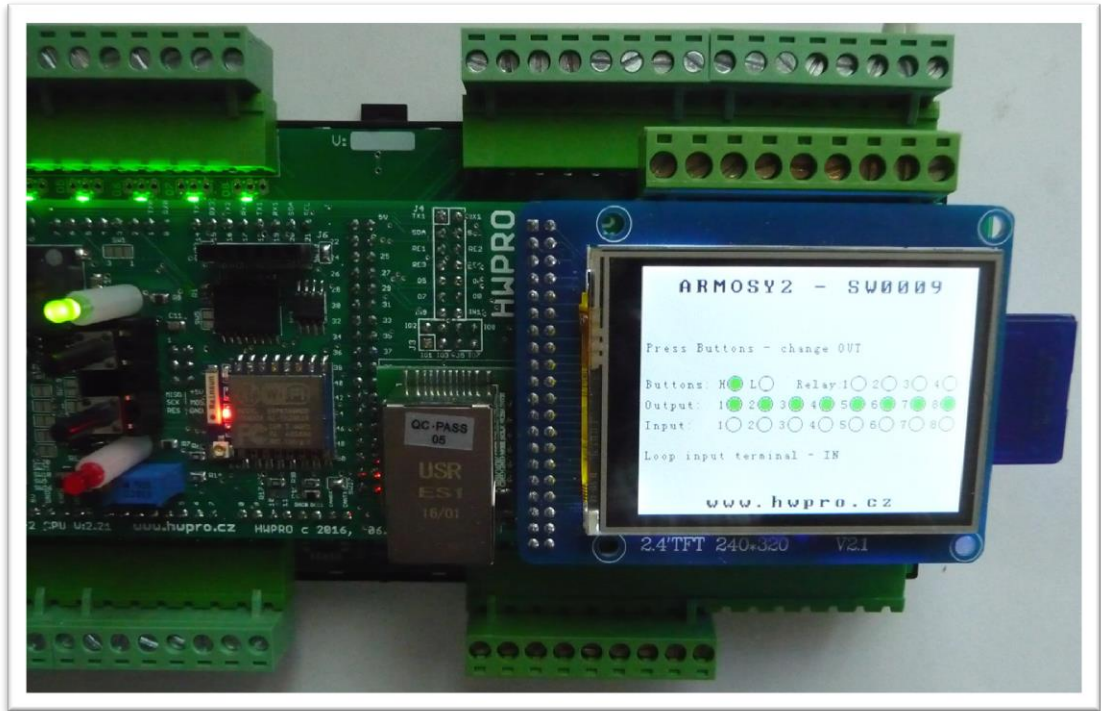


Example – SW0009

Control IN, OUT, Relay, Beep, Bottons, LEDs => UTFT



Universal Control System			ARMOSY-2				ARduino MOdule SYstem	
ARM, 32 bit 84MHz, 512k FLASH	Arduino DUE 3.3V Technology	EEPROM, I2C 256 kB	RTC, DS3231, I2C temper.compensation Battery CR2032	SD CARD, SPI Slot In TFT LCD	2.4" COLOR LCD 240x320 px	NF amplifier, DAC Audio		
2x RS-232 115 kbps	Two Wire RS-485 115 kbps	OPTION USB 1 Mbps	OPTION WiFi 2 Mbps	OPTION Ethernet 10/100 Mb, 2 LED	OPTION GSM SIM800L	OPTION Two I2C BUS 1Wire BUS		
8x INPUT Optocoupler 6 MODE	8x OUTPUT Optocoupler 3 MODE, PWM	8x IN / OUT Universal I/O Direct CPU	OPTION 2x 0 – 30A Current measurement	OPTION 4x AD 0 – 10V 18b AD Converter	OPTION 4x DA 0 – 10V 12b DA Converter	OPTION 4x 10A, 250V, AC		
POWER INPUT 8V ~ 72V, 3W AC, DC, USB	Measurement Systém Voltage 3.3V / 5V	OTHERS 2x Buttons 2 x LED Buzzer	User Design PCB Size 10x4 cm	OPTION 12 modul	Programming Free Software	CZ, EN User manual Examples		

```

/* !!!!!!!!!!!!!!! ARMOZY-2 Example !!!!!!!!!!!!!!!
Control IN, OUT, Relay, Beep, Buttons, LEDs => UTFT
Hardware: ARMOZY-2
Version HW: 2.21
Create: 22.04.2016
!!!!!!!!!!!!!! TERMINAL CONNECTION !!!!!!!!!!!!!!!
63 - IN POWER, VCC min 8V/1A!
64 - IN POWER, -"-

!!!!!!!!!!!!!! JUMPER !!!!!!!!!!!!!!!
Factory Default
*/

// ; LIBRARY
#include <UTFT.h> //Driver UTFT

// ; DECLARATIONS
UTFT myGLCD(ITDB24,38,39,40,41); // RS, WR, CS, REST
extern uint8_t BigFont[]; // UTFT Fonds
extern uint8_t SmallFont[]; // UTFT Fonds

#define IN_1 54 // Terminal 1,2
#define IN_2 55 // Terminal 3,4
#define IN_3 56 // Terminal 5,6
#define IN_4 57 // terminal 7,8
#define IN_5 58 // Terminal 9,10
#define IN_6 59 // Terminal 11,12
#define IN_7 60 // Terminal 13,14
#define IN_8 61 // Terminal 15, 16
#define ACS712_1 62 // ACS712 I1 Terminal 17,18
#define ACS712_2 63 // ACS712 I2 Terminal 19,20
