

OPTIFY™ Breather Instruction Manual

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see dodgeindustrial.com for updated instruction manuals.

INTRODUCTION

The purpose of this manual is to provide necessary information for:

- Installation
- Operation
- Maintenance

INSTALLATION

Breather location recommendations

1. Install the breather at the highest available oil plug, ensuring that the oil level is below this plug. Refer to Dodge gearing catalogs for specific recommended breather locations by gearbox.
2. Breather should always be mounted perpendicular to the earth and top up, regardless of gearbox orientation.
3. Desiccant breathers are not recommend for gearboxes in position D with the input seal facing upwards. Instead, use an enclosed breather.

Contact Application Engineering at +1 864 284 5700 ext. 3 for additional mounting guidance.

NOTE: Additional pipe fittings may be required to work around application-specific guarding and structure.

Breather cartridge

1. Install the desiccant breather cartridge where the standard pipe plug or OEM breather is located on equipment, following recommendations above.
2. Remove all plugs from the bottom of the OPTIFY Breather.
3. Secure breather by screwing onto asset. Hand tighten only.

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Dodge® nor are the responsibility of Dodge. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

Sensor module

1. Install batteries in module by removing screws, inserting three AAA batteries in the correct orientation, and reinstalling the screws.
2. Align module with clips on side of breather.
3. Pull down on module until secure.
4. Push button on front of module to ensure indicator lights illuminate (see Module Indicators section below). If battery indicator light illuminates, the module is properly assembled. If lights do not illuminate, remove cover to check if batteries are installed in the correct direction and/or the module cover is installed in the correct position.

OPTIFY SETUP

1. Install the OPTIFY app via the respective store—Google Play Store for Android devices or App Store for iOS devices.



2. Open OPTIFY through the web portal at dodgeoptify.com or through the mobile app, then create an account.



3. Open the OPTIFY app and log in with your account credentials.
4. For instructions on how to commission the OPTIFY Breather in OPTIFY, visit the user guide at iiot-dodgeindustrial.swipeguide.com or scan the QR code below.



NOTE: It may take up to one hour after commissioning for the first measurement to load in the OPTIFY platform.

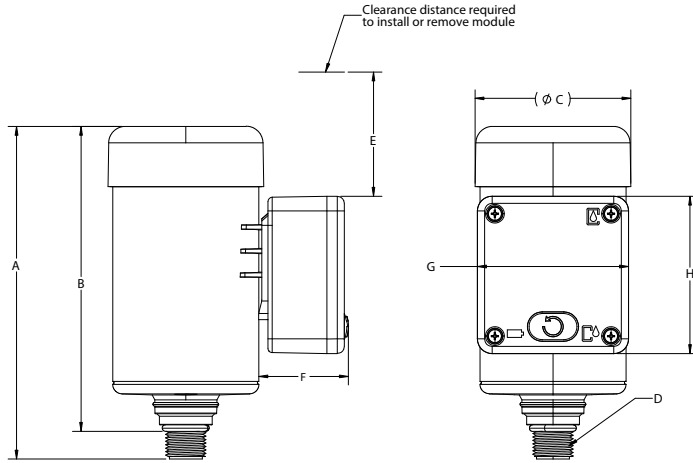
PRODUCT SPECIFICATIONS

Monitored key performance indicators (KPIs)

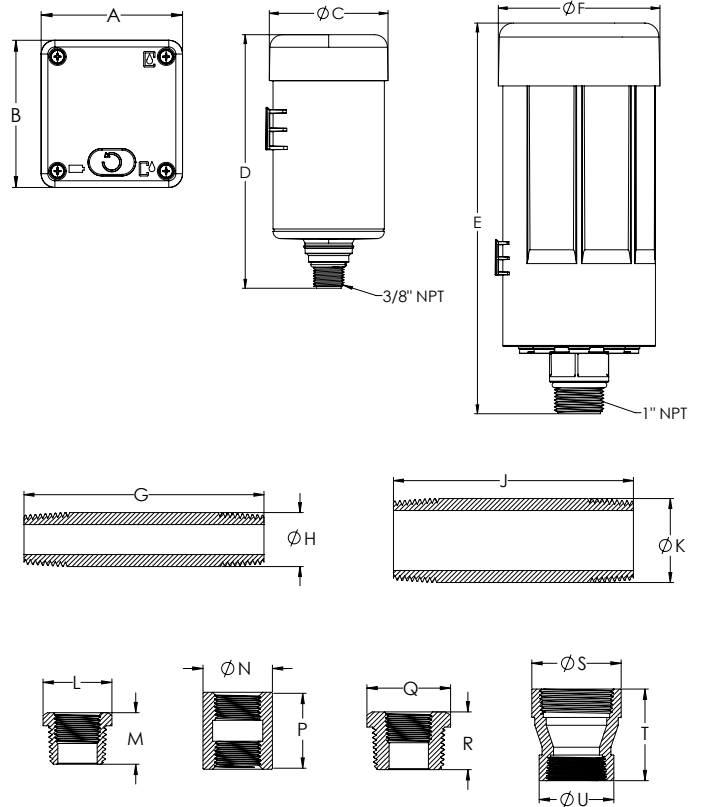
The breather module uses a Bluetooth® connection to communicate humidity and temperature information to the OPTIFY platform.

