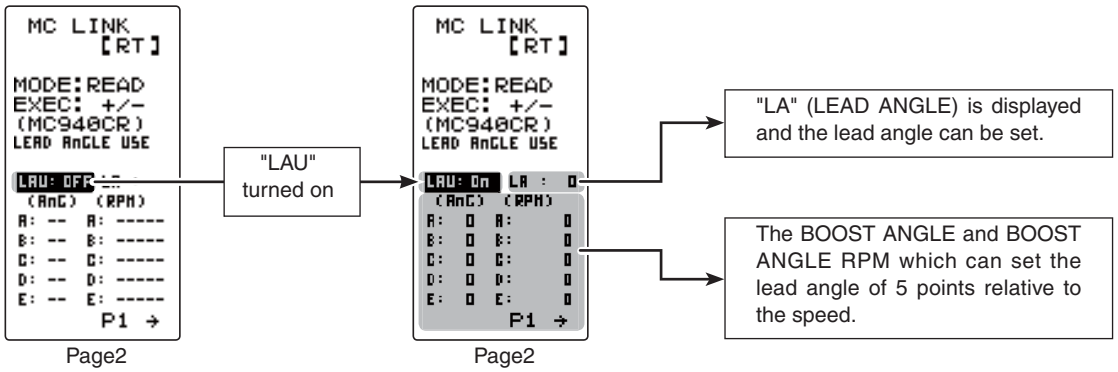
Displays still more power than a turbo.

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 conditions.

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.

Function

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.



Page2 Page2

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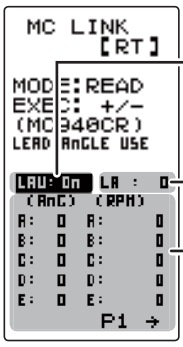


Page2

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) 0~59deg

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) 0~59deg

Same as Link software Boost Angle

A,B,C,D,E RPM-(A,B,C,D,E BOOST ANGLE RPM) 0~99990rpm

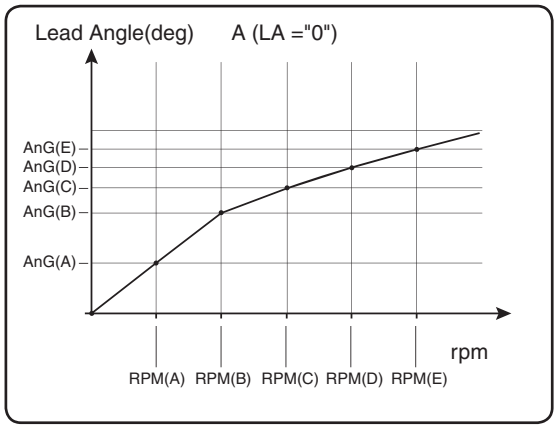
Same as Link software Boost Angle rpm

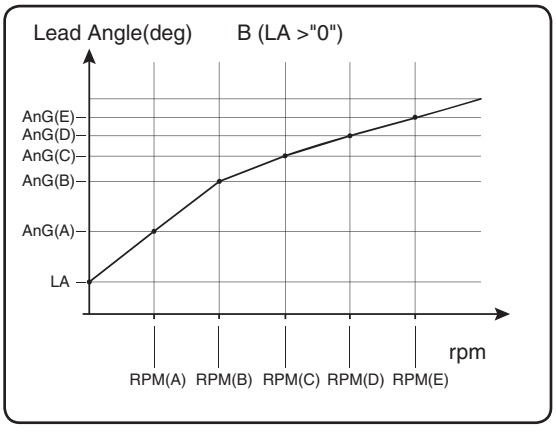
When LAU (LEAD ANGLE USE) is turned on the lead angle versus motor speed of the 5 points A to E can be set. The lead angle can be set up to 59 degrees in 1 degree increments.

Note: Do not read to the T4PLS an MC940/960CR whose speed was set to over 99990rpm by Link software side Boost Angle rpm setting.

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 blinking a LED.

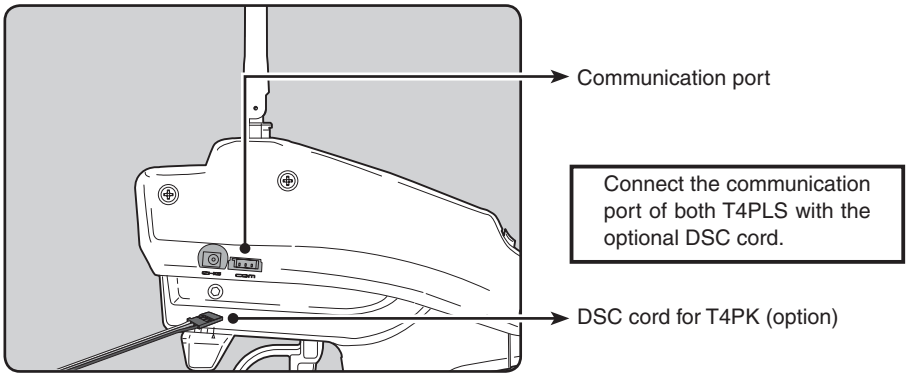
Data Transfer "MDL TRANS"

This function copies the model memory data of one T4PLS to another T4PLS. Connect the communication port of both T4PLS with the optional DSC cord for T4PK. Use with this function with the T4PLS power switch at the display side.

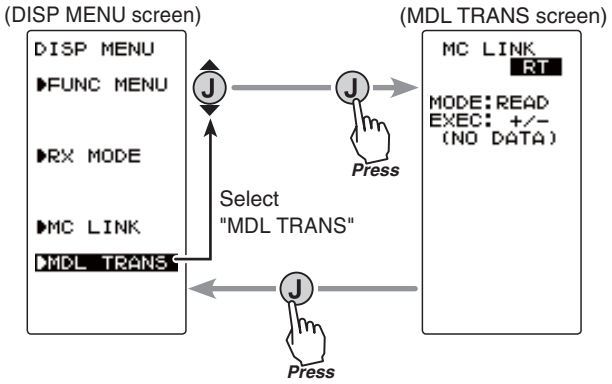
Note: If the T4PLS battery voltage drops, the display switches to low battery display. Therefore, use this function when there is ample battery capacity remaining.

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.



Display "MDL TRANS" screen by with the T4PLS power switch at the display side and following method:



Using the Data Transfer function

(Preparation)

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

1 Set the power switch of both transmitters to the display (DISP) side.

Use the (JOG) button and (+) button to display the "MDL-TRN" at both transmitter.

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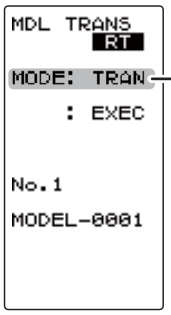
2 (Select the setting item)

"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"

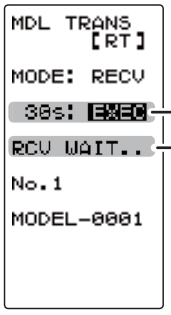
Setup item selection
- Select by (JOG) button up or down operation.

