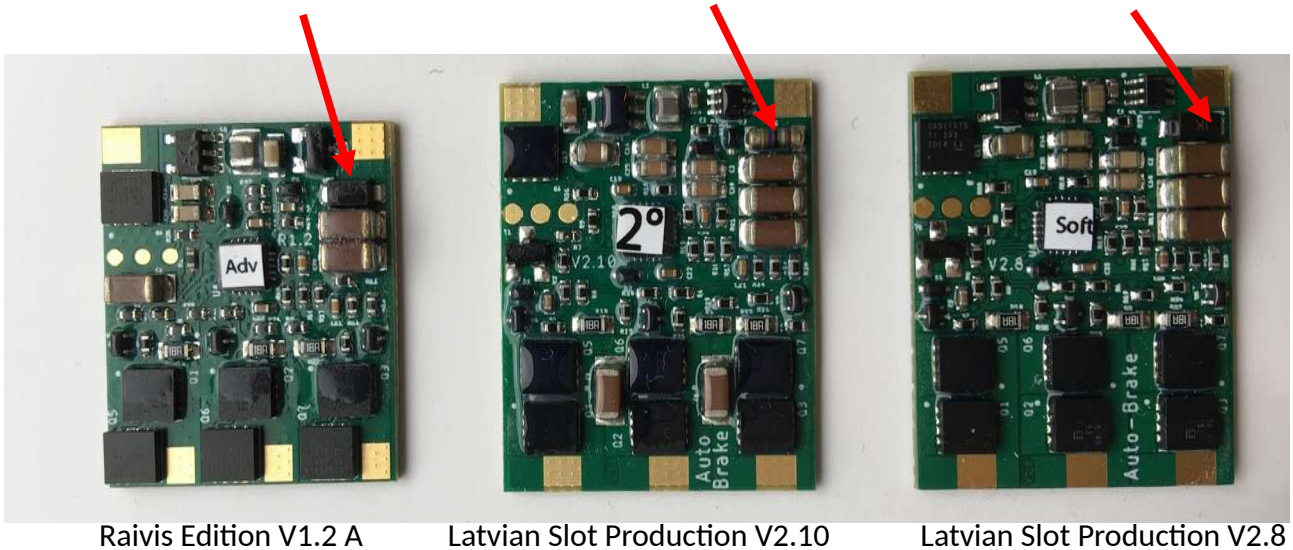
Slot Car eCom Comparisons

The Remora 1 and DoSlot boards have components mounted on both sides. The Latvian boards are single side mounted components.

The Latvian Boards

code IK 4R7 resistor code IK

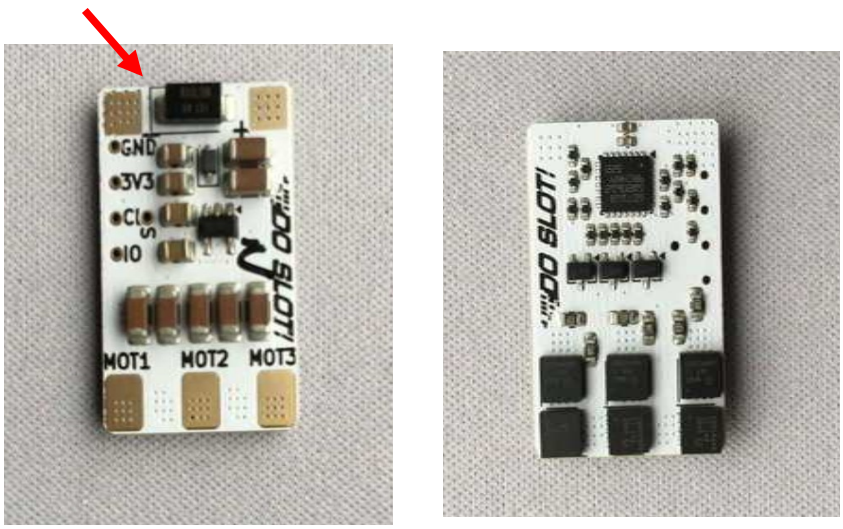


Raivis Edition V1.2 A Latvian Slot Production V2.10 Latvian Slot Production V2.8

The Raivis Edition looks like a V2.8 without the auto brake bits.

