

FENDT



Fendt Variotronic product range

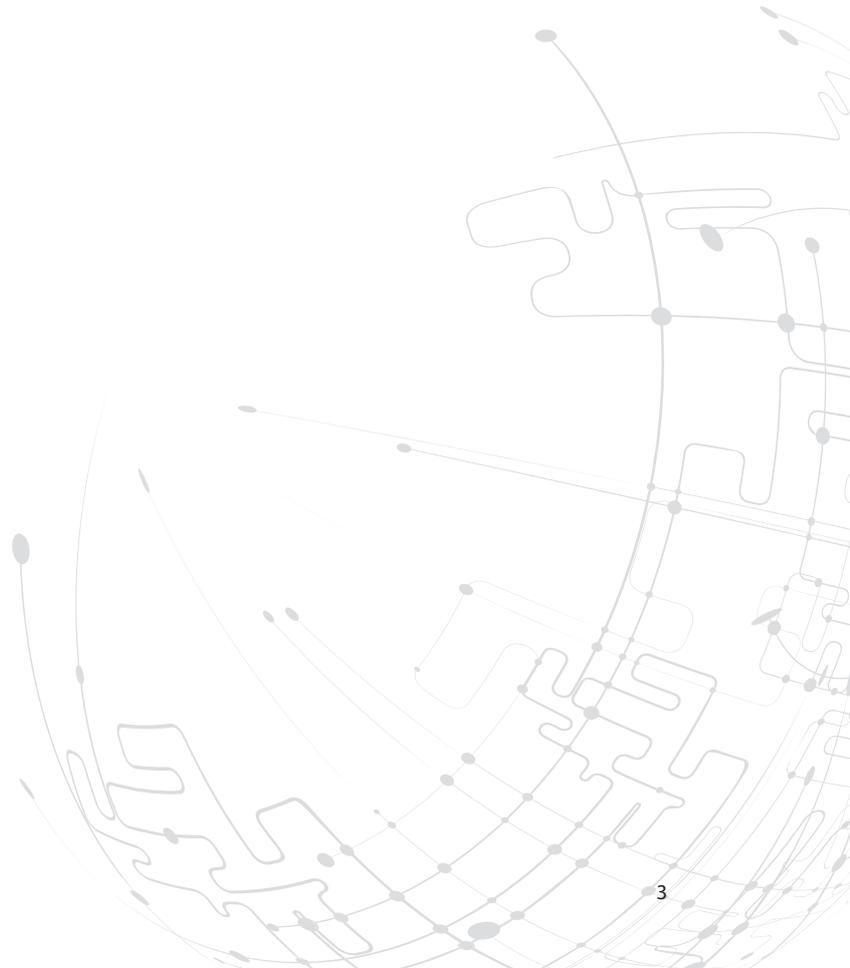
December 2018



1. Guidance System	3
1.1. VarioGuide – Fendt Guidance System-Basics	4
1.2. VarioGuide – Receiver options	5
1.3. VarioGuide Contour Assistant	7
1.4. Guidance System Fendt 200 Vario	8
2. Documentation	10
2.1. VarioDoc & VarioDoc Pro	11
2.2. NEXT Wayline Converter powered by Fuse	12
3. ISOBUS – Implement Control	13
3.1. Variotronic implement control (ISOBUS)	14
3.2. SectionControl (SC)	15
3.3. VariableRateControl (VRC)	16
3.4. Variotronic TIM ready	17
4. Headland-Management	18
4.1. Variotronic ^{TI}	19
4.2. Variotronic ^{TI} automatic	21



1. Guidance System





1.1. VarioGuide – Fendt Guidance System-Basics

Fendt 300 / 500 / 700 / 800 / 900 / 1000 Vario

Fendt 900 Vario MT

Fendt Katana 65 / 85

Fendt IDEAL 7 / 8 / 9

Fendt Rogator 600

Product description

Fendt VarioGuide is the central guidance system for Fendt Vario tractors, forage harvesters, sprayers and combines.

