

# Some additional helpful notes from your friends at DonateMask.ca

Given that we've now sold over 1500 of these units, we've learned a lot along the way! Here are some answers to questions we have frequently received.

## *How do you calibrate the unit?*

Calibration is a bit tricky the first time. Our friend Andrew Young (founder of VaxHuntersCanada!) created this video tutorial that shows how the calibration is done: <https://twitter.com/andryou/status/1557850000541237248>

Please note that the unit should be calibrated:

1. With the unit standing upright (on its end, so that the vent isn't obstructed when it is lying down – it can be balanced with the clip placed to the side; alternatively, you can put it face down during calibration, but then you can't see the countdown and "PASS" at the end.)
2. Outside (on a balcony is ok)
3. With you standing at least 2 meters away so that your breath doesn't affect calibration (yes, it is that sensitive!)

## *How often should you calibrate the unit?*

The manufacturer recommends that the unit be calibrated:

1. When first purchased
2. Every time the unit fully discharges
3. Every 7 days or so

## *What is auto-calibration and how does it work?*

We have been discussing the auto-calibration "feature" of the unit both with the manufacturer of the unit and the engineers of the company that makes the NDIR sensor. They have explained to us that auto-calibration is a deliberate design feature to try to avoid drift inherent in the single NDIR sensor. Double NDIR sensors don't drift as much because they have an additional reference, but they're much more expensive. Single NDIR sensors can be fairly accurate, but

drift more due to lack of reference. The sensor manufacturer have told us that they are complying with an international standard for CO2 monitors when it comes to the auto-calibration. We aren't yet clear on what this standard is. Discussions are ongoing.

### *What's the risk of auto-calibration?*

We have received numerous reports of the unit auto-calibrating in a high CO2 setting, thereby "resetting" its reference range to incorrect values. The result is that it then begins to significantly underreport the values. For example, if the unit auto-calibrates in a CO2 environment of 1200 ppm, it may then start reporting 1000 ppm environments as "400 ppm", obviously incorrect (and likely impossible in indoor settings).

Given the obvious risk, we've asked the manufacturer to disable auto-calibration and instead ask users to do more frequent manual calibration in known CO2 level environments (outdoors). For the time being, they have declined, and told us that they have instead implemented software measures that average the auto-calibrations over multiple time periods (3 or more) so that no single reading at a high CO2 level environment can affect the unit. However, the obvious flaw is the possibility that the unit will just auto-calibrate 3+ times in a bad CO2 environment, so the mitigation isn't sufficient. Further, because of this "averaging", the manual calibration is also averaged against the auto-calibration. Therefore, the unit may need to be manually calibrated outside more than once in a row to "clear" all the past inaccurate auto-calibrated stored values.

### *Given these issues, why do you still sell the unit?*

We still sell this unit because Amazon has made it very popular and it is the only REAL NDIR sensor CO2 monitor in its price range, which has made it very attractive to people. When people understand the limitations of the unit, and use it within those limitations, it does function within its specification of +/- 50 ppm +5%, as several independent folks have validated empirically (see <https://twitter.com/TRyanGregory/status/1545527756041191426> & <https://www.youtube.com/watch?v=Fo2cZiRyokk> for two such independent reviews).

### *How do I know if a reading is bad?*

We recommend a healthy skepticism of “too low to be true” readings.

Approximately 400 ppm indoors is highly unlikely. That’s a good sign the unit needs to be calibrated. We have only received reports of the unit reporting levels that are “too low”, relative to actual levels. We have not received any reports of the unit “over-reporting” levels in an actually better environment. In short, high readings are likely accurate and too low readings are likely to not be accurate.

We have also noted that the unit does underestimate at higher levels. An actual environment of 1200 ppm may report as 1100 ppm on the unit, even after calibration. The higher the actual environment, the more the unit tends to under-report (likely due to the auto-calibration issues mentioned earlier). In short, readings should be interpreted as “at least” X ppm.

### *Can I charge the unit with any USB-C cable?*

No. While the unit uses the USB-C form factor for its connector, it doesn’t actually conform to the USB-C specification (as that would significantly increase the price). It can ONLY be charged with the cable that came with it (which, itself, should NOT be used for other USB-C devices, as it’s not a USB-C compliant cable).

### *How do I turn off the alarm?*

While understanding that the alarm goes off in environments at or above 1000 ppm and such environments could pose a hazard to health, you can disable the alarm by double-clicking the button. It will stay off until the unit next fully discharges. Please get to a safe area with fresh air when you observe such readings.

### *How do I turn the unit on/off?*

The unit uses “long press” on the button to turn it on and off. The long press is deceptively long, so we have observed that many customers release the button too early and then can’t get it to turn on/off. Hold the button 5-6 seconds to turn the unit on or off.

### *How do I know if the unit is charging?*

The unit does not show any visible sign of charging when it is off. To see if it is charging, plug it in (with the cable that came with it only) and then long press the button until the unit turns on. You will see the battery icon “moving” while it is charging. Full charge time is about 2.5 hours.

### *How long does the unit run for on a single charge?*

The battery life of the unit is 6-8 hours. After 5 minutes, the display will turn off, but the unit is still on and taking readings and drawing the battery. Tapping the button will turn on the display and show the most recent reading. In this manner, the unit will discharge in about 7 hours.

To use a single charge over a longer period, turn on the unit (long press), give it at least 5 minutes to get accustomed to the environment and normalize its reading, take your reading, and then fully turn off the unit (long press). When the unit is powered off, it does not draw any power. It should be possible to use the unit like this for a week or more between charges.

### *How fast does the unit take readings?*

The refresh rate of the screen is about 2 seconds. However, the NDIR sensor does not actually read new CO<sub>2</sub> levels every 2 seconds (only expensive, high-end sensors do that!). The sensor actually takes readings every 30-120 seconds, so normalizes in around 60-90 seconds when moved to an environment with a different CO<sub>2</sub> level than the previous environment. The changes to the numbers on the refresh of the screen are actually interpolations between previous readings and the “trending” direction of those readings. The unit is not sensitive enough to detect 1-2 ppm changes in the environment, even if a screen refresh changes the value by 1-2 ppm. Readings should be taken no more frequently than every 90 seconds. It’s not a bad idea to take a few readings over a 5+ minute period and then average those readings.

Please note that the unit is NOT intended to be used for high-accuracy measurement but rather only for rough approximation.

### *How long is the product warranty?*

The product is warrantied against defect for 1 year from purchase date. Our charity will handle any warranty exchanges. To request a warranty exchange, please email us at [buy@buymask.ca](mailto:buy@buymask.ca).

### *Do you have replacement parts?*

The unit has no user-serviceable parts. The only replacement part is the power cable. Since no other cables can be used to charge the unit, we carry a stock of this specific cable as a replacement part in case customers need a replacement due to damage (dogs, kids, etc.). We can send you a replacement cable for a nominal fee. Please reach out to us at [buy@buymask.ca](mailto:buy@buymask.ca).

### *I have more questions.*

Please feel free to email us at [buy@buymask.ca](mailto:buy@buymask.ca) and one of our volunteers will get back to you!

# Quelques notes utiles supplémentaires de vos amis à DonateMask.ca

Étant donné que nous avons maintenant vendu plus de 1500 de ces unités, nous avons beaucoup appris en cours de route! Voici quelques réponses aux questions que nous avons fréquemment reçues.

## *Comment étalonnez-vous l'appareil?*

L'étalonnage est un peu délicat la première fois. Notre ami Andrew Young (fondateur de VaxHuntersCanada!) a créé ce tutoriel vidéo qui montre comment se fait l'étalonnage : <https://twitter.com/andryou/status/1557850000541237248>

Veillez noter que l'appareil doit être étalonné :

1. Avec l'appareil qui tanne à la verticale (à son extrémité, de sorte que l'évent ne soit pas obstrué lorsqu'il est couché – il peut être équilibré avec le clip placé sur le côté; alternativement, vous pouvez le mettre face cachée pendant l'étalonnage, mais vous ne pouvez pas voir le compte à rebours et « PASS » à la fin.)
2. Extérieur (sur un balcon est correct)
3. Avec vous debout à au moins 2 mètres pour que votre respiration n'affecte pas l'étalonnage (oui, c'est si sensible!)

