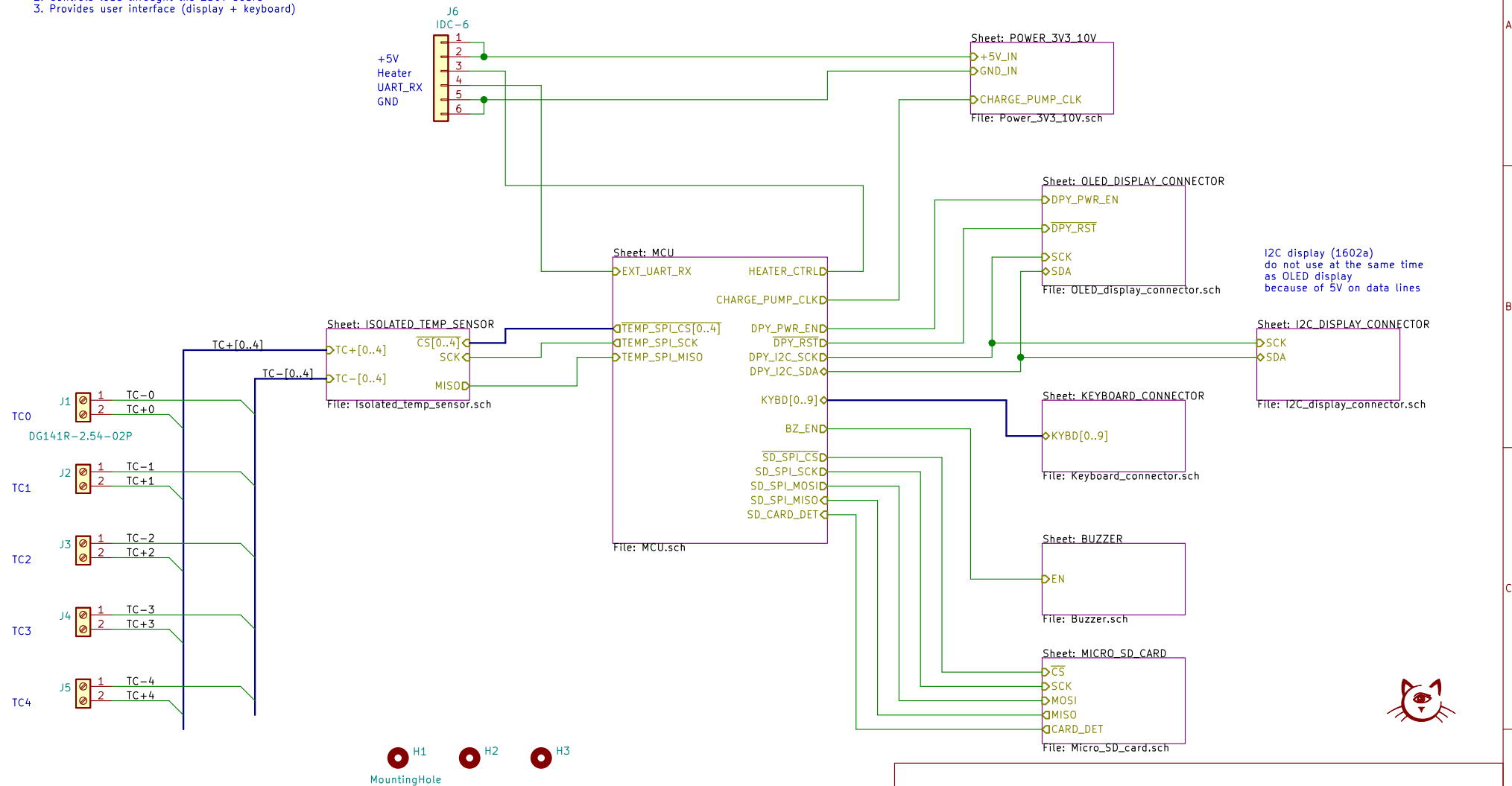


Controller

This board
1. Mesures furnace temperature
2. Controls load throught the 230V board
3. Provides user interface (display + keyboard)



Yuriy Volkov

Sheet: /
File: furnace_controller.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 1/18

