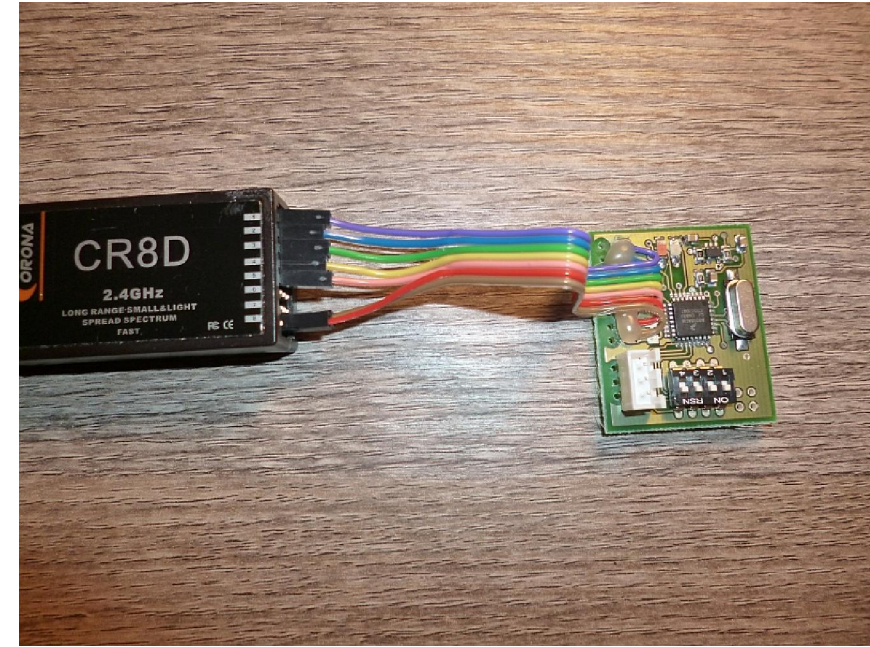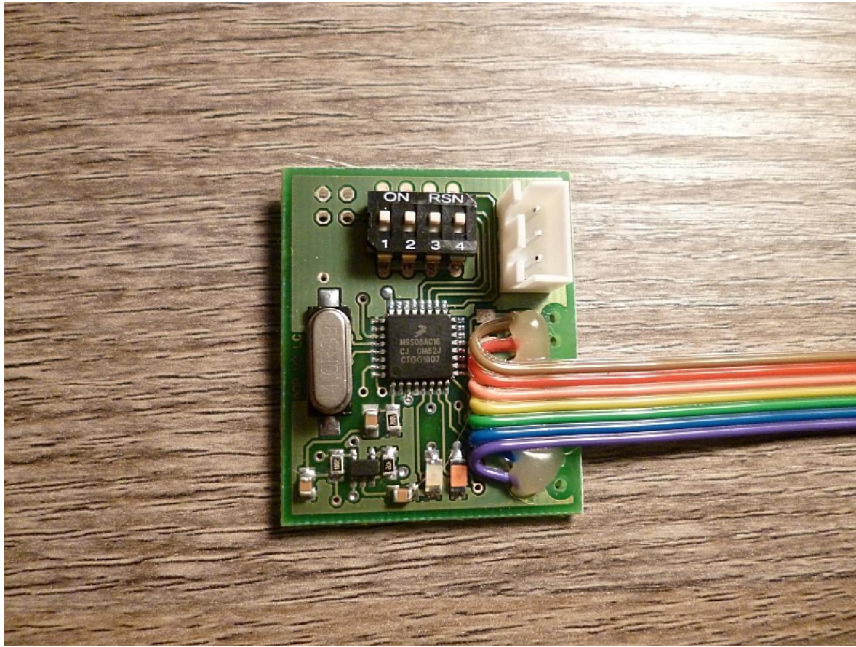# IPI4HL (proportional radio interface for RX18)

DIP switch setup (Low position means ON)

DIP4:

      OFF   = programming mode

      ON   = normal mode: automatic detection of channels and neutral positions

DIP3..DIP2:

      ON ON = Inertia (momentum) OFF: cannot be activated

      ON OFF = Inertia Step 1 (fast, for a light tank)

      OFF ON = Inertia Step 2 (medium, for a medium tank)

      OFF OFF = Inertia Step 3 (slow, for a heavy tank)

DIP1:

      ON   = The received signals are valid when 5th (gears) is in OFF position.