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

3 (Data transfer execution)

Select the setting item "EXEC" by (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.

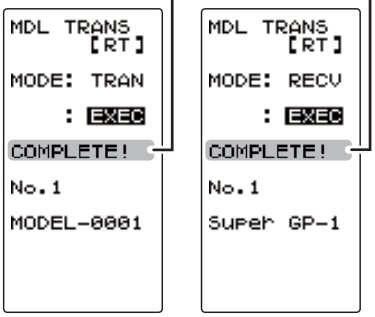


Transfer execution button
- (+) and (-) buttons pressed simultaneously for about 1 second.

30 seconds wait is displayed on the receive side screen.

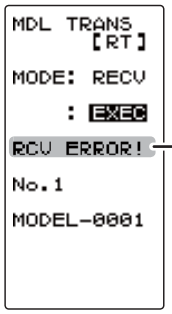
Within 30 seconds, press the transfer side "TRANS" transmitter (+) and (-) buttons simultaneously. (If data transfer is not executed within 30 seconds, an error will be displayed at the receive side "RECV" transmitter.)

-"COMPLETE!" is displayed on the screen of the receive side "RECV" transmitter and data transfer is ended.



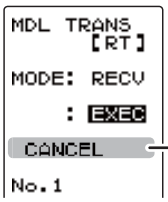
"COMPLELE!" is displayed.

-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 T4PLS that is waiting to receive data.



"CANCEL" is displayed.

When ending, return to the DISP MENU screen by pressing the (JOG) button.

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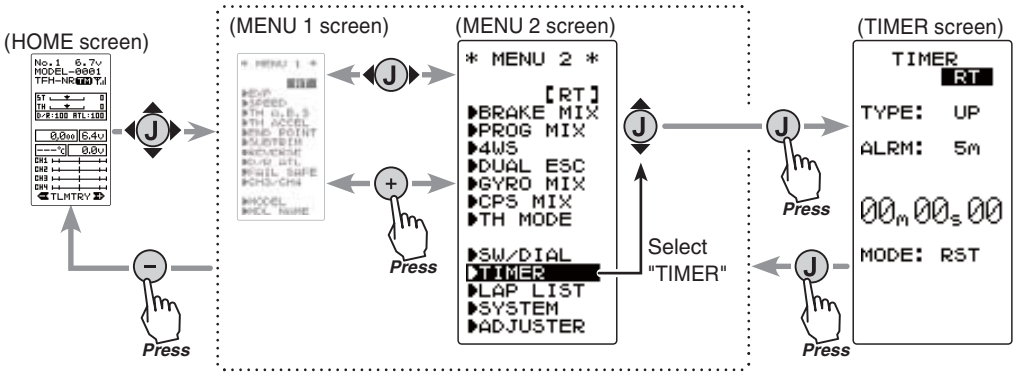
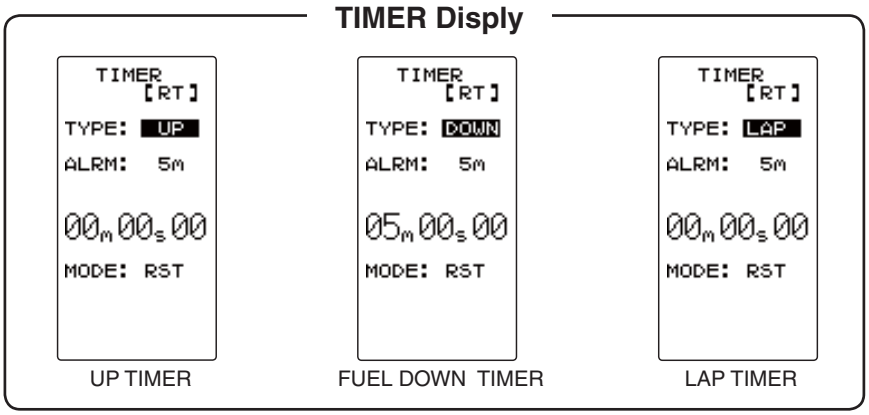
Timer Function "TIMER"

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

Display "PTIMER" screen by the following method:

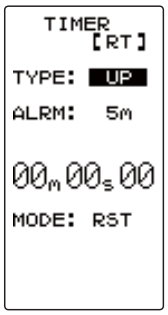




UP TIMER function

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 trigger.
- 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.

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

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

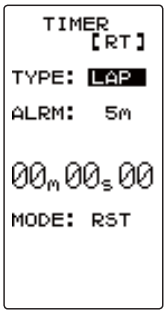
- After starting, the timer continues to count even if the LCD switches to another screen.

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.

-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 trigger.

(LAP TIMER operation)

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

- 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 10 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 (p.92). 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.

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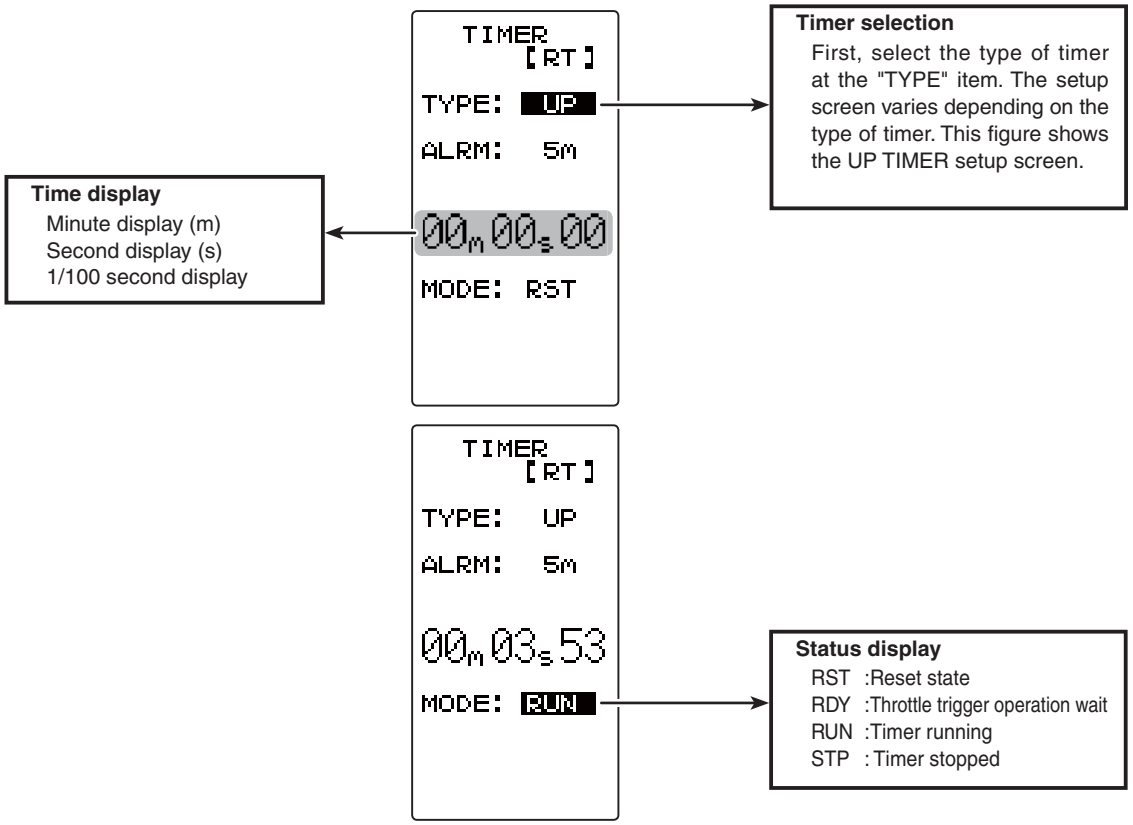
Timer screen



