

UIF - 5K



- The UIF-5K is a 5-key, 20 x 4 Character LCD with built-in RS-232 communication transmitter for communication with a main controller.

- 1) Data is output via RS-232 on key press
- 2) Data received via RS-232 is displayed on the LCD
- 3) Software controllable backlight on/off feature
- 4) 5 Status LEDs
- 5) Key-press audio feedback on/off feature
- 7) RS-232 communication fixed at 115200 baud, 8 data bits, no parity, 1 stop bit

Specifications

1) Power

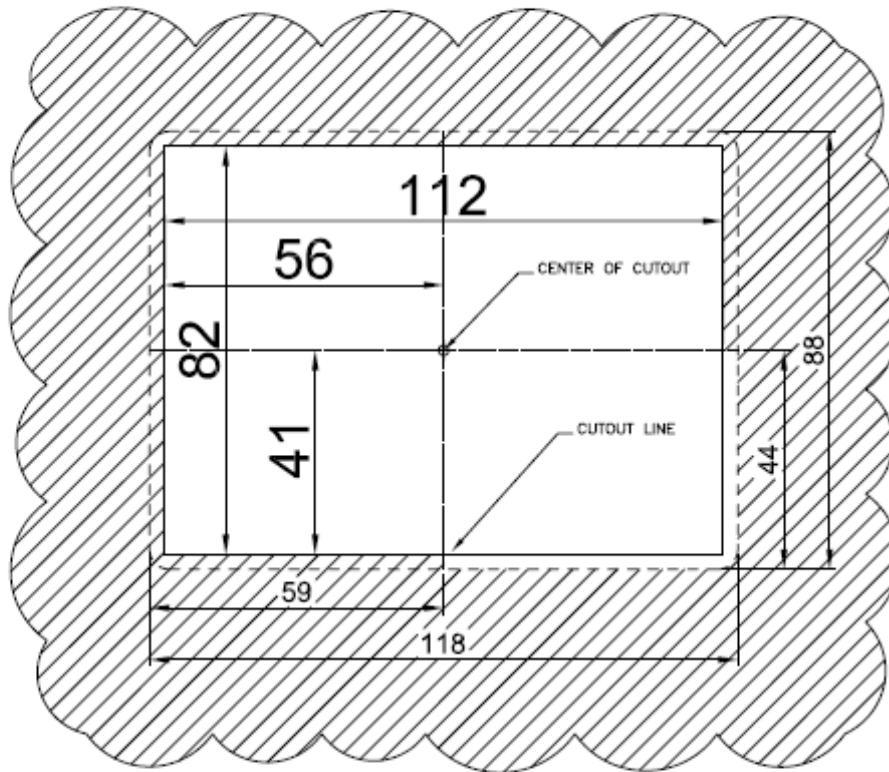
Voltage	9~24 VDC
Power Consumption	1.2 W, Max 1.6 VA or less

Operating Temperature	0~50 °C
Operating Humidity	35~85 %RH (no condensation)

