Alternate Relays

https://www.digikey.com/en/products/detail/omron-electronics-inc-emc-div/G8K-17R-DC12-BY-OMR1/15971863

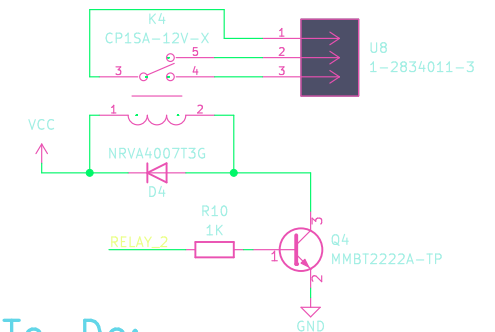https://www.digikey.com/en/products/detail/panasonic-electric-works/ACNM7112SAX/1986678

https://www.digikey.com/en/products/detail/cit-relay-and-switch/A171AS12VDC-96R/12503266

Notes To-Do:

* Add Input Protection (TVS Diode and Varistor)
(SMCJ30CA, and VC080512A250DP)

* Double Check that Rx goes to Rx and Tx goes to Tx on MCP2515

* DIP Swtiches to Change Modes (CAN Speed, CAN ID, Others...)

* Design so that system can be programmed easier with Arduino Nanao

* Add LED indicator for Relays

* Determine if simple SPST output, or 12V and GND output

* Add Test points

* Add new Connector for Power Input and CAN Input

U1 AZ1117-5.0
VI / VO / GND
VCC, +5V
C1 10uF, C2 22uF
GND

J3 UART Header
3 UART_TX
2 UART_RX
1
GND

J1 UPDI Header
1 R7 4.7K UPDI
2
GND

H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole

U3 ATtiny414-SS
VCC, +5V
9 PB0 — CS
8 PB1 — RELAY_1
7 PB2 — UART_TX
6 PB3 — UART_RX
RESET/PA0 10 UPDI
PA1 11 MOSI
PA2 12 MISO
PA3 13 SCK
PA4 — RELAY_2
PA5 — RELAY_3
PA6 — INT
PA7 — RELAY_4
GND 14
C7 10uF

K1 CP1SA-12V-X
U4 1-2834011-3
NRVA4007T3G D1
VCC
R6 1K
RELAY_1
Q1 MMBT2222A-TP
GND

K2 CP1SA-12V-X
U6 1-2834011-3
NRVA4007T3G D2
VCC
R8 1K
RELAY_4
Q2 MMBT2222A-TP
GND

K3 CP1SA-12V-X
U7 1-2834011-3
NRVA4007T3G D3
VCC
R9 1K
RELAY_3
Q3 MMBT2222A-TP
GND

K4 CP1SA-12V-X
U8 1-2834011-3
NRVA4007T3G D4
VCC
R10 1K
RELAY_2
Q4 MMBT2222A-TP
GND

U2 MCP2551-I-SN
VCC
4
3 CAN_H
6 CAN_L
1
J2
VDD 3
7 CANH — TXD 1
CANL — RXD 4
VSS Vref 5
Rs 8
C3 100nF
R3 4.7K
GND
+5V

R5 120
JP1 SolderJumper_2_Open
CAN_H / CAN_L

U5 MCP2515-xSO
+5V
VDD 18
2 RXCAN — SI 14 MOSI
1 TXCAN — SO 15 MISO
CS 16 CS
SCK 13 SCK
INT 12 INT
11 RX0BF
10 RX1BF
4 TX0RTS
5 TX1RTS
6 TX2RTS
17 RESET
OSC2 7
OSC1 8
CLKOUT/SOF 3
VSS 9
R1 100K +5V
R2 100K +5V
R4 100K
RESET
+5V
C6 100nF
GND
Y1 8MHz
C4 22pF, C5 22pF
GND