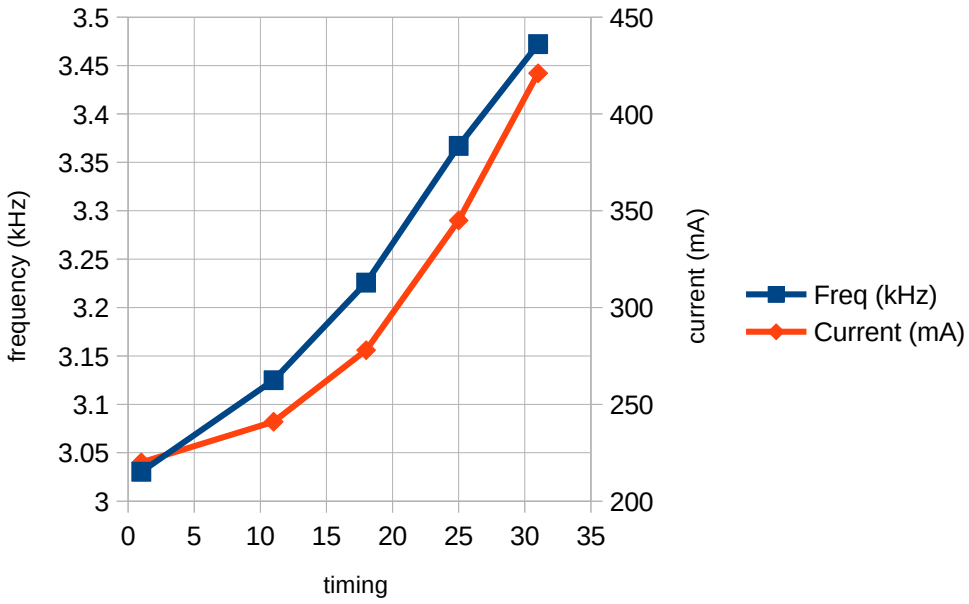
The DoSlot Board

Ruilon SMAJ TVS diode code UV



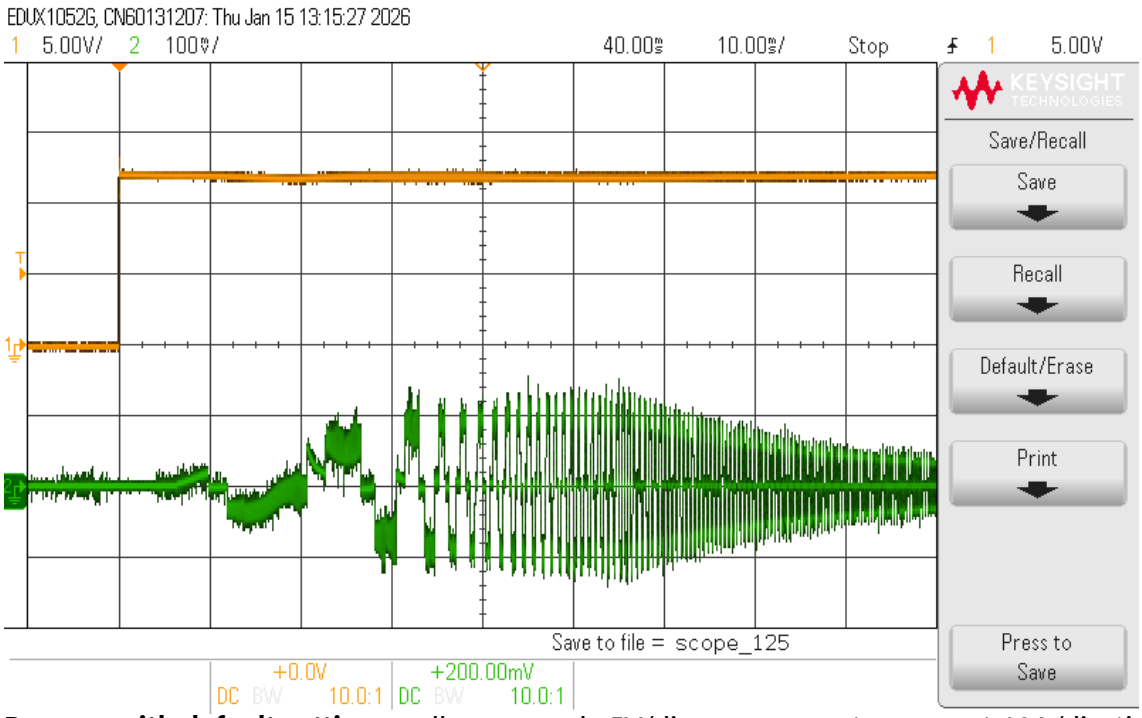
board	Remora1	Raivis Edition A	Latvian V2.10	Latvian V2.8	Do Slot
weight g	1.45	1.90	2.35	2.31	2.00
pcb dimensions mm, area mm²	23.21 ×16.39×0.79 380	23.33×18.74×1.01 437	26.33×20.19×1.04 532	26.29×20.12×1.03 529	24.72×15.95×1.01 394
overall thickness mm	3.09	2.99	2.87	2.95	3.92
smallest pad sizes mm	3.4×1.8	2.2×1.8	2×2	2.5×2	3×3
reverse polarity protection	control & power circuits	control & power circuits	control & power circuits	control & power circuits	control only
auto brake	no	no	yes	yes	no
