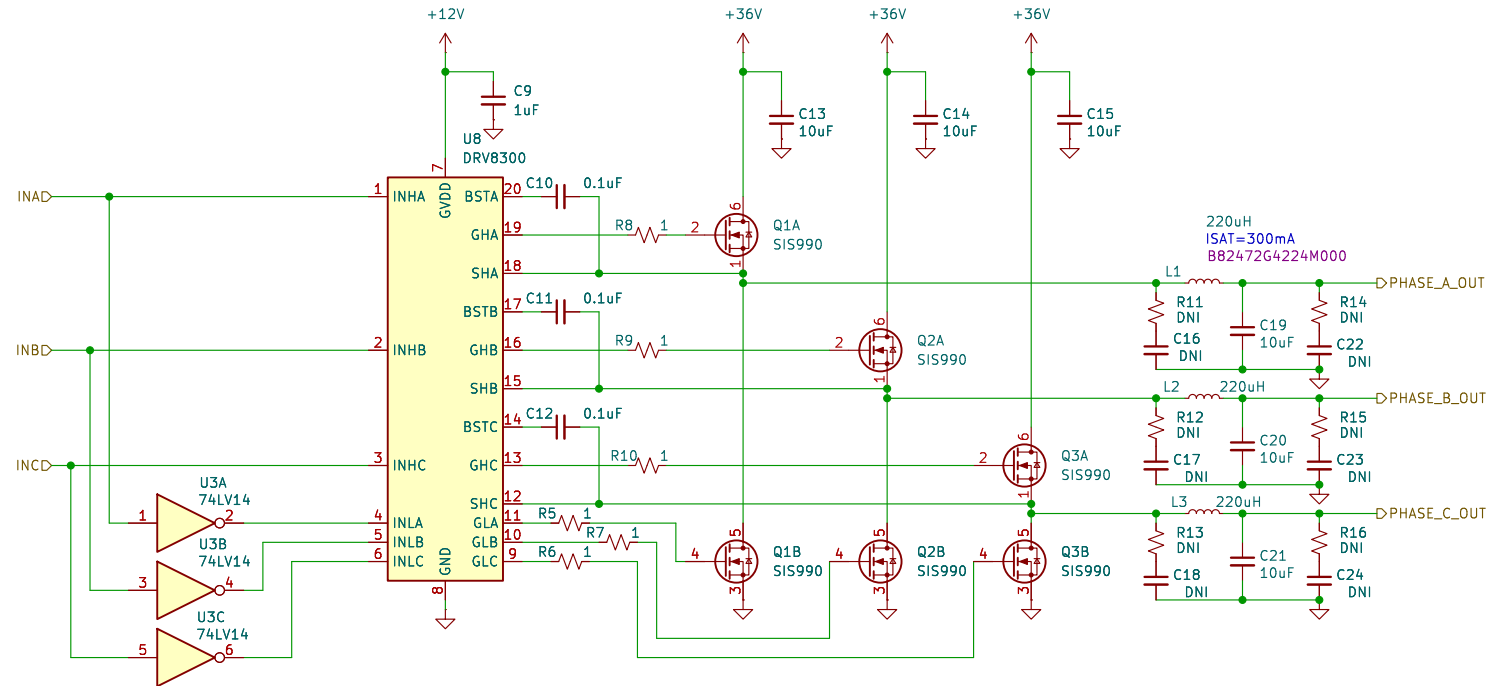


VREF is 2.6 VAC.
 FDAI CT winding: 11.8VAC, is 152 mH and 62 ohms. Current is up to 28 mA, depending on the shaft position.
 If you want to drive a synchro directly, I measure about 25 mA if the shaft is spinning freely. If you hold the synchro shaft so it's generating maximum torque, the current goes up to 600 mA.