Push-button Switch Life	100,000 Presses
Force	250gf

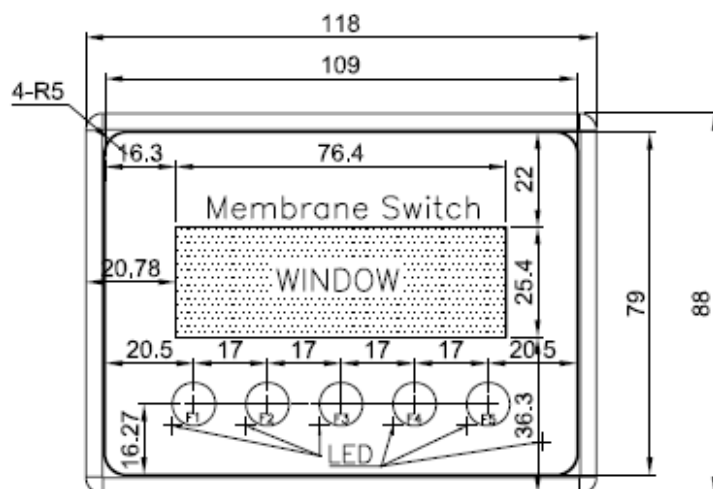
1. Panel and Cutout Dimensions

■ Panel Dimensions

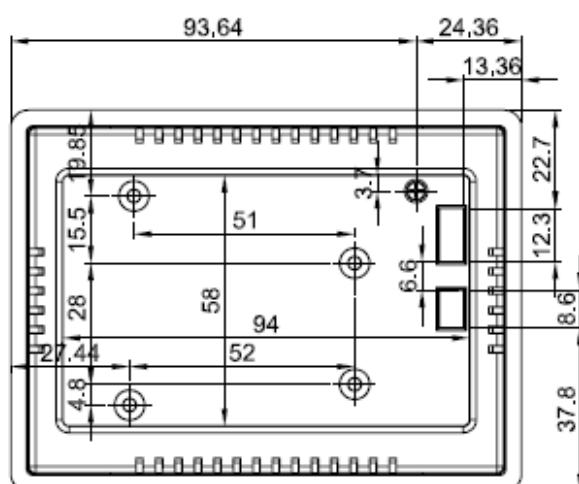


UIF5K PANEL CUTOUT – BACK VIEW Unit: mm

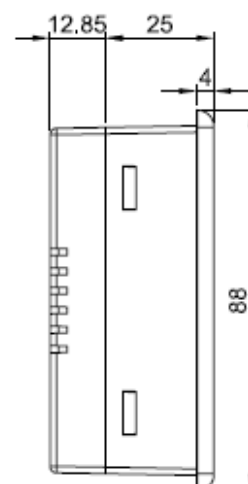
■ Dimensions



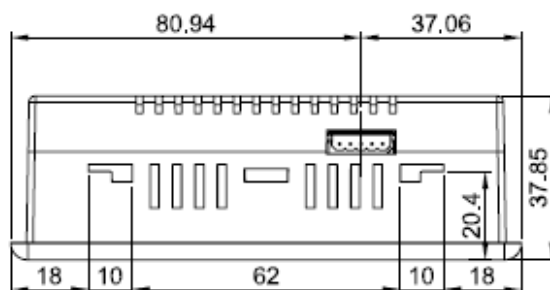
FRONT VIEW



BACK VIEW



SIDE VIEW

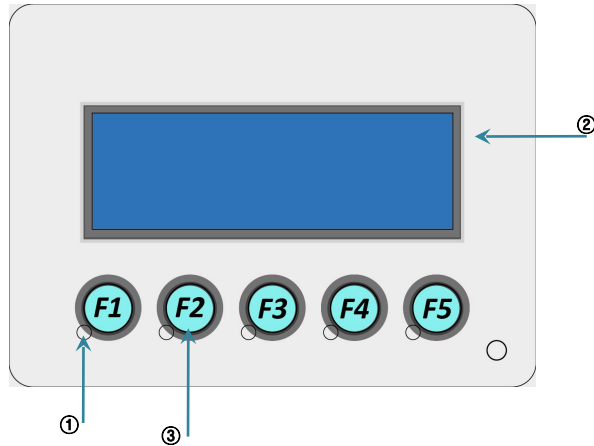


BOTTOM VIEW

Unit: mm

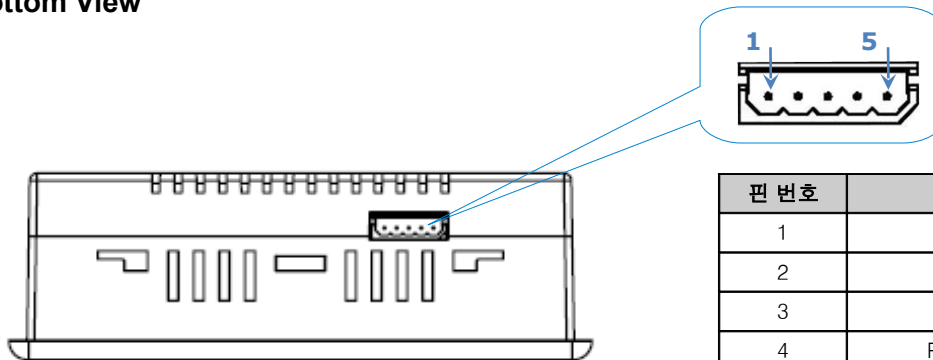
2. Parts and Functions

■ Front View



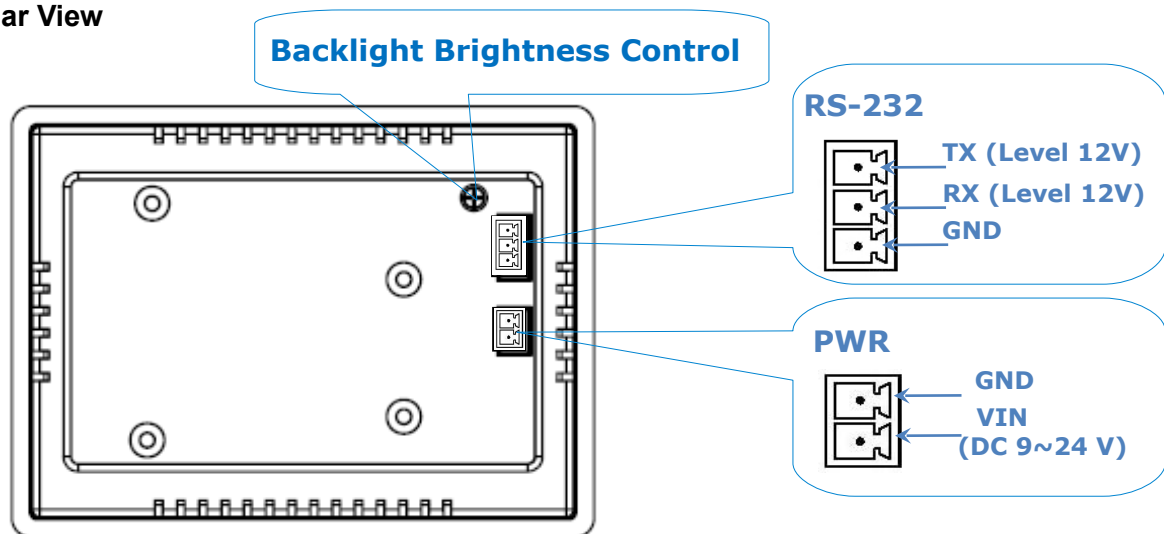
	Name	Feature
①	LED	LED ON/OFF
②	Character LCD	Letters, Numbers, and Symbols
③	Key	Key Value Sent Via RS-232 F1 - 0X01 (1 byte) F2 - 0X02 (1 byte) F3 - 0X03 (1 byte) F4 - 0X04 (1 byte) F5 - 0X05 (1 byte)

■ Bottom View

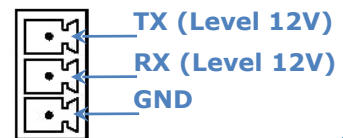


핀 번호	설 명
1	VIN (DC 9~24V)
2	5V
3	GND
4	RX (RS232 Level 5V)
5	TX (RS232 Level 5V)

■ Rear View



RS-232

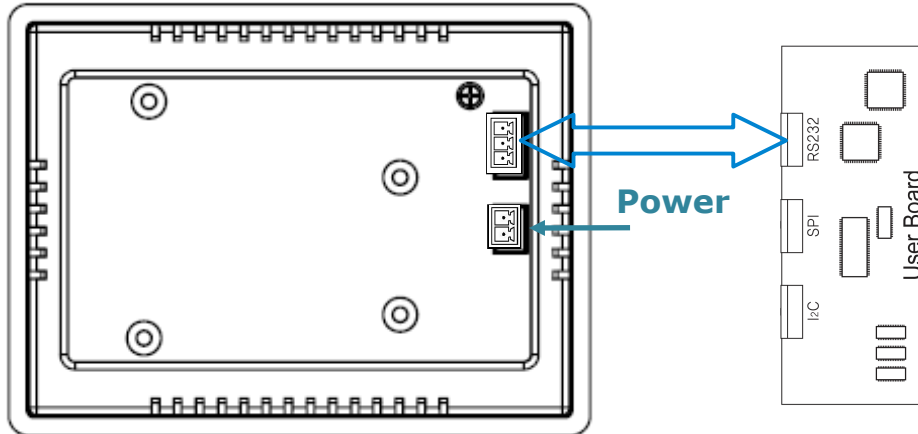


PWR

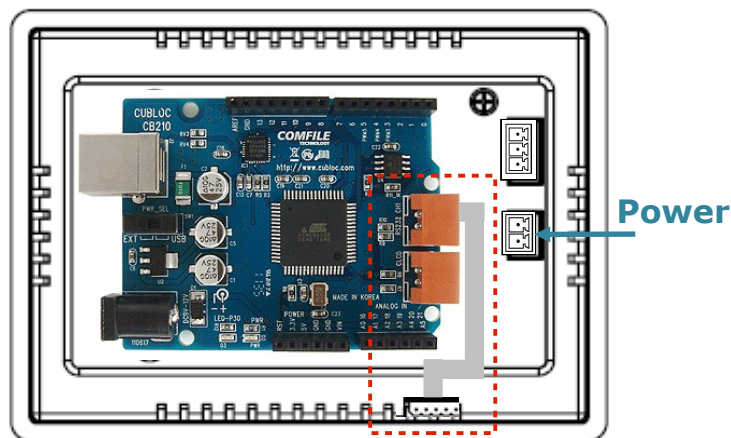


3. Connecting a Main Controller

■ Power and RS-232 Connections



■ 5V-Level RS-232C Connection (CB 210)



4. Command Reference

When you send an ASCII code to the UIF, that ASCII code's character is displayed on the character LCD. To clear the screen or move the cursor, you must use an escape sequence. Escape sequences are initiated by first sending an ESC character, followed by a 1 byte control code, and then a variable number of bytes specifying the command's arguments.

| Setup using a CUBLOC

Opencom n1, n2, n3, n4, n5

- (n1): 1=RS-232 Channel 1, 2=RS-232 Channel 2, 3=RS-232 Channel 3
- (n2): RS-232C speed **115200 Fixed**
- (n3): Protocol **(8 Data Bits, No Parity, 1 Stop Bit) Fixed**
- (n4): Size of Receive Buffer
- (n5): Size of Send Buffer
- Example using RS-232 Channel 1: Opencom 1, 115200, 3, 200, 20

| Character LCD Cursor ON

ESC	S
1 byte	1 byte

- Turn character LCD Cursor ON
- Example: Turn cursor ON
(Hexadecimal) 1B 53
(CUBLOC) Csron

| Character LCD Cursor OFF

ESC	S
1 byte	1 byte

- Turn character LCD Cursor OFF
- Example: Turn cursor OFF
(Hexadecimal) 1B 73
(CUBLOC) Csroff

| Clear Screen

ESC	C
1 byte	1 byte

- Clears the character LCD screen. (This command has a latency of approximately 20ms)
- Example 1: Clear the entire screen
(Hexadecimal) 1B 43
(CUBLOC) Cls

| Backlight ON/OFF

ESC	BL	n
1 byte	2 bytes	1 byte

- (n): 0=OFF, 1=ON
- Turns character LCD backlight ON/OFF
- Example: Turn backlight ON
(Hexadecimal) 1B 42 4C 01
(CUBLOC) Light 1

| Move Cursor

ESC	L	n1	n2
1 byte	1 byte	1 byte	1 byte

- (n1): LCD Horizontal Position
- (n2): LCD Vertical Position
- Characters will be displayed at the specified location
- Example: Coordinates 0, 0
(Hexadecimal) 1B 4C 00 00
(CUBLOC) Locate 0, 0

| Check Status of LED

ESC	E	n1
1 byte	1 byte	1 byte

- (n1): 0 = OFF, 1 = ON (Default: 1)
- Reads the status (ON/OFF) of the specified LED
- Example: Check if status is ON/OFF
(Hexadecimal) 1B 45 00
(CUBLOC) Print 27, 69, 0

| Turn LED ON/OFF

ESC	F	n1	n2
1 byte	1 byte	1 byte	1 byte

- (n1): LED selection
- (n2): 0: OFF, 1: ON
- Turns the specified LED ON/OFF
- Example: Turn LED #2 ON
(Hexadecimal) 1B 46 02 01
(CUBLOC) Print 27, 70, 2, 1

Enable/Disable Audio Feedback

ESC	Z	n1
1 byte	1 byte	1 byte

- (n1): 0 = OFF, 1 = ON(Default: 0)
- Enables/Disables sound when a button is pressed.
- Example: Enable audio feedback
(Hexadecimal) 1B 5A 1
(CUBLOC) Print 27, 90, 1

Enable Send with Check Byte

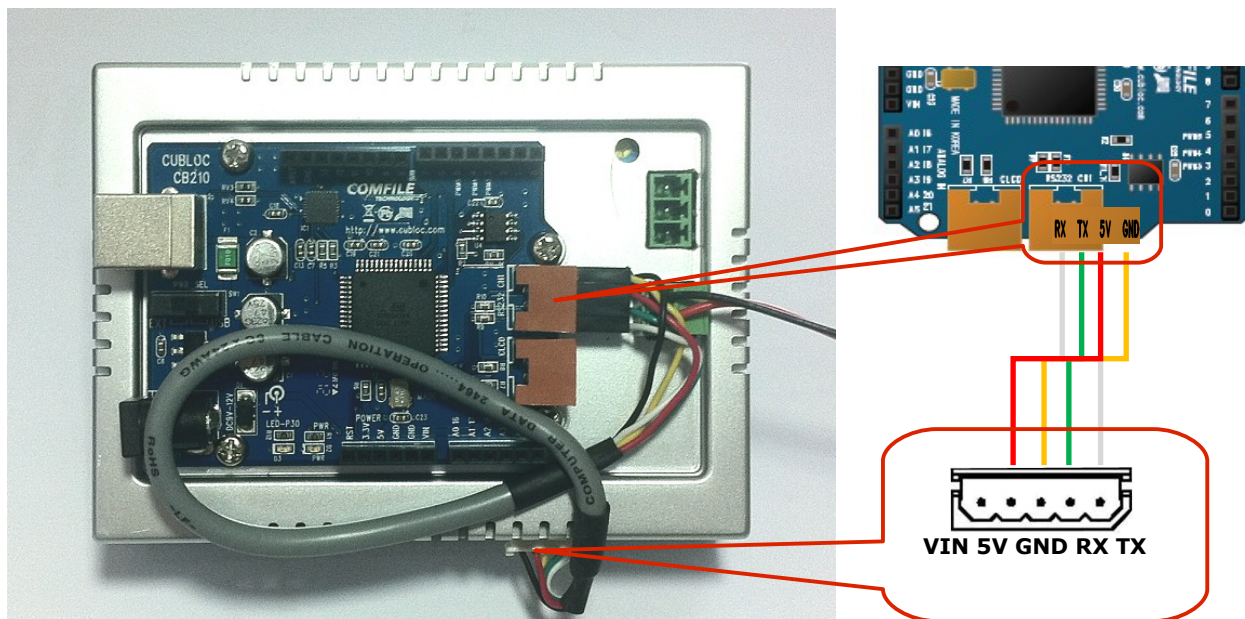
ESC	H
1 byte	1 byte

- After using this command, key presses will send 2 bytes rather than 1, with the second byte being a 1's complement of the first byte. These two bytes can be compared to verify transmission integrity.
- Example:(Hexadecimal) 1B 48
(CUBLOC) Print 27, 72

#. UIF-5K Beginner's Guide

How to Interface a CUBLOC (CB210) to the UIF-5K

You can interface a CUBLOC with the UIF-5K by mounting it to the rear panel and connecting the RS-232 (5V-Level) send and receive pins. The images below illustrate this connection.



