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USER GUIDE

The new BreatheSafe INPRESS TS cabin pressure controller specifically designed to monitor, record and intelligently control the cabin pressure inside a vehicles cabin or electrical enclosure.

Efficient cabin air filtration and pressure management ensure harmful dust and toxic fumes cannot ingress into the cab and be inhaled by operators.

The INPRESS TS has auto pressure control allowing the end user to easily maintain a set cabin pressure. RS20R and ISO23875 recommend over 20Pa if a cabin pressure monitor is installed. BreatheSafe recommend 30Pa with the alarm point being 10Pa.

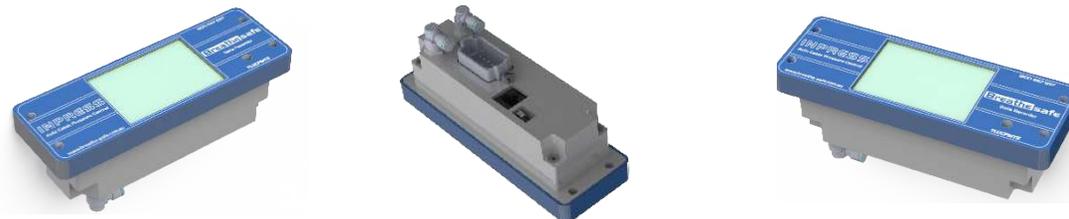
The controller has a built in 14-bit digital pressure sensor that can accurately measure pressures between 0 and 2000 pascals with repeatable accuracy.

An alarm setpoint can be set via the user keypad between the range of 5.0 and 1000 Pascals.

When the pressure within the cabin falls below the alarm setpoint, there will be a (user set) delay and alarm will sound, and warning flash on main screen.

KEY FEATURES

- Digital cabin pressure monitoring system
- Automatic cabin pressure control
- Intelligent fan speed output
- Data logger
- Alarm for low pressure
- Light sensor for automatic dimming of screen



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WARNING

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

WEAR CORRECT PERSONAL PROTECTIVE EQUIPMENT WHEN CLEANING AND SERVICING THIS UNIT DUE TO INHALEABLE AND RESPIRABLE HAZARDOUS PARTICLES AND FIBRES WHICH MAY BE CAUGHT BY ALL STAGES OF FILTRATION DURING NORMAL UNIT OPERATION.

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

THE PRESSURISER HAS VARIOUS TYPES OF ROTATING EQUIPMENT INSTALLED. ENSURE ALL SAFETY GUARDS ARE IN PLACE WHILE THE SYSTEM IS RUNNING.



Hard hat



Eye protection



Dust mask



Ear protection



Protective clothing



Face Shield



Gloves



Safety footwear



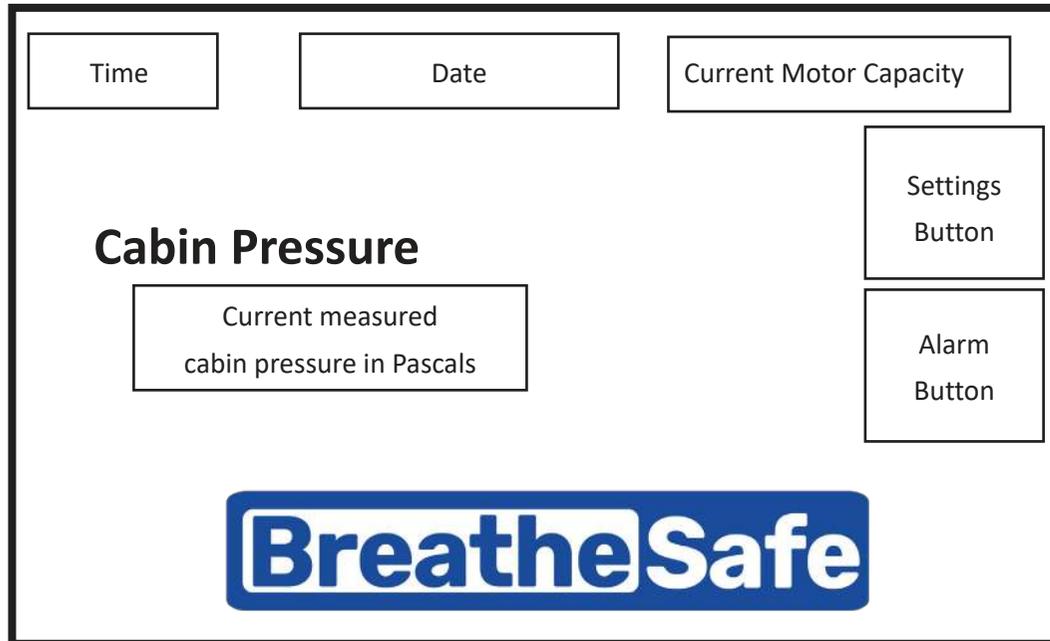
Safety matters



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CONTROLLER APPEARANCE



Settings button



Alarm button



Light Sensor

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FUNCTIONS

AUTOMATIC CABIN PRESSURE

The INPRESS TS is an intelligent pressuriser controller that monitors the pressure difference from inside to outside of the cabin. It controls the speed of the motor to maintain a set pressure difference.

LOW PRESSURE ALARM

If the cabin pressure falls below the alarm setpoint, INPRESS TS will wait the designated delay time before alarming user.

The alarm will sound, and LOW-PRESSURE WARNING will flash on screen in red lettering. Press the ALARM button to mute the alarm. At the same time as this alert is sounding, the fan power will increase to maximum to keep operator as safe as possible.

ALARM DELAY

There is a designated delay time between the TS measuring low pressure and sounding the delay. This gives allowances in time for small changes like opening window briefly. The amount of delay can be changed in settings.

SERVICE REMINDERS

The INPRESS TS has automatic reminders for servicing of filter system. The default is 500 runtime hours, but can be altered in settings.

DATA LOGGING

By default, the BreatheSafe INPRESS TS unit starts data logging as soon as power is applied. This feature cannot be stopped or disabled.