The following Fendt machines can be equipped with Varioterminal 7 "or 10.4" and the respective receiver:

VarioGuide with Varioterminal 7" NovAtel® or Trimble® receiver	VarioGuide with Varioterminal 10.4" NovAtel® or Trimble® receiver	VarioGuide with Varioterminal 10.4" NovAtel® receiver	VarioGuide with Varioterminal 10.4" Topcon® receiver
Fendt 300 Vario ProfiPlus	Fendt 500, 700, 800, 900, 1000 Vario ProfiPlus	Fendt Katana 65 & 85	Fendt harvester C-series
Fendt 500, 700, 800, 900, 1000 Vario PowerPlus	Fendt 900 Vario MT	Fendt Rogator 600	
	Fendt IDEAL 7,8,9 combine harvesters		

Customer benefits

- Reduction of overlap
- Reduced driver workload
- Precise work even at night and poor visibility
- Greater area coverage
- Full integration into the vehicle, comprehensive Fendt operating philosophy
- Control via Varioterminal (1 terminal for all features)
- Simple and intuitive controls

Customer testimonials

Wilhelm Jaeger, manager of an arable farm

With the Fendt guidance and documentation systems, Wilhelm Jaeger saves costs:

„Less diesel, lower operator wages, less wear, fewer tractor hours – we are therefore certain that the system will pay off very quickly for us.“

And:

„If you save 10% of these costs each year that amounts to 60 – 80 euros saved per hectare.“ An accurate guidance system increases quality: “I can concentrate on the quality of work done by the implement. We operate with an accuracy of 1 – 2 centimeters.“

Wilhelm Jaeger's conclusion:

„That makes work a pleasure!“

Further information

<https://www.fendt.com/int/15599.html>

https://www.fendt.tv/en/home/the-new-fendt-varioguide-guidance-system_1696.aspx



1.2. VarioGuide – Receiver options

Fendt 300 / 500 / 700 / 800 / 900 / 1000 Vario

Fendt 900 Vario MT

Fendt Katana 65 / 85

Fendt IDEAL 7 / 8 / 9

Fendt Rogator 600

Product description

There are two receiver options for Fendt VarioGuide, the NovAtel® and the Trimble®.

NovAtel® receiver



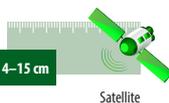
15–30 cm

NovAtel® Standard

Correction signal: SBAS (EGNOS & WAAS)

± 15–30 cm track to track accuracy; ± 150 cm repeatable accuracy

4–15 cm



NovAtel® – extendable correction signals

Correction signal: TerraStar-L

± 15 cm track to track accuracy; ± 50 cm repeatable accuracy

Correction signal: TerraStar-C

± 4 cm track to track accuracy; ± 4 cm repeatable accuracy

2 cm



NovAtel® RTK

Correction signal: RTK

± 2 cm track to track accuracy; ± 2 cm repeatable accuracy

Mobile radio/radio

Trimble® receiver



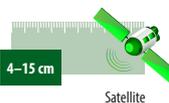
15–30 cm

Trimble® Standard

Correction signal: SBAS (EGNOS & WAAS)

± 15–30 cm track to track accuracy; ± 150 cm repeatable accuracy

4–15 cm



Trimble® – extendable correction signals

Correction signal: RangePoint® RTX

± 15 cm track to track accuracy; ± 50 cm repeatable accuracy

Correction signal: CenterPoint® RTX and CenterPoint® RTX Fast

± 4 cm track to track accuracy; ± 4 cm repeatable accuracy

2 cm



Trimble® RTK

Correction signal: RTK

± 2 cm track to track accuracy; ± 2 cm repeatable accuracy

Mobile radio/radio

NovAtel®

- High-capacity standard receiver
- Supports SBAS (EGNOS/WAAS) and TerraStar-L in the standard version (SBAS = Satellited Based Augmentation System)
- Correction signals TerraStar-L (free in 1st year) and TerraStar-C available as options via AGCO Parts
- Can be easily upgraded to RTK
- RTK via NTRIP (mobile network)
- RTK via radio
- Excellent accuracy in SBAS mode thanks to the GLIDE algorithm
- Steayline mechanism (fallback solution for RTK failures)
- Optional use of RTK Assist™: Bridging through RTK failures of up to 20 minutes

