



INSTRUCTION MANUAL

airRIDE BT – VIP i VIPlus



**Module based on communications Bluetooth
for controlling air-RID**

www.airRIDE-System.pl

NOTES AND WARNINGS

WARNING !

Module airRIDE BT and lower instruction manual as well all informations included in it are ownership BEST DESIGN i MARKUZ Technology Innovation . Selling , copy and distribute it without consent of both of these individuals is a violation of copyright

WARNING !

Knowledge of this manual is a necessary condition of a proper working order of the device. please read it in order to install module and for use purposes

WARNING !

Do not make any repairs or adjustments yourself. all repairs can be made only by qualified employees or service company

SAFETY CONDIOTIONS

1. Before instalation and usage you need to read this manual and all safety condiotion included in it;
2. Please keep this instuction manual during all time of using this device in case you need to refer to the contens included in it
3. It is important to comply with the safety requestments as they have a direct impact on user safety , durability and reliability of the device
4. All the steps carried out by installers and users must be implemented as described in instructions
5. Do not use any additional devices and components not provided or not recomended by the manufacturer
6. Do not install this equipment in a place where you can not provide good ventilation (eq.locked cabinets , etc.) , which stops heat and consequently may result in damage of the device
7. Do not place controller unprotected from external weather conditions or not recommended by the manufacturer.Improperly mounted device may cause in malfuntion or serious damage
8. Unit can be supplied only from sources whose parameters are consistent with those specified by the manufacturer in the technical data controller. Therefore it is forbidden to supply the driver from unknown sources, unstable or inconsistent with the requestments of the manufacturers specifications
9. Signal and power wiring should be conducted in such a way as to exclude all possibility of accidental damage.Particular attention should be paid to cables from the controller and connecting to power source.
10. Electrical system for the device should be designed to the requirements specified by the manufacturer so as not to lead to overloading and any power shortages
11. Immediately disconnect the unit from the power supply and signal wires and contact the appropriate service in the following cases :
 - damage to the power cord or plug of the wire;
 - when liquids get inside the device , or if it has been exposed to strong mechanical shock;
 - device operates in a manner not described in the manual and the regulations approved by the manufacturer and posibble to apply by the user do not bring the expected results ;
 - case has been damaged;
 - when you can observe unusual behavior of the controller.

WARNING !

Before undertaking any actions which is not provided for the Product in the manual , other documentation accompanying with the Product , or not due to the usual destination , you must under pain of exclusion of liability Manufacturer consequences of such activities contact the manufacturer

WARNING !

Manufacturer reserves the right to printing errors and technical changes without prior notice

WARNING !

The Module does not have „E” approval or approval on public road use

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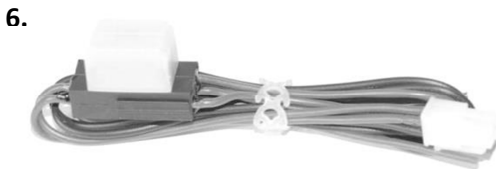
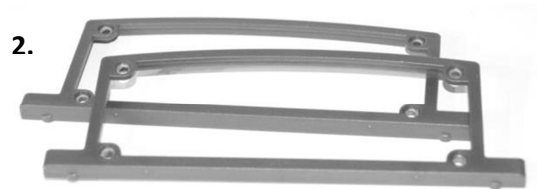
1 PRELIMINARY INFORMATIONS

1.1 PREPARING DEVICE FOR USE

Unpacking the device , proceed with caution.

Once opened you should make sure that the package contains all the following items:

1. Module;
2. ABS surrounds;
3. Omnidirectional Antenna;
4. Installation and operating manuals;
5. CD drive with AirRIDE controll application and operating instructions;
6. Power supply loom (4 wire , fuses and a plug);
7. Control loom (24 wire with a socket);



WARNING !

If any of the items has been damaged in transports , please prepare a damage report from the courier,pack everything back in its original packaging and contact the supplier.

WARNING !

Before installation , check the contents of the list .If you notice any missing items please abandon the instalation and contact your supplier .

WARNING !

If the device is brought out from lower temperature place , wait until it reaches room temperature where it will work. Do not switch device after it has been out in cooler location . Condensation in the air vapor can cause a short circuit and damage the device

1.2 GENERAL CHARACTERISTICS

- Autonomous control module for Air Ride system suspension;
- Configuration of Android application airRIDE Control;
- Measuring the pressure for each wheel individually (apply for VIPlus);
- Measuring the pressure in the air reservoir (apply to VIPlus);
- Controlling of 8 air valve systems;
- Air compressor relay control;
- The power , communication , transmission and response indicators ;
- Ability to connect positioning buttons;
- Twisted metal fitting for 6mm airline (apply with VIPlus);
- Omni-directional antenna 1dBi;
- Aluminum housing with increased mechanical strength;
- Anty vibration frames;
- Wiring loom bundle;

WARNING !

The module does not have the approval for public road usage .

