

Remote Control Systems

2.4 Ghz RADIO CONTROL

P.O Box 578 Casino, NSW, 2470 Australia

Phone: International ++614 2902 9083

Australia (04) 2902 9083

Website: <http://rcs-rc.com>

E mail: info@rcs-rc.com

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Other instructions for use with battery R/C are found with the ESC.

<http://www.rcs-rc.com/pages/instructions>

TX-1

Digital Proportional R/C

Thank you for purchasing this DSM2 3 channel TX handpiece.

INSTRUCTION MANUAL

THESE INSTRUCTIONS REFER SPECIFICALLY TO THE **DELTANG R/C** BASED TX-1 HANDPIECE.

They should be read in conjunction with the RCS ESC you are using.

N.B. Some pictures are of the old TX-3 handpiece. The TX-1 is virtually the same.



WHEN USED FOR LIVE STEAM & LOW OFF BATTERY R/C A SMALL KNOB SETS THE VALVE GEAR (DIRECTION).
300° KNOB CONTROL OF REGULATOR.
1 X FULL THROW SERVO FOR WHISTLE.



REMOVE REAR OF TX-1 TO INSERT THE 9 VOLT BATTERY.
LED BLINKS WHEN BATTERY LOW.
A HIGH QUALITY 9V SNAP IS USED.



WHEN USED FOR CENTRE OFF BATTERY R/C THE LARGE KNOB SETS BOTH THE DIRECTION & SPEED.
SMALL KNOB CAN CONTROL A 2ND LOCO.
1 X BUTTON FOR SOUND TRIGGER.

PRIMARY USE IS WITH LIVE STEAM LOCOS.

CAN ALSO BE USED WITH RCS "LOW OFF" & MOST "CENTRE OFF" ESC's.

THE TX-1 IS GUARANTEED FOR ONE YEAR.

When used for battery R/C you will supply a locomotive or trail car, the 14 – 20 volt traction batteries (depending on ESC), a fuse, ON-OFF switch and wires where necessary, to connect the ESC to the battery and motor(s).
Where soldering is necessary, we recommend a low wattage soldering iron and resin core solder.

TO AVOID CONFUSION WITH OTHER OPERATORS, WE SUGGEST YOU MARK THE TX TO SHOW WHICH LOCO IT IS OPERATING.

CAUTION

**DO NOT ATTEMPT TO ALTER THE TUNING OF THE RADIO EQUIPMENT.
DO NOT USE RADIO CONTROL EQUIPMENT IN THUNDERSTORMS.**

CHILDREN UNDER 12: ADULT SUPERVISION RECOMMENDED DURING USE.

RCS TX & RX PRODUCTS MUST NOT BE USED FOR CONTROLLING RIDE ON LOCOMOTIVES CAPABLE OF CARRYING MEMBERS OF THE GENERAL PUBLIC.

PREPARING THE #TX-1

THESE INSTRUCTIONS REFER TO THE **RCS TX-1** 2.4 GHz 5 CHANNEL R/C.
LAYOUT OF THE TX-1 TRANSMITTER HAND PIECE.

The small valve gear knob is in the upper middle. The larger steam regulator knob sits just below.
Top left is the ON – OFF switch with LED. Top right is the Bind/Ch # 5 pushbutton. Use for servo whistle.

1. “BINDING”.

The 1st procedure is to “BIND” the receiver (RX) to the Transmitter (TX).

“BINDING” is accomplished by following a few simple steps below.

When binding we recommend removing the servos from the RX in case they are not correctly adjusted. Adjust servo parameters after binding has taken place..

HOW TO “BIND” USING A DSM2 RX OR RCS #ALPHA-3v2 ESC.

MANUAL BINDING using a binding plug.