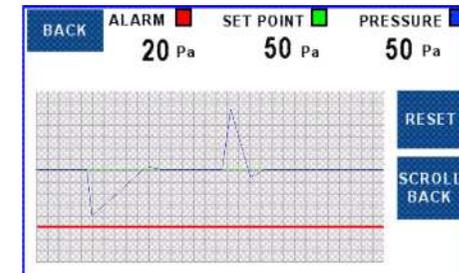
Data logging records time, date, pressure reading, and any alarms activated during operation.

LIGHT SENSOR

The light sensor automatically adjusts screen brightness for operator safety and minimised distraction

GRAPHIC DISPLAY OF PRESSURE CHANGE

A graphic display is available for a visual representation of the pressure inside cabin over time since turned on.



Graph Screen



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OPERATING INSTRUCTIONS

ENTER SETUP MODE

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

To enter the Setup mode, press SETTING button. Then enter SITE ACCESS MENU. Type in 4-number pin and press ENTER.

SETUP PARAMETERS

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

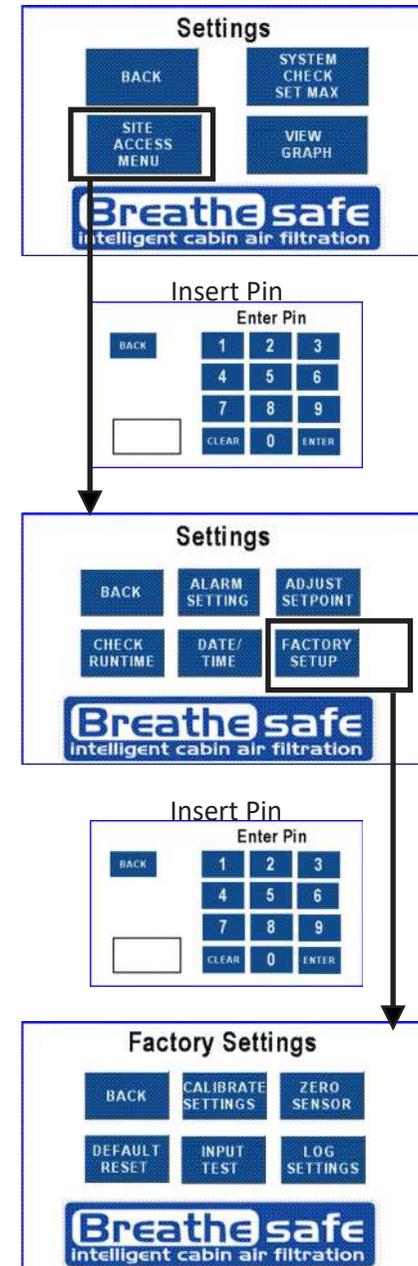
- Time (hours/minutes/seconds)
- Date (day/month/year)
- Pressure alarm setpoint
- Preferred cabin pressure
- Alarm delay / Intervals of alarm
- Calibration and system settings
- Resetting of the data logging
- Service reminders interval gap
- Reset current runtime between services.

FACTORY SETTINGS

To access the factory settings, a secondary pin is required.

Factory setting parameters include:

Calibration, Zero Sensors, Default Reset, Input Test, Log Settings.



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CHANGE DATE AND TIME

Start Up Screen > Main Screen > Settings Button > Settings Screen > Site Access Button > Date/Time Button

Enter Setup mode and press the DATE/TIME button. Use the onscreen UP and DOWN buttons to change the corresponding fields. When set correctly, press the SAVE button.

- HRS = current hours
- MIN = current minutes
- MON = current month
- YR = current year

CHANGE PRESSURE SETPOINT

Start Up Screen > Main Screen > Settings Button > Settings Screen > Site Access Button > Adjust Setpoint.

The pressure setpoint changes the pressure that the cabin will be maintained. INPRESS TS keeps a higher pressure within the cabin compared to outside.

Enter Setup mode and select ADJUST SETPOINT button. Use the onscreen UP and DOWN buttons to change the corresponding fields. When set correctly, press the SAVE button.



Change Date and Time

CHANGE ALARM SETPOINT

Start Up Screen > Main Screen > Settings Button > Settings Screen > Site Access Button > Adjust Setpoint.

Alarm Setpoint changes the appointed pressure that sets the alarm off. Low pressure can allow hazardous particulates into the cab and can occur when doors or windows are left open, or if there is an issue with the sealing.

Enter Setup mode and select ADJUST SETPOINT button. Use the onscreen UP and DOWN buttons to change the corresponding fields. When set correctly, press the SAVE button.



Change Pressure and Alarm Setpoint

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ENABLE / DISABLE BUZZER

Start Up Screen > Main Screen > Settings Button > Settings Screen > Site Access Button > Adjust Setpoint.

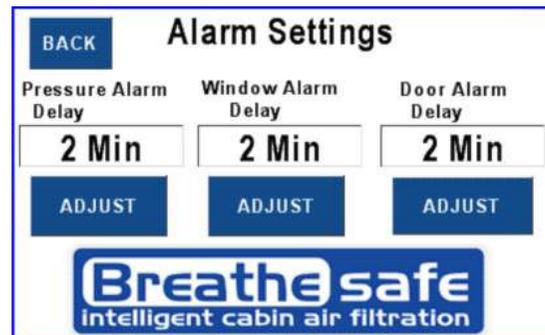
Enter Setup mode and select ADJUST SETPOINT button. To disable buzzer, toggle through ENABLED and DISABLED button. When set correctly, press the SAVE button.

CHANGE ALARM DELAY SETTINGS

Start Up Screen > Main Screen > Settings Button > Settings Screen > Site Access Button > Alarm Setting.

The Alarm Delay adjusts the length of time between the INPRESS TS measuring low pressure and sounding the alarm. Low pressure can occur when a door or window is opened momentarily, not requiring alarm to sound.

Enter Setup Mode and select ALARM SETTING button. Use the onscreen ADJUST buttons to change the corresponding fields. Press to toggle through Disabled / 1 – 10 minutes. When set correctly, press the SAVE button.



Change Alarm Delay Settings

CHANGE SERVICE REMINDERS

Start Up Screen > Main Screen > Settings Button > Settings Screen > Site Access Button > Check Runtime.

