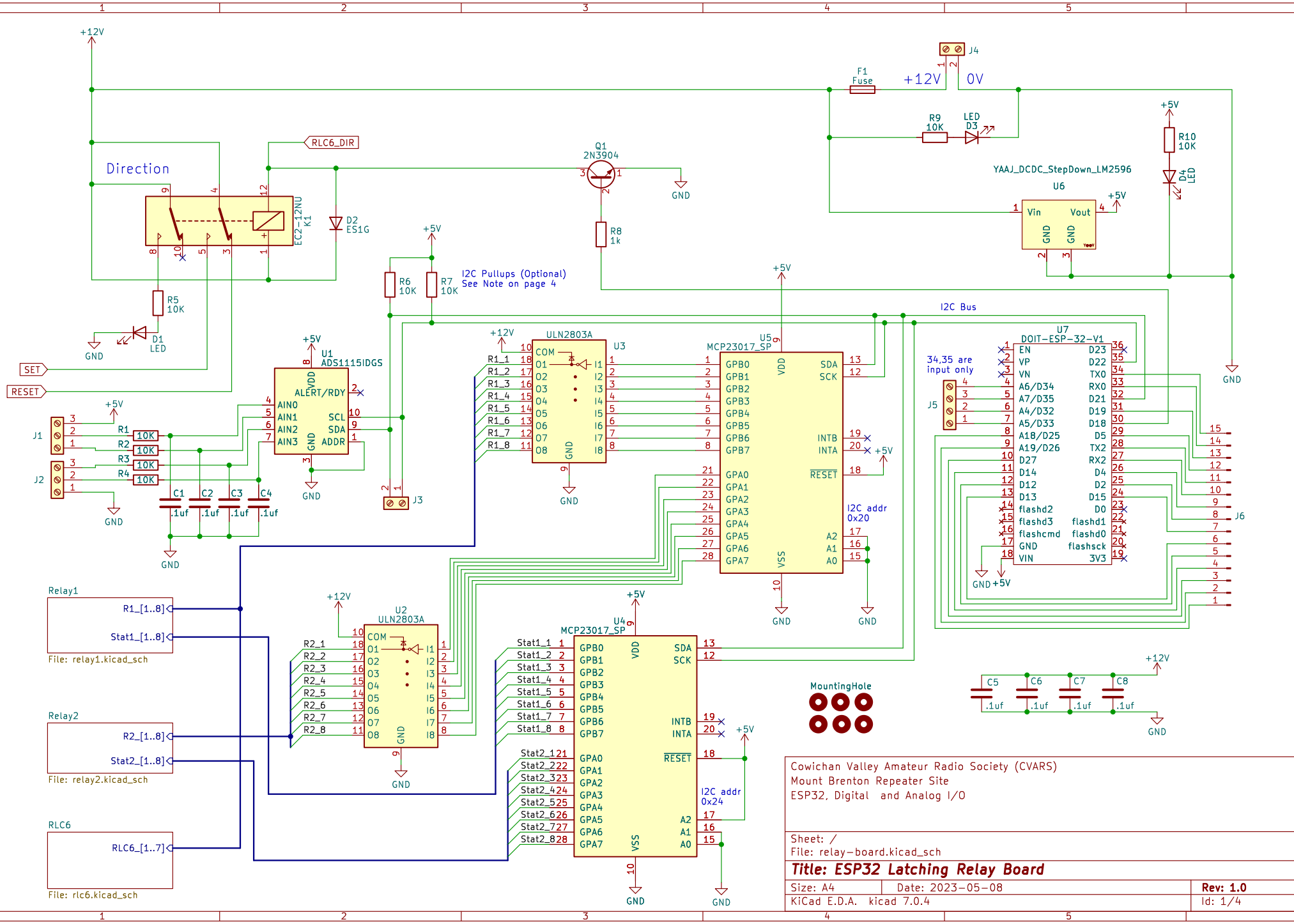
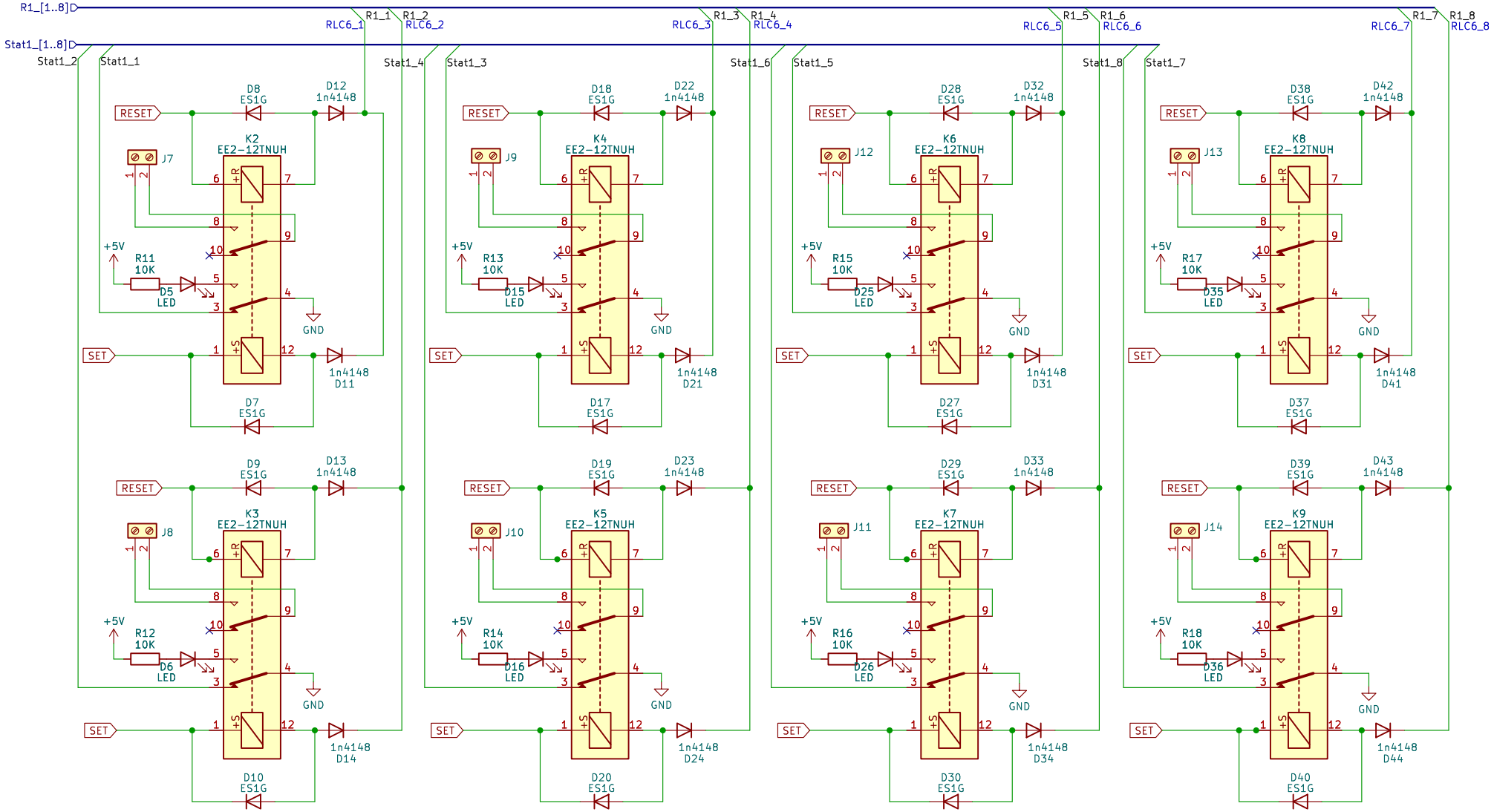