- Airflow temperature
- Battery life
- Breather life
- Saturation direction
- Rate of saturation

Product dimensions - assembly



Product dimensions - components



Product dimensions - assembly

Model	Label	Dimensions (in)
OB1	A	5.4 (13.7 cm)
	B	4.9 (12.5 cm)
	C	2.5 (6.4 cm)
	D	3/8 multi-fit (NPT, BSPP, BSPT) with O-ring seal
	E	2 (5.1 cm)
	F	1.4 (3.6 cm)
	G	2.4 (6.1 cm)
	H	2.5 (6.4 cm)
OB4	A	10 (25.4 cm)
	B	9.1 (23.1 cm)
	C	4.1 (10.4 cm)
	D	1" multi-fit (NPT, BSPP, BSPT) with O-ring seal
	E	2 (5.1 cm)
	F	1.4 (3.6 cm)
	G	2.4 (6.1 cm)
	H	2.5 (6.4 cm)

Product dimensions - components

Component	Description	Label	Dimensions (in)
Sensor module	Bluetooth monitoring device	A	2.43 (6.2 cm)
		B	2.53 (6.4 cm)
OB1 cartridge	Desiccant cartridge	C	2.51 (6.4 cm)
		D	5.36 (13.6 cm)
OB4 cartridge	Desiccant cartridge	E	9.91 (25.2 cm)
		F	4.10 (10.4 cm)
Extension	3 inch—3/8 inch NPT pipe extension	G	3.00 (7.6 cm)
		H	0.68 (1.7 cm)
Extension	3 inch—3/4 inch NPT pipe extension	J	3.00 (7.6 cm)
		K	1.05 (2.7 cm)
Adapter	Hex 1/2 inch NPT to 3/8 inch NPTF reducer	L	1.00 (2.5 cm)
		M	0.75 (1.9 cm)
Coupling	3/8 inch NPTF to 3/8 inch NPTF coupling	N	1.02 (2.6 cm)
		P	1.16 (2.9 cm)
Reducer	Hex 3/4 inch NPT to 3/8 inch NPTF reducer	Q	1.15 (2.9 cm)
		R	0.85 (2.2 cm)
Coupling	1 inch NPTF to 3/4 inch NPTF coupling	S	1.95 (5.0 cm)
		T	2.00 (5.1 cm)
		U	1.63 (4.1 cm)
Batteries	AAA batteries (x3) for sensor module	—	—

Sizing recommendations

Model	Maximum airflow at 1 psid	Maximum internal volume without oil
OB1	1.5 cfm (41 lpm)	35 gal (132 L)
OB4	3.0 cfm (84 lpm)	500 gal (1,893 L)

WARNING: Maximum air pressure is considered 1 psi (6.89 kPA) and maximum burst pressure 10 psi (68.95 kPA)

Water adsorption capacity

Model	Amount of silica gel	Maximum water retention
OB1	0.3 lbs (0.1 kg)	49.7 ml (1.7 fl. oz)
OB4	1.9 lbs (0.9 kg)	333 ml (11.3 fl. oz)

Cartridge materials and components

- Filter housing: polycarbonate, nylon, polypropylene, Buna-N, silicone
- Filter media: polyurethane, polyester
- Hydrophilic media: silica gel
- Sensor board: lead-free and RoHS compliant

Module materials and components

- Module casing: polycarbonate, steel (screws, ball plunger)
- Module cap: thermoplastic elastomers (TPE), steel (screws, ball plunger)
- Circuit board: LED lights, FR4 fiberglass (RoHS compliant)
- Batteries: 1.5 V alkaline AAA (manganese dioxide, zinc, potassium hydroxide, graphite)

Recommended ambient temperature range

- -4 °F—130 °F (-20 °C—54 °C) based on battery operating temperature range

Wireless connectivity

- 2402.0—2480.0 MHz Bluetooth 4.0 low energy
- 13.56 MHz RFID

Filter efficiency

- 3 μ absolute ($\beta_3 \geq 200$)

Chemical compatibility

Recommended:

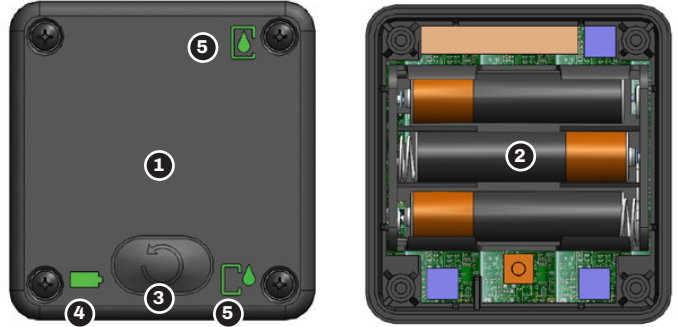
- All gear oils
- Most hydraulic fluids
- Mineral and synthetic oil

