

## Lampiran 1. Program Web

### Index.html (frontend)

```

<script type="text/javascript">
$.ready(function(){
var suhu,kelembaban,jam,tanggal;
    setInterval(function(e){

        $.ajax({
            'type': 'GET',
            'url': 'lihatrealtime.php',
            'dataType': 'json',
            'data': $(this).serialize(),
            'success': function(data){
                suhu = data.suhu;
                kelembaban = data.kelembaban;
                jam = data.jam;

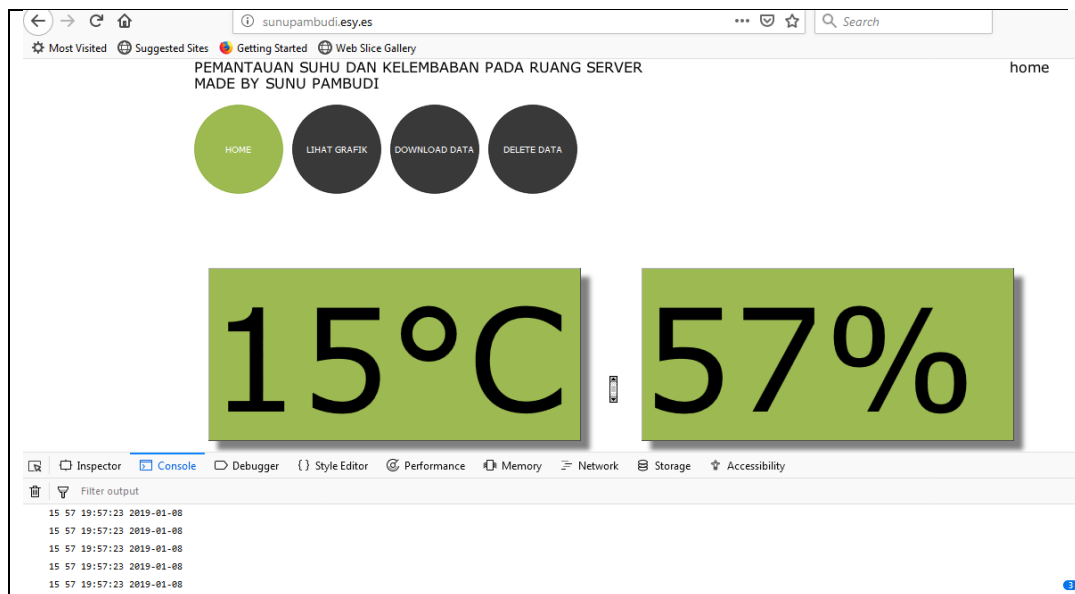
                tanggal = data.tanggal;
                $('#suhu').html("<p class=\"Body\"><span class=\"C-
1\">" +suhu+"°C</span></p>");
                $('#kelembaban').html("<p class=\"Body\"><span class=\"C-
1\">" +kelembaban+"%</span></p>");
                $('#waktu').html("<p class=\"Body\"><span class=\"C-
2\">Update terakhir jam "+jam+" , tanggal "+tanggal +"</span></p>");
            }
        });

        console.log(suhu+" "+kelembaban+" "+jam+" "+tanggal);

    },500);
});
</script>

```

Program diatas berfungsi mengambil data dari datarealtime.php untuk ditampilkan ke user yang mengrequest, data tersebut di ambil setiap 500ms



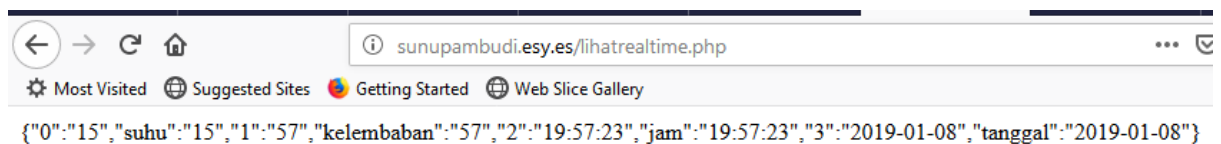
### lihatrealtime.php (backend)

```
<?php
$db=mysqli_connect("localhost","u349353524_data","12345678","u349353524_data") or die("gagal");

$query = mysqli_query($db,"SELECT * FROM `data realtime` WHERE 1") or die("salah");
$lokasi = mysqli_fetch_array($query);

echo json_encode($lokasi);
?>
```