#define A10 64 // System Voltage 3.3V
#define A11 65 // System Voltage 5V
#define LED_GREEN 12 // LED GREEN
#define LED_RED 68 // LED RED
#define BUTT_H 47 // Buttons High
#define BUTT_L 48 // Buttons Low

byte RELE_1 = 30; //Relay 1, terminal 21,22,23
byte RELE_2 = 31; //Relay 2, terminal 24,25,26
byte RELE_3 = 32; //Relay 3, terminal 27,28,29
byte RELE_4 = 33; //Relay 4, terminal 30,31,32
byte OUT_1 = 6; // Terminal 33,34, PWM
byte OUT_2 = 7; // Terminal 35,36, PWM
byte OUT_3 = 8; // Terminal 37,38, PWM
byte OUT_4 = 9; // Terminal 39,40, PWM
byte OUT_5 = 34; //Terminal 41,42
byte OUT_6 = 35; //Terminal 43,44
byte OUT_7 = 36; //Terminal 45,46
byte OUT_8 = 37; //Terminal 47,48
byte BEEP = 13; // Beep Tone
bool b_BUTT_H = 1; // State Button H
bool b_BUTT_L = 1; // State Button L

#define U_1 49 // Terminal 49
#define U_2 50 // Terminal 50
#define U_3 51 // Terminal 51
#define U_4 52 // Terminal 52
#define U_5 66 // Terminal 53
#define U_6 69 // Terminal 54
#define U_7 11 // Terminal 55
#define U_8 2 // Terminal 56

```



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```

// !!!!!!!!!!!!!!! SETUP !!!!!!!!!!!!!!!

void setup()
{
// ! UTFT
myGLCD.InitLCD();           // Initialization LCD
myGLCD.clrScr();           // Clear Screen
myGLCD.fillScr(VGA_WHITE); // VGA Background Transparency
myGLCD.setColor(0, 0, 0);  // Black Fonds
myGLCD.setBackColor(255, 255, 255); // White Background
myGLCD.setFont(BigFont);   // Select Font

// ! INPUT
pinMode(IN_1, INPUT_PULLUP); // ON pull-up
pinMode(IN_2, INPUT_PULLUP); // ON pull-up
pinMode(IN_3, INPUT_PULLUP); // ON pull-up
pinMode(IN_4, INPUT_PULLUP); // ON pull-up
pinMode(IN_5, INPUT_PULLUP); // ON pull-up
pinMode(IN_6, INPUT_PULLUP); // ON pull-up
pinMode(IN_7, INPUT_PULLUP); // ON pull-up
pinMode(IN_8, INPUT_PULLUP); // ON pull-up
pinMode(BUTT_H, INPUT_PULLUP); // ON pull-up
pinMode(BUTT_L, INPUT_PULLUP); // ON pull-up