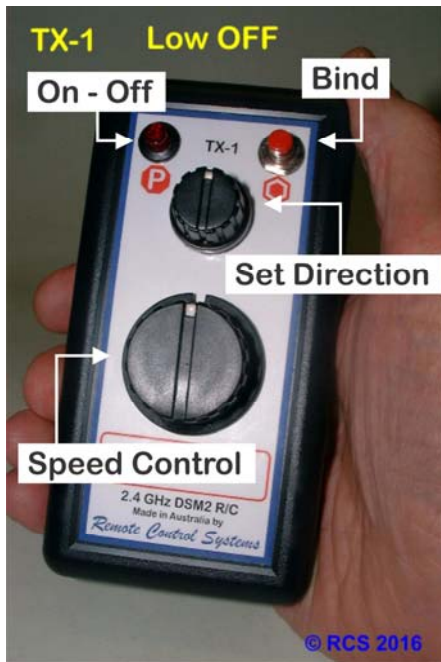
1.1 Insert the “BINDING” plug supplied with the DSM2 RX into the “BINDING” pins on the **RX**.

You can also use the # BINDER switch assembly if you do not wish to get inside the loco.

1.2. The RX LED will start blinking very rapidly to indicate it is ready to be bound.

AUTOMATIC BINDING = no binding plug. (Currently not available).

1.3 Turn the **Auto Bind RX ON** and the RX LED will blink slowly looking for a TX. Wait 20 seconds for the RX to enter bind mode. The RX LED (& slave front headlight if programmed to) will blink rapidly and is ready to be bound.



LOW OFF FUNCTIONS OF TX-1



PRESS & HOLD BIND BUTTON



THEN TURN ON TX-1 & HOLD BOTH.

1.4 Press **and hold** the right pushbutton on the handpiece marked with a hexagonal symbol. You may need to keep TX & RX about 1 x metre apart for binding to take place.

1.5 Then press **and hold** the ON – OFF button to **ON**. Hold both buttons until the RX LED stops flickering & starts blinking slowly. Then let both TX buttons go. The TX button also blinks slowly & then goes to solid ON.

1.6 The LED on all RX's will blink more slowly & then go solid ON when “BINDING” is complete.

N.B. “BINDING” plug MUST be removed BEFORE the SYSTEM is turned OFF. (AB RX's have no binding plug)

1.7 The “BINDING” plug is removed & stored safely.

RCS offers an optional extra # **BINDER** cable and switch. When fitted this will enable any non RCS loco to be bound to any TX without requiring access to the inside of the loco. This will enable any loco to be swapped between any other DSM2 TX's. You will be able to “hand off” speed matched locos for MU'ing into a consist. (**Uneded with #BASIC-3**)

2. PREPARING FOR USE WITH LIVE STEAM LOCOS.

Make sure the RX is OFF. Then re-insert the servos into the correct RX sockets.

The regulator servo goes in Ch # 1 (Throttle) socket.

The valve gear servo goes in Ch # 3 (Elevator) socket.

**N.B. There is no battery/bind terminal on the DSM2-EM(AB) Auto Bind Rx.
Be careful selecting the correct terminal. They are marked on the back of the RX.**

HOW TO ADJUST SERVOS USING REGULAR DSM2 RX's. (See the instructions with our AB Rx's for how to do it).

When using for the first time make sure both knobs are centered.

VALVE GEAR SERVO *

1.1 Then turn on the Live Steam loco RX. The two servos should immediately snap to the neutral position.

1.2 Adjust the valve gear servo connecting rod to ensure the centre position of the valve gear matches the servo.

1.3 Turn the small knob slowly to the right Clockwise (CW) and check that the servo moves the valve gear to the forward position.

If it goes the wrong way you will need to reverse the mechanical connection. *

If the small knob wants to make the servo move too far put the connecting rod into a servo arm hole closer to the middle of the servo arm. If it does not move far enough move the rod into a hole further out.

N.B DO NOT FORCE THE SERVO AGAINST THE STOP. DOING SO WILL DAMAGE THE SERVO.

1.4 Turn the small knob slowly and carefully to the left Counter Clockwise (CCW). With regards to any possible mechanical changes you made during 1.3 above, it should perform correctly.

STEAM REGULATOR SERVO. *

2.1 Turn the large knob to the left (CCW) the servo will rotate CCW and should close the steam regulator valve.

If it goes the wrong way you will need to reverse the mechanical connection. *

If the large knob wants to make the servo move too far, i.e. over shutting the regulator, put the connecting rod into a servo arm hole closer to the middle of the servo arm. If it does not move far enough move the rod to a hole further out.

N.B DO NOT FORCE THE SERVO AGAINST THE STOP. DOING SO WILL DAMAGE THE SERVO.

