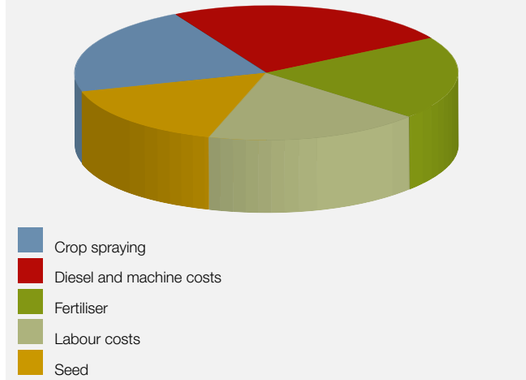
EASY

CLAAS steering systems

steeringsystems.claas.com

Steering systems.
A standard feature from CLAAS for many years.



What does a 5% improvement in accuracy mean?

It means that, with production costs of 700 euros per hectare of wheat, GPS can cut your overall costs by 5%, reducing your outlay by as much as 35 euros per hectare.

Electronic systems are fast becoming the norm.

Ever since satellite-based steering systems were first introduced in agriculture, more and more farms have been reaping the benefits of this technology. They are upgrading their tractors and harvesters and enjoying the daily advantages of high-precision parallel steering systems in the field.

The existing interface between GPS PILOT and the CLAAS farm management software – AGROCOM NET and AGROCOM MAP – allows tracks, reference lines and job-specific information to be exported to the farm's PC easily using a USB stick to transfer the data.

Steering systems are indispensable.

Our CLAAS GPS PILOT supports your work in the field or pasture. Precision to the nearest centimetre is now made easy.

- Make every track exactly the same as the previous one
- Make full use of the working width
- Reduce overlapping
- Save working time
- Optimise the cost-efficiency of all your working processes

Ten good reasons for investing.

A fully automated parallel steering system from CLAAS:
- Reduces fuel, labour, seed, spray and fertiliser costs
- Improves efficiency and productivity
- Maximum capacity utilisation and increased service life
- Reduces stress and strain on the driver
- Optimises utilisation of the machine's full working width
- Significantly improves work quality
- Allows consistent work quality around the clock
- Can be retrofitted to any hydraulically steered machine
- Gives you more time to optimise your implement settings
- Boosts your profitability

History of CLAAS steering systems.

1977 2000 2005 2007 2014

AUTO PILOT (sensor).

The AUTO PILOT system for combine harvesters and forage harvesters was the first steering system launched CLAAS. The system has proven its effectiveness thousands of times over. The AUTO PILOT technology has undergone a continuous process of development and refinement throughout which numerous patents have been filed.

Two mechanical sensors determine the position of the maize row, send signals to the steering unit and automatically steer the machine through the crop. Maintaining the optimum position in all working conditions is the key to enhanced performance and higher efficiency.

LASER PILOT.

The maintenance-free LASER PILOT sensor continuously emits invisible light signals and moves horizontally at an angle of 6°.

The standing crop and the stubble reflect the light beam. A second sensor measures the travel time of the reflected light signals and thereby determines the exact position of the edge between the cut and uncut crop. The machine is automatically guided along this crop edge with a precision of 10 to 20 cm. LASER PILOT also achieves high functional reliability in lodged cereal crops and when working on slopes.

GPS PILOT.

GPS PILOT is the first GPS-based automatic steering system from CLAAS. Guided by GPS and correction signals, the GPS PILOT is capable of high-precision track following with accuracies of up to +/– 2 cm – even in foggy conditions or at night. This steering system for tractors and other agricultural machines reduces the driver's workload, saves a great deal of working time, produces higher-quality work and reduces operating costs.

CAM PILOT.

CAM PILOT is a camera-controlled automatic steering system which is specially designed for grass harvesting with the forage harvester pickup. A stereo camera mounted on the front of the JAGUAR scans the area ahead of the machine and accurately detects the position of the swaths. The forage harvester is then steered automatically on the basis of this information.

Reliable, fast and accurate. The driver has more time to concentrate on filling operations, ensuring fast, loss-free harvesting.

GPS PILOT with S10 terminal.

The GPS PILOT has already enjoyed great success thanks to its proportional valve technology. CLAAS has now added two latest-generation terminals which further enhance its usability.

The GPS PILOT with S10 terminal has a 10.4" touchscreen and integrated dual-frequency receiver for straightforward, intuitive operation. As well as operating the automatic steering system, the terminal also offers the option of controlling ISOBUS-enabled implements and using up to four cameras in parallel.

Steering systems – an integrated approach.

Manual systems.

- Parallel guidance by means of a lightbar or LED display
- Display shows the steering lock angle to be applied
- Corrects the direction of travel
- Accuracy depends on display and driver's skill
- Ideal when working without tramlines (fertiliser spreading, herbicide application)

CLAAS system: GPS COPILOT

Assisted steering systems.