Program diatas bertujuan untuk mengambil semua data dari database pada table data realtime dan menampilkannya dalam bentuk json



### lihatgrafik.html (frontend)

```
<script>
document.getElementById("tanggal1").value = format(new Date(), 'yyyy-MM-dd');
document.getElementById("tanggal2").value = format(new Date(), 'yyyy-MM-dd');
```

```

var tanggal1 = format(new Date(), 'yyyy-MM-dd');
var tanggal2 = format(new Date(), 'yyyy-MM-dd');

function cari() {
    tanggal1 = document.getElementById("tanggal1").value;
    tanggal2 = document.getElementById("tanggal2").value;
    console.log(tanggal1+" "+tanggal2);
}

var ctx1;
var myLineChart1;
var ctx2;
var myLineChart2;

$.ready(function(){
    setInterval(function(e){
        console.log(tanggal1+" "+tanggal2);
        $.ajax({
            'type': 'GET',
            'url': 'lihat.php?tanggal1='+tanggal1+'&tanggal2='+tanggal2,
            'dataType': 'json',
            'data': $(this).serialize(),
            'success': function(data){

var tabel = "<table align=\"center\" border=\"1\" class=\"OBJ-3\"
style=\"position:absolute;left:19px;top:225px;width:461px;height:249px;\"><co
l style=\"width:128px;\"><col style=\"width:128px;\"><col
style=\"width:74px;\"><col style=\"width:129px;\"><tr
style=\"height:68px;\"><td class=\"TC-1\"><p class=\"Table-Body P-1\"><span
class=\"C-1\">TANGGAL</span></p></td><td class=\"TC-1\"><p
class=\"Table-Body P-1\"><span class=\"C-1\">JAM</span></p></td><td
class=\"TC-1\"><p class=\"Table-Body P-1\"><span class=\"C-
1\">SUHU</span></p><p class=\"Table-Body P-1\"><span class=\"C-
1\">(°C)</span></p></td><td class=\"TC-1\"><p class=\"Table-Body P-
1\"><span class=\"C-1\">KELEMBABAN</span></p><p class=\"Table-Body
P-1\"><span class=\"C-1\">(%)</span></p></td> <td class=\"TC-1\"> <a
href=\"delete.php?hapus=all\"><p class=\"Table-Body P-1\"><span class=\"C-
1\">delete all</span></p></a> </td></tr>";

                var akhir = Object.keys(data).length;
                var awal = akhir - 100;
                var x1 = [];
                var x2 = [];
                var y = [];
            }
        });
    });
}

```

```

        if ( awal < 0){awal = 0;}
        console.log(awal+" "+akhir);
        for ( var i =awal; i < akhir; i++ )
        {
            var jadwal = data[i].tanggal + " " + data[i].jam;

            x1.push(data[i].suhu);
            x2.push(data[i].kelembaban);
            y.push(jadwal);

            tabel += "<tr style=\"height:30px;\"><td class=\"TC-2\"><p
class=\"Table-Body\"><span class=\"C-2\">";
            tabel += data[i].tanggal;
            tabel += "</span></p></td><td class=\"TC-2\"><p
class=\"Table-Body\"><span class=\"C-2\">";
            tabel += data[i].jam;
            tabel += "</span></p></td><td class=\"TC-2\"><p
class=\"Table-Body\"><span class=\"C-2\">";
            tabel += data[i].suhu;
            tabel += "</span></p></td><td class=\"TC-2\"><p
class=\"Table-Body\"><span class=\"C-2\">";
            tabel += data[i].kelembaban;
            tabel += "</span></p></td><td class=\"TC-2\"><p
class=\"Table-Body\"><span class=\"C-2\">";
            tabel += "<a href=\"delete.php?tanggal="
            tabel += data[i].tanggal;
            tabel += "&jam=";
            tabel += data[i].jam;
            tabel += "\"> delete </a>";
            tabel += "</span></p></td></tr>";

        }

        tabel += "</table>";
        console.log(tabel);
        $('#tabelku').html(tabel);

    ctx1 = document.getElementById("chartsuhu");

    myLineChart1 = new Chart(ctx1, {

        type: 'line',
        options: {
            animation: {