Enter Setup mode and select CHECK RUNTIME button. Use the onscreen UP and DOWN buttons to change the service interval setpoint.

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



Change Service Reminder

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CALIBRATE ZERO SENSOR

Start Up Screen > Main Screen > Settings Button > Settings Screen > Factory Settings button > Zero Sensor

Over long runtime the INPRESS TS may need to be recalibrated. This screen allows the sensor to be recalibrated if more than 5Pa out.

To recalibrate, open windows and doors, turn off air conditioning, and any other device that may alter cabin pressure. Press the AUTO ZERO SENSOR button and leave cabin while measuring. This will reset the Zero Pressure.

RESET DATA LOG

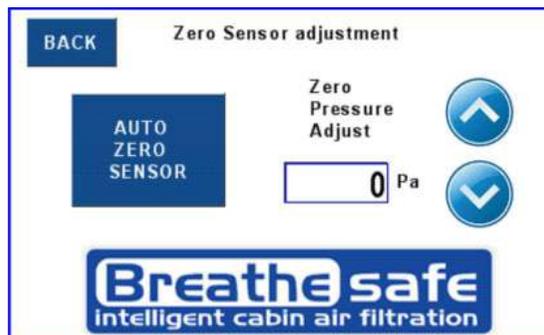
Start Up Screen > Main Screen > Settings Button > Settings Screen > Factory Settings button > Factory Settings Screen > Log Settings Button > Clear Log File

Enter Site Menu and select the FACTORY SETTINGS button. Then, press the LOG SETTINGS button. Press the CLEAR LOG FILE button to reset. The BreatheSafe INPRESS TS unit will start to data log from the first memory location once again.

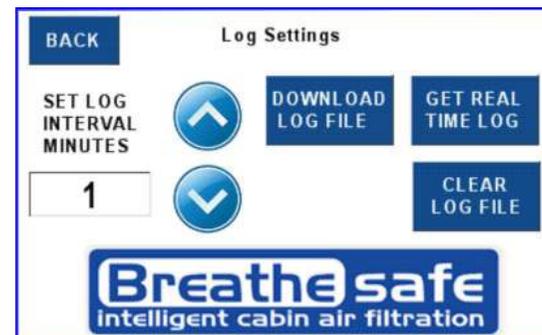
TEST INPUTS OPTION

Start Up Screen > Main Screen > Settings Button > Settings Screen > Factory Settings button > Factory Settings Screen > Test Input Button > Test Input Screen

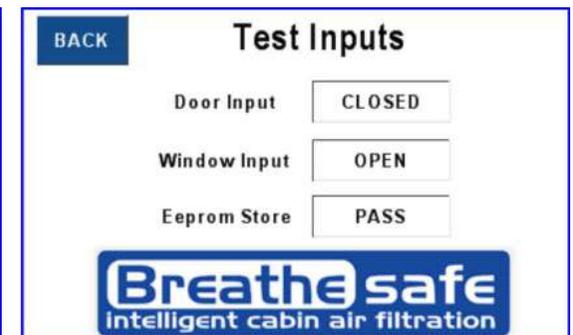
To check inputs and see if function, access the Test Input screen through Factory Settings. These show to operator whether doors and windows are closed or open according to sensors, and if the Eeprom Store is functional.