Trimble®

- Extremely efficient receiver with even more options
- Supports SBAS (EGNOS/WAAS) and RangePoint® RTX in the standard version
- RangePoint® RTX (free in 1st year), CenterPoint® RTX and CenterPoint® RTX Fast available as options via AGCO Parts
- Can be easily upgraded to RTK:
 - RTK via NTRIP (mobile network)
 - RTK via radio
- Up to 20 minutes bridging in the event of a break in the RTK connection (Trimble xFill™ technology)
- Optional use of xFill™ Premium (unlimited bridging)





1.2. VarioGuide – Receiver options

Customer benefits

- Choice of two powerful receivers
- Selection of a range of correction data signals
- Bridging mechanisms in case of signal failure: NovAtel RTK ASSIST™ & xFill™
- Retrofitting and conversion possible at any time, even for older machines*
- Installation of receiver under the roof hatch: Perfect protection against theft, weather and damage

*Software updates are subject to limited compatibility. A fee may be charged for loading new software.
For more information, contact your dealer.

Further information

<https://www.fendt.com/int/15599.html>

https://www.fendt.tv/en/home/the-new-fendt-varioguide-guidance-system_1696.aspx



1.3. VarioGuide Contour Assistant

Fendt 500 / 700 / 800 / 900 / 1000 Vario ProfiPlus (optional)

Fendt 900 Vario MT (optional)

Fendt Rogator 600 (standard)

Product description

Since the March 2018 (SW 783) software update, Fendt VarioGuide has been equipped with Varioterminal 10.4" and the NovAtel® or Trimble® receivers with the **VarioGuide Contour Assistant** software option. This adds the "Contour Segments" and "Single Contour" types to the familiar VarioGuide wayline types, and helps you work even more efficiently and comfortably.



Contour Segments:

- It is possible to record the Contour Segments, automatic calculate them based on field boundaries or create them from existing waylines
- The system is then capable of automatically selecting the correct segment through driving direction, angle and distance
- Definition of up to 20 segments possible
- The field boundary can be defined from the contour segments thereafter.
- **Applications:**
Sowing form crops for example corn or sugar beets. You start with the headland and after this the field inside.

Single Contour:

- For maintenance work (fertilization/crop protection), the entire tramlines can be stored as a contour line
- **Applications:**
 - Recording of all tracks incl. headland as a track line for maintenance work (fertilization/crop protection)
 - Optimal for the harvest and maintenance of special crops that were planted without guidance

Customer benefits

Contour Segments:

- Fast and easy recording of waylines
- Significant time reductions
- Possibility to convert recorded waylines into Contour Segments
- Improved quality of work through consistent use of the steering system even on headlands

Single Contour:

- Advantage of the steering system even for crops that were not sown with it
- Reduced workload and optimization by way of automatic turning
- Full focus on the crop
- Consideration of obstacles

Further information

<https://www.fendt.com/int/highlights.html>

https://www.fendt.tv/en/home/varioguide-contour-assistant-and-adaptive-curve_1932.aspx



1.4. Guidance System Fendt 200 Vario

Fendt 200 V/F/P Vario · Fendt 200 Vario

Product description

The Fendt 200 Vario comes with a TIM Guidance-ready interface that enables communication with an automatic guidance system via the ISOBUS standard. The Fendt 200 Vario comes with two steering system options:

- **PSR SONIC steering with ultrasound**
- **PSR SKY-GNSS steering via satellite**



	Fendt 200 V Vario	Fendt 200 F Vario	Fendt 200 P Vario	Fendt 200 Vario
Ultrasound (PSR Sonic)	✓	✓	✗	✗
Satellite (PSR Sky)	✓	✓	✓	✓



Steering with ultrasound (PSR SONIC)