Racing timer type selection

(Preparation)

Assign the "TIMER" switch using the function select switch (p.65).

1 (Racing timer type selection)

Select the setting item "TYPE" by 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 ending, return to the MENU2 screen by pressing the (JOG) button.

Function

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Using the up timer

(Preparation)

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

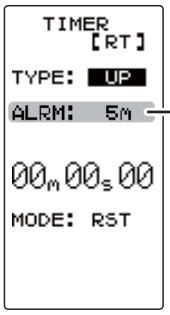
Press the (+) or (-) button and select "UP".

Adjustment buttons

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

1 (Alarm time setting)

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



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

2 (Timer start/stop operation)

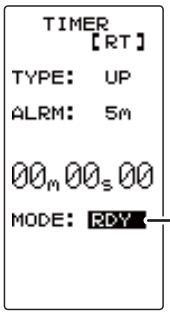
Start the timer by pressing the switch ("TIMER") set by function select switch function.

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

Switches
Time start / stop

- Linking only start to the throttle trigger

Select the setting item "RST" by 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 trigger operation ready state. When the trigger is operated at the forward side, the timer starts. (Status display "RUN")

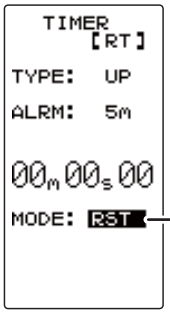


Status display
RST :Reset state
RDY :Throttle trigger operation wait
RUN :Timer running
STP : Timer stopped

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", "STP", or "RDY") by 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.



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

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Using the fuel down timer

(Preparation)

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

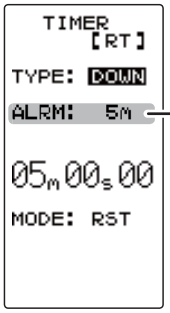
Press the (+) or (-) button and select "DOWN".

Adjustment buttons

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

1 (Alarm time setting)

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



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

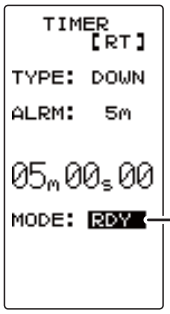
2 (Alarm start/restart operation)

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 only start to the throttle trigger

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 trigger operation ready state.



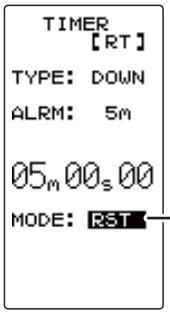
Status display
RST :Reset state
RDY :Throttle trigger operation wait
RUN :Timer running
STP : Timer stopped

When the trigger is operated at the forward side, 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") by 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.



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

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Using the Lap timer

(Preparation)

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

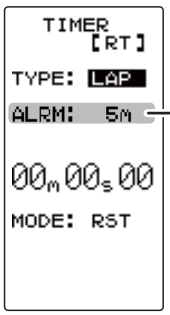
Press the (+) or (-) button and select "LAP".

Adjustment buttons

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

1 (Alarm time setting)

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



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

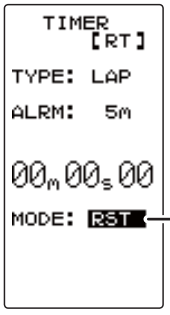
2 (Timer start/ lap count/ stop operation)

When the switch (TIMER) set by function select switch function is pressed, the timer starts. At timer operation, the same switch becomes the lap switch and when the set time elapses, the timer is stopped by the same switch (TIMER)

Switches
Timer start / Lap count

- Linking only start to the throttle trigger

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 trigger operation ready state. When the trigger is operated at the forward side, the timer starts. (Status display "RUN")



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

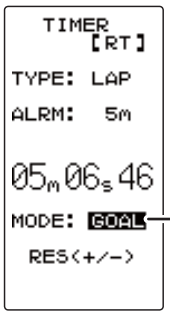
When the switch (TIMER) is pressed after the time set by alarm has elapsed, the timer stops and the lap time and total time are memorized. The status display becomes "GOAL".

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

3 (Timer reset operation)

Select a status display ("GOAL") by 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.

- When 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 (P98) screen.



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

Function

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Lap List "LAP LIST"

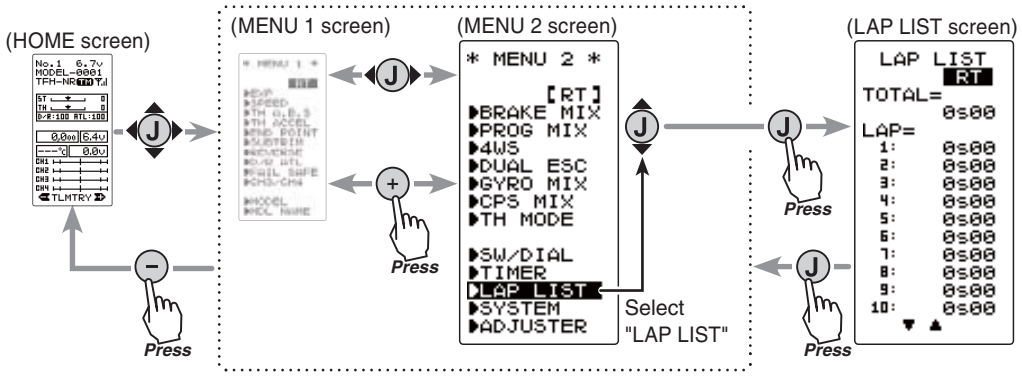
The lap list is displayed when checking the lap memory data (lap times) memorized by lap timer (P99) operation.

