

Application

TRITRONIC Trailer management system



Tritronic

TRIDEC Tritronic Trailer Management System is an addition to TRIDEC hydraulic steering- and suspension systems. Tritronic controls vital trailer-functions by one single powerful remote; such as e.g. manual steering, automatic alignment, ride-height control, automatic ride-height control, ramps, adjustable gooseneck, landing legs and warning lights among many others. Clear menus, a large display and a logical key structure offer the operator the greatest ease of control. Tritronic wireless remote transmits a secured bluetooth signal. Different to most common wireless systems, the bluetooth signal is insensitive for metal obstacles. For safety reasons, most functionalities are switched-off at higher speed. Tritronic offers a unique combination of functionality, safety and ease of control, revolutionary in the heavy transport industry.

Steering

Tritronic can manually control a TRIDEC hydraulic steering system. For additional manoeuvrability, the axles can be pointed in any desired position, simply by operating the remote. With one single press at the button, the axles automatically return in-line.

At lower speeds, the remote steers the axles without disengaging the regular command steering system. In contrast to most common steered trailers, the Tritronic system is always directly operational. No valuable time is lost by disengaging rods or switching hydraulic valves. The driver doesn't even have to leave his seat or stop the vehicle. Another unique advantage concerns the automatic re-alignment. Pressing the GO-key makes the axles return to the position matching the angle of the trailer at that moment. Unlike with competitor systems, it is not necessary to drive in a straight line or on a perfect even road. Even in turns or on rough soil, the axles will return to their designated position.





Suspension

Tritronic automatically controls the correct ride-height for TRIDEC hydraulic suspensions. After loading and unloading ride-height deviations are automatically corrected. The remotes allows for manual suspension height corrections (left and right separately). Not only is the system available for common 2-point suspensions, also for 3-point suspensions (as can be found in draw-bar trailers, on trailers with an inter-dolly or gooseneck-compensation). Other functionalities include lift-axle control, traction-help and a second automated ride-height. A load indication system informs about cargo load, vehicle weights and axle loads. A warning is provided upon overloading.



Extra functions

Besides controlling TRIDEC steer- and suspension systems, Tritronic can control most other vital trailer applications. Hydraulic, electric and (indirectly) pneumatic functions can easily be operated by the remote. Most common examples are e.g. ramps, adjustable gooseneck, stingers, sliders, hydraulic landing legs, struts, winches, several pneumatic locking mechanisms, vehicle extension and widening, work- and signal-lights. The possibilities are endless, and best of all, to be determined by the user. Depending on the exact application, Tritronic can control 18 extra functions.

Technical specifications

Code	Description
1702	Tritronic radio remote control



'Tritronic wireless radio remote' offers the possibility to manually control the steering system and replaces the standard hand-operated hydraulics, by a complete plug & play electro-hydraulic system:

Control-box

- Stainless steel cabinet with plastic lid
- Hydraulic block with electrically operated valves
- Switchbox, to activate all valves and relays (max. 20A simultaneous)
- Emergency control possible by;
 - Pump activation switch
 - Manual activation hydraulic valves
 - Hand pump



Power-pack box

- Stainless steel cabinet with plastic lid
- 3kW electric hydraulic pump, 10l/min flow
- 15l hydraulic oil tank with gauge glass
- State of the art relay



Remote

- Clear menu structure
- Large colour display with touchscreen
- Programmable in several languages
- Start-up possible in max. 4 different languages
- Bluetooth communication with computer
- 8 hours continuous operational, 3 weeks standby-time
- Splash-proof according to IP54 classification
- Holder for plugless charging, or charging cable with cigarette plug included
- Easy to replace and synchronise with computer



Computer

- Placeable anywhere underneath trailer
- Robust design with moulded-in electronics
- Dust- and waterproof according to IP67 classification
- State of the art gilded Souriau connectors
- Bluetooth, CAN – BUS and Point-to-Point communication



Mode switch

- Robust design with moulded-in electronics
- Dust- and waterproof according to IP67 classification
- Low steering pressure warning lamp
- Antenna

Sensors

- Integrated in TRIDEC fifth wheel unit and axle unit
- Dust- and waterproof according to IP67 classification