- Entry-level automatic steering
- Flexible steering technology, can be used on different machines
- CLAAS range of correction signals covers all accuracy requirements
- Assisted steering systems actively intervene in the steering process
- The vehicle is automatically steered along parallel tracks

CLAAS system: GPS PILOT FLEX

Automatic systems.

- Actively control the vehicle's steering hydraulics
- CLAAS range of correction signals covers all accuracy requirements
- Offer the highest level of convenience and accuracy
- Permanently installed on the machine

CLAAS system: GPS PILOT

The easy way to start.

GPS COPILOT.

The GPS COPILOT from CLAAS is the ideal entry-level model for satellite-based steering systems and offers a rich range of functions.

The driver – guided by the EGNOS satellite signal (with no licence fee) – can steer the machine safely and securely in parallel lines or along variable contours with a GPS accuracy of +/– 15 to 30 cm.

The system enables the operator to utilise the machine's full working width and reduces overlapping. This boosts the quality of work while reducing the work time even in difficult light and weather conditions.

Ideal for:
- Tillage
- Fertiliser application
- Slurry application
- Manure application
- Lime application
- All tasks with no orientation points (tramlines)

The COPILOT*, S7 or S10 terminal can be used.

The entry-level model with many functions.

- LED lightbar for guidance
- EGNOS correction signal
- Automatic reference track offset
- Integrated area calculation
- Headland alarm
- RS-232 interface for outputting correction data
- Can be used flexibly on any machine
- Short set-up times

*COPILOT terminal (not available in all markets)

GPS PILOT FLEX.

The GPS PILOT can be used with hydraulic steering and also with the GPS PILOT FLEX automatic steering wheel. This steering wheel enables you to achieve very high levels of accuracy. The great advantage of the GPS PILOT FLEX is its enormous versatility.

The GPS PILOT FLEX steering wheel can easily be transferred between machines which are only used on a seasonal basis, such as combine harvesters and forage harvesters, and can also be used on a tractor for field work. It is also designed for installation on older CLAAS machines or machines from other manufacturers. A number of options are available. You can use the existing GPS PILOT equipment on the individual machines and just change the steering wheel, or you can move all the main components between machines.

Multiple selling points:
- No need to touch the hydraulics
- Steering system can easily be moved between different machines
- All the functions of the GPS PILOT

GPS PILOT.

GPS PILOT.

As an integral part of the machine's steering hydraulics, the GPS PILOT is almost unbeatable in terms of steering accuracy – thanks to its proportional valve, wheel angle sensor and navigation controller. This combination is perfect for all tasks which depend on maximum pass-to-pass accuracy, e.g. drilling or a wide range of work in row crops. Depending on the precision level required, the GPS signals can be corrected by EGNOS, OMNISTAR, RTK FIELD BASE or the RTK signal. GLONASS satellite reception can also be enabled.

As an option, CLAAS can supply a GPS-ready machine by installing all the components required for the GPS PILOT at the factory. It can also be retrofitted. For machines from other manufacturers, CLAAS offers the GPS PILOT complete with manufacturer-specific installation kits.

The right speed for every job.

For field work, the CLAAS GPS PILOT covers a speed range which caters for all requirements (25 km/h to 400 m/h). Ideal for all types of work, from rotary cultivation tasks which move a lot of soil to planting, the GPS PILOT acts as a virtual string which ensures that your rows are completely straight. When working with modern seed drills, speeds of up to 20 km/h are the norm. Even at these speeds, the GPS PILOT guides the tractor and implement across the field in a perfectly straight line while still maintaining the required accuracy.

Benefits:

- High accuracy at all times and at all speeds
- 25 km/h to 400 m/h (depending on model)
- Also ideal for farms growing specialist crops

GPS PILOT and GPS PILOT FLEX.
The components.

GPS PILOT antenna.
The high-precision antenna transmits GNSS position data to the GPS PILOT terminal.

S7 terminal.
High-resolution 7" touchscreen for straightforward GPS PILOT operation

S10 terminal.
The GPS PILOT and other functions are operated via the high-resolution 10.4" touchscreen.

Navigation controller.
The navigation controller with its 6-axis gyro calculates the track, taking account of longitudinal and lateral movements.

GPS PILOT FLEX.
Automatic guidance by means of an electric steering wheel instead of a steering valve.

Wheel-angle sensor.[1]
The wheel-angle sensor determines the exact steering angle to allow high pass-to-pass accuracy.

[1] Not available with GPS PILOT FLEX

Proportional valve.
The proportional valve accurately implements the steering commands.

Electronic valve control unit.
The electronic valve control unit connects the GPS PILOT terminal and the navigation controller to the proportional valve.

Turning made easy.

TURN IN.