$DV_BSTX = VGDD - VB00TD - VBSTUV$
 $VGDD = 12V$
 $VB00TD = 0.85V$ (DRV8300)
 $VBSTUV = 4.5V$ (DRV8300)
 $DV_BSTX = 6.65V$
 $Qg = 8nC$ (SIS990)
 $f_{SW} = 60KHz$
 $ILBS_TRAN = 220uA$ (DRV8300)
 $Q_{tot} = Qg + ILBS_TRAN / f_{SW} = 8nC + 3.7nC = 11.7nC$
 $C_{bst_min} = Q_{tot} / DV_BSTX = 1.76nF$



Sheet: /SingleSynchroDriver1/
 File: SingleSynchroDriver.kicad_sch

Title:

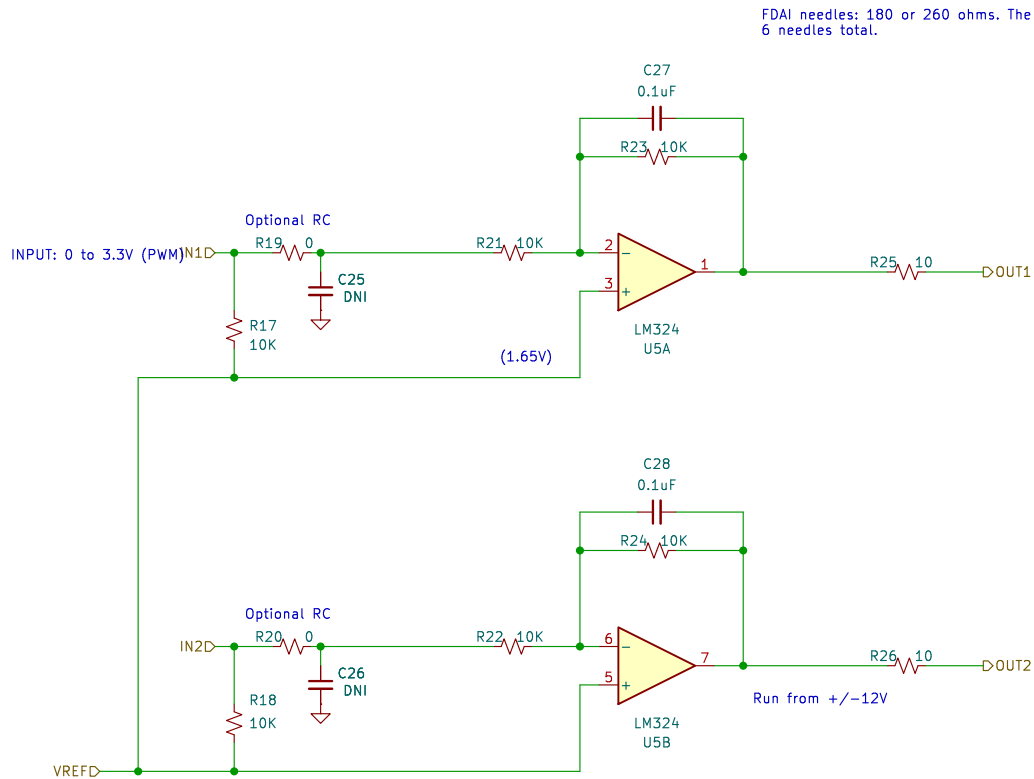
Size: A4

Date:

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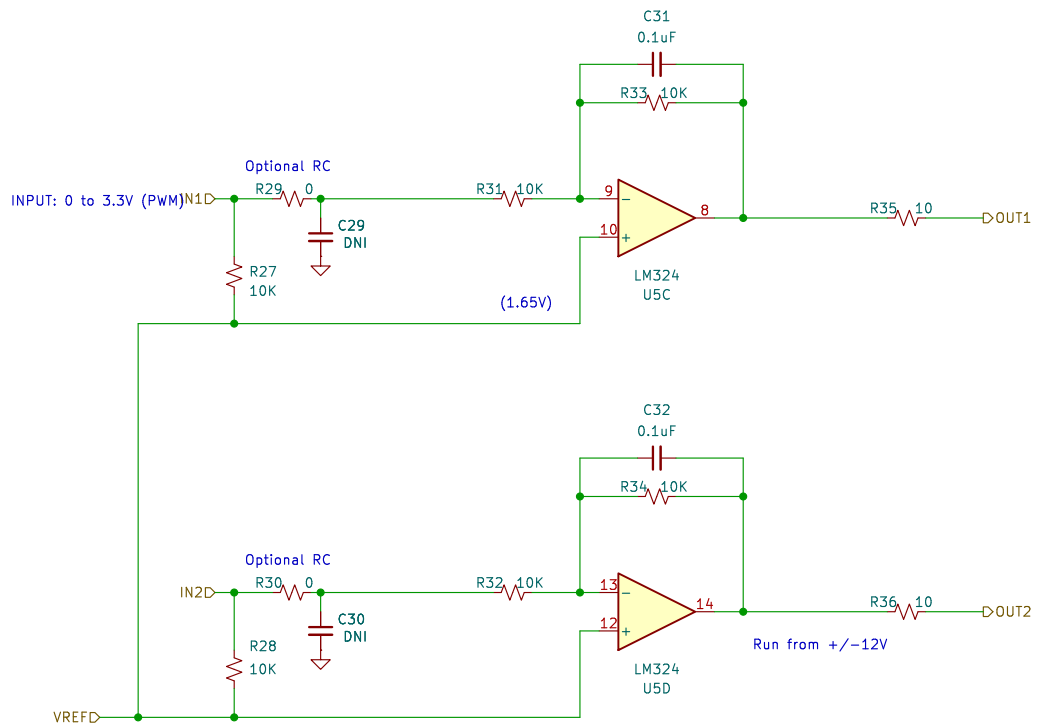
Rev:

Id: 2/10



FDAI needles: 180 or 260 ohms. The full-deflection drive signal is roughly +/- 3V, but they are all slightly different. So 15 mA should be enough. 6 needles total.

Sheet: /NeedleDriver1/ File: NeedleDriver.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. 9.0.1	Id: 3/10	



FDAI needles: 180 or 260 ohms. The full-deflection drive signal is roughly +/- 3V, but they are all slightly different. So 15 mA should be enough. 6 needles total.

Sheet: /NeedleDriver2/
File: NeedleDriver.kicad_sch

Title:

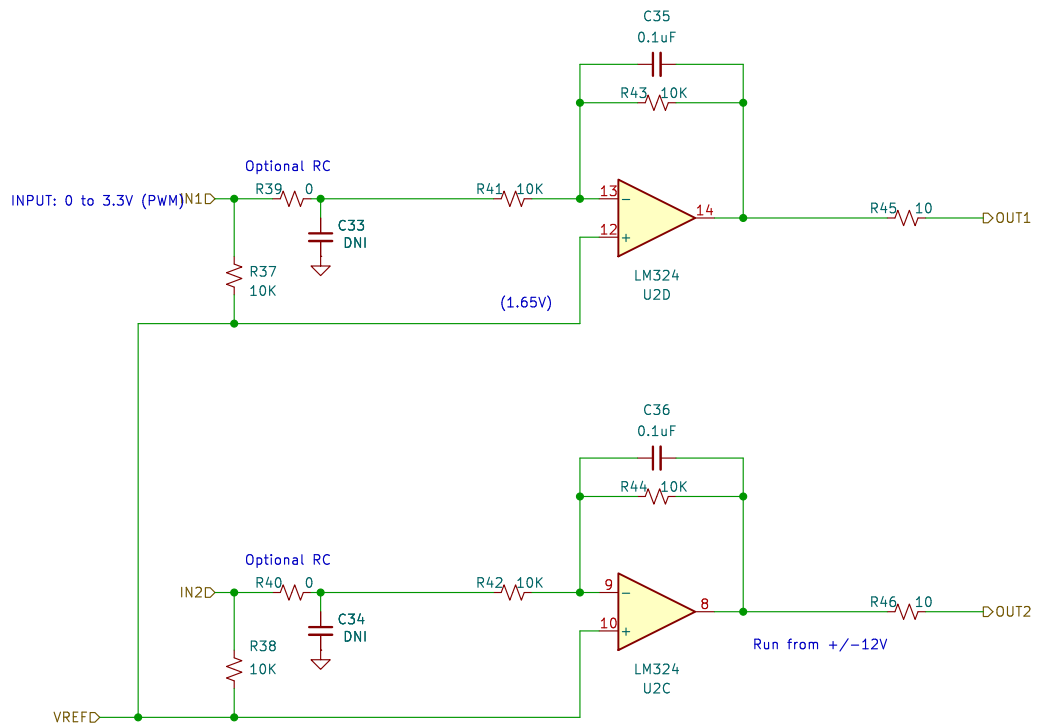
Size: A4

Date:

KiCad E.D.A. 9.0.1

Rev:

Id: 4/10



FDAI needles: 180 or 260 ohms. The full-deflection drive signal is roughly +/- 3V, but they are all slightly different. So 15 mA should be enough. 6 needles total.

