BreatheSafe

Parts and Service Manual

BELL

B30E / B45E / B50E DUMP TRUCK

HEPA H14 Variable Speed Pressuriser | INPRESS TS Cabin Display with CO2 Sensor | HEPA Return Air Filter

📞 +61 7 3276 7833

🌐 www.breathe-safe.com.au

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📍 62 Mica Street, Carole Park, 4300, QLD

BELL
B30E / B45E / B50E Dump Truck

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CONTENTS

INSTALLATION OVERVIEW

Manufacturer	BELL
Type	Dump Truck
Model	B30E / B45E / B50E
Cabin Pressure Max	
Set Auto Cabin Pressure	

HEPA H14 Variable Speed Pressuriser

INPRESS TS Cabin Display with Data Recorder

HEPA Return Air Filter

WARNING

THE PRESSURISATION SYSTEM DESCRIBED IN THIS MANUAL HAS THE FOLLOWING AREAS WHICH MAY BE DANGEROUS IF NOT TREATED WITH GREAT CARE.

QUALIFIED STAFF MUST WEAR THE CORRECT PERSONAL PROTECTIVE EQUIPMENT WHEN CLEANING AND SERVICING THIS UNIT DUE TO DUST AND FIBRES WHICH MAY BE CAUGHT BY THE STAGES OF AIR FILTRATION DURING NORMAL UNIT OPERATION.

THE ELECTRICAL POWER SYSTEM IS SUPPLIED BY 12V DC OR 24V DC AND NO WORK SHOULD BE CARRIED OUT ON THE PRESSURISER SYSTEM WITHOUT THE CORRECT SAFE WORK PROCEDURES AND ELECTRICAL SAFETY MEASURES BEING TAKEN, AND ALL RELEVANT CIRCUIT BREAKER OPENED TO ISOLATE THE CIRCUIT.

THE AIR FILTRATION SYSTEM MAY HAVE SEVERAL TYPES OF HIGH-SPEED ROTATING EQUIPMENT INSTALLED WITH VERY SHARP EDGES. ENSURE ALL SAFETY GUARD ARE IN PLACE WHILE THE SYSTEM IS RUNNING.

Please be aware that HEPA filters cannot be cleaned and must be replaced at the end of their lifecycle or if filter media has been damaged.

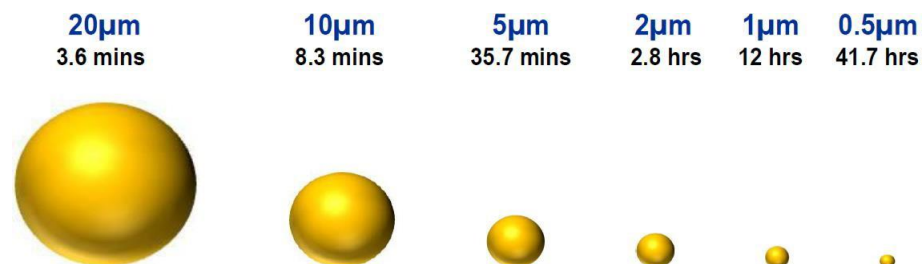Hard Hat — Eye Protection — Dust Mask — Ear Protection — Protective Clothing

Particulate Behaviour

This is the length of time it takes for a particle to drop from a height of 1.5m in **STILL** air.

20µm	10µm	5µm	2µm	1µm	0.5µm
3.6 mins	8.3 mins	35.7 mins	2.8 hrs	12 hrs	41.7 hrs

Warehouses and workshops do not have still air, so hazardous airborne particulates may remain in air for longer, increasing chance for workers to breathe in dust. Ensure PPE is worn when installing this system.

Maintenance Schedule

The following tables show our suggested maintenance schedule for all units. Please note that site conditions may alter this. Excludes high corrosion environments.

Data download is required to claim the 3-year warranty on Brushless Blower Motor.

Inspect every 500 Hours and replace when filter is full*

| Component / System	Action Required
Turbo Pre-cleaner	Check operation of the Turbo Pre-Cleaner.
Pressuriser Blower	Ensure blower is operational.
HEPA Primary Filter p/n: **500000**	Inspect filter capacity indicator. Replace HEPA filter when 80% or greater. Vacuum out housing before replacing the filter elements.
HEPA Return Air Filter P/N: **500050**	Vacuum inside cabin floor before replacing filter.
Filter Frame Assembly, Mounts, Seals and Filter Housing	Check door seals, all bolts, screws, and all mounts are secure. Check the filter canister & ensure it is correctly fitted. Check latches are operational and in good order. Replace / Re-tension fixtures and fittings required.

15,000 Hours / 36 months*

Component / System	Action Required
500 Hour Inspection	All 500-hour inspection actions.
Pressuriser's Blower **200002**	Replace BRUSHLESS Pressuriser blower.

Critical Parts				
Item	Part Number	Qty.	Description	Service Interval
1	500000	1	Fresh Air HEPA H14 Filter (Tested as per EN1822)	1000* Hours (>80% fan capacity)
2	500050	1	HEPA Return Air Filter	500* Hours
3	200002	1	Brushless Blower Motor – 24V	15,000 Hours
4	200027	1	BreatheSafe Digital Display – Data Recorder (INPRESS TS)	

*Filter service hours are subject to cab sealing efficiency, site conditions and correct system use.

Suggested Schedule Servicing*
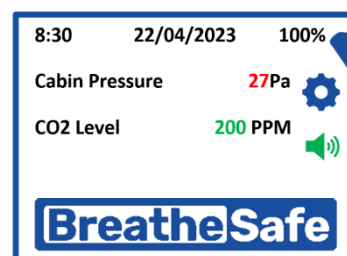
Fan Capacity Indicator

The filter is serviceable if the motor capacity is between 10% & 80%. We recommend that the filter is changed if the capacity is over 80%.

*Site dependent

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| OPERATORS CHECKLIST	
PRE-START	
1.	Visually inspect the BreatheSafe system for any damage.
2.	Visually inspect the cabin for any damage to doors, windows, seals.
3.	Please remove dust & debris from shoes and clothes before entering the cabin.
4.	Ensure door(s) and windows are closed correctly.
5.	Start engine and turn HVAC on to speed 2 (medium speed).
6.	After fixed speed delay, the BreatheSafe display will show 50 Pascals or pre-set value.

The system is working correctly when the pascal value is green.
>> There is no further action required <<

NORMAL OPERATING CONDITION

Cab Air Conditioning

BreatheSafe recommends OEM air conditioning fan is set at mid speed or greater to circulate air around the breathing zone and minimise CO_2.

Acceptable operating range for BreatheSafe fan 10-80%. >80% recommend maintenance.
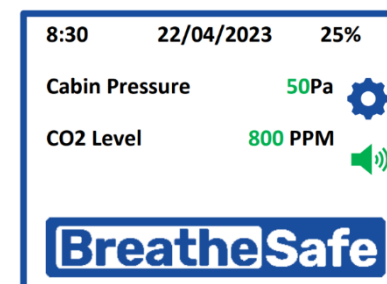
ALERTS

Fixed Fan Start Delay
- Allows the operator to carry out pre-start checks – limiting at 30% fan speed, press the red text to disable.

CO_2 Level Alert (if equipped)
- Ensure air conditioning fan is set at mid speed or greater to circulate air and minimise CO_2.

Low Pressure Alarm
- Cabin is not maintaining positive pressure – check doors and windows are closed correctly.
- Refer to maintenance department to check filters and cabin sealing. Ensure filters are serviceable.

Check Filter
- Reminder to inspect or replace filter. Service hour meter requires re-set.
- Refer to maintenance department.

Specifications High-Capacity HEPA Pressuriser

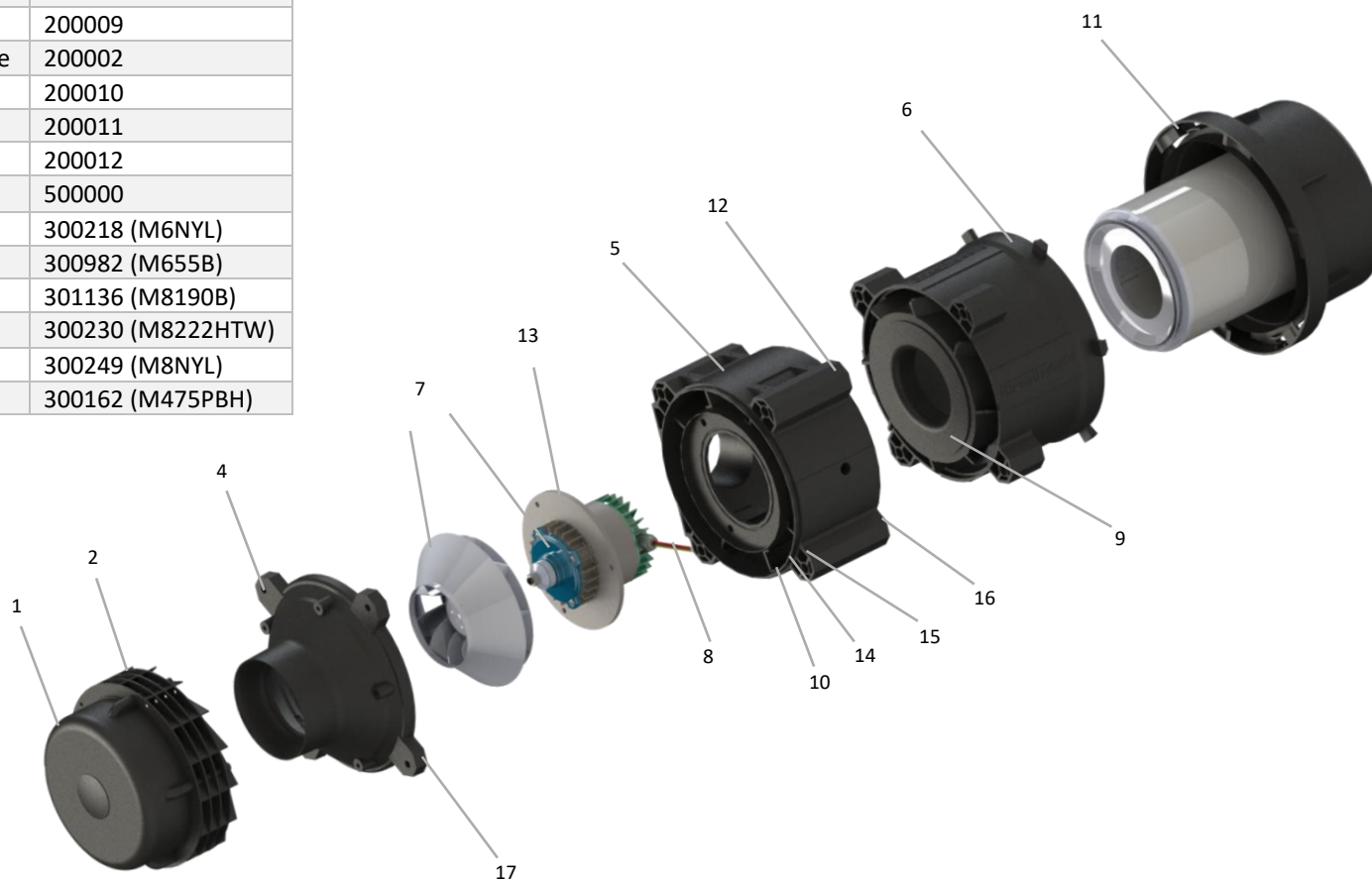|	
Blower	: Brushless Blower P/N 200002.
Protection	: Locked Rotor Protection (Sub Zero Environments) Under Voltage, Under/Over Current & Over Temperature.
Voltage	: 24VDC.
Current Draw	: 11 amps (peak). *Note: Motor has slow start to stop excessive in-rush current.
Air Flow	: Up to 30-300 m³/h or 50-215 CFM.
Pre-cleaner	: Integrated VLR (Very Low Restriction). Turbo Pre-Cleaner.
Filter Element	: BreatheSafe HEPA Primary Filter (H14=99.99% MPPS) TESTED AS PER EN1822 – P/N 500000.
Plugs & Fittings	: Mining Spec. Deutsch electrical plugs as standard.
Construction	: High strength composite construction.
Serviceability	: Easy access HEPA filter with twist-lock (TL) dust cap single assembly.
Mounting	: Heavy Duty adjustable mounting brackets.
Design	: Fully designed in SolidWorks 3D CAD & Ansys Engineering Simulation Software.
FEA Testing	: Critical components FEA (Finite Element Analyst) tested in Solid Works Simulation.
CFD Testing	: CFD (Computational Fluid Dynamics) simulations in Flow Works to ensure optimum air flow through the system.