TURN IN guides the machine automatically into the chosen track much faster and much more accurately than would be possible manually. TURN IN anticipates the track to be selected by taking account of machine alignment, steering lock and current speed and uses this data to identify which parallel track to take next. The driver can influence track choice at all times by changing the parameters or actively intervening in the steering.

Starting at an angle of up to 120° to the track, TURN IN automatically identifies the new line to take after the turning manoeuvre and indicates the optimum track.

TURN IN is available for all CLAAS GPS steering systems with an S10 or S7 terminal.

Benefits of TURN IN:

- Advance track selection, taking account of speed, steering lock, etc.
- Steering system is activated in good time
- Activated at an angle of up to 120° to the track.
- Driver is more relaxed during work at the headland, more time for the attached implement / implement settings
- Route for lining up with the next track is displayed
- Driver can influence the TURN IN route

AUTO TURN.

The AUTO TURN function offers maximum convenience. The driver does not need to steer – AUTO TURN turns the machine at the headland in one sweep and guides it precisely into the next pass. This function is factory-integrated into the S10 and S7 terminals and can be activated by means of a licence code. Significantly shorter turning times and accurate lining up for the next pass bring further significant improvements in work rates. Turning in one go – without having to manoeuvre – also helps to protect the soil and minimises crop damage when lining up in row crops. What's more, the driver's workload is reduced, enabling him to concentrate on the implement functions.

The AUTO TURN function can be activated at the boundary line or on the worked headland (S7 terminal). With the S10 terminal, it is also possible to define a headland with a specified width. When the tractor reaches this headland line, AUTO TURN automatically triggers the turning manoeuvre, allowing the driver to concentrate fully on the implement.

Benefits of AUTO TURN:

- Automatically turns the machine at headlands
- Available for all machine types (tractors, forage harvesters and combine harvesters)
- Can also be retrofitted in other machines
- Reduces the driver's workload considerably
- Blocks can also be worked automatically (S10 terminal)
- Line up precisely after turning

One terminal for all applications.
The S10 terminal.

The terminal that meets the toughest demands.

The CLAAS S10 terminal is designed for professional users. It has a large, high-resolution 10.4" touchscreen and features an extensive range of functions. With the S10 terminal you can operate the steering system while at the same time controlling ISOBUS-enabled implements and connecting up to four analogue cameras, such as the CLAAS PROFI CAM or AUTO FILL. It also includes comprehensive reference line management.

Perfectly coordinated technology.

Inside the S10 terminal there is a dual-frequency GPS receiver which guarantees maximum accuracy. In addition to the standard EGNOS and E-DIF correction signals, the S10 terminal can optionally be enabled for use with OMNISTAR, RTK FIELD BASE and RTK | RTK NET. Naturally, GLONASS satellites can be used as well as GPS satellites, significantly increasing the signal stability. All the optional functions can be activated directly from the terminal by entering special codes.

Highly versatile.
The S10 terminal.

ISOBUS on board.

The S10 terminal is designed to handle an impressive number of applications. It can be used for GPS steering, but also acts as an operating terminal for ISOBUS implements. All the key ISOBUS operating functions (developed according to ISOBUS standard 11783) are available in the S10 terminal. Naturally, ISOBUS functions can also be assigned to the function buttons on the CMOTION drive control lever or the machine's joystick by means of ISO AUX old and ISO AUX new.

1 ISO UT.

ISO UT stands for ISOBUS Universal Terminal. All ISOBUS-enabled implements (such as LINER, DISCO, CARGOS, QUADRANT and VARIANT) can be operated with the UT function.

2 Task management Basic (ISO TC-BAS).

ISO TC-BAS means ISOBUS Task Controller Basic and allows standardised task management. TC-BAS imports the counter values needed for documentation of the work performed. These values are transmitted by the implement. All other relevant data, such as fields and working time, can also be documented. Advance job planning is also possible in conjunction with farm management software using data in ISO-XML format.

This means that tasks can easily be exchanged between the terminal and software and accurate documentation can be issued with ease.

3 Task management GEO (ISO TC-GEO).

ISO TC-GEO stands for ISOBUS Task Controller geo-based and, in addition to the TC-BAS functions, allows gathering of satellite-based position information. Documentation – e.g. of variable fertiliser application – can therefore be produced with pinpoint accuracy. The S10 terminal can display these location-specific values in map view during the task.

With this function it is also possible to execute pre-planned application maps. They can be linked to an ISO-XML task or imported directly into the terminal as a shapefile.

4 Section Control (ISO TC-SC).

ISO TC-SC stands for ISOBUS Task Controller Section Control. This function allows you to switch sections on and off automatically – e.g. during crop spraying, fertiliser spreading or precision drilling – for precision field work. All the settings can be adjusted individually on the implement currently in use and are easily entered according to the operation in hand. The status bar in the map view on the S10 terminal gives you a full overview of all the sections at all times without losing sight of other functionalities.