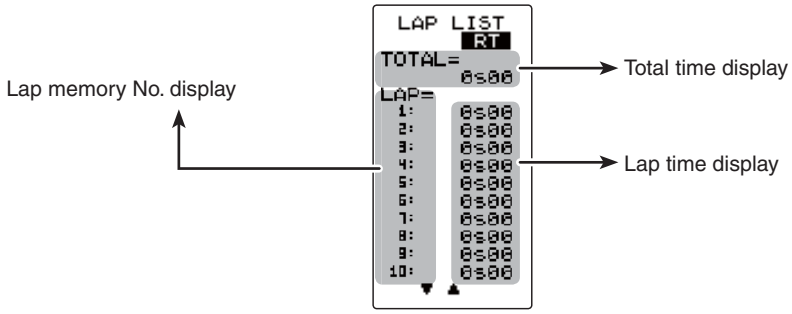
- After the lap timer starts, the lap times are memorized sequentially each time the switch is operated.

- 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:





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.

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

Reset button

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

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System Functions "SYSTEM"

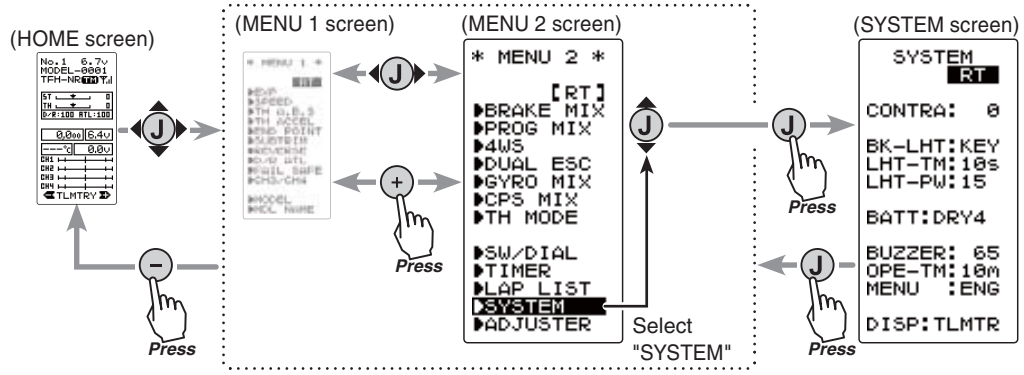
The graphic liquid crystal screen display mode, buzzer sound and menu character mode, etc can be set.

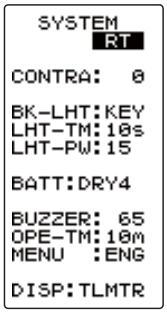
- "CONTRA"---Liquid crystal screen contrast adjustment (20 steps)
- "BK-LHT"---Liquid crystal screen backlighting display mode setup
  (OFF, ON at button operation, normally ON)
- "LHT-TM"---Setting of ON time (1~30 secs) when [ON at button operation] was selected above.
- "LHT-PM"---Liquid crystal screen backlighting brghtness adjustment (30 steps)
- "BATT"---Battery type setting (LiFe2/NiMH5/DRY4)

  The T4PLS 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"---The power off forgotten alarm setting (OFF, 10 m)
- "MENU"---Item which displays the basic menu screen in katakana characters for Japanese use.
- "DISP"---HOME screen display mode setting (Telemetry data, Timer, Users name)

Display "SYSTEM" screen by the following method:





Setup items

CONTRA	:Contrast
BK-LHT	:Backlighting mode
LHT-TM	:Backlighting time
LHT-PW	:Backlighting brightness
BATT	:Battery type
BUZZER	:Buzzer tone
OPE-TM	:Power off forgotten alarm
MENU	:Menu screen character
DISP	:HOME screen display mode

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System function setup

1 (Setting of each item)

(Adjusting the liquid crystal contrast)

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

- Adjust to an easy-to-see contrast.

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

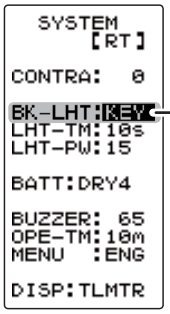
Contrast (CONTRA)
-10~0~+10
Initial value: 0

(Setting the liquid crystal backlighting mode)

Select the setting item "BK-LHT" by 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 ending, return to the MENU2 screen by pressing the (JOG) button.



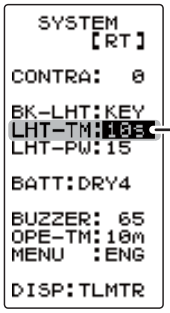
Backlight mode (BK-LHT**)**
KEY, ALL, OFF

(Setting liquid crystal backlighting time)

Select the setting item "LHT-TM" by 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 ending, return to the MENU2 screen by pressing the (JOG) button.



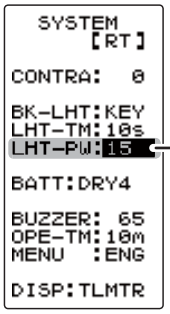
Backlighting time (LHT-TM)
1~30
Initial value: 10

(Setting liquid crystal backlighting brightness)

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

-If too bright, the battery will be consumed.

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



Backlighting brightness (LHT-PW)
1~30
Initial value: 15

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

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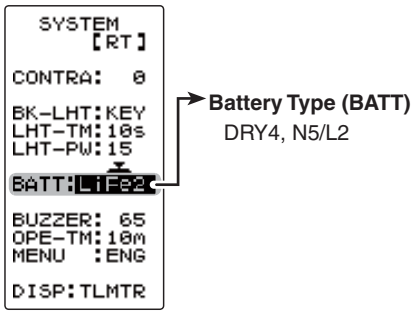
(Setting the battery type)

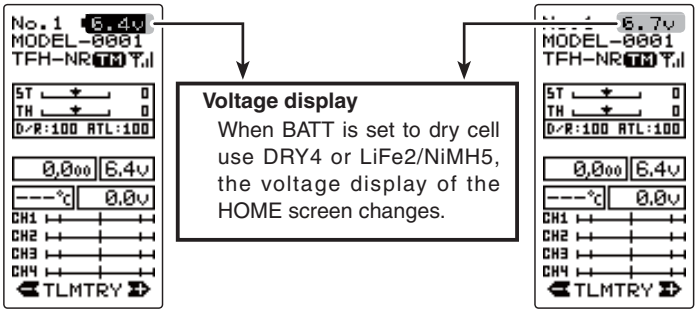
Select the setting item "BATT" by the (JOG) button, and select the mode by pressing the (+) or (-) button. When changing the battery type, press the (JOG) button after thoroughly checking whether or not the mistake was made again. An electronic beeping sound is generated and the setting is changed.



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.

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.

