

Machine Control Equipment

Product Catalogue



MCE
LASERS
Australian Laser Manufacturer

ABOUT MCE LASERS

MCE Lasers, based in Melbourne, Australia, has over the last 34 years developed a strong market niche for high precision laser systems used in alignment across a spectrum of industries. MCE Lasers continues to innovate laser systems for:

- ▶ Agriculture and land levelling
- ▶ Civic, building and construction
- ▶ Industrial alignment
- ▶ Mining and tunnelling
- ▶ Safety and monitoring
- ▶ Medical and therapeutic applications

With its Australian heritage, MCE Lasers has perfected its design, development and manufacture of precision laser alignment systems for harsh physical environments.

Now with a diverse product portfolio across a number of international industrial centres, the mission of MCE Lasers is to innovate laser technology to meet the precision alignment and levelling needs of industry. MCE Lasers has been proud to introduce easy-to-use high precision laser systems, and new applications for laser instruments, to the global market.

We retain a strong focus on research and development and draw on expertise across optoelectronics and RFID on a project basis. Technology advances in photonics, RFID and hardware offer a greater range of advances in the durability, robustness and instruments.

MCE Lasers maintains a large product range supported by a strong network of distributors across the globe, including Europe, Asia and the Americas. We strive to maintain and build the close relationship we have with our clients to determine their whole-of-project-life alignment needs, and seek to deliver a range of efficiencies and benefits with the one laser system.

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MCE Lasers mit Geschäftssitz in Melbourne, Australien, hat im Laufe der letzten 34 Jahre eine Marktnische für leistungsstarke Präzisionslasergeräte ausgebaut, die bei Ausrichtungsarbeiten in diversen Branchen Anwendung finden. MCE Lasers produziert innovative Lasersysteme für:

- ▶ Landwirtschaft und Landnivellierung
- ▶ Hoch- und Tiefbau
- ▶ Industrielle Trassierung
- ▶ Bergbau und Tunnelbau
- ▶ Sicherheit und Überwachung
- ▶ Medizinische und therapeutische Anwendungen

In Anbetracht seiner australischen Umgebung hat MCE Lasers Design, Entwicklung und Fertigung seiner Präzisionssysteme für Laserausrichtung in einer rauen Umwelt perfektioniert.

Mit einem vielfältigen Produktportfolio, das in diversen internationalen Industriezentren zum Einsatz kommt, hat MCE es sich zur Aufgabe gemacht, innovative Lasertechnologie zu entwickeln, um die Präzisionsausrichtungs- und -nivellierungsgeräte bereitzustellen, die die Branche benötigt. MCE Lasers hat seine benutzerfreundlichen Präzisionslasersysteme und neuen Anwendungen für Laserinstrumente stets mit Stolz auf dem Weltmarkt vorgestellt.

Unser Augenmerk bleibt jedoch weiterhin auf Forschung und Entwicklung gerichtet, und wir greifen dabei im Bedarfsfall auch auf Knowhow aus den Bereichen der optischen Elektronik und RFID zurück. Technische Fortschritte in Photonik, RFID und Hardware ermöglichen uns die Optimierung unserer Präzisionsinstrumente in Bezug auf Haltbarkeit, Robustheit und Anwendungsspektrum.

MCE Lasers hält ein breites Produktangebot bereit, das von einem leistungsstarken Vertriebsnetz rund um den Globus unterstützt wird, auch in Europa, Asien und allen Teilen Amerikas. Wir sind uns stets um Aufbau und Pflege enger Kundenbeziehungen bemüht. Wir ermitteln die Kundenanforderungen über einen gesamten Projektzyklus, um auf diese Weise mit einem einzigen Lasersystem eine ganze Reihe von Effizienzverbesserungen und Vorteilen bereitzustellen.

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LASER RECEIVERS

Laserguide



Product code: R.45/R.45.TC/R.45B/R.45BM

The Laserguide Mini receiver by MCE Lasers is a rugged laser receiver designed to withstand harsh operating environments, providing bright LED indication of the relative height of an excavator blade or arm.

R.45.TC is a world first whereby the receiver will automatically compensate for the error introduced by deviations from the receivers vertical position by adjusting the centre band automatically. Compensation range can be set from 0 to +/- 26 degrees.