Power sources 3V3 and 10V

Yuriy Volkov

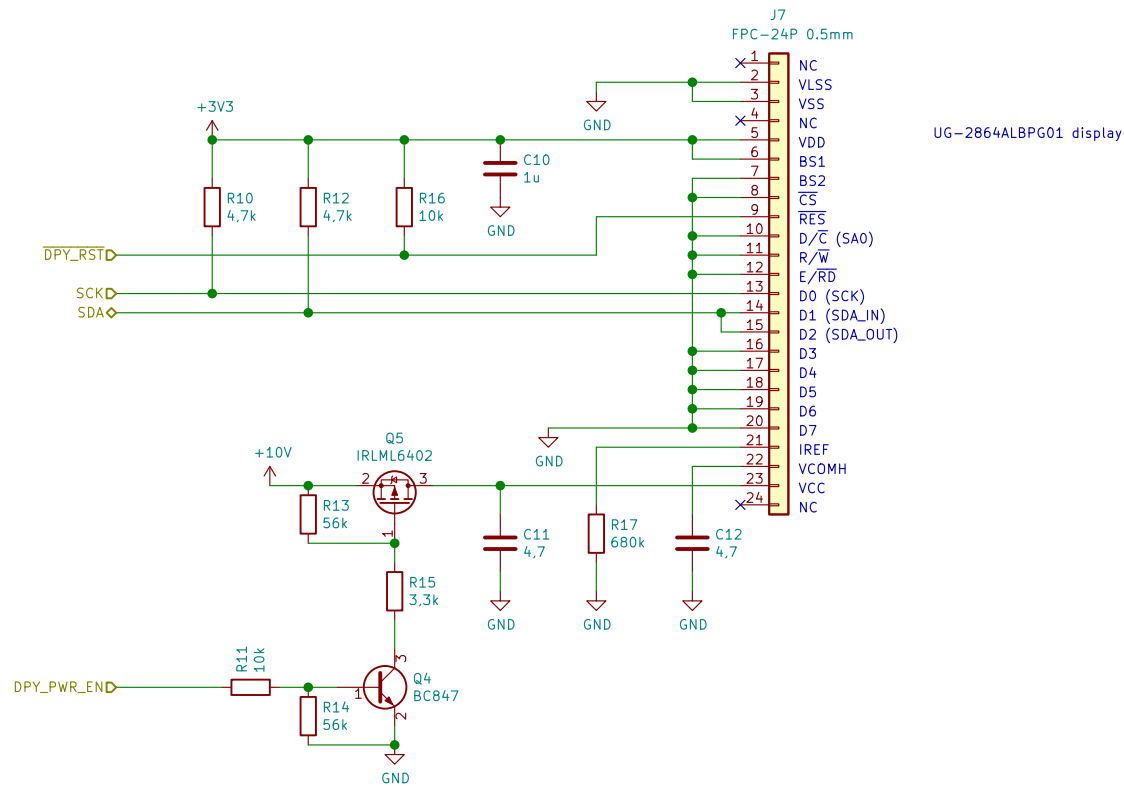
Sheet: /POWER_3V3_10V/
File: Power_3V3_10V.sch

Title: Furnace controller

Size: A4	Date: 2021-09-24	Rev: 1.0
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1		Id: 2/18

