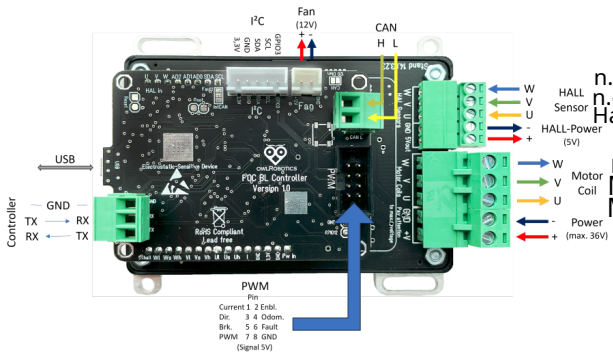
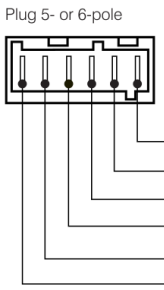
owlDrive and Husqvarna cutter motor wiring and settings
7.2.2024

owlDrive black



24V power supply

ebm-papst BG 3633
(1-phase BLDC)



View from the plug side 6-pole connection
Matching mating connector (5- or 6-pole) e.g. Lumberg 3611 05 K31 5-pole; 3611 06 K31 6-pole

1 Motor 2
2 S Hall-Signal "out"
3 + Hall-Signal VCC
4 - Hall-Signal GND
5 Motor 1
6 ⏚ PE (optional)

To change settings, attach USB cable to owlDrive and start a serial monitor. Send '0' to enter menu.

```
owlDrive main menu (firmware ver 36, database ver 28, CanNode 3, broadcast 63)
0. Exit menu
1. Selected profile (preset): Default (motor=Generic 1-phase-BLDC (1-channel encoder) pcb=owlRobotics_black_edition_Board)
2. Selected motor (preset): Generic 1-phase-BLDC (1-channel encoder)
3. Selected PCB: owlRobotics black edition Board
4. Profile menu   (align=0 invertDir=0 enableIn=0 pwmIn=0 fanDuty=0.50 serialMonOut=1 endSwIn=0 endSwActLow=1 endSwPosDirTg=
5. PCB menu   (shuntR=7.41 opAmpGain=-1.00 opAmpOfs=1.65 overCurr=0.08A overVolt=1 underVolt=12.00 emfProtect=0 temp=1)
6. Motor menu   (typ=BLDC-1-phase Usup=24V sen=Enc(1ch) kv=183 rpm=4400 R=0.9000 ohm  L=0.00070 H pp=0 alignV=0.00 zeroOfs=0
7. Motion Control mode menu   (torque torqueCtl=voltage usePhR=0 useKV=0 usePhL=1 limits U=+/-15.00 I=+/-2.00)
8. FOC Modulation type: SinePWM
9. Phase tester
10. CAN menu   (canSpeed=1000kbps canMsgId=300 canNodeId=1 canNodeIdBroadcast=63 broadcastMask=0 followId=0 followVal=1)
11. Save to EEPROM and exit (required to make changes persistent)
12. Save to EEPROM and reboot (required if changed motor/pcb/sensor)
```

To test motor send: M5, M12 etc. (with the desired output phase voltage/torque)

```
/dev/ttyACM0
M5
canNode 2  sec 31  lps 25288  focps 5470  tg(torque->voltage) 0.00  v 0.0(0rpm)  Usup 26.58  BEMF
Target: 0.000
canNode 2  sec 32  lps 25269  focps 10765  tg(torque->voltage) 0.00  v 0.0(0rpm)  Usup 26.83  BEMF
canNode 2  sec 33  lps 25280  focps 5468  tg(torque->voltage) 0.00  v 0.0(0rpm)  Usup 26.77  BEMF
Target: 5.000
canNode 2  sec 34  lps 24852  focps 13950  tg(torque->voltage) 5.00  v 178.2(1702rpm)  Usup 26.83
canNode 2  sec 35  lps 24705  focps 5431  tg(torque->voltage) 5.00  v 200.4(1913rpm)  Usup 26.47
canNode 2  sec 36  lps 24683  focps 5425  tg(torque->voltage) 5.00  v 200.4(1913rpm)  Usup 26.50
```

Sunray settings:
#define MOW_MOTOR_COUNT 1
#define MOW_ADJUST_HEIGHT false
#define MOW_OVERLOAD_CURRENT 0.08
#define ENABLE_OVERLOAD_DETECTION true
#define ENABLE_FAULT_DETECTION true
#define ENABLE_RPM_FAULT_DETECTION true