output mosfets (note thin lead-wire 24AWG is 0.84mΩ/cm)	L0302A (1.2mΩ) Remora1.2	CSD17575 (2.5mΩ) CSD25404 (40mΩ to 5.5mΩ)	CSD16340 (4.2mΩ) CSD25404 (40mΩ to 5.5mΩ)	CSD16340(4.2mΩ) CSD25404 (40mΩ to 5.5mΩ)	CSD16340 (6.1mΩ to 5mΩ) CSD25404 (40mΩ to 5.5mΩ)
reverse polarity mosfet	1R603 (1.2mΩ)	CSD17575 (2.5mΩ)	CSD17575 (2.5mΩ)	CSD17575 (2.5mΩ)	na
start V	1.350	2.348	2.193	1.978	1.957
stop V	1.155	2.02	1.95	1.657	1.955
F at 10.00V 3000Kv motor see graph	T=1, 3.0303kHz T=11, 3.1250kHz T=18, 3.2258kHz T=25, 3.3670kHz T=31, 3.4722kHz	3.4602kHz	3.4247kHz	3.1056kHz	3.4130kHz
no load current mA see graph	T=1, 220 T=11, 241 T=18, 278 T=25, 345 T=31, 421	457	430	284	380
DC bus discharge time with 12R, µs	800	640	810	660	1140
calc capacitance µF	67	53	68	55	95
cap size × nos.	0805 × 10	1207 × 3 (fat 1206)	1206 × 5	1207 × 3 (fat 1206)	1206 × 7