1.3 APPEARANCE MODULE

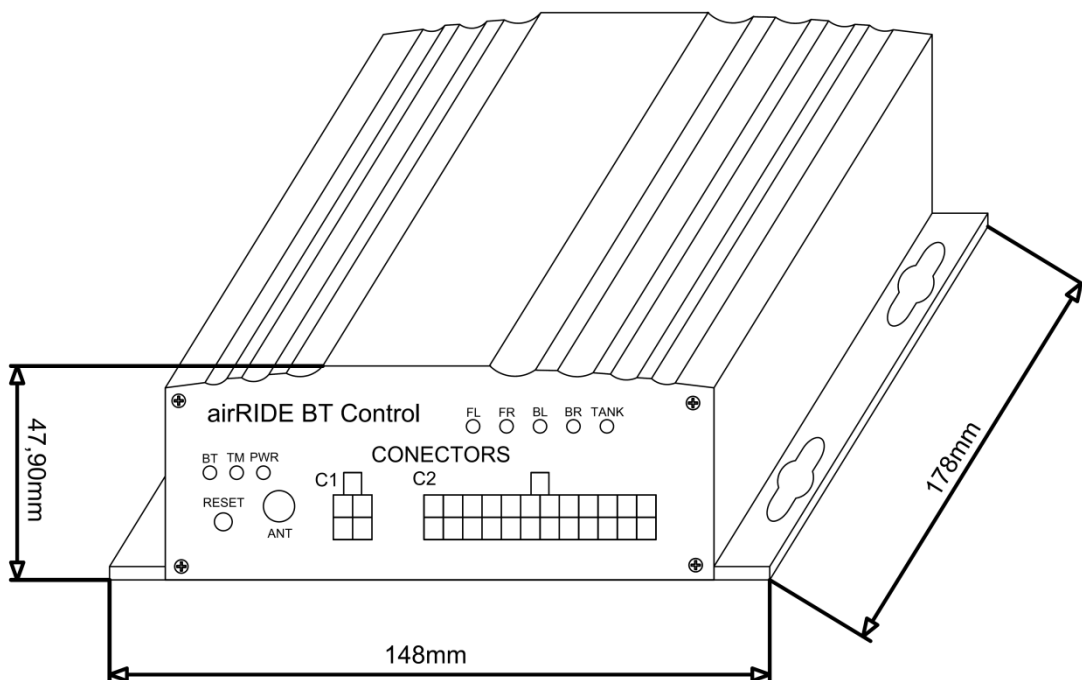


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1.4 PARAMETERS

Model	VIP	VIPlus
Software	ANDROID - airRIDE Control	ANDROID - airRIDE Control
Wireless communication	Bluetooth 2.0 EDR, class 1	Bluetooth 2.0 EDR, class 1
Antena Plug	RP-SMA	RP-SMA
LED Power indicator	Red	Red
LED bluetooth communication Indicator	Blue	Blue
LED communication indicator	Green	Green
LED activation indicator	Green/Red	Green/Red
Power socket	MF42-RD-04	MF42-RD-04
Control socket	MF42-RD-24	MF42-RD-24
External communication ports Com	2 x RS-485	2 x RS-485
Power supply	10~14VDC	10~14VDC
Power draw	6 W	6 W
Control type	Triggered by earth	Triggered by earth
Power Control	12VDC	12VDC
Control maximum load	Each output up to 1A	Each output up to 1A
Maximum load on control outputs	7A	7A
Work pressure scope	-	200 PSI (apply to VIPlus);
Operating Temperature	-20°C ~ +50°C	-20°C ~ +50°C
Dimensions (mm)	148 (width) x 47,90 (hight) x 178 (lenght)	148 (width) x 47,90 (hight) x 178 (lenght)
Weight	500g	650g

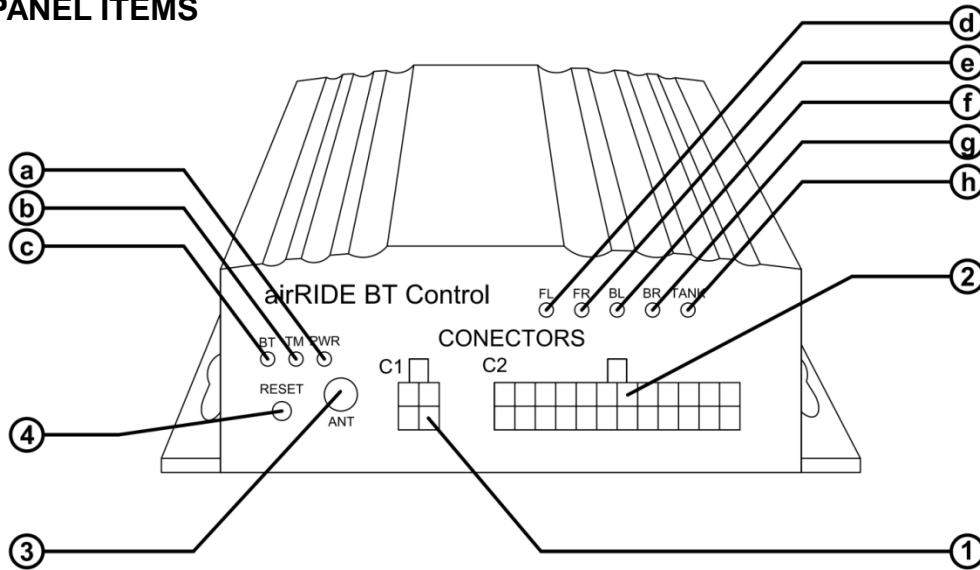
1.5 DIMENSIONS



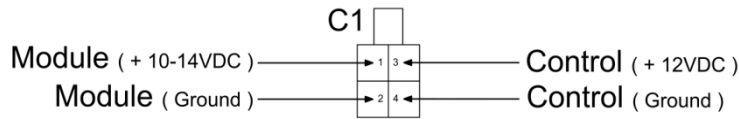
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MODULE DESCRIPTION