## *À quelle fréquence devez-vous calibrer l'appareil?*

Le fabricant recommande que l'appareil soit étalonné :

1. Lors de l'achat pour la première fois
2. Chaque fois que l'appareil se décharge complètement
3. Tous les 7 jours environ

## *Qu'est-ce que l'auto-étalonnage et comment fonctionne-t-il ?*

Nous avons discuté de la « fonctionnalité » d'auto-étalonnage de l'unité à la fois avec le fabricant de l'unité et les ingénieurs de la société qui fabrique le capteur NDIR. Ils nous ont expliqué que l'auto-étalonnage est une caractéristique de conception délibérée pour essayer d'éviter la dérive inhérente au capteur NDIR

unique. Les capteurs double NDIR ne dérivent pas autant parce qu'ils ont une référence supplémentaire, mais ils sont beaucoup plus chers. Les capteurs NDIR uniques peuvent être assez précis, mais dérivent davantage en raison du manque de référence. Le fabricant de capteurs nous a dit qu'il se conformait à une norme internationale pour les moniteurs de CO2 en ce qui concerne l'auto-étalonnage. Nous ne savons pas encore clairement quelle est cette norme. Les discussions sont en cours.

### *Quel est le risque de l'auto-étalonnage ?*

Nous avons reçu de nombreux rapports d'auto-étalonnage de l'unité dans un réglage de CO2 élevé, « réinitialisant » ainsi sa plage de référence à des valeurs incorrectes. Le résultat est qu'il commence alors à sous-estimer considérablement les valeurs. Par exemple, si l'unité s'étalonne automatiquement dans un environnement de CO2 de 1200 ppm, elle peut alors commencer à signaler des environnements de 1000 ppm comme « 400 ppm », évidemment incorrect (et probablement impossible dans les environnements intérieurs).

Compte tenu du risque évident, nous avons demandé au fabricant de désactiver l'auto-étalonnage et de demander aux utilisateurs d'effectuer un étalonnage manuel plus fréquent dans des environnements de niveau de CO2 connus (à l'extérieur). Pour le moment, ils ont décliné et nous ont dit qu'ils avaient plutôt mis en place des mesures logicielles qui font la moyenne des auto-étalonnages sur plusieurs périodes (3 ou plus) afin qu'aucune lecture unique dans un environnement à haut niveau de CO2 ne puisse affecter l'unité. Cependant, le défaut évident est la possibilité que l'unité se calibrera automatiquement 3+ fois dans un mauvais environnement de CO2, de sorte que l'atténuation n'est pas suffisante. De plus, en raison de cette « moyenne », l'étalonnage manuel est également moyenné par rapport à l'auto-étalonnage. Par conséquent, l'unité peut avoir besoin d'être étalonnée manuellement à l'extérieur plus d'une fois de suite pour « effacer » toutes les valeurs stockées auto-étalonnées inexactes passées.

### *Compte tenu de ces problèmes, pourquoi vendez-vous toujours l'unité?*

Nous vendons toujours cet appareil parce qu'Amazon l'a rendu très populaire et c'est le seul moniteur de CO<sub>2</sub> à capteur NDIR REAL dans sa gamme de prix, ce qui l'a rendu très attrayant pour les gens. Lorsque les gens comprennent les limites de l'unité et l'utilisent dans ces limites, elle fonctionne dans sa spécification de +/- 50 ppm +5%, comme plusieurs personnes indépendantes l'ont validé empiriquement (voir

<https://twitter.com/TRyanGregory/status/1545527756041191426> et

<https://www.youtube.com/watch?v=Fo2cZiRyokk> pour deux de ces examens indépendants).

### *Comment savoir si une lecture est mauvaise ?*

Nous recommandons un scepticisme sain à l'égard des lectures « trop faibles pour être vraies ». Environ 400 ppm à l'intérieur est hautement improbable. C'est un bon signe que l'unité doit être calibrée. Nous n'avons reçu que des rapports sur les niveaux de déclaration des unités qui sont « trop bas » par rapport aux niveaux réels. Nous n'avons reçu aucun rapport faisant état de niveaux de « surdéclaration » dans un environnement en fait meilleur. En bref, les lectures élevées sont probablement exactes et les lectures trop basses sont susceptibles de ne pas être exactes. Nous avons également noté que l'unité sous-estime à des niveaux plus élevés. Un environnement réel de 1200 ppm peut indiquer 1100 ppm sur l'unité, même après étalonnage. Plus l'environnement réel est élevé, plus l'unité a tendance à sous-déclarer (probablement en raison des problèmes d'auto-étalonnage mentionnés précédemment). En bref, les lectures doivent être interprétées comme « au moins » X ppm.

### *Puis-je charger l'appareil avec n'importe quel câble USB-C ?*

Non. Bien que l'appareil utilise le facteur de forme USB-C pour son connecteur, il n'est pas conforme à la spécification USB-C (car cela augmenterait considérablement le prix). Il ne peut être chargé qu'avec le câble fourni avec (qui, lui-même, ne doit PAS être utilisé pour d'autres périphériques USB-C, car ce n'est pas un câble compatible USB-C).

### *Comment puis-je désactiver l'alarme?*

Tout en comprenant que l'alarme se déclenche dans des environnements à 1000 ppm ou plus et que de tels environnements pourraient présenter un danger pour la santé, vous pouvez désactiver l'alarme en double-cliquant sur le bouton. Il restera éteint jusqu'à ce que l'unité se décharge complètement. Veuillez vous rendre dans un endroit sûr avec de l'air frais lorsque vous observez de telles lectures.

### *Comment puis-je allumer / éteindre l'appareil?*

L'appareil utilise un « appui long » sur le bouton pour l'allumer et l'éteindre. La longue pression est trompeusement longue, nous avons donc observé que de nombreux clients relâchent le bouton trop tôt et ne peuvent pas le faire fonctionner / éteindre. Maintenez le bouton enfoncé 5 à 6 secondes pour allumer ou éteindre l'appareil.

### *Comment puis-je savoir si l'appareil est en charge?*

L'appareil ne montre aucun signe visible de charge lorsqu'il est éteint. Pour voir s'il est en charge, branchez-le (avec le câble fourni avec lui uniquement), puis appuyez longuement sur le bouton jusqu'à ce que l'appareil s'allume. Vous verrez l'icône de la batterie « se déplacer » pendant qu'elle est en charge. Le temps de charge complet est d'environ 2,5 heures.

### *Combien de temps l'appareil fonctionne-t-il sur une seule charge?*

La durée de vie de la batterie de l'appareil est de 6 à 8 heures. Après 5 minutes, l'écran s'éteint, mais l'appareil est toujours allumé et prend des mesures et tire la batterie. Appuyez sur le bouton pour allumer l'écran et afficher la lecture la plus récente. De cette manière, l'unité se déchargera dans environ 7 heures.

Pour utiliser une seule charge sur une période plus longue, allumez l'appareil (appui long), donnez-lui au moins 5 minutes pour s'habituer à l'environnement et normaliser sa lecture, prenez votre lecture, puis éteignez complètement l'appareil (appui long). Lorsque l'appareil est hors tension, il ne consomme aucune énergie. Il devrait être possible d'utiliser l'appareil comme ceci pendant une semaine ou plus entre les charges.

### *À quelle vitesse l'appareil prend-il des lectures?*

La fréquence de rafraîchissement de l'écran est d'environ 2 secondes.

Cependant, le capteur NDIR ne lit pas réellement les nouveaux niveaux de CO2 toutes les 2 secondes (seuls les capteurs coûteux et haut de gamme le font!) . Le capteur prend en fait des mesures toutes les 30 à 120 secondes, donc se normalise en environ 60 à 90 secondes lorsqu'il est déplacé dans un environnement avec un niveau de CO2 différent de celui de l'environnement précédent. Les modifications apportées aux nombres lors de l'actualisation de l'écran sont en fait des interpolations entre les lectures précédentes et la direction « tendance » de ces lectures. L'unité n'est pas suffisamment sensible pour détecter des changements de 1 à 2 ppm dans l'environnement, même si une actualisation de l'écran modifie la valeur de 1 à 2 ppm. Les lectures ne doivent pas être prises plus souvent que toutes les 90 secondes. Ce n'est pas une mauvaise idée de prendre quelques lectures sur une période de 5+ minutes, puis de faire la moyenne de ces lectures.

Veuillez noter que l'appareil n'est PAS destiné à être utilisé pour des mesures de haute précision, mais uniquement pour une approximation approximative.

### *Quelle est la durée de la garantie du produit ?*

Le produit est garanti contre les défauts pendant 1 an à compter de la date d'achat. Notre organisme de bienfaisance s'occupera de tous les échanges de garantie. Pour demander un échange de garantie, veuillez nous envoyer un courriel à [buy@buymask.ca](mailto:buy@buymask.ca).

### *Avez-vous des pièces de rechange?*

L'unité n'a pas de pièces réparables par l'utilisateur. La seule pièce de rechange est le câble d'alimentation. Étant donné qu'aucun autre câble ne peut être utilisé pour charger l'appareil, nous avons un stock de ce câble spécifique comme pièce de rechange au cas où les clients auraient besoin d'un remplacement en raison de dommages (chiens, enfants, etc.) . Nous pouvons vous envoyer un câble de remplacement pour une somme modique. Veuillez nous contacter à [buy@buymask.ca](mailto:buy@buymask.ca).