Cables

- State of the art gilded Souriau connectors
- Dust- and waterproof according to IP67 classification
- Available in several lengths and with extension cables
- All required cables supplied by TRIDEC (except power-pack power-supply cable)



General

- Standard 24V (12V optional)
- EMC and ISO7637 approved, RDW E4 certified (E4-R10-032273 & 4)

Code	Description
1732	Control unit for hydraulic suspension with automatic ride-height setting (including height sensors) when Tritronic is not mounted on the steering system



The Tritronic suspension system controls the height regulation for a TRIDEC hydraulic wheel suspension. The system contains equal components as 'Tritronic radio remote control' (code 1702), however the control-box is equipped with an hydraulic block to match the suspension. Both ride-height sensor-sets are supplied separately.

Control-box

- Stainless steel cabinet with plastic lid
- Hydraulic block with electrically operated valves
- Switchbox, to activate all valves and relays
- Emergency control possible by;
 - Pump activation switch
 - Manual activation hydraulic valves

Sensor-sets

- Two ride-height sensor-sets for Left and Right
- Dust- and waterproof according to IP67 classification
- All required cables (with extension cables)

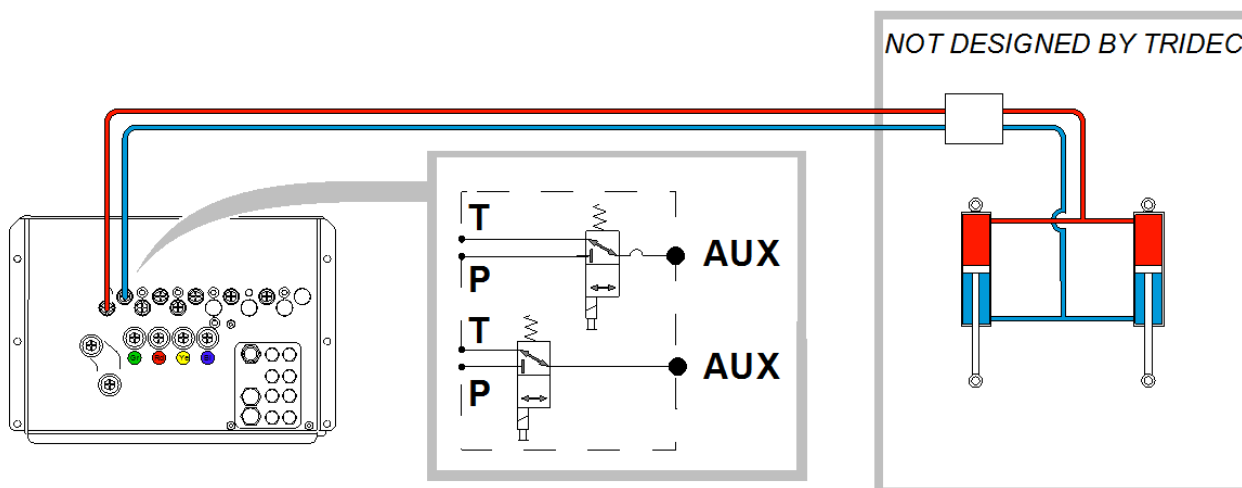
Tritronic Options

Code	Description
1703	1 extra hydraulic function operated with Tritronic
1704	2 extra hydraulic functions operated with Tritronic
1705	3 extra hydraulic functions operated with Tritronic
1706	4 extra hydraulic functions operated with Tritronic



- Pulse, continuous and timed activation possible
- Additional valve block embedded into the control-box, with Normally Open valves and G3/8 connections
- Pump activation programmable
- Release by external signal, or switch programmable
- Manual emergency activation possible
- More than 4 extra functions possible at request

Some hydraulic applications might require additional hydraulic components such as check valves or balance valves, these components are not supplied by TRIDEC.



