1 Features of Design

ZyAura, a world class leader and supplier of IR sensor technology and temperature measurement devices, is pleased to introduce a new CO2 monitor for use in scientific, commercial, and consumer applications. The ZG01C is a new and low-cost carbon dioxide monitor implementing IR-SoC technology; it can accurately detect carbon dioxide levels between 0 to 3000 ppm. This gas monitor is suitably fit for applications in Indoor Air Quality (IAQ), HVAC, safety, and other industries.

2 Specification

Measurement Method	Dual Beam NDIR (Non-dispersive-Infrared)
Sample Method	Diffusion or flow through (50~200ml/min)
Measurement Range	0~3000ppm/0.3% (ZG01C) or 0~10,000ppm /1.0% (ZG01C-M)
Operating TempRange	32 to 122° F (0-50°C) 0-95% RH,non-condensing
Storage Range	-20~60°C,95%RH
Temperature Dependence	Typ.±0.2% of reading per °C or ±2 ppm per °C, whichever is greater, referenced to 25°C

■**Accuracy**

CO2 Accuracy	+/-50ppm or 5% of reading
Ambient Temperature Accuracy	±2°F (±1°C) When the fan blows to the device directly, the accuracy of temperature is + / -1.5 °C.
Temp Response Time	20-30 minutes (case must equilibrate with environment)
Pressure Dependence	0.13% of reading per mm Hg
Repeatability	±20ppm
Resolution	1ppm

■**Outputs**

Output Interface	6pin Vertical Connector, Space=2.0mm) &FFC (Flat Flexible Cable) connector
Digital Output	UART(Baud Rate: 19200, Check Bit : None ,Data Bit: 8 bit, Stop Bit:1)

■**Power Supply**

AC/DC Supply	5VDC supply (+/-5%),Ripple and Noise (mVp-p) 200

■**Warm Up & Response**

Response Time #R1 (63% Rise Time)	About 2min
Warm Up Time(CO2)	<60 sec
Update Period	5 sec
Warm Up Time(Ambient Temp)	20~30min
Dimension	100x21x15.5mm (3.94x0.83x0.61 inch)
Weight	36g (1.27 oz)without attachment

3 Communication

Under Master Mode

ZG01C will send dates to the host computer by RS232 .

You can use some communication assistant software to receive them : (below is only one example software. You can use the other RS232 communication softare.)
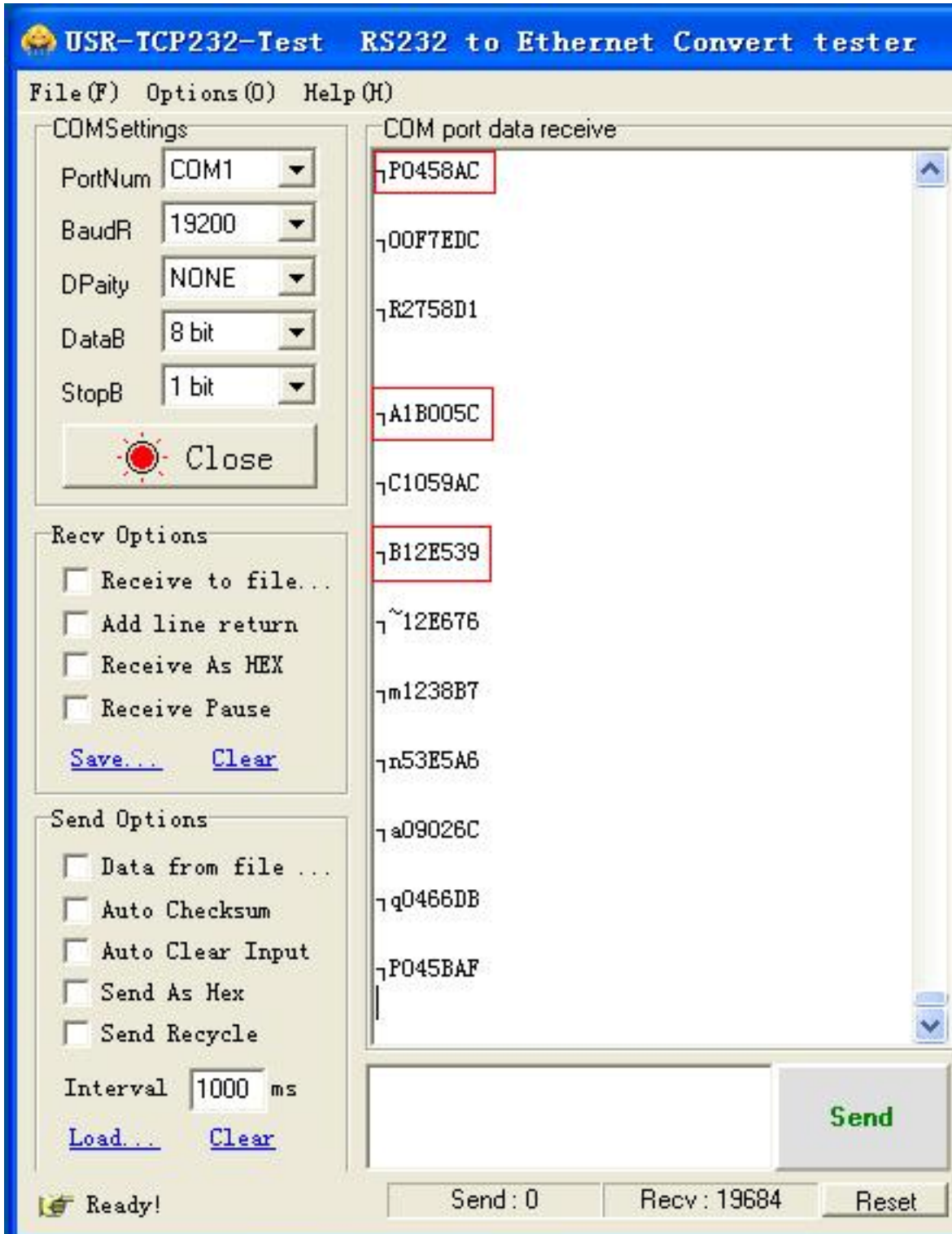
Item "P" (50h): CntR (Relative Concentration of CO2)