Example:

```
Const Device = Cb210

Dim RX_KEY As Integer
Dim i As Integer

Opencom 1, 115200, 3, 30, 20      'Open RS-232 Chanel 1
Set Uif 2, 1                      'Set the UIF command format
On Recv1 Gsub ABC                 'Jump to ABC when button is pressed

Csroff                            'Turn cursor off
Print 27, 90, 1                  'Enable buzzer
Cls                               'Clear screen
Delay 100
Locate 0,0
Print "COMFILE UIF-5K"
Locate 0,3
Print "RX_KEY:"
Do
    Incr i
    Locate 0,2
    Print "COUNTER:",Dec i
    Delay 100
Loop
ABC:
    RX_KEY=Get(1,1)              'Get data from RS-232 Receive buffer
    Locate 12,3
    Print Dec RX_KEY
Return
```

SET UIF command is supported in CUBLOC Studio v3.0.d or higher.

SET UIF DisplayType, ChannelNumber

DisplayType: 1=UIF416H, 2=UIF420A, UIF-5K

ChannelNumber: 1=RS-232 Channel 1, 2=RS-232 Channel 2

When interfacing to the UIF-5K make a call to `OpenCom` first before calling `Set UIF`. When a button is pressed, the button's status can be read in the serial port's receive event handler. Use the `Get` command to read from the serial port's receive buffer.

 Result

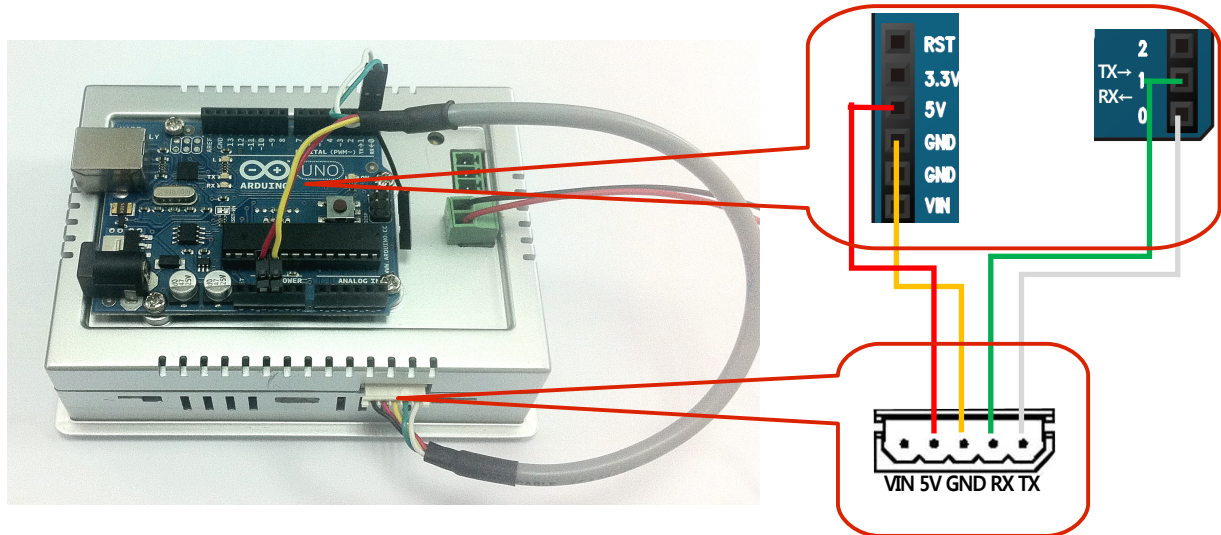


Please click on the link below to see a video demonstration

<http://www.youtube.com/watch?v=ei0EdHTet6E&feature=youtu.be>

■ How to Interface an Arduino with the UIF-5K

You can interface an Arduino with the UIF-5K by mounting it to the rear panel and connecting the RS-232 (5V-Level) send and receive pins. The images below illustrate this connection.



Example:

```
void setup() {  
    Serial.begin(115200);           //Baud Rate 115200  
  
    uif_clear();                   //Clear Screen  
    delay(20);  
    uif_light(1); delay(20);       //Backlight on  
    uif_buzzer(1); delay(20);     //Buzzer on  
    delay(100);  
    uif_locate(0,0);  
    Serial.print("=== UIF 5K_TEST ===");delay(100);  
    uif_locate(2,1);  
    Serial.print("www.comfile.co.kr"); delay(100);  
    uif_locate(2,2);  
    Serial.print("COUNTER : ");   delay(100);  
    uif_locate(2,3);  
    Serial.print("INPUT : ");     delay(100);  
}
```

```
int cnt = 0;
void loop() {
    cnt++;                                //Increment Counter
    uif_locate(12,2);
    Serial.print(cnt, DEC);              //Display Counter
    delay(100);
}

void serialEvent() {                    //Display button press
    while (Serial.available()) {
        char inChar = (char)Serial.read();
        uif_locate(9,3);
        Serial.print(inChar, DEC);
    }
}

//Turn cursor ON/OFF: 0 or 1
void uif_csron(unsigned char on_off) {
    if(on_off){ Serial.write(0x1b); Serial.write(0x53); }
    else      { Serial.write(0x1b); Serial.write(0x73); }
}

//Clear screen
void uif_clear() {
    Serial.write(0x1b); Serial.write(0x43);
}

//Turn backlight ON/OFF: 0 or 1
void uif_light(unsigned char on_off) {
    Serial.write(0x1b); Serial.write(0x42);
    Serial.write(0x4c); Serial.write(on_off);
}

//Move cursor to a new position
void uif_locate(unsigned char x, unsigned char y) {
    Serial.write(0x1b); Serial.write(0x4C);
    Serial.write(x);    Serial.write(y);
}

//Check if button's LED is ON/OFF: 0 or 1
void uif_swled(unsigned char on_off){
    Serial.write(0x1b); Serial.write(0x45); Serial.write(on_off);
}

//Turn LED ON/OFF
void uif_led(unsigned char number, unsigned char on_off) {
    Serial.write(0x1b); Serial.write(0x46);
    Serial.write(number); Serial.write(on_off);
}

//Enable/Disable buzzer: 0 or 1
void uif_buzzer(unsigned char on_off){
    Serial.write(0x1b);Serial.write(0x5a);Serial.write(on_off);
}

//Enable send with check byte
void uif_checkbyte(){
    Serial.write(0x1b); Serial.write(0x48);
}
```