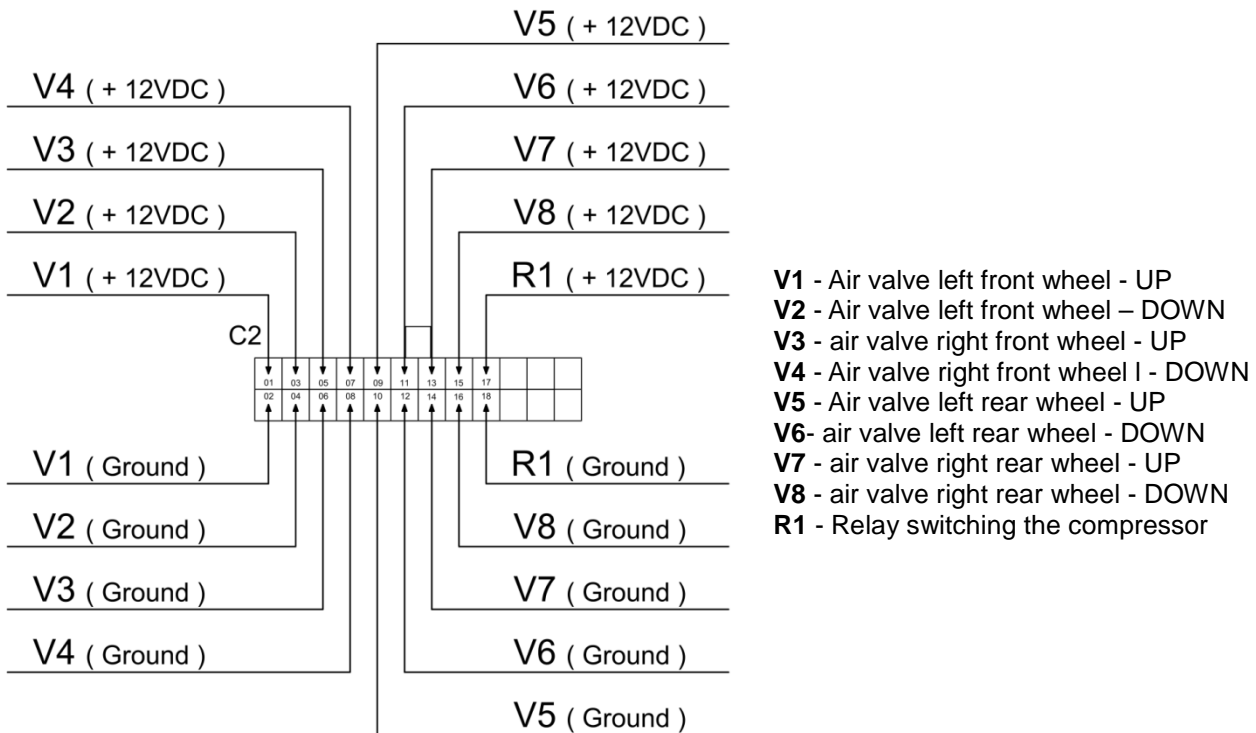
2.1 LEFT PANEL ITEMS



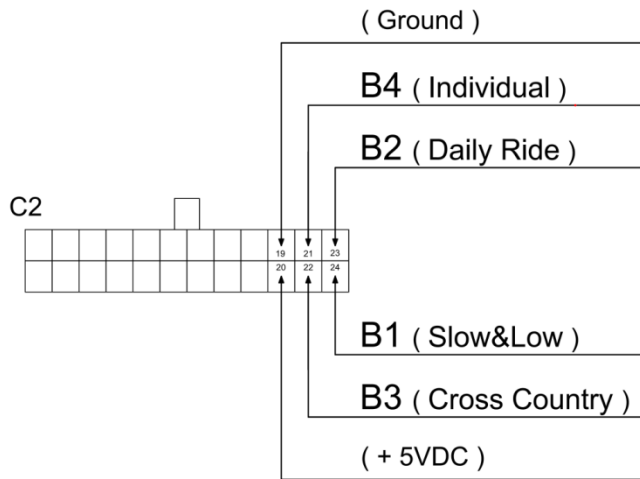
- 1) **C1:** Connetion of the power supply to the module via supplied four wire harness with fuse and the plug (loom number.6);



- 2) **C2:** Connetion for connecting the controll module via attached 24-wire harness with a plug (loom number.7);



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- B1** - The actuating button set SLOW & LOW
- B2** - The actuating button settings DAILY RIDE
- B3** - The actuating button settings CROSS COUNTRY
- B4** - The actuating button settings for INDIVIDUAL

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3) ANT: Connector for omnidirectional antenna type RP-SMA;

WARNING !

When installing the module in the air system install that will impede communication, use 2.4GHz omnidirectional antenna with extended antenna cable to allow installation in a prominent place. Omnidirectional antenna with a cable is an optional extra and is not included in the kit

4) RESET: Reset button for service maintenance ;

To restart the unit, hold RESET button, it will force module to reboot and start again. Use this function in case of improper operation

WARNING !

Holdign the RESET button causes the module to restart but does not restart unit to factory default setting and do not erases the settings made by applications AirRIDE controll

a) PWR: LED power indicator „red”;

Power indicator informs us about the correct power up module.

WARNING !

Indication does not apply to control power.

b) TM: LED communication indicator „Green”;

LED communication indicator flash during transfer of information between module airRIDE BT and airRIDE Control application.

WARNING !

If we do not change anything in the application and does not change the pressure, the indicator should not illuminate in such a situation. If it is lit all the time is in the abnormal state and it must be reported to the supplier.

c) BT: bluetooth LED connection indicator „blue”;

LED connection indicator is working in two states:

- Standby – when the indicator flashing it means that the module is ready to communicate with the device with the application airRIDE Control;
- Connection status – when indicator is lit , it indicates that module is in communication with the device;

WARNING !

For allowing application to connect with the device , the connection LED indicator must be in „able to connect” and the bluetooth connection needs to be paired to the device (for more information see AirRIDE controll application instructions).

WARNING !

In the event that the device will suspend or close the application and does not release the connection and although the application module will be switched off in „connected” you must force release connection , for example by switching off the bluetooth device or disconnecting and reconnecting equipment

- d) **FL:** LED indicator for output front axle left wheel „red” – UP/ „green” – DOWN;
- e) **FR:** LED indicator for output front axle right wheel „red” – UP/ „green” – DOWN;
- f) **BL:** LED indicator for output rear axle left wheel „red” – UP/ „green” – DOWN;
- g) **BR:** LED indicator for output rear axle right wheel „red” – UP/ „green” – DOWN;

WARNING !

These indicators can work 3 way ,this meand that there can be a third colour except red for „UP” and green for „DOWN” , may appear orange colour which is the result of the extortion conflicting functions such as front axle „up” and simultaneously „down” the entire car. The result is contrary to the function is simultaneous activation of the function signals „ up „ and „down” for one valve

- h) **TANK:** LED indicator operating the control output compressor **ON/OFF**;

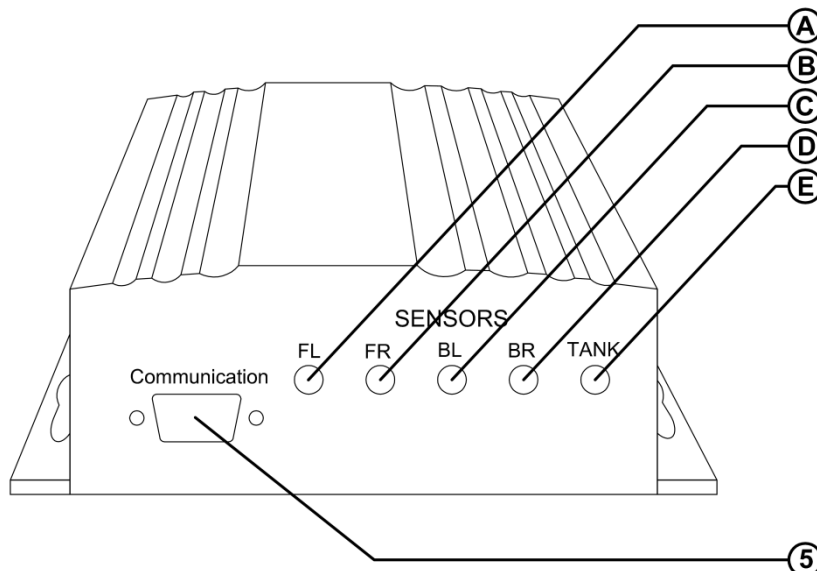
WARNING !