- Front-mounted ultrasonic sensors measure the distance between sensor and target
- The ultrasonic sensors guide the machine between the rows of vines with high accuracy.
- Intelligent filtering mechanisms and calculations also identify vines that protrude into the row or gaps in the foliage wall while continuing to drive the machine in a straight line
- The ultrasonic sensors are not affected by dust, darkness or fog
- The minimum speed when using ultrasound alone is 0.3 km/h, and the maximum speed is 20 km/h
- The angle-adjustable sensors permit use of the system for various growth stages, cut forms and vineyard widths in viticulture



Steering with GNSS (PSR SKY)

- The use of GNSS signals permits use of the vehicle in all growth stages and conditions
- PSR SKY means that the vehicle can be used all year round and for crops other than viticulture
- **2 receiver options:**
 - RGS 101: +/- 25cm (EGNOS) (cannot be upgraded to RTK)
 - RGS 325: +/- 2cm (RTK-NTRIP)





1.4. Guidance System Fendt 200 Vario

Terminal options for PSR SONIC and PSR SKY

PSR ISO Touch 800



- Touch terminal with ISOBUS activation
- Applications: Primary steering with ultrasound (PSR SONIC)
- No contours or land mark

PSR ISO TOP Touch 800



- Touch terminal with ISOBUS activation, Track-Leader II and Track-Leader Top activation
- Applications: Steering with GNSS (PSR SKY)
- Functions:
 - Obstacle detection and warning
 - Storage of work results
 - Guide lines (AB, AB contour, A +, ...)
 - Import from field boundaries via Shape

Customer benefits

- Guidance system available for all Fendt tractors from 70 hp
- Choice of two equipment variants, depending on the applicat
- May be used even in plantations that were not planted with the steering system
- Optional documentation of tasks
- Easy to upgrade

Further information

<https://www.fendt.com/int/highlights.html>

<https://www.fendt.com/int/200-vario-varitronic.html>



2. Documentation



2.1. VarioDoc & VarioDoc Pro

Fendt 500 / 700 / 800 / 900 / 1000 Vario

Fendt 900 Vario MT

Fendt IDEAL 7 / 8 / 9

Fendt Rogator 600

Product description

The VarioDoc or VarioDoc Pro documentation system records all data which can be documented in an FMIS. Standard on Fendt machines with the 10.4" Varioterminal The VarioDoc Pro is standard on Fendt Varios with ProfiPlus configuration and Varioterminal 10.4". You can also take advantage of VarioDoc Pro on the Fendt Rogator 600 and large combine Fendt IDEAL.

The data transfer with VarioDoc takes place via USB and Bluetooth, with VarioDoc Pro you also have the possibility via GSM.

2 extension levels available	VarioDoc	VarioDoc Pro
USB stick	✓	✓
Bluetooth data transfer	✓	✓
Data transfer via GSM New and completed orders	✗	✓
Semi-automatic documentation Trigger conditions (rear power lift, PTO ...)	✓	✓
GPS position data (every 5m) Example: Vehicle speed, engine speed, consumption ...	✗	✓

VarioDoc:

- Display and configuration of all data relevant for documentation
- Entry of the following order-related data can be entered:
 - Name, field name + current crop, company and customer data
 - Pesticide used + quantity to be applied
 - Implement used

VarioDoc Pro:

- Display and configuration of all data relevant for documentation, same as for VarioDoc
- In addition, one GPS position is recorded every 5 m with additional machine data
- Data transfer via GSM

Customer benefits

VarioDoc:

- Easy, intuitive use due to full integration into the overall concept
- High level of data security due to a large memory and data backup until transfer
- Standard on all Fendt machines with the 10.4" Varioterminal
- Compatible with a variety of field databases

VarioDoc Pro:

- Data transfer guaranteed for long distances
- Ideal for contractors and machinery cooperatives with shared data management
- Use prescription maps in the data format ISO-XML and shape
- Simple data transfer of field boundaries and waylines