Sheet: /NeedleDriver3/
File: NeedleDriver.kicad_sch

Title:

Size: A4

Date:

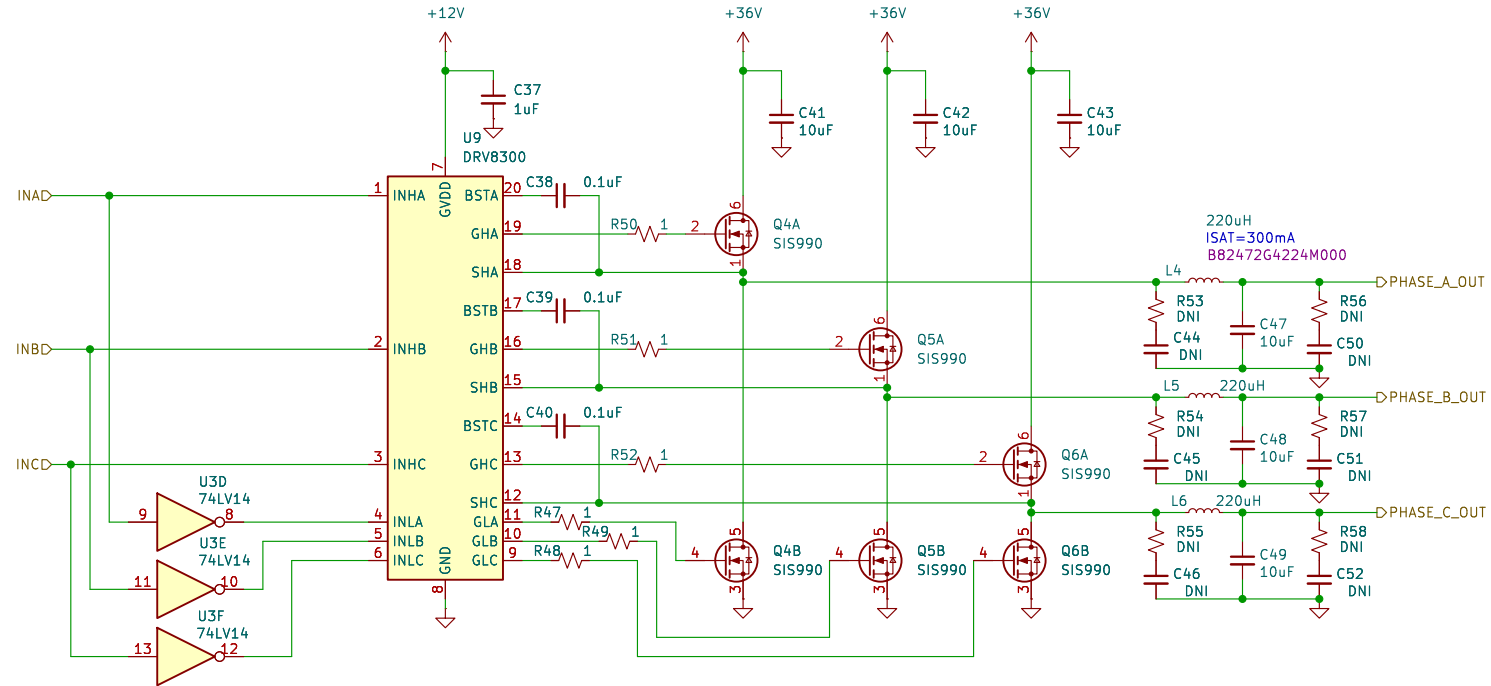
KiCad E.D.A. 9.0.1

Rev:

Id: 5/10

VREF is 2.6 VAC.
 FDAI CT winding: 11.8VAC, is 152 mH and 62 ohms. Current is up to 28 mA, depending on the shaft position.
 If you want to drive a synchro directly, I measure about 25 mA if the shaft is spinning freely. If you hold the synchro shaft so it's generating maximum torque, the current goes up to 600 mA.