For VIPlus module this indicator is single state and red colour means the liberation of the control signal compressors work
For VIP module this indicators is inactive.

WARNING !

Module AirRIDE BT is autonomous module and after switching it will detects that the pressure in the tank measured by the sensor is a fifth below the minimum value it will automatically start the compressor on to inflate the value to the set maximum tank pressure.

2.2 RIGHT PANEL ITEMS



1) **Communication:** Connector RS for service communication and for connecting modules extend the functionality of the system

- A) **FL:** 6mm airline fitting for pressure sensor – front axle wheel left;
- B) **FR:** 6mm airline fitting for pressure sensor – front axle wheel right;
- C) **BL:** 6mm airline fitting for pressure sensor – rear axle wheel left;
- D) **BR:** 6mm airline fitting for pressure sensor – rear axle wheel right;
- E) **TANK:** 6mm airline fitting for pressure sensor – tank;

3

INSTALLATION

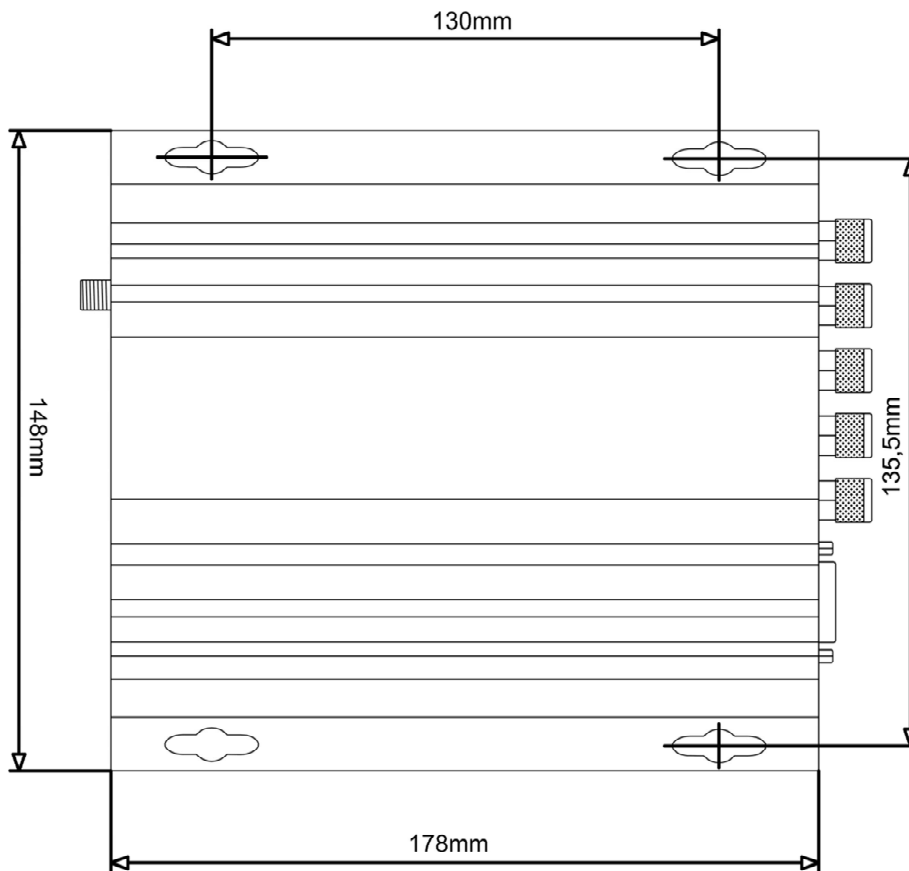
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3.1 MONTAGE

The module should be mounted on a stable surface. The special design of the housing equipped with bracket allows mounting of the Module via four screws or bolts

Below is stated the way how to install the module :

- bolt ABS anti-vibration frames ;
- screw the module via four screw or bolts (can be mounted in any position);



- mount omnidirectional antenna;
- perform all the necessary wiring loom connections (connection method is described later in this manual);

- perform all the necessary connetions of the pressure air lines (connection method is decribed later in this manual);

WARNING !

When mounting antivibration frames , be careful not to damage the guarantee seals placed on the Module. Damage to the seal is equivalent to the loss of the module warranty

WARNING !

Module should be mounted in the place to protect it against external conditions , above all secured from getting to the water and any other fluids

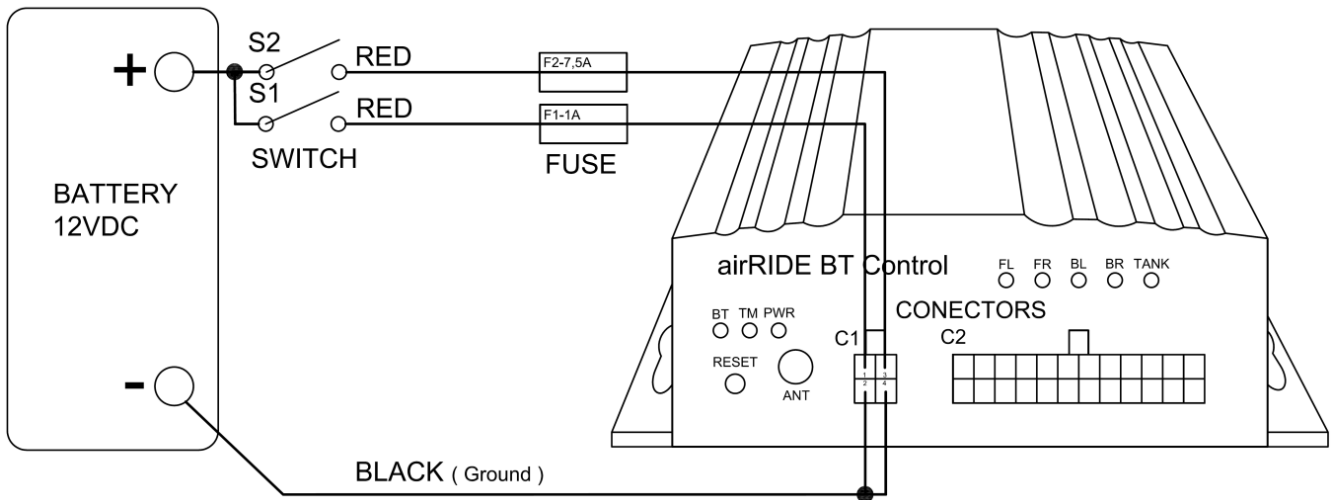
3.2 CONNECTING

WARNING !