2.2 Turn the large knob to the right to check the servo opens the steam regulator far enough.

*** IF MECHANICALLY CHANGING THE SERVO CONNECTIONS IS NOT POSSIBLE, RCS NOW HAS AN AUTOMATIC BINDING DSM2 RX THAT CAN REVERSE SERVOS & ADJUST END POINTS ON 3 X CHANNELS.**

3. DRIVING LIVE STEAM LOCOS.

Make sure the TX is OFF and the big knob is fully CCW. This is the same as the throttle stick on a conventional stick R/C being fully down. Make sure the small knob is in the middle. You can feel the détoné when twisting the knob.

Turn ON the loco before the TX-1 hand piece.

Once steam has been raised select the direction of valve gear with the small knob.

Then turn the big knob CW. That is like raising the throttle stick on a conventional stick R/C.

Turn the big knob CCW to slow the loco. All the way CCW will bring the loco to a stop.

You can have a faster stop by centering the valve gear control knob. Then make sure the big knob is also fully CCW.

The Bind button doubles as a whistle control with a servo on Ch # 5. It starts off at one extreme and when pressed goes fully the other way. It snaps back to the start point when released. Ideal for controlling a servo operated steam whistle.



TX-1 LOW OFF NEUTRAL.



SETTING THE VALVE GEAR FOR FORWARDS.