// ! OUTPUT
pinMode(LED_RED, OUTPUT);
pinMode(LED_GREEN, OUTPUT);
pinMode(RELE_1, OUTPUT);
pinMode(RELE_2, OUTPUT);
pinMode(RELE_3, OUTPUT);
pinMode(RELE_4, OUTPUT);
pinMode(OUT_1, OUTPUT);
pinMode(OUT_2, OUTPUT);
pinMode(OUT_3, OUTPUT);
pinMode(OUT_4, OUTPUT);
pinMode(OUT_5, OUTPUT);
pinMode(OUT_6, OUTPUT);
pinMode(OUT_7, OUTPUT);
pinMode(OUT_8, OUTPUT);
pinMode(BEEP, OUTPUT);
digitalWrite(LED_GREEN, HIGH);
digitalWrite(LED_RED, HIGH);
digitalWrite(RELE_1, LOW);
digitalWrite(RELE_2, LOW);
digitalWrite(RELE_3, LOW);
digitalWrite(RELE_4, LOW);
digitalWrite(OUT_1, HIGH);
digitalWrite(OUT_2, HIGH);
digitalWrite(OUT_3, HIGH);
digitalWrite(OUT_4, HIGH);
digitalWrite(OUT_5, HIGH);
digitalWrite(OUT_6, HIGH);
digitalWrite(OUT_7, HIGH);
digitalWrite(OUT_8, HIGH);
digitalWrite(BEEP, HIGH);

// ! HEADER
myGLCD.print("ARMOSY2 - SW0009", CENTER, 10);
myGLCD.print("www.hwpro.cz", CENTER, 220);
myGLCD.setFont(SmallFont); // Select Font
myGLCD.print("Loop input terminal - IN", 5, 175);
myGLCD.print("Press Buttons - change OUT", 5, 70);
}

```

```

// ||| MAIN |||

void loop()
{
  Print_Events (); // Print Events UTFT
  Read_Buttons (); // Read Events Buttons
}

// Print Events
void Print_Events(){
  myGLCD.setFont(SmallFont);
  myGLCD.setColor(0, 0, 0); // BLACK
  myGLCD.setBackgroundColor(255, 255, 255); // RGB

  // Read bit buttons H
  myGLCD.setColor(0, 0, 0);
  myGLCD.print("Buttons:", 5, 105);
  myGLCD.print("H", 75, 105);
  myGLCD.setColor(0,0,0);
  int x=90;int y=110; int r=7;
  myGLCD.drawCircle(x, y, r);

  if (b_BUTT_H == 0){
    myGLCD.setColor(0,255,0);
    myGLCD.fillCircle(90,110,6);
    digitalWrite(OUT_1, LOW);
    digitalWrite(OUT_2, LOW);
    digitalWrite(OUT_3, LOW);
    digitalWrite(OUT_4, LOW);
    digitalWrite(OUT_5, LOW);
    digitalWrite(OUT_6, LOW);
    digitalWrite(OUT_7, LOW);
    digitalWrite(OUT_8, LOW);
    digitalWrite(LED_GREEN, LOW);
  }
  else {
    myGLCD.setColor(255,255,255);
    myGLCD.fillCircle(90,110,6);
    digitalWrite(OUT_1, HIGH);
    digitalWrite(OUT_2, HIGH);
    digitalWrite(OUT_3, HIGH);
    digitalWrite(OUT_4, HIGH);
    digitalWrite(OUT_5, HIGH);
    digitalWrite(OUT_6, HIGH);
    digitalWrite(OUT_7, HIGH);
    digitalWrite(OUT_8, HIGH);
    digitalWrite(LED_GREEN, HIGH);
  }

  // Read bit buttons L
  myGLCD.setColor(0, 0, 0);
  myGLCD.print("L", 105, 105);
  myGLCD.setColor(0,0,0);
  int x2=120; int y2=110; int r2=7;
  myGLCD.drawCircle(x2, y2, r2);