"N5/L2" :Futaba LiFe type battery (FT2F1700B/2100B)
"N5/L2" :Futaba MiMH type battery (HT5F1800B)
"DRY4" :Dry cell battery (alkaline battery recommended) 4 batteries



DRY4 LiFe2, NiMH5

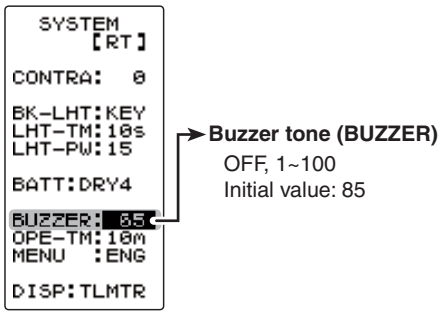
When ending, return to the menu screen by pressing the (JOG) button.

(Adjusting the buzzer tone)

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

- Decide by referring to the tone at adjustment.

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



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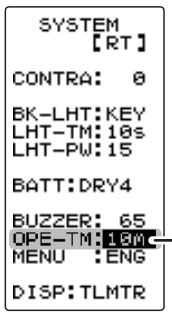
(Changing the power off forgotten alarm setting)

Select the setting item "OPE-TM" by the (JOG) button, and use the (+) and (-) buttons to select the power off forgotten alarm mode.

"10m" :If an operation is not performed within 10 minutes while the power is on, an audible alarm sounds.
"OFF" :Power off forgotten alarm setting OFF



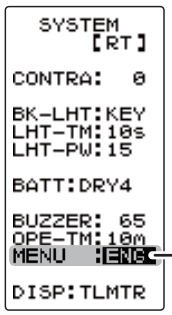
The power off forgotten alarm (OPE-TM)
10m, OFF

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

(Changing the menu character display)

Select the setting item "MENU" by the (JOG) button, and set the basic menu character display with the (+) or (-) button. (See page 37)

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



Menu charactre (MENU)
ENG, カナ

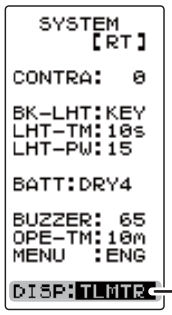
When ending, return to the menu screen by pressing the (JOG) button.

(Changing the HOME screen display mode)

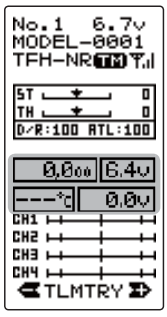
Select the setting item "DISP" by the (JOG) button, and set the HOME screen display mode with the (+) or (-) button.

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

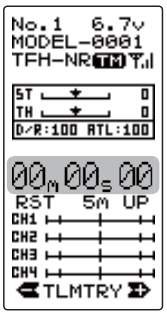
Only the T-FHSS system can display telemetry data. Nothing is displayed with an S-FHSS/FHSS system.



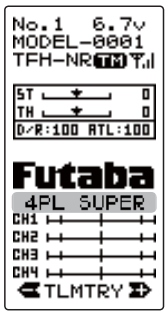
HOME screen mode (DISP)
ENG, カナ



TLMTR



TIMER



USER

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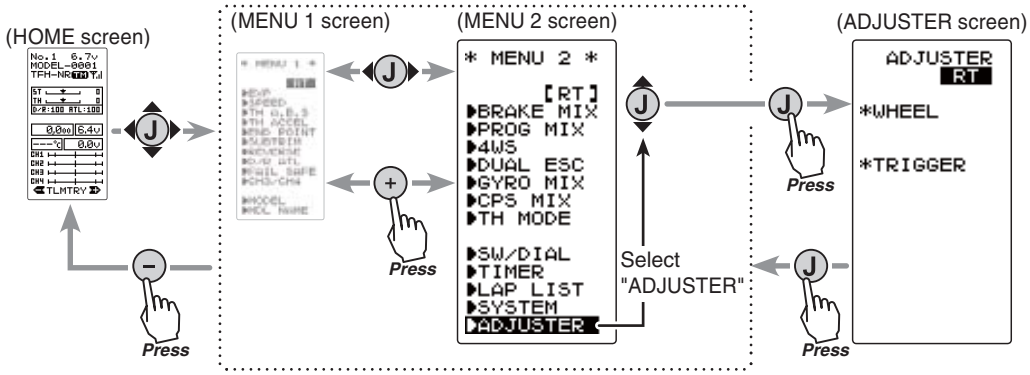
Adjuster "ADJUSTER"

Steering wheel and throttle trigger 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 was applied, the set value of all the setting functions must be rechecked.

Display the adjuster screen from the system menu.



Steering adjustment

(Preparation)

On the ADJUSTER screen, select the setting item "WHEEL" by the (JOG) button, and pressing the (JOG) button.

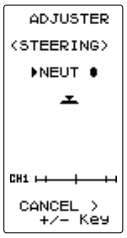


fig-1

1 (Steering neutral adjustment)

In the neutral setup screen (fig-1) state, lightly pull the steering wheel and then press the (JOG) button in the state in which the wheel is not being touched.

2 (Steering throw adjustment)

In the throw setup screen state (fig-2), lightly turn the wheel fully to the left or right and when button mark (fig-3) is displayed, pressing the (JOG) button.

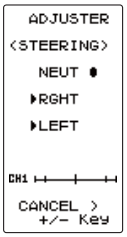


fig-2

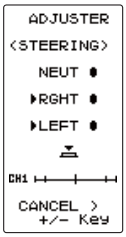


fig-3

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-4

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

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Throttle adjustment

(Preparation)

On the ADJUSTER screen, select the setting item "THROTTLE" by the (JOG) button, and pressing the (JOG) button.

1 (Throttle neutral adjustment)

In the neutral setup screen (fig-1) state, lightly pull the throttle trigger and then press the (JOG) button in the state in which the trigger is not being touched.

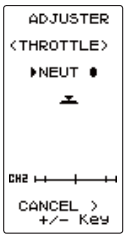

fig-1

2 (Throttle throw adjustment)

In the throw setup screen state (fig-2), lightly operate the trigger fully to the brake side and the forward side 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.

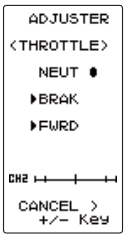

fig-2

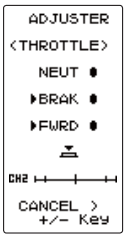

fig-3

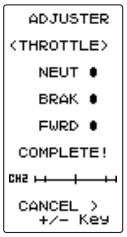

fig-4

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

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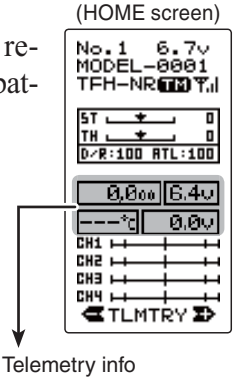
Telemetry "TELEMETRY"

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 T4PLS power switch is in the PWR ON position. When the power switch is in the DISP position, the telemetry related screens are not displayed.

The T4PLS displays four kinds of information on the HOME screen; receiver power source (battery) voltage, external power supply (drive battery) voltage, speed, and temperature.