$DV_BSTX = VGDD - VB00TD - VBSTUV$
 $VGDD = 12V$
 $VB00TD = 0.85V$ (DRV8300)
 $VBSTUV = 4.5V$ (DRV8300)
 $DV_BSTX = 6.65V$
 $Qg = 8nC$ (SIS990)
 $fSW = 60KHz$
 $ILBS_TRAN = 220uA$ (DRV8300)
 $Q_{tot} = Qg + ILBS_TRAN / fSW = 8nC + 3.7nC = 11.7nC$
 $C_{bst_min} = Q_{tot} / DV_BSTX = 1.76nF$



Sheet: /SingleSynchroDriver2/
 File: SingleSynchroDriver.kicad_sch

Title:

Size: A4

Date:

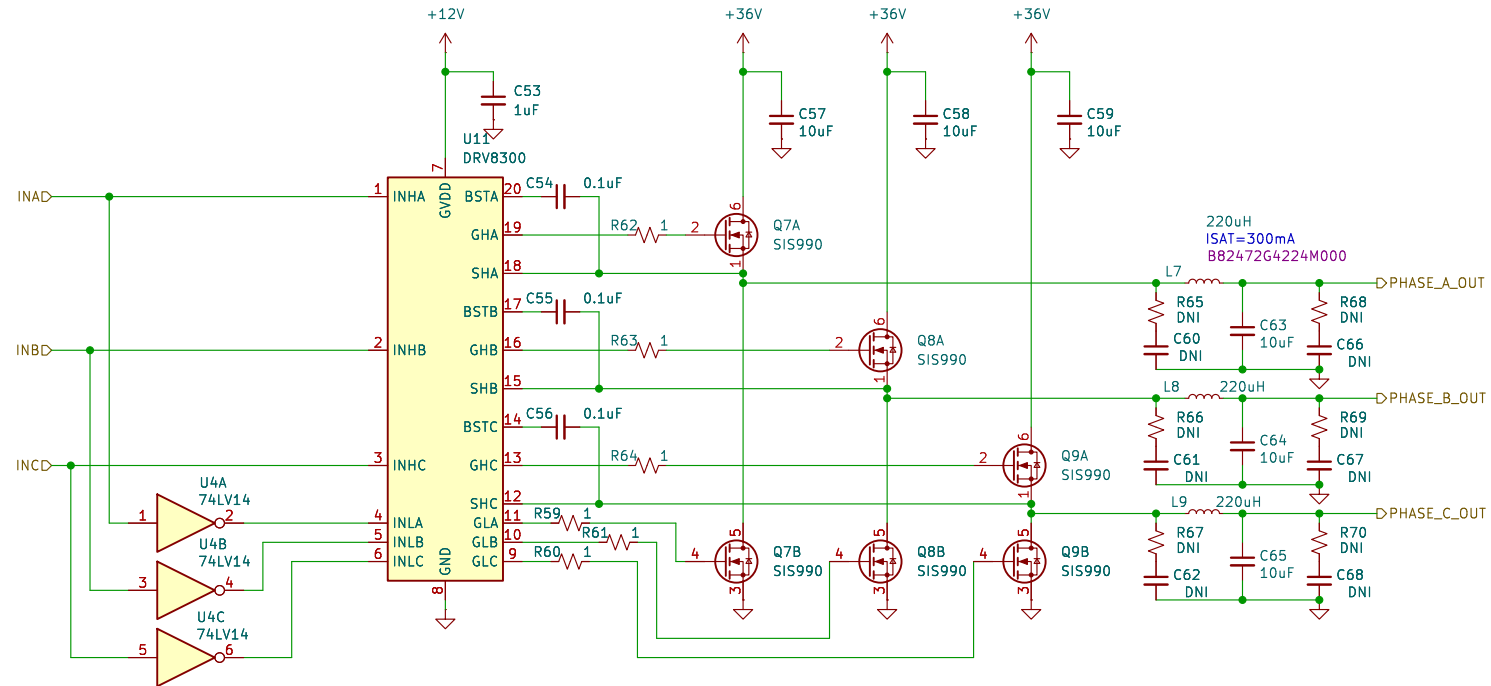
KiCad E.D.A. 9.0.1

Rev:

Id: 6/10

VREF is 2.6 VAC.
 FDAI CT winding: 11.8VAC, is 152 mH and 62 ohms. Current is up to 28 mA, depending on the shaft position.
 If you want to drive a synchro directly, I measure about 25 mA if the shaft is spinning freely. If you hold the synchro shaft so it's generating maximum torque, the current goes up to 600 mA.

$DV_BSTX = VGDD - VBOOTD - VBSTUV$
 $VGDD = 12V$
 $VBOOTD = 0.85V$ (DRV8300)
 $VBSTUV = 4.5V$ (DRV8300)
 $DV_BSTX = 6.65V$
 $Qg=8nC$ (SIS990)
 $fSW = 60KHz$
 $ILBS_TRAN = 220uA$ (DRV8300)
 $Q_{tot} = Qg + ILBS_TRAN/fSW = 8nC + 3.7nC = 11.7nC$
 $C_{bst_min} = Q_{tot} / DV_BSTX = 1.76nF$



Sheet: /SingleSynchroDriver3/
 File: SingleSynchroDriver.kicad_sch

Title:

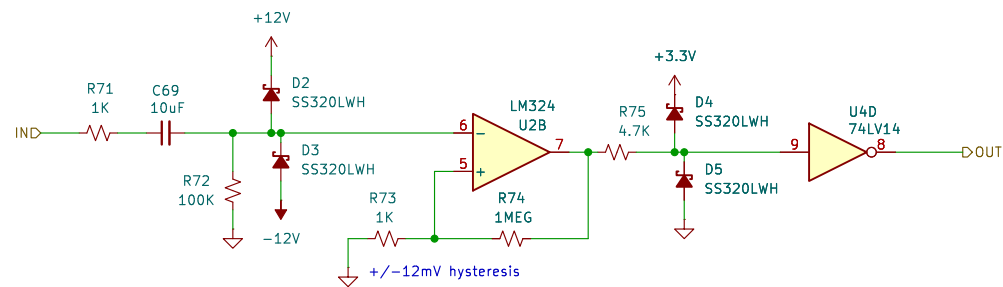
Size: A4

Date:

KiCad E.D.A. 9.0.1

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Id: 7/10



Sheet: /InputComparator/
File: InputComparator.kicad_sch

Title:

Size: A4

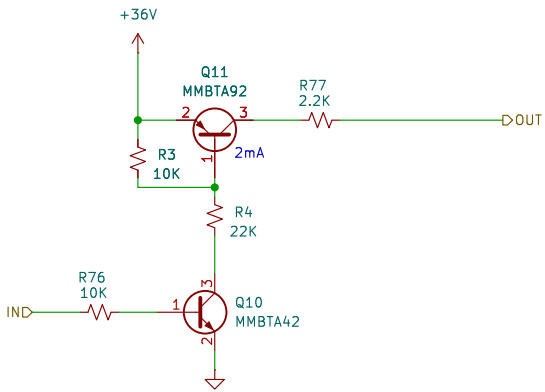
Date:

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Flag solenoid
3.55k ohm
Voltage range approx 16 to 28V
4.5ma at 16v
6.75ma at 24V
7.89ma at 28V



Sheet: /FlagDriver/
File: FlagDriver.kicad_sch

Title:

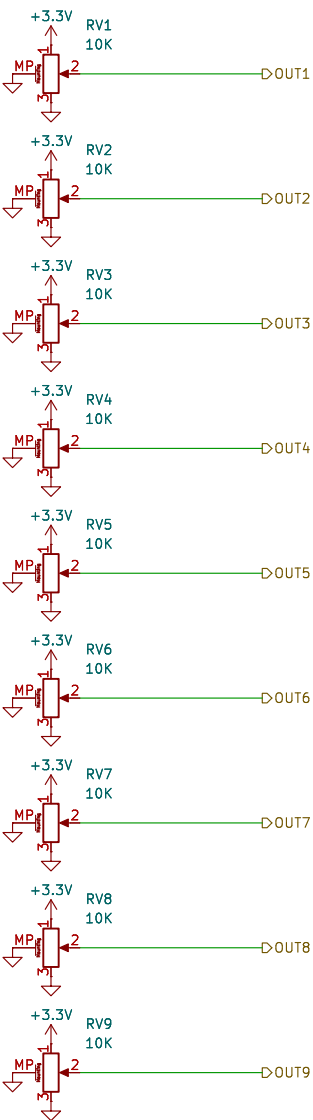
Size: A4

Date:

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Id: 9/10



Sheet: /Pots/
File: Pots.kicad_sch

Title:

Size: A4
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Date:

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Id: 10/10