+12V
J4
F1
Fuse
+12V
0V
R9
10K
LED
D3
+5V
R10
10K
D4
LED
YAAJ_DCDC_StepDown_LM2596
U6
Vin
Vout
GND
GND
RLC6_DIR
Direction
Q1
2N3904
GND
D2
ES1G
EC2-12NU
K1
R8
1k
+5V
R6
10K
R7
10K
I2C Pullups (Optional)
See Note on page 4
R5
10K
D1
LED
GND
SET
RESET
I2C Bus
+5V
U1
ADS1115IDGS
VDD
ALERT/RDY
AIN0
AIN1
AIN2
AIN3
GND
SCL
SDA
ADDR
J1
J2
R1
R2
R3
R4
10K
C1
C2
C3
C4
.1uf
GND
+12V
ULN2803A
U3
COM
O1
O2
O3
O4
O5
O6
O7
O8
I1
I2
I3
I4
I5
I6
I7
I8
R1_1
R1_2
R1_3
R1_4
R1_5
R1_6
R1_7
R1_8
J3
U5
MCP23017_SP
GPB0
GPB1
GPB2
GPB3
GPB4
GPB5
GPB6
GPB7
GPA0
GPA1
GPA2
GPA3
GPA4
GPA5
GPA6
GPA7
VDD
VSS
SDA
SCK
INTB
INTA
RESET
A2
A1
A0
I2C addr
0x20
U7
DOIT-ESP-32-V1
EN
VP
VN
A6/D34
A7/D35
A4/D32
A5/D33
A18/D25
A19/D26
D27
D14
D12
D13
flashd2
flashd3
flashcmd
GND
VIN
D23
D22
TX0
RX0
D21
D19
D18
D5
TX2
RX2
D4
D2
D15
D0
flashd1
flashd0
flashsck
3V3
34,35 are
input only
J5
J6
Relay1
R1_[1..8]
Stat1_[1..8]
File: relay1.kicad_sch
Relay2
R2_[1..8]
Stat2_[1..8]
File: relay2.kicad_sch
RLC6
RLC6_[1..7]
File: rlc6.kicad_sch
U2
ULN2803A
R2_1
R2_2
R2_3
R2_4
R2_5
R2_6
R2_7
R2_8
U4
MCP23017_SP
Stat1_1
Stat1_2
Stat1_3
Stat1_4
Stat1_5
Stat1_6
Stat1_7
Stat1_8
Stat2_1
Stat2_2
Stat2_3
Stat2_4
Stat2_5
Stat2_6
Stat2_7
Stat2_8
I2C addr
0x24
MountingHole
C5
C6
C7
C8
Cowichan Valley Amateur Radio Society (CVARS)
Mount Brenton Repeater Site
ESP32, Digital and Analog I/O
Sheet: /
File: relay-board.kicad_sch
Title: ESP32 Latching Relay Board
Size: A4
Date: 2023-05-08
Rev: 1.0
KiCad E.D.A. kicad 7.0.4
Id: 1/4