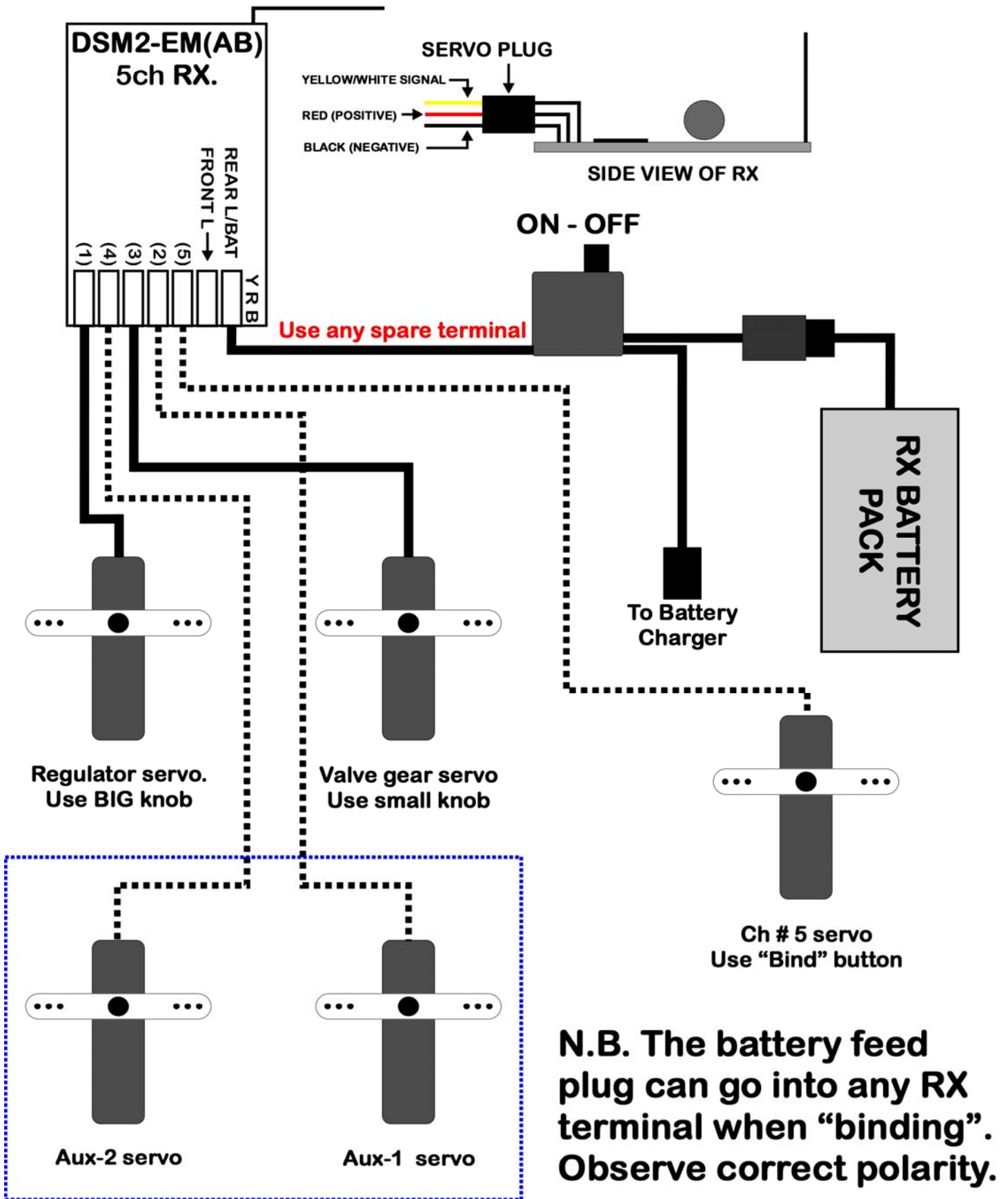


SETTING THE VALVE GEAR FOR REVERSE



TURN BIG KNOB CW TO INCREASE STEAM i.e. SPEED

CONNECTING SERVOS FOR DSM2-EM(AB)



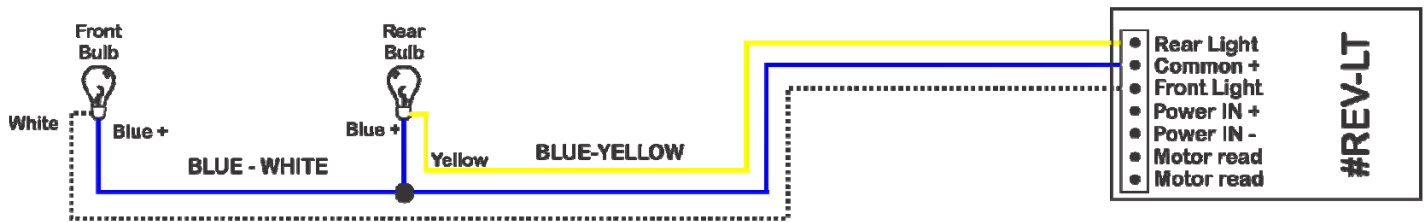


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PO BOX 1118 BAYSWATER, VIC 3153, AUSTRALIA.
 PHONE: NORTH AMERICA (1800) 490 6945
 INTERNATIONAL ++ (613) 9762 7785
 AUSTRALIA (03) 9762 7785

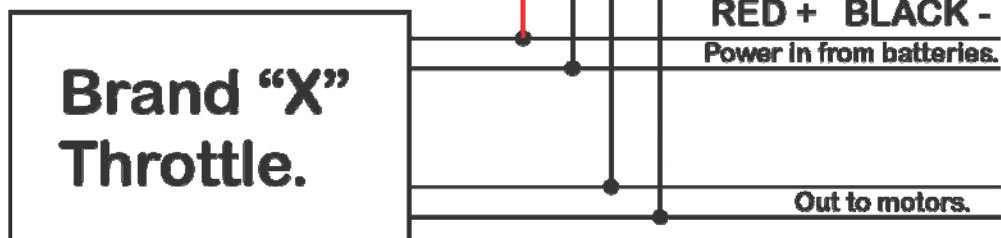
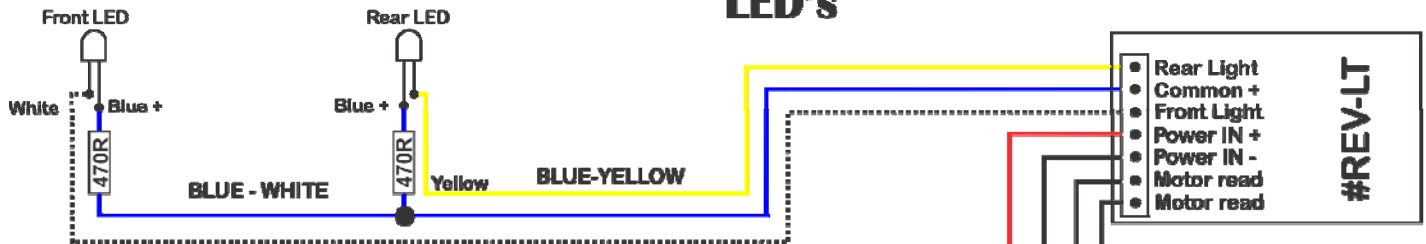
WIRING THE RCS #REV-LT FOR ANY ESC WITHOUT LIGHTS:

Incandescent bulbs



When using light bulbs you must match the bulbs with the traction voltage. Diode lights must have a suitable dropping resistor fitted in the + circuit.