Code	Description
1741	1 extra electric function operated with Tritronic
1742	2 extra electric functions operated with Tritronic
1743	3 extra electric functions operated with Tritronic
1744	4 extra electric functions operated with Tritronic



- Pulse, continuous and timed activation programmable
- Direct connection to switchbox
- Max 8Amp per exit
- Pump activation programmable
- Release by external signal, or switch programmable
- State of the art gilded Souriau connectors
- More than 4 extra functions possible at request

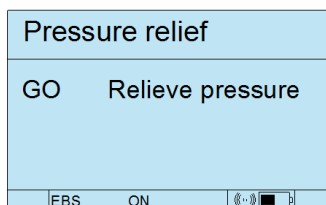
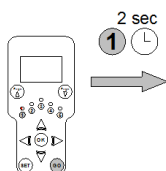
Code	Description
1723	Extra function release button



Some extra functions could cause dangerous situations, when (unintendedly) activated, such as e.g. use of ramps. To prevent unintended activation, an extra function can be expanded with a release button. Control of the designated function is only possible if the button is pressed (leaving 30s to start with activation). By preference the button is located nearby, and in view of the danger-zone.

- Robust button, dust- and water-proof according IP67 classification
- Including extension cable (5, 10 or 20m)

Code	Description
1715	Pressure relieve hydraulics steering system (for multifaster)



Splitable trailers often use TRIDEC multifasters to separate the steering systems hydraulic lines. The ease of operation and multifasters lifetime benefit when excessive hydraulic pressure is relieved before engaging.

Code	Description
1717	System suitable for 12V instead of 24V

- All components suitable for 12V
- 2kW power pack, with thermal fuse

Code	Description
1720	Open-end cable for control lights to indicate the alignment



Offers the possibility to connect two warning lights, which will illuminate when the trailers runs out-of-line (Left or Right).

- Open-end cable to connect both lights to the switchbox. (lights not included)

Code	Description
1722	Control of second hydraulic control-box in case of a double steering system Controlled via TRITRONIC.



Exceptional vehicles, such as special draw-bar trailers or trailers with inter-dolly, can be equipped with double steering systems. Tritronic can control both steering systems.

- Manual steering second steering system
- Low pressure warning for both steering systems
- All cables required to connect the second steering system to the Tritronic system (incl. extension cables)

Code	Description
1725	Repositioned connection point TRITRONIC remote control



Some circumstances might ask for abandoning the bluetooth signal, such as e.g. nuclear environments or highly secured military airports. Connecting the remote directly to the computer by cable, automatically turns off the bluetooth signal.

- Cable computer – socket 2.5m or 10m

Code	Description
1726	2 extra connection points TRITRONIC remote control



Code 1726 offers equal functionality as code 1725 'Repositioned connection point', with a 2nd connection point

- Alternative for code 1725
- Two socket-boxes
- Cable computer – 1st socket-box (5, 10 or 20m)
- Cable 1st socket-box – 2nd socket-box (5, 10 or 20m)

Code	Description
1733	Control unit for hydraulic suspension with automatic ride-height setting (including height sensors) when Tritronic mounted on the steering system



This option expands a Tritronic steering system control with ride-height control, and offers the same functionality as code 1732 'Control unit for hydraulic suspension'

Control-box

- Addition of an hydraulic block to control the suspension (2-point: Left and Right suspension)

Sensor-sets

- Two ride-height sensor-sets
- Dust- and waterproof according to IP67 classification
- All required cables (with extension cables)

Code	Description
1714	Lift-axle function to lift 1 axle (group) with Tritronic



- Option for code 1732 & 1733 'Control unit for hydraulic suspension'
- Possibility to lift one axle, or one group of axles
- Two hydraulic lift-axle valves, to be positioned nearby the suspension cylinders
- All required cables (with extension cables)

Code	Description
1719	Traction-help by temporarily lift-axle activation

- Option for code 1714 'lift-axle function'
- Lift-axle is temporarily (10s) lifted, generating additional traction

Code	Description
1718	Semi-automatic lift-axle activation

- Option for code 1714 'lift-axle function'
- Lift-axle is automatically lowered, when the remaining axles tend to become overloaded
- Adjustable pressure sensor mounted at TRIDEC hydraulic suspension
- All required cables (with extension cables)

Code	Description
1791	Load indication system



- Load indication clearly displayed on the remote:
 - load per hydraulic zone (e.g. suspension front, left and right)
 - cargo load
 - combined trailer load
 - combined vehicle load
- Warning when overloading
- Pressure sensors mounted on TRIDEC accumulator manifolds
- Required cabling, with extension cables included
- By preference for 3-zone suspension systems. One, two and four zone systems possible upon request
- Accuracy $\pm 2\%$
- Reading in kg, lbs or oz

