

Device Features:



Non Invasive Salivary Glucometer

- Salivary glucose levels can be detected using a non invasive method using salivary glucose detection strips instantly
- Device houses simple crisp LCD display with backlight feature
- Handy and lightweight
- Device gives reading in Mg/dL
- Can measure the change in glucose levels with 0.1Mg/dL accuracy
- Date and Time is shown along with the glucose levels
- Internal data logging feature, which can store more than 50,000 test results along with date and time stamp which can be retrieved anytime via PC for detailed analysis
- Houses 1500 mAh rechargeable Lithium ion battery with easy plug and charge feature and battery charge indicator
- Device can continuously operate for 8hrs approx. once fully charged

Technical Specifications:

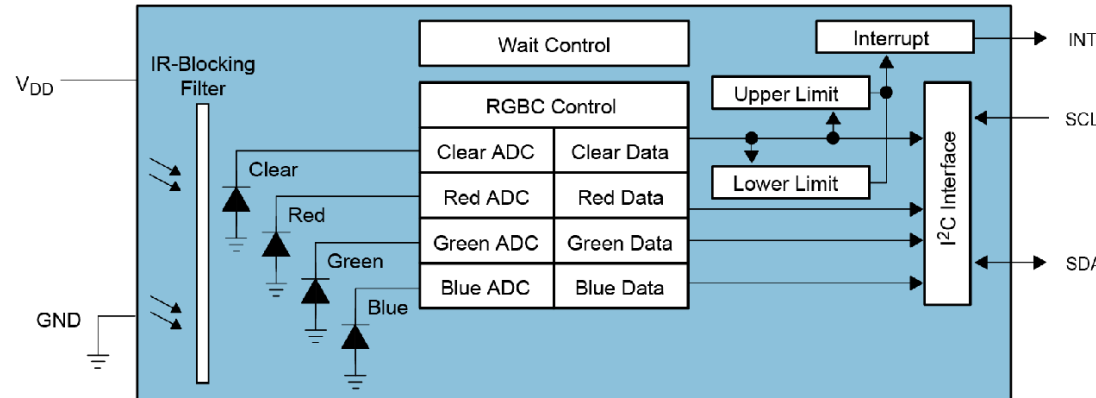


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- **Controller:** ATmega328p, 8-bit, 16 MHz
- **Range:** Device can read wide range of glucose level from 0-500Mg/dL, with 0.1 Mg/dL of accuracy
- **Display:** Houses 84x48, monochromatic display with backlight with SPI interface
- **Colour Sensor:** Devices incorporates colour sensor with high dynamic range of 3,800,000:1, with I2C interface
- **Operation:** Device can be operated by 3 tactile switches and one sliding switch for ON/OFF
- **Storage:** internal storage upto 16GB
- **Battery:** 1500 mAh Li-ion battery
- **Charging:** 5V, 1A adapter with USB micro B port
- **Interface:** Data Transfer and Charging:: USB micro B
- **Dimensions:** Lx Bx H :: 99.4x 63x 25 in mm
- **Weight :** 200 gm

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Working Principle:



To detect the colour of test strip three main types of electronics is used . A light source to illuminate the material surface, a surface whose colour has to be detected and the receivers which can measure the reflected wavelengths.

Colour sensors contain a white light emitter to illuminate the surface. Three filters with wavelength sensitivities at 580nm, 540nm, 450nm to measure the wavelengths of red, green and blue colours respectively.

Based on the activation of these filters, the colour of the material is categorized. A light to voltage converter is also present in the sensor. The sensor responds to colour by generating a voltage proportional to the detected colour.



Working Principle:

Calculation of IR component:

$$IR = (R+G+B-C) / 2$$

IR Compensated Components:

$$R' = R - IR$$

$$G' = G - IR$$

$$B' = B - IR$$

$$C' = C - IR$$

Lux Calculations:

$$G'' = R_Coef * R' + G_Coef * G' + B_Coef * B'$$

$$Lux = G'' / CPL$$

$$\text{If } G''=G', \text{ then } Lux_{\max} = (G - R - B + C) / (CPL * 2);$$

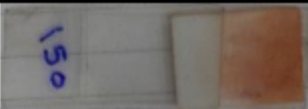
Colour Temperature calculations:

$$CT = CT_Coef * B' / R' + CT_Offset$$



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Working Principle:

S.NO	Sample	Glucose (mg/DL)	RGB	Color Temperature In Kelvin (K)	Dominant wave length in nano meter	Luminance
1		100	166,138,112	4112K	602nm	27%
2		150	117,83,59	<1000K	607nm	10%
3		200	148,116,89	3493K	603nm	19%
4		300	117,82,59	<1000K	605nm	10%