Item "B" (42h): Tamb (Ambient Temperature)

Item "A" (41h): RH (humidity)
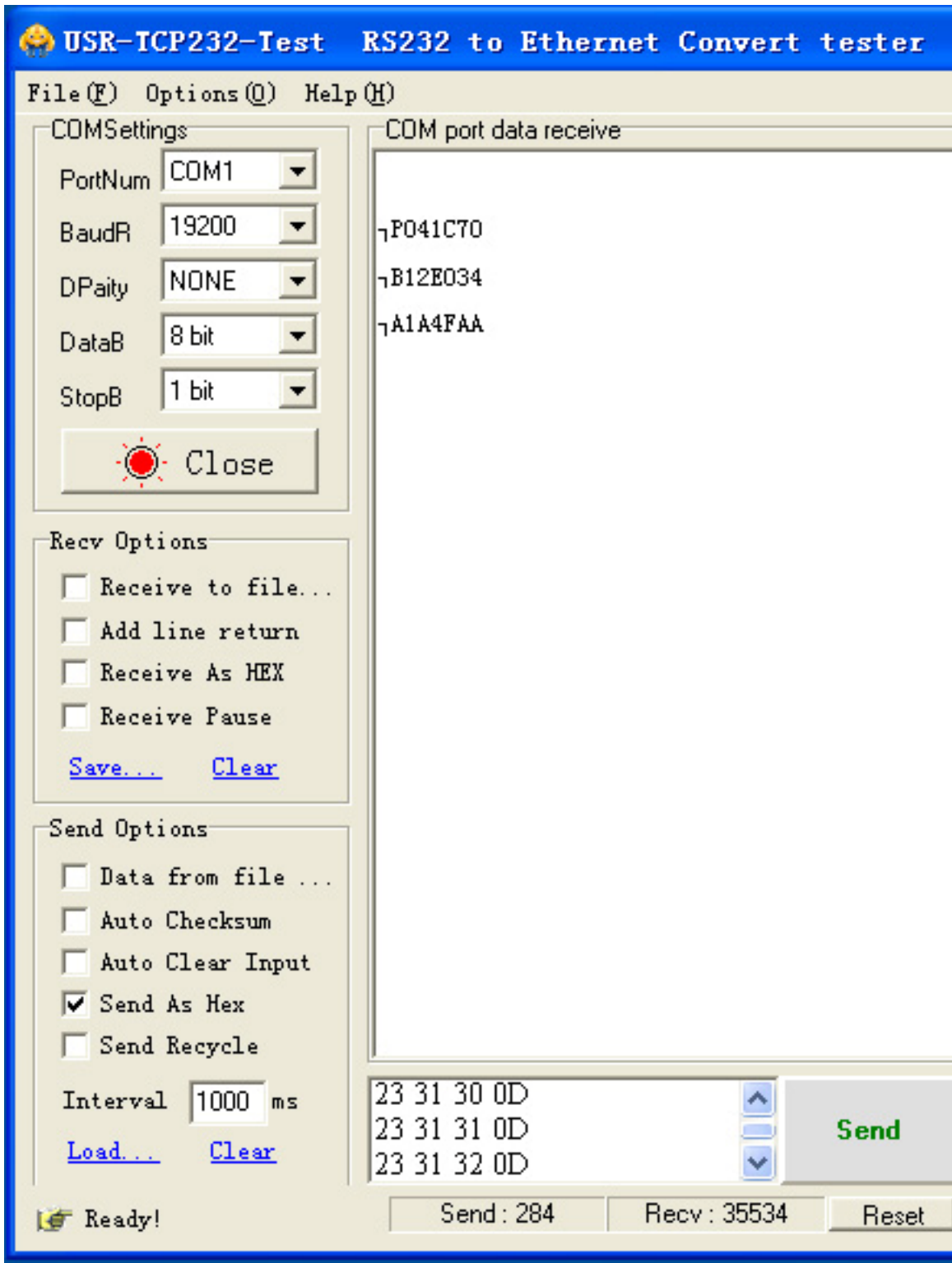
Decode:
Example:
CO2: Received data P0458AC, take 0458, CO2=hex2dec (0458) =1112ppm
Temp: Received data B12E539, take 12E5, Temp= hex2dec (12E5)/16-273.15=29.2degC
RH: Received data A1B005C, take 1B00, RH=hex2dec (1B00)/10000=69.00%,