*J'ai d'autres questions.*

N'hésitez pas à nous envoyer un courriel à [buy@buymask.ca](mailto:buy@buymask.ca) et l'un de nos bénévoles vous répondra!

# Mini CO2 Detector

## Operating manual

Attached warranty



Please read this manual carefully before use.

Please keep the receipt and instruction together after reading it.

**\*NOTE: Unit can ONLY be charged with the cable it comes with!  
Will NOT work with other USB-C cables!**

Model/Trade name		BCM01			
Customer information	Name				※Please attach a bill certifying the date of purchase
	Address				
	TEL				
Warranty period	Ontology	Within 1 year from the purchase date			
Date of purchase	Year	Month	Day		
Sales shop	Store name	Address			
	TEL				

※ This warranty is a certificate of free warranty agreed under the specified conditions within the express period of this book. \*According to this warranty, the issuer (warranty responsible person) and other operators have no restriction on the legal rights of customers.

### Product guarantee conditions

- Within the product warranty period (Within 1 year from the purchase date), and the quality can only be guaranteed if it is used in a normal state. In case the product is defective or malfunctioning, we will replace it. Please contact our company. Please contact us in time.
- The warranty card will be invalid under the following situations.
  - ① When the warranty cannot be presented.
  - ② When the prescribed items cannot be filled in, the words and sentences are rewritten.
  - ③ The cause of the failure is a situation caused by negligence or deliberate operation.
  - ④ Failures and damages caused by natural disasters, man-made disasters or all other external factors.
  - ⑤ Failure and damage caused by using outside the normal range of use
- If it is judged that it is the customer's own modification or repair, the return or replacement cannot be accepted even within the warranty period.
- This guarantee refers to a separate guarantee for the product, and all losses (business losses, various expenses, etc.) caused by product malfunctions or malfunctions are not included in the guarantee.
- This warranty does not limit the legal rights of customers
- Warranty will not be reissued, please keep it safe.
- This warranty is valid only in the country local country.

## Instructions

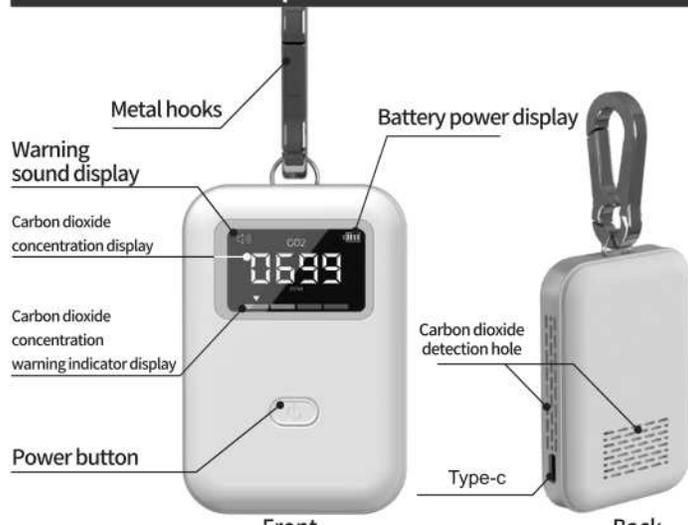
### ① How to turn on the power

Long press the power button to turn on the power. It takes about 35 seconds for the measurement to stabilize. After that, it is automatically measured and the measured value is displayed on the screen.

### ② How to turn off the power

Press and hold the power key in the power on state until you hear the beep to turn off the power supply. The screen will automatically turn off without any active within 5 minutes, will be standby mode. And short click to view the CO2 concentration, The screen display lasts for one minute.

## The names of the components



## Regarding the indication of the carbon dioxide concentration warning standard

The carbon dioxide concentration ppm of the color displayed on the screen is as follows.

### Carbon dioxide concentration warning display guidelines

[ Green ]	400 ~ 800ppm (±50ppm)
[ Yellow ]	801 ~ 1200ppm (±50ppm)
[ Orange ]	1201 ~ 1500ppm (±50ppm)
[ Red ]	1501 ~ 5000ppm (±50ppm)

The alarm goes off when the measured value exceeds 1000ppm, The alarm will be 1 minute when the measured value exceeds 1500ppm.

## About turning on/off the warning sound



After turning on the power, you can turn on and off the warning sound by pressing the "power button" twice in succession.

## Manual calibration

- If the measured value is wrong, follow the steps below. Place it in a well-ventilated place and perform manual calibration manually.

1	Long press the "power button" for 10 seconds	Screen display [8888]
2	With "8888" displayed on the screen, press the "Power button" 3 times within 3 seconds.	Screen display [1230]
3	Press the "power button" immediately	Screen display [400]
4	When the screen changes to 200, the 200-second count starts.	Screen display [200]
5	When "pass" appears on the screen, calibration is completed and the	Screen display [PASS]

ppm is a percentage unit that represents parts per million. Mainly to indicate the concentration of trace substances. For example, the carbon dioxide concentration is 400 ppm, which is 0.04% when converted into a percentage, which is one of the units that express the carbon dioxide concentration.

### About the standard value of carbon dioxide concentration

The standard value of carbon dioxide concentration is announced by the Ministry of Health, Labour and Welfare of Japan in 2020. In order to avoid the high risk of mass infection, the standard for good ventilation is the carbon dioxide concentration (CO2 concentration) below 1000 ppm, which is considered to be the standard for indoor ventilation. One of the values.

### Detection method of carbon dioxide concentration

The detection method of the CO2 detector uses the principle of non-dispersive infrared absorption method (NDIR) to detect the presence of carbon dioxide in the air. This product has the characteristics of good selectivity, anaerobic dependence, and long service life.

### Product specifications

product name: Mobile CO2 Manager	CO2 concentration measurement range:
Product size: about W53mm x D18mm x H80mm	400-5000ppm ± (50ppm)
Product weight: about 78g	Number precision: ± (50ppm + 5%)
Material: ABS+PC	Battery capacity: 900mAh lithium ion battery
Display: LCD display	Charging method: USB Type-C *
Preparation time: about 35 seconds	Input voltage: DC5V 0.5A
Refresh rate: about 2 seconds	Charging time: about 2.5 hours
Calibration: manual calibration	Use time: about 7 hours

Product details: CO2 concentration measuring instrument x 1, USB data cable x 1, instruction manual x 1

### Precautions for use

Please pay attention to the following matters before using this product.

1. Please use the USB charger sold in the package to charge this product.
2. Do not block the ventilation holes, as this may affect the measurement accuracy.
3. For long-term use, please do not use it frequently in dusty environments and other places with poor air quality.
4. Do not use this product in a high temperature/high humidity environment or an environment near a strong magnetic field. It may cause damage to the product.
5. Hold the product vertically during measurement to ensure correct measurement.
6. This product has no waterproof function.

### Attention

-  If this product is found to be damaged or abnormal, please stop using it immediately. Otherwise, it may cause electric shock or fire due to short circuit, etc.
-  Be careful not to accumulate dust near the USB plug. Otherwise, it may cause a fire.
-  Do not pull the stand forcibly, swing it with the stand, apply excessive load, or operate it roughly. Otherwise, it may cause an accident, injury or malfunction.
-  Please make sure that there is enough space around the product. It may not be possible to obtain correct measurements in poorly ventilated areas.
-  We do not guarantee the measured value of this product and the research and results using the measured value.
-  Do not use, install or store this product in the following places.
  - Places exposed to direct sunlight
  - High temperature place
  - Places where the temperature changes rapidly (places that are prone to freezing)
  - Places where static electricity is generated
  - Places near devices or objects that generate magnetism or electromagnetic waves.
  - Dust place
-  This product is not used for crisis management of carbon dioxide concentration, human and animal health management, life support, and other medical-related facilities.

### When the displayed carbon dioxide concentration is abnormally high

In a small space, the value will rise rapidly. In addition, the product may detect its own exhalation, causing the value to rise sharply. If the concentration of carbon dioxide is abnormally high or the high concentration value is measured for a long time, please use outside air for manual calibration.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

●Please read this "Safety Precautions" carefully before to ensure correct use.  
 ●The precautions given here are to ensure the safe and correct use of the product, and to prevent injury or damage to you or others.  
 In addition, in order to clearly indicate the severity and urgency of the hazard or damage, the precautions are divided into "warning" and "caution" that may occur due to improper handling. All of these are important safety issues, so be sure to follow them.

After reading, be sure to save it where the user can see it at any time.

 <b>Warning</b> Content that may cause death or serious injury.	 <b>Attentions</b> Content that may cause personal injury and property damage.
<b>Image display example</b>  The symbol on the left represents the "mandatory" behavior. It is the content that must be observed.	 The symbol on the left represents "prohibited" behavior. "Prohibited" content that cannot be done.