Module connection should be carried out by qualified personnel. Before making connections , refer to the diagrams below

3.2.1 Powered

Connecting the power supply , module begins its work . System initialization takes about 3 seconds in this time do not run any functions of the device and press any buttons . Disable the device via disconnecting the power supply controller. Connecting the controll power supply allow to controll outputs of the module via voltage in the air valve and air compressor relay



- S1** - Power switch module
- S2** - The power switch control
- F1** - Fuse 2A
- F2** - Fuse 7.5A

WARNING !

Power supply according to the diagrams in this manual does not provide disconnect fuction when the ignition is turned of , install the power switch in order to avoid discharging the vehicle battery .

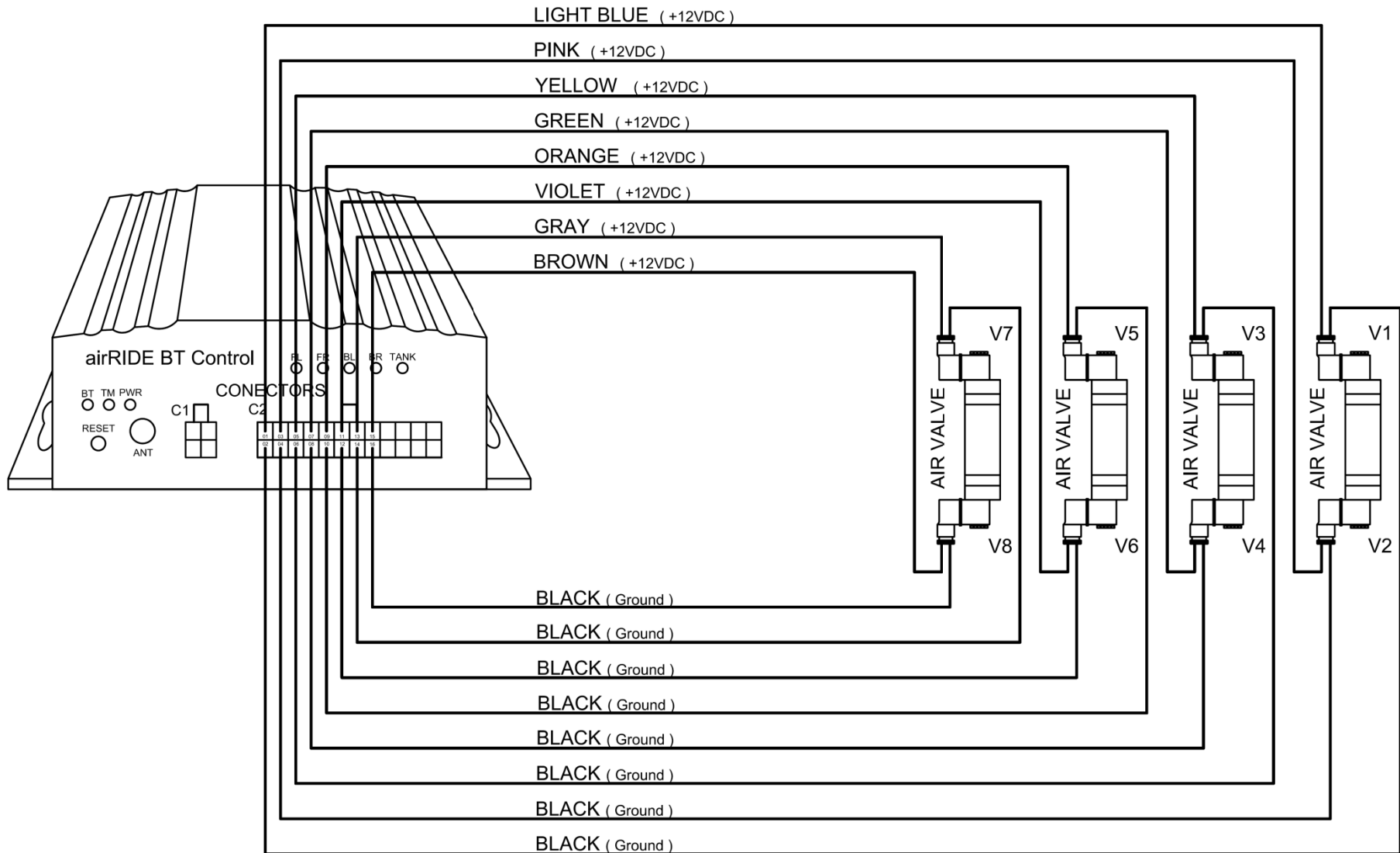
WARNING !

It is absolutely forbidden to drive a vehicle with an attached power to the module , install the power switch to avoid unwanted tripping when moving the vehicle .

SHEMAT CONNECTION MODULE - WHEELS SUSPENSION CONTROL

3.2.2 Controlling air valves

INSTRUCTION MANUAL - Module airRIDE BT VIP i VIPus (version: 1.4)

