

# Product Specification

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## VCS II GenericIO Parameter Setting

### Automatic Lift Axle Control with Traction Help (ID 14)

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This specification describes the requirements for an automatic lift axle control with traction help by a VCS IIGenericIO parameter setting.

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# 1 References

The system specification 400 010 203 0 is the basis for the VCS II requirements. This document specifies the VCS II system.

The electrical data of the input and outputs are specified in the component specification of the corresponding modulator.

# 2 General

The Premium variant of VCS II is equipped with an analog input and two digital outputs. They can be used for an automatic lift axle control with traction help, by reading the air bellow pressure of the air suspension system (analog input) and controlling a lift axle based on this signal (digital outputs).

Additionally the analog input receives the status signal of a manually operated switch (in parallel to the pressure sensor signal) to activate the traction help function.

# 3 Pinning

The function uses the following connector pins:

Variant	Connector pin
Premium	X6.1, X6.2, X6.3, X6.5

X6.1	Digital output D1:	Lift axle control valve
X6.2	Digital output D2:	power supply of pressure sensor
X6.3	Analog input A1:	pressure sensor and traction help tip switch
X6.5	Ground	Common ground for all components

# 4 Wiring

The automatic lift axle control is wired by the GenericIO cable 449 617 ... 0 or cable 449 618 ... 0 (resp. other cables which support this and other functions). See also the wiring diagram on page 6.

# 5 External components

For this function there are the following additional external components necessary:

- Pressure sensor 441 040 013 0
- Lift axle control valve 463 084 030 0 (single circuit)
- 

Or

- Lift axle control valve 463 084 010 0 (dual circuit)
- Cable 449 617 ... 0 or 449 618 ... 0
- Wiring of pressure sensor: cable 449 732 ... 0
- Wiring of lift axle control valve: cable 449 422 ... 0

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- Junction box
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The components for the traction help function (tip switch, cable, status indicator lamp, diode) are not supplied by WABCO.

## 6 Functionality

### 6.1 Lifting of the axle

The lift axle is lifted if:

- the air bellow pressure is lower than the pressure threshold "lift axle lifting" (defined by GIO parameter setting)
- the vehicle speed is higher than the speed threshold "lift axle lifting" (defined by GIO parameter setting)
- for traction help:  
if the analog input is connected to ground or supply voltage for less than 5 sec

### 6.2 Dropping the axle

The lift axle is dropped if:

- If the vehicle is not moving:  
the air bellow pressure is higher than the pressure threshold "lift axle dropping" (defined by GIO function parameter setting)
- During driving:  
the air bellow pressure is higher than 110% of the pressure threshold "lift axle dropping" (defined by GIO function parameter setting)
- For suspending the traction help function:
  - The vehicle speed is higher than the highest admissible speed for the traction help function (defined by GIO function parameter setting)
  - or
  - The air bellow pressure is higher than highest admissible pressure for the traction help function (defined by GIO function parameter setting)

The automatic lift axle control may override dropping the axle. This results in keeping the axle lifted, though the traction help control function is suspended.
- To enforce dropping of the lift axle at any time:  
if the analog input is connected to ground or supply voltage for less than 5 sec. This function can only be deactivated by resetting the ECU.

### 6.3 General Conditions

The lift axle control is not active if there is stop light power supply only available or if the power supply voltage is smaller than 19 V.

## 7 Operating range

The lift axle control function works within the following limits:

Air bellow pressure: 0,15 to 10 bar  
Vehicle speed: 0 to 160 km/h  
Tip switch status: 0 to 30 V

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## 8 Failure detection and reaction

The following failures can be detected at the digital outputs D1 and D2:

- Short circuit to power
- Short circuit to ground
- Cable break (only if the corresponding function parameter is activated)

If one of these failures occurs it is stored in the failure memory and the warning lamp is activated (in case of cable brake only if the corresponding function parameter is activated).

In case of a pressure sensor signal failure the lift axle is dropped to achieve the fail safe status.

## 9 Function parameters

The following function parameters are available:

Name	Unit	Range	Default value
Vehicle speed for lifting	km/h	0 ...30	15
Air bellow pressure for lifting	bar	0 ...10	2
Air bellow pressure for dropping	bar	0 ...10	5
Vehicle speed for suspending traction help	km/h	0 ... 160	30
Air bellow pressure for suspending traction help	Bar	0 ... 10	0

## 10 Test function

The test function allows testing of the lift axle control function by controlling the lift axle directly and independtly of the air bellow pressure.