Id: 2/18

Connector fo OLED display



Yuriy Volkov

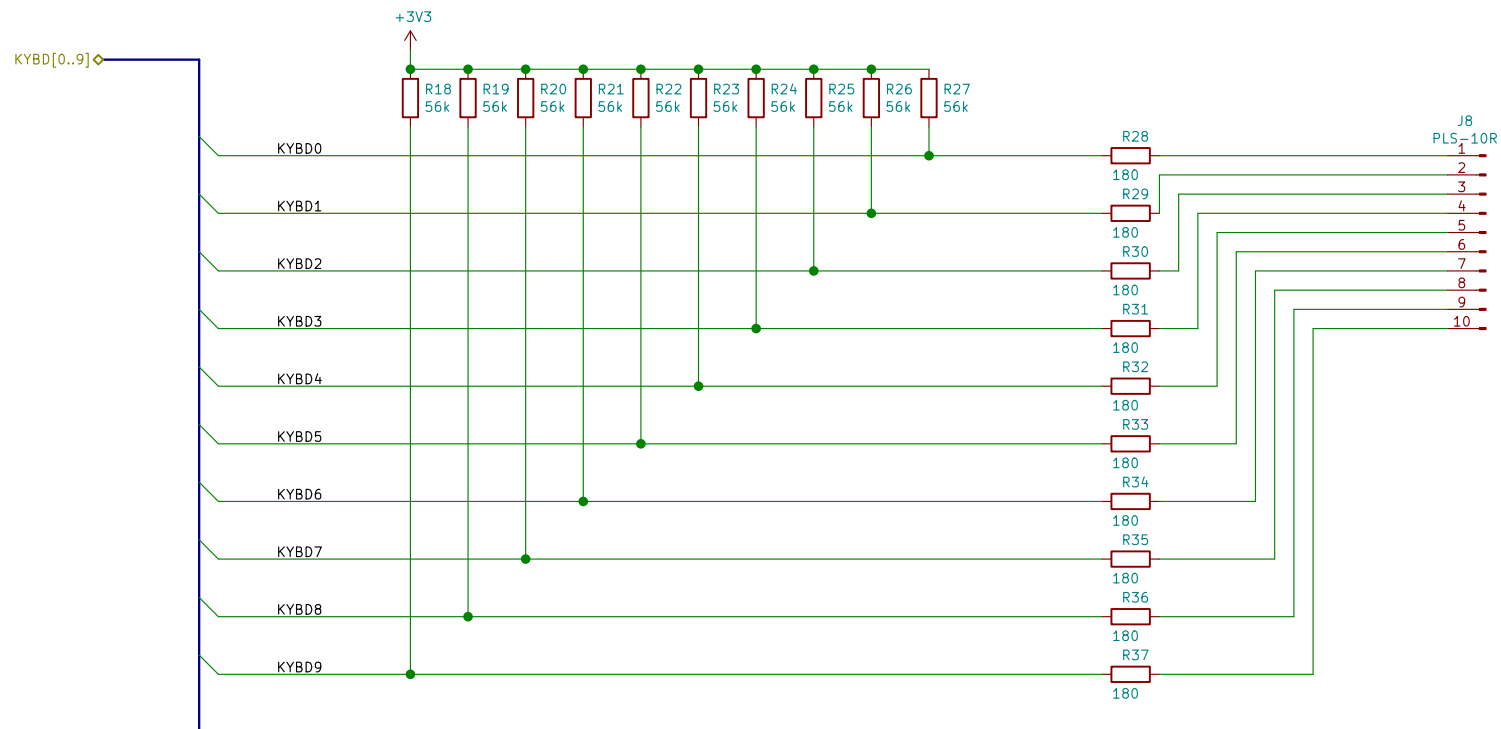
Sheet: /OLED_DISPLAY_CONNECTOR/
File: OLED_display_connector.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 3/18

