



MPU RECEL SYSTEM III CLONE. Notice of installation

Installation

RS3CLN is an exact replica of the original Recel system III MPU which is used in several Recel pinballs from the 70's. Dimensions, connections, timings are totally indistinguishable.

Since RS3CLN is identical to the original Recel MPU in every aspect, the installation is straightforward.

Just follow the few steps below, and that's it.

1. Locate the old MPU board in the lightbox. Disconnect the 3 connectors PC (Power), MA (interface to mux board) and MB (display board). Please, note the orientation of these connectors. Original connectors do not always have polarisation notches, or pins, and could be mistakenly reinstalled in reverse orientation.
2. Remove the metallic backbone+MPU board from the pinball machine.
3. Unbolt the power transistors that are attached to the metallic backbone.
4. Unscrew the 4 spacers which maintain the old board to the metallic backbone
5. Then install the new clone MPU. You will reuse the spacers to attach the new MPU to the metallic backbone. There is no more power transistor to bolt to it, so the operation is simple.
6. Then you can reinstall the assembly in the lightbox.
7. Reconnect the 3 connectors in the same way as they were originally. You should always check that the +10V power supply from the power supply board is present and has the correct value. Please, note that the RS3CLN is not protected against reverse voltage. Always, check your connectics. RS3CLN will work correctly with its theoretical 10V power input in the range [7.5V, 15V]. It is therefore very tolerant.
8. That's it. You are ready to go. The MPU will run the preconfigured game variant you asked for at purchase, or « Crazy Race » by default if you did not request anything.
9. Use the WiFlip web interface to change the game variant, system settings, specific game settings, etc...

Callouts

Callout	Description	Callout	Description
1	PC connector. From cabinet's power board	12	Optional multipurpose IO (3V3)
2	[+8V..+12V] standalone power supply	13	MB connector. From display board.
3	S1. Not always mounted pushbutton.	14	Optional 5V supply
4	S2. Pinball reset (long press)	15	Core80 minicard. Spartan 7 core board.
5	8-Dip switches. Not used yet.	16	Power good test connector.
6	Select voltage on MD pin 8 (0 or -12V)	17	UARTs alternate access (ESP8285, FPGA)
7	MD. Miniprinter interface	18	Optional sound board interface
8	MC. Port expander.	19	FPGA JTAG connector
9		20	Optional -12V power reg. Not mounted.
10	MA connector. Interface with Mux board.	21	Output LEDs. Lamps+Coils.
11	Optional connection to SPI or I2C		

PC Connector

PC Connector	Pin#	Type	Label	Comment
	1	In/ out	GND	0V DC connection to display control (DE pin 10)
	2	Out	+5V	+5V to power supply of display control (DE pin 11)
	3	Out	+7V	+7V DC to display control (DE pin 8) (*)
	4	Out	GND	0V DC to display control (DE pin 9)
	5	Pol		Polarity connection. No pin
	6	In	GND	0V DC from power supply (PC pin 6)
	7	In	+7V	+7V DC from power supply (PC pin 1) (*)
	8	Out	Out sound	Play tones. To be sent to an amplifier (5V, max 100mW)
	9	Out	Play signal	Turns the playfield on (coils, lamps, flippers)
	10	In	+10V	Power source of RS3C MPU. Operating range [8V, 12V] (**)
	11	In	GND	
	12	In	GND	
	13	In	-18V	Not connected on the clone. No use. (***)

* PC pins 3/7 form a bridge to forward +7V DC from power supply board to display unit. +7VDC is not used on the MPU board, except that +7VDC is made available on pin 10 of connector MD (mini printer connector)

** Power supply is Not protected against voltage inversion. Absolute maximum rating: +18V

*** -12V power supply is drawn on the PCB, but corresponding components are not mounted (U14, C16, C21). This circuitry might be required in case of use of the mini printer because on the original MPU, Pin 8 of MD is connected to -12V. This characteristic has been replicated on the clone, in case of necessity. R112 or R113 are 0R 0603 resistances. Mount R113 to have -12V on MD pin 8 or R112 to just have 0V on MD pin 8.



Power inputs are **Not** protected against voltage inversion. Check voltage values on every power pins of the feeding connector before powering the board.



A DC power jack is provided on the upper left corner of the mother board. Any 3A DC power source between 8V and 12V can be used. +V on the central pin, GND on the outer contact. This power source is to be used for test bench only, with the RS3CLN in stand alone mode.