Reset Data Log



Reset Data Log



Test Inputs Screen

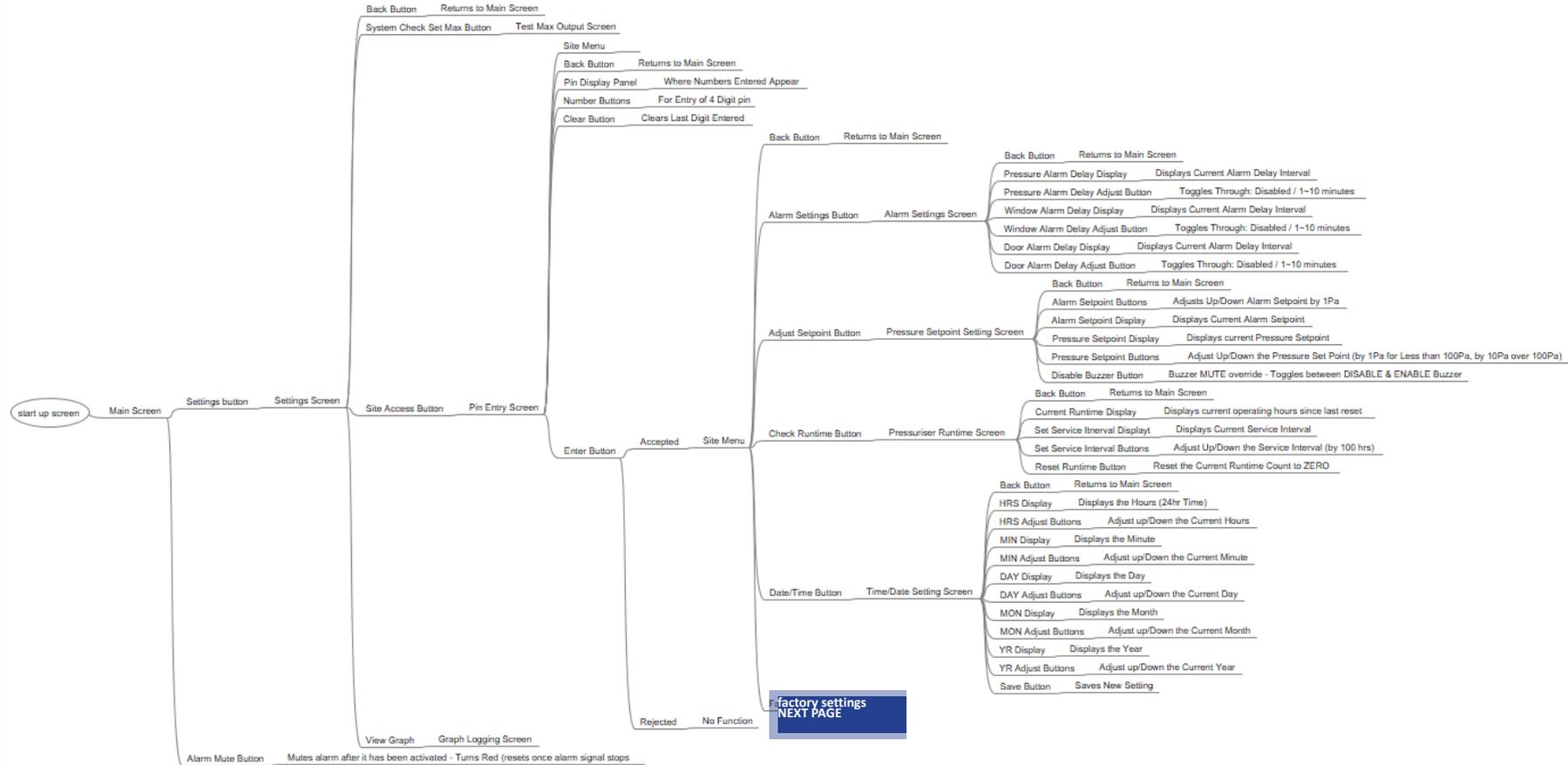


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TECHNICAL DETAILS

MAP OF FUNCTIONS



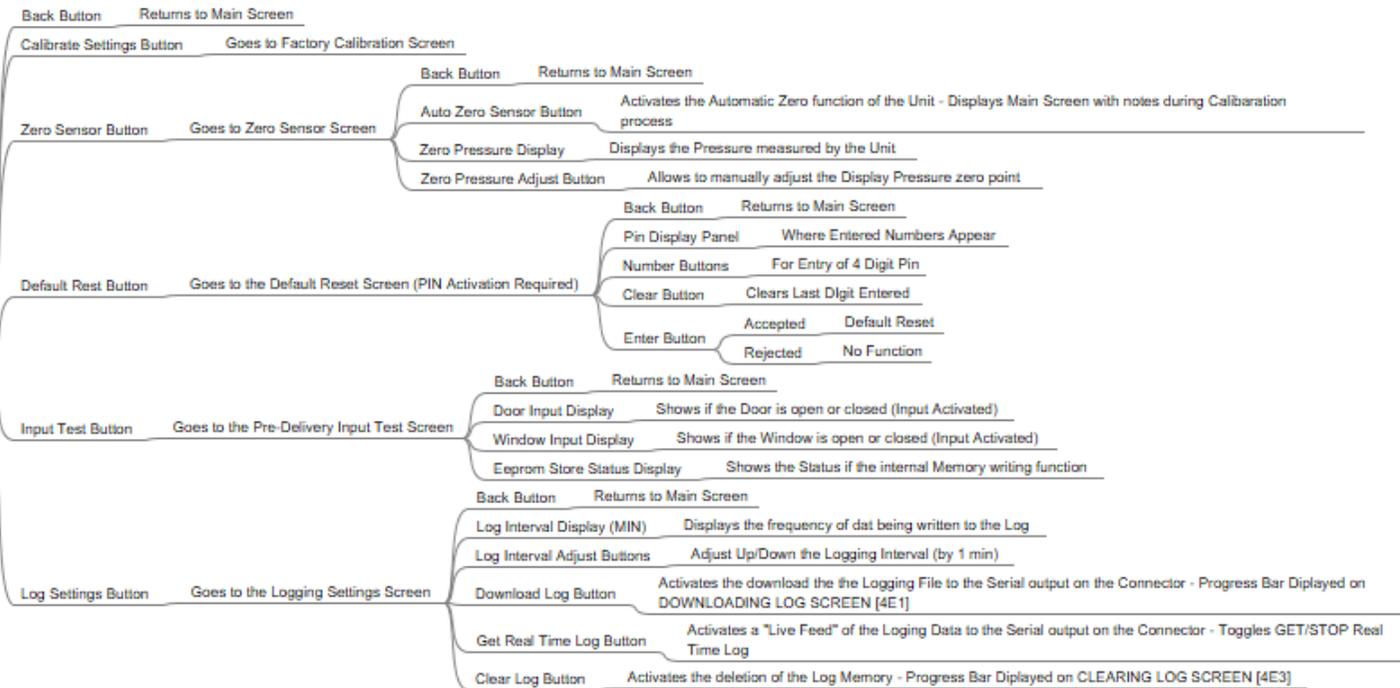


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factory settings
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Factory Settings Screen



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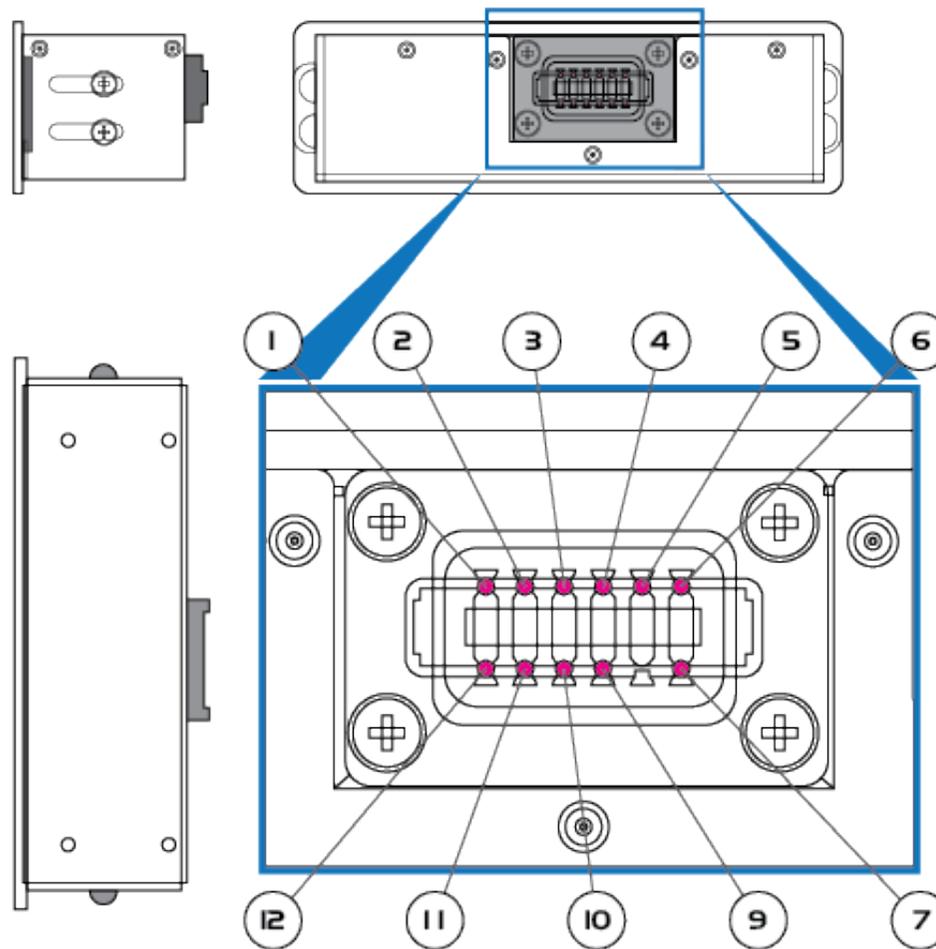
GENERAL ARRANGEMENT