Connector for matrix keyboard



Yuriy Volkov

Sheet: /KEYBOARD_CONNECTOR/

File: Keyboard_connector.sch

Title: Furnace controller

Size: A4

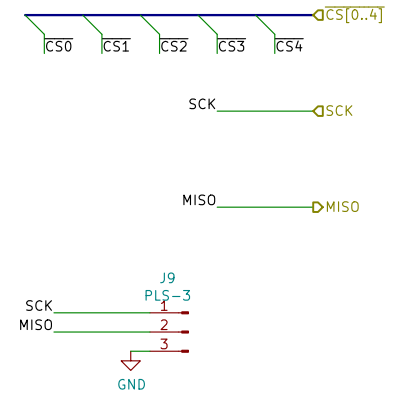
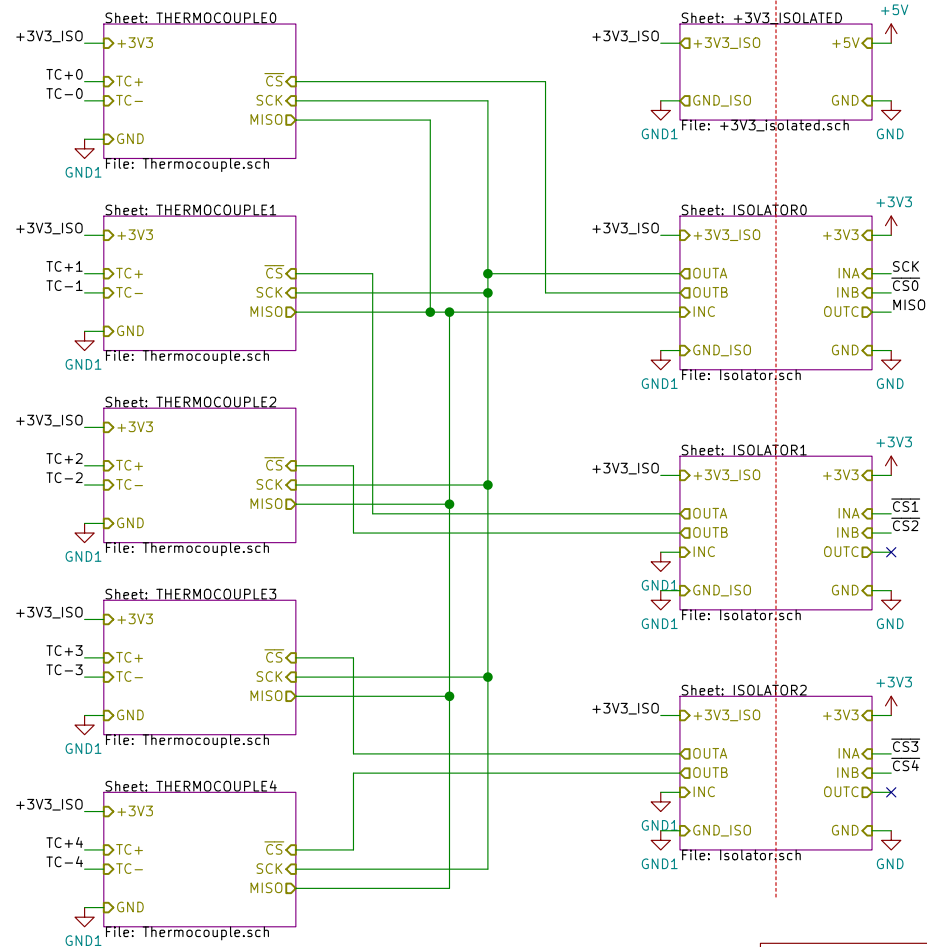
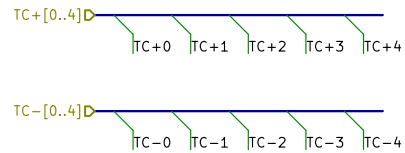
Date: 2021-09-24

Rev: 1.0

KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Id: 4/18

Isolated 5x temperature sensor



Yuriy Volkov

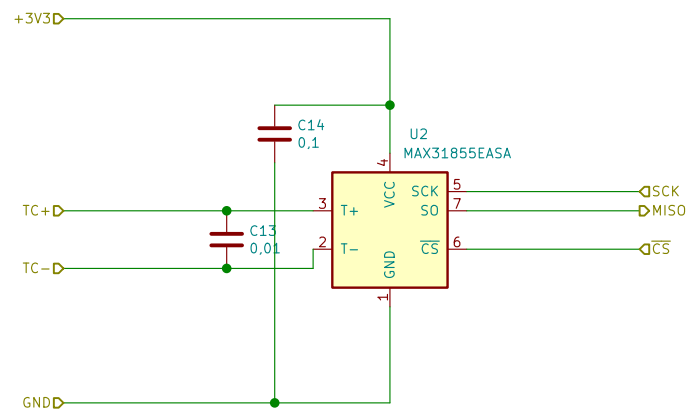
Sheet: /ISOLATED_TEMP_SENSOR/
File: Isolated_temp_sensor.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 5/18

Thermocouple sensor



Yuriy Volkov

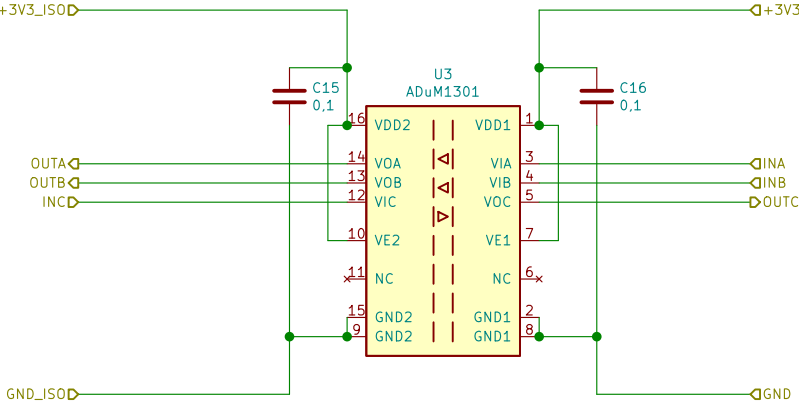
Sheet: /ISOLATED_TEMP_SENSOR/THERMOCOUPLE0/
File: Thermocouple.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 6/18