Chemicals with known detrimental effects to breather materials:

- Phosphate ester
- Hydrogen sulfide
- Sulfuric acid
- Highly alkaline cleaners

Sensor module components

1. Module cover
2. Batteries (AAA x 3)
3. Push button
4. Battery indicator LED
5. Saturation direction and breather life LEDs



WARNING: Only use three AAA alkaline batteries each rated 1.5 V DC 1,200 mAh

MODULE INDICATORS

Standard operation

Normal state

Breather is operating normally; no indicators are active



Test

Push button on module to view breather life, saturation direction, and battery life



Battery life

Green

Batteries are charged (> 20% remaining life)



Yellow

Alert: batteries are draining (between 10% and 20% remaining life)



Red

Warning: batteries are drained; light will flash intermittently (< 10% remaining life)



Breather life (humidity)

Green

Breather has >20% remaining life



Yellow

Alert: breather has between 1% and 20% remaining life



Red

Warning: breather has 0% remaining life; light will flash intermittently



Saturation direction

Top

Moisture is coming from the asset headspace



Bottom

Moisture is coming from the ambient air



Both

Moisture is coming from the asset headspace and ambient air



Note: Amount of saturation may result in green, yellow or red indicator lights as described in above section.

MAINTENANCE

Battery replacement

1. Remove module cover screws.
2. Remove sealing module cover.
3. Remove the batteries and replace with three new AAA alkaline batteries.
4. Reinstall module cover.
5. Reinstall the four module cover screws.

Replacement cartridges

Order replacement breather cartridges at dodge.ptplace.com or through your local Dodge sales representative.

Replacing breather cartridge

1. Remove sensor module from the breather cartridge.
2. Remove existing breather cartridge and dispose of per local regulations.
3. Remove all plugs and cap from the new OPTIFY Breather cartridge.
4. Secure breather by screwing onto asset. Hand tighten only.
5. Install replacement batteries in module by removing screws, inserting three AAA batteries, and reinstalling the screws.
6. Align module with clips on side of breather.
7. Pull down on module until secure.
8. Push button on front of module to ensure indicator lights illuminate. If battery indicator light illuminates, the module is properly assembled. If lights do not illuminate, remove cover to check if batteries are installed in the correct direction and/or the module cover is installed in the correct position.

NOTE: Do not discard the module. The module remains with the asset and does not need to be replaced each time a new cartridge is installed.

TROUBLESHOOTING

For troubleshooting tips and guidance on how to use OPTIFY, visit the user guide at iiot-dodgeindustrial.swipeguide.com or scan the QR code below.



Disposal

Dispose of breather cartridge, module, and batteries in accordance with local regulations.

Battery life

Under normal operating conditions, the expected battery life for the three AAA batteries in the module is 2 years. Battery life could be shortened in environments of high humidity or high/low temperatures.

COMMUNICATIONS REGISTRATIONS

FCC certification

The FCC identifier for the radio module contained in the OPTIFY Breather is **FCC ID: 2APBF-ISOLOGICBREA**.

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
2. This device must accept any interference received, including interference that may cause undesired operation

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Dodge Industrial may void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RF exposure

To comply with FCC RF Exposure requirements, do not modify, remove or change the antenna on the radio module contained within the OPTIFY Breather.

The radiated output power of the radio with mounted ceramic antenna (FCC ID: 2APBF- ISOLOGICBREA) is far below the FCC radio frequency exposure limits. Nevertheless, the radio shall be used in such a manner that the potential for human contact during normal operation is minimized.

Industry Canada certification

The radio module contained in the OPTIFY Breather is licensed to meet the regulatory requirements of Industry Canada (IC), license: **IC: 23729-ILBREA**.

IC notice

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science, and Economic Development Canada's licence-exempt RSS(s).

Operation is subject to the following two conditions:

1. This device may not cause interference
2. This device must accept any interference, including interference that may cause undesired operation of the device

Avis IC

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (ou aux RSS) exemptés de licence d'Innovation, Sciences et Développement économique Canada.

Le fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas causer d'interférences
2. Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil

LIMITED WARRANTY

All Dodge Industrial, Inc. products are warranted against defects in Dodge Industrial, Inc.'s workmanship and materials.

Dodge Industrial, Inc. standard products are warranted for 12 months from the date of manufacture. Some Dodge Industrial, Inc. products may be warranted for a longer period of time, and the warranty period for those products will be set forth in a separate Limited Warranty and Service Policy, as applicable.

Dodge Industrial, Inc. warrants this product for 12 months from its first fit, inclusive of the communication hardware, with the consumable desiccant cartridges being 180 days. We accept no liability for any damages and malfunctions which are caused by inappropriate usage and inappropriate operations on or with the breather.

For more details, please refer to the warranty provisions in Dodge Industrial, Inc.'s terms and conditions at **dodgeindustrial.com**.

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