```

```
        duration: 0
    }
},

    data: {
    labels: y,
    datasets: [{
        data: x1,
        label: "suhu",
        borderColor: "#3e95cd",
        fill: false
    }
    ]
}

});

ctx2 = document.getElementById("chartkelembaban");

myLineChart2 = new Chart(ctx2, {

    type: 'line',
    options: {
    animation: {
        duration: 0
    }
},

    data: {
    labels: y,
    datasets: [{
        data: x2,
        label: "kelembaban",
        borderColor: "#f20404",
        fill: false
    }
    ]
}

});

    console.log(y);
```

```

    }
    });
    },2000);
  });

```

</script>

Program diatas terdiri dari 3 fungsi yaitu :

### Fungsi 1

Fungsi ajax melakukan request ke lihat.php untuk diambil datanya

### Fungsi 2

Fungsi tersebut berguna untuk membuat data yang diperoleh dari fungsi 1 menjadi sebuah table dan terdapat program yang mengakses delete.php untuk keperluan delete data

### Fungsi 3

Fungsi tersebut berguna untuk membuat data yang diperoleh dari fungsi 1 menjadi sebuah Chart

Program diatas menggunakan fungsi interval yang akan tereload setial 2000ms

TANGGAL	JAM	SUHU (°C)	KELEMBABAN (%)	delete all
2019-01-08	19:57:15	14.5	55	delete
2019-01-08	19:57:04	14.8	53	delete

The chart displays two data series: 'suhu' (temperature) and 'kelembaban' (humidity). The temperature series is represented by a blue line, and the humidity series is represented by a red line. The x-axis shows the date and time, and the y-axis shows the values for each metric.

### lihat.php (backend)

<?php

```

$db=mysqli_connect("localhost","u349353524_data","12345678","u349353524_data") or die("gagal");

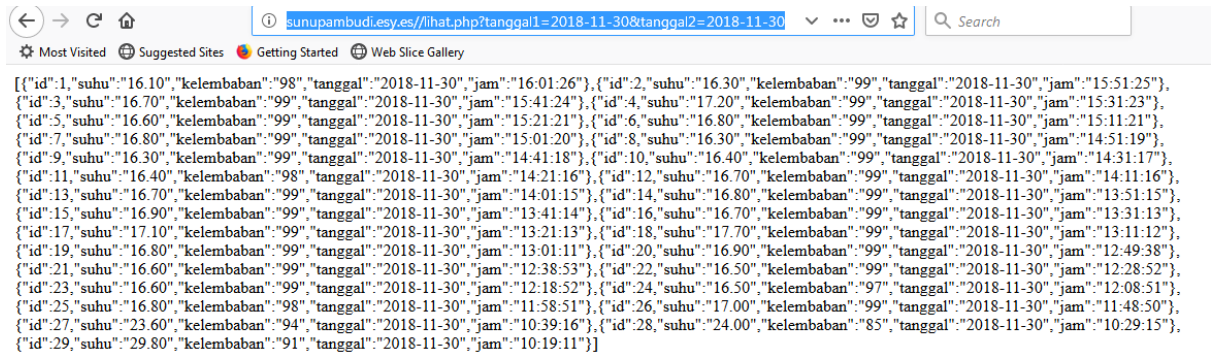
if(isset($_GET['tanggal1']) && isset($_GET['tanggal2']))
{
$query = mysqli_query($db,"SELECT * FROM sensor WHERE tanggal>=$_GET[tanggal1] AND tanggal<=$_GET[tanggal2] ORDER BY tanggal DESC,jam DESC ");
$array=array();
$n = 0;
while ($lokasi = mysqli_fetch_array($query)){
    $n +=1;

    $array2=array();
    $array2['id']= $n;
    $array2['suhu']=$lokasi['suhu']      ;
    $array2['kelembaban']= $lokasi['kelembaban'];
    $array2['tanggal']= $lokasi['tanggal'];
    $array2['jam']= $lokasi['jam'];
    $array[]=$array2;
}
echo json_encode($array);
}
else
{
    $query = mysqli_query($db,"SELECT * FROM sensor WHERE 1 ORDER BY tanggal DESC ");
    $array=array();
    $n = 0;
    while ($lokasi = mysqli_fetch_array($query)){
        $n +=1;
        $array2=array();
        $array2['id']= $n;
        $array2['suhu']=$lokasi['suhu']      ;
        $array2['kelembaban']= $lokasi['kelembaban'];
        $array2['tanggal']= $lokasi['tanggal'];
        $array2['jam']= $lokasi['jam'];
        $array[]=$array2;
    }
    echo json_encode($array);
}

?>