Result

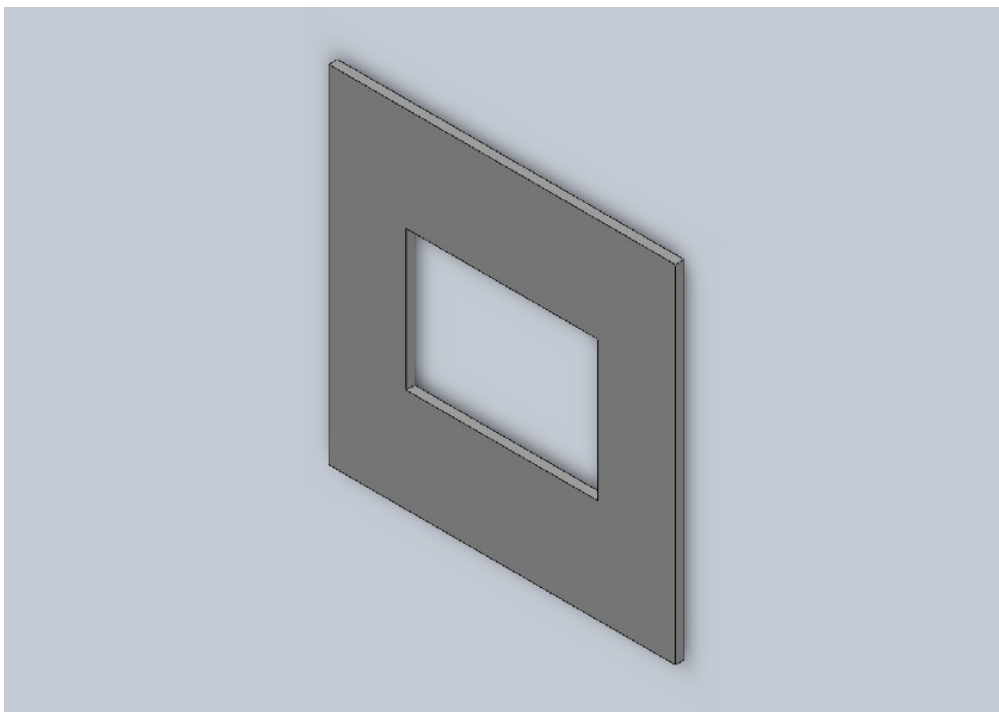


Please click on the link below to see a video demonstration

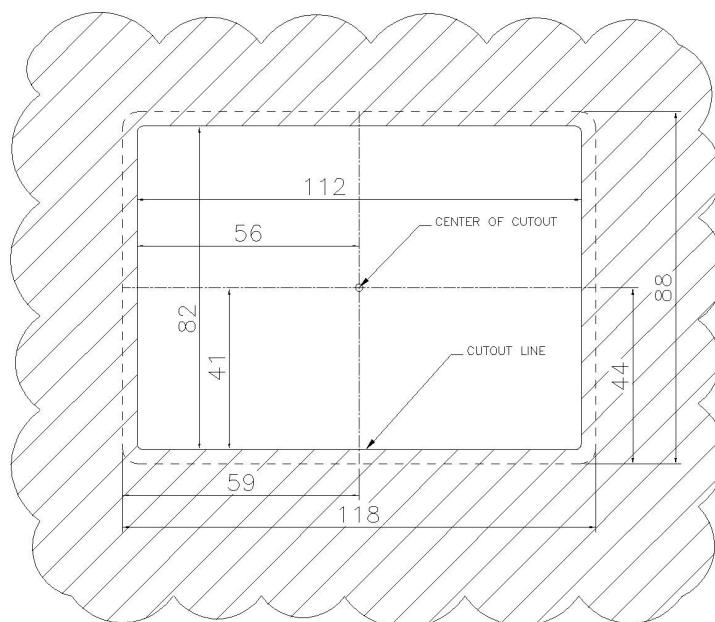
<http://www.youtube.com/watch?v=mnf03mD5USE&feature=youtu.be>

5. Mounting to a Panel

1. Use the images and dimensions below to fabricate a panel suitable for the UIF-5K



[Figure 1] Panel Cutout (Front Panel)