Further information

<https://www.fendt.com/int/15601.html>

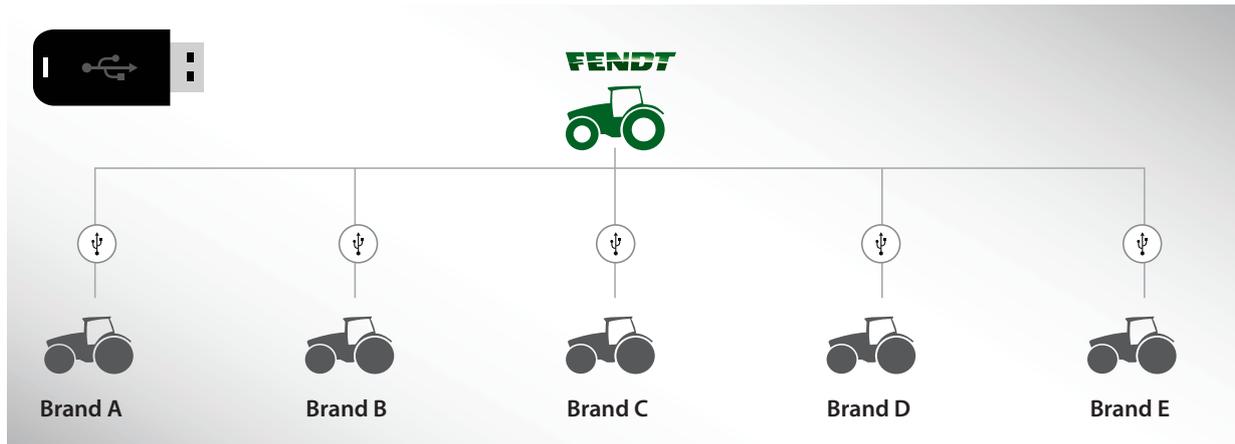
https://www.fendt.tv/en/home/the-right-documentation-with-variadoc_1786.aspx



2.2. NEXT Wayline Converter powered by Fuse

Product description

The **NEXT Wayline Converter** (powered by Fuse) permits the transfer of field boundaries and AB lines into different manufacturer formats easily and comfortably.



The issue:

You use tractors of different brands that may have different guidance systems on your fields. The steering systems use specific proprietary data formats that are not mutually compatible. So you can use your Fielddata (boundary and AB-line) not by all guidance system.

Our solution:

The Wayline Converter permits the conversion of field boundaries and AB-lines into a suitable data format for Fendt VarioGuide. The stored data is transferred to the web application NEXT Wayline Converter in the office. Your data is transformed and visualized there. This means that you always have your recorded AB lines and field boundaries at your disposal. All you need is a USB stick for data transfer.

Customer benefits

- Compatibility with a range of manufacturers
- Use of previously collected data (field boundaries and AB-lines)
- Continue using your legacy data
- Time savings (field boundaries and AB lines do not have to be recorded first)
- Field boundaries from agricultural information systems can be converted for use
- Simple data exchange eg with contractors
- Simple and intuitive controls



3. ISOBUS – Implement Control



3.1. Variotronic implement control (ISOBUS)

Fendt 300 / 500 / 700 / 800 / 900 / 1000 Vario
Fendt 900 Vario MT



Product description

ISOBUS is a manufacturer-independent standard for connecting the tractor terminal and implement. This is standardized as ISO 11783. The connection of the (tractor) terminal and implement takes place by a single plug. ISOBUS is supported by both the Varioterminal 7" and Varioterminal 10.4".

ISOBUS comes with the following features:

- UT: stands for Universal Terminal, which renders the terminal display
- TECU: serves as the job computer for tractors to support the data transfer between tractor and implement
- AUX-N and AUX-O: are used for joystick operation.
- TC-BAS: is used for the overall data recording of an order.
- TC-GEO: permits the collection of location-specific data and the scheduling of orders, for example by means of application maps.
- TC-SC: is used for the automatic switching of 36 or more sections based on SectionControl



Availability ISOBUS at Fendt Vario tractors:

Series	Power	PowerPlus	Profi	ProfiPlus
Fendt 1000 Vario S4		✓	✓	✓
Fendt 900 Vario S4	○	✓	✓	✓
Fendt 800 Vario S4	○	✓	✓	✓
Fendt 700 Vario S4	✗	✓	✓	✓
Fendt 500 Vario S4	✗	✓	○	✓
Fendt 300 Vario S4	✗		○	✓
Fendt 200 Vario S3				

- ✓ standard
- optional
- ✗ ISOBUS-option is not available
- model range is not available

Customer benefits

- Operation of all ISOBUS devices by way of a single terminal
- Simple and intuitive controls
- Comprehensive presentation of the ISOBUS devices in half-frame or full screen mode
- The Fendt multi-function joystick is fully ISOBUS capable
 - Handover of operation to the multi-function joystick
 - The standard version supports 10-key operation
- A range of implements are compatible with Varioterminal; for more information see: <https://www.aef-online.org/de/produkte/aef-isobus-datenbank.html>

Further information

<https://www.fendt.com/int/15603.html>

https://www.fendt.tv/en/home/one-terminal-for-everything-100-isobus-compatible_1698.aspx



3.2. SectionControl (SC)

Fendt 500 / 700 / 800 / 900 / 1000 Vario (optional)

Fendt 900 Vario MT (optional)

Fendt Rogator 600 (standard)

Product description

SectionControl refers to automatic section control for ISOBUS implements. The basic requirement for the use of SectionControl is the Varioterminal 10.4". SectionControl as a software option is available for Fendt tractors from the Fendt 500 ProfiPlus to the Fendt 900 Vario MT. SectionControl is included as standard in the Fendt Rogator 600 self-propelled sprayer.



Customer benefits

- Automatic switching of sections on all compatible devices
- Support of up to 36 sections
- Savings of up to 15% on fertilizers, sprays, seeds, etc.
- Crop-related aspects (stockpiling, excessive application rates eg for growth regulators)
- Environmental benefit
- Plug & Play: SectionControl works by flipping of a single switch



Customer testimonials

Heiner Müller, manager of an arable farm

SectionControl prevents duplicate treatments and maintains **spacing exactly**. At the headlands, SectionControl automatically switches the sections on and off:

“I don't need to back up anymore at the headlands and we can plant using two machines at the same time”, says Heiner Müller. The track data can be transferred from tractor to tractor on site per USB stick.

Further information

<https://www.fendt.com/int/15605.html>

https://www.fendt.tv/en/home/varioptronic-heiner-mueller-uses-varioguide-and-sectioncontrol-for-planting-potatoes_1690.aspx



3.3. VariableRateControl (VRC)

Fendt 500 / 700 / 800 / 900 / 1000 Vario (optional)

Fendt 900 Vario MT (optional)

Fendt Rogator 600 (standard)

Product description

VariableRateControl refers to the area-specific application rate control for resources (seeds, pesticides and fertilizers) or specific attributes (such as working depth). The Varioterminal 10.4", VarioGuide and the software release VarioDoc Pro are prerequisite for VRC use with Fendt vehicles.

SectionControl is included as standard in the Fendt Rogator 600 self-propelled sprayer. VRC is available as an option for Fendt Vario tractors with Varioterminal 10.4" and PorfiPlus equipment.



An application card can be transmitted to the Fendt machine from a field database or farm management information system (FMIS) via the ISO-XML data format using VarioDoc Pro (via USB, Bluetooth or GSM). However, the implement must have ISOBUS and the software activation to communicate with the tractor.

Feature / function	10,4"	7"	
Display ISOBUS implement mask (UT)	✓	✓	
Joystick hand-over (AUX-N and AUX-O)	✓	✓	
Transfer of tractor parameters (TECU)	✓	✓	
Transfer of summarised data for each job (VarioDoc)	✓	✗	
Transfer of GPS data for each job (VarioDoc Pro)	✓	✗	
VariationRateControl (TC-GEO)	○	✗	○ optional
SectionControl (TC-SC)	○	✗	✗ not available

Customer benefits

- Automatic transfer of field boundaries
- Up to 5 different products can be applied simultaneously
- Savings of resources (seeds, fertilizers, pesticides, etc., ...)
- Maximization of area yield
- Documentation basis for legal requirements
- A single Varioterminal 10.4" for everything
- Simple and intuitive controls

Further information

<https://www.fendt.com/int/15605.html>

https://www.fendt.tv/en/home/optimum-application-rate-on-the-spot-with-fendt-variableratecontrol_1699.aspx



3.4. Variotronic TIM ready

Fendt 700 / 800 Vario ProfiPlus (optional)

Product description

The Tractor Device Management System (TIM) permits an implement to control certain tractor functions automatically. At present, this ISOBUS standard is still in final development, and must then pass the "ISOBUS conformity test" by AEF.