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CONNECTOR PINOUT DETAILS



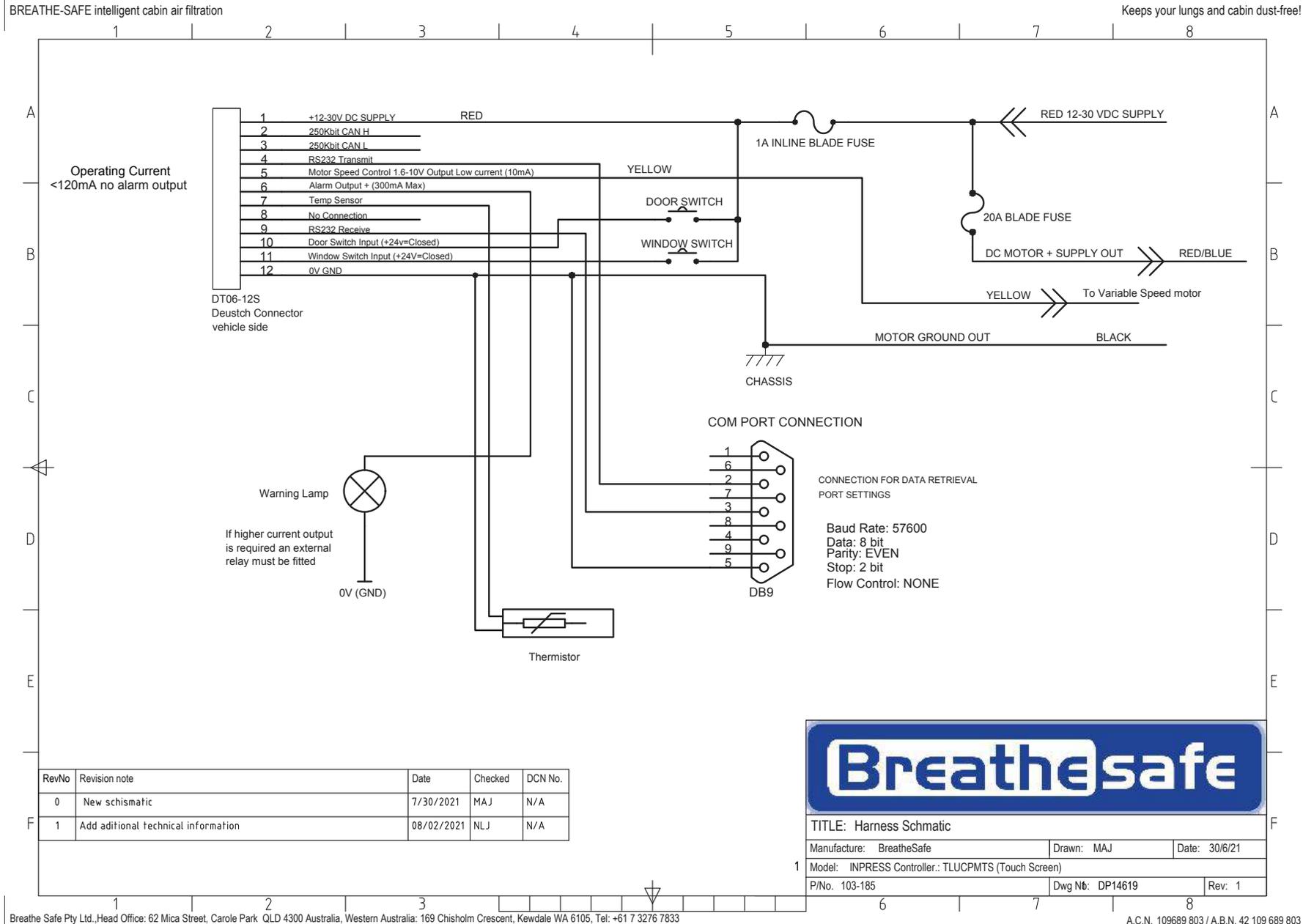
ITEM	PIN	DESIGNATION
1	Pin 1	24V Positive Supply
2	Pin 2	CAN H Option
3	Pin 3	CAN L Option
4	Pin 4	Serial Transmit RS232 Door load
5	Pin 5	Motor Control Volts Out
6	Pin 6	Alarm + Output
7	Pin 7	Temp Sensor
8	Pin 8	No Connection
9	Pin 9	Serial Receive RS232
10	Pin 10	Door Input (+)
11	Pin 11	Window Input (+)
12	Pin 12	0V Negative Ground

Please do not scale



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INSTALLATION

WARNING

QUALIFIED STAFF MUST WEAR THE CORRECT PERSONAL PROTECTIVE EQUIPMENT WHEN CLEANING AND SERVICING THIS UNIT DUE TO HAZARDOUS 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 BREAKERS OPENED TO ISOLATE THE CIRCUIT.

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

Commissioning Steps

To determine if installed correctly, follow the following steps:

1. Power up the pressuriser and ensure fan/s are operating correctly.
2. Make sure the pressuriser switches on/off with ignition.
3. Check pressure under max fan speed

Start Up Screen > Main Screen > System Check Set Button > Test Max Output

To check to see if the INPRESS is installed correctly, press the SYSTEM CHECK SET MAX button to enter the Test Max Output screen. This will bring you back to what looks like the Main Screen with "System Test - Max Fan" displayed on screen.