Code	Description
1749	Automatic lift-axle activation

- Option for code 1714 'lift-axle function' and code 1791 'load indication system'
- Lift-axle is automatically raised when axle loads at the remaining axles permit: saving tires, fuel and adding load to the front zone at empty runs
- Lift-axle is automatically lowered, when the remaining axles tend to become overloaded
- Lift-axle activation-loads are user adjustable
- Warning when front zone is under- or over-loaded (only for 3-zone suspension systems)

Code	Description
1734	Extra driving height TRITRONIC

- Option for code 1732 & 1733 'Control unit for hydraulic suspension'
- Automatic ride-height control 2nd ride-height

Code	Description
1735	Expansion to 3-point height control



1735

Exceptional vehicles such as special draw-bar trailers, trailers with an inter-dolly or gooseneck-compensation are often equipped with 3-point suspensions. Option code 1735 expands the standard 2-point height control to 3-points.

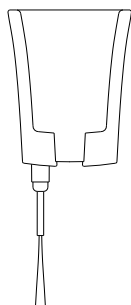
- Option for code 1732 & 1733 'Control unit for hydraulic suspension'
- Automatic ride-height control for all 3 suspension zones
- Required expansion hydraulic block
- Additional ride-height sensor-sets
- All required cables (with extension cables)

Code	Omschrijving
1729	Extra remote

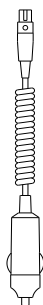


- Easy to synchronise with computer

Code	Omschrijving
1730	Extra remote holder or charge cable



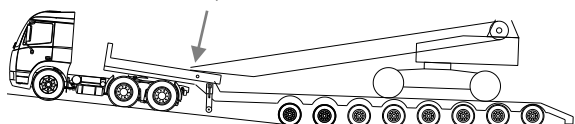
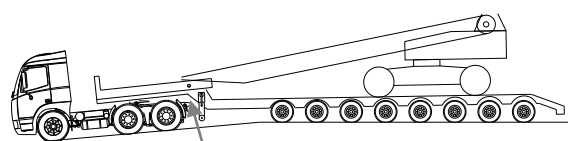
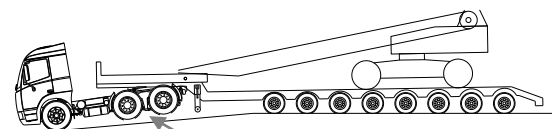
Holder –
open end cable



Charge cable –
cigarette plug

A remote charging device is included. By choice either a holder with plugless charging and an open-end cable for permanent installation on to the dash board, or a charge cable with spiral cord equipped with "cigarette" plug. This code relates to an additional charging device, holder or cable.

Code	Description
1765	Neck compensation preparation

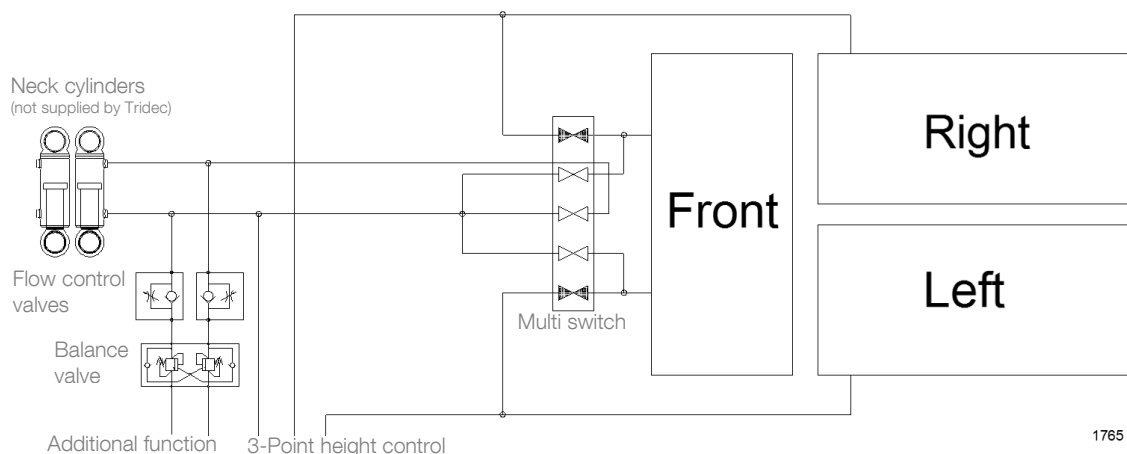
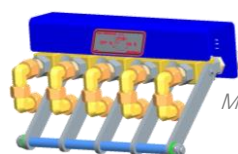


Neck compensation allows an adjustable gooseneck to tilt actively in harmony with the front trailer axles.

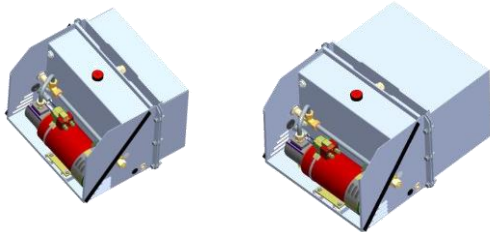
- Option for code 1732 & 1733 'Control unit for hydraulic suspension'
- Enlarges the vehicles application possibilities and road-worthiness
- Prevents overloaded and relieved axles
- Ensures sufficient kingpin pressure and traction
- Neck-height control by Tritronic remote
- Neck compensation switchable ON/ OFF by hydraulic multi-switch

TRIDEC Components

- 1 extra hydraulic function (code 1703)
- Expansion to 3-point height control (code 1735)
- Hydraulic multi-switch (5-fold)
- Balance valve
- Two adjustable flow control valves

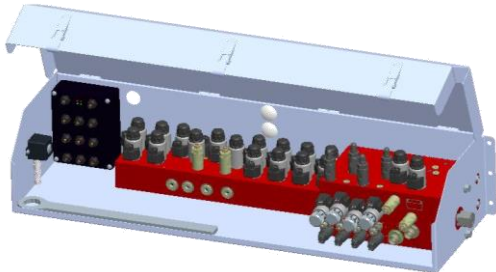


Code	Description
1770	30 litre oil tank instead of standard 15 litre oil tank in power pack
1771	45 litre oil tank instead of standard 15 litre oil tank in power pack



Applications with extra hydraulic functions, or hydraulic suspension, could require increased oil tank capacity. Optionally the standard power-pack box can be equipped with a larger tank.

Code	Description
1775	Control-box for multiple hydraulic functions



Applications with a larger number of extra hydraulic functions, or hydraulic suspension, could require a larger control-box to fit the additional valves. Optionally the standard control-box can be replaced by a larger version.

Code	Description
1751	Extra cable remote control Tritronic (2 buttons)
1752	Extra cable remote control Tritronic (4 buttons)
1753	Extra cable remote control Tritronic (6 buttons)
1754	Extra cable remote control Tritronic (8 buttons))
1755	Extra cable remote control Tritronic (10 buttons)
1756	Extra cable remote control Tritronic (12 buttons))

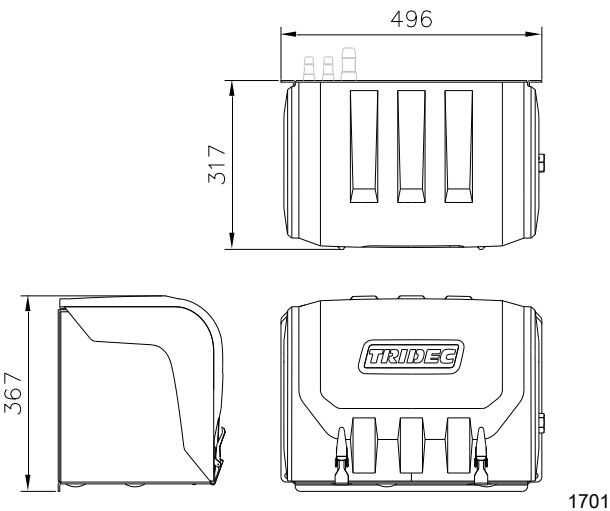


The Tritronic system can be equipped with an additional cable remote, which is operated in addition to the standard (wireless) remote. This additional remote is positioned fixed to the trailer.

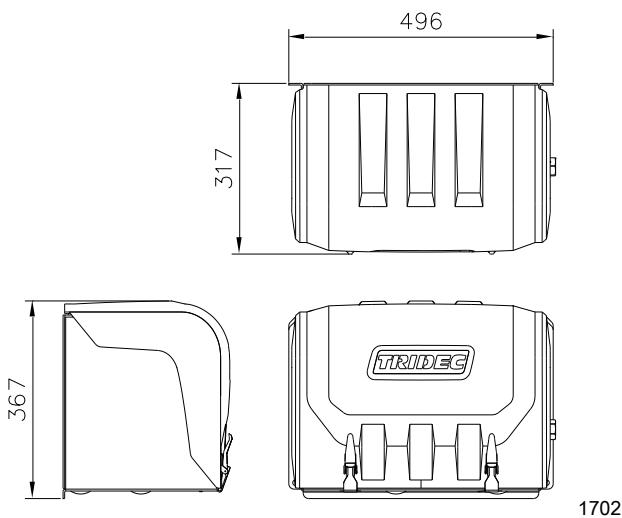
- Direct engagement of the switchbox
- Large robust buttons
- 2 to 12 buttons possible (for controlling 1-6 functions) per remote
- All required cables (with extension cables)
- If more than 12 buttons are requires, a second remote is positioned

Dimensions

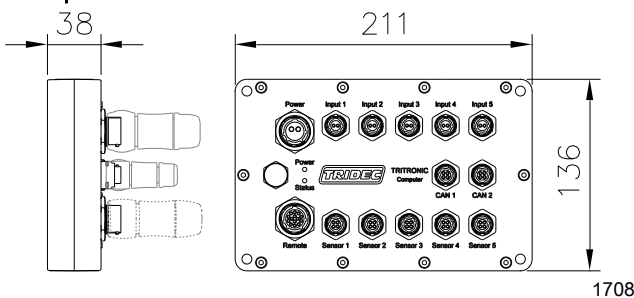
Control-box



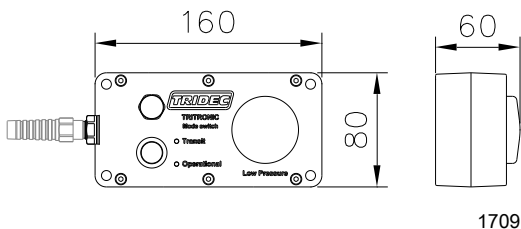
Power pack box 15l



Computer

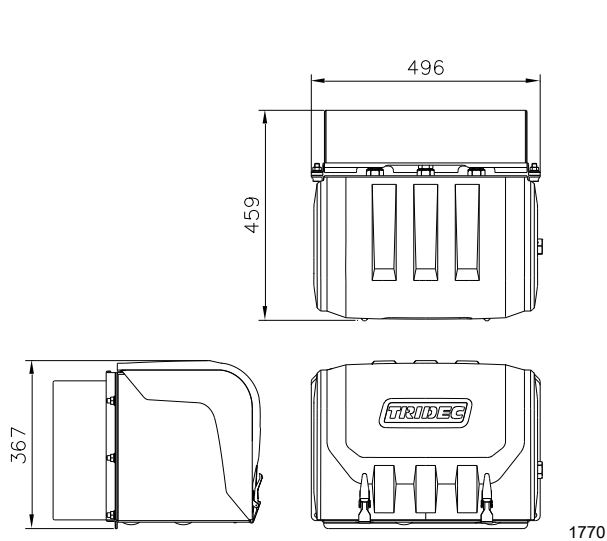


Main switch

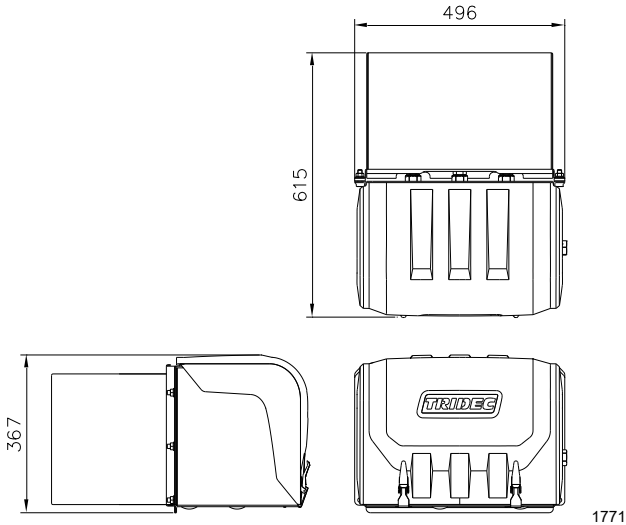




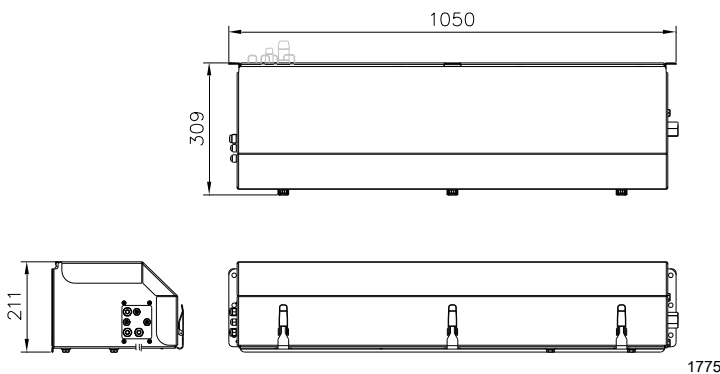
Code 1770: Power pack box 30l



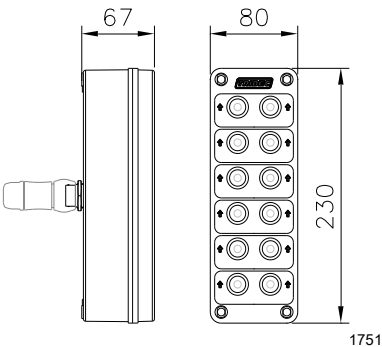
Code 1771: Power pack box 45l



Code 1775: Control-box for multiple hydraulic functions



Code 1751 – 1756: Extra cable remote



Order references

TRITRONIC Systems

Code	Description
1702	Tritronic radio remote control
1732	Control unit for hydraulic suspension with automatic ride-height setting (including height sensors) when Tritronic is not mounted on the steering system

Options

Code	Description
1703	1 extra hydraulic function operated with Tritronic
1704	2 extra hydraulic functions operated with Tritronic
1705	3 extra hydraulic functions operated with Tritronic
1706	4 extra hydraulic functions operated with Tritronic
1741	1 extra electric function operated with Tritronic
1742	2 extra electric functions operated with Tritronic
1743	3 extra electric functions operated with Tritronic
1744	4 extra electric functions operated with Tritronic
1723	Extra function release button
1715	Pressure relieve hydraulics steering system (for multifaster)
1717	System suitable for 12V instead of 24V
1720	Open-end cable for control lights to indicate the alignment
1722	Control of second hydraulic control-box in case of a double steering system Controlled via TRITRONIC
1725	Repositioned connection point TRITRONIC remote control
1726	2 extra connection points TRITRONIC remote control
1733	Control unit for hydraulic suspension with automatic ride-height setting (including height sensors) when Tritronic mounted on the steering system
1714	Lift-axle function to lift 1 axle (group) with Tritronic
1719	Traction-help by temporarily lift-axle activation
1718	Semi-automatic lift-axle activation
1791	Load indication system
1749	Automatic lift-axle activation
1734	Extra driving height TRITRONIC
1735	Expansion to 3-point height control
1729	Extra remote
1730	Extra remote holder or charge cable
1765	Neck compensation preparation
1770	30 litre oil tank instead of standard 15 litre oil tank in power pack
1771	45 litre oil tank instead of standard 15 litre oil tank in power pack
1775	Control-box for multiple hydraulic functions
1751	Extra cable remote control Tritronic (2 buttons)
1752	Extra cable remote control Tritronic (4 buttons)
1753	Extra cable remote control Tritronic (6 buttons)
1754	Extra cable remote control Tritronic (8 buttons)
1755	Extra cable remote control Tritronic (10 buttons)
1756	Extra cable remote control Tritronic (12 buttons)



The information contained in this document gives an indication of the possibilities. Not all exceptional models are included in this document. Please contact our sales department to determine whether a particular configuration of the system can be used in your trailer or that special solutions are possible.

Sales contact

TRIDEC Transport Industry Development Centre B.V.
Ekkersrijt 6030, 5692 GA SON – the Netherlands
Phone: +31 499 49 10 52
Fax: +31 499 46 00 58
E-mail: sales@tridec.com