  if (b_BUTT_L == 0){
    myGLCD.setColor(255,0,0);
    myGLCD.fillCircle(120,110,6);
    digitalWrite(RELE_1, HIGH);
    digitalWrite(RELE_2, HIGH);
    digitalWrite(RELE_3, HIGH);
    digitalWrite(RELE_4, HIGH);
    digitalWrite(LED_RED, LOW);
  }
  else {
    myGLCD.setColor(255,255,255);
    myGLCD.fillCircle(120,110,6);
    digitalWrite(RELE_1, LOW);
    digitalWrite(RELE_2, LOW);
    digitalWrite(RELE_3, LOW);
    digitalWrite(RELE_4, LOW);
    digitalWrite(LED_RED, HIGH);
  }
}

```



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```

// Rele 1
myGLCD.setColor(0, 0, 0);
myGLCD.print("Relay:", 150, 105);
myGLCD.print("1", 195, 105);
myGLCD.setColor(0,0,0);
int x19=210; int y19=110; int r19=7;
myGLCD.drawCircle(x19, y19, r19);

if (digitalRead(RELE_1) == 1) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(210,110,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(210,110,6);
}

// Relay 2
myGLCD.setColor(0, 0, 0);
myGLCD.print("2", 225, 105);
myGLCD.setColor(0,0,0);
int x20=240; int y20=110; int r20=7;
myGLCD.drawCircle(x20, y20, r20);

if (digitalRead(RELE_2) == HIGH) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(240,110,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(240,110,6);
}

// Relay 3
myGLCD.setColor(0, 0, 0);
myGLCD.print("3", 255, 105);
myGLCD.setColor(0,0,0);
int x21=270; int y21=110; int r21=7;
myGLCD.drawCircle(x21, y21, r21);

if (digitalRead(RELE_3) == HIGH) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(270,110,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(270,110,6);
}

// Relay 4
myGLCD.setColor(0, 0, 0);
myGLCD.print("4", 285, 105);
myGLCD.setColor(0,0,0);
int x22=300; int y22=110; int r22=7;
myGLCD.drawCircle(x22, y22, r22);

if (digitalRead(RELE_4) == HIGH) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(300,110,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(300,110,6);
}

// Input 1
myGLCD.setColor(0, 0, 0);
myGLCD.print("Input:", 5, 145);
myGLCD.print("1", 75, 145);
myGLCD.setColor(0,0,0);
int x3=90; int y3=150; int r3=7;

```


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```

myGLCD.drawCircle(x3, y3, r3);

if (digitalRead(IN_1) == false) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(90,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(90,150,6);
}

// Input 2
myGLCD.setColor(0, 0, 0);
myGLCD.print("2", 105, 145);
myGLCD.setColor(0,0,0);
int x4=120; int y4=150; int r4=7;
myGLCD.drawCircle(x4, y4, r4);

if (digitalRead(IN_2) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(120,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(120,150,6);
}

// Input 3
myGLCD.setColor(0, 0, 0);
myGLCD.print("3", 135, 145);
myGLCD.setColor(0,0,0);
int x5=150; int y5=150; int r5=7;
myGLCD.drawCircle(x5, y5, r5);

if (digitalRead(IN_3) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(150,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(150,150,6);
}

// Input 4
myGLCD.setColor(0, 0, 0);
myGLCD.print("4", 165, 145);
myGLCD.setColor(0,0,0);
int x6=180; int y6=150; int r6=7;
myGLCD.drawCircle(x6, y6, r6);

if (digitalRead(IN_4) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(180,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(180,150,6);
}

// Input 5
myGLCD.setColor(0, 0, 0);
myGLCD.print("5", 195, 145);
myGLCD.setColor(0,0,0);
int x7=210; int y7=150; int r7=7;
myGLCD.drawCircle(x7, y7, r7);

if (digitalRead(IN_5) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(210,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(210,150,6);
}

```


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```

// Input 6
myGLCD.setColor(0, 0, 0);
myGLCD.print("6", 225, 145);
myGLCD.setColor(0,0,0);
int x8=240; int y8=150; int r8=7;
myGLCD.drawCircle(x8, y8, r8);

if (digitalRead(IN_6) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(240,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(240,150,6);
}

// Input 7
myGLCD.setColor(0, 0, 0);
myGLCD.print("7", 255, 145);
myGLCD.setColor(0,0,0);
int x9=270; int y9=150; int r9=7;
myGLCD.drawCircle(x9, y9, r9);

if (digitalRead(IN_7) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(270,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(270,150,6);
}

// Input 8
myGLCD.setColor(0, 0, 0);
myGLCD.print("8", 285, 145);
myGLCD.setColor(0,0,0);
int x10=300; int y10=150; int r10=7;
myGLCD.drawCircle(x10, y10, r10);

if (digitalRead(IN 8) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(300,150,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(300,150,6);
}

// Output 1 - PWM1
myGLCD.setColor(0, 0, 0);
myGLCD.print("Output:", 5, 125);
myGLCD.print("1", 75, 125);
myGLCD.setColor(0,0,0);
int x11=90; int y11=130; int r11=7;
myGLCD.drawCircle(x11, y11, r11);

if (digitalRead(OUT_1) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(90,130,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(90,130,6);
}

// Output 2 - PWM2
myGLCD.setColor(0, 0, 0);
myGLCD.print("2", 105, 125);
myGLCD.setColor(0,0,0);
int x12=120; int y12=130; int r12=7;
myGLCD.drawCircle(x12, y12, r12);

if (digitalRead(OUT_2) == 0) {

