AC INPUT CONNECTOR

J3
AC_PWR_IN
1 L1
2 L2
3 L3
4 NEUTRAL
5 EARTH

5A 5W
PS1
HLK-5M05
AC1 +VO
AC2 -VO
+5V
C16 100nF
C17 100nF
C20 100nF
C21 100nF
GND

U2
LM1117-3.3
+5V VI VO +3.3V
C10 10uF
C13 1uF
GND

CONTROLLER

+5V
R1 10K
reset
C4 4.7nF
GND

+5V
VCC AVCC

decoupling caps
+5V
C5 100nF
C6 100nF
C7 100nF
C8 100nF
C9 100nF
GND

C2 22pF
C3E-16.000-12-1010-M
Y1
C1 22pF
GND

RESET 30
XTAL1 34
XTAL2 33
AREF 98
C3 100nF
GND

U1
ATmega2560-16AU

PL0 35
PL1 36
PL2 37
PL3 38
PL4 39
PL5 40
PL6 41
PL7 42

PK0 89
PK1 88
PK2 87
PK3 86
PK4 85
PK5 84
PK6 83
PK7 82

PJ0 63
PJ1 64
PJ2 65
PJ3 66
PJ4 67
PJ5 68
PJ6 69
PJ7 79

PH0 12
PH1 13
PH2 14
single_phase_heater_pwm PH3 15
L1_3phase_heater_pwm PH4 16
L2_3phase_heater_pwm PH5 17
L3_3phase_heater_pwm PH6 18
DOOR_SENSOR PH7 27

PG0 51
PG1 52
PG2 70
PG3 28
PG4 29
PG5 1

PA0 78
PA1 77
PA2 76
PA3 75
PA4 74
PA5 73
PA6 72
PA7 71

PB0 19 RTD_CS
PB1 20 RTD_SCLK
PB2 21 RTD_SDI
PB3 22 RTD_SDO
PB4 23 RTD_DRDY
PB5 24 RTD_CS_1
PB6 25 RTD_DRDY_1
PB7 26

PC0 53
PC1 54
PC2 55
PC3 56
PC4 57
PC5 58
PC6 59
PC7 60

PD0 43 oled_SCL
PD1 44 oled_SDA
PD2 45 INT2_TO_BTN_ON&OFF
PD3 46 INT3_TO_BTN_START
PD4 47 BACK_LIGHT_LED
PD5 48 BACK_LIGHT_LED_START
PD6 49 FLOAT_SWITCH
PD7 50 low_water_lvl_sensor

INTERRUPT PINS

PE0 2 SET
PE1 3 ARROW_LEFT
PE2 4 ARROW_RIGTH
PE3 5 peristaltic_pump_1
PE4 6 peristaltic_pump_2
PE5 7 SOLENOID
PE6 8 DRAIN_PUMP
PE7 9 WASH_PUMP

PF0 97 drainlow_water_lvl_sensor
PF1 96 2560_to_Oled_Reset
PF2 95
PF3 94
PF4 93
PF5 92
PF6 91
PF7 90

GND
GND

RTD SENSOR INTERFACE

U3
MAX31865ATP+T
DVDD 19 +3.3V +3.3V
VDD 20
C14 100nF
C18 100nF
GND

R2 430R_0.1%
REFIN+ 2
REFIN- 3
ISENSOR 4
BIAS 1 BIAS

J1
RTD_TANK_SENSOR
RTD_IN+ 1
2
RTD_IN- 3
C11 100nF
RTD_IN- 9
FORCE+ 5
FORCE2 6
RTDIN+ 7
RTDIN- 8
FORCE- 9

SCLK 12 RTD_SCLK
SDI 11 RTD_SDI
SDO 14 RTD_SDO
CS 13 RTD_CS
DRDY 18 RTD_DRDY

NC 17

DGND 15
GND1 16
GND2 10
EP 21
GND

Rref= 430R which is connected to the bias pin
3 WIRE SENSOR CONNECTION

U4
MAX31865ATP+T
DVDD 19 +3.3V +3.3V
VDD 20
C15 100nF
C19 100nF
GND

R3 430R_0.1%
REFIN+ 2
REFIN- 3
ISENSOR 4
BIAS 1 BIAS1

J2
RTD_BOILER_SENSOR
RTD_IN+ 1
2
RTD_IN- 3
C12 100nF
RTD_IN- 9
FORCE+ 5
FORCE2 6
RTDIN+ 7
RTDIN- 8
FORCE- 9

SCLK 12 RTD_SCLK
SDI 11 RTD_SDI
SDO 14 RTD_SDO
CS 13 RTD_CS_1
DRDY 18 RTD_DRDY_1

NC 17

DGND 15
GND1 16
GND2 10
EP 21
GND

Rref= 430R which is connected to the bias pin
3 WIRE SENSOR CONNECTION

SW1 SW_Push
SET
GND

SW3 SW_Push
ARROW_RIGTH
GND

SW2 SW_Push
ARROW_LEFT
GND

MAGNETIC DOOR SENSOR CONNECTOR

J4
MAG_DOOR_SENSOR
+5V
R4 1K
DOOR_SENSOR

DRAIN OPTICAL WATER LEVEL SENSOR

J6
Conn_01x04_Male
+5V
1 blue_1
2 white_1
3 yellow_1
4 red_1
R8 4.7K
drainlow_water_lvl_sensor
R6 390R
GND