### Warning

-  Do not disassemble, repair or modify. It may operate abnormally and cause fire, fire or electric shock.
-  Avoid short-circuiting the USB port. Otherwise, it may cause heat generation, rupture, or fire.
-  Stop using it immediately when an abnormality occurs.
  - There are abnormal sounds and burnt smells
  - Mobile power cord, sometimes powered on, sometimes not powered
  - USB cable is abnormally hot
  - Abnormal heating of the main body and operating parts
 In the above cases, there is a danger of smoke, fire or electric shock. Unplug the power cord while charging.
-  Do not throw the main body into the fire. Otherwise, it may cause an explosion or fire.
-  Do not put pins, wires, metal objects and other foreign objects in the USB ports and gaps. Contact with the inside may cause heat, electric shock, injury or burns.
-  Do not use or store in high temperature, long-term direct sunlight, high humidity or water. Otherwise, it may cause liquid leakage, heat generation, explosion or fire.
-  Do not let children use this machine alone, and do not use or store it where infants and young children can reach it.
-  Please wipe the dust on the USB interface with a dry cloth. Otherwise, it may cause fire and heat generation.
-  Do not soak or splash water. Otherwise, a short circuit may cause electric shock or fire.
-  Do not use damaged USB plugs. If it is used in a damaged condition, it may cause electric shock or short circuit, which may cause a fire.
-  Do not plug or unplug the USB plug or operate with wet hands. Otherwise, it may cause electric shock.
-  Make sure that the USB plug is fully inserted into the base. Incomplete insertion may cause a fire due to electric shock or heat.
-  Do not drop, vibrate strongly or hit, otherwise it may cause overheating, change of test data, explosion or fire



# Mini CO2 Detector



# Air Quality Monitor CO2 Detector



Smart alarm



CO2 detection



Refresh in 3 seconds



Automatic calibration



Long battery life



Security Intelligence



# Mini CO2 Detecor



Product name  
Mini CO2

Scope of test  
400-5000ppm

Working humidity  
0~95%RH

Operating temperature  
-10-50°C

Warm up  
35s

Refresh rate  
2s

Voltage  
3.7V

Charging method  
USB

# CO2 DETECTOR REAL-TIME MONITORING

Non-dispersive infrared (NDIR) principle to detect CO2 in the air



$0 \leq \text{CO}_2 < 700 \text{ PPM}$

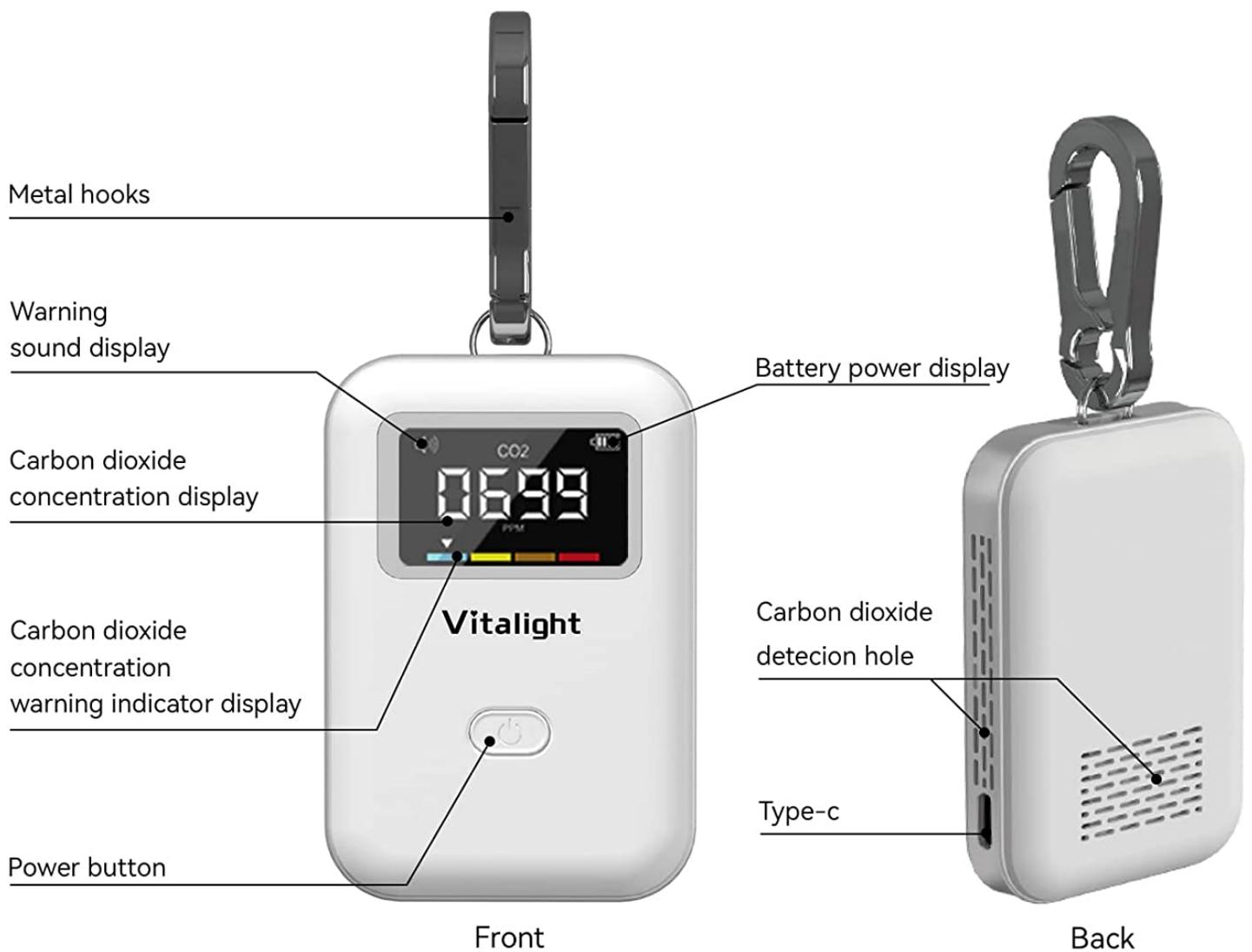


$700 \leq \text{CO}_2 < 1500 \text{ PPM}$



$\text{CO}_2 > 1500 \text{ PPM}$

# THE NAMES OF THE COMPONENTS

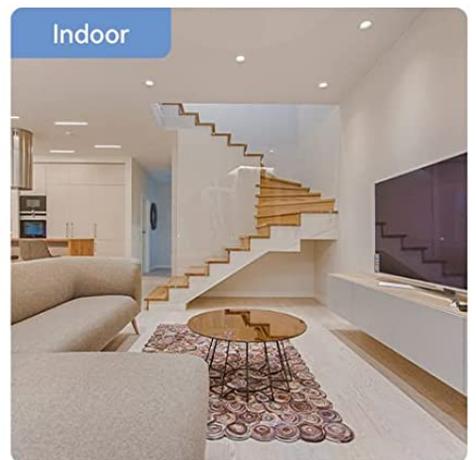
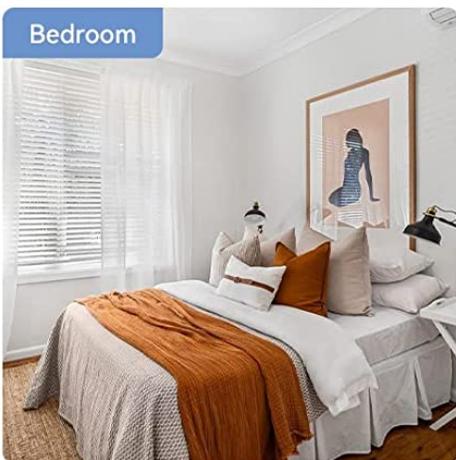
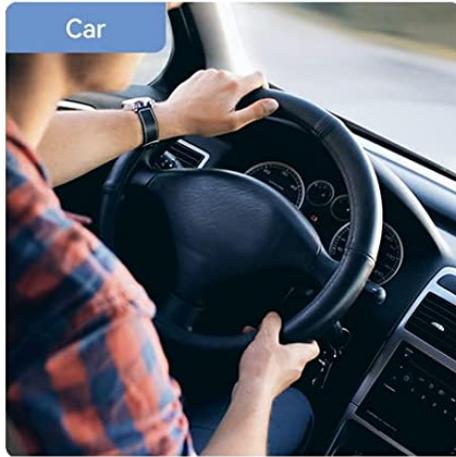




# Vitalight Air Quality Monitor CO2 Detector

Protect the Health of You and Your Family





- Mini Air Quality Monition:It is small and easy to carry,can be carried around as a decoration, you can check air quality anywhere anytime.
- CO2 Detector: Built-in high-performance co2 sensor,using more professional infrared optical principles to accurately and quickly detect carbon dioxide.If the carbon dioxide concentration exceeds 1000ppm, an alarm will be issued immediately.
- Real-time Monitoring of CO2 Concentration:The screen will automatically turn off without any active within 5 minutes,will be standby mode.And short click to view the CO2 concentration,the screen display lasts for 1 minute.
- USB Rechargeable Battery: Built-in 900mAh large capacity USB rechargeable battery,Charging takes only 2.5 hours, 8h long working time.
- Application Areas: Home, office,agricultural planting, greenhouse vegetables, production warehouse, raw material processing, home interior, etc.If you have any questions, please contact us and provide you with the best service at any time.