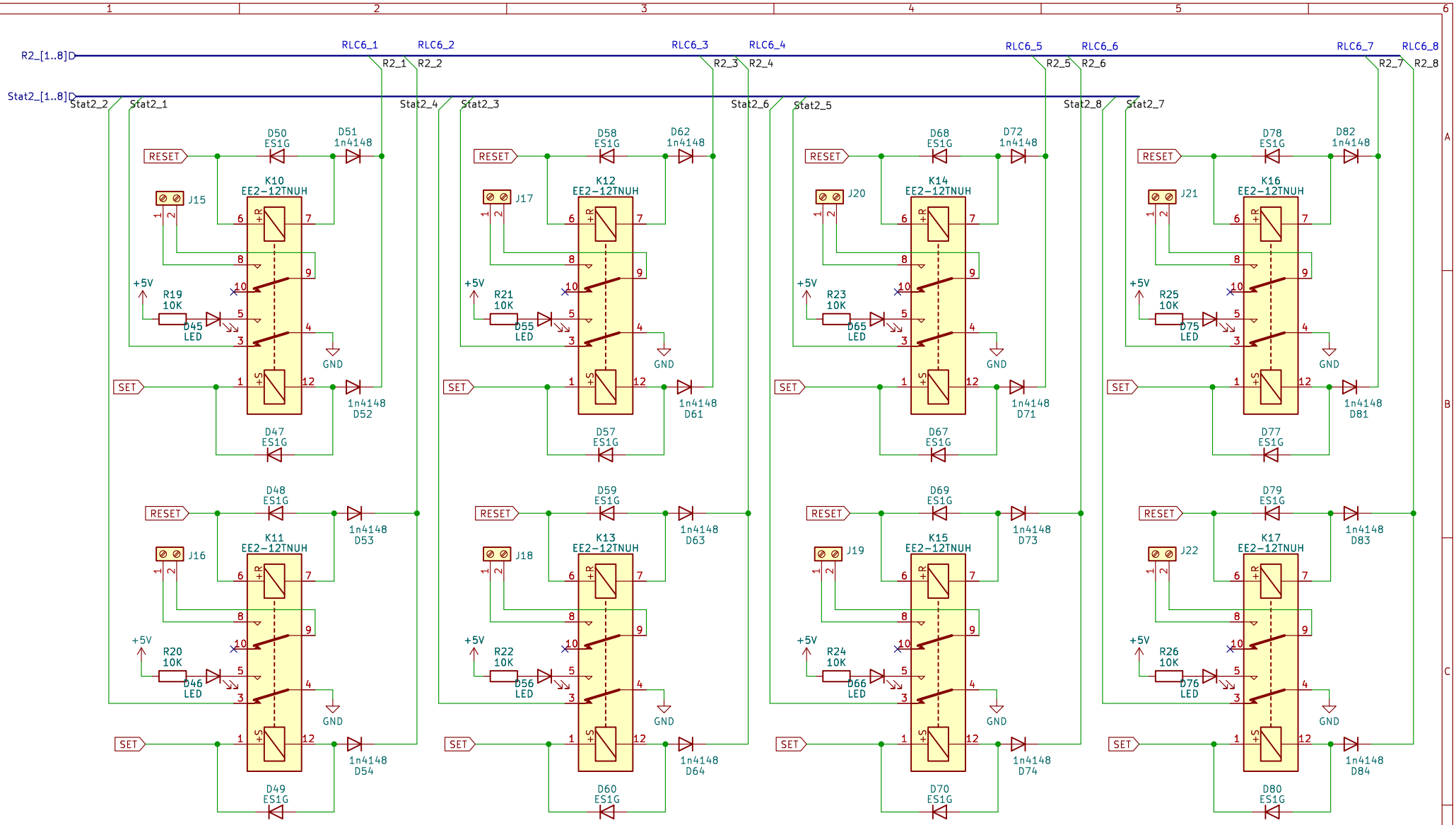


Cowichan Valley Amateur Radio Society (CVARS)
Mount Brenton Repeater Site
Latching Relays – Bank 1