Isolator for thermocouple



Yuriy Volkov

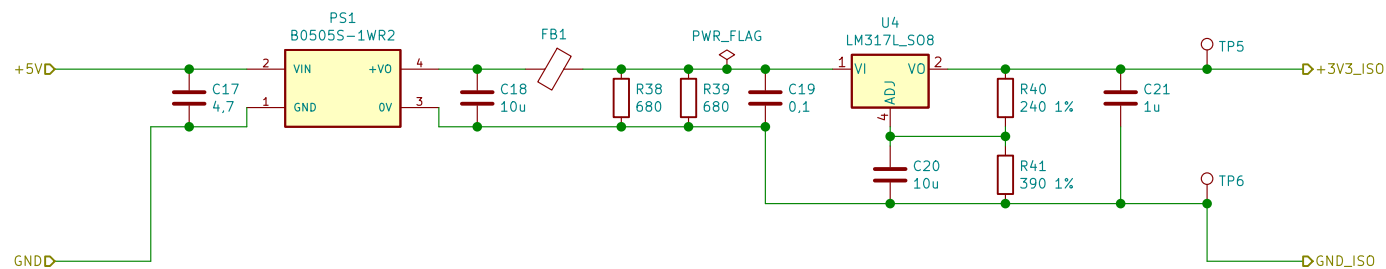
Sheet: /ISOLATED_TEMP_SENSOR/ISOLATOR0/
File: Isolator.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 7/18

Isolated +3V3 power source



Yuriy Volkov

Sheet: /ISOLATED_TEMP_SENSOR/+3V3_ISOLATED/

File: +3V3_isolated.sch

Title: Furnace controller

Size: A4

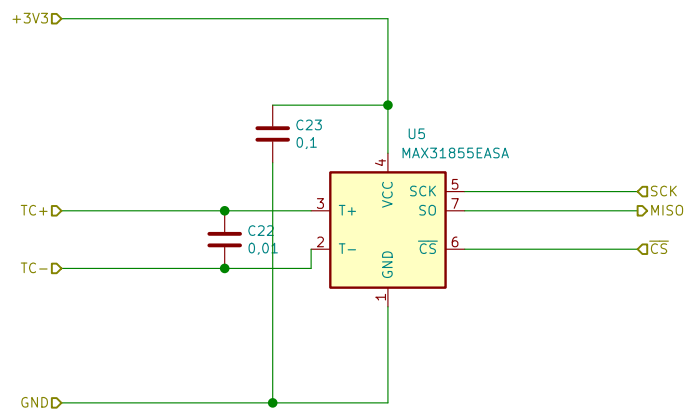
Date: 2021-09-24

Rev: 1.0

KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Id: 8/18

Thermocouple sensor



Yuriy Volkov

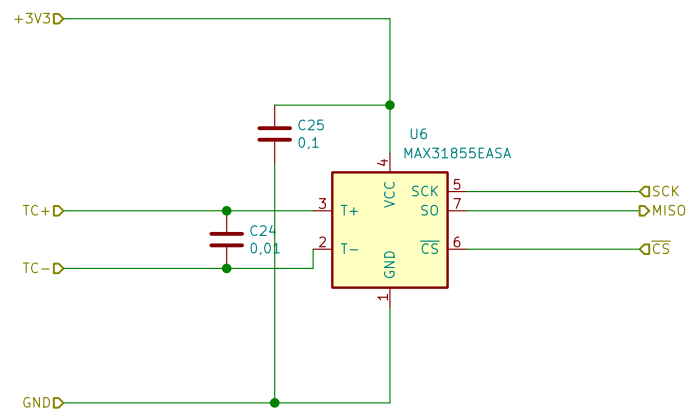
Sheet: /ISOLATED_TEMP_SENSOR/THERMOCOUPLE1/
File: Thermocouple.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 9/18