A terminal for GPS steering.
The S7 terminal.

The start of precision steering.

The S7 basic terminal has all the latest technology and is the right choice if you just want to use your terminal to control a parallel guidance or automatic steering system. With its high-resolution 7" touchscreen, the S7 performs all the functions provided by its predecessor, the S3. It also comes with reference line management and a USB interface for data management, as well as fast data exchange with the AGROCOM NET and AGROCOM MAP software packages.

Perfectly coordinated technology.

Inside the S7 terminal there is a dual-frequency GPS receiver which guarantees maximum accuracy. In addition to the standard EGNOS and E-DIF correction signals, the S7 terminal can optionally be enabled for use with OMNISTAR, RTK FIELD BASE and RTK / RTK NET. Naturally, GLONASS satellites can be used as well as GPS satellites, significantly increasing the signal stability. All the optional functions can be activated directly from the terminal by entering special codes.

Data transfer between machine and office.

Both terminals (S10 and S7) are capable of exchanging tracks, field boundaries and calibrations between different machines with GPS PILOT. Tracks and field boundaries can also be planned and transferred to the S10 and S7 terminals in AGROCOM MAP and AGROCOM NET. This data can also exported from the terminals and imported back into the management software to allow documentation of the work performed.

For the S10 terminal, special ISOBUS tasks can be exported and imported in the ISO-XML file format. With this ISOBUS function (TC-BAS or TC-GEO) it is even easier to plan and document work. Application maps can also be transferred. It is easy to do this, even in the field, by exporting and importing data on a USB stick.

Section View.

No more unwanted overlapping during spraying work. Section View shows you which sections to switch on or off. Up to 16 sections can be freely defined, depending on your implement. The degree of overlap shown on the display can also be adjusted.

Benefits:

- Sections to be switched on or off are displayed
- No unnecessary overlaps or gaps
- Cost savings

The right combination.

The perfect choice, always.

The design of the COPILOT terminal means that it can only be used as a steering aid for the GPS COPILOT. The S7 and S10 terminals are different: they can be used either to assist manual steering with the GPS COPILOT or with the GPS PILOT FLEX and GPS PILOT automatic steering systems.

COPILOT terminal

→ **GPS COPILOT**

S7 terminal

→ **GPS COPILOT**

→ **GPS COPILOT FLEX**

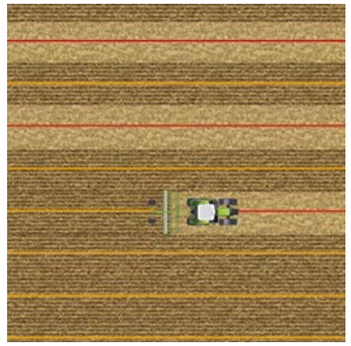
→ **GPS COPILOT**

S10 terminal

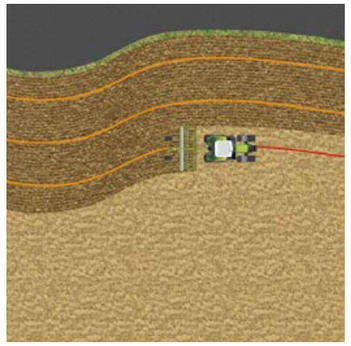
→ **GPS COPILOT**

→ **GPS COPILOT FLEX**

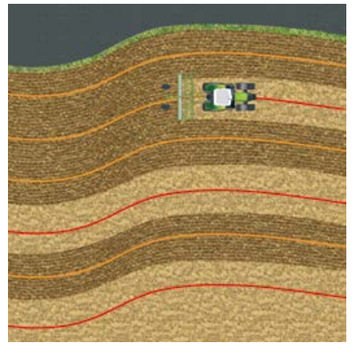
→ **GPS COPILOT**



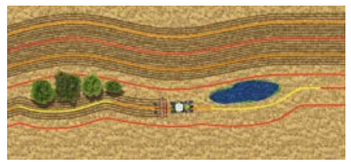
A-B mode.
The first pass is defined by setting the points A and B. All other passes are made at a constant distance (corresponding to the set working width) from the first pass. This means that the field can be divided into blocks and worked through block by block.



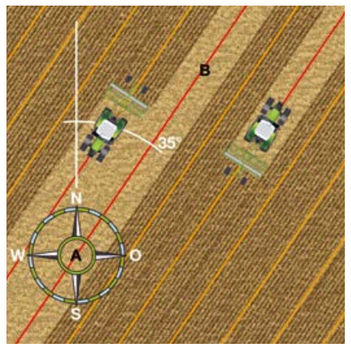
Contour mode.
The contour guidance function is normally used for headland turning or for tracking slightly curved field boundaries.