Remora with unloaded 3000Kv motor, rotation frequency & current vs timing



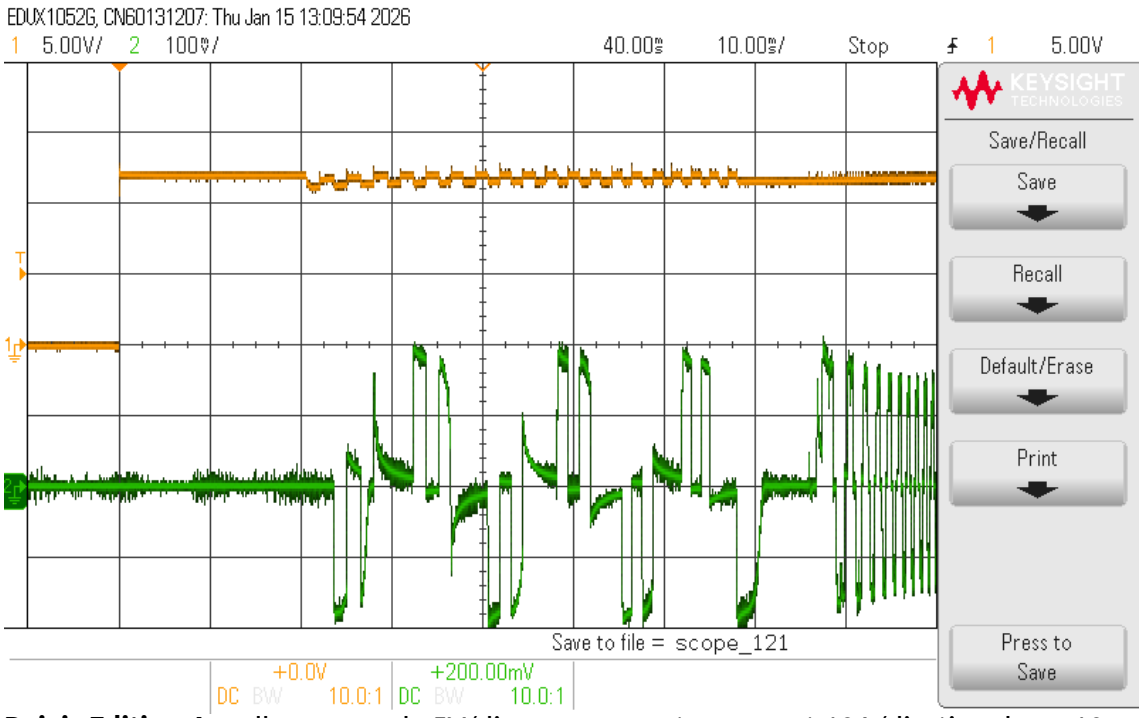
Start table and waveforms
3000Kv motor with flywheel

board	Remora1	Raivis Edition A	Latvian V2.10	Latvian V2.8	Do Slot
initial delay ms	6	23	23	23	5
proper rotation at ms	30	75	68	68	would not start
peak current	14	20	20	20	11 about 14A if start at very low voltage initially

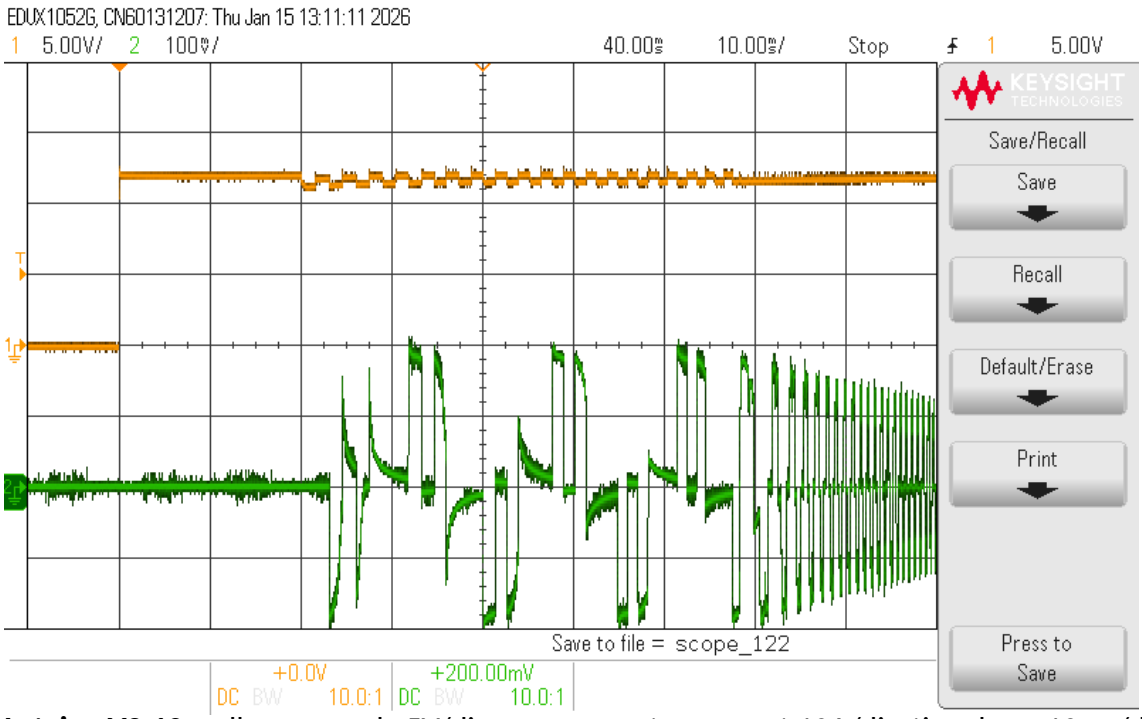


Remora with default settings, yellow = supply 5V/div, green = motor current 10A/div, time base 10ms/div.

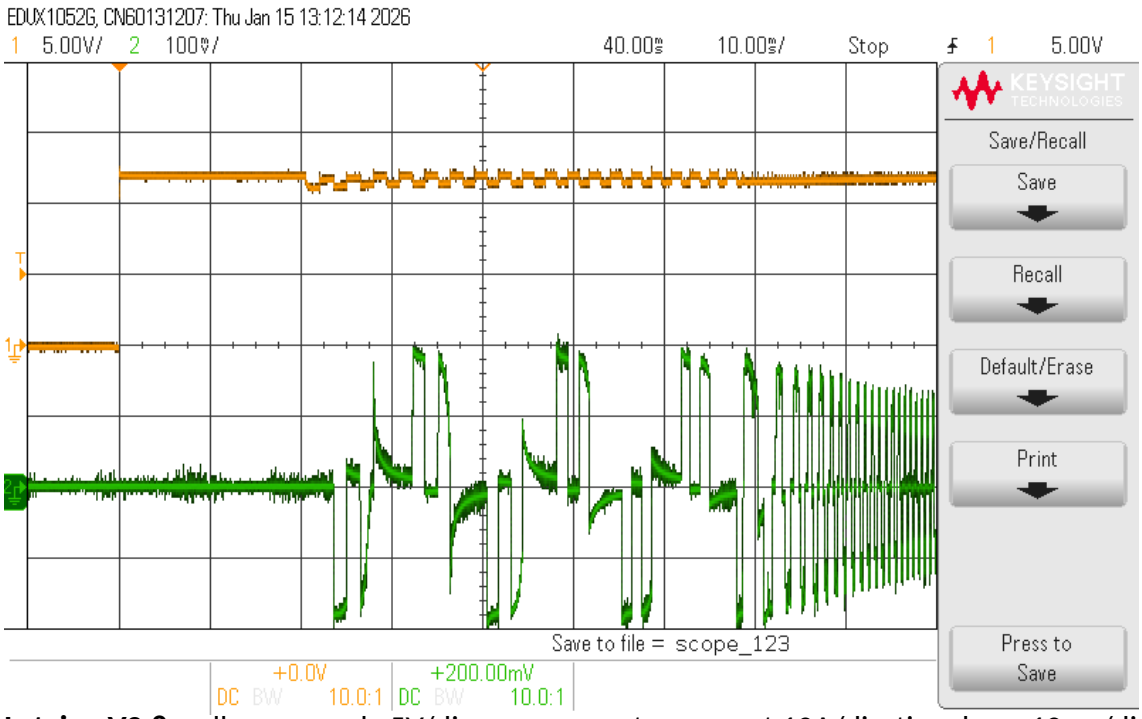
Initial delay ≈ 6ms, proper rotation ≈ 30ms, peak current ≈ 14A,