SPECIFICATIONS HIGH-CAPACITY HEPA PRESSURISER

List of Abbreviations	
DH	Dual HEPA
DHPR	Dual HEPA Powered Recirculation
DHAC	Dual HEPA Activated Carbon
DHACPR	Dual HEPA Activated Carbon Powered Recirculation
CPM	Cabin Pressure Monitor
CPU	Central Processing Unit
DB	Decibel Sensor
DPM	Diesel Particulate Matter
GAS	Gas Sensor
HEPA	High-Efficiency Particulate Air Filter
HPAFU	High Pressure Air Filtration Unit
HRAF	HEPA Return Air Filter
HVAC	Heating Ventilation and Air Conditioning
MAF	Mass Air Flow
OEM	Original Equipment Manufacturer
PM	Particulate Mass
RH	Relative Humidity
TEMP	Temperature
TS	Touch screen
UI	User Interface
VMS	Vehicle Monitoring System
VS	Vibration Sensor
OGSP	OnGuard Sensor Pod
CO2s	CO2 Sensor INPRESS TS

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PRESSURISER ASSEMBLY No: 200000

Item No.	Qty.	Description	Part No.
1	1	Pre-cleaner Hood & Rotor Assy	200004
2	4	Pre-cleaner Injector Ring	200005
3	1	TL Fan Blade (inc. in #7)	200006
4	1	TL Nose Cone / Pre-cleaner	200007
5	1	TL Motor Housing	200008
6	1	TL Filter Housing	200009
7	1	24v DC Brushless VSD Motor & TL Fan Blade	200002
8	1	O Ring Seal Kit 2 Parts	200010
9	1	Included in 8	200011
10	1	Wiring Sleeve	200012
11	1	HEPA H14 Filter	500000
12	3	M6 Nyloc Nut	300218 (M6NYL)
13	3	M6 x 55mm Hex Bolt	300982 (M655B)
14	4	M8 x 190 Hex Bolt	301136 (M8190B)
15	8	M8 x 22mm O/D HD Washer	300230 (M8222HTW)
16	4	M8 Nyloc Nut	300249 (M8NYL)
17	5	M4 x 75mm Pan Head Phillips Screw	300162 (M475PBH)

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PART NO. TLF700ENI
SERIAL NO. AB0186
TEST DATE: 2022/04/26

BreatheSafe
Air Purification

HEPA H14 GLASS FIBER FILTER
TESTED METHOD EN1822
EFFICIENCY 99.995% @0.3 MICRONS

Support: 1300 667 597
sales@breathe-safe.com

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Item No.	Part No.	Rev	Description	Qty	Colour	Category
1	14501	4	TL Mount Assy	1	Berry Gray PEF 73-370	-
2	14502	1	Tube Assy	1	Berry Gray PEF 73-370	-
3	14503	1	Fresh Air Inlet Assy	1	Berry Gray PEF 73-370	-
4	14511	2	R.A.F. Assy	1	Satin Black MX88-124	-
5	14546	1	Monitor Mount Module	1	Berry Gray PEF 73-370	-

PARTS LIST GA

COMPLETE ASSEMBLY No: 700472

Kit Part Number: 700472
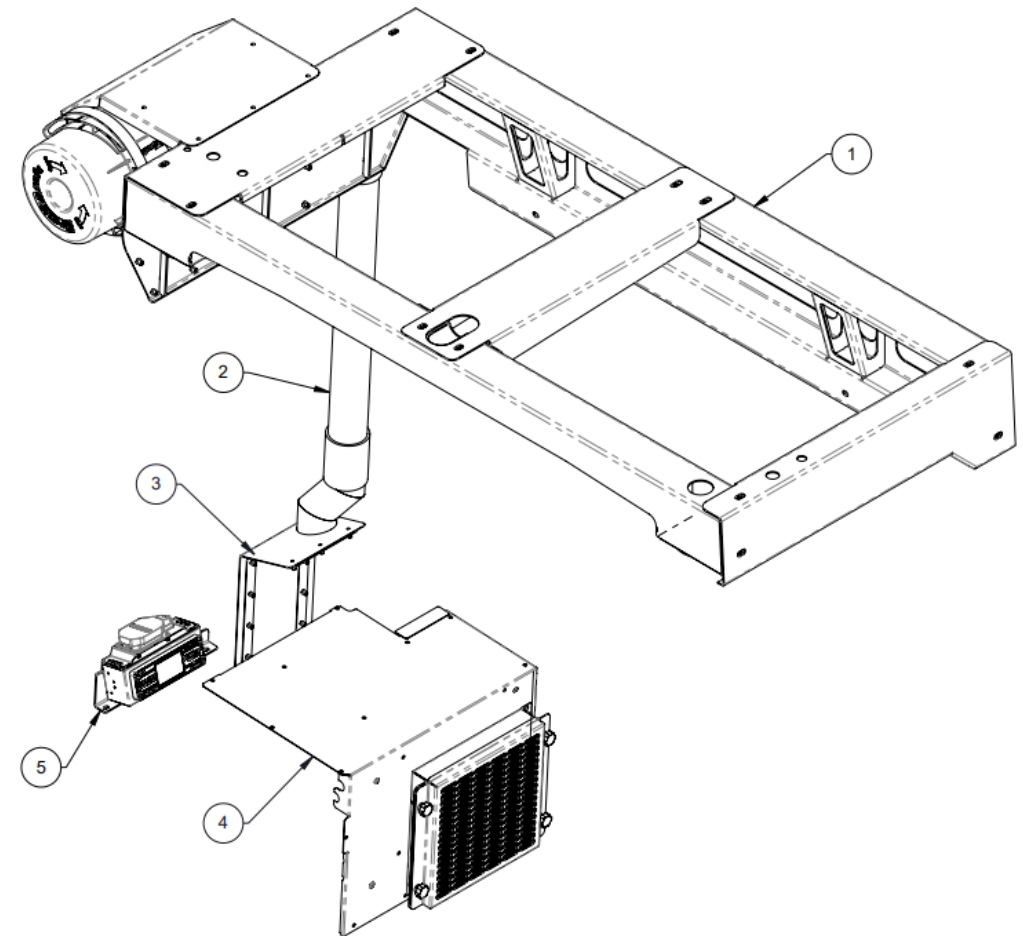
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Item No.	Part No.	Rev	Description	Qty	Material	Thickness	Colour	Category
1	14506	0	TL Cover Brkt 1 Assy	1	-	-	Berry Grey Gloss 2727262G	Weld Assy
2	14508	0	TL Brkt Assy	1	-	-	Berry Grey Gloss 2727262G	Weld Assy
3	14509	3	TL Mount Plate Assy	1	-	-	Berry Grey Gloss 2727262G	Weld Assy
4	14510	1	Rear Mount Assy	1	-	-	Berry Grey Gloss 2727262G	Weld Assy
5	14515	2	Mid Mounting Rail Ass.	1	-	-	Berry Grey Gloss 2727262G	Weld Assy
6	14521	1	Cross Member	1	Mild Steel	3	Berry Grey Gloss 2727262G	Part
7	14522	1	TL Mount Plate	1	Mild Steel	3	Berry Grey Gloss 2727262G	Part
8	14534	1	TL Cover	1	Zan	2	Berry Grey Gloss 2727262G	Part
9	14542	0	Spacer	2	Mild Steel	6	Berry Grey Gloss 2727262G	Part
10	14543	0	Washer	2	Mild Steel	6	Berry Grey Gloss 2727262G	Part
11	200000	[*]	HPAFU 24VDC VSD TL4	1	N/A	-	-	Stock Item
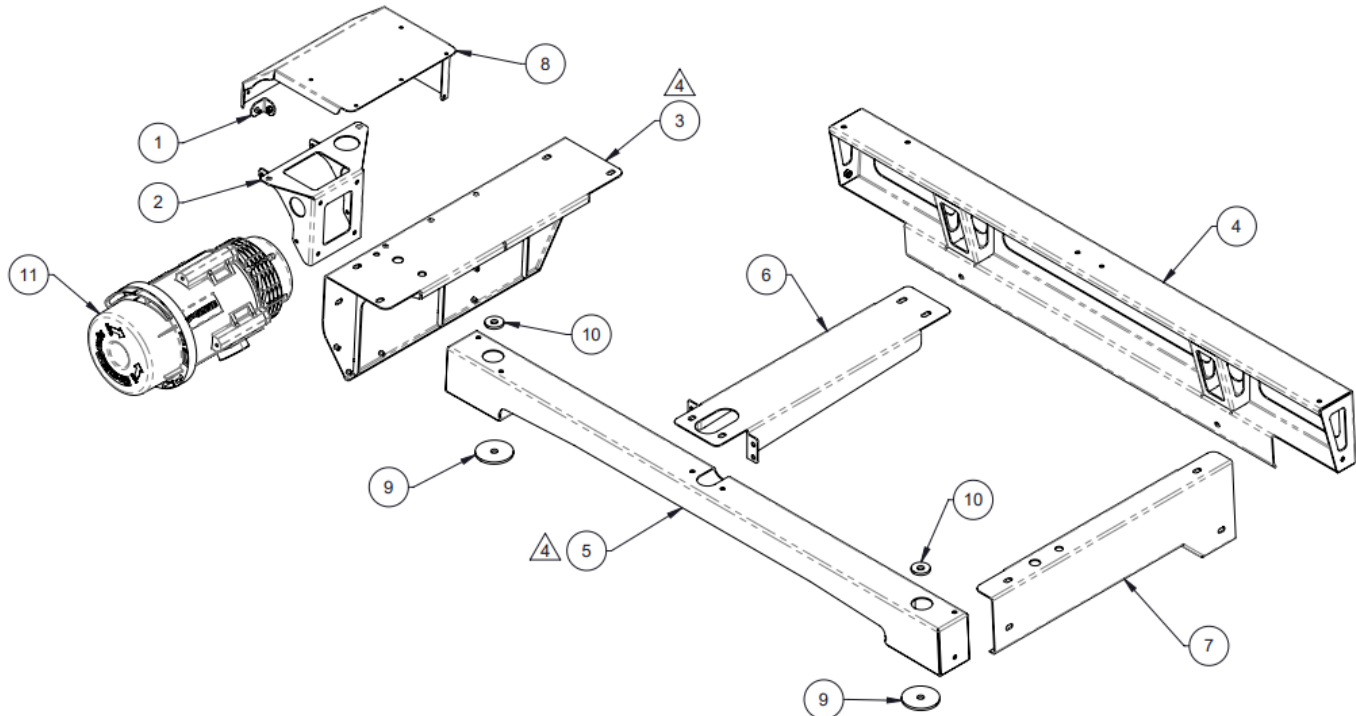
Item No.	Part No.	Rev	Description	Qty	Material	Thickness	Colour	Category
1	300388-0270	-	76 SS Tube @270L	1	Stainless Steel	1.6	(As Req'd)	Pipework
2	300388-0680	-	76 SS Tube @680L	1	Stainless Steel	1.6	(As Req'd)	Pipework
3	200308	-	Ø76.2x90SD Elb	2	Silicone	-	-	Pipework
4	300480	-	Stauff Shell GR7 76.1 Black	2	-	-	-	Pipework
5	300481	-	Stauff GR7 Cover Plate	1	Zinc Plated	5	(As Req'd)	Pipework
6	300850	-	76 ID Silicone Hose @110L	1	Silicone	-	-	Pipework