Thermocouple sensor



Yuriy Volkov

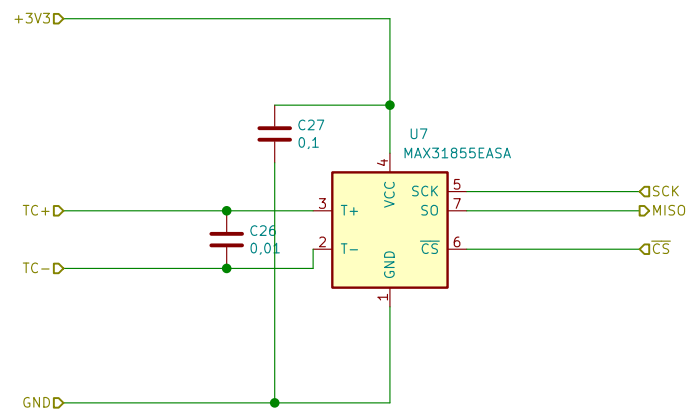
Sheet: /ISOLATED_TEMP_SENSOR/THERMOCOUPLE2/
File: Thermocouple.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 10/18

Thermocouple sensor



Yuriy Volkov

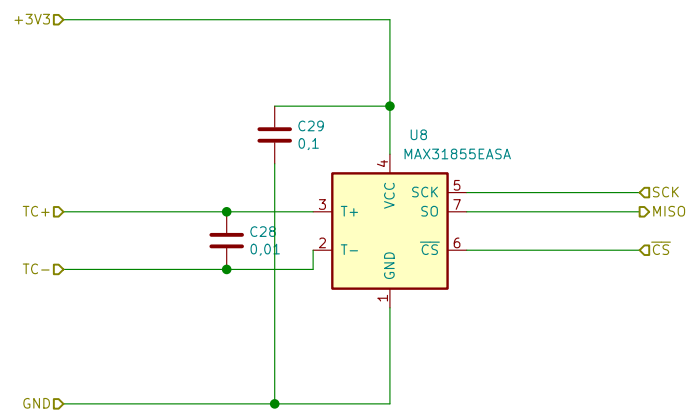
Sheet: /ISOLATED_TEMP_SENSOR/THERMOCOUPLE3/
File: Thermocouple.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 11/18

Thermocouple sensor



Yuriy Volkov

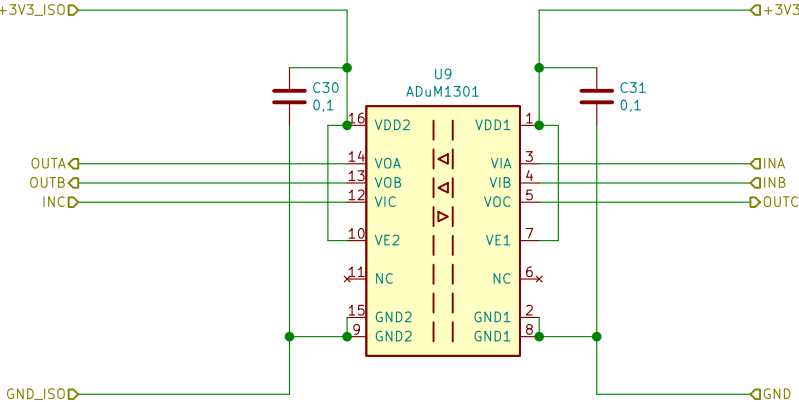
Sheet: /ISOLATED_TEMP_SENSOR/THERMOCOUPLE4/
File: Thermocouple.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