LED's



TROUBLESHOOTING.

- The TX-1 battery will eventually go flat if left switched on. The TX-1 operating program may be disrupted. The Ch # 1 centering on the TX-1 system will need to be reset;
- 1.) Centre the Large Ch# 1 knob.
 - 2.) Turn the TX-1 ON. TX-1 ON - OFF light will come ON.
 - 3.) Within 60 seconds, press and hold the bind button for 20 seconds.
 - 4.) The TX-1 ON - OFF light will go off.
- Centre reset is complete.

4. USING THE TX-1 WITH A "CENTRE OFF" ESC.

The TX-1 is ideal for use with RCS **CENTRE OFF** ESC's such as the # VIPER-10-15 & # VIPER-10-24. Before you switch the system on, make sure the large throttle knob is in neutral. i.e. at the centre "click". For only one loco, the direction knob will not be used. It could be used for another Centre OFF ESC on Ch #3.

CENTRE OFF CONTROL.

FORWARDS - SPEEDING UP.

To select forwards direction twist the knob from neutral slowly clockwise (CW) to the right.

SLOWING DOWN. Turn the knob back to the left (CCW) to set desired speed.

STOPPING. Completely stop the loco by bringing the knob back to neutral.

REVERSE - SPEEDING UP.

To select reverse direction twist the knob slowly to the left (CCW).

SLOWING DOWN. Turn the small knob back to the right (CW) to set desired speed.

STOPPING. . Completely stop the loco by bringing the small knob back to neutral.

SHUTTING DOWN. When you have finished operating, turn off the loco(s) before the TX.



NEUTRAL OFF POSITION OF THE TX-1 IN "CENTRE OFF" MODE.



SET THE FORWARDS DIRECTION & SPEED CONTROL.



SET THE REVERSE DIRECTION & SPEED CONTROL.

4. USING THE TX-1 WITH AN RCS "LOW OFF" ESC'.

The TX-1 can be used with RCS LOW OFF ESC's such as the OMEGA-3v6/7k.

Operation is essentially the same as for Live Steam control.

This TX-1 hand piece is essentially a 5 channel stick R/C in a smaller case and using only three channels.

Make sure the large throttle knob is fully CCW (OFF) and small knob is centered before you switch the system on.

Switch on the TX-1 first & then the ESC. (Unless binding)

1. The large knob controls channel # 1, the throttle. Make sure the knob is fully CCW before switching on. This is the same as the Channel # 1 stick being fully down.

2. The small knob is the same as a Ch # 3 elevator stick.

Turning the small knob to the right (CW) is the same as pushing the elevator stick forwards.

Turning the small knob to the left (CCW) is the same as pulling the elevator stick backwards.

3. From neutral, set the small knob to the direction you want & return to neutral. CW for forwards.

N.B. When using the # OMEGA-3v6/7 the small knob must be returned to neutral to embed direction set.

4. Twist the large throttle knob to the right (CW) to accelerate.

5. To slow down twist the large knob to the left (CCW) until desired speed is reached.

6. To stop loco turn the large knob fully to the left (CCW).

Throttle must be at OFF before changing direction. Twist the small knob CCW once and return to neutral to set loco neutral.

7. To select reverse direction Then twist it again CCW and return to neutral.

To speed up, slow down & stop in reverse, repeat steps 4, 5, 6, & 7.

If the loco runs backwards we reverse the motor wiring to correct the direction and maintain the standard.

The bind button also controls Ch # 5. You can add a servo for mechanical operation. EG a Kadee servo uncoupler.

If the directional lights are incorrect, swap over the wiring to them so they match the loco speed and direction.

All RCS ESC's have directional lights and at least one sound trigger.

If your ESC does not have directional lights, RCS has a small add on module # 2-W-S that responds to Ch # 3 & switches lights accordingly.