

Product Specification

Function, quality and reliability are subjects of this specification.

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VCS II GenericIO Parameter Setting

Automatic Lift Axle Control (ID 13)

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This specification describes the requirements for an automatic lift axle control 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, by reading the air bellow pressure of the air suspension system (analog input) and controlling a lift axle based on this signal (digital outputs).

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
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
- Junction box

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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 function parameter setting)
- the vehicle speed is higher than the speed threshold “lift axle lifting” (defined by GIO function parameter setting)

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)

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

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

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10 Test function

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

11 System safety

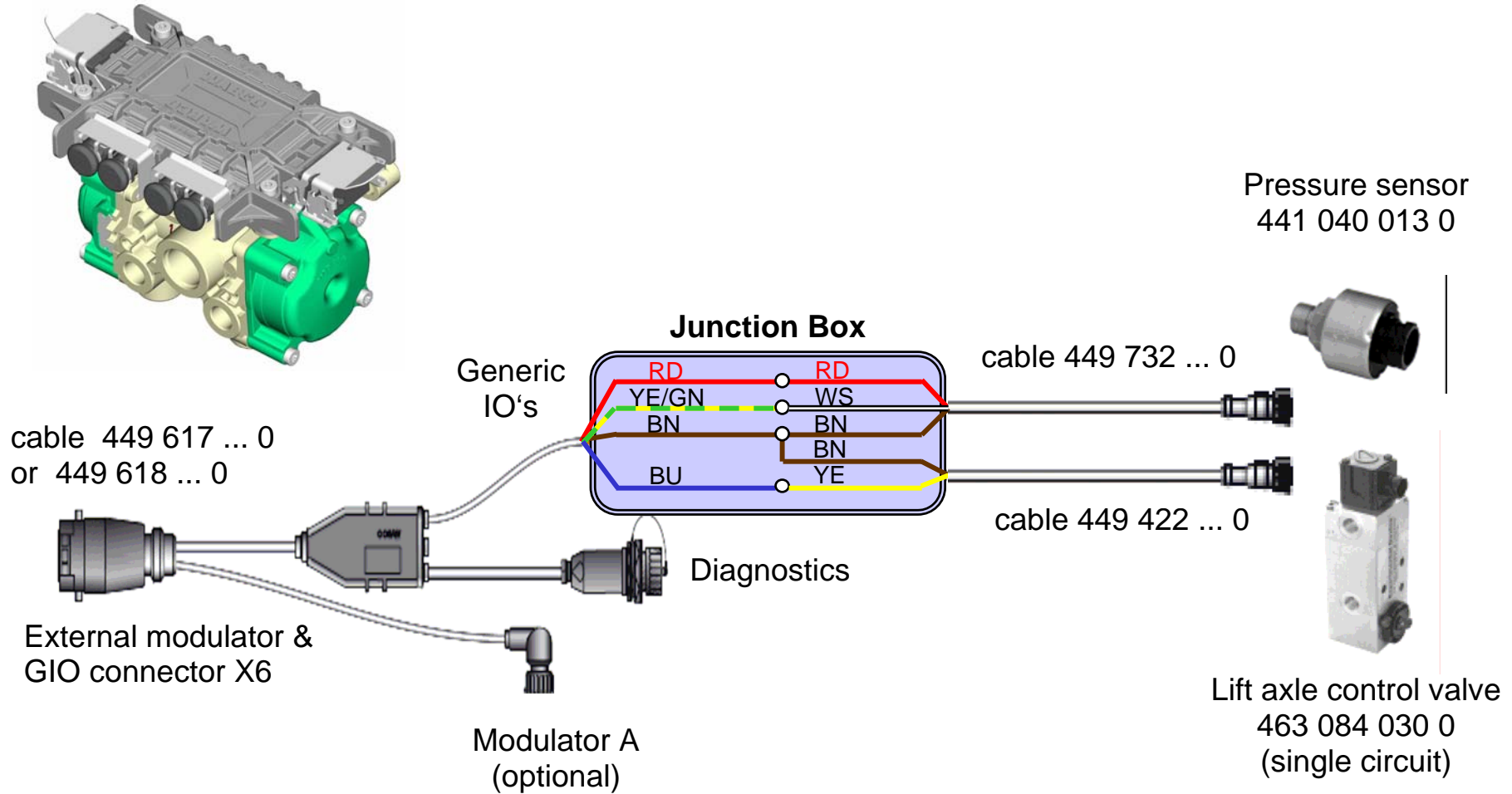
GenericIO functions may be used for general applications. Trailer manufacturers, workshops and fleets who are installing or operating this functionality must assure that the system achieves a safe status in case of any system failure (fail-safe status).

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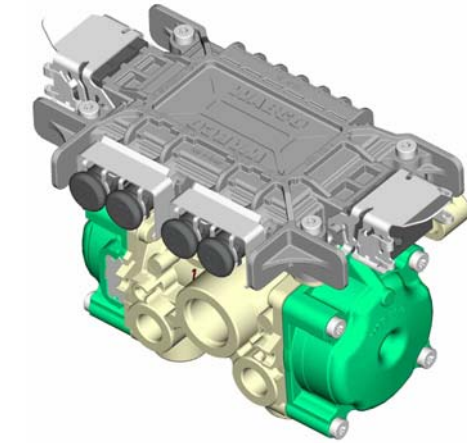
VCS II Lift Axle Control

Single circuit

12 Wiring diagrams



VCS II Lift Axle Control Dual circuit

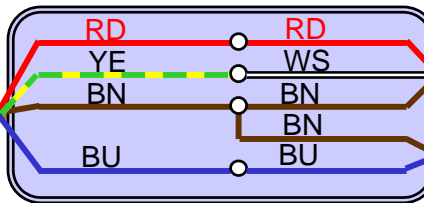


Pressure sensor
441 040 013 0



Junction Box

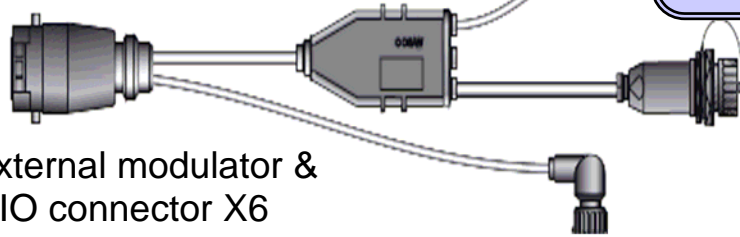
Generic
IO's



cable 449 732 ... 0

cable 894 604 215 2

cable 449 617 ... 0
or 449 618 ... 0



External modulator &
GIO connector X6

Diagnostics

Modulator A
(optional)



Lift axle control valve
463 084 010 0
(dual circuit)

Attachment

Reference of matching circuit diagrams

Lift Axle Control VCS II, Fully Automatic
Click to open:

Single Circuit Lift Axle Valve 841 802 133 0

Two Circuit Lift Axle Valve 841 802 134 0