Sheet: /Relay1/
File: relay1.kicad_sch

Title: ESP32 Latching Relay Board

Size: A4	Date: 2023-05-08	**Rev: 1.0**
KiCad E.D.A. kicad 7.0.4		Id: 2/4

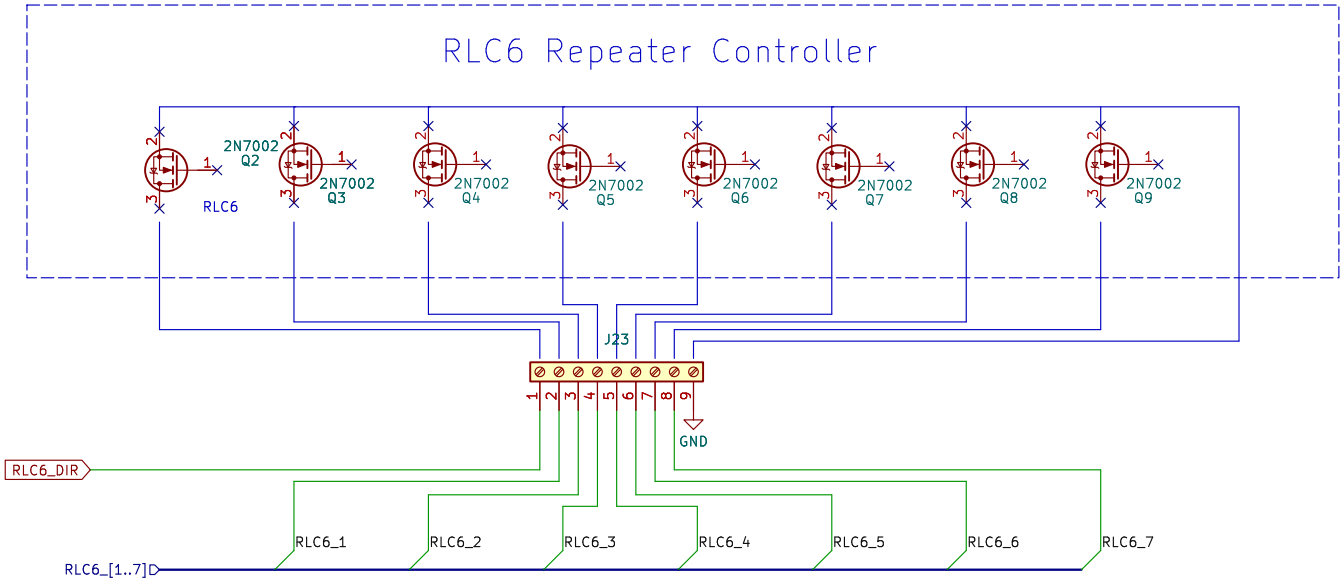


Cowichan Valley Amateur Radio Society (CVARS)
Mount Brenton Repeater Site
Latching Relays – Bank 2

Sheet: /Relay2/
File: relay2.kicad_sch

Title: ESP32 Latching Relay Board

Size: A4	Date: 2023-05-08	**Rev: 1.0**
KiCad E.D.A. kicad 7.0.4		Id: 3/4



Operation

Latching relays are toggled by either the RLC6 (only 1–7) or the ESP32.
To toggle a relay, follow this logic:

1) Energize the DIRECTION relay to SET or leave off to RESET
2) Wait 100ms
3) Energize the latching relay
4) Wait 100ms
5) De–energize the latching relay and the DIRECTION relay if on.

Terminal block J5 is meant for GPIO inputs, the ESP32 has internal pullups.

The ADS1115 has 4 16bit analog inputs available for general use. The default I2C address is 0x48H

Header strip J6 brings spare I/O from the ESP32 out and may be used in accordence with the Doit V1 spec.

Note:

If ADS1115 analog board is not populated add 4.7k I2C pullup resistors, see page 1.

Cowichan Valley Amateur Radio Society (CVARS)
Mount Brenton Repeater Site
RCL6 Connections and Operation

Sheet: /RLC6/
File: rlc6.kicad_sch

Title: ESP32 Latching Relay Board

Size: A4	Date: 2023–05–08	**Rev: 1.0**
KiCad E.D.A. kicad 7.0.4		Id: 4/4