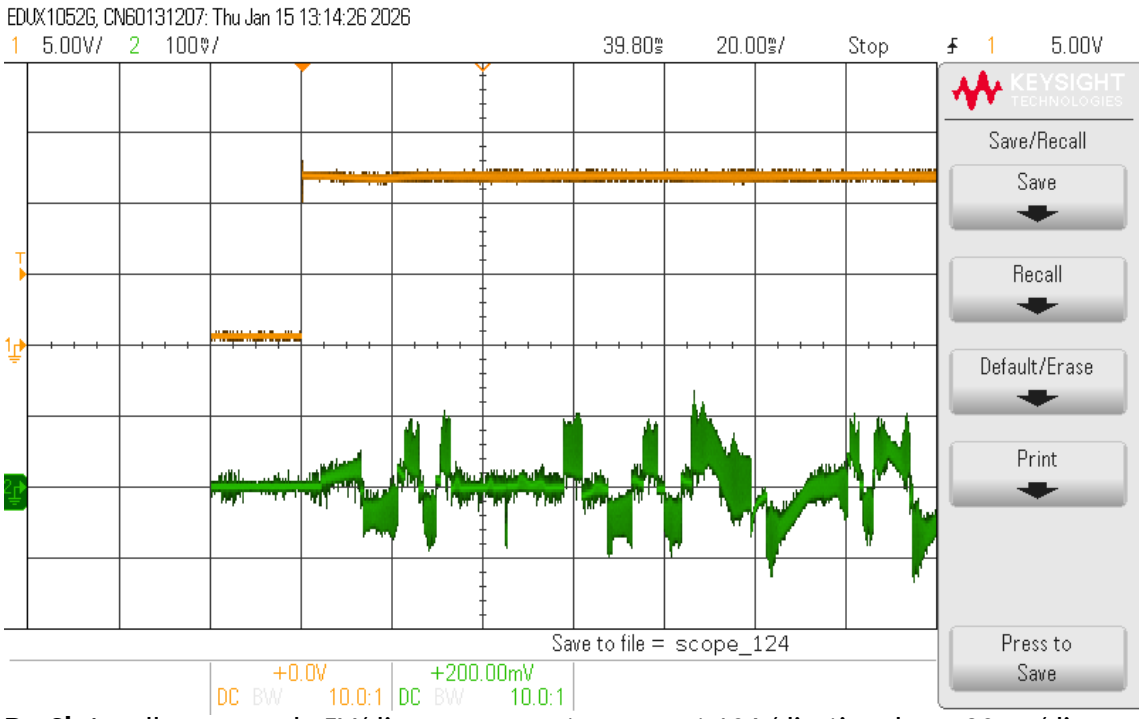
Raivis Edition A, yellow = supply 5V/div, green = motor current 10A/div, time base 10ms/div.
Initial delay ≈ 23ms, proper rotation ≈ 75ms, peak current ≈ 20A,



Latvian V2.10, yellow = supply 5V/div, green = motor current 10A/div, time base 10ms/div.
Initial delay ≈ 23ms, proper rotation ≈ 68ms, peak current ≈ 20A,



Latvian V2.8, yellow = supply 5V/div, green = motor current 10A/div, time base 10ms/div.
Initial delay ≈ 23ms, proper rotation ≈ 68ms, peak current ≈ 20A,



Do Slot, yellow = supply 5V/div, green = motor current 10A/div, time base 20ms/div.
Initial delay ≈ 5ms, proper rotation would NOT start, peak current ≈ 11A,