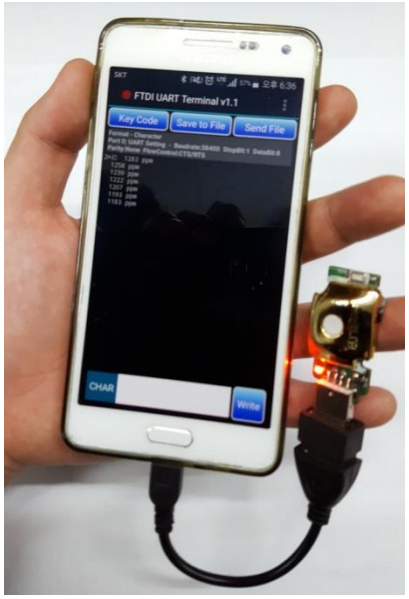
## General

Version 1.1

MT-200 series is world's smallest USB $CO_2$ Monitor. MT-200 works with Desk-Top or Notebook, Smart-Phone and others. it gives 4 different level of LED light depending on CO2 concentration level.

# ELT SENSOR
# Data Sheet for MT-200



## Features

- Non-Dispersive Infrared (NDIR) technology used to measure $CO_2$ levels.
- The world smallest size USB CO2 monitor
- Pre-calibrated
- Gold-plated sensor provides long-term calibration stability.
- .Support 2-min Manual Re-Calibration with MCDL Button Switch
- Support to USB 2.0
- Power: USB port of PC USB standard-A, Smart-Phone (Micro-B USB plug), USB Power-Bank etc.
- Size : 19.9mm x 56mm x 10.6mm (USB-A type CO2 module)
- Weight : 10 gram



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# MT-200 Specifications

## General Performance

**Operating Temperature : -**20 ~ 60℃

**Operating Humidity :** 0 ~ 95% RH (Non-condensing)

**Operating Environment :** ambient air in and out of **r**esidential or Commercial buildings.

**Storage Temperature :** -30℃ ~ 70℃

## $CO_2$ Measurement

**Sensing Method :** NDIR (Non-dispersive Infrared)

**Measurement Range :** 0 ~ 10,000 ppm (~ 5% , 10% are optional)

**Accuracy :** ±50ppm ±3% of reading for 0~10,000 ppm (option: ±300ppm ± 3% of reading up to 5%, 10%)

**Response Time (1/e) :** 40 seconds (c.f. T90 : 65 seconds)

**Sampling Interval : 3** seconds

**Warming-up Time :** < 6 seconds (for Operation), 5 minutes (for Accuracy)

## Electrical Data

**Power Input : 3.5**V ~ 5.2V (USB)

**Current Consumption :** Normal mode : 20mA, Peak : 230mA

## Ordering Code

| Code | Specification |
|---|---|
| **MT-200** | MT-200 + Micro-5pin-OTG, 'ELT WSD' window program for PC/NoteBook |

MT-200 is basic model which gives USB output and it support only 2-min MCDL by users.

Basically Manual Re-Calibration (2-minutes' MCDL) are executable by users with Button Switch click 1 time. (it should be kept stay over 2min in fresh Air.)



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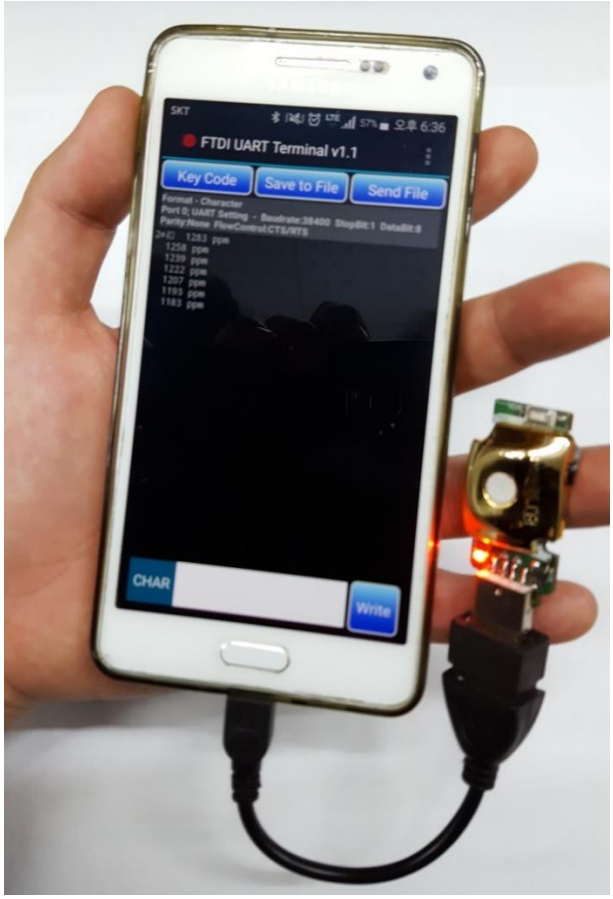
# Demonstration with Smart Phone.

## Android App

ANDROID APP ON Google play

http://www.ftdichip.com/Android.htm




### < App. setting >

1. install FTDI App.

2. Execute FTDI
   UART App.

3. Setting
   ① Baud Rate → 38400
   ② Flow control → CTS/RTS

※ Android USB Serial App. : FTDI UART Terminal, Android USB Serial Monitor, etc…



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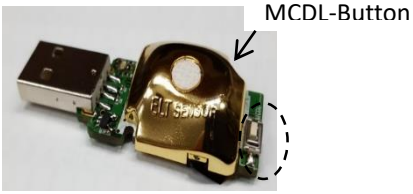
| Range | LED |
|---|---|
| under 1000ppm | Green ON |
| 1000≤[CO2] < 2000ppm | Green Blink |

| Range | LED |
|---|---|
| 2000≤[CO2] < 3000ppm | RED ON |
| Over 3000ppm | RED Blink |

## 2-minute Manual-Calibration Function Usage.

i. Please locate MT-200 at ambient fresh air, powered via OTG cable from memory bar or phone.




ii. MCD can be done on both Android smartphone and window application program.

iii. MCD start and finish by pressing MCDL-Button 3 seconds. LED blinks between **Red** and **Green**

by turns during calibration. Please make sure to check if CO2 measurement became near 400ppm after 2 minutes using 'FTDI UART Terminal'. Please make sure to locate sensor fresh air, near of 400ppm and

no one is near sensor during MCDL.

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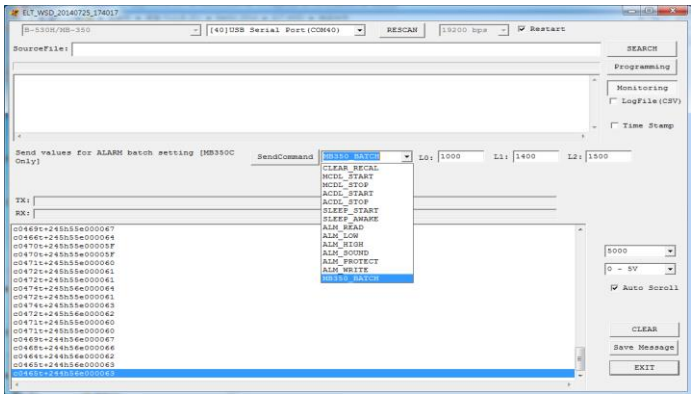
iv. 'MCDL-START' and 'MCDL-END' menu can start / end MCDL on windows program 'ELTWSD'




Monitoring Test with Notebook or Desk-Top (ELTWSD_EK100 S/W)

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