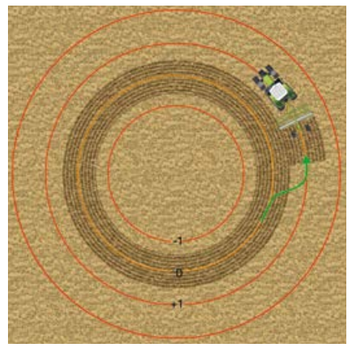
A-B contour mode.
The A-B contour mode can be used, for example, to log a reference line on a slightly curved field boundary. The other passes are calculated by parallel shifting of the reference line as defined by the set working width. This means the field can be divided into blocks and worked in any sequence.



Adaptive A-B contour mode.
The adaptive A-B contour function makes it possible to bypass obstacles by recording a new section. This section is inserted into the existing A-B contour and is available for the rest of the field. The end of an existing track can also be extended by adding another section.



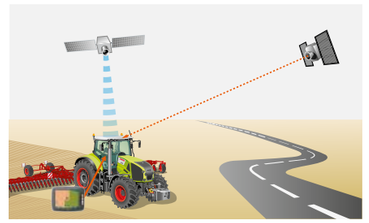
A+ angle mode (reference track transfer).
This driving mode allows adjustment of the track when several machines are working in parallel. After the A point has been set, the B point is determined by the angle information for another machine and the reference track is aligned accordingly.



Circle mode.
The circular tracking mode is used for working in a circular pattern. You can set the first circular track and then work either side of it. All other passes are made at a constant distance (corresponding to the set working width) from the first track.

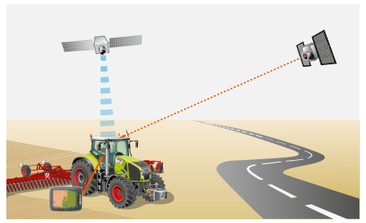
Correction signals for CLAAS steering systems.

EGNOS / E-DIF



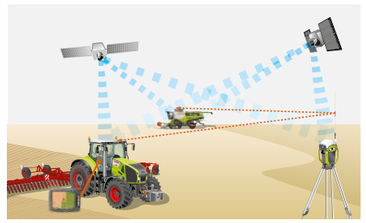
+ / – 15-30 cm
- No licence fee
- Basic accuracy

OMNISTAR XP / HP / G2



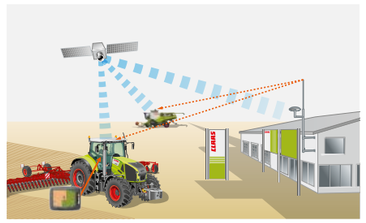
+ / – 5-12 cm
- Satellite-based correction signal
- Dual-frequency signal
- Subject to licence

RTK FIELD BASE



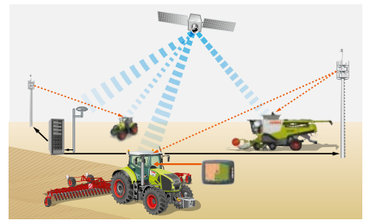
+ / – 2-3 cm
- Mobile reference station
- Range 3-5 km
- No licence fee
- Proprietary correction signal
- Integrated rechargeable battery
- Dual-frequency signal
- RTCM 3.1
- GPS and GLONASS reception

RTK



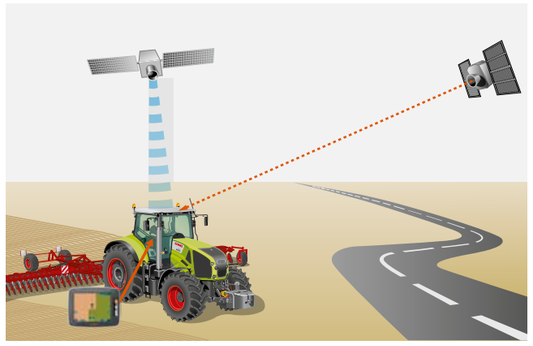
+ / – 2-3 cm
- Base station
- Range approx. 15 km*
- Licence also available via CLAAS dealership
- Highest possible repeatable accuracy
- RTCM 3.1
- GPS and GLONASS reception

RTK NET



+ / – 2-3 cm
- Correction signal via mobile phone network
- Dual-frequency signal
- Unrestricted operating radius
- Highest possible repeatable accuracy
- Subject to licence
- RTCM 3.1
- GPS and GLONASS reception

Licence-free correction signals.
Available worldwide.

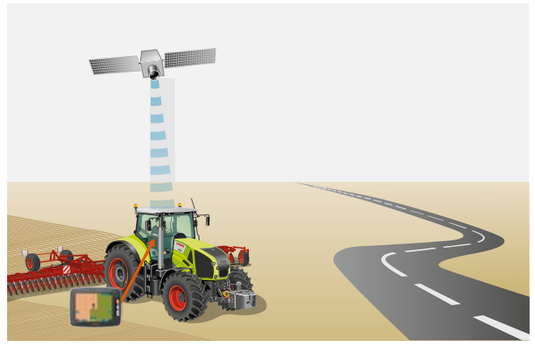


EGNOS.