Air pollution is a major threat to human health. Knowing the quality of the surrounding air is important to you, not only for yourself, but also for the people you care about. This carbon dioxide meter will accurately read the carbon dioxide levels anywhere and also help assess the amount of ventilation in any indoor space such as a restaurant or gym. Help ensure that indoor ventilation levels are at an adequate level to ensure the safety of everyone inside. For the health of you and your family, you should have it

#### Features

- ✓ Color screen display: LED display is simple and intuitive;
- ✓ Quick response: fast data reading and stable performance;
- ✓ Real-time detection: automatically log the data and detect the CO<sub>2</sub>;
- ✓ Compact and convenient: small footprint, portable, and easy to operate;
- ✓ Battery life: 900mAh battery has a large capacity and can be used for 6 consecutive hours, USB fast charging, easy to use.

#### Product Standard

CO<sub>2</sub> concentration measurement range: 400-5000ppm  
Material: ABS+PC  
Display: LCD display  
Battery capacity: 900mAh lithium ion battery  
Charging method: USB Type-C

#### Package Contents

MINI CO<sub>2</sub> concentration detector X1  
USB cable X1  
Specification X1

## Mini CO2 detector

The new mini model, intelligent detection, carry it with you.



Small



**A variety of functions**



Smart alarm



CO2 detection



Refresh in 3 seconds



Automatic calibration



Long battery life



Security intelligence

## Is your home really safe?

The harm caused by high carbon dioxide concentration



### CO2 detector real-time monitoring

Based on the infrared (NDIR) principle to detect CO2 in the air



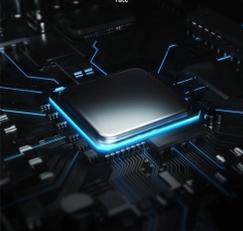
#### Concentration visualization

Change the color according to the concentration of carbon dioxide

standard	note	need ventilation	Concentration is too high
0-1000ppm	1000-1500ppm	1500-2000ppm	>2000ppm

### Refresh in 2 seconds High accuracy

High-precision sensor, 32-bit processor, faster and more accurate



convenient

## light weight

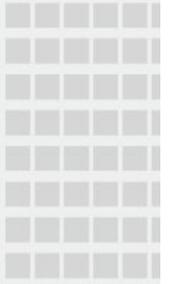
Weight only 78g  
About the weight of an egg



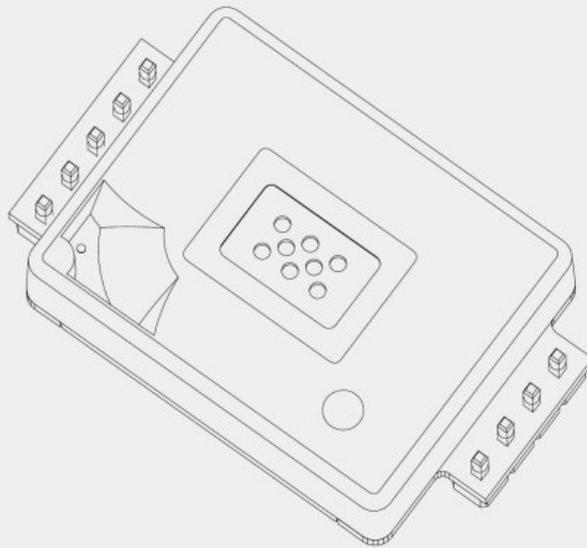
78g	3.7V	53*18*80
Weight	Power	size



**MEMSFRONTIER**  
美思先端



# MEMSF MTP40-F



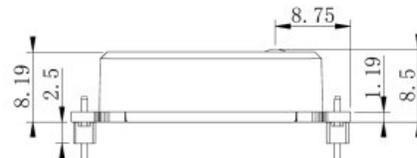
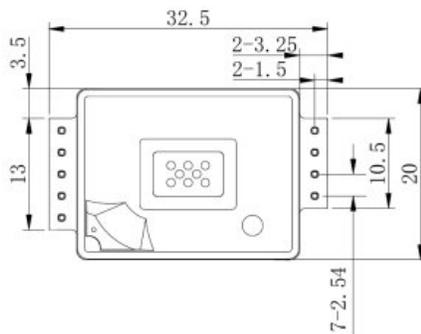
## **SPECIFICATION**

Shenzhen MemsFrontier Electronics Co., Ltd.



## MTP40-F NDIR CO<sub>2</sub> Sensor Module

### ◆ Appearances and Dimensions



### ◆ Specifications

MEMSF MTP40-F-5K CO <sub>2</sub> Module	
Target Gas	CO <sub>2</sub>
Operating Principle	NDIR
Measurement Range	400ppm---5000ppm
Measurement Interval	2s
Accuracy	±(50ppm+ 5% of reading )
Response Time	T90 time is 90s
Operating Temperature	0-50°C
Operating Humidity	0-90% RH non condensed
Storage Temperature	-20°C---60°C
Dimensions	32.5×20×8.5mm(max dimensions)
Power Supply	4.2V---5.5V
Power Consumption	300mA peak, 4mA normal, 13mA average
Life Expectancy	10 years+
Serial Communication	Uart /IIC
PWM Output	Period: 1004ms, Pulse: 2ms-1002ms(0---5000ppm)
Alarm Output	>1000ppm output to 1, <800ppm output to 0, open-drain output with pull-up resistor, the pin cannot sink any current
Self Calibration Cycle	Initial time is 24 hours, later is 7 days

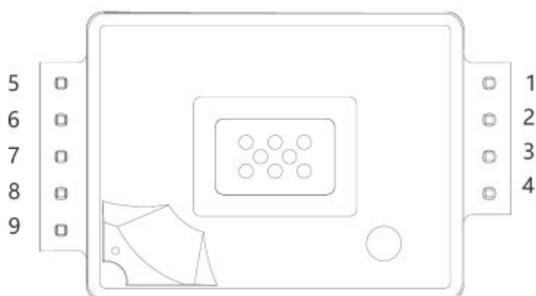
#### Absolute Maximum Ratings

Parameter	Minimum	Maximum	Units
Ambient Storage Temperature	-40	85	°C
Maximum Voltage Range	-0.3	5.5	V
Maximum Output Current from Active Output Pin	-25	+25	mA
Maximum Current on Input	-5	+5	uA
Maximum Load Voltage on UART Pin	-0.3	3.5	V

## MTP40-F

### NDIR CO<sub>2</sub> Sensor Module

#### ◆ PIN Assignment



NO.	Name
1	Vin: 4.2V-5.5V
2	GND
3	Alarm
4	PWM/IIC-Detect
5	VCC-Out:3.3V
6	Host-TX/IIC-SDA
7	Host-RX/IIC-SCL
8	R/T
9	bCAL-in

#### ◆ Terminals Description

Pin Function	Pin Description	Electrical Specification
<b>Power Pins</b>		
GND(Pin 2)	Power Supply Minus Terminal	
VIN(Pin1)	Supply Plus Terminal	Unprotected against reverse connection, input voltage range: 4.2V---5.5V
VCC-Out(Pin5)	The internal LDO output of the sensor is usually 3.3V+/-2%. Generally used for serial communication level conversion.	Output voltage: 3.3V+/-2% No overcurrent protection Maximum output current: 6mA
<b>Communication Pins</b>		
Host-TX(Pin6) /IIC-SDA	The TX pin of the UART of the host system is usually the TX of the customer's MCU, or the SDA of the IIC function.	Usually the communication level is 3.3V, and there is a 1K series current limiting resistor inside.In IIC mode, the pins have weak pull-ups resistor(Around 50KΩ)
Host-RX(Pin7) /IIC-SCL	The RX pin of the UART of the host system is usually the RX of the customer's MCU or the SCL of the IIC function.	Usually the communication level is 3.3V, and there is a 1K series current limiting resistor inside.In IIC mode, the pins have weak pull-up resistor(Around 50KΩ)
<b>Input / Output</b>		
PWM(Pin4)	PWM function,the pins have weak pull-up resistor(Around 50KΩ ) ,the load cannot be driven directly.	The pin is an open-drain with pull-up structure, the load cannot be driven directly.
Alarm-OC(Pin3)	Alarm function: the pin is open-drain with pull-up resistorweak pull-ups ( The pull-up resistor is around 50KΩ ) . When the measured concentration exceeds 1000ppm, the output of this pin is high, when the concentration is lower than 800ppm, the output of this pin is low.	The pin is open-drain with a pull-up resistor and cannot directly drive the load.
R/T(Pin8)	This pin has two functions: 1. As an RS485 direction control pin. This pin is directly connected to the direction enable pin of the RS485 chip. Do not connect a pull-up or pull-down resistor. At this time, the modules Pin6 and Pin7 are UART functions. 2. UART/IIC function selection pin. This pin is grounded before power-on (grounding	When the pin is powered on, the input has a pull-up resistor, which can be left floating or grounded.

	after power-on is invalid). Pin6 and Pin7 are functions of IIC.	
bCAL-in(Pin9)	Manual calibration to control pin.	When the pin is powered on, the input has a pull-up resistor.