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BreatheSafe
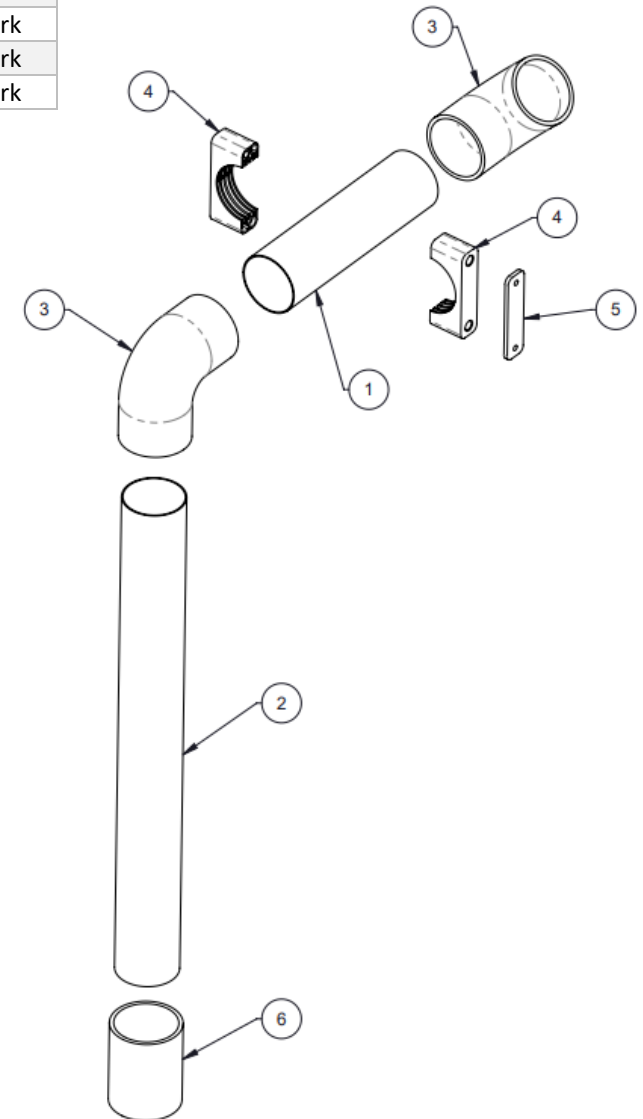
Item No.	Part No.	Rev	Description	Qty	Material	Thickness	Colour	Category
1	14504	1	FA Inlet Cover	1	-	-	Berry Grey Gloss 2727262G	Weld Assy
2	14547	0	Clamp 1 Assy	2	-	-	Berry Grey Gloss 2727262G	Assembly
3	14549	0	Clamp 2 Assy	2	-	-	Berry Grey Gloss 2727262G	Assembly

PARTS LIST – FRESH AIR MODULE

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Item No.	Part No.	Rev	Description	Qty	Material	Thickness	Colour	Category
1	14512	2	Clamp	1	-	-	Black Satin 27219268	Part
2	14513	1	R.A.F. Side Cover	1	-	-	Black Satin 27219268	Part
3	14514	0	R.A.F. Main Panel	1	-	-	Black Satin 27219268	Assembly
4	13621	3	R.A.F. Frame Assy	1	-	-	Black Satin 27219268	R.A.F. Frame
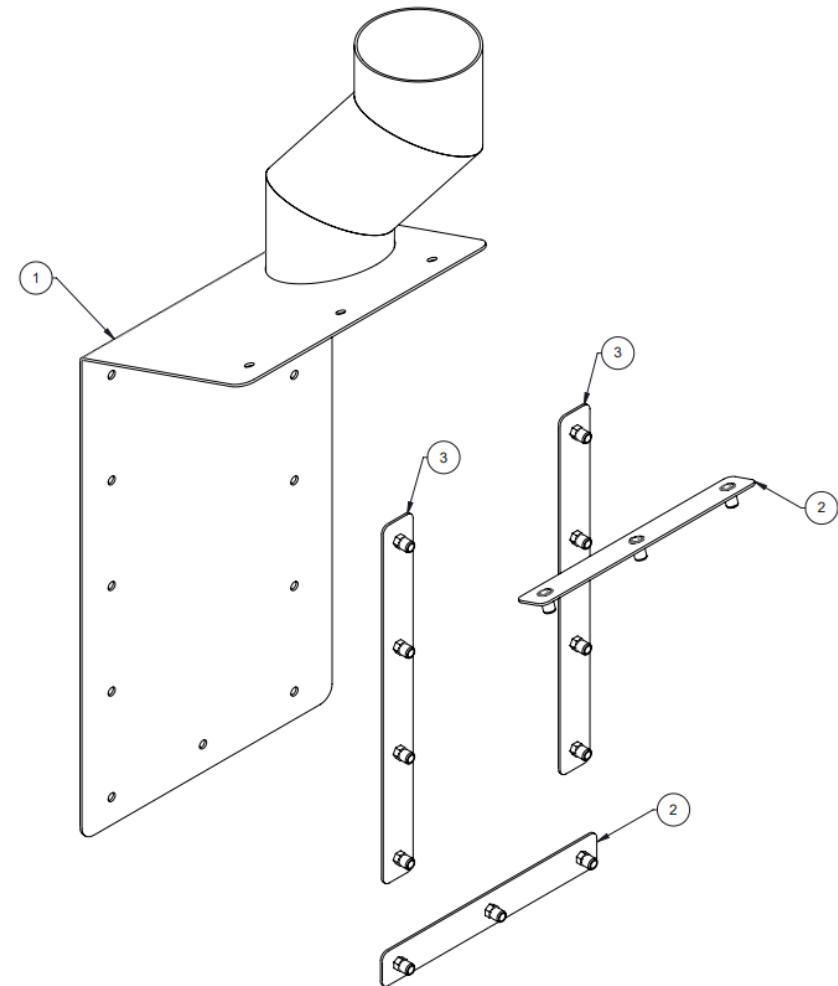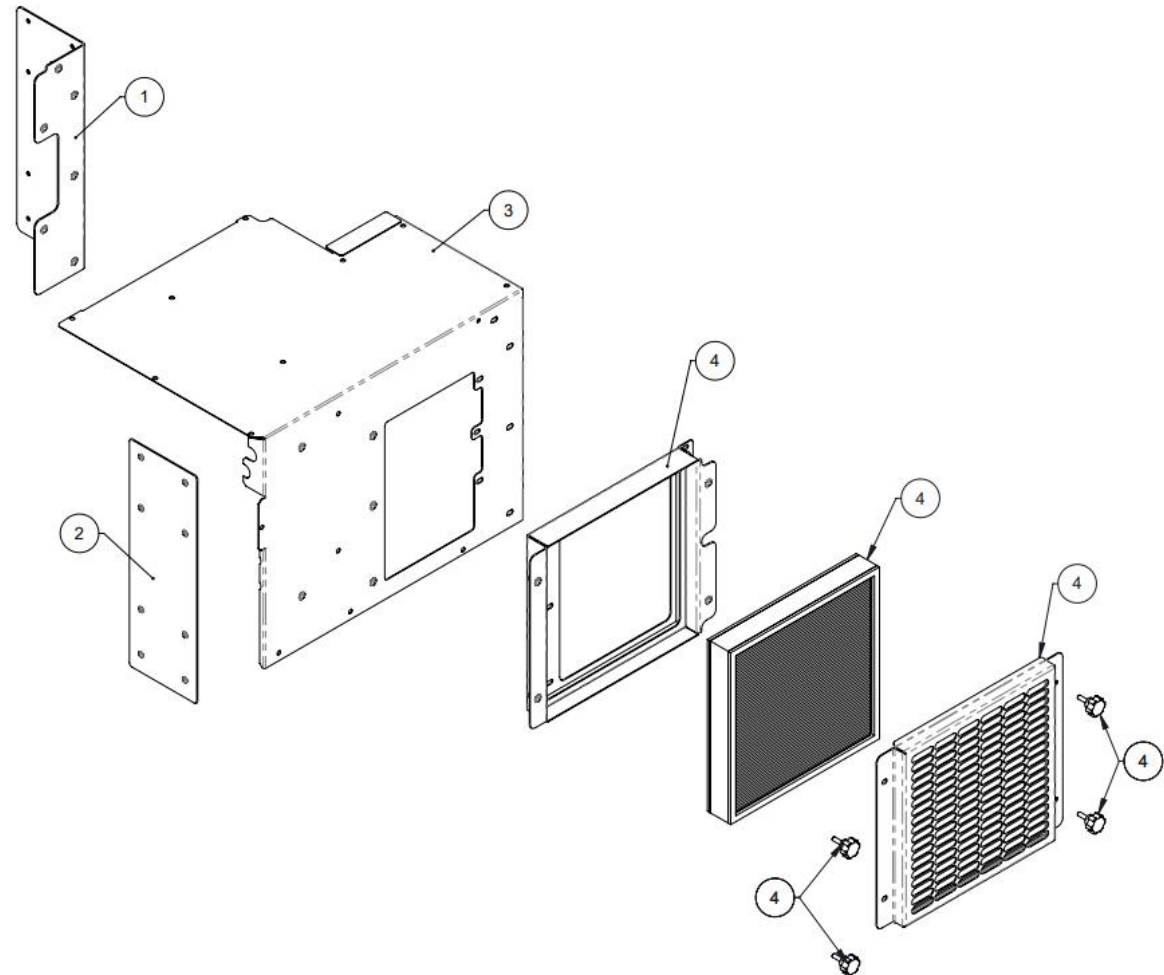
PARTS LIST – RETURN AIR MODULE