(HOME screen)



Telemetry info

*The telemetry function is compatible with only the T-FHSS system.
*The telemetry function requires a corresponding receiver (R304SB).
*Only T4PLS with R304SB ID registered have a telemetry display.
*Multiple sensors of the same type cannot be used.

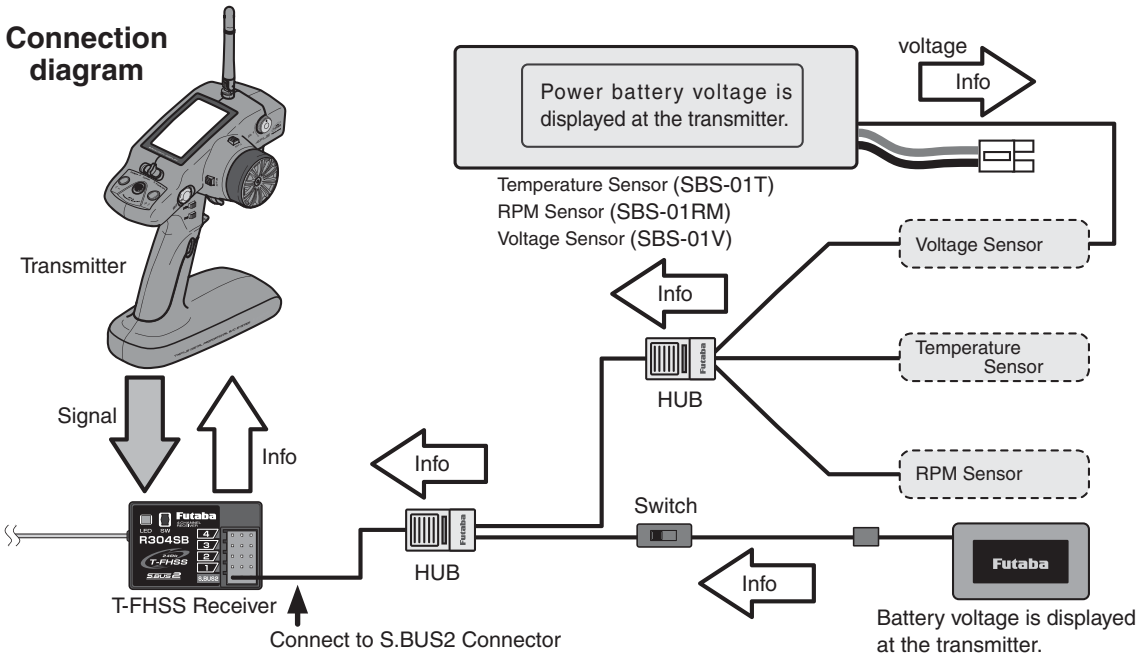
The sensor data can be checked at the transmitter by connecting the telemetry sensor sold separately to the S.BUS2 connector of the R304SB receiver.

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 T4PLS 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 T4PL, 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 T4PLS, the set slot No. cannot be checked or changed.

Connection diagram



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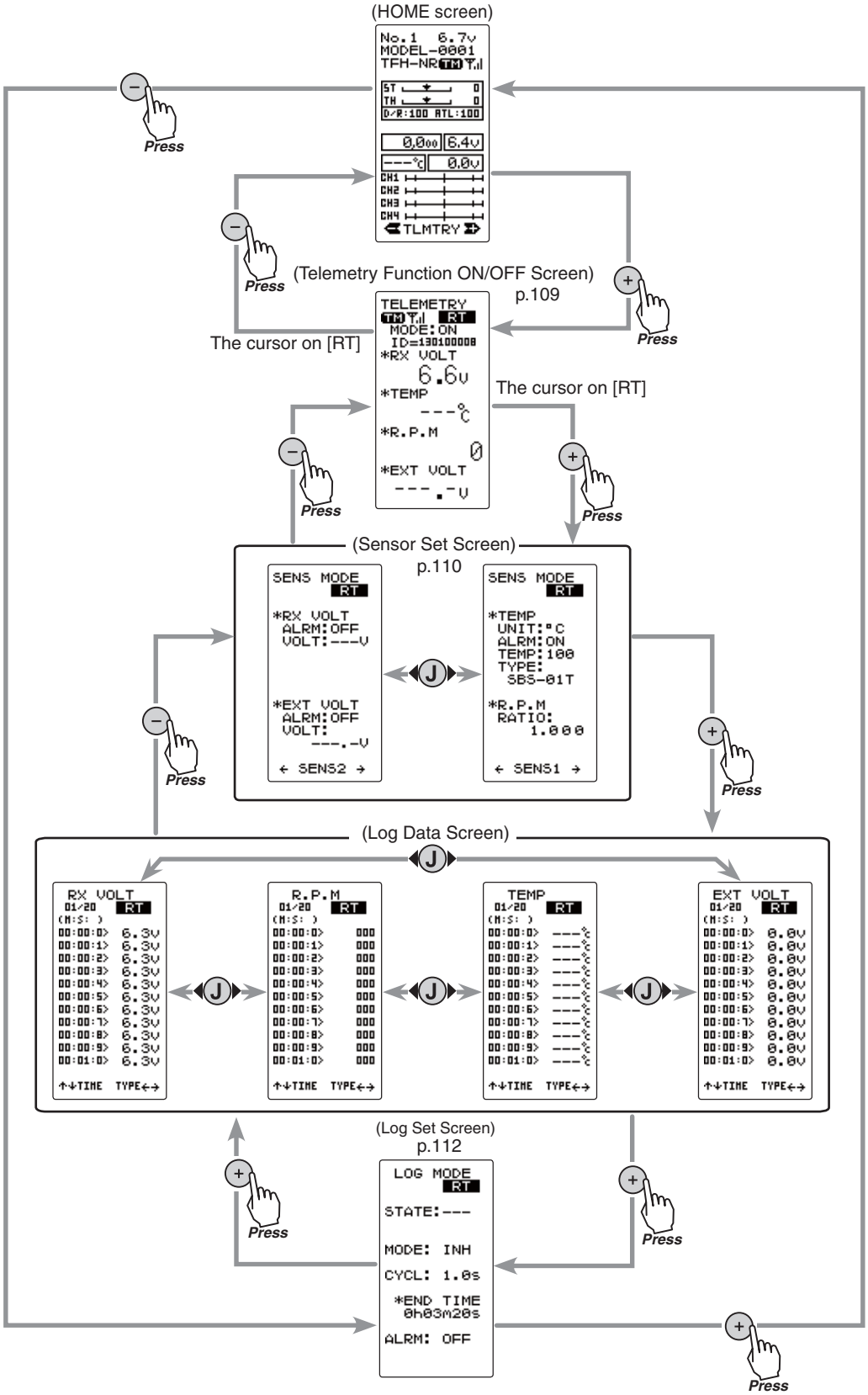
Telemetry/Log Screen Map



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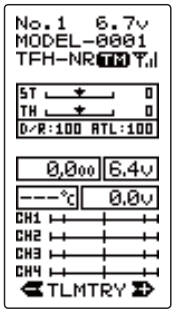
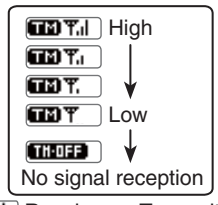
Telemetry Function ON/OFF

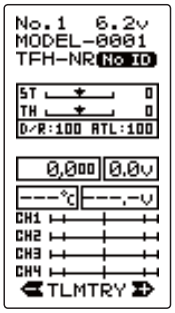
The telemetry data can be viewed at the HOME screen and telemetry ON/OFF screen.
The telemetry function can also be turned on and off at the telemetry ON/OFF screen.
The telemetry ON/OFF and communication status can be checked at the HOME screen.