## 11 System safety

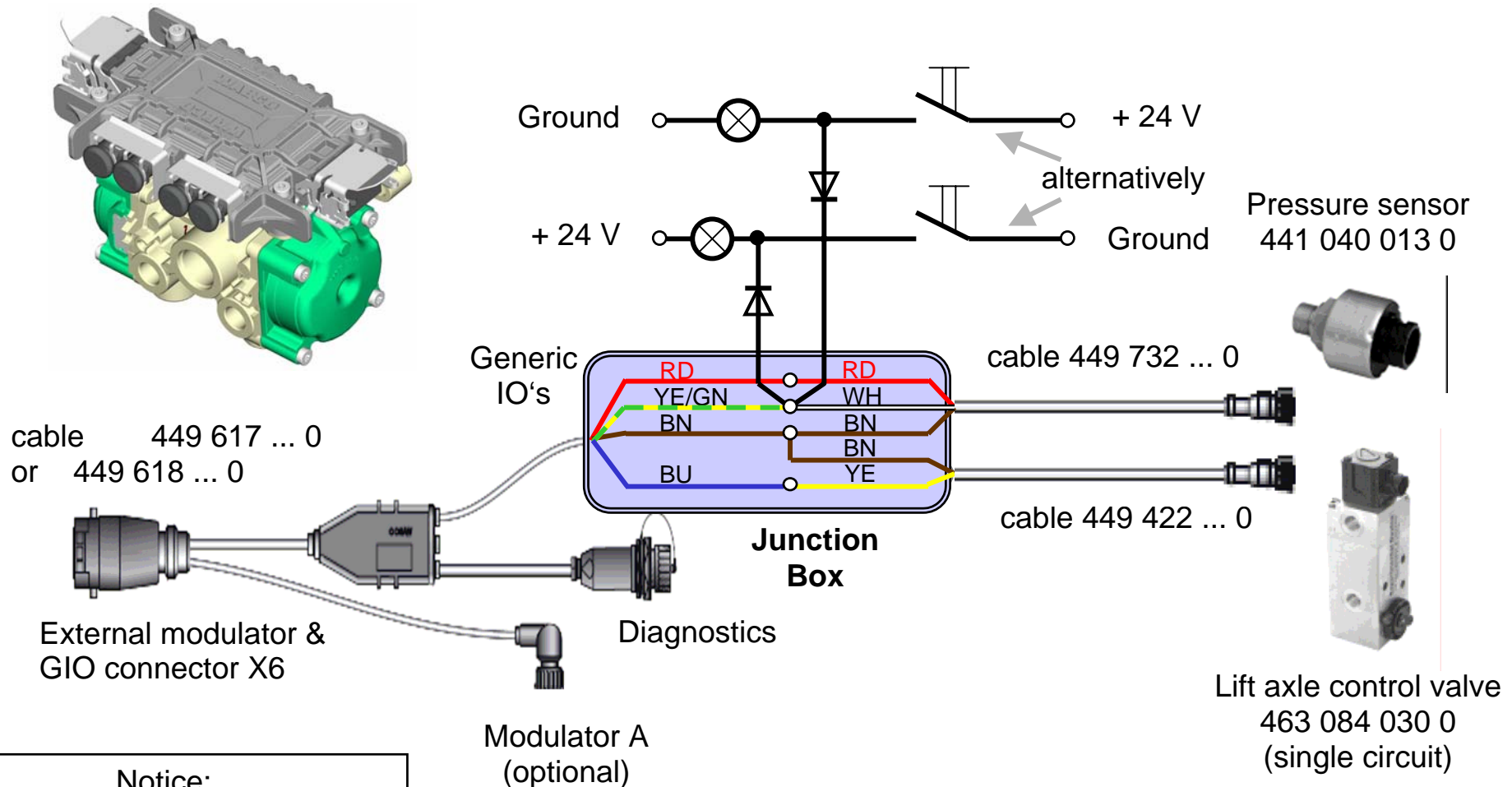
GenericIO functions may be used for general applications. Trailer manufacturers, workshops and fleets who are installing or operating this functionality must assure that the system achieves a safe status in case of any system failure (fail-safe status).

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# VCS II Lift Axle Control

## Single circuit, w/ traction help

12 Wiring diagram



**Notice:**  
Traction help has to be activated by GenericIO parameter setting