The fans will run at max speed and allow operator to see pressure inside of the cabin. The effectiveness of the Pressuriser is dependent on how well the cabin is sealed. We recommend 250Pa max pressuriser speed from new.

Any leaks or ineffective cabin sealing will reduce the pressure at max speed, indicating adjustments required.

Notes for new cabin or a cabin with new seals: Open a window slightly before closing entrance door to vent static air pressure inside of the cabin. When entrance door is fully closed then close the window to begin the test.

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FAN SPEED CONTROL OUTPUT

The BreatheSafe INPRESS TS controller automatically adjusts the turbine motor to maintain a pre-set cabin pressure based on the unit's pressure set-point.

The TS unit monitors the cabin pressure as measured through its built-in pressure transducer and calculates the error based on the pressure setpoint. This value is applied to an algorithm and the controller calculates a proportional output which adjusts the speed of the pressuriser motor.

MOUNTING

The TS unit is designed to be dashboard mounted and utilizes a proprietary housing to secure the unit. Mounting can be in any orientation, preferably internally and positioned such that the operator can monitor the cabin pressure, ensuring their working environment is safe.

SUPPLY POWER

The BreatheSafe INPRESS TS unit is designed to operate via the vehicle's ignition key-switch. The unit becomes fully operational approximately 5 seconds after turning the ignition on.

It is advisable to install an inline fuse rated at 5A maximum for added protection up to the unit's connector. The unit is fully protected against reverse power for an indefinite period.

The operating voltage is in the range of 12V to 36V dc and the power supply is designed specifically to operate in the harsh vehicle environments, which may include battery jump starts and battery chargers. The door and window digital inputs operate in the range of 12 to 24V dc commensurate with the vehicle's power supply.

CALIBRATION

The BreatheSafe INPRESS TS controller is fully digital and should not require further calibration or setting up. The unit becomes fully operational approximately 5 seconds after being switched on.

For added peace of mind, auto calibration is available under the Zero Sensor section.

Please do not attempt to open this unit and tamper with it as there are no user serviceable parts inside and you may cause it irreparable damage in the process.

CONTROL OVERRIDE

At the back of the INPRESS TS unit there is a small switch, this will turn off INPRESS control and run High Pressure Air Filtration unit by itself at full speed.

We do not recommend this.

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DATA LOGGING INFORMATION

SET INTERVAL MINUTES

Use ARROW buttons to adjust the frequency of Data recordings.

CLEAR DATA LOG

Pressing the CLEAR DATA LOG button takes you to the PIN Entry Screen (Factory Access PIN is required). Once the PIN is entered the Unit clears and deletes the stored data.

The screen will show a progress bar during this step, then will return to the “Factory Settings Screen” on completion.

DOWNLOAD LOG FILE

Pressing this button begins the download of the stored data to the terminal software installed on your computer. The logging intervals for the downloaded data will be based on the Set Interval.

The screen will show a progress bar during this step, then will return to the “Factory Settings Screen” on completion.

GET REAL TIME LOG

Pressing this button begins the output of the log data to the terminal software installed on your computer. The logging intervals for the real time data will be every second. The button will change text to “STOP REAL TIME LOG”, and can be pressed to stop the feed.

SET UP FOR DATA RETREVAL

Using the serial connector on the wiring harness (or by fitting the

bridging harness with serial connector), connect your computer with a serial cable.

Using terminal software similar to the freeware program TeraTerm (easily found through an internet search).

In the software set up the connection as a SERIAL Connection via one of your computer’s COM Ports, ensuring your Serial settings are as follows:

Baud Rate: **57600**

Data: **8 bit**

Parity: **EVEN**

Stop: **2 bit**

Flow Control: **NONE**

DATA LOGGING SCHEDULE

The BreatheSafe INPRESS TS controller is designed to start data logging as soon as it is powered up. Data samples are taken and recorded at intervals with time, date and current pressure readings. This is additional to normal alarm logging which occurs at every alarm instance.

The unit is designed to log over 10900 instances in its internal memory. The memory is not battery dependent and can retain data for up to 10 years. Under normal operation the controller logs one sample every hour.

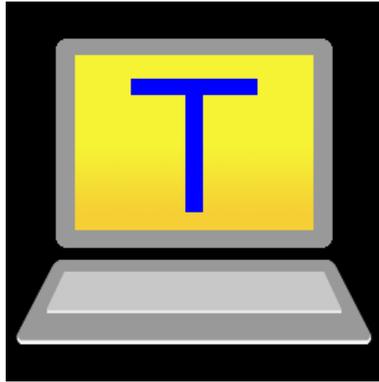
This time period is shortened if the BreatheSafe INPRESS TS unit experiences many alarms throughout each day.

When the data logger’s memory is full it returns to the beginning and over-writes previously recorded data in an endless loop. It is therefore very important that the data is downloaded as required to ensure that there is no loss of important information.

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SETTING UP RS232 CONNECTION

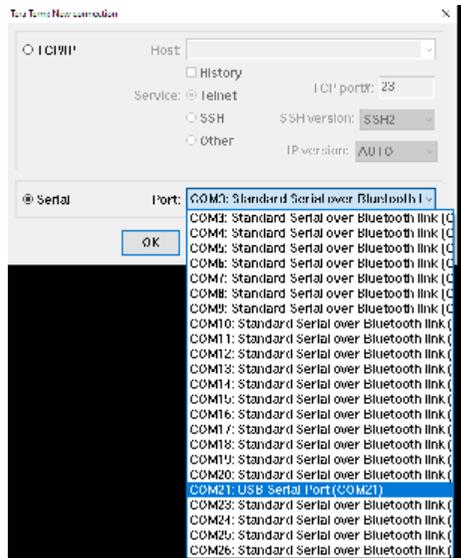


Plug the RS232/USB adaptor into a free USB port on your computer.

Open up TeraTerm software.