The Fendt 700 and 800 Vario ProfiPlus tractor series can already be equipped with this TIM ready functionality. This means that a TIM-enabled implement automatically controls certain functions of the tractor.

This includes for example the forward speed and a hydraulic valve on a TIM-enabled baler. Thanks to this functionality, the efficiency of your full combination can be greatly enhanced, and the operating process optimised.

Customer benefits

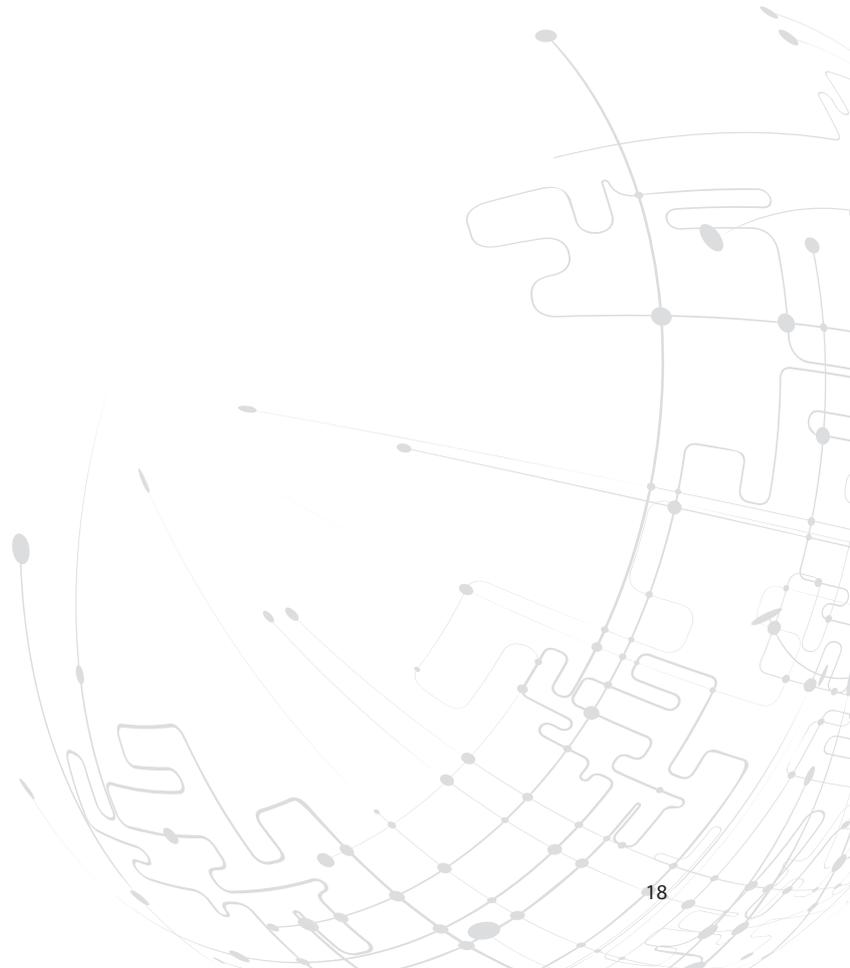
- The implement optimizes its own performance
- Efficiency of the entire combination is significantly increased
- Improved work quality
- Relief of driver workload

Further information

<https://www.fendt.com/int/15603.html>



4. Headland-Management





4.1. Variotronic^{TI}

Fendt 300 / 500 / 700 / 800 / 900 / 1000 Vario

Fendt 900 Vario MT

Product description

The Variotronic^{TI} headland management system is fully integrated into Varioterminal 7" and 10.4", and is clearly shown on the display. The automatic headland operations are activated at the touch of a single button.