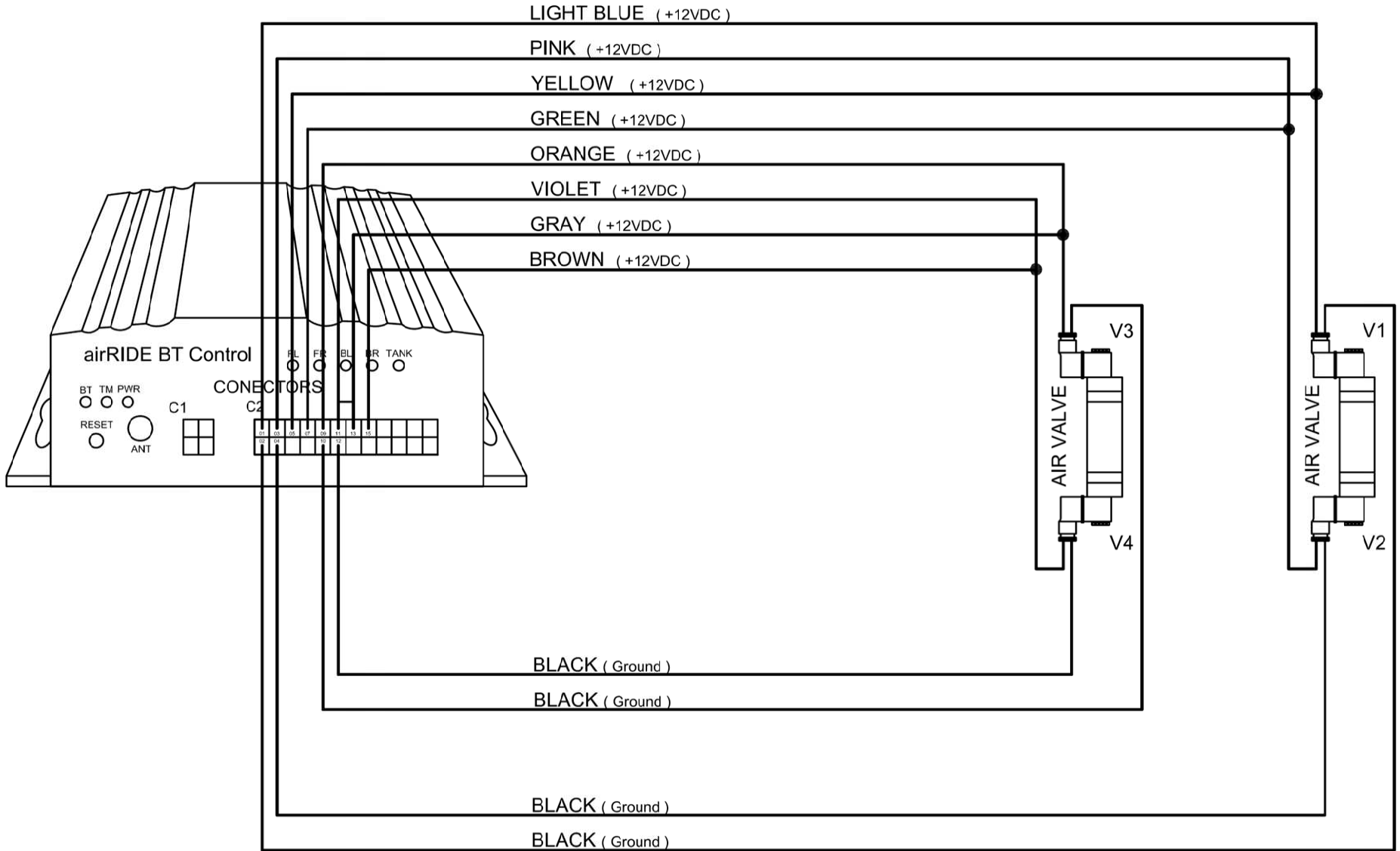


V1 - Air valve left front wheel - UP
V2 - Air valve left front wheel - DOWN
V3 - air valve right front wheel - UP
V4 - Air valve right front wheel I - DOWN

V5 - Air valve left rear wheel - UP
V6 - air valve left rear wheel - DOWN
V7 - air valve right rear wheel - UP
V8 - air valve right rear wheel - DOWN

WARNING: The maximum load control outputs 12 VDC (8 outputs for connecting valves and 1 relay output for connection to the compressor) is 7A.

SHEMAT CONNECTION MODULE - AXLE SUSPENSION CONTROL



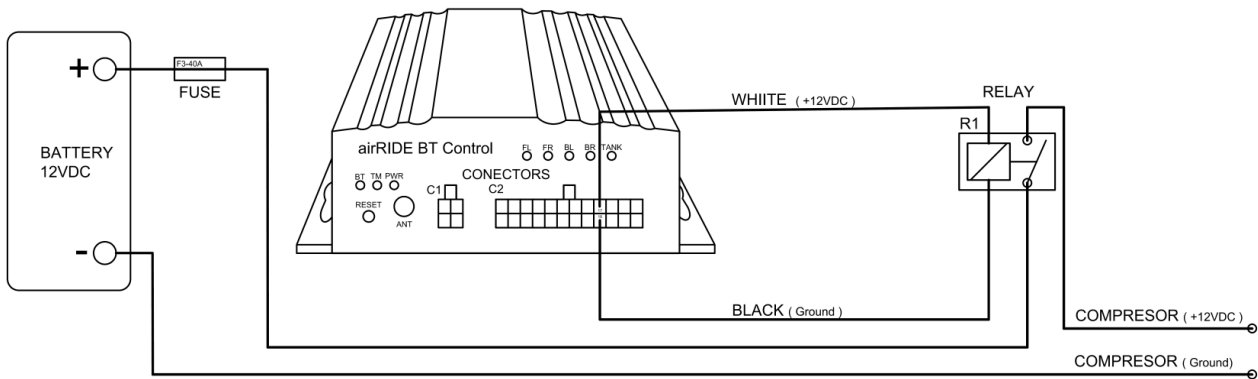
V1 - Air valve front axle - UP
V2 - Air valve front axle - DOWN

V3 - air valve rear axle - UP
V4 - air valve rear axle - DOWN

WARNING: The maximum load control outputs 12 VDC (8 outputs for connecting valves and 1 relay output for connection to the compressor) is 7A.

3.2.3 Controlling the compressor

Module VIPlus is equipped with output for compressors working with air ride system with a load of 1A. Output need to be wired with compressor control relay .Control of the pressure is performed automatically by the air pressure parameter settings set in the module settings (minimum and maximum). Module has got standart setting set up (below 120 PSI is switching ON , after reaching 150PSI it switching it self OFF). With airRIDE Control application you will be able to set up any minimum and maximum pressure between 0psi up to 200PSI.



R1 - Relay switching the compressor

WARNING !

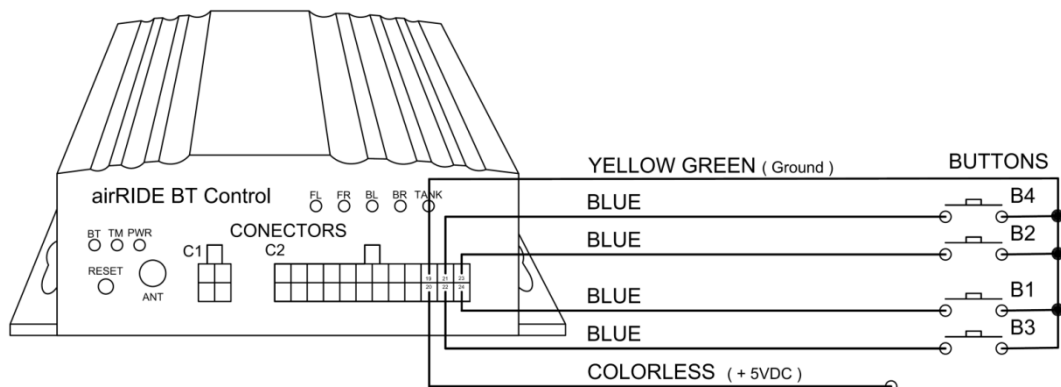
Do not connect compressor directly to the output control unit because it will overload and damage the output.

WARNING !

Relay R1 is not included with the module need to be bought seperatly .

3.2.4 External control via buttons positioning

This function is availabe through a standalone module operation AirRIDE BT module – version only with sensors (VIPlus). From the module routed joint control pins B1, B2 ,B3 and B4 for external positioning buttons .Vehicle suspension pressure setting can be set up in four set high arranged by AirRIDE control application (slow and low , Daily ride , cross country and individual).



- B1** - The actuating button set SLOW & LOW
- B2** - The actuating button settings DAILY RIDE
- B3** - The actuating button settings CROSS COUNTRY
- B4** - The actuating button settings for INDIVIDUAL

To call one of these functions you need to press button to call given function , re-press will cause the function to stop , if you press another button the controller will make setting function of the last pressed button. Positioning buttons also work with an AirRIDE control application

WARNING !

You must first set the settings functions (slow and low , daily ride , cross country and individual) through AirRIDE control application then it will work from the positioning buttons.

WARNING !

Pin(+5V) is used for installation of additional modules extend the functionality of the system , when they are not installed it must be protected against short circuits and left unconnected

3.2.5 Air system

UWAGA !

Tightening the air line fitting please perform gently , if using spanners to make them tight please use two spanners not to turn and do not damage the sensors that are installed inside the module , **We recommended finger tightening the airlines as it is sufficient force for the hoses to be properly connected**

WARNING !

Measurement of compressed air through the module depend on several factors prevailing in the vehicle and the pneumatic suspension system , so you should pay special attention to the following guidelines.

a) Air line connections for pressure sensors

Before choosing a place of attachment the air lines for pressure sensors you should take into account the „velocity: of the system , size of the airlines and valves .it is recommended to install connections as state :

- a) **By the air valves** – only in slow air ride systems with low air speed flow;
- b) **By the gauges** – at medium speed air systems ;
- c) **as closest to air struts** – at fast systems with pretty fast flow of air;
- d) **In the AirStruts using additional fitting** – at super fast air ride systems with very fast flow of air

Place of assembly of the pressure sensor airlines should be chosen according to the time which is needed by the system to level the pressure between cushion and the air valve. When these elements are high performance time of pressure equalization in the system is longer and it created a big difference between the pressure in the suspension and the pressure in the system which is not using the correct routing location will cause distortion measuring the pressure prevailing in suspension , preventing proper operation of the system. Therefore you should choose a place reasonably. If the measurement is closer to the working actuator or the system (ie airbag) the reading is more accurate

b) Module Power

Module Power during measurement can not have drops below 10VDC in case of larger voltage drops , for example when the compressor with the engine off and the lack of charging it the vehicle alternator , pressure measurements may be incorrect since the measurement of pressure sensors is dependent on their voltage supply

c) Module Calibration

Module is calibrated by the manufacturer of the laboratory gauge pressure measurement. The sensors measure air with accuracy 1PSI in the range of 0psi to 200psi, If you have the system with traditional gauges , which are not as accurate , there may be a differences in indications between them as the indications of the AirRIDE control application it is possible to conduct its own calibration in accordance with their system gauges using application (more information in the AirRIDE system application manual contained on the supplied CD)

WARNING !

In the event of a discrepancy vehicles suspension setting between pre-defined users user pressure setting in the airRIDE application , you should verify the location of the installation of the measuring airline connections (see 2.5.1 part 1 of this instructioni).

WARNING !

In the event of air pressure drops in the airRIDE Control application during high draw of power by other equipment on the vehicle , you need to check if there arent to big power drops in the electrical system of the car (see 2.5.1 part 2 of this instruction).

WARNING !

In the event of a discrepancy between pressures in airRIDE Control application and Pressures on the prassure gauges you would need to perform a calibration of the system (see 2.5.1 part 3 of this instructions).