```

Program diatas bertujuan untuk mengambil semua data dari database pada table sensor sesuai dengan tanggal yang diberikan dan menampilkannya dalam bentuk json



```
[{"id":1,"suhu":16.10,"kelembaban":98,"tanggal":"2018-11-30","jam":"16:01:26"}, {"id":2,"suhu":16.30,"kelembaban":99,"tanggal":"2018-11-30","jam":"15:51:25"}, {"id":3,"suhu":16.70,"kelembaban":99,"tanggal":"2018-11-30","jam":"15:41:24"}, {"id":4,"suhu":17.20,"kelembaban":99,"tanggal":"2018-11-30","jam":"15:31:23"}, {"id":5,"suhu":16.60,"kelembaban":99,"tanggal":"2018-11-30","jam":"15:21:21"}, {"id":6,"suhu":16.80,"kelembaban":99,"tanggal":"2018-11-30","jam":"15:11:21"}, {"id":7,"suhu":16.80,"kelembaban":99,"tanggal":"2018-11-30","jam":"15:01:20"}, {"id":8,"suhu":16.30,"kelembaban":99,"tanggal":"2018-11-30","jam":"14:51:19"}, {"id":9,"suhu":16.30,"kelembaban":99,"tanggal":"2018-11-30","jam":"14:41:18"}, {"id":10,"suhu":16.40,"kelembaban":99,"tanggal":"2018-11-30","jam":"14:31:17"}, {"id":11,"suhu":16.40,"kelembaban":98,"tanggal":"2018-11-30","jam":"14:21:16"}, {"id":12,"suhu":16.70,"kelembaban":99,"tanggal":"2018-11-30","jam":"14:11:16"}, {"id":13,"suhu":16.70,"kelembaban":99,"tanggal":"2018-11-30","jam":"14:01:15"}, {"id":14,"suhu":16.80,"kelembaban":99,"tanggal":"2018-11-30","jam":"13:51:15"}, {"id":15,"suhu":16.90,"kelembaban":99,"tanggal":"2018-11-30","jam":"13:41:14"}, {"id":16,"suhu":16.70,"kelembaban":99,"tanggal":"2018-11-30","jam":"13:31:13"}, {"id":17,"suhu":17.10,"kelembaban":99,"tanggal":"2018-11-30","jam":"13:21:13"}, {"id":18,"suhu":17.70,"kelembaban":99,"tanggal":"2018-11-30","jam":"13:11:12"}, {"id":19,"suhu":16.80,"kelembaban":99,"tanggal":"2018-11-30","jam":"13:01:11"}, {"id":20,"suhu":16.90,"kelembaban":99,"tanggal":"2018-11-30","jam":"12:49:38"}, {"id":21,"suhu":16.60,"kelembaban":99,"tanggal":"2018-11-30","jam":"12:38:53"}, {"id":22,"suhu":16.50,"kelembaban":99,"tanggal":"2018-11-30","jam":"12:28:52"}, {"id":23,"suhu":16.60,"kelembaban":99,"tanggal":"2018-11-30","jam":"12:18:52"}, {"id":24,"suhu":16.50,"kelembaban":97,"tanggal":"2018-11-30","jam":"12:08:51"}, {"id":25,"suhu":16.80,"kelembaban":98,"tanggal":"2018-11-30","jam":"11:58:51"}, {"id":26,"suhu":17.00,"kelembaban":99,"tanggal":"2018-11-30","jam":"11:48:50"}, {"id":27,"suhu":23.60,"kelembaban":94,"tanggal":"2018-11-30","jam":"10:39:16"}, {"id":28,"suhu":24.00,"kelembaban":85,"tanggal":"2018-11-30","jam":"10:29:15"}, {"id":29,"suhu":29.80,"kelembaban":91,"tanggal":"2018-11-30","jam":"10:19:11"}]
```