Under Slave Mode
User need send the command (Send As Hex), to get the CO2 and temperature reading.

```
USR-TCP232-Test   RS232 to Ethernet Convert tester
File(F)  Options(O)  Help(H)
```

COMSettings

PortNum COM1 ▼
BaudR   19200 ▼
DPaity   NONE   ▼
DataB   8 bit ▼
StopB   1 bit ▼

◉ Close

Recv Options
☐ Receive to file...
☐ Add line return
☐ Receive As HEX
☐ Receive Pause
Save...   Clear

Send Options
☐ Data from file ...
☐ Auto Checksum
☐ Auto Clear Input
☑ Send As Hex
☐ Send Recycle
Interval 1000 ms
Load...   Clear

☞ Ready!

COM port data receive

┐P041C70

┐B12E034

┐A1A4FAA

23 31 30 0D
23 31 31 0D
23 31 32 0D

Send

Send : 284   Recv : 35534   Reset

Read CO2 concentration:
Read the gas ppm as measured by the sensor. Response data contains a 2-byte Hexadecimal CO2 value.
Example: Send command 23 31 30 0D
Reply: P041C70 (for PPM =hex2dec (041C) =1052ppm)

Read Temp:
Read the Ambient temperature degC as measured by the sensor. Response data contains a 2-byte Hexadecimal Temp

value.
Example: Send command 23 31 31 0D
Reply: B12E034 (for Temp =hex2dec (12E0) /16-273.15=28.85 degC

Read RH:
Read the Ambient relative humidity. Response data contains a 2-byte Hexadecimal RH value.
Example: Send command 23 31 32 0D
Reply: A1A4FAA (for RH =hex2dec (1A4A)/10000 =67.30%)
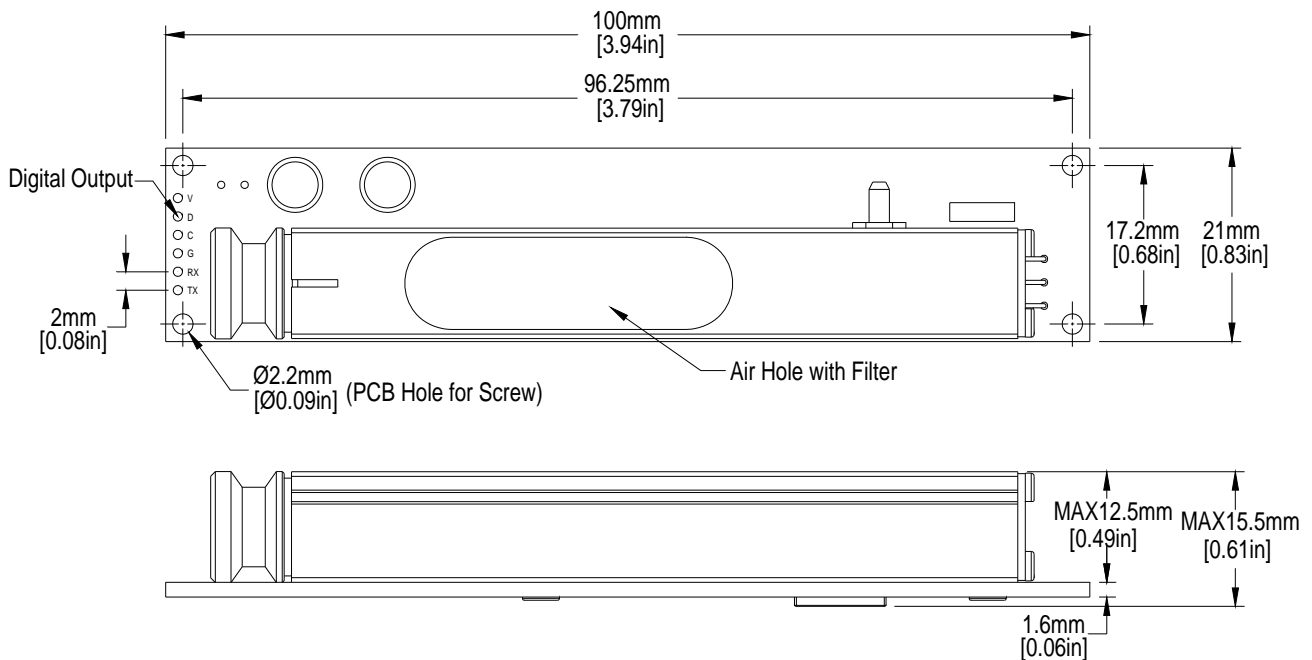
Pin Assignment of ZG01C
Warning: The Dimension in this drawing is for reference only.

Fig1. The Module External Drawing