```


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```

        myGLCD.setColor(0,255,0);
        myGLCD.fillCircle(120,130,6);
    }
    else {
        myGLCD.setColor(255,255,255);
        myGLCD.fillCircle(120,130,6);
    }
}

// Output 3 - PWM3
myGLCD.setColor(0, 0, 0);
myGLCD.print("3", 135, 125);
myGLCD.setColor(0,0,0);
int x13=150; int y13=130; int r13=7;
myGLCD.drawCircle(x13, y13, r13);

if (digitalRead(OUT_3) == 0) {
    myGLCD.setColor(0,255,0);
    myGLCD.fillCircle(150,130,6);
}
else {
    myGLCD.setColor(255,255,255);
    myGLCD.fillCircle(150,130,6);
}

// Output 4 - PWM4
myGLCD.setColor(0, 0, 0);
myGLCD.print("4", 165, 125);
myGLCD.setColor(0,0,0);
int x14=180; int y14=130; int r14=7;
myGLCD.drawCircle(x14, y14, r14);

if (digitalRead(OUT_4) == 0) {
    myGLCD.setColor(0,255,0);
    myGLCD.fillCircle(180,130,6);
}
else {
    myGLCD.setColor(255,255,255);
    myGLCD.fillCircle(180,130,6);
}

// Output 5
myGLCD.setColor(0, 0, 0);
myGLCD.print("5", 195, 125);
myGLCD.setColor(0,0,0);
int x15=210; int y15=130; int r15=7;
myGLCD.drawCircle(x15, y15, r15);

if (digitalRead(OUT_5) == 0) {
    myGLCD.setColor(0,255,0);
    myGLCD.fillCircle(210,130,6);
}
else {
    myGLCD.setColor(255,255,255);
    myGLCD.fillCircle(210,130,6);
}

// Output 6
myGLCD.setColor(0, 0, 0);
myGLCD.print("6", 225, 125);
myGLCD.setColor(0,0,0);
int x16=240; int y16=130; int r16=7;
myGLCD.drawCircle(x16, y16, r16);

if (digitalRead(OUT_6) == 0) {
    myGLCD.setColor(0,255,0);
    myGLCD.fillCircle(240,130,6);
}
else {
    myGLCD.setColor(255,255,255);
    myGLCD.fillCircle(240,130,6);
}