Use the following settings in TeraTerm:

Serial and choose the correct port connection



Hint:

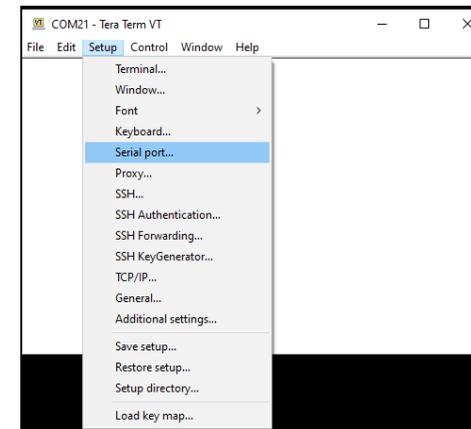
From drop down menu, click on the COMxx Port that has the "USB Serial Port" connection.

Example: COM 21

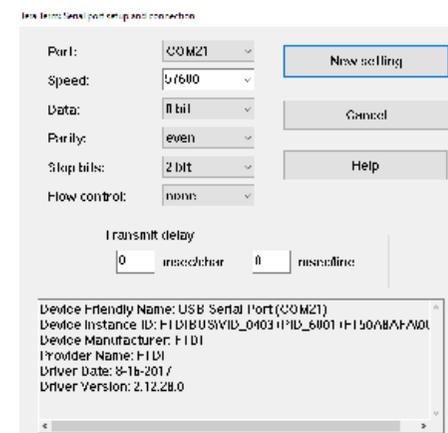
This connection may be different in your computer.



Click OK once the correct communication port has been identified.



Go to SETUP and click on Serial Port



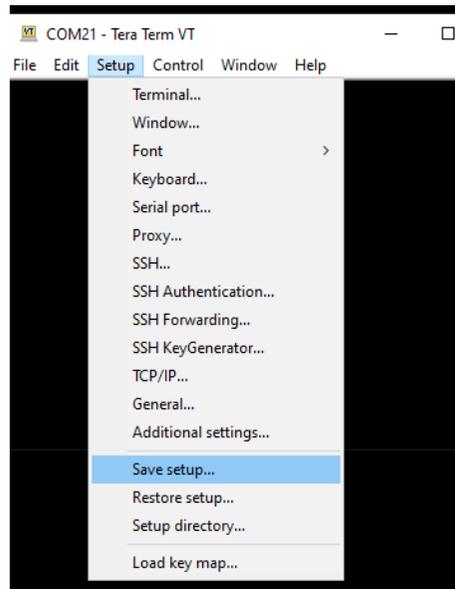
Change the COM ports to the following configuration:

- Baud Rate: 57600
- Data: 8 bit
- Parity: EVEN
- Stop: 2 bit
- Flow Control: NONE



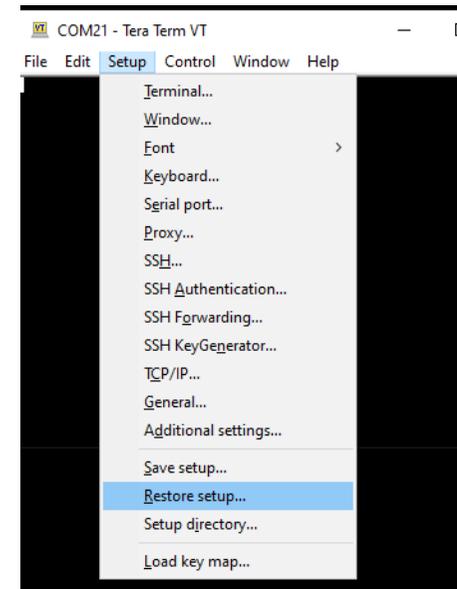
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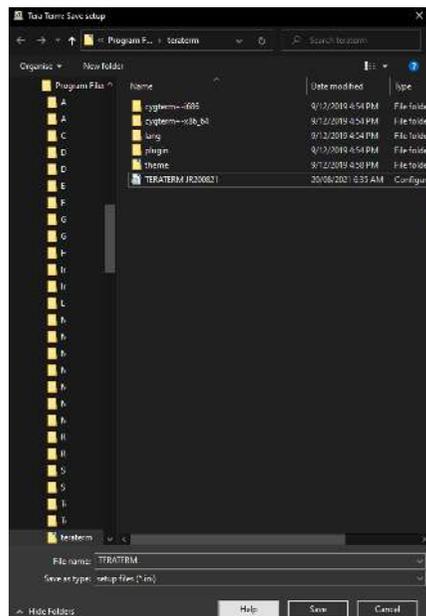
If required, you may choose to save the COM port settings. Go to Settings and click save setup.

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



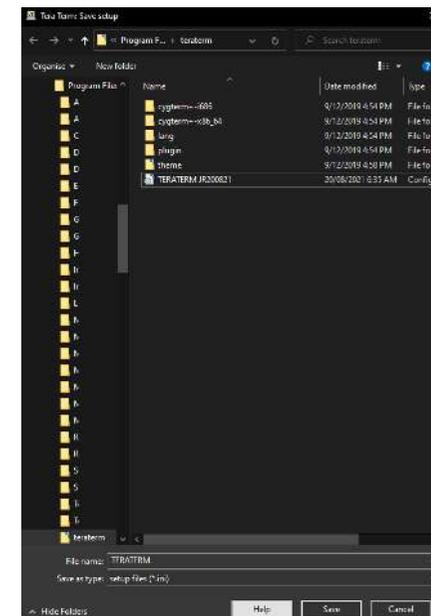
From drop down menu click on the Save setup.

Click Restore setup.



Name the file and save it.

The next time a download is required you may restore the setup and COM PORT settings will be loaded ready to download the data file from the TLUCPMTS unit.

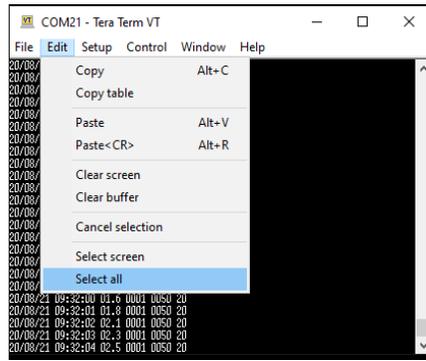


Choose the file name you have already saved.