BreatheSafe

Item No.	Part No.	Rev	Description	Qty	Material	Thickness	Colour	Category
1	13622	4	Filter Base Weldment	1	-	-	Black Satin 27219268	Weld Assy
2	13627	1	Filter Grill Pressing	1	Zan	1.6	Black Satin 27219268	R.A.F Frame
3	500050	-	HEPA Filter	1	-	-	-	HEPA Filter
4	300814	-	M6x20 Scallop Knob Male	4	-	-	-	Hardware
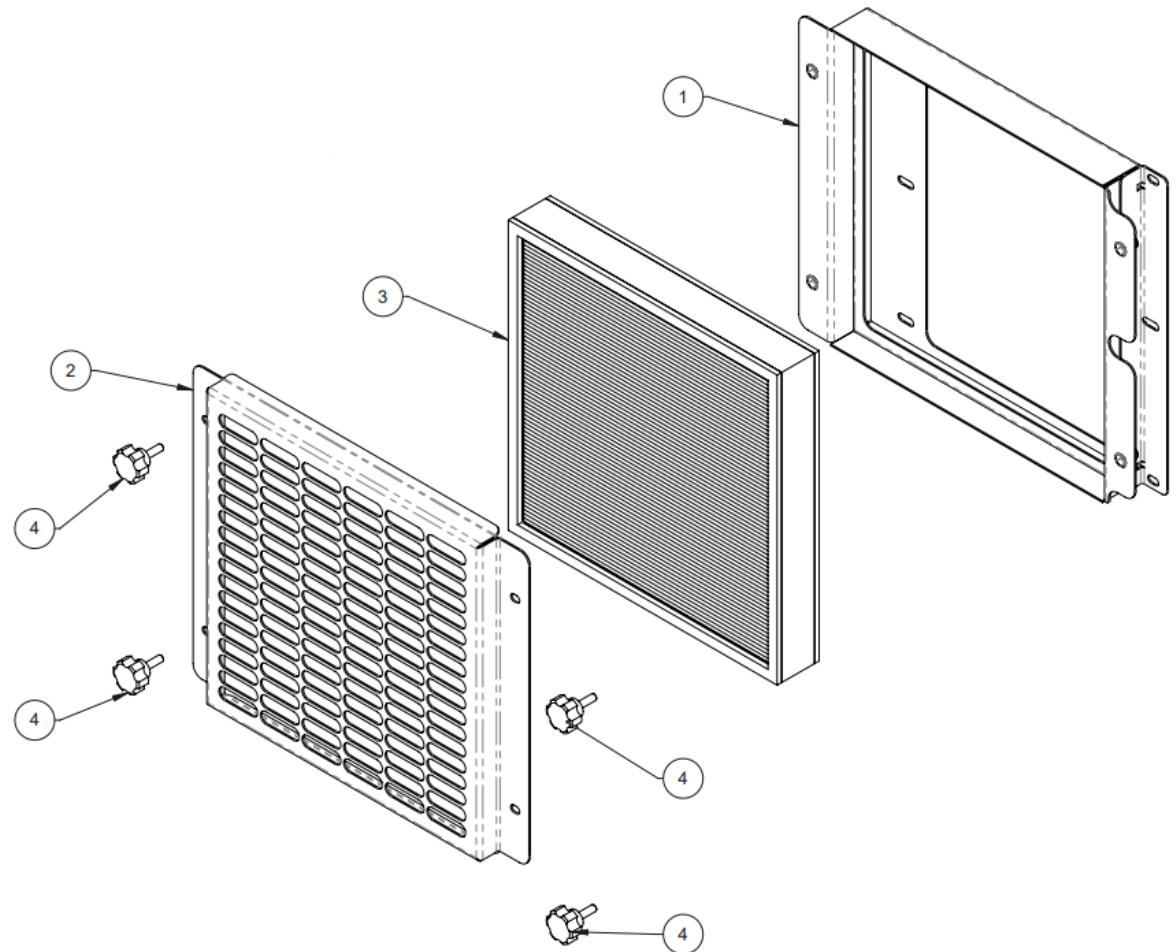
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Item No.	Part No.	Rev	Description	Qty	Material	Thickness	Colour	Category
1	250100	[*]	Monitor Box Small	1	Zan	-	(As Req'd)	Stock Item
2	250106	[*]	CO2 Brkt Universal	1	-	-	(As Req'd)	Stock Item
3	17112	0	Monitor Mount Brkt	1	-	-	Berry Grey Gloss 2727262G	Weld Assy

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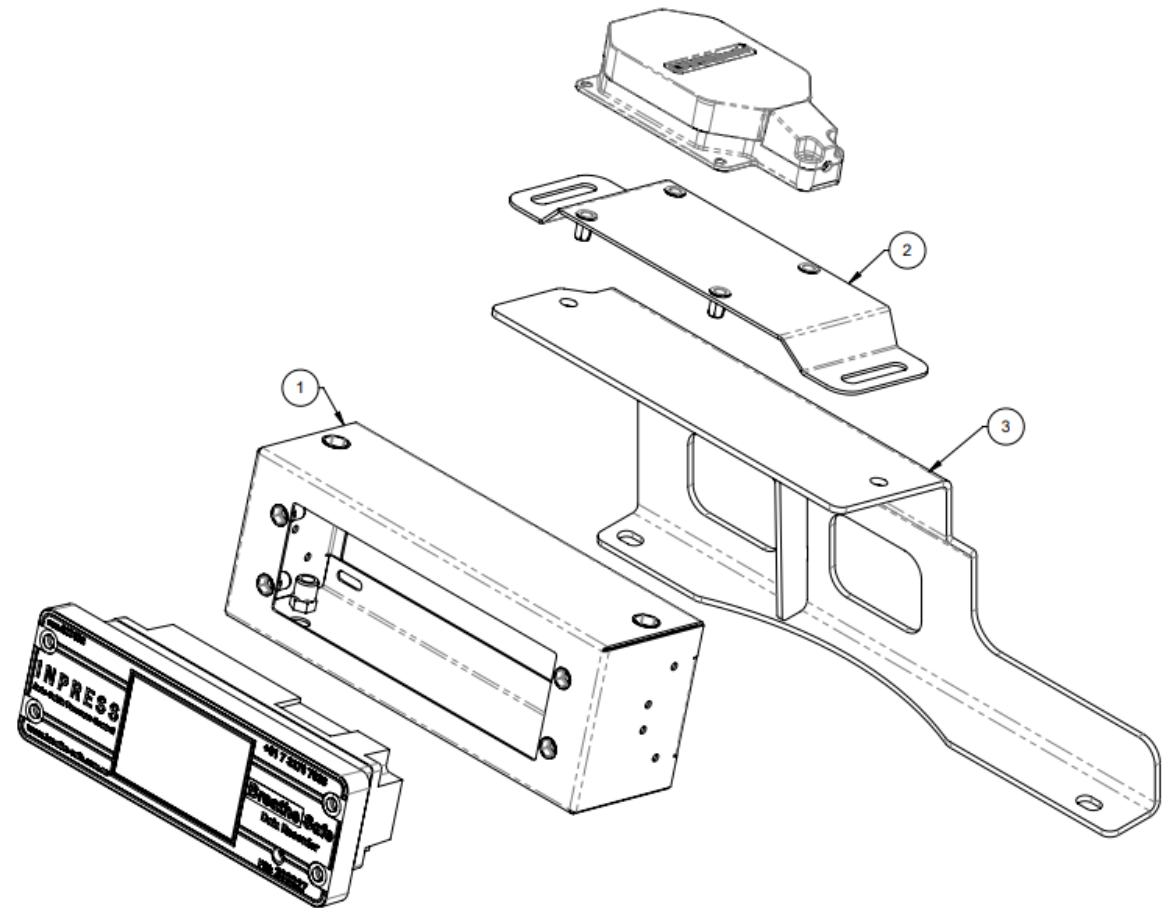
TECHNICAL DETAILS

Display Key Features

- Digital cabin pressure monitoring system
- Automatic cabin pressure control
- Intelligent fan speed output
- Data logger
- Alarm for low-pressure (RS20)
- Light sensor for automatic dimming of the screen
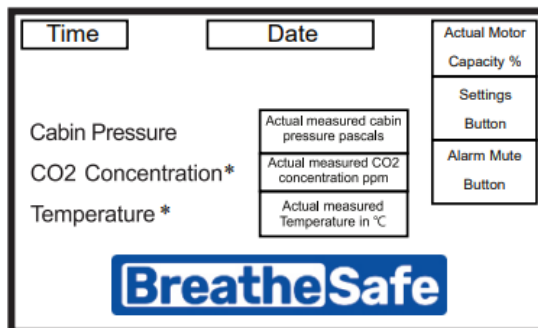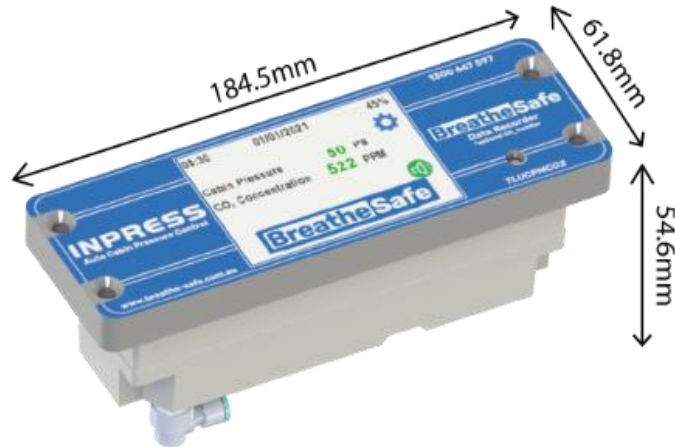
CO2 Sensor