// Output 7
myGLCD.setColor(0, 0, 0);

```

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```
myGLCD.print("7", 255, 125);
myGLCD.setColor(0,0,0);
int x17=270; int y17=130; int r17=7;
myGLCD.drawCircle(x17, y17, r17);

if (digitalRead(OUT_7) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(270,130,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(270,130,6);
}

// Output 8
myGLCD.setColor(0, 0, 0);
myGLCD.print("8", 285, 125);
myGLCD.setColor(0,0,0);
int x18=300; int y18=130; int r18=7;
myGLCD.drawCircle(x18, y18, r18);

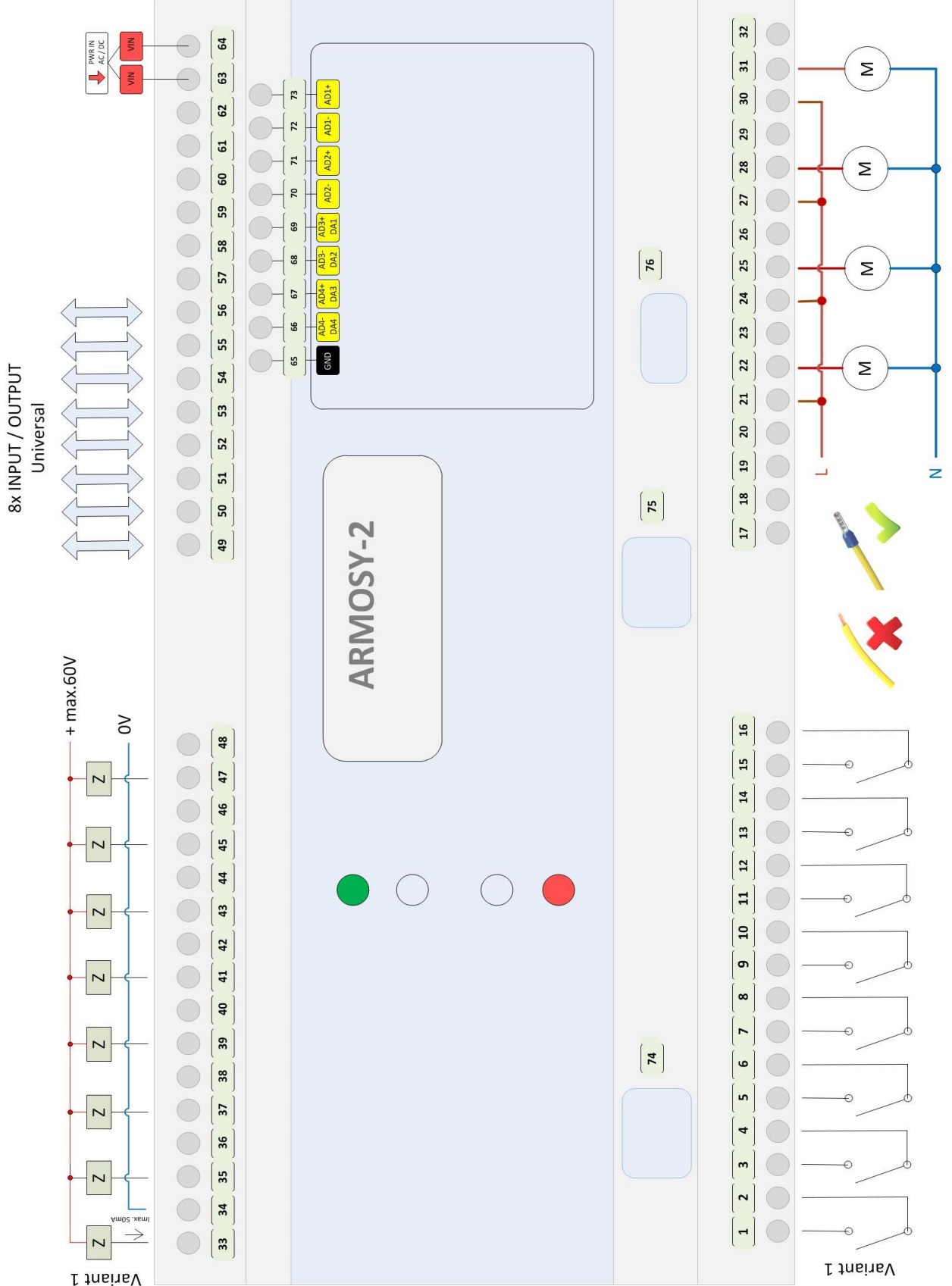
if (digitalRead(OUT_8) == 0) {
  myGLCD.setColor(0,255,0);
  myGLCD.fillCircle(300,130,6);
}
else {
  myGLCD.setColor(255,255,255);
  myGLCD.fillCircle(300,130,6);
}
}

// Read Buttons
void Read_Buttons(){
if (digitalRead(BUTT_H) == 0) {
  if (b_BUTT_H == 0){b_BUTT_H = 1;}
  else {b_BUTT_H = 0;}
  digitalWrite(BEEP, LOW);
  delay (300);
  digitalWrite(BEEP, HIGH);
}

if (digitalRead(BUTT_L) == 0) {
  if (b_BUTT_L == 0){b_BUTT_L = 1;}
  else {b_BUTT_L = 0;}
  digitalWrite(BEEP, LOW);
  delay (300);
  digitalWrite(BEEP, HIGH);
}
}
```

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