UIF5K PANEL CUTOUT – BACK VIEW

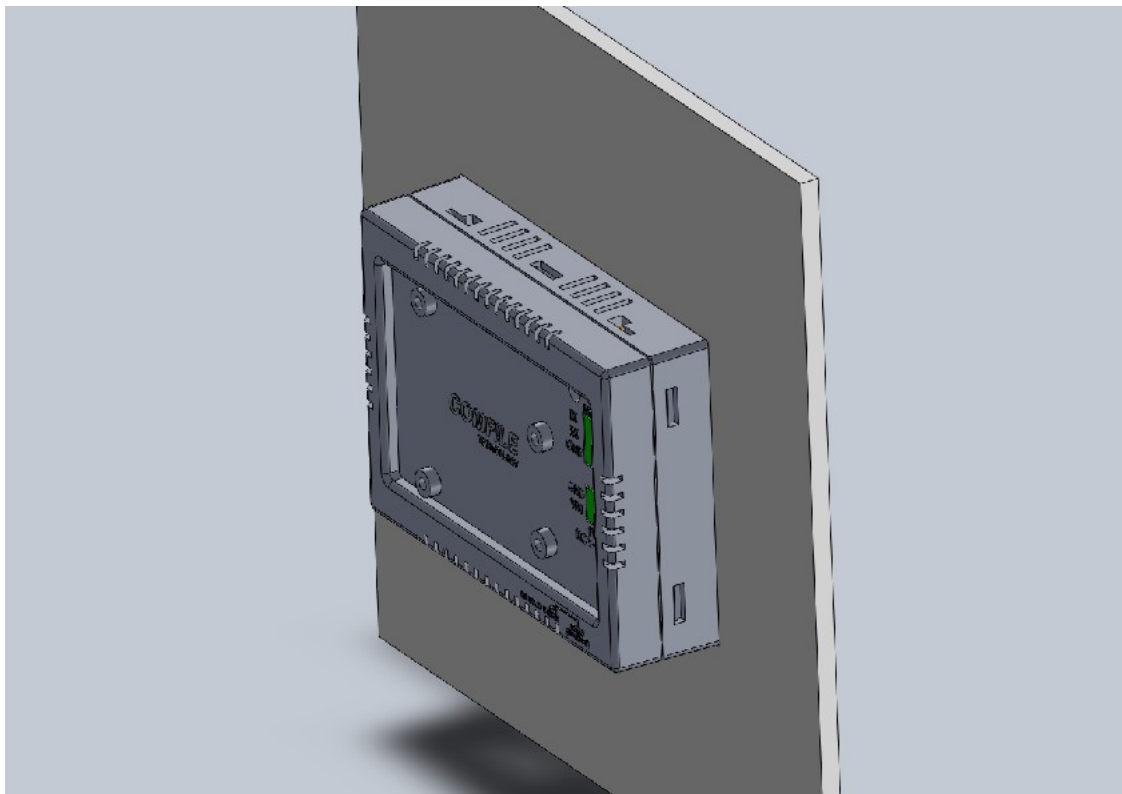
Unit: mm

[Figure 2] Panel Cutout Drawing

2. Insert the UIF-5K into the rectangular cutout of the panel.

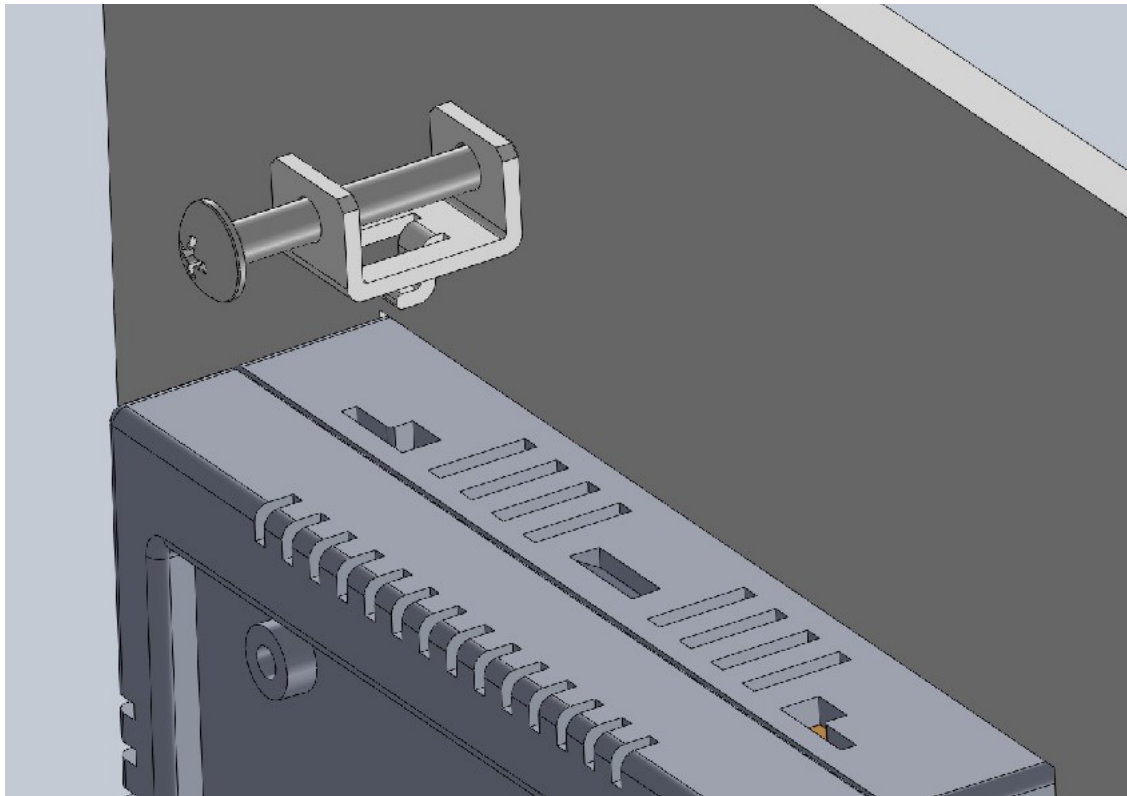


[Figure 3] Before, UIF-5K Mounting

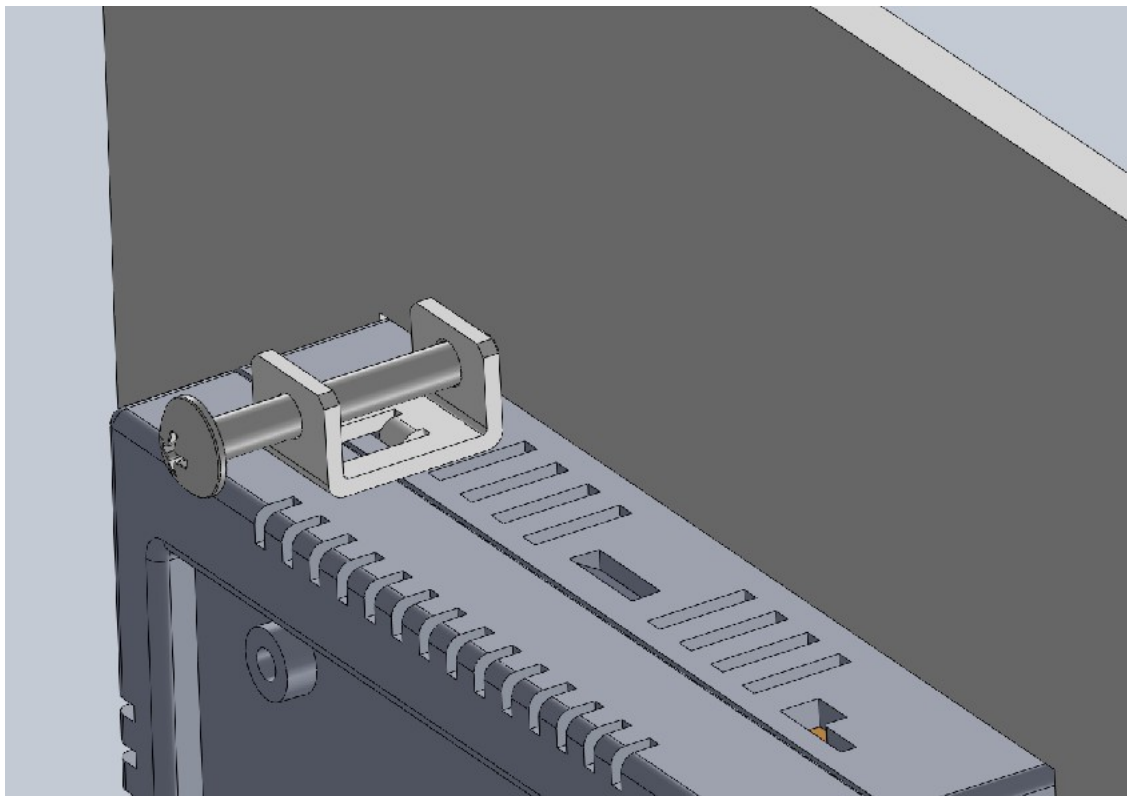


[Figure 4] After, UIF-5K Mounting (Back Panel)