- CO2 Sensor Type is NDIR (Non-Dispersive Infrared)
- Sample Rate is every 2 seconds
- 12-30V DC Operating Voltage
- Automatic Altitude Compensation
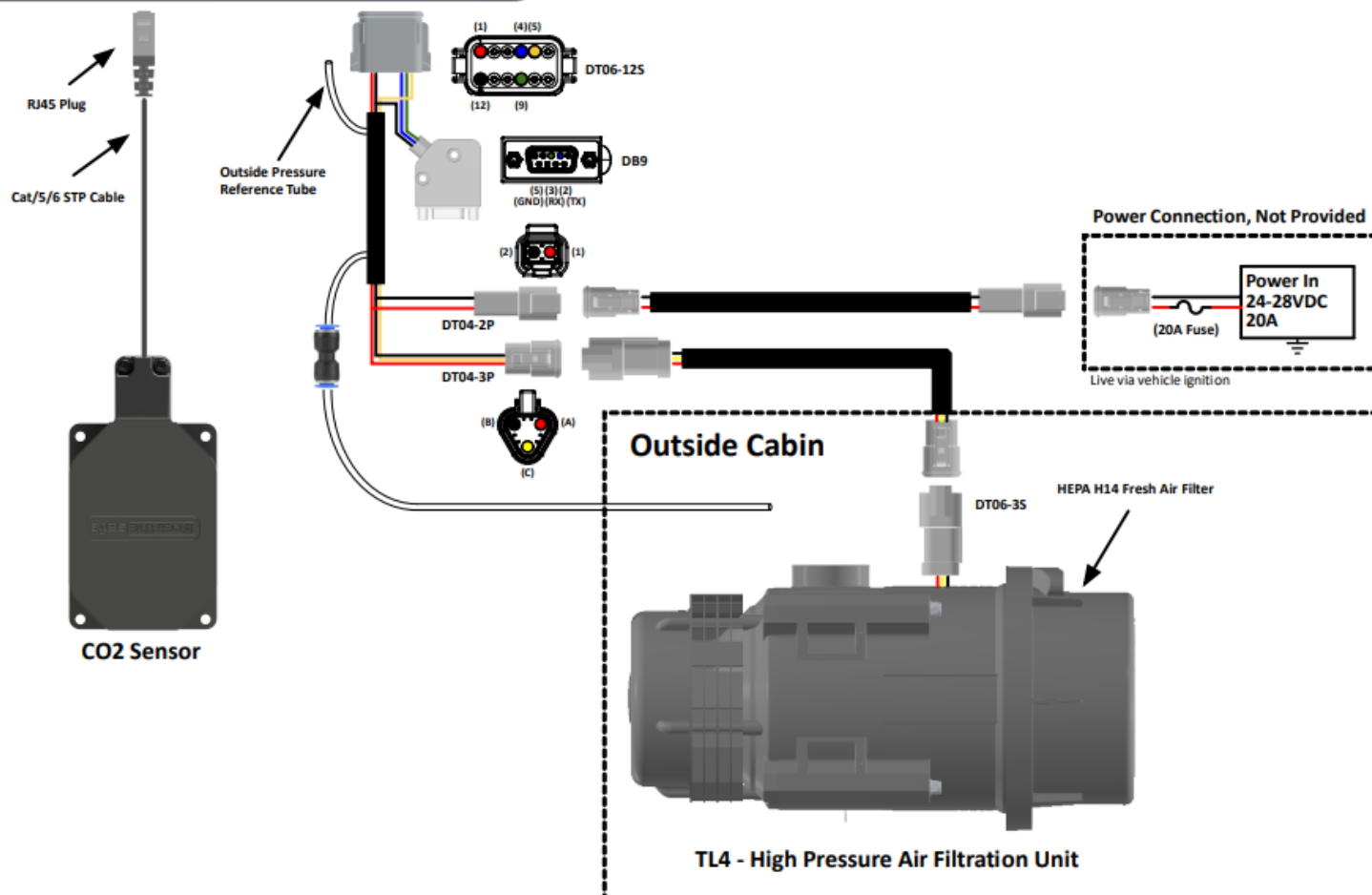- Alarm Set points are adjustable
- No setup required

MAIN SCREEN
Options* when fitted

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Wiring Diagram – InPress Controller

INPRESS TS

Item No.	Part No.	Description	Qty
1	200027	InPress User Interface	1
2	200031	CO_2 Sensor	1
3	200000	TL4 High Pressure Air Filtration Unit	1
4	500000	HEPA H14 Fresh Air Filter	1

Cabin Pressure Monitor with Auto Pressure Control

inPress
By BreatheSafe

Inside Pressure Reference Tube

RJ45 Plug

Cat/5/6 STP Cable

Outside Pressure Reference Tube

(1) (4)(5)
(12) (9)
DT06-12S

(5) (3) (2)
(GND) (RX) (TX)
DB9

(2) (1)

DT04-2P

DT04-3P

(B) (A)
(C)

Power Connection, Not Provided

Power In
24-28VDC
20A

(20A Fuse)

Live via vehicle ignition

CO2 Sensor

Outside Cabin

DT06-3S

HEPA H14 Fresh Air Filter

TL4 - High Pressure Air Filtration Unit

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Hand-Held Differential Pressure Monitor (HHDPM) Leakage Test

Test enclosure for air leakage using the HHDPM.

Cabin Pressure: Sensor outside the cabin

The cabin pressure test can also be carried out with the service technician outside the cabin.
*Not recommended due to the possibility of HVAC airflow affecting the reading.

1. With the door open, turn on the HHDPM and observe the pressure reading. Confirm it is reading zero.
2. Connect the pressure reference tube to 'Positive' (top port) place the other end of the tube on the operator seat, away from HVAC vents and any other direct airflow.
3. Turn on the machine's HVAC and pressurisation system (if present). Ensure HVAC is set to fresh air and not recirculation.
4. Close the door, make sure the tube isn't kinked.
5. Observe the pressure reading and allow it to stabilise. The handheld differential pressure monitor & cabin pressure monitor should read within 5 Pa of each other.
6. Feel around the enclosure for any pressure leaks. Seal enclosure where leaks are present and monitor pressure changes.

Part Number: 200142

1. Positive Pressure Port
2. Ambient Pressure Port
3. Charging LED
4. Charging Port
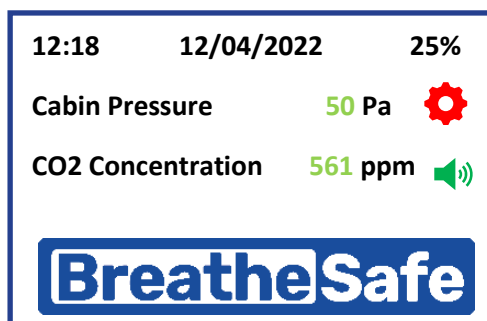5. Re-Zero Button
6. Power Button
7. Display

Typical Seal Locations:
- Lower pillar openings
- Upper pillar openings where necessary
- Cabin frame
- Floor plates either internal or external – foam tape etc.
- Door seals
- Window seals
- Exterior access panels
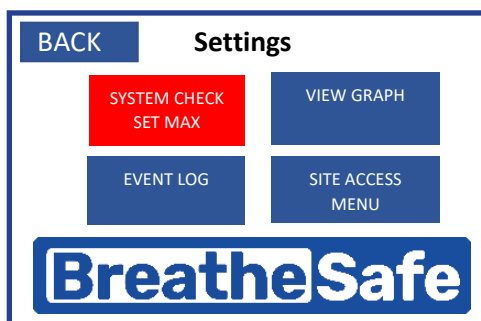- Hydraulic hose entrance points

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Cabin Sealing Efficiency Test Procedure

1	Start Engine – Pressuriser System is ON
2	Ensure all windows & door(s) are CLOSED correctly (no cabin pressure leaks) NOTE: for a new cabin with effective seals, you may need to open a window slightly before closing the door to bleed the static cabin air pressure outwards. Once door is fully closed then close windows to begin testing.
3	Enter the Settings menu via the touch screen button.
4	Select and press the System Check button to go to System Test – Max Fan.
5	Record / photograph the maximum cabin pressure achieved.

12:18　　12/04/2022　　25%
Cabin Pressure　　　　**50 Pa** ⚙️
CO2 Concentration　　**561 ppm** 🔊
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Press Settings.

BACK　　　**Settings**
SYSTEM CHECK SET MAX　　　VIEW GRAPH
EVENT LOG　　　SITE ACCESS MENU
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Press "System Check – Set Max" box.

12:18　　12/04/2022　　100%
System Test – Max Fan
Cabin Pressure ⚙️
425 Pascals 🔊
BreatheSafe

Record / Photograph the cabin pressure result (Max Fan Speed).

Commissioning Procedures

Follow each step of the installation guide that was supplied with the BreatheSafe kit.

Cabin sealing is an integral part of RS20 & ISO 23875; you must ensure that cabin seals are adequate for maintaining positive pressure. In addition, the site (end- user) must have the correct procedure(s) for servicing OPERATOR enclosure seals in a proactive manner rather than reactive. Items such as door and window seals must be in good working order or new seals FITTED before the BreatheSafe system installation.

Touch-screen cabin pressure display/controller Part# 200027:

*System Check Function: enter the Settings menu option and select "System Check – Set Max." The minimum BreatheSafe requirement for cabin sealing efficiency is 250 pascals; if this result is not met, it is essential to re-examine and find pressure leaks of the enclosure and apply new sealing measures.

Submission for commissioning procedure as per the diagram below:

Proceed to online commissioning:

Commissioning - BreatheSafe (breathe-safe.com.au)
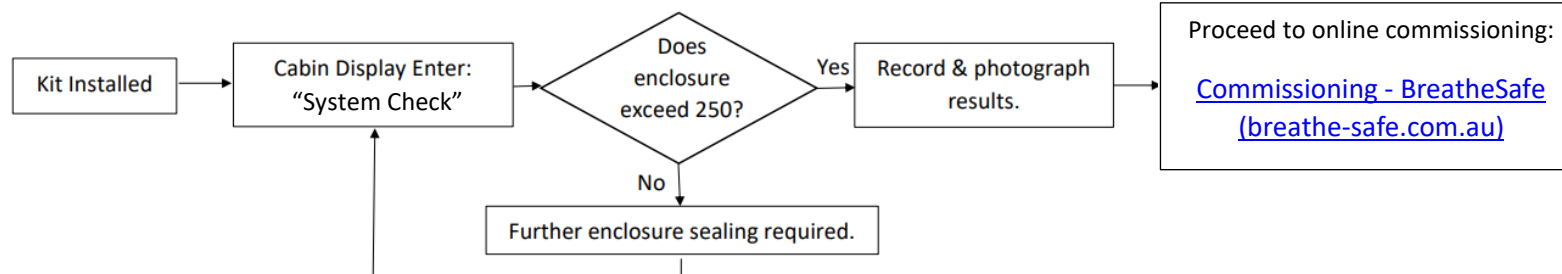
The commissioning images required are:

- • **ID plate / Machine Serial Number / Asset Number or Call Sign**
- • INPRESS TL Pressuriser location
- • HEPA Return Air Filter Location Option: Powered Return Air Filter
- • Cabin Pressure Display Location – Including the "System Check" maximum cabin pressure result with motor output capacity %

Fill in the BreatheSafe Service Tag with the following details:

- • **Machine Serial Number and Installers details**
- • Date installed and System Check result (max cabin pressure)
- • The set cabin pressure with actual pressure and motor percentage output
- • Verify the 250-pascal threshold was achieved = pass OR not achieved = fail**

Please upload machine and installation details in conjunction with the required images. A Commissioning Certificate will be sent to the email address you nominate. **Extended warranty for (RS20 & ISO 23875) BreatheSafe Systems is only applicable to operator enclosures meeting this requirement.