### delete.php (backend)

```
<?php

$db=mysqli_connect("localhost","u349353524_data","12345678","u349353524_data") or die("gagal");

if(isset($_GET['tanggal']) && isset($_GET['jam']))
{
    mysqli_query($db,"DELETE FROM sensor WHERE tanggal=$_GET[tanggal] AND jam=$_GET[jam]") or die ("gagal");
}

if(isset($_GET['hapus']))
{
    mysqli_query($db,"DELETE FROM sensor WHERE 1 ") or die ("gagal");
}

header("Location: http://sunupambudi.esy.es/lihatgrafik.html");
?>
```

Program diatas bertujuan untuk delete data pada database table sensor dengan tanggal dan jam yang diberikan

### tambah.php (backend)

```
<?php
```



```

date_default_timezone_set('Asia/Jakarta');
$tanggal=date("Y/m/d");
$jam=date("H:i:sa");

$db=mysqli_connect("localhost","u349353524_data","12345678","u349353524_data") or die("gagal");

if(isset($_GET['suhu']))
{
    mysqli_query($db,"INSERT INTO `sensor`(`suhu`,`kelembaban`,`tanggal`,`jam`) VALUES ($_GET[suhu],$_GET[kelembaban],$_tanggal,$_jam)") or die("gagal insert");

    mysqli_query($db,"UPDATE `data realtime` SET suhu='$_GET[suhu]',kelembaban='$_GET[kelembaban]',jam='$_jam',tanggal='$_tanggal' ") or die("gagal realtime");
    echo "haloo ",$_GET['suhu'];
}

?>

```

Program diatas bertujuan untuk menambahkan data pada table sensor dan memperbaharui data pada tabe data realtime sesuai dengan data yang diberikan

### WEMOS PROGRAM (Arduino.ide)

```

if (WiFi.status() == WL_CONNECTED) {

    String link = "http://sunupambudi.esy.es/tambah.php?suhu=";
    link += suhu;
    link += "&kelembaban=";
    link += kelembaban;

    HTTPClient http;
    http.begin(link);
    int httpCode = http.GET(); //Send
the request
    Serial.println(link);

    http.end();

}