# MTP40-F

## NDIR CO<sub>2</sub> Sensor Module

### ◆ Calibration Function

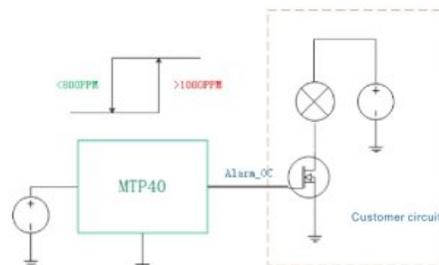
**The module supports two calibration functions:**

1. The MTP40 module is a precision optical module. Due to various reasons such as transportation, installation, welding, etc., the measurement of the module will cause a certain drift, making influence to the accuracy. The module has a built-in self-calibration algorithm, which can automatically correct the measurement error periodically, so that the module always maintains a relatively good measurement accuracy. The module self-calibration cycle defaults to 7 days (168 hours), which can be adjusted by instructions (24 hours to 720 hours). In order to make the module adjust the accuracy faster, the module will complete a self-calibration within 24 hours after power-on, and then perform periodic self-calibration according to the set cycle. In order to ensure the measurement accuracy of the sensor after calibration, please make sure that the CO<sub>2</sub> concentration in the working environment of the sensor can be close to the outdoor atmospheric level for at least a few hours within 24 hours of power-on and 7 days of continuous operation.

2. In addition to the self-calibration function, the sensor can also be manually calibrated to quickly restore accuracy. Pin9 (bCAL-in) of the sensor is the control pin for manual calibration. Pull this pin down for more than 2 seconds, and the sensor can complete the calibration. The reference concentration of this calibration function is the CO<sub>2</sub> concentration in the outdoor atmosphere, generally around 400PPM. To use this function, please place the sensor in an environment close to the outdoor atmospheric with CO<sub>2</sub> concentration, such as a relatively ventilated place. After power on, let it stay for at least 20 minutes. Then pull down Pin9 (bCAL-in) for more than 2 seconds to complete the calibration. Besides, the sensor also supports software instructions to calibrate. For details, please check the chapter of communication protocol instructions.

### ◆ Alarm Function

The MTP40 module supports the alarm function, which is output through the Alarm-OC pin. When the measured CO<sub>2</sub> concentration value > 1000PPM, the Alarm-OC pin outputs a high level. When the measured CO<sub>2</sub> concentration value is less than 800PPM, the Alarm-OC pin outputs a low level. Note that the Alarm-OC pin is configured as an open drain with a pull-up resistor, so it has only a weak drive capability and cannot sink current. If an error occurs in the module, the Alarm-OC pin will always remain high level. Refer to the usage method as shown on the right.



### ◆ Communication Protocol

#### Serial Communication

Baud rate of Serial communication is 9600 bps.

The definition of serial communication packet:

#### 1. Protocol Format:

Frame format description:

Numeric Field	Length	Description
Frame Header	2	Fixed to 0X42,0X4D
Instruction byte	1	Instruction definition or sensor type definition
Command byte	2	Specific command word
Data length	2	Big endian
Data	n	Big endian
Checksum	2	The cumulative sum of all bytes from the frame head to the last byte of data

The following protocol is applied in the product series of gas sensors, Instruction byte is 0xA0.

Description of Command byte:

Command Byte	Description
0x0001	Set air pressure parameters (It is defaulted to 1013.0hPa)
0x0002	Read the currently set air pressure value
0x0003	Read gas concentration value
0x0004	Single point correction function (With Reference concentration)
0x0005	Single point correction read status
0x0006	Disable or enable self-calibration

## MTP40-F

### NDIR CO<sub>2</sub> Sensor Module

0x0007	Read self-calibration status
0x0008	Read the self-calibration period(hours)
0x0009	Set the self-calibration period(hours)

## 2. Basic Control Protocol

Function Name		Frame Header	Instruction Byte	Command Byte	Data Length	Data	Checksum
Set air pressure parameters	Send by MCU	0x42 0x4d	0xA0	0x0001	0x00 0x02	The range of atmospheric pressure is 700-1100 (16bit integers).	Checksum
	Return by Module	0x42 0x4d	0xA0	0x0001	0x00 0x00		Checksum
Read the current pressure value	Send by MCU	0x42 0x4d	0xA0	0x0002	0x00 0x00		Checksum
	Return by Module	0x42 0x4d	0xA0	0x0002	0x00 0x02	The atmospheric pressure (16bit integers)	Checksum
Read gas concentration value	Send by MCU	0x42 0x4d	0xA0	0x0003	0x00 0x00		Checksum
	Return by Module	0x42 0x4d	0xA0	0x0003	0x00 0x05	Gas concentration value(32bit integers ) and Data valid flag (8bit) 0x00: Valid; 0xFF: the data is unavailable	Checksum
Single point correction function (with reference concentration)	Send by MCU	0x42 0x4d	0xA0	0x0004	0x00 0x04	Reference concentration range: 400x5000(32 bit integers)	Checksum
	Return by Module	0x42 0x4d	0xA0	0x0004	0x00 0x01	0x01: Calibration starts 0xff: Calibration is wrong	Checksum
Read single point correction status	Send by MCU	0x42 0x4d	0xA0	0x0005	0x00 0x00		Checksum
	Return by Module	0x42 0x4d	0xA0	0x0005	0x00 0x01	0x00: Calibration is complete 0x01: Calibration is continuing	Checksum
Enable or disable self-calibration	Send by MCU	0x42 0x4d	0xA0	0x0006	0x00 0x01	0x00: Enable self-calibration 0xff: Disable self-calibration	Checksum
	Return by Module	0x42 0x4d	0xA0	0x0006	0x00 0x00		Checksum
Read self-calibration status	Send by MCU	0x42 0x4d	0xA0	0x0007	0x00 0x00		Checksum
	Return by Module	0x42 0x4d	0xA0	0x0007	0x00 0x01	0x00: Enable self-calibration 0xff: Disable self-calibration	Checksum
Read the self-calibration period	Send by MCU	0x42 0x4d	0xA0	0x0008	0x00 0x00		Checksum
	Return by Module	0x42 0x4d	0xA0	0x0008	0x00 0x02	the self-calibration period range: 24-720h	Checksum
Set the	Send by MCU	0x42 0x4d	0xA0	0x0009	0x00 0x02	the self-calibration period range: 24-720h	Checksum

self-calibration period	Return by Module	0x42 0x4d	0xA0	0x0009	0x00 0x01	00: Correct operation; 01: It is not acceptable if value is less than 24h; 02: It is not acceptable if the value is more than 720h	Checksum
-------------------------	------------------	-----------	------	--------	-----------	--	----------

# MTP40-F

## NDIR CO<sub>2</sub> Sensor Module

### 3. Quick Guide:

①Set air pressure parameters

Send: 0x42 0x4D 0xA0 0x00 0x01 0x00 0x02 0x03 0xF5 0x02 0x2A

Device	Phase	Data	Description	Cmd.Phase.Ofs(rep)
43	OUT	42 4d a0 00 01 00 02 03 f5 02 2a	BM.....*	1.1.0
43	IN	42 4d a0 00 01 00 00 01 30	BM.....0	2.1.0

0x03F5 is Hexadecimal of 1013

②Read the current pressure value

Send:0x42 0x4D 0xA0 0x00 0x02 0x00 0x00 0x01 0x31

Device	Phase	Data	Description	Cmd.Phase.Ofs(rep)
43	OUT	42 4d a0 00 02 00 00 01 31	BM.....1	1.1.0
43	IN	42 4d a0 00 02 00 02 03 f5 02 2b	BM.....+	2.1.0

③Read gas concentration value

Send:0x42 0x4D 0xA0 0x00 0x03 0x00 0x00 0x01 0x32

Data valid bit is 0xFF,the data is unavailable:

Device	Phase	Data	Description	Cmd.Phase.Ofs(rep)
43	OUT	42 4d a0 00 03 00 00 01 32	BM.....2	1.1.0
43	IN	42 4d a0 00 03 00 05 00 00 00 00 ff 02 36	BM.....6	2.1.0

## ◆ IIC Instruction Descriptions

The module operates in IIC slave mode and can be connected to an external MCU with a pull-up resistor inside the module.