3. From the rear side of the panel, insert the mounting brackets into the UIF-5K's mounting grooves.

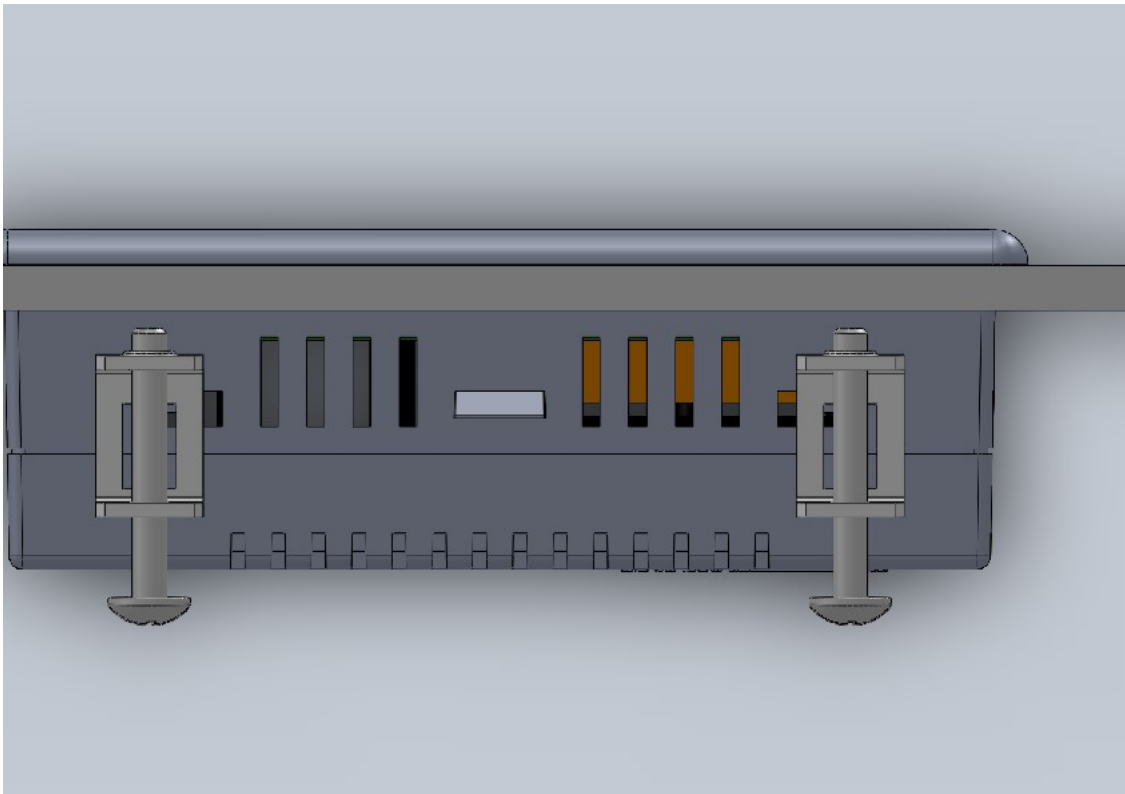


[Figure 5] Before, bracket insert (Back Panel)

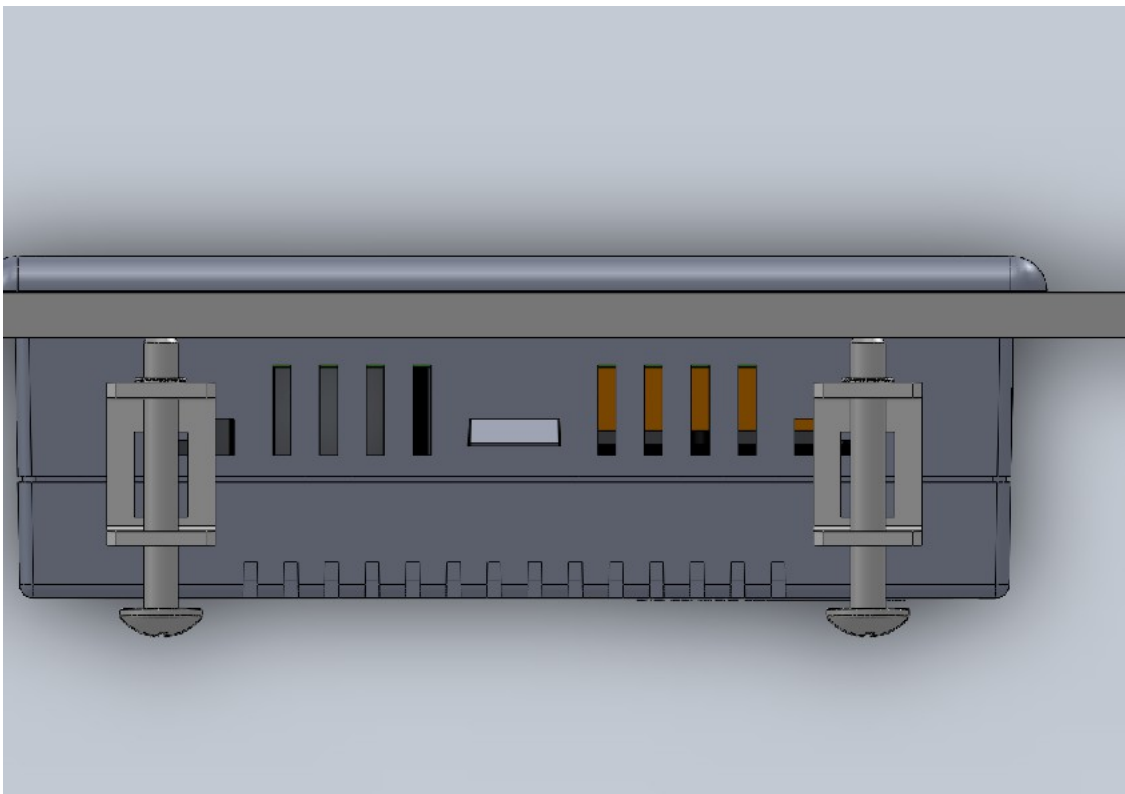


[Figure 6] After, bracket insert (Back Panel)