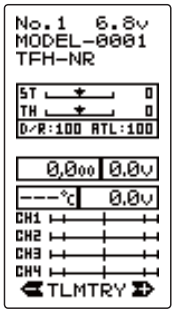


The reception strength



Receiver -> Transmitter:
The reception strength is shown.



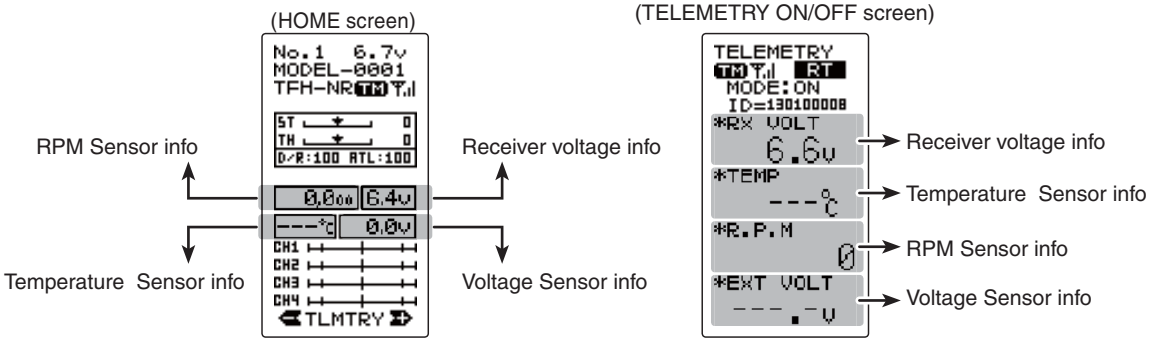


- Telemetry function :ON
- Receiver ID setting complete.
- Data receiving sensitivity display.
- TM:OFF shows that data cannot be received because it is outside the data receiving range or because of the effects of an obstruction or the receiver power is OFF after receiver ID check.

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

Telemetry function :OFF

Refer to the map on page 108 for the telemetry ON/OFF (telemetry) screen display.



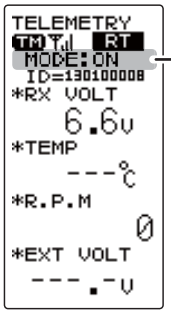
Telemetry function ON/OFF

(Preparation)

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

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

"OFF" : Function OFF
"ON" : Function ON



Function ON/OFF (MODE)
INH, ACT

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

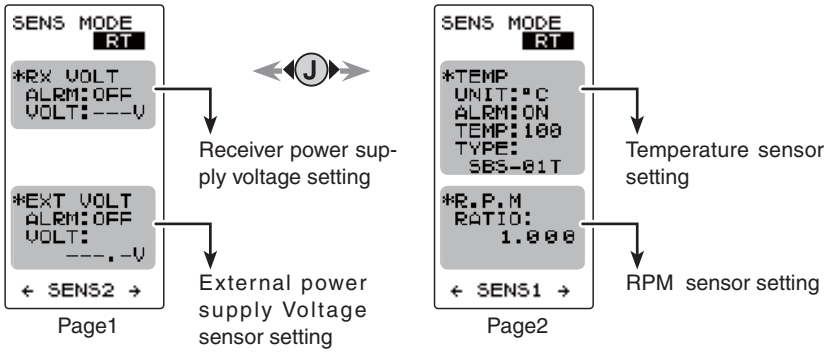
2 When ending, move the cursor to [RT] by the (JOG) button, and return to the HOME screen by pressing the (JOG) button.

Telemetry Sensor Setting

An audible alarm can be generated by the T4PLS from the data from a telemetry sensor. This setting sets alarm ON/OFF and the alarm conditions.

Refer to the map on page 108 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.



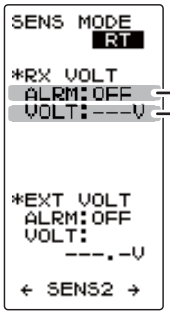
Setting method

(Setting of each item)

Setting the receiver power supply voltage alarm

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

Select "ALRM" of the "*RX VOLT" setting items by (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 by (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 by (JOG) button left or right operation.

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

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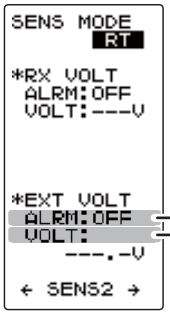
Setting external power supply voltage alarm

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

Select "ALRM" of the "EXT VOLT" setting items by (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
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.

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

Select "VOLT" of the "*EXT VOLT" setting items by (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 by (JOG) button left or right operation.

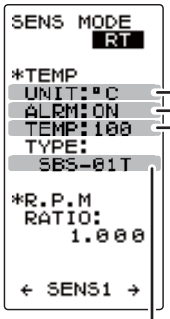
When ending, move the cursor to [RT] by the (JOG) button, and return to the HOME screen by pressing the (JOG) button twice.

Setting the temperature alarm

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

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

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



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.

Select "ALRM" of the "*TEMP" setting items by (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 by (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 by (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 ending, move the cursor to [RT] by the (JOG) button, and return to the HOME screen by pressing the (JOG) button twice.

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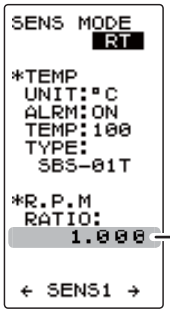
Setting the gear ratio

Display page 2 by (JOG) button left or right operation. Select "RATIO" of the "R.P.M" setting items by (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.



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 ending, move the cursor to [RT] by 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 T4PLS 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 (p.65) to "LOGGER" and by switch (SW1). If the switch (SW1) is not set, data logging is started by throttle trigger from the log setting screen.

Data logging can also be started by throttle trigger from this screen and stopped by switch (SW1) set by SW/dial function (p.65).

Refer to the map on page 108 for the log setting (LOG MODE) screen display.