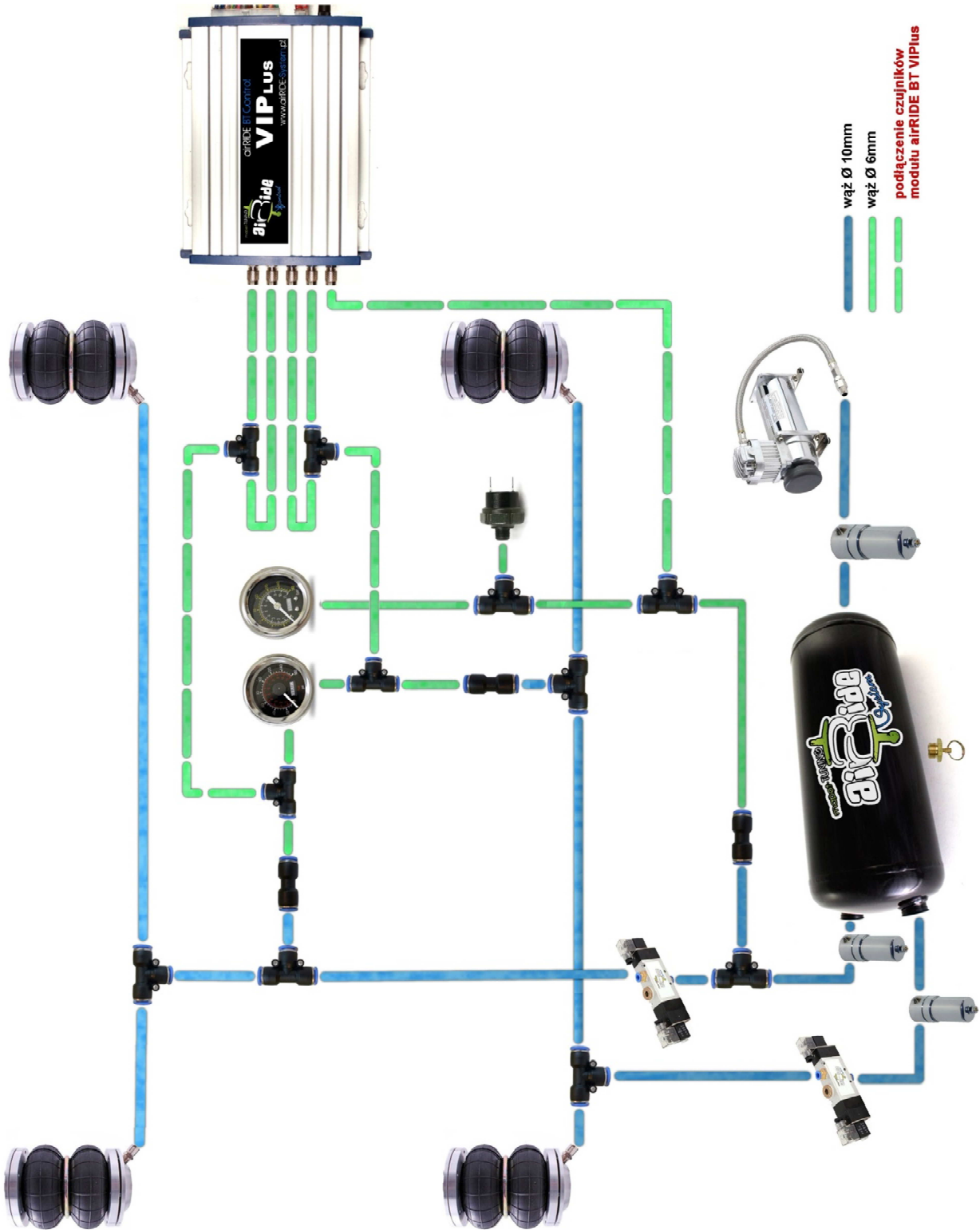
WARNING !

Pressure sensors are not resistant to pollution in the air or ar too high moisture so you should use air filters and dryers for compressed air system. **Warranty does not cover to repair of damaged pressure sensor due to improper installation of compressed air system .**

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On page 16 and 17 are diagrammatic views of the module connection to the compressed air ride system. Depending on the type of system it will composed on the different configurations on components

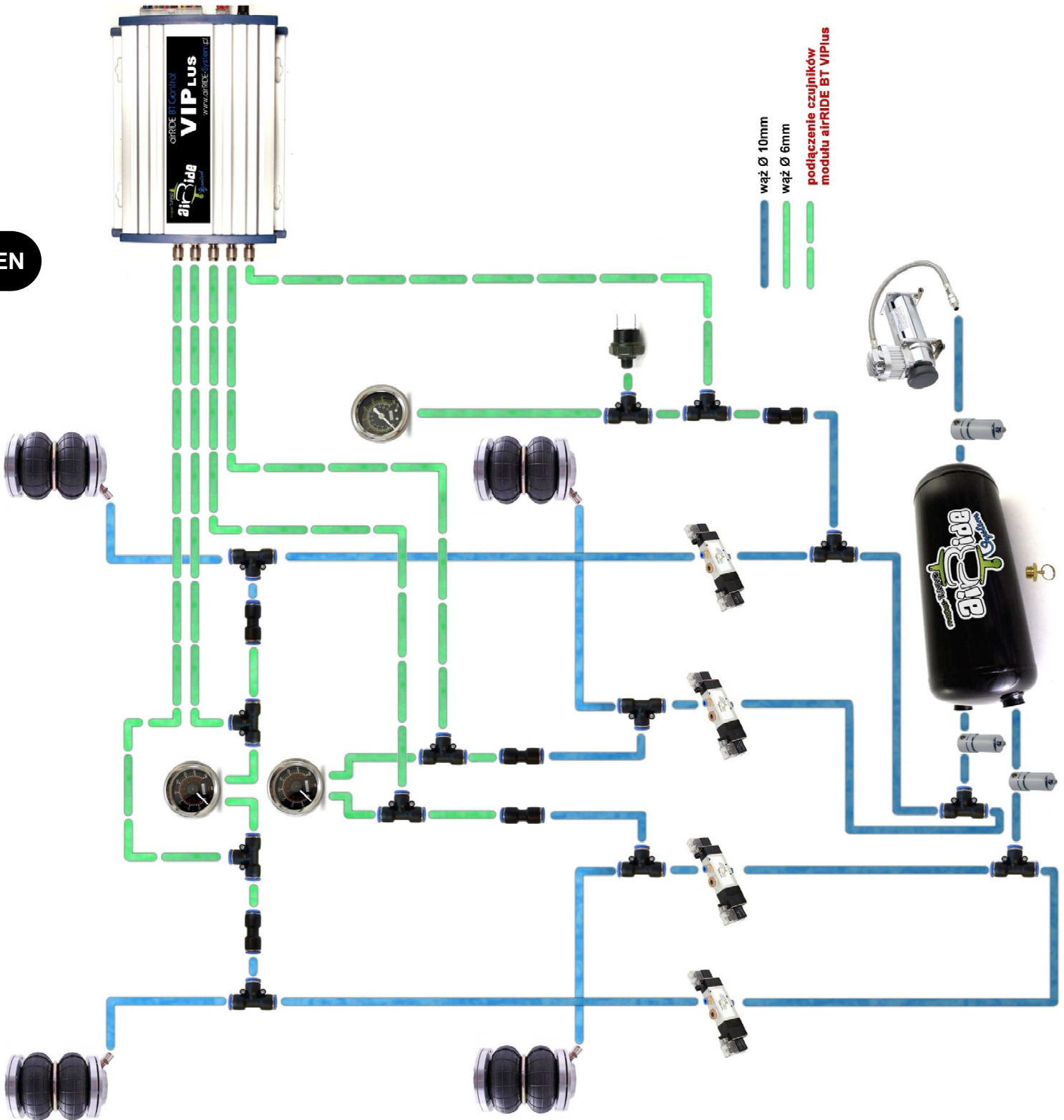
EXPLANATORY DIAGRAM –CONTROLL AXLE FRONT AND BACK



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EXPLANATORY DIAGRAM – CONTROL 4 WHEEL INDEPENDENT

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Detailed information on how to configure and use an application are included on the CD and on the websites www.airRIDE-System.pl



April 2015