The slave address is: 0x32 (7-bit address)

The write operation address is: 0x64

The read operation address is: 0x65

Host sending timing:

- 1.Send a start signal;
- 2.Send an address to write(slave address + R/W=0x64) and check responses;
- 3.Send a read command (0x03) and check the responses;
- 4.Send a stop signal;
- 5.Send a start signal;
- 6.Send an address to read (slave address + R/W(1)=0x65) and check responses;
- 7.Read 3 bytes from the module and send responses;
- 8.Send a stop signal.

The 3-byte data received is described as follows:

CO <sub>2</sub> Concentration		Data Valid Byte
High Concentration Byte	Low Concentration Byte	0x00/0xFF

Attention:

CO<sub>2</sub> concentration = high byte of CO<sub>2</sub> concentration\*256 + low concentration byte

Data valid byte, 0x00 means data is valid, 0xFF means data is invalid.

## MTP40-F

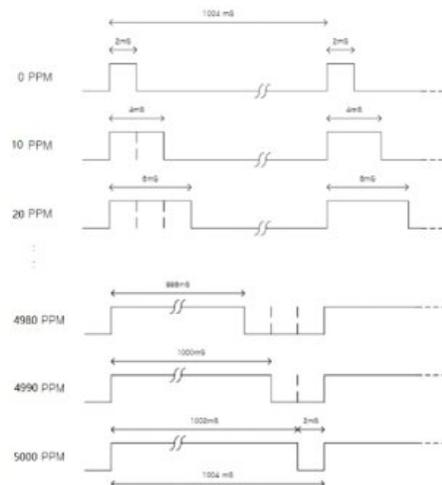
### NDIR CO<sub>2</sub> Sensor Module

#### ◆ PWM Function Descriptions

The cycle of the PWM is 1004ms;  
 High level output 2ms in the initial stage;  
 The central cycle is 1000ms;  
 Low level output 2ms at the end stage.  
 Calculation formula for obtaining the current CO<sub>2</sub>

Concentration value through PWM:  

$$C_{ppm} = 5000 * (TH - 2ms) / (TH + TL - 4ms);$$
 Cppm is the calculated CO<sub>2</sub> concentration value, the unit is ppm;  
 TH is the time when the output is high in an output cycle;  
 TL is the time when the output is low in one output cycle.



#### ◆ Version

Date	Version	Changes
Jun.2, 2020	1.00	Initial
Aug.30, 2020	1.10	The alarm values were edited.

Guangming Dist., Shenzhen, Guangdong, 518107, China.  
Tel: +86-755-21386871  
Email: [sales@memsf.com](mailto:sales@memsf.com)  
[www.memsf.com](http://www.memsf.com)



中国认可  
检验  
INSPECTION  
CNAS IB0078

**锂电池**  
符合相关包装说明 第II部分

# 航空运输条件鉴别报告书

## Identification and Classification Report for Air Transport of Goods

有效  
2月31日

此报告本年度有效  
有效期至2022年12月31日

报告编号: PEKGZ202203082700LW660001

Issued No.:

生效日期: 2022.03.08

Effective Date:

委托单位: 广东不二医疗科技有限公司

Applicant: Guangdong Bioall Medical Technology Co., Ltd.

物品名称: 迷你二氧化碳检测仪 BCM01 (内置聚合物锂离子电池YZ 803040 3.7V 900mAh 3.33Wh)

Name of Goods: Mini CO2 Detector BCM01 (Containing Polymer Lithion Battery YZ 803040 3.7V 900mAh 3.33Wh)

北京迪捷姆空运技术开发有限公司

Beijing DGM Air Transport Technology Development Co., Ltd.



如本不符原样一切责任！  
此复印件与原件一致，



# 报告书使用约定

## Terms of the Using of the Report

1. 本公司依据本年度国际航协《危险品规则》以及委托人（托运人或其代理人）提供的物品及其运输信息，确定货物的航空运输条件并出具此报告书。

The report is issued by DGM China according to IATA *Dangerous Goods Regulations* published in the current year and the information of the goods and the information of its shipping provided by the applicant (shipper or his agent).

2. 依据鉴别的需要，本公司要求委托人提供真实、完整的货物样品及资料。

According to the demand of identification and classification, DGM China requires the applicant to provide true and exact sample and data of the cargo.

3. 委托人保证申报的物品和/或提供的样品与交运的货物是同一种物质。

The applicant guarantees that the declared goods and/or the sample who provides should be identical with the contents of cargo that is to be transported.

4. 本公司仅对样品的鉴别结果负责。

DGM China is only responsible for the identification and classification of the sample provided by the applicant.

5. 本报告书经主检员、审核人和批准人签字并加盖本公司印章后生效。

This report will be effective only after it is signed by the inspector, checker and approver, and stamped by DGM China.

6. 未经本公司书面批准，不得复制本报告书。

The duplicating of this report is prohibited without the written approval of DGM China.

7. 私自转让、复制、盗用、冒用、涂改、或以任何媒体形式篡改的报告书无效。

The report is invalid when anything of the following happens - illegal transfer, reproduce, embezzlement, imposture, modification or tampering in any media form.

8. 为适应国际航协《危险品规则》的年度变化，报告书仅在本年度内有效。

This report is only valid within the year in which the IATA *Dangerous Goods Regulations* is effective.

地址：北京首都国际机场货运北路天竺综合保税区BGS货运楼249室 邮编：101300

电话：010-69479673 传真：010-69479621

网址：[www.dgmchina.com.cn](http://www.dgmchina.com.cn) E-mail: [test@dgmchina.com.cn](mailto:test@dgmchina.com.cn)



项目编号 Item No.		PEKGGZ202203082700	签发日期 Issued Date	2022. 03. 08
鉴别目的 Identification Purpose		是否属于航空运输危险物品 Dangerous Goods or not restricted	鉴别日期 Identification Date	2022. 03. 08
鉴别依据 Identification Criteria		IATA DGR 63rd, 2022		
物品名称 Name of Goods	中文 Chinese	迷你二氧化碳检测仪 BCM01 (内置聚合物锂离子电池YZ 803040 3.7V 900mAh 3.33Wh)		
	英文 English	Mini CO2 Detector BCM01 (Containing Polymer Li-ion Battery YZ 803040 3.7V 900mAh 3.33Wh)		
生产厂家 Manufacturer		深圳市誉展电子有限公司 Shenzhen Yuzhan Electronics Co., Ltd		
件数 Pieces		注: 本栏内容为托运人或其代理人在使用本报告书时候填写的运输信息, 不属于鉴定内容。运输信息与报告书的关联性以及实际运输货物与报告书的一致性由托运人或其代理人保证, 如发生任何不一致由托运人或其代理人承担全部责任。 (请认真填写本栏内容, 并盖章) 负责人: 联系方式:		
运单号 Air waybill No.				
目的港 Destination				
物品信息 Nature of the goods		<p>该样品为银色近长方体电池。                      型号: YZ 803040                      尺寸: (40.5*29.6*8.0) mm                      每包装件中电池/电芯数量: 50                      每包装件中电池/电芯净重: 0.95kg                      该电池属于单芯锂电池。                      该锂电池不属于召回电池, 不属于废弃和回收电池, 并按照DGR3.9.2.6(e)规定的质量体系进行制造                      (注: 该电池已经做好防短路措施并已采取防止意外启动措施。单块电池的重量约为19.0g。设备:                      迷你二氧化碳检测仪; 型号: BCM01。每台设备内置1块电池, 每包装件内含50台设备。)</p> <p>This sample is silver almost cuboid battery.                      Model: YZ 803040                      Size: (40.5*29.6*8.0) mm                      Number of batteries / cells per package: 50                      Net quantity of batteries/cells per package: 0.95kg                      The batteries belong to single cell lithium batteries.                      The lithium batteries don't belong to batteries returned to the manufacturer for safety reasons, are not waste lithium batteries and not lithium batteries being shipped for recycling or disposal, are manufactured under a quality management program as described in 3.9.2.6(e).</p>		