```

Program diatas bertujuan untuk mengirimkan data sensor wemos ke tambah.php

## Lampiran 2. Program Arduino

### Program Arduino

```

#include <ESP8266WiFi.h>
#include <ESP8266HTTPClient.h>
#include "DHT.h"
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>

#define OLED_RESET 0 // GPIO0
Adafruit_SSD1306 OLED(OLED_RESET);

#define DHTPIN D7
#define DHTTYPE DHT22

DHT dht(DHTPIN, DHTTYPE);

float suhu; // deklarasi tipe data suhu (float)
int kelembaban; //deklarasi tipe data suhu (int)

unsigned long waktulalu,waktulalu2; //deklarasi data

void setup () {

  Serial.begin(9600); //pengaktifan boudrade serial 9600
  WiFi.begin("TEd", "Kmwzwa8awaa"); //pengaktifan WiFi

  OLED.begin(); //pengaktifan LCD OLED
  OLED.clearDisplay(); //menghapus layar LCD Oled
  OLED.setTextWrap(false);
  OLED.setTextSize(1); // setting ukuran font lcd
  OLED.setTextColor(WHITE); // setting warna font lcd
  OLED.clearDisplay();
  OLED.println("menyambungkan");
  OLED.display();

  while (WiFi.status() != WL_CONNECTED) {
    delay(100);
    Serial.print("Connecting.."); // lcd cek connect
    OLED.print(".");
    OLED.display();
  }

  OLED.setCursor(0,0);
  OLED.setTextSize(1);

```

```

OLED.println("");
OLED.setTextSize(2);
OLED.clearDisplay();
OLED.println("tersambung");
OLED.display(); delay(3000);
OLED.clearDisplay();
Serial.println("");Serial.println("nyambung");

dht.begin();

}

void loop() {

if (WiFi.status() == WL_CONNECTED) { // jika konek

    sensor();
    OLED.clearDisplay();
    OLED.setTextSize(1);
    OLED.setTextColor(WHITE);
    OLED.setCursor(0,0);

    OLED.println("connected");
    OLED.print("suhu = "); OLED.print(suhu);OLED.println("C");
    OLED.print("kelembaban = "); OLED.print(kelembaban);OLED.println("%");

    if(millis()-waktulalu2>60000) //milliswaktu berjalan, waktulalu variable
    {
        kirim();
        waktulalu2=millis();
        for(int i=0; i<20; i++){
            OLED.print(">");delay(10);
            OLED.display();
        }
    }

    OLED.display();
    delay(500);
}

else{
    WiFi.begin("TEd", "Kmw8awaa");
    while (WiFi.status() != WL_CONNECTED) {
        sensor();
        OLED.clearDisplay();
        OLED.setTextSize(1);

```

```

    OLED.setTextColor(WHITE);
    OLED.setCursor(0,0);

    OLED.println("disconnect");
    OLED.print("suhu = "); OLED.print(suhu);OLED.println("°C");
    OLED.print("kelembaban = "); OLED.print(kelembaban);OLED.println("%");
    OLED.display();
    delay(200);
    Serial.print("Connecting..");
  }
}

}

void sensor()
{

  if(millis()-waktulalu >3000){
    kelembaban = dht.readHumidity();
    suhu = dht.readTemperature();

    if (isnan(suhu) || isnan(kelembaban) ) { //cek error
      Serial.println("Failed to read from DHT sensor!");
      return;
    }
    Serial.print(suhu); Serial.print(" "); Serial.println(kelembaban);
    waktulalu=millis();
  }
}

void kirim()
{
  if (WiFi.status() == WL_CONNECTED) {
    String link = "http://sunupambudi.esy.es/tambah.php?suhu=";
    link += suhu;
    link += "&kelembaban=";
    link += kelembaban;
    HTTPClient http;
    http.begin(link);
    int httpCode = http.GET();
    Serial.println(link);
    http.end();
  }
}
}

```

### Lampiran 3. Spesifikasi Thermometer Extech

**EXTECH**  
INSTRUMENTS

## InfraRed Thermometer with Laser Pointer

MODEL 42525



### ***Introduction***

Congratulations on your purchase of Extech's 42525 IR Thermometer. This device offers non-contact infrared temperature measurement capability. The built-in laser pointer increases target accuracy. Type K thermocouple functionality is built-in also. Proper use and care of this meter will provide years of reliable service.