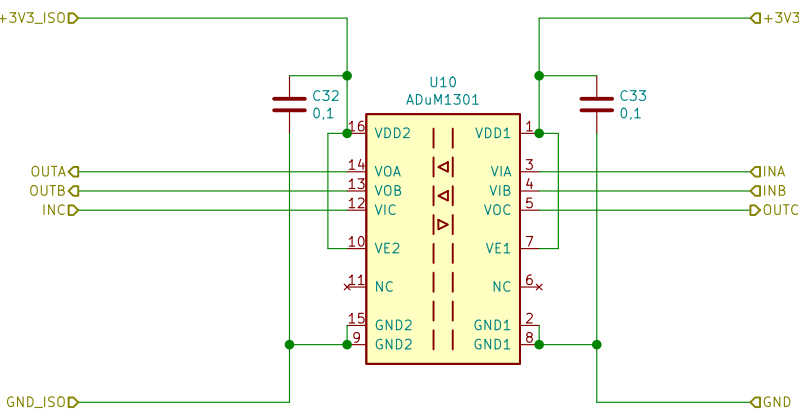
Rev: 1.0
Id: 12/18

Isolator for thermocouple



Yuriy Volkov		
Sheet: /ISOLATED_TEMP_SENSOR/ISOLATOR1/		
File: Isolator.sch		
Title: Furnace controller		
Size: A4	Date: 2021-09-24	Rev: 1.0
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1		Id: 13/18

Isolator for thermocouple



Yuriy Volkov

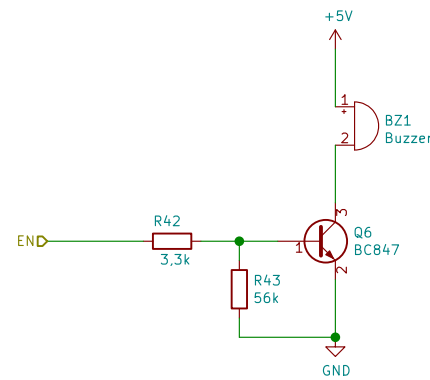
Sheet: /ISOLATED_TEMP_SENSOR/ISOLATOR2/
File: Isolator.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 14/18

Buzzer



Yuriy Volkov

Sheet: /BUZZER/

File: Buzzer.sch

Title: Furnace controller

Size: A4

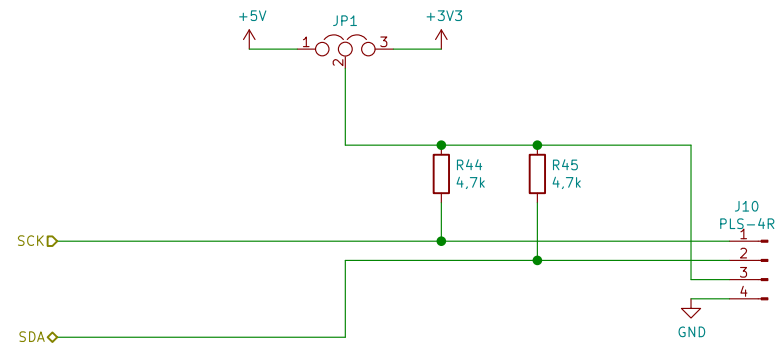
Date: 2021-09-24

Rev: 1.0

KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Id: 15/18

I2C display connector for OLED or LCD display



Yuriy Volkov

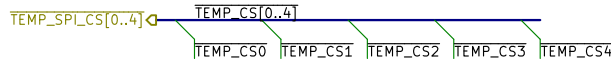
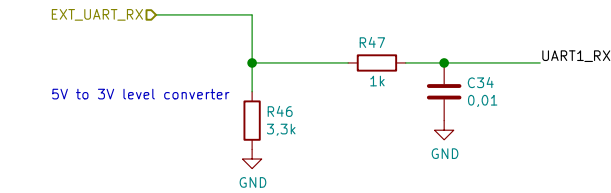
Sheet: /I2C_DISPLAY_CONNECTOR/
File: I2C_display_connector.sch

Title: Furnace controller

Size: A4 Date: 2021-09-24
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Rev: 1.0
Id: 16/18