      OFF   = The received signals are valid when 5 (gears) is in ON position.

1   Inertia (momentum) of the tank

By setting the appropriate dip-switches, it is possible to configure the amount of inertia for the tank.

Inertia affect mostly the forward/backward movements and a just little during the turns.

At startup the inertia is ALWAYS disabled: to enable it (provided Inertia is not set on "OFF" by DIP 1 and 2), move the left stick in the lower-right position and hold it for more than 5 seconds, from now on the inertia is enabled.

To avoid cheating during the game it is impossible to reset the inertia (once enabled) using the transmitter: it is therefore necessary to switch the tank OFF from the main switch to reset it.

2   Programming mode

By setting the DIP0 on OFF position, it is possible to program the min. and max excursion for each channel.

Turn the tank switch ON to supply power to the IPI4HL board.

In programming mode the red LED is blinking: move both sticks in every direction (in a circular movements).

You have about 30 seconds to do this, after which the red LED stops blinking and the recorded excursions for each channel are stored in the non-volatile memory.

Switch the tank OFF and move DIP0 in ON position after programming. This procedure has to be performed only once, if successful.

Now you can switch the tank ON normally.

3   Normal use

When switching the tank on, the system checks for valid PPM signals from the receiver, from channel 1 to 4 and verifying that sticks are in neutral position (corresponding to the 1.5 ms width pulses).

At the end of the check routine the green LED blinks for the number of channel detected then lights up steady.

If the number of channels is less than 4 the red LED lights up steady, the green LED blinks for the number of channels detected (e.g. 1 channel missing equals to 3 blinks of the green led and the red LED light steady), and the autodetect routine restart.

(Please note that if one or more sticks are not in neutral position the autodetect routine will fail)

If the auto detection is successfull, the current neutral position of the sticks is stored in memory as a default and will be used at the next power on of the system.

This routine check also for the presence of the 5th channel.

Engine start/stop	: hold the left stick in left-low position for more than 3 seconds
Enable inertia	: hold the left stick in right-low position for more than 5 seconds
Barrel up/down	: move the left stick in mid-low position
Fire cannon	: move the left stick in full-high position and release it to neutral
G key (MG)	: move the left stick in low position
Brake	: move rapidly the right stick in opposite direction of the movement and the tank will brake independently from the level of inertia

4   Valid pulses of the 5th channel

By using a 5 channel radio gear (5th channel as a two-positions switch) it is possible to drive two tanks alternately with one transmitter. Both tanks must be equipped with a IPI4HL module each, of course.

In order to use this feature please follow the next steps

Items needed : two (at least) 5 channels receivers, a 5 channel transmitter bound to both receivers, two IP4HL modules

1   Connect the the IPI4HL modules to the receivers.

2   Setup each IPI4HL modules as described at chapter 2 (make this procedure separately for each receiver).

3   Set the dip-switch 3 to OFF on the first tank, and ON on the second one.

4   Switch on both tanks and the transmitter.

5   Now with both tanks in stand-by mode (e.g. on HL tanks the drive light(s) blinking) move the left stick to start engine and one tank will startup and move as usual.

6   Move the 5th channel switch to the other position and check that the tank does not move anymore: this means that the transmitter signals will be recognized only on the other tank. Start the engine of the second tank and move around.

7   Switch the 5th channel and the commands are transferred back to the first tank.

8   Enjoy quick switching between tanks, and manouvering them together against your enemies! Practice with shoot and cover tactics, switching tank during reload times.