4 x Analog circuit 0-10V / 0-20mA
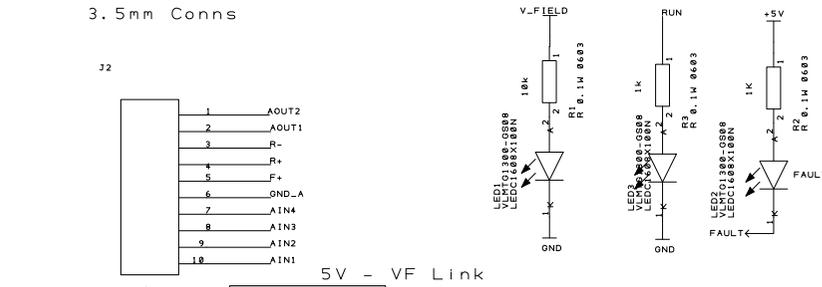
J8
2.54mm HDR 8
user

R17 392k AIN1
R4 499
R5 499
R6 499
R7 499
AIN1
AIN2
AIN3
AIN4

R19 392k AIN2
R21 392k AIN3
R23 392k AIN4

C7 1nF
C8 1nF
C9 1nF
C10 1nF
R18 R0.1W 0603 100k
R20 R0.1W 0603 100k
R22 R0.1W 0603 100k
R24 R0.1W 0603 100k

ADDR 0x48

IC1
ADS1015BQDGSRQ1
SOP50P490X110-10N

ADDR   SCL 10 SCL
ALERT/RDY   SDA 9   SDA
GND   VDD 8   3V3_A
AIN0   AIN3
AIN1   AIN2

C6 0.1uF
GND_A

3V3
FB2
MMZ2012Y152B
BEADC2012X105N
3V3_A

FB1
MMZ2012Y152B
BEADC2012X105N

C11 1uF
GND   GND_A

2 x Analog out

V_FIELD

LK1 Jumper USER
AOUT1
1000 R35
D1 BAV99HMT116 SOT95P240X115-3N
R28 21k
R37 10k

U2
LM358AD
SO-08
OUT IN+
IN- IN-
IN+ OUT
V-   V+

FILT_OUT1
FILT_OUT2

R36 21k
R27 10k

D2 BAV99HMT116 SOT95P240X115-3N

LK2 Jumper USER
1000 R38
AOUT2

GND

PWM_AO1 R30 10k FILT_OUT1
C15 0.1uF

PWM_AO2 R32 10k FILT_OUT2
C16 0.1uF

GND

RTD

GND_A GND
C12 0.1uF C13 0.1uF

IC5
MAX31865ATP+
QFN65P500X500X80-21N

EP VDD DVDD DRDY NC GND1 GND_A GND

BIAS   DOND 15
REFIN+   SDO 14   MISO
REFIN-   CS 13   CS
ISENSOR   SCLK 12 SCLK
FORCE+   SDI 11   MOSI

R8 R0.1W 0603 400

FORCE2 RTDIN+ RTDIN- FORCE- GND2

C14 0.1uF

F+ R+ R- GND_A

3.5mm Conns

J2
1 AOUT2
2 AOUT1
3 R-
4 R+
5 F+
6 GND_A
7 AIN4
8 AIN3
9 AIN2
10 AIN1

J3
1 V_FIELD
2 GND
3 FO8
4 FO7
5 FO6
6 FO5
7 FO4
8 FO3
9 FO2
10 FO1
11 DI4
12 DI3
13 DI2
14 DI1

5V - VF Link

LK3 Jumper USER
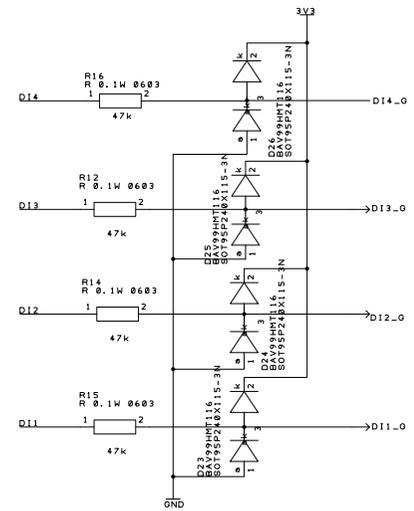
I2C Expansion

J5
2.54mm HDR 4
USER
1 3V3
2 GND
3 SDA
4 SCL

FAULT FEED INTO PI IP 0-7 (DI PULLUP)
OE MUST GO TO PIN DEFAULT TO PULLDN

V_FIELD   RUN   +5V
R16 R0.1W 0603 10k
R3 R0.1W 0603 1k
R0.1W 0603 1K

LED1 TO1300-GS08 VLMC1608X100N
LED3 VLMO1300-GS08 VLMC1608X100N
LED2 TO1300-GS08 VLMC1608X100N FAULT

GND GND FAULT

Pi connector

J1
PRT-14017
SHDR40W82P254_2X20_5130X500X13

3V3   1 2   RUN
5V   3 4   SCLK
SDA   5 6   DI4_G
5V   7 8   GND
SCL   9 10 FAULT
GND
PWM_AO1 11
CS   12
PWM_AO2 13
DI1_G 15
DI2_G 16
DI3_G 18
MOSI   19

21 MISO
22 RUN
23 SCLK
24 DI4_G
25 GND
26 FAULT
27
29 O1
30 GND
31 O2
32 OE
33 O3
34 GND
35 O5
36 O4
37 O7
38 O6
39 GND
40 O8

Digital inputs

3V3
DI4 R16 R0.1W 0603 47k 1k D26 BAV99HMT116 SOT95P240X115-3N DI4_G
DI3 R12 R0.1W 0603 47k 1k D25 BAV99HMT116 SOT95P240X115-3N DI3_G
DI2 R14 R0.1W 0603 47k 1k D24 BAV99HMT116 SOT95P240X115-3N DI2_G
DI1 R15 R0.1W 0603 47k 1k D23 BAV99HMT116 SOT95P240X115-3N DI1_G

GND

Power

V_FIELD   5V
U1
TSRN-1-2450
+VIN +VOUT
GND

C2 10uF 0805
C3

.1uF C1
C4 100uF 35V
V_FIELD
GND

Digital outputs

13 14 15 16
V_FIELD

IC2
O8 1 IN1   OUT1 20 FO8
O7 2 IN2   OUT2 19 FO7
O6 3 IN3   OUT3 18 FO6
O5 4 IN4   OUT4 17 FO5
O4 5 IN5   OUT5 16 FO4
O3 6 IN6   OUT6 15 FO3
O2 7 IN7   OUT7 14 FO2
O1 8 IN8   OUT8 13 FO1
FAULT 9 FAULT GND 12
OE 10 OE/R   VS 11

(MUST BE PULLDN GPIO ON BOOT IE 8+)

GND

TITLE: PIIO ADIO
DRAWN BY: K Lawson
STATUS: Released
REVISION: 2
SHEET: 1 OF 1
DATE: 20 April 2020
A3