BREATHESAFE SYSTEM TROUBLE SHOOTING GUIDE *TOUCH CONTROL		
FAULT	**POSSIBLE CAUSE**	**SOLUTION**
*ERR error code	Poor sensor connection	Remove & refit pod connection cable
	Corrupted coding	Contact support for default reset pin
*Check filter alarm	Service hour timeout	Access **Check Runtime** menu - reset hours via 7597 code
Temperature / CO2 error	Sensor not connected	Fit sensor or disable via site access CO2 & or temperature menu
Pressuriser running at full speed/noisy	Filter blocked	Service filter
	Door or window open	Ensure doors & windows securely shut
	Cabin sealing capacity not adequate	Perform pressure test procedure & seal leak points as required
	Sense pipe blocked	Ensure clear & not bent
	Internal sensor damaged	Replace controller
		**No need to change setpoint
Filter blocking quickly	Defective cabin sealing	Perform pressure test procedure & seal leak points as required
	Pre-cleaner failed	Check operation & replace if necessary
Display blank	Poor power supply	Check mains supply fuse & correct voltage
		Check voltage & 20AMP supply/connections at pin **1** @ monitor
		Check earth continuity at controller pin **12**
	Failed controller	Replace monitor
Controller showing 0.0 pressure	Fresh air filter blocked	Check filter condition & replace if required.
Low pressure alarm	Door or window open	Ensure doors & windows securely shut
	Cabin sealing capacity not adequate	Perform pressure test procedure & rectify cab sealing
	Pressuriser not operating	Ensure correct voltage 12v or 24v to pressuriser motor pin **A**
		Check 1.6V - 10V present at motor Pin **C**
		Check 20A Supply fuse
		Check earth continuity Pin **B**
	Pressure sense tube blocked	Unplug at monitor & ensure clear flow to external of cabin
		Ensure pressure tube fitted correct port **A**
		**No need to change setpoint
Pressuriser not working	Poor power supply	Check 20A mains fuse & correct voltage
		Ensure adequate wire size & no voltage drop
		Ensure correct voltage 12v or 24v to pressuriser motor pin **A**
		Check 1.6V - 10V present at motor Pin **C**
	Poor earth	Check earth continuity @ motor pin **B**
	Motor faulty	Replace TL4M
Access Codes:	**Site Access: 7597**	**Contact Support for Factory Setup Pin**

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User Settings Instructions

ENTER SET UP MODE

Start-Up Screen > Main Screen > Settings Button > Settings Screen > Site Access Button > Insert Pin > Site Menu

To enter the Setup mode, press the SETTING button.

Then enter SITE ACCESS MENU. Type in 4-number pin and press ENTER.

Insert Pin = 7597

BACK   **Enter Pin**

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

7597

SET UP PARAMETERS

Placing the BreatheSafe 200027 unit into Setup mode allows the adjustment of the following parameters:

- Time (hours/minutes/seconds)
- Date (day/month/year)
- Pressure alarm setpoint
- Preferred cabin pressure
- Alarm delay/ intervals of alarm
- Calibration and system settings
- Resetting of the data logging
- Service reminders interval gap
- Reset current runtime between services
- CO2 settings and alarms

BACK   **Settings**

SYSTEM CHECK	VIEW GRAPH
EVENT LOG	SITE ACCESS MENU

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BACK   **Settings Page 1**   **NEXT**

STARTUP OPTIONS	DOOR WINDOW SETTING	PRESSURE SETPOINT
CHECK RUNTIME	DATE / TIME	CO2 SETTING

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BACK   **Settings Page 2**

ALARM MUTE RESET	ZERO SENSOR	TEMP SETTING
BUZZER SETTINGS	LOG SETTINGS	FACTORY SETUP

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20

BELL
B30E / B45E / B50E Dump Truck

PRESSURE SETPOINT

The pressure setpoint changes the pressure that the cabin will be maintained. INPRESS TS maintains the pre-set pressure within the cabin compared to outside.

Enter Setup mode and select ADJUST SETPOINT button. Then, use the onscreen UP and DOWN buttons to change the corresponding fields.
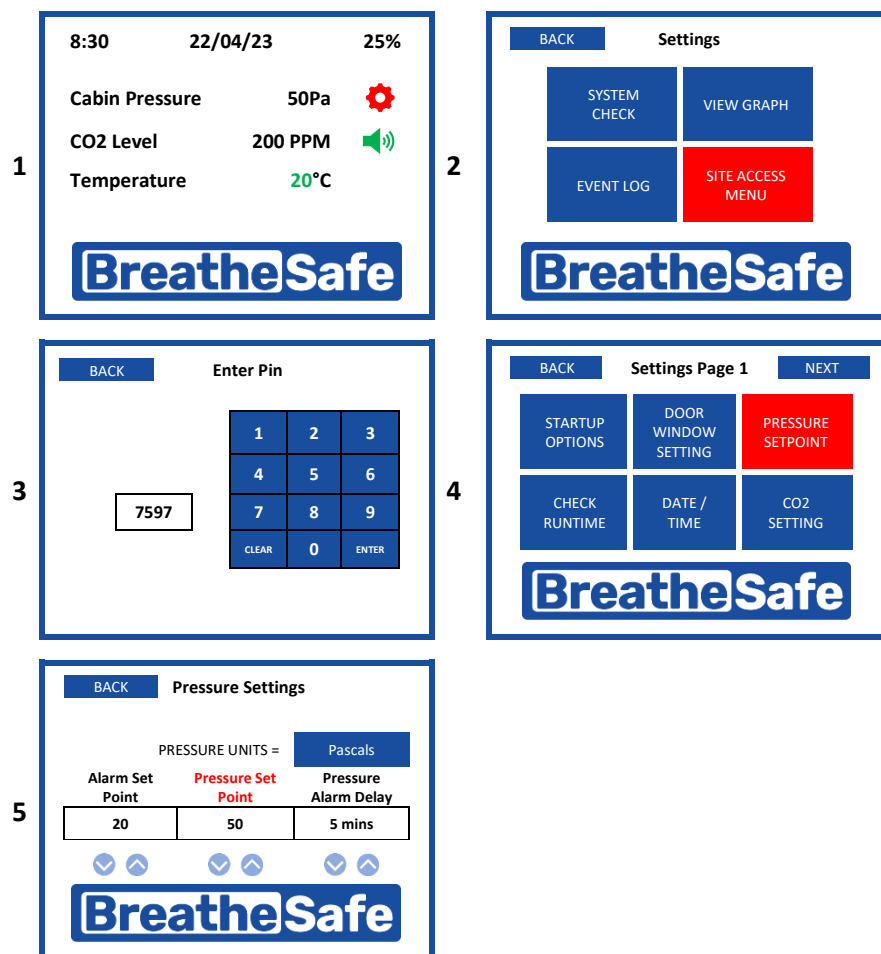
PRESSURE ALARM SETTING

The mining industry benchmark for cabin pressure is 50 pascals and low-pressure is set at 20 pascals.

After a delay the alarm will activate if cabin pressure remains below the pre-set value. Enter Setup mode and select ADJUST SETPOINT button. Then, use the onscreen UP and DOWN buttons to change the corresponding fields.

1

8:30	22/04/23	25%
Cabin Pressure	50Pa	
CO2 Level	200 PPM	
Temperature	20°C	

BreatheSafe

2

BACK — Settings

SYSTEM CHECK | VIEW GRAPH
EVENT LOG | SITE ACCESS MENU

BreatheSafe

3

BACK — Enter Pin

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK — Settings Page 1 — NEXT

STARTUP OPTIONS | DOOR WINDOW SETTING | PRESSURE SETPOINT
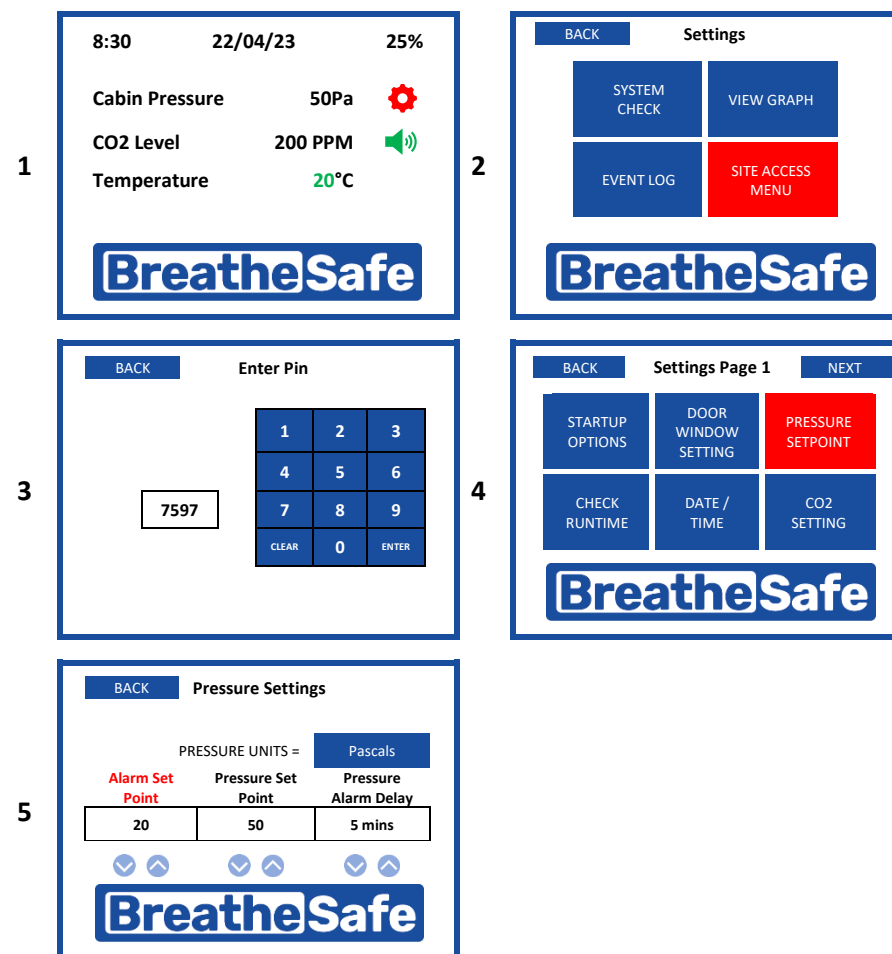CHECK RUNTIME | DATE / TIME | CO2 SETTING

BreatheSafe

5

BACK — Pressure Settings

PRESSURE UNITS = Pascals

Alarm Set Point	Pressure Set Point	Pressure Alarm Delay
20	50	5 mins

BreatheSafe

1

8:30	22/04/23	25%
Cabin Pressure	50Pa	
CO2 Level	200 PPM	
Temperature	20°C	

BreatheSafe

2

BACK — Settings

SYSTEM CHECK | VIEW GRAPH
EVENT LOG | SITE ACCESS MENU

BreatheSafe

3

BACK — Enter Pin

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK — Settings Page 1 — NEXT

STARTUP OPTIONS | DOOR WINDOW SETTING | PRESSURE SETPOINT
CHECK RUNTIME | DATE / TIME | CO2 SETTING

BreatheSafe

5

BACK — Pressure Settings

PRESSURE UNITS = Pascals

Alarm Set Point	Pressure Set Point	Pressure Alarm Delay
20	50	5 mins

BreatheSafe

USER SETTINGS INSTRUCTIONS

SERVICE INTERVAL

Use the onscreen UP and DOWN buttons to change the service interval setpoint.

To reset the current runtime to zero, press the RESET CURRENT RUNTIME button and enter the site access pin.

DATE & TIME SETTINGS

Change the recorded date displayed and measured by the INPRESS TS.