HIGH LEVEL WATER SENSOR(FLOAT SWITCH)

J7
FLOAT SWITCH CONN
+5V
1
2 FLOAT_SWITCH

OPTICAL WATER LEVEL SENSOR LOW

J5
Conn_01x04_Male
+5V
1 blue
2 white
3 yellow
4 red
R7 4.7K
low_water_lvl_sensor
R5 390R
GND

OUTPUT AND ACTUATORS

Sheet: AC_ACTUATORS

DRAIN_PUMP
WASH_PUMP
SOLENOID
L1_3phase_heater_pwm
L2_3phase_heater_pwm
L3_3phase_heater_pwm
single_phase_heater_pwm
peristaltic_pump_1
peristaltic_pump_2

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START BUTTON

+5V
R14 1K
U5
TL1240GG1JCLR
INT3_TO_BTN_START
BACK_LIGHT_LED_START
R13 200R
Q1 BSS138
GND
BUTTON WITH GREEN BACLIGHT

ON/OFF BUTTON

+5V
R17 1K
U6
TL1240GG1JCLR
INT2_TO_BTN_ON&OFF
BACK_LIGHT_LED
R16 200R
Q2 BSS138
GND
BUTTON WITH RED BACLIGHT

SCREEN CONNECTOR

+3.3V
decoupling bulk caps
C25 10uF
C26 0.1uF
GND GND

J8
3-1734592-0

C23 4.7uF_25V
R15 910K
+3.3V

PULL_UPS
+3.3V
R9 4.7K
R12 4.7K
oled_SDA oled_SCL

2560_to_Oled_Reset
R10 1k
oled_reset
R11 1k
GND

oled_SDA
oled_SCL
oled_reset

PULLING D/C TO GND INITILIZES THE OLED SCREEN ADRESS AS 0X3C
D/C

decoupling+ bulk caps
C22 0.1uf
C24 4.7uF
GND
+3.3V
+3.3V
+3.3V

1
2
3
4
5
6
7
8
9
10 oled_SDA
11
12 oled_SCL
13
14
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31
SHIELD

display:https://www.buydisplay.com/green-2-4-inch-graphic-oled-display-128x64-serial-spi-i2c-ssd1309
2:https://www.alibaba.com/product-detail/2-42-2-4-inch-128_60646082817.html

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Rev:
Id: 1/2

DRAIN PUMP ON/OFF CONTROL

K2
9-1440003-0
+5V
J10
DRAIN PUMP CONNECTOR
L1
NEUTRAL
DRAIN_PUMP
R19
1K
R22
10K
Q4
WST2N7002K
GND
GND

WASH PUMP ON/OFF CONTROL

K3
9-1440003-0
+5V
J11
WASH PUMP CONNECTOR
L1
NEUTRAL
WASH_PUMP
R20
1K
R23
10K
Q5
WST2N7002K
GND
GND

SOLENOID CONTROL

K1
9-1440003-0
+5V
J9
SOLENOID CONNECTOR
L1
NEUTRAL
SOLENOID
R18
1K
R21
10K
Q3
WST2N7002K
GND
GND

BOILER HEATER
TRIAC HEATER CONTROL AND DRIVER

U7
MOC3021
R24
200R
R28
10K
L1
L1_3phase_heater_pwm
GND
D1
triac
Q_TRIAC_A1A2G
ELEMENT_1

U9
MOC3021
R25
200R
R30
10K
L2
L2_3phase_heater_pwm
GND
D3
triac
Q_TRIAC_A1A2G
ELEMENT_2

U10
MOC3021
R26
200R
R31
10K
L3
L3_3phase_heater_pwm
GND
D4
triac
Q_TRIAC_A1A2G
ELEMENT_3

ELEMENT_1
ELEMENT_2
ELEMENT_3
NEUTRAL
J12
BOILER HEATER CONNECTOR

TANK HEATER
TRIAC HEATER CONTROL AND DRIVER

CURRENT LIMITING R
5/25mA=200R
U8
DIAC (TRIAC DRIVER)
MOC3021
R27
200R
R29
10K
L1
single_phase_heater_pwm
GND
D2
triac
Q_TRIAC_A1A2G
J13
TANK HEATER
TO ELEMENT
NEUTRAL
NEUTRAL

PERISTALYTIC PUMP 1

U12
MOC3021
R33
200R
R35
10K
L2
peristaltic_pump_1
GND
D6
triac
Q_TRIAC_A1A2G
J15
peristaltic_pump_1
NEUTRAL

PERISTALYTIC PUMP 2

U11
MOC3021
R32
200R
R34
10K
L2
peristaltic_pump_2
GND
D5
triac
Q_TRIAC_A1A2G
J14
peristaltic_pump_2
NEUTRAL