MCU

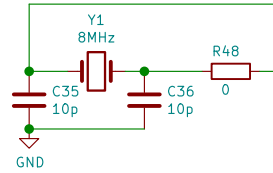


TEMP_SPL_SCK

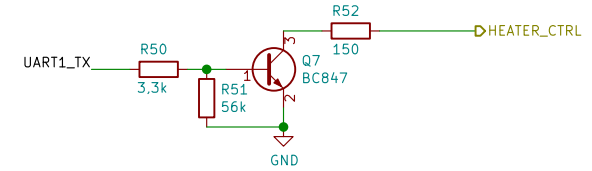
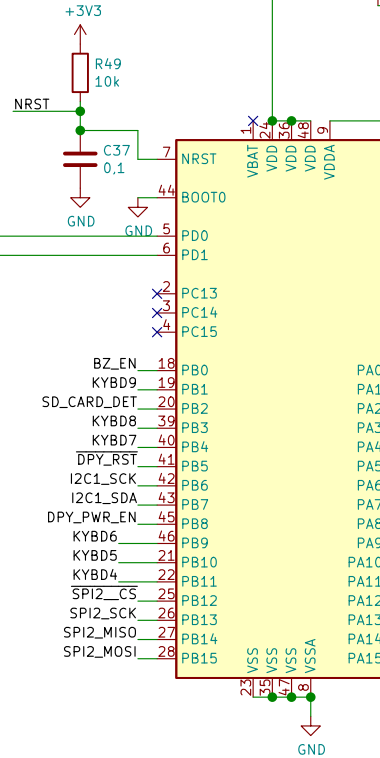
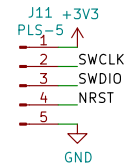
SPI1_SCK

TEMP_SPL_MISO

SPI1_MISO



Programming



CHARGE_PUMP_CLK

CHARGE_PUMP_CLK

DPY_PWR_EN

DPY_PWR_EN

DPY_RST

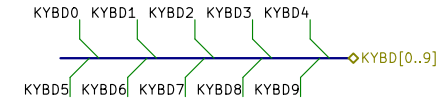
DPY_RST

I2C1_SCK

DPY_I2C_SCK

I2C1_SDA

DPY_I2C_SDA



BZ_EN

BZ_EN

SPI2_CS

SD_SPL_CS

SPI2_SCK

SD_SPL_SCK

SPI2_MOSI

SD_SPL_MOSI

SPI2_MISO

SD_SPL_MISO

SD_CARD_DET

SD_CARD_DET

Debug_UART



Yuriy Volkov

Sheet: /MCU/
File: MCU.sch

Title: Furnace controller

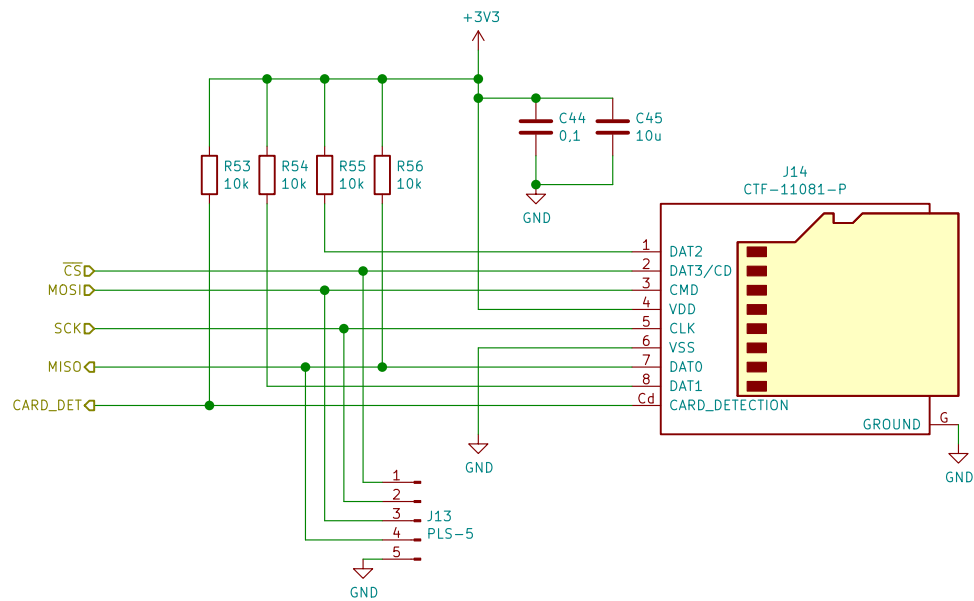
Size: A4
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1

Date: 2021-09-24

Rev: 1.0

Id: 17/18

Micro-SD card connector



Yuriy Volkov		
Sheet: /MICRO_SD_CARD/		
File: Micro_SD_card.sch		
Title: Furnace controller		
Size: A4	Date: 2021-09-24	Rev: 1.0
KiCad E.D.A. kicad 5.1.10-88a1d61d5890ubuntu20.04.1		Id: 18/18