1

8:30	22/04/23	25%
Cabin Pressure		50Pa
CO2 Level		200 PPM
Temperature		20°C

BreatheSafe

2

BACK   Settings

SYSTEM CHECK | VIEW GRAPH
EVENT LOG | SITE ACCESS MENU

BreatheSafe

3

BACK   Enter Pin

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK   Settings Page 1   NEXT

STARTUP OPTIONS | DOOR WINDOW SETTING | PRESSURE SETPOINT
CHECK RUNTIME | DATE / TIME | CO2 SETTING

BreatheSafe

5

BACK   Pressure Settings

PRESSURE UNITS =   Pascals

CURRENT RUNTIME	SET SERVICE INTERVAL
700	1000

BreatheSafe

1

8:30	22/04/23	25%
Cabin Pressure		50Pa
CO2 Level		200 PPM
Temperature		20°C

BreatheSafe

2

BACK   Settings

SYSTEM CHECK | VIEW GRAPH
EVENT LOG | SITE ACCESS MENU

BreatheSafe

3

BACK   Enter Pin

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK   Settings Page 1   NEXT

STARTUP OPTIONS | DOOR WINDOW SETTING | PRESSURE SETPOINT
CHECK RUNTIME | DATE / TIME | CO2 SETTING

BreatheSafe

5

BACK   Date/Time Settings   NEXT

PRESSURE UNITS =   Pascals

HOUR	MIN	DAY	MON	YEAR
4 :	10	22 /	04 /	2023

PRESSURE ALARM BUZZER SETTING

To disable the buzzer, toggle through to the ENABLED and DISABLED buttons.

CALIBRATE ZERO SENSOR

Over long runtime, the 200027 may need recalibration. This screen allows the sensor to be recalibrated if more than 5 Pascals are out. To recalibrate, open windows and doors, turn off air conditioning, and any other device that may alter cabin pressure. Then, press the AUTO ZERO SENSOR button and leave the cabin while measuring. This process will reset the Zero Pressure.

ALARM BUZZER SETTINGS

1

8:30	22/04/23	25%
Cabin Pressure	50Pa ⚙
CO2 Level	200 PPM 🔊
Temperature	20°C

BreatheSafe

2 — Settings / BACK

- SYSTEM CHECK
- VIEW GRAPH
- EVENT LOG
- SITE ACCESS MENU

BreatheSafe

3 — Enter Pin / BACK

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4 — Settings Page 1 / BACK / NEXT

- STARTUP OPTIONS
- DOOR WINDOW SETTING
- PRESSURE SETPOINT
- CHECK RUNTIME
- DATE / TIME
- CO2 SETTING

BreatheSafe

5 — Settings Page 2 / BACK

- ALARM MUTE RESET
- ZERO SENSOR
- TEMP SETTING
- BUZZER SETTINGS
- LOG SETTINGS
- FACTORY SETUP

BreatheSafe

6 — Alarm Buzzer Settings / BACK

- ENABLED — PRESSURE BUZZER
- ENABLED — CO2 PRIMARY BUZZER
- DISABLED — TEMPERATURE BUZZER
- ENABLED — WINDOW BUZZER
- DISABLED — DOOR BUZZER

BreatheSafe

1

8:30	22/04/23	25%
Cabin Pressure	50Pa ⚙
CO2 Level	200 PPM 🔊
Temperature	20°C

BreatheSafe

2 — Settings / BACK

- SYSTEM CHECK
- VIEW GRAPH
- EVENT LOG
- SITE ACCESS MENU

BreatheSafe

3 — Enter Pin / BACK

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4 — Settings Page 1 / BACK / NEXT

- STARTUP OPTIONS
- DOOR WINDOW SETTING
- PRESSURE SETPOINT
- CHECK RUNTIME
- DATE / TIME
- CO2 SETTING

BreatheSafe

5 — Settings Page 2 / BACK

- ALARM MUTE RESET
- ZERO SENSOR
- TEMP SETTING
- BUZZER SETTINGS
- LOG SETTINGS
- FACTORY SETUP

BreatheSafe

6 — Zero Sensor Adjustment / BACK

- AUTO ZERO SENSOR
- Zero Pressure Adjust
- ⌃ ⌄
- ___ Pa

BreatheSafe

CO2 MODULE ENABLE/DISABLE

Enable or disable to CO2 module used for measuring CO2 levels within the cabin.

CO2 PRIMARY ALARM POINT

The first alarm will sound when CO2 levels inside the enclosure reach this point.

CO2 SETTINGS

Left column (CO2 MODULE ENABLE/DISABLE)

1

8:30	22/04/23	25%
Cabin Pressure	50Pa	⚙
CO2 Level	200 PPM	🔊
Temperature	20°C	

BreatheSafe

2

BACK — Settings

SYSTEM CHECK | VIEW GRAPH
EVENT LOG | SITE ACCESS MENU

BreatheSafe

3

BACK — Enter Pin

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK — Settings Page 1 — NEXT

STARTUP OPTIONS | DOOR WINDOW SETTING | PRESSURE SETPOINT
CHECK RUNTIME | DATE / TIME | CO2 SETTING

BreatheSafe

5

BACK — CO2 Sensor Alarm Setting — DISABLE CO2 SENSOR

CO2 ALARM DELAY SETTING	CO2 PRIMARY ALARM SETPOINT	CO2 CRITICAL ALARM SETPOINT
2 Min	1000 PPM	2500 PPM

⌄ ⌃   ⌄ ⌃

ALARM MUTE DELAY

Right column (CO2 PRIMARY ALARM POINT)

1

8:30	22/04/23	25%
Cabin Pressure	50Pa	⚙
CO2 Level	200 PPM	🔊
Temperature	20°C	

BreatheSafe

2

BACK — Settings

SYSTEM CHECK | VIEW GRAPH
EVENT LOG | SITE ACCESS MENU

BreatheSafe

3

BACK — Enter Pin

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK — Settings Page 1 — NEXT

STARTUP OPTIONS | DOOR WINDOW SETTING | PRESSURE SETPOINT
CHECK RUNTIME | DATE / TIME | CO2 SETTING

BreatheSafe

5

BACK — CO2 Sensor Alarm Setting — DISABLE CO2 SENSOR

CO2 ALARM DELAY SETTING	CO2 PRIMARY ALARM SETPOINT	CO2 CRITICAL ALARM SETPOINT
2 Min	1000 PPM	2500 PPM

⌄ ⌃   ⌄ ⌃

ALARM MUTE DELAY

BELL
B30E / B45E / B50E Dump Truck

BreatheSafe

CO2 ALARM DELAY

After CO2 (concentration in ppm) within the cabin reaches the 1000 ppm setpoint, the alarm will sound after this designated amount of time. The Alarm Delay adjusts the time between the INPRESS TS measuring CO2 concentration and sounding the alarm. Use the onscreen ADJUST buttons to change the corresponding fields. For example, press to toggle through Disabled / 1 – 10 minutes.

CO2 CRITICAL ALARM MUTE RESET

The critical alarm is set at 2500 PPM and cannot be changed. The mute delay, however, can be configured.

CO2 SETTINGS

1

8:30	22/04/23	25%
Cabin Pressure	50Pa	⚙
CO2 Level	200 PPM	🔊
Temperature	20°C	

BreatheSafe

2

BACK — Settings

SYSTEM CHECK	VIEW GRAPH
EVENT LOG	SITE ACCESS MENU

BreatheSafe

3 — Enter Pin

BACK

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK — Settings Page 1 — NEXT

STARTUP OPTIONS	DOOR WINDOW SETTING	PRESSURE SETPOINT
CHECK RUNTIME	DATE / TIME	CO2 SETTING

BreatheSafe

5

BACK — CO2 Sensor Alarm Setting — DISABLE CO2 SENSOR

CO2 ALARM DELAY SETTING	CO2 PRIMARY ALARM SETPOINT	CO2 CRITICAL ALARM SETPOINT
2 Min	1000 PPM	2500 PPM
⌄ ⌃	⌄ ⌃	

ALARM MUTE DELAY

1

8:30	22/04/23	25%
Cabin Pressure	50Pa	⚙
CO2 Level	200 PPM	🔊
Temperature	20°C	

BreatheSafe

2

BACK — Settings

SYSTEM CHECK	VIEW GRAPH
EVENT LOG	SITE ACCESS MENU

BreatheSafe

3 — Enter Pin

BACK

7597

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

4

BACK — Settings Page 1 — NEXT

STARTUP OPTIONS	DOOR WINDOW SETTING	PRESSURE SETPOINT
CHECK RUNTIME	DATE / TIME	CO2 SETTING

BreatheSafe

5

BACK — CO2 Sensor Alarm Setting — DISABLE CO2 SENSOR

CO2 ALARM DELAY SETTING	CO2 PRIMARY ALARM SETPOINT	CO2 CRITICAL ALARM SETPOINT
2 Min	1000 PPM	2500 PPM
⌄ ⌃	⌄ ⌃	

ALARM MUTE DELAY

6

BACK — Critical Alarm Mute Timeout Adjustment
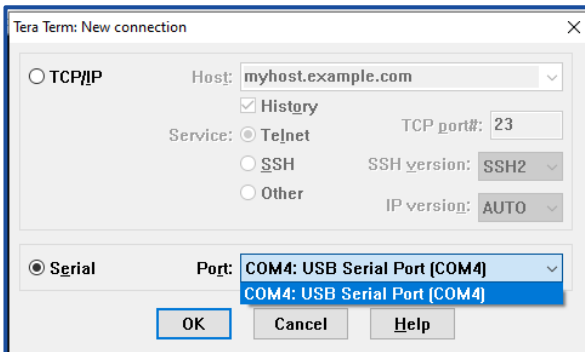
SET MUTE TIMEOUT MINUTES   ⌃

10 Mins   ⌄

BreatheSafe

Data Download – Setting up RS232 Connection

1. Plug the RS232/USB adaptor into a free USB port on your computer.

2. Open up TeraTerm software.

   (*TeraTerm* is an open-source software tool and easily accessible via online search)

3. Use the following settings in TeraTerm: Serial and choose the correct port connection.

   Hint:
   Click on the COMxx Port with the "USB serial Port" connection from the drop-down menu.
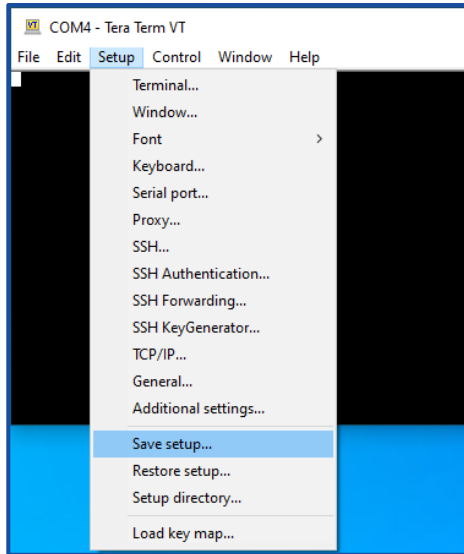
   Example:
   COM 4
   This connection may be different on your computer.
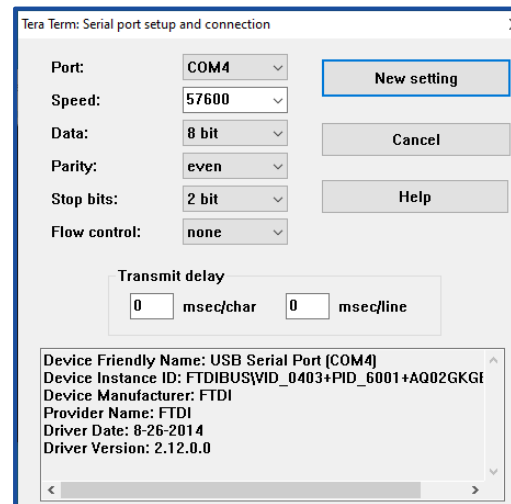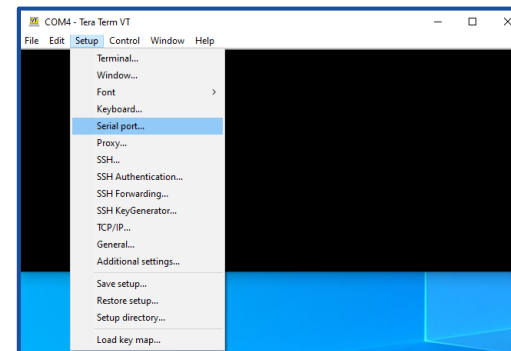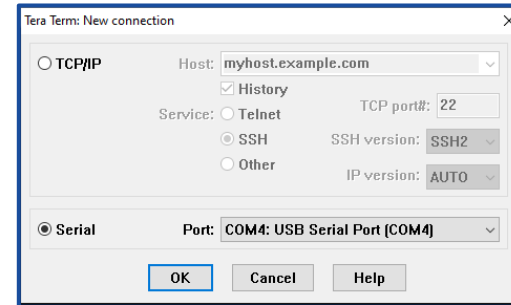
4. Click OK once the correct communication port has been identified.