4. Side the bracket to the side to secure it into place.

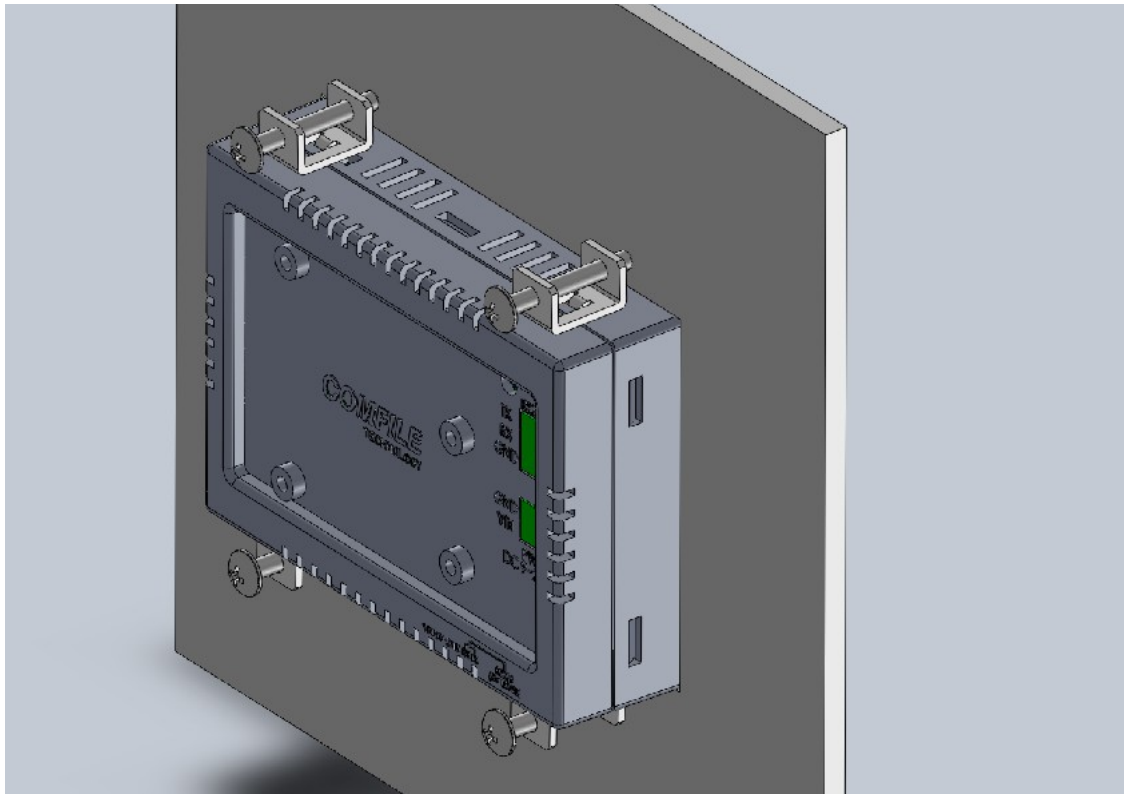


[Figure 9] Before, tighten a bolt the panel. (Top view)

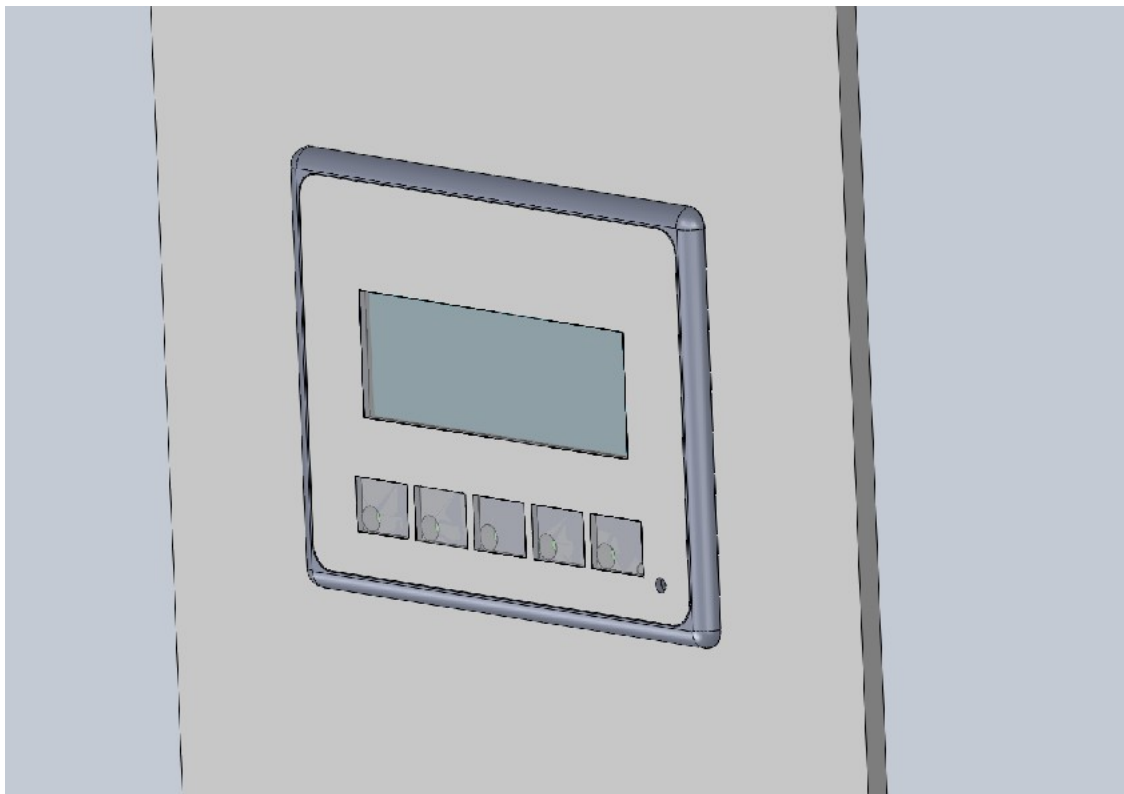


[Figure 10] After, tighten a bolt the panel. (Top view)

6. The UIF-5K should now be mounted to the panel as shown in the images below.



[Figure 11] Completing assembly. (Back Panel)



[Figure 12] Completing assembly. (Front Panel)