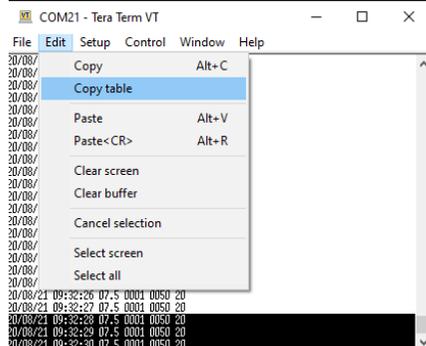
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From drop down menu click on the Edit menu funtion.

Press "Select all"



Select "Copy table"

	A	B	C	D	E	F
	DATE	TIME	MOTOR (VOLT) OUTPUT	CABIN PRESSURE PA	CABIN PRESET PA	CABIN LP ALARM PA
1						
2	20/08/2021	9:31:22	7.5	2	50	20
3	20/08/2021	9:31:23	7.5	1	50	20
4	20/08/2021	9:31:24	7	432	50	20
5	20/08/2021	9:31:25	6.4	480	50	20
6	20/08/2021	9:31:26	5.9	186	50	20
7	20/08/2021	9:31:27	5.8	112	50	20
8	20/08/2021	9:31:28	5.5	94	50	20
9	20/08/2021	9:31:29	6.1	44	50	20
10	20/08/2021	9:31:30	5.6	106	50	20
11	20/08/2021	9:31:31	5.2	183	50	20
12	20/08/2021	9:31:32	4.9	204	50	20
13	20/08/2021	9:31:33	4.6	179	50	20
14	20/08/2021	9:31:34	4.3	189	50	20
15	20/08/2021	9:31:35	4	263	50	20
16	20/08/2021	9:31:36	3.5	261	50	20
17	20/08/2021	9:31:37	3.1	247	50	20
18	20/08/2021	9:31:38	2.7	223	50	20
19	20/08/2021	9:31:39	2.4	149	50	20
20	20/08/2021	9:31:40	2.2	130	50	20
21	20/08/2021	9:31:41	2.6	73	50	20
22	20/08/2021	9:31:42	2	176	50	20
23	20/08/2021	9:31:43	1.6	238	50	20

Open blank excel document and click on the page. Right click to paste the copied table.

Fields are:
 date, time, motor (volts) output, cabin pressure (Pa), cabin pressure preset (Pa), cabin low pressure alarm (Pa).

EXCEL DATA INSTRUCTIONS - UNFORMATTED

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

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

In the next window only select the 'Comma' button and then click 'Finish'. 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 32.8 (Pascals) as an example.

Alarm type :

- 0 = no alarm
- 1 = low pressure alarm
- 2 = window open
- 3 = door open

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BREATHESAFE WARRANTY

We warrant all goods to be of good material and workmanship and will replace at our Queensland factory or designated service branch, any part proved to be defective in workmanship or material within a period of twelve (12) months from the date of start-up or fifteen (15) months from the date of despatch from our factory whichever occurs first.

Excluded from any express warranty are costs incurred in relation to service outside our factory or designated service branch including travelling time, waiting time, transport costs, mechanical handling equipment and overtime payments required.

This warranty does not cover damage caused by or through the fusion of the electric motors caused by failure of electric overload protection devices, even where such motors or devices form part of the equipment supplied by us.

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CONTACT US

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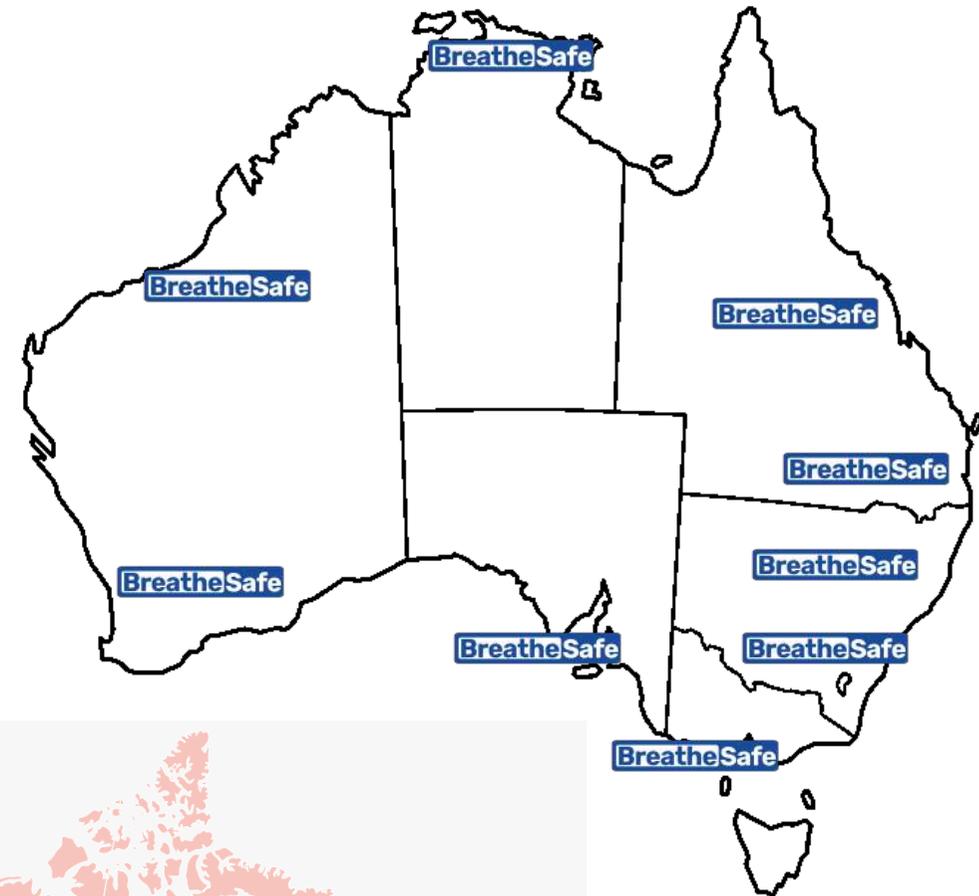
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