## Specifications

### General Specifications

|                       |   |
|-----------------------|---|
| Display               | 0.43" (11mm) 4-digit LCD display  |
| Measurement Ranges    | 14 to 662°F (-10 to 350°C) with 1° resolution<br>14.0 to 230.0°F (-10 to 110.0°C) 0.1° resolution |
| Sample rate           | 1 sec. approx.  |
| Laser power           | Laser power less than 1mW (red)   |
| Operating Temperature | 32°F to 122°F (0°C to 50°C)   |
| Operating Humidity    | Max. 80% RH.  |
| Power Supply          | 9V battery  |
| Power Current         | 12mA DC (with laser approx. 23mA DC)  |
| Weight                | 0.8 lbs. / 265g   |
| Size                  | 7.7 x 4.7 x 2.3" (195 x 120 x 58 mm)  |

### Infrared Thermometer Specifications

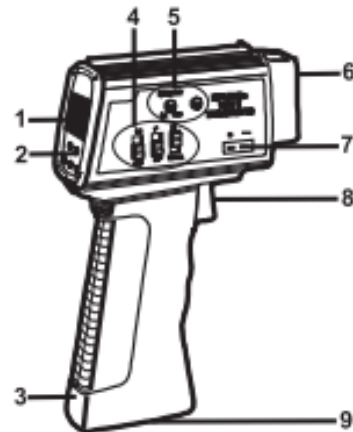
|                                   |  |         |
|-----------------------------------|--|---------|
| Range / Resolution                | 14 to 662°F (-10 to 350°C)   | 1°C/F   |
|                                   | 14.0 to 230.0°F (-10 to 110.0°C)   | 0.1°C/F |
| Accuracy < 572°F(300°C)           | ± 3% of reading or ± 6°F (3°C) whichever is greater  |         |
| Accuracy notes                    | 1. Accuracy specified for ambient temperature<br>2. Accuracy specified for emissivity of 0.95                  |         |
| Emissivity settings               | 0.95 default value (0.1 to 0.95 adjustable)  |         |
| Distance Factor                   | D/S = Approx. 6:1 ratio (D = distance, S = spot)   |         |
| Measurement Field and Target Size | Refer to the chart on top of the meter or the diagram in the section entitled "Infrared Measurement Procedure" |         |
| Wavelength                        | 6 to 12 μm   |         |

### Type K Thermocouple Specifications

|                    |   |       |
|--------------------|---|-------|
| Range / Resolution | -50 to 1999°F (-50 to 1230°C)                       | 1°C/F |
| Accuracy           | ± (1% reading + 2°F); ± (1% reading + 1°C)          |       |
| Sensor type        | Type K (NiCr - NiAl) Thermocouple (sold separately) |       |

## Meter Description

1. LCD Display
2. Function buttons
3. Handle grip
4. Function switches
5. Adjustment potentiometers
6. IR sensor and laser source
7. Type K input jack
8. Laser Trigger
9. Battery Compartment



## Operating Instructions

### Emissivity Considerations

The amount of IR energy emitted by an object is proportional to an object's temperature and its ability to emit energy. This ability is known as emissivity and is based upon the material of the object and its surface finish. Emissivity values range from 0.1 for a very reflective object to 1.00 for a flat black finish. The 42525 senses IR energy and calculates the temperature based upon the amount of IR energy it receives using a factory default emissivity setting of 0.95 (this setting covers 90% of applications). The user can manually adjust the emissivity setting if desired. This procedure is described later in this manual.

### Infrared Measurement Procedure

1. Power the meter by setting the POWER OFF/ON switch to the ON position.
2. Set the IR / TYPE K switch to the IR position.
3. Set the temperature units (degrees C or F) using the C/F button.
4. Set the resolution (1 or 0.1) using the resolution select switch.
5. Point the IR sensor toward the object under test.
6. The object under test should be larger than the spot size calculated by field/distance chart (see diagram below).
7. Read the LCD display for the temperature measurement.