EGNOS (European Geostationary Navigation Overlay Service) is available to users free of licence fees in many parts of Europe. It supplements GPS and uses 34 ground stations to generate the correction signal.

EGNOS is available for all machines. With an accuracy of +/– 15 to 30 cm, it is ideal for many crop spraying, fertilising and soil cultivation applications.

WAAS (Wide Area Augmentation System) offers the same functionality as EGNOS in many regions outside Europe and can be processed by CLAAS receivers.

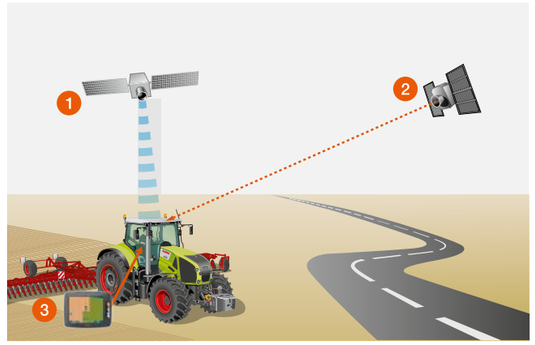


E-DIF.

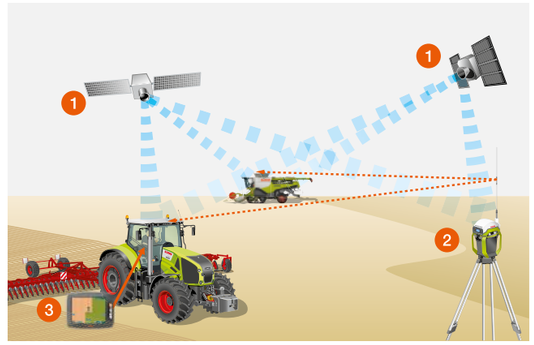
E-DIF is an algorithmic calculation of the correction signal using only the GPS data. During the initialisation period it calculates how the current satellite constellation will change over the next few hours. The signal is available worldwide.

It must be receiving at least four satellites in order to work. This signal then provides the same accuracy as EGNOS (+/– 15 to 30 cm) and is therefore ideal for use in crop spraying, fertiliser spreading and tillage applications. When working in the field, it is only possible to drive from pass to pass; E-DIF cannot be used to establish blocks.

Flexible operating radius.



1 The machine receives signals transmitted by GPS satellites.
2 The machine also receives a high-precision correction signal (DGPS) transmitted by a geostationary satellite.
3 The GPS PILOT converts both signals into steering signals.



1 The machine and RTK FIELD BASE receive signals transmitted by GPS and GLONASS satellites.
2 The mobile reference station generates a high-precision correction signal (DGPS), which is also transmitted to the machine via a radio signal.
3 The GPS PILOT converts both signals into steering signals.

OMNISTAR.

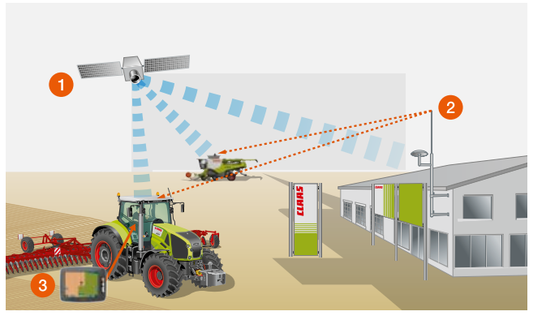
OMNISTAR HP / XP / G2 operates in much the same way as EGNOS. However, this system is equipped with a dual-frequency GPS receiver, enabling it to achieve a far higher level of GPS accuracy. It provides a correction signal service, subject to a licence, which supplies accurate position data following an initialisation period. The correction signal receiver is particularly quick to respond and achieves an accuracy of +/– 5-12 cm.

CLAAS GPS steering systems can easily be retrofitted with OMNISTAR. The correction signal is suitable for a wide range of agricultural applications.

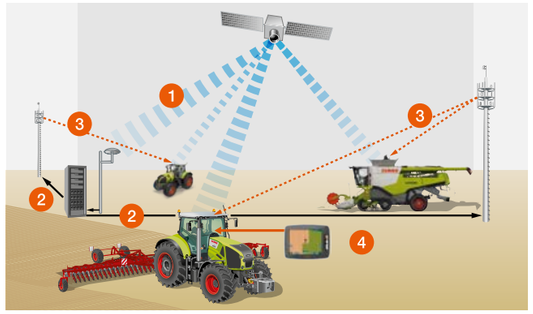
RTK FIELD BASE.