5. Go to SETUP and click on Serial Port.

6. Change the COM ports to the following configuration:

   Baud

   Rate: 57600 Data: 8 bit

   Parity: EVEN

   Stop: 2 bit

   Flow Control: NONE

BreatheSafe

Data Download – Setting up RS232 Connection

7   If required, you may choose to save the COM port settings. Go to Settings and click save the setup.

Hint: From the drop-down menu, click on the Save Setup.

Name the file and save it.
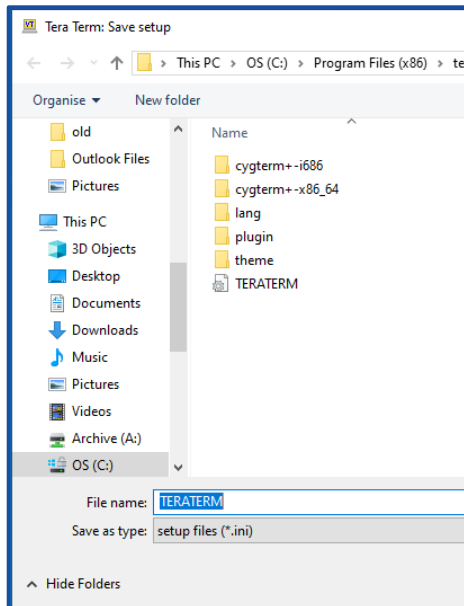
8   The next time a download is required, you may restore the setup, and the required COM PORT settings will be loaded, ready to download the data file from the 200027 unit.
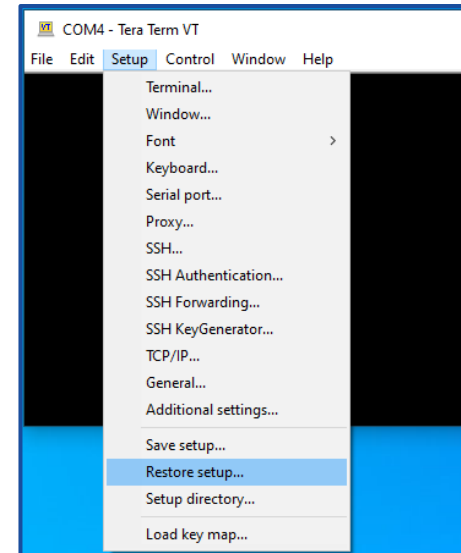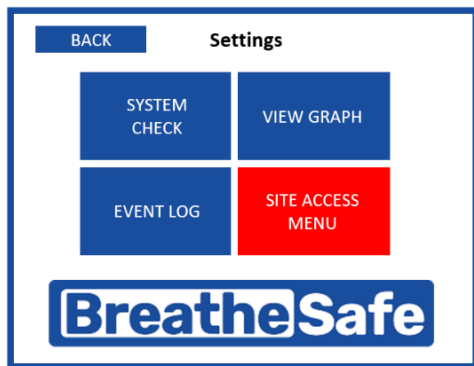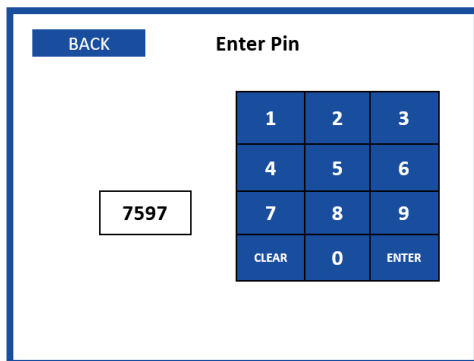

9   From the drop-down menu, click on Restore setup.
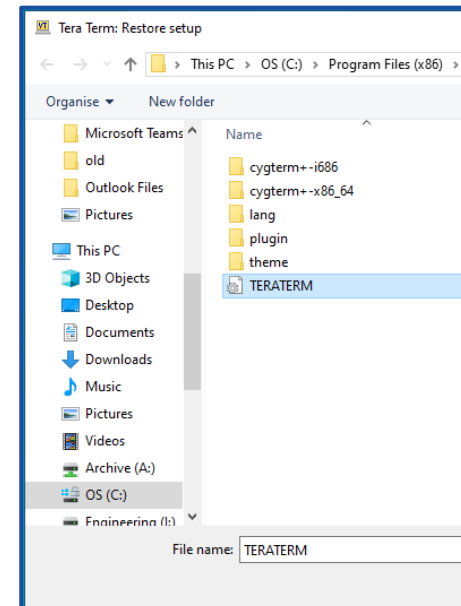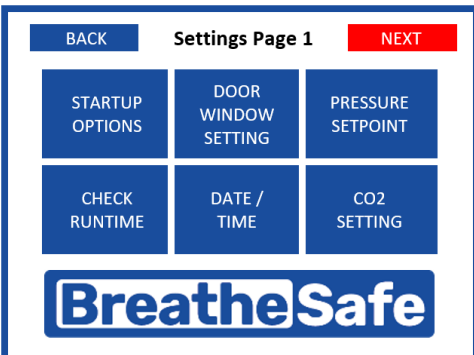

10   Choose the file name you have already saved.

BELL

B30E / B45E / B50E Dump Truck

BreatheSafe

INPRESS Controller Set Up

BACK	Settings

SYSTEM CHECK	VIEW GRAPH
EVENT LOG	**SITE ACCESS MENU**

BreatheSafe

1. Press 'SITE ACCESS MENU'.

BACK	Settings Page 2

ALARM MUTE RESET	ZERO SENSOR	TEMP SETTING
BUZZER SETTINGS	**LOG SETTINGS**	FACTORY SETUP

BreatheSafe

4. Press 'LOG SETTINGS'.

BACK	Enter Pin

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

7597

2. Enter the access pin '7597'.

BACK	Log Settings

SET LOG INTERVAL MINUTES

60

DOWNLOAD LOG FILE	GET REAL TIME LOG

BreatheSafe
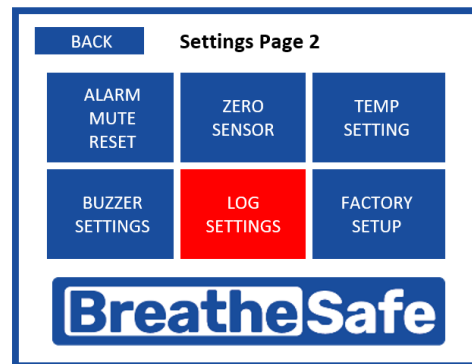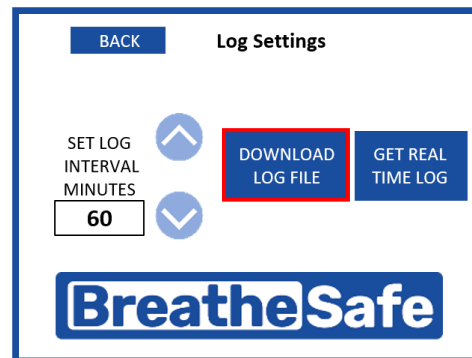
5. Press 'DOWNLOAD LOG FILE'.

BACK	Settings Page 1	NEXT

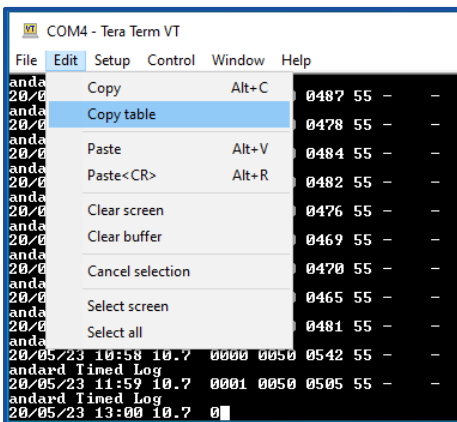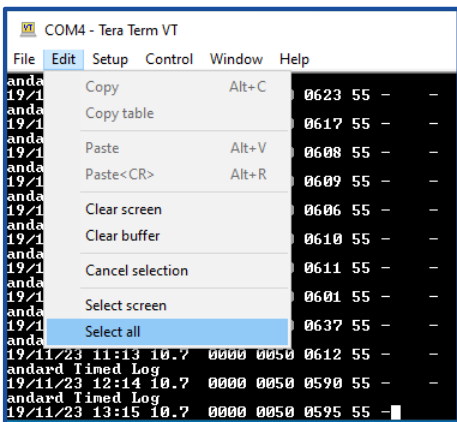| STARTUP OPTIONS	DOOR WINDOW SETTING	PRESSURE SETPOINT
CHECK RUNTIME	DATE / TIME	CO2 SETTING

BreatheSafe

3. Press 'NEXT'.

DOWNLOADING LOG FILE

BreatheSafe

6. Data is now downloading from controller to terminal open on the computer (TeraTerm in this example).

Data Download – Copying Contents from Terminal to Spreadsheet

12 From the drop-down menu, click on the Edit menu function.

13 Press "Select All".

14 Select "Copy table".

15 Open a blank excel document and click on the page. Then, right-click to paste the copied table.

16 Fields are:

Date, time, motor (volts) output (e.g. 5.5 = 55%), cabin pressure (Pa), cabin pressure pre-set (Pa), CO2 sensor.

Excel Data Instructions – Unformatted

Open an Excel sheet and select the first cell A-1. Next, press and hold down the CTRL button on your keyboard and then press the letter V on the keyboard.

This procedure will paste the copied data onto that Excel sheet. Once that data has been pasted onto the Excel sheet, click on 'DATA' on the pull-down menu, followed by 'Text to Columns'. Next, select 'Delimited' on the newly opened window and click on Next.

Only select the 'Comma' button in the next window and then click 'Finish'. Then, the Excel fields will update such that each piece of data is placed in the correct columns.

The data is now ready for archiving.

Data Logging Formats

BU No: xxxxxx (the device number unique to each unit and used for identification – format = 000000)

Time: [09:25]

Date: [25/07/12]

Pressure: 32 (Pascals) as an example.

Alarm Type	
0	= No alarm
1	= Low-pressure alarm
2	= Window open
3	= Door open

Audit Your System Here: Audit Registry (https://atreg.breathe-safe.com.au/audits)

BreatheSafe Warranty: Warranty - BreatheSafe (www.breathe-safe.com.au/warranty/)