Log setting method

(Preparation)

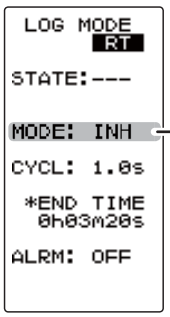
When using a switch (SW1) to start and stop data logging, set SW1 to "LOGGER" by SW/dial function (p.65)

- 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 by (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 is the switch, etc. is operated.



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

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

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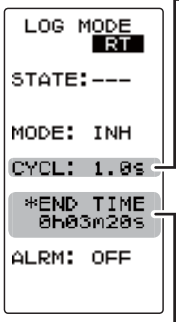
2 (Recording cycle setting)

Select the "CYCL" setting item by (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 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.

Log recording time

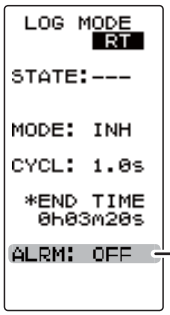
20s (seconds) 3h 20m (3 hours 20 minutes)

The maximum recordable time set by CYCL is displayed automatically.

3 (Count alarm ON/OFF)

Select the "ALRM" setting item by (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



Alarm ON/OFF

ON, OFF

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

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

Log function start/stop operation

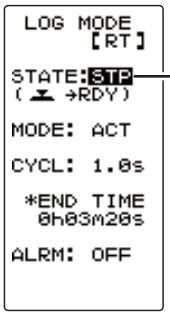
1 (Log start operation)

-Start by switch (SW1)

When the switch (SW1) set by SW/dial function (p.65) is pressed, data logging starts.

-Starting by throttle trigger

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



Status display

RDY :Throttle trigger 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 trigger operation wait state. When the trigger 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] by (JOG) button up or down operation, and press the (JOG) button or (+) button.

2 (Log forced end)

To abort logging, press the switch (SW1), the same as starting, or display the log setting (LOG MODE) screen and select the "STATE" setting item by (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.

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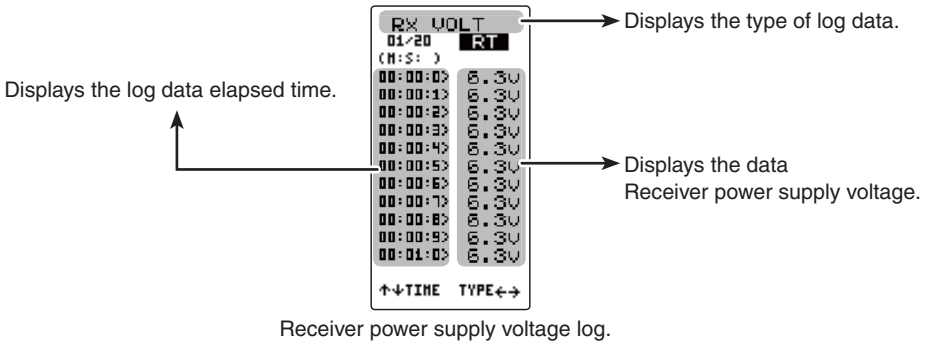
Log Data List

The log data list can be called when checking the log data memorized by logging operation (P112).

The maximum log data is up to 200 counts.

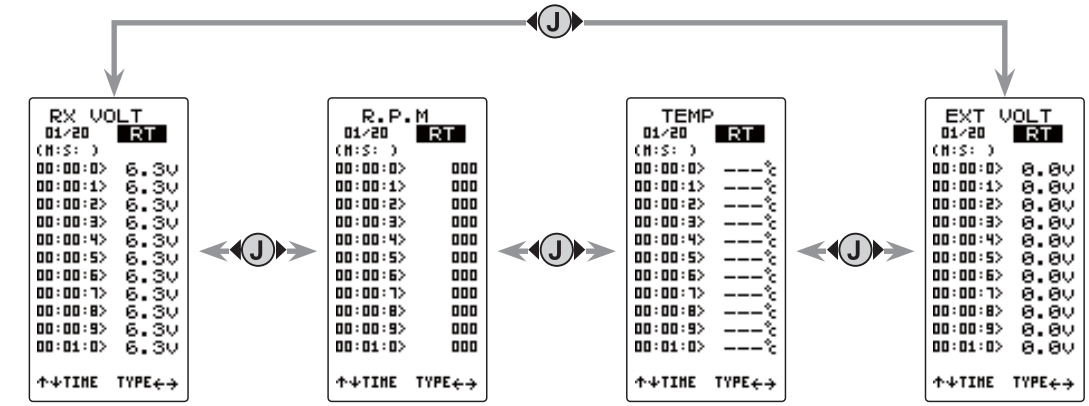
Refer to the map on page 108 for the log list screen.

Example: Receiver power supply voltage log list screen.



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 supply voltag 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 ending, return to the HOME screen by pressing the (JOG) button.

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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 T4PLS-2.4G

(T-FHSS/S-FHSS/FHSS system, wheel type, 4 channels)
Transmitting frequency:
2.4GHz band
Power requirement:
(Dry cell battery) Penlight 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

❗ When using the T4PLS 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 (See p.29 for setting method.)

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.

❗ When using analog servos, always switch the T4PLS servo response to the "NORM" mode.

Transmitter mode:"T-FHSS(NORM)", "T-FHSS(NORM)"and FHSS mode (See p.29 for setting method.)
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.

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Warning Displays

Backup Error

LCD screen:

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.

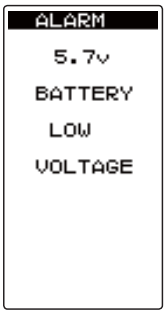
⚠ Warning

❗ 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:



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

❗ 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 T4PLS 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. (See page 93, for a detailed description of the battery types.)

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Memory Error

LCD screen:

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:

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

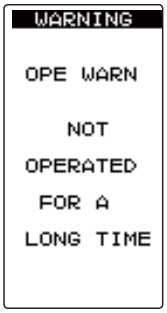
LCD screen:

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:



If the T4PL 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 wheel, throttle trigger, and any dial, switch, or edit button is operated. If you are not going to use the transmitter, turn the power off. (Setting can be reset at the system menu on page 93.)

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

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Optional Parts

The following parts are available as 4PLS 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) Ni-MH battery

FT2F1700(6.4V/1700mAh)/2100B (6.4V/2100mAh) Li-Fe battery

Please do not use the transmitter batteries HT5F1800B and FT2F1700/2100B 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 instruction again and recheck your system. Should the problems continue, request 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, address and telephone number.

(Warranty)

Read the Warranty card.

- When requesting warranty service, send the card or some type of dated proof purchase.

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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, trade name Futaba Corporation of America, model number T4PLS, 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.

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)

TEL (217)398-0007 or E-mail: service@futaba-rc.com (Service)

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.

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