The driver can conveniently create and store the optimum operating sequence while stationary or travelling. Variotronic^{TI} is already available as standard for the following tractor models:



Model	Configuration variants
Fendt 300 Vario	Profi & ProfiPlus
Fendt 500 Vario	Power, PowerPlus, Profi and ProfiPlus
Fendt 700 Vario	Power, PowerPlus, Profi and ProfiPlus
Fendt 800 Vario	Profi, ProfiPlus
Fendt 900 Vario	Profi, ProfiPlus
Fendt 1000 Vario	PowerPlus, Profi and ProfiPlus

Variotronic^{TI} permits the control of up to **13 function groups** with a maximum of **74 functions** can be triggered by **5 variables** (distance, time, lifting height front & rear linkage, button on joystick).

The following table shows the wide variety of functions that are fully integrated for control in Variotronic^{TI}.

Function group	Functions
Rear power lift	Lifting, Lowering, Slip Control ON, Quick Release ON/OFF, Stop
Front power lift	Raise, Lower, Quick Feed ON/OFF, Stop
Rear PTO	ON/OFF
Front PTO	ON/OFF
Hydraulic valves (8 pieces max.)	Lifting, lowering, stop, floating position
4-wheel drive	ON/OFF, automatic mode ON/OFF
Differential lock	ON/OFF, automatic mode ON/OFF
Vario transmission	Cruise control 1&2 ON, cruise control OFF
Electronic engine control	Engine speed min. ON, engine speed max. ON, OFF
TMS	ON/OFF
Accelerator	ON/OFF
VarioGuide	ON/OFF
Reversible fan	ON
VarioGrip (RDRA)	Road/Field





4.1. Variotronic^{TI}

Customer benefits

- The large range of functions of Variotronic^{TI} is already standard
- Simple and intuitive controls
- Perfect integration of the multi-function joystick
- Full focus on the actual work
- Significant relief of driver workload (pressing of a key triggers several sequences)
- 5 triggers, possibility of 13 function groups with 74 functions
- 4 storable sequences (Go1, Go2, End1, End2) in each of the 25 device memory slots

Further information

<https://www.fendt.com/int/15607.html>



4.2. Variotronic^{TI} automatic

Fendt 500 / 700 / 800 / 900 / 1000 Vario (optional)

Fendt 900 Vario MT (optional)

Product description

In addition to the standard Variotronic^{TI} headland management system, Variotronic^{TI} is also available as an option for the Fendt Vario ProfiPlus tractors (from 500 Vario upwards) and the tracked tractor Fendt 900 Vario MT. The automatic combination of Variotronic^{TI} with the Fendt VarioGuide guidance system permits automatic activation of individual sequences (such as lowering of the rear hydraulics) via the position from VarioGuide on a headland line.



- Configuration of the desired overlap at the headland line by a wizard, similar to the feature SectionControl
- New learning mode for quick setting of the trigger points
- Simple retrofitting of this software feature possible from Fendt 500 Vario ProfiPlus upwards*

* Software updates are subject to limited compatibility. A fee may be charged for loading new software. For more information, contact your dealer.

Customer benefits

- Savings of resources
- Precise triggering of processes
- Relief of driver workload
- Exact convoy driving
- Effective use of the steering system at the headland
- Programming possible while stationary or in working mode
- 5 possible triggers (way, time, front linkage, rear linkage, manual)
- 13 function groups and 74 functions
- Easy retrofitting of this software option

Press

Headland Management in the profi comparison test – Dec 2017

- “Fendt probably has the most **reliable system**. All features performed well **above average**.”
- “The headland size, the assignment of the respective sequence when crossing the headland boundary, and an offset of the trigger point can be defined with just a few clear entries.”
- “On the positive side, the system already uses the rear linkage as a PTO trigger switch during recording.”

Further information

<https://www.fendt.com/int/15607.html>

FENDT



Fendt Variotronic product range

December 2018

AGCO GmbH – Fendt Marketing
87616 Marktoberdorf, Germany

Mistake, addendum, any changes and revocation reserved.