RTK FIELD BASE is a mobile reference station for flexible use. Thanks to the integrated dual-frequency receiver, the typical positioning accuracy with RTK is 2 to 3 cm. With three different radio units in the frequency ranges 403-450 MHz, 860 MHz and 900 MHz, the RTK FIELD BASE can be adapted to comply with radio communication authority guidelines. For use in fleets with machinery from different manufacturers, the standardised RTCM 3.1 correction data format is the logical choice when using RTK FIELD BASE. The range is between 3 and 6 km, depending on topography, transmitter power and frequency.

Maximum precision.
Maximum convenience.



[1] The machine and the stationary reference station receive signals transmitted by GPS satellites.
[2] The mobile reference station generates a high-precision correction signal (DGPS), which is also transmitted to the machine via a radio signal.
[3] The GPS PILOT converts both signals into steering signals.



[1] The machine and the RTK network receive signals transmitted by GPS satellites.
[2] The central server calculates correction signals for the networked reference stations.
[3] The machine receives the high-precision RTK correction signal via the mobile phone network.
[4] The GPS PILOT converts both signals into steering signals.

RTK base station.

The RTK base station is the right technology when every centimetre counts, e.g. for drilling or harvesting. The reference station is stationary and comes equipped with dual-frequency reception technology. From its fixed site, it sends the correction signal to any number of machines. Depending on the topography and transmitter power its range is up to 15 km, enabling all machines within the reception range to work simultaneously with a high level of precision.

Best-in-class system providing many benefits.

- Highest possible repeatable accuracy
- Fastest signal availability
- Maximum efficiency
- Optimum convenience
- Lower operating costs in the long term
- Perfect for entire fleets
- Accuracy of 2 to 3 cm

RTK NET.

RTK NET extends the product range for regions where there is no access to a base station. The correction signals are sent via the mobile phone network.

RTK NET is not constrained by a specific radius and is therefore the ideal solution for contractors and farms seeking to work with the highest repeatable precision. Like RTK, RTK NET uses dual-frequency technology. The system features very fast signal availability (initialisation) and a highest repeatable accuracy of +/– 2-3 cm.

Benefits in the field.

- Correction signal via mobile phone network
- Access to existing RTK networks
- Unrestricted operating radius
- Specific to individual machines
- Highest possible repeatable accuracy
- Very fast signal availability

Optical steering systems.

CAM PILOT.
LASER PILOT.

Loss-free harvesting with the CAM PILOT.

The CAM PILOT steers the JAGUAR during grass harvesting with the PICK UP. The camera detects the swaths accurately and steering follows automatically. Working speeds of up to 15 km/h can be achieved.

The CAM PILOT is easily activated by a button on the control lever. The driver can regain control of the steering by moving the steering wheel slightly.

The benefits at a glance:

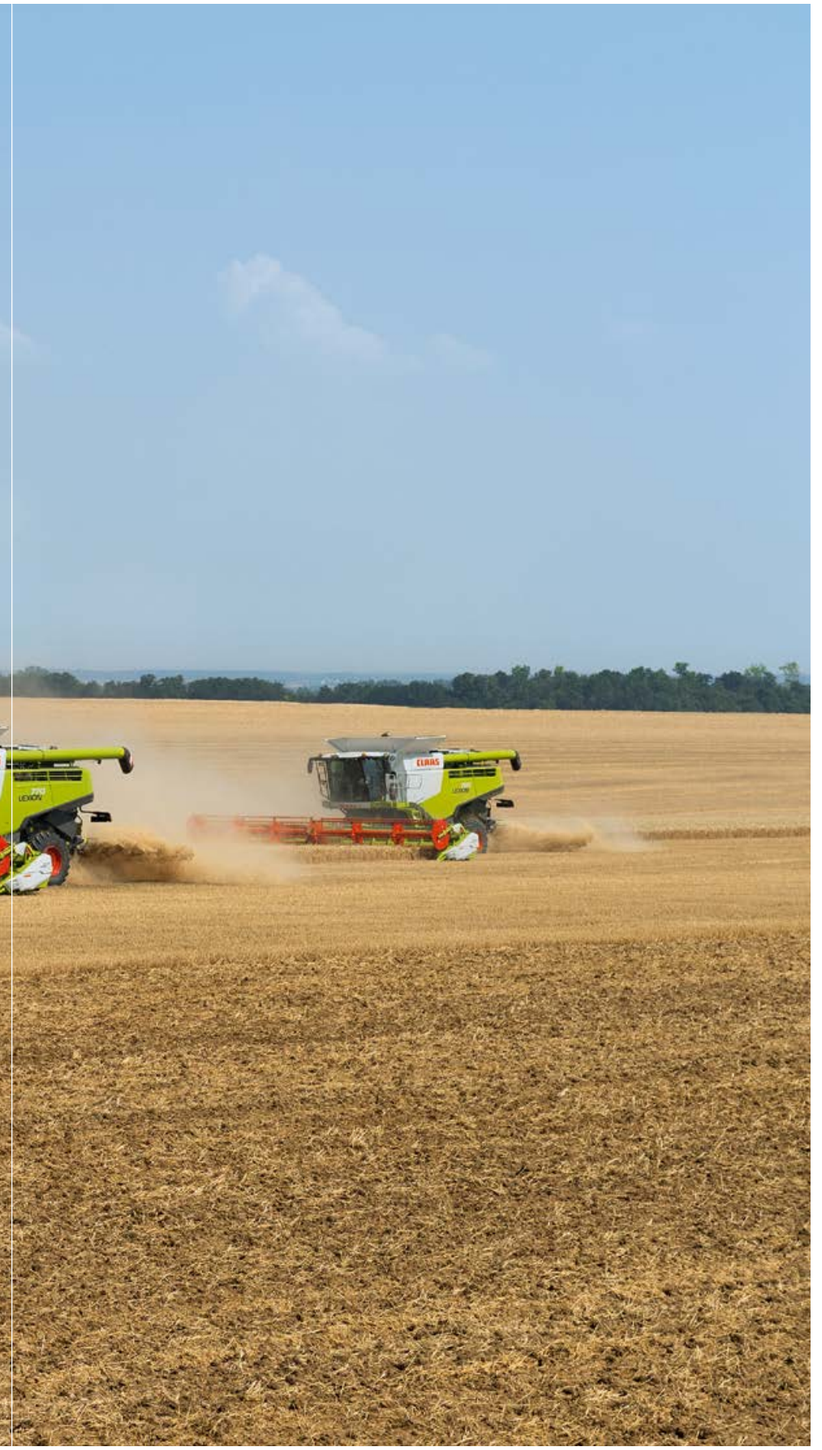
- Very easy to use
- Relatively low purchase costs
- High steering accuracy even without RTK
- Low incidence of faults
- Capacity for higher working speeds
- Greater efficiency due to higher area output

Higher performance and less stress with LASER PILOT.

Automatic steering in grain crops significantly reduces the strain on the driver. This is especially true when using wide cutterbars and operating at high speeds or in poor visibility. A maintenance-free sensor continuously emits invisible light signals and moves horizontally at an angle of 6°.

The standing crop and the stubble reflect the light beam. A sensor measures the travel time of the reflected light signals and thereby determines the exact position of the edge between the cut and uncut crop. The machine is automatically guided along this crop edge with an accuracy of 10 to 20 cm.

The LASER PILOT is extremely reliable, even in laid crops and on slopes.



Disclaimer in relation to correction signals.
Please note that some variants are not available in every country. Please contact your distributor for further information.

EGNOS is a service which is available free of charge in Europe. WAAS is a comparable service for North America. Please note that in both systems track lines may shift over time (satellite drift). These systems are not suitable for use in machine fleets (e.g. combine harvesting). The accuracy data given relates to the accuracy of the GPS receiver on the machine under perfect conditions. All data is given as maximum values. A distinction is made between pass-to-pass accuracy and absolute accuracy. Pass-to-pass accuracy defines the accuracy of the subsequent pass in 95% of cases within 15 minutes in relation to the reference track. Absolute accuracy indicates the level of accuracy with which a certain position can be found again at a later point in time. The actual accuracy of the overall system may deviate from the abovementioned accuracy data. It depends on various influential factors such as vehicle factors (wheelbase, ballasting, calibration, etc.), attached implements (side pull, configuration, attached front implements, etc.), and field and soil conditions.

The pricing of the individual services depends upon the region and the provider. In the case of correction data services transmitted via mobile phone networks, availability is dependent on the coverage of the network provider used. CLAAS assumes no liability for circumstances or events beyond its control. These may include, for example, disturbances in the atmosphere/troposphere/ionosphere, breakdowns/disruptions or insufficient availability of satellites within global navigation satellite systems (GPS, GLONASS, GALILEO) and their ground reference stations or of satellites belonging to correction service providers (EGNOS, OMNISTAR, etc.). E-DIF is a patented correction algorithm which uses only standard GPS satellites to calculate a correction factor. E-DIF is therefore available worldwide as an alternative correction system in the basic accuracy segment and, within a few minutes, its accuracy is comparable with that of SBAS services (EGNOS, WAAS, etc.) for pass-to-pass applications.

Therefore E-DIF should only be used for pass-to-pass tracking. E-DIF is completely unsuitable for driving in blocks or for use in controlled traffic applications or machine fleets (e.g. combine harvesting). It is also impossible to record points for absolute positioning. Shifts in tracks (satellite drift) due to long interruptions in work can be corrected using an update function (setting a reference point).

Ensuring a better **harvest**.

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