项目编号 Item No.		PEKGZ202203082700			
物品名称 Name of Goods	中文 Chinese	迷你二氧化碳检测仪 BCM01 (内置聚合物锂离子电池YZ 803040 3.7V 900mAh 3.33Wh)			
	英文 English	Mini CO2 Detector BCM01 (Containing Polymer Li-ion Battery YZ 803040 3.7V 900mAh 3.33Wh)			
鉴别结论 Conclusions		<p>该货物为锂离子/聚合物电池, 安装在设备上。额定瓦特小时为3.33Wh。已通过 UN38.3 测试, 每个包装件上均有锂电池标记。</p> <p>根据IATA DGR, 锂离子电池符合包装说明967第II部分。</p> <p>This goods is lithium ion/polymer battery, contained in equipment. Watt-hour rating is 3.33Wh. Each battery is of a type proved to meet the Requirements of each test in the UN MANUAL OF TESTS AND CRITERIA, Part III, sub-section 38.3. Each package is marked with lithium battery mark.</p> <p>According to IATA DGR, lithium ion batteries in compliance with Section II of PI 967.</p>			
建议运输条件 Suggestion for Transport Condition	UN/ID 编号 UN/ID No.	运输专用名称 Proper Shipping Name		类别或 Class or Div. (次要危险性) (Subsidiary Risk)	
	/	/		/	
	包装说明 Packing Inst.	客货机 Passenger and Cargo Aircraft	/		
		仅限货机 Cargo Aircraft only	/		
注意事项 Remarks	<p>电池或电芯必须加以保护, 防止短路。设备必须采取措施防止意外启动。</p> <p>Batteries or cells must be protected so as to prevent short circuits, and the equipment must be equipped with an effective means of preventing accidental activation.</p>				
主检员 Prepared by:	审核人 Checked by:		批准人 Approved by:	报告单位 (盖章) Stamp	
罗涛		毕丽雯			

制单: 毕丽雯

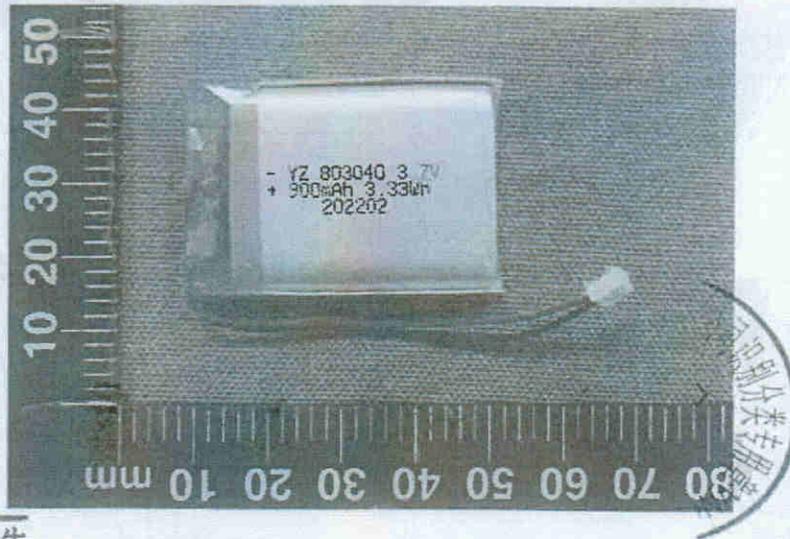


北京迪捷姆空运技术开发有限公司

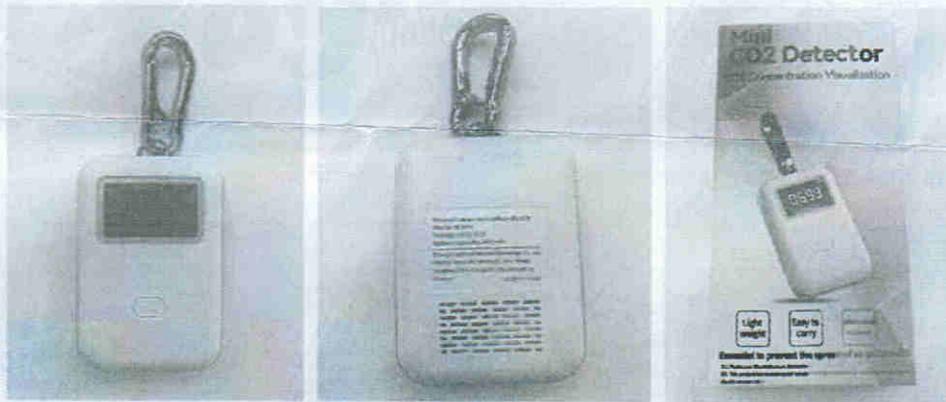
项目编号: PEKGZ202203082700

物品名称: 迷你二氧化碳检测仪 BCM01 (内置聚合物锂离子电池 YZ 803040 3.7V 900mAh 3.33Wh)

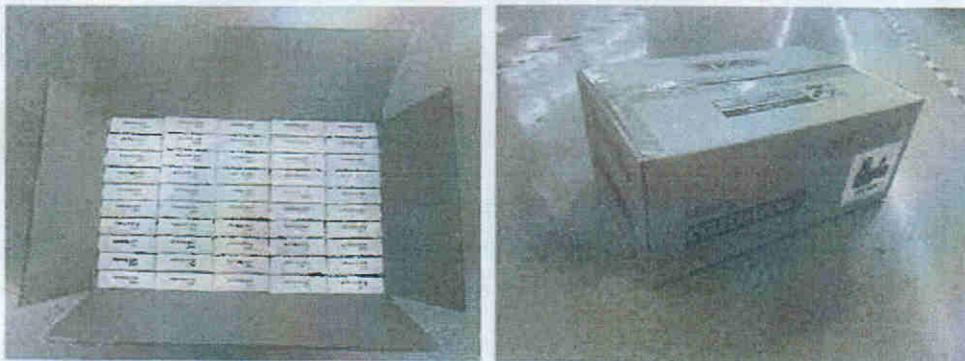
电池/电芯 Battery / Cell:



设备 Equipment  
此报告  
有效期 7

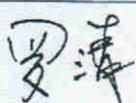
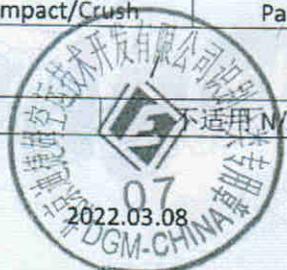


包装件 Package:



# 锂电池 UN38.3 试验概要 Lithium Battery Test Summary

项目编号: PEKGZ202203082700

单位信息 Company Information					
委托单位 Consignor	广东不二医疗科技有限公司 广东省东莞市凤岗镇碧湖路 28 号 2 栋 301 室 电话/Tel: +86-769-82078305 邮箱/Mail: 625425490@qq.com 网址/Website: /				
生产单位 Manufacturer	深圳市誉展电子有限公司 深圳市宝安区沙井街道后庭新宝益工贸大厦 8 楼 B1 电话/Tel: +86-18676342928 邮箱/Mail: 841692416@qq.com 网址/Website: /				
测试单位 Test Lab	深圳诺检测技术有限公司 广东省深圳市宝安区西乡街道固戍航城大道绵商青年创业园 B 栋第 1 层、C 栋 2 层 2A 电话/Tel: +86-755-27790922 邮箱/Mail: sales@nct-testing.com 网址/Website: http://www.ncttesting.com				
电池信息 Battery Information					
名称 Name	聚合物锂离子电池 Polymer Li-ion Battery	电池/电芯类别 Battery/Cell Classification		单电芯锂离子电池 Single Cell Li-ion Battery	
型号 Type	YZ 803040	商标 Trademark		--	
额定电压(V) Normal Voltage(V)	3.7V	额定容量(mAh) Rated Capacity(mAh)		900mAh	
额定能量(Wh) Watt-hour rating (Wh)	3.33Wh	外观/Appearance		银色近长方体 Approximate Silver Cuboid	
质量(g)/Mass(g)	19.0g	锂含量(g)/Li Content(g)		不适用 N/A	
测试信息 Test Information					
测试报告编号 Test Report Number	NCT22009018XB1-1		测试报告签发日期 Date of Test Report	2022.03.05	
测试标准 Edition of UN Manual of Tests and Criteria Used	联合国《试验和标准手册》(第 7 版) 38.3 节 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Subsection 38.3				
T.1: 高度模拟 Altitude Simulation	通过 Pass	T.2: 温度试验 Thermal Test	通过 Pass	T.3: 振动 Vibration	通过 Pass
T.4: 冲击 Shock	通过 Pass	T.5: 外部短路 External Short Circuit	通过 Pass	T.6: 撞击/挤压 Impact/Crush	通过 Pass
T.7: 过度充电 Overcharge	通过 Pass	T.8: 强制放电 Forced Discharge	通过 Pass		
UN38.3.3(f)	不适用 N/A		UN38.3.3(g)	不适用 N/A	
签名 Signatory 职务 Title	 检验员		签发日期 Issued Date	 2022.03.08	