- Indicates correct height
- Works with any laser
- Rugged and versatile
- Prevents re-work
- Reduces grade checks
- Simple to install
- Easy to use
- Highly visible LED's
- Automatic compensation induced by vibration
- 220° reception range
- Power on indicator



A.MCE.150
Infra-red remote
control for R.45.TC



AVAILABLE MODELS



R.45
Externally powered
laser receiver with
standard bracket

R.45.TC
Battery
powered
laser
receiver with
magnetic
bracket
and tilt



R.45B
Battery powered laser
receiver with standard
bracket



R.45BM
Battery powered laser
receiver with
magnetic bracket

SPECIFICATIONS

	R.45	R.45.TC	R.45B	R.45BM
Receiving area length	75 mm	190 mm	90 mm	90 mm
Tilt compensator	N/A	± 30°	N/A	N/A
Mounting post diameter	40-60 mm	N/A	40-60 mm	N/A
Power supply	12 - 24 V DC	1 "D" cell battery		
Battery life (alkaline)	N/A	45 hrs	100 hrs	
Detected laser	Visible/invisible			
Polarity protected	Yes			
Weight (kg)	1.6	1.8	1.3	1.7
Height (mm)	135	325	250	275
Width (mm)	130	60	130	65
Depth (mm)	170	125	130	125

Duo Receiver



Product code: R.DUO/R.DUO.360

The unique switchable display and controls allow use of the Duo receiver with any earth-moving machine.

FEATURES

- ▶ Rugged construction able to withstand harsh operating environments
- ▶ Highly visible LED display of position of laser beam
- ▶ Brightness adjustment
- ▶ Fast 2.5 hour charging
- ▶ User selected resolution (accuracy)
- ▶ Saving and restoration of user selected settings
- ▶ Automatic compensation for errors caused by vibration
- ▶ Battery power level display
- ▶ Automatically shuts down to save battery if inactive for a period of time
- ▶ Fully waterproof and purged with nitrogen
- ▶ Standard 360 degree reception
- ▶ Power is 12-24 Volt DC (polarity protected)
- ▶ A.RS.033 Standard bracket to suit post 52 mm diameter
- ▶ Charger issued as standard

AVAILABLE MODELS



R.DUO
5 channel laser receiver
with 360° reception and
internal rechargeable
batteries



R.DUO.360
5 channel laser receiver
with 360° reception and
external power supply

SPECIFICATIONS

	R.DUO	R.DUO.360
Detector length	250 mm	
Shock protection	Yes	
Waterproof	Yes	
External power supply	12 or 24 V DC	
Internal battery	Ni-Mh 7.2 V @ 4,500 mAh	N/A
Battery charging time	2.5 hours	N/A
Battery operating time	12 hours (in adverse conditions)	N/A
Automatic power down	30 minutes after the last detected laser beam	
Centre band resolution	Fine, Wide or Normal	
Receiving range	700 m radius (tested with MCE LS.230)	
Mounting post diameter	52 mm	
Size (L x W x D)	417 x 150 x 70 mm	
Weight	3.5 kg (including bracket)	

LASER RECEIVERS

Laserguide 3 Channel Laserguide 5 Channel



Product code: R.3CHS/R.3CHS.R/R.3CHS.MC

- ▶ Simple to use and setup.
- ▶ Rugged construction able to withstand harsh operating environments.
- ▶ Highly visible LED display of position of laser beam.
- ▶ User adjustment of brightness to suit the operating conditions (adjustable with remote).
- ▶ Automatic compensation of errors induced by vibration.
- ▶ Power supply 12 to 24 V DC (polarity protected) allows use on different machines.
- ▶ User selectable accuracy for detecting the laser beam (via remote control).
- ▶ Automatic saving & restoration of user selected settings.
- ▶ Last position memory, when the laser is not detected.

AVAILABLE MODELS

R.3CHS - stand-alone (visual LED) - manual machine control
R.3CHS.MC - automatic machine control via a control box
R.3CHS.R - radio output for use with a radio remote display

SPECIFICATIONS

Detector length	200 mm
Shock protection	Yes
Waterproof	Yes
External power supply	12-24 V DC (polarity protected)
Centre band resolution	Fine, wide or normal
Receiving range	700 m radius (tested with MCE LS.230)
Mounting post diameter	52 mm
Dimensions (H x W x D)	300 x 150 x 70 mm
Weight	3 kg (including bracket)



Product code: R.5CHP/R.5CHP.MC/R.5CHP.B/R.5CHP.B.MC

- ▶ 5 channel receiver - user selectable resolution (accuracy).
- ▶ Automatic proportional control of machinery hydraulics.
- ▶ Long battery life - lithium-polymer battery for 60 hours of continuous use (R.5CHP.B model).
- ▶ 3 wire cord between the receiver and the panel reduces complexity and increases reliability.
- ▶ Reliable & robust - rugged construction able to withstand harsh operating conditions.
- ▶ Waterproof - sealed and purged with dry nitrogen for work in all weather conditions.

AVAILABLE MODELS



R.5CHP
5 channel receiver for operation with a display panel or as a stand-alone unit, requires external power supply.

R.5CHP.MC
5 channel receiver with machinery control, for operation with a control panel, requires external power supply.



R.5CHP.B
5 channel receiver with internal battery for operation with a display panel or as a stand-alone unit.

R.5CHP.B.MC
5 channel receiver with internal battery and machinery control, for operation with a control panel.

SPECIFICATIONS

	R.5CHP / R.5CHP.MC	R.5CHPB / R.5CHPB.MC
Detector length	200 mm	
Shock protection	Yes	
Waterproof	Yes	
Internal power supply	N/A	Li-Polymer battery 3.7 V DC
Battery operating time	N/A	60 hrs
Battery charging time	N/A	9 hrs
External power supply	12-24 V DC	
Centre band resolution	Fine, wide or normal	
Receiving range	700 m radius (tested with MCE LS.230)	
Mounting post diameter	52 mm	
Dimensions (H x W x D)	300 x 150 x 70 mm	
Weight	2.8 kg (inc. bracket)	2.9 kg (inc. bracket)

The receiver detects the beam from any laser and greatly improves efficiency and productivity of the mining operation by providing accurate feedback to the machine operator. Accuracy to 50 mm is made possible by the use of high intensity LED clusters.

The receiver is attached to the dipper arm and an optional

FEATURES

- ▶ 5 or 10 channel
- ▶ 1000 metre range
- ▶ Highly visible LED's
- ▶ 12 or 24 V DC
- ▶ Detects any laser transmitter
- ▶ Rugged construction
- ▶ UV protected

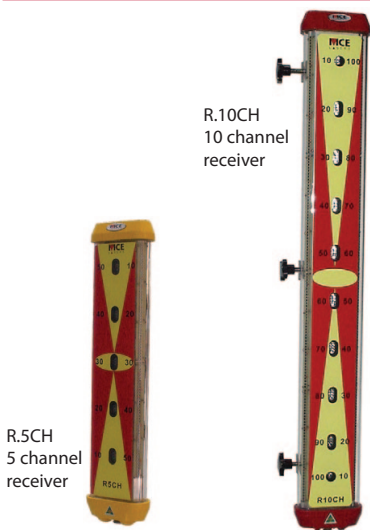
ACCESSORIES

CB.5CHL - Display panel for the R.5CH receiver

CB.10CH - Display panel for



Laserguide Maxi



MCE Lasers have developed the unique 5 & 10 channel receivers and display panels specifically for large open cut mining applications.

SPECIFICATIONS

Receivers	R.5CH	R.10CH
Detector length	490 mm	990 mm
Input voltage	12 or 24 V DC	
Range	1000 m	
Reception	220° or 360°	
Power cord	50 m	
Connectors	Military style	
Dimensions (L x W x D)	655 x 150 x 160 mm	1130 x 150 x 170 mm
Weight	6.25 kg	7.25 kg
Mounting post dia.	40 to 60 mm	
Operating temp.	-20°C to 50°C	
Display panels	CB.5CHL	CB.10CH
Input voltage	12 or 24 V DC	
Power cord	6 m	
Dimmer switch	Yes	
Connectors	Military style	
On/off switch	Yes	
Dimensions	260 x 84 x 74 mm	350 x 84 x 70 mm
Weight	0.64 kg	0.8 kg
Mounting post dia.	5/8" or velcro	
Operating temp.	-20°C to 50°C	

LASER RECEIVERS

Elevation Masts

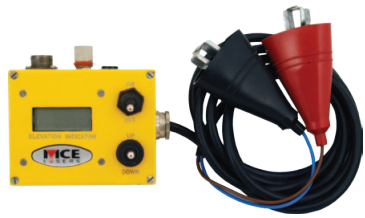


The Elevation Mast is an electrical motor powered mast for smooth movement. Steel framed for strength, the mast is attached directly to scraper or earthmoving machine. MCE masts are long lasting and reliable. The mast is powered via the Elevation Indicator and can be integrated with a laser receiver control panel thus eliminating unnecessary cables.

The Elevation Indicator is a strong and compact digital instrument capable of measuring the mast height to 1 mm accuracy. This enables you to quickly remove unwanted spoil from the work site to any depth by simply raising the mast, for example 100 mm. When spoil is removed simply revert to original height by lowering the mast as read from the large LCD and proceed to topsoil to original level. Adjustment is easy and at your fingertips.

You can zero the indicator or adjust to any convenient readout height by elevating indicator control panel.

ELEVATION INDICATORS



CB.EI - elevation indicator for use with ME.12U electric mast.



CB.EI.HD - elevation indicator for use with ME.14 electric mast. Features 4 memory settings for easy storing and recalling of 4 different height values. Mast will automatically adjust to the stored height values when selected at the press of a button.

SPECIFICATIONS

Mast	ME.15	ME.12U	ME.14
Type	Manual	Electric	
Size (min)	130 x 130 x 1900 mm	260 x 140 x 1900 mm	
Lift (stroke)	1000 mm	820 mm	900 mm
Weight (including frame)	11 kg	25 kg	30 kg
Post	50 mm diameter		
Power	N/A	12 V DC (24 V DC optional)	
Dust proof	Yes		
Construction	Steel frame, aluminium support		

Elevation indicator	CB.EI	CB.EI.HD
Size (W x H x D) mm	120 x 95 x 58	127 x 117 x 46
Weight	1 kg (with cord)	0.84 kg
Display	LCD	
Resolution	1 mm (0.001 m)	
Power	12 V DC	
Waterproof	Yes	
Construction	Aluminium casing	

DISPLAY & CONTROL PANELS

Control Panels

A control panel is used to control the machine's hydraulics according to the output from the laser receiver. It also replicates the display from the receiver inside the machine's cabin.

A control panel can be used to either automatically control machine's hydraulics or the user can override and manually control the machines hydraulics via the switches on the control panel.

Accuracy settings and hydraulic response can also be adjusted (dependant upon control panel model).

DUAL CONTROL PANEL CB.2000



- Suits bang bang valves
- 3 accuracy settings
- Economically priced
- Toggle switches
- Dual control panel works with R.3CHS.MC or Blade

CONTROL PANEL CB.2200



- Suits bang bang valves
- 3 accuracy settings
- Economically priced
- Toggle switches
- Works with R.3CHS.MC
- Can be integrated with

CONTROL PANEL CB.D2



- Suits proportional or bang bang valves
- 3 accuracy settings
- Can be integrated with elevating mast
- Large, easy to read LCD display
- Die-cast aluminum casing
- Works with R.5CHP.MC and

DUAL CONTROL PANEL CB.DUO²



- Suits proportional or bang bang valves
- 3 accuracy settings
- Large, easy to read LCD display
- Machined aluminum casing
- Dual control panel works with R.5CHP.MC or a large array of slope and ultra sonic sensors

CONTROL PANEL CB.2001



- Suits bang bang valves
- 3 accuracy settings
- Economically priced
- Toggle switches
- Works with R.3CHS.MC or Blade leveller

Display Panels

A display panel replicates the display from the receiver, inside the machine's cabin. A display panel can be used when there is no direct line of sight to the laser receiver mounted on the machine. The display panel can also be used to change the accuracy settings of the receiver.

DISPLAY PANEL DB.DUO



- Brightness control
- Centre band accuracy selection
- In-cab display via cable
- Toggle switches
- Works with R.3CHS

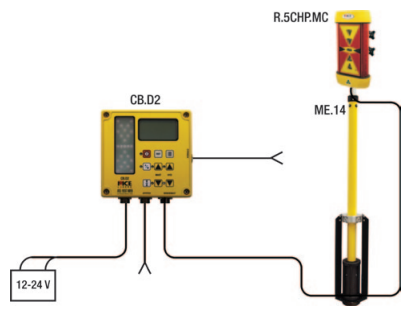
DISPLAY PANEL CB.3CH



- Brightness control
- Centre band accuracy selection
- In-cab display via cable
- Push button switches
- Works with R.5CHP and DUO series receivers

RECEIVING SYSTEMS

Receiving Systems



Receiving systems from MCE Lasers allow you to maximise the time you spend productively in the cab. By guiding your machinery to an exquisite level of accuracy of depth or elevation, you will optimise machine time. This means greater efficiency, effectiveness and profitability for your business.

You can use MCE Lasers' rugged, highly flexible receiving systems on a wide range of machines. The receivers can be used either for visual display or in conjunction with a control panel for fully automatic blade control.

MCE Lasers' modular design enables us to put together receiving system combinations to suit every machine and application. Our knowledge and leading industry experience also allow us to create custom receiving systems tailored to your specific application.

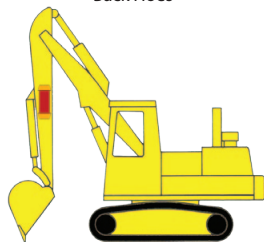
APPLICATIONS

- ▶ Land levelling
- ▶ Road construction
- ▶ Agricultural site preparation
- ▶ Airfield construction
- ▶ Stadium and sports fields
- ▶ Golf courses and tennis courts

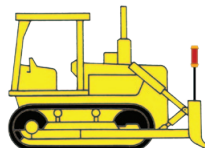
MCE Lasers receiving system setup on a scraper



Back Hoes



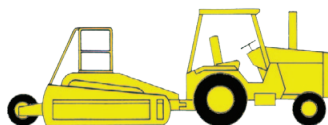
Excavators



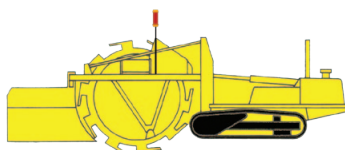
Bulldozers



Graders



Drag Scrapers



Trencher

COMMON VISUAL GUIDANCE RECEIVERS TO SUIT VARIOUS MACHINES

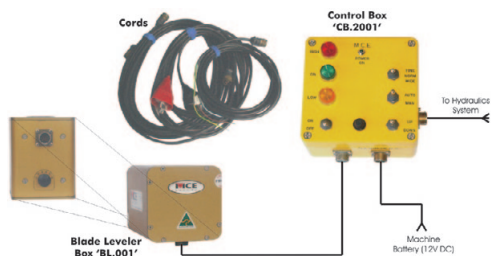
	Product code	Product description	Excavation <10 tonne	Excavation <15 tonne	Excavation <40 tonne	Graders	Dozers	Skid steer	Box blade
RECEIVERS	R.5CHP.B	Laseguide 9 channel receiver with internal battery	O	O	O	S	S	O	S
	R.DUO.B	Duo series receiver with internal battery	O	O	S	O	O	O	O
	R.3CHS	Laserguide 5 channel receiver	O	O	O	O	O	O	O
	R.45.BM	Laserguide mini receiver with magnetic bracket	S	O	O	O	O	S	O
	R.45.TC	Laserguide mini receiver with tilt compensation & magnetic bracket	O	S	O	O	O	O	O

STANDARD RECEIVING SYSTEMS FOR AUTOMATIC MACHINE CONTROL

	Product code	Product description	RS.023	RS.022	RS.021	RS.020	RS.009	RS.007	RS.002U
RECEIVERS	R.5CHP.MC	Laseguide 9 channel receiver for machine control	S	S		S (2pcs)			
	R.DUO.MC	Duo series receiver for machine control	O	O		O (2pcs)			
	R.3CHS.MC	Laseguide 5 channel receiver for machine control			S		S (2pcs)	S	S
CONTROL PANELS	CB.D2	Control panel with electric mast controller for 9 channel receiver	S	S					
	CB.2001	Control panel for 5 channel receiver/blade leveller						S	
	CB.2000	Dual control panel for 5 channel receiver/slope/sonic sensors			S		S		
	CB.2200	Control panel for 5 channel receiver							S
	CB.DUO2	Dual control panel for 9 channel receiver/slope/sonic sensors				S			
ELEVATION MAST	ME.12U	Standard electric mast							S
	ME.14	Heavy duty electric mast		S					
	ME.14HS	Heavy duty, high speed electric mast		O					
	ME.15	Manual elevation mast	O		O	O (2pcs)	O (2pcs)	O	
SENSORS	BG.001	Blade leveller for use with CB.2000/CB.2001 control panels			S			O	
	BG1500	Slope sensor for use with CB.DUO2/CB.D2 control panels				O			
	TR.002	Ultrasonic sensor				O			

RECEIVING SYSTEMS

Blade Leveller



Product code: RS.BL

Blade Leveller is an accurate automatic control system for keeping a cutting blade of machine horizontal at all times. You can override the automatic control by switching to manual mode on the control panel.

The control panel also indicates the blade movement required to keep on level, via three bright light indicators.

FEATURES

- ▶ Automatic or manual control
- ▶ Bright light indicators
- ▶ Selectable accuracy

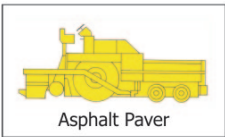
INCLUDES

- ▶ Blade leveller box BL.001
- ▶ Control box CB.2001
- ▶ Power cord A.RS.001
- ▶ Receiver cord A.RS.002
- ▶ Hydraulic cord A.RS.003
- ▶ Carry case A.RS.013

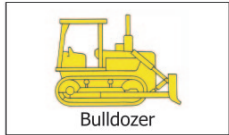
APPLICATIONS



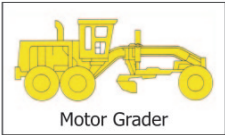
Drag Scraper



Asphalt Paver



Bulldozer



Motor Grader

Blade Grader



Product code: BG.004

Where a constant grade of a check bank or level bank is required, the Blade Grader is ideal. The LCD gives you the exact grade your blade is working at. For example, if your road shoulder is at grade 1 in 36, the BG.001 will provide you with grade of 2.7778% displayed on the LCD. The control box can store 4 grade values in memory for quick grade changes. The Blade Grader can be used automatically or manually to control grade of cutting blade via the control box. The control box gives a clear digital readout of the grade of the blade.

INCLUDES

- ▶ Grade sender box BG.1500
- ▶ Grade control box CB.D2
- ▶ Power cord A.RS.001
- ▶ Receiver cord A.RS.072
- ▶ Hydraulic cord A.RS.073
- ▶ Case A.RS.038
- ▶ Corded remote control and various length cords available as accessories

SPECIFICATIONS

Blade grader system	
Range	± 30%
Resolution	0.05%
Power supply	12 - 24 V DC
Grade control box (CB.D2)	
Display size	65 x 37 mm graphical LCD
Dimensions (H x W x D)	160 x 160 x 92 mm
Weight	1.88 kg
Grade sender box (BG.1500)	
Dimensions (H x W x D)	124 x 80 x 58 mm
Weight	0.59 kg

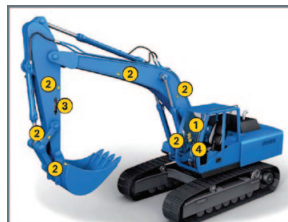
2D & 3D SYSTEMS

XsiteEASY



Product code: VL.001

XsiteEASY is an inexpensive, easily operated 2D excavation system, which measures the depth, range and inclination of the bucket during operation and facilitates work even in places where the bucket is not visible to the driver, e.g. under water. The system thus accelerates work processes and improves safety on site, as no personnel have to be present in the working range of the machine to monitor work. The system thus accelerates work processes and because there is no need for any other personnel to be near the excavator as it works improves safety on site. XsiteEASY is ideal for varied projects such as for digging trenches, pipelaying, foundations, road works and dredging work. This 2D solution operates with slope sensors with which the position of the bucket can be precisely determined. The highly accurate and robust slope sensors of this 2D system precisely determine the position of the bucket teeth under all situations. With their robust design, all sensors are well suited for use under all rough conditions or even under water.



1. Control panel
2. 3-axis slope sensor
3. Laser receiver
4. LED display



Excavation depth and distance - you can measure the depth and horizontal distance by resetting the bucket at the desired starting point.



Slope - when measuring the slope, the system indicates the height difference between the bucket and the target surface. The target slope is entered into the system before the work starts.



Underwater excavation - when dredging, seeing the bucket position on the display is a remarkable advantage. The sensors are fully waterproof.

SYSTEM BENEFITS

- ▶ The work gets done more efficiently and quickly as the operator can concentrate on productive work. Less time spent on the contract means cost savings in employee, fuel, and machinery expenses.
- ▶ The accurate measurement device enables tighter tolerances. No excess cutting or filling. Material and transportation costs decrease as the use and transportation of extra materials are no longer needed.
- ▶ Higher accuracy leads to more uniform work quality throughout the contract. Machine control turns a good machine operator into a great one!
- ▶ Improved jobsite safety as workers close to the machinery or in the excavations are no longer needed.
- ▶ The system guides the operator in all weather conditions and, therefore, making the work easier especially under poor conditions, such as rain or poor visibility.



Laser - the laser receiver enables moving the machine at the site without losing the original level. The laser that has been set to a known site level can also act as a reference level.



Bucket tilt angle - with the help of the tilt bucket sensor, you can set the measurement point to the lowest corner of the bucket, and observe the sideways tilt angle on the display.



Height alarm - the alarm thresholds bring added security when, for instance, working under power lines. The system warns the operator if the bucket or boom is raised beyond a set point.

2D & 3D SYSTEMS

XsiteLINK

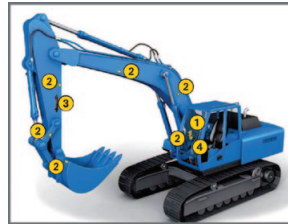


Product code: VL002

In addition to numerous 2D functions, XsiteLINK also comes as standard with basic 3D functions. The system's basic functions include the measurement of depth, slope and distance from the excavator of the bucket. The operator can generate a profile directly on the display, consisting of several levels and slopes. The position and status of the bucket are displayed in real-time on the panel. The operator is thus assured of precisely obtaining the desired excavation depth at all times. The system can be upgraded with a laser receiver, an external LED display, a cross-slope sensor on the bucket and a GNSS sensor. Manual site surveys can be dispensed if using RTK GNSS positioning and background maps as the excavator becomes the surveying equipment! Thus time and money are saved through less personnel on site and less man-hours. The 3D version of Link continuously displays height and machine data and simple 3D models are created directly on the screen.

SYSTEM BENEFITS

- ▶ When the machine is located with the aid of satellites, there is no need to use a laser to move the machine or set up physical elevation markers for level comparison.
- ▶ Improve your work efficiency and finish your contracts faster. Save on labour, fuel, and machinery costs.
- ▶ Do the job properly the first time, and no later corrections are needed. Avoid excess cutting and filling. Lower your material and transportation costs.
- ▶ Document the excavation work immediately after the completion of the work phase, before you refill the excavation. Save on surveying costs, and collect exact data with the machine yourself.
- ▶ Create a safe working environment. No workers needed around the machinery or in the excavations.



1. Control panel
2. 3-axis gravitational sensors
3. Laser receiver
4. LED display



Single GNSS positioning - satellite positioning enables working without staking-out. Thanks to the positioning provided with a single GNSS antenna, the location of the machine is known at all times, and the direction is set by rotating the machine after it has been moved.



2D drawings - when working with 2D drawings, the display shows the bucket position on top of the two-dimensional design file. At the same time, the system displays the bucket elevation so that the operator can compare it with the target elevation.



Profiles - use the handy built-in tool to create various profiles, such as ditches and roads. As you create your own 3D models right there in the excavator cabin, you won't have to depend on engineering offices and you can utilise satellite positioning even at small jobsites.



Documentation - collect data regarding your pipeline installations and constructed layers right from your own machine - no separate surveying is required. Documenting is carried out by directing the bucket to the desired point and by saving the coordinates.



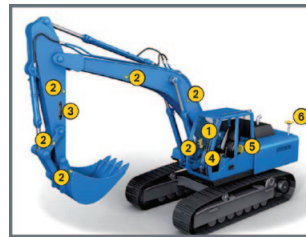
Remote support - a wireless internet connection makes it possible to create a remote connection between the machine control system and the service centre. By using this remote function, technical support can provide you with guidance - without having to visit the site.

XsitePRO



Product code: VL.003

With the professional XsitePRO system there is no need for time-consuming manual surveying; the operator can see all the position information on the display. This saves time, material and fuel. Work processes are accelerated and quality improved. The resulting acceleration in work processes and quality saves time, material and fuel. Because the system accepts all standard DXF and XML formats the digital terrain models (DTM) can be transferred directly and simply from the office to the excavator. The design data is thus accurately transferred to the ongoing project and with the clear visualisation on the display the operator can easily construct even the most complex landforms. On completion of the project, a report can be transmitted directly to the office via the inbuilt internet connection. If required operation in 2D mode is possible at any stage.



1. Control panel
2. 3-axis gravitational sensors
3. Laser receiver
4. LED display
5. Controller
6. GNSS antenna



Dual GNSS positioning:
Satellite positioning enables working without staking. With the help of two GNSS antennas, the machine's location and direction are constantly known.



DTMs and road lines:
When using a digital terrain model, the operator can see the length profile, cross section, and elevation difference in relation to the target surface on the screen. A project can consist of several design models, and the active model can be changed quickly without entering menus. Most common data formats can be imported without format conversions.



Wireless data transfer:
The wireless internet connection makes it easy to transfer data between the jobsite and office. Design models can be sent wirelessly to the machine,

and in the same fashion, data collected by the machine can be sent to the office for further handling or documentation purposes.



Remote support:
A wireless internet connection makes it possible to create a remote connection between the machine control system and service centre. By

using this remote function, technical support can provide you with guidance – without having to visit the site.

SYSTEM BENEFITS

- ▶ The location information of the machine is based on RTK-GNSS positioning, so there is no need for staking out. Working becomes independent and fluent as you don't have to rely on surveyors or stakes – or the lack of them.
- ▶ The graphical, three-dimensional design models help the machine operator to complete even the most challenging tasks effortlessly. Work gets more efficient and speedy, which means savings in labour, fuel, and machinery costs.
- ▶ Quality improves, and the job is performed properly the first time, with no rework. Material and transportation costs decrease as the use and transportation of extra materials are no longer needed.
- ▶ As-built data can be saved by using a bucket as the surveying tool. The completed work gets documented and the documents sent to the office for further processing.
- ▶ People working close to the machinery or in the excavations are no longer needed. Jobsite safety will be improved.

2D & 3D SYSTEMS

Motorgrader/Dozer



An investment in profitability.

Hardly any industry is experiencing competitive pressure to such an extent as the construction industry. Any company hoping to maintain or improve its position in the market must improve its profitability. In other words: more efficiency by increasing work speed while at the same time improving quality. For the MOBA GS-506 leveling system, it's all part of a day's construction work.

Both graders and dozers can be equipped with grade and slope control. The increased productivity ensures that all levelling is performed faster and more accurately. This is the best way to meet high quality requirements and short deadlines.

Modular layout for customized solutions - The GS-506 is a flexible system that offers the right solution for each application. However different the individual construction machines, jobs, and working methods may be, the modular layout creates a basis for a customized solution. Another advantage is compatibility with many other MOBA sensors. This compatibility gives the GS-506 an advantage over other systems and ensures your investment is protected well into the future. In addition, the system can also be extended to a 3D application.

Control panel - all control information and current work status for the operator is always visible. The operator can also enter corrections, bring up system information, or change central settings.



Controller - it receives and compares set target values with data continuously provided by the sensors. It controls the valves of the corresponding hydraulic cylinder in mere fractions of second.



Connecting box - the connecting box is the connection point for all sensors active in the system. The mainfall sensor is also integrated into the box: It measures the inclination of the grader on the longitudinal axis.



Rotation sensor - the sensor measures the value of the blade rotation. Together with the mainfall sensor, it provides optimum compensation for cross slope.



Cross slope - maintains specified slope values. It records current measurement values for blade slope, vehicle inclination and blade rotation, taking into consideration interfering factors such as acceleration or impacts.



Proportional hydraulic valve - the hydraulic unit controls the cylinder movements based on signals generated by the controller.



Ultrasonic sensor - the accuracy of the MOBA Sonic-Ski[®] is currently unmatched on the market. Altogether five sensors for height measurement plus an additional sensor for temperature compensation allow for an accuracy of ± 2 mm over the sampling width of 250 mm.



Laser receiver - the LS-3000 laser receiver is a highly precise sensor for grade measurement. It works with all common rotary laser transmitters. Deviations are recorded with millimeter precision in a reception range of 360°.



3D control GNSS or TPS - this system continuously determines the position of the grader and sends the data to the on board computer. Incoming actual values are compared with set values here and are regulated directly by the GS-506. This makes it possible always to move the machine completely freely on open terrain.

Paver System



MOBA-matic II – proven benefits with additional convenience. With the second generation of the MOBA-matic handset, operation of the levelling system is even easier than before. The MOBA-matic II combines all the proven benefits of previous MOBA-matic systems with additional visual and simplified operation. The MOBA-matic II integrates the controller and operation panel in a single housing. Multiple additional adjustment options make customising your applications to specific machines easy and straightforward.

BENEFITS OF MOBA-MATIC II:

- ▶ 3.5" color display
- ▶ Easy to operate – still by means of just four buttons
- ▶ Clear indication of all connected sensors
- ▶ Clear, visual icon driven instructions
- ▶ LED status indicators
- ▶ Adaptable to all types of hydraulic systems
- ▶ Backlit keypad
- ▶ Swift and simple swapping of sensors
- ▶ Self explanatory error messages

Typical application for pavers



Sonic-ski plus

- ▶ Five sonic contact-free sensors scan the reference surface
- ▶ Extremely precise distance measurement by means of averaging
- ▶ Ingress protection IP 67



Slope sensor

- ▶ Specially designed for high vibration screeds
- ▶ Measuring range: $\pm 20^\circ$
- ▶ Measuring accuracy: $\pm 0.1\%$
- ▶ Ingress protection IP 67
- ▶ Slope angle display available simultaneously with level information
- ▶ Simple and easy to recalibrate



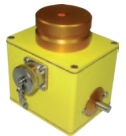
Dual sonic

- ▶ Inexpensive alternative for contact-free ground sensing or Big Sonic-Ski applications
- ▶ Real-time temperature compensation
- ▶ Fixed temperature probe
- ▶ Measuring range: 20 - 100 cm
- ▶ Ingress protection IP 67



Rotary sensor

- ▶ Can be used under all weather conditions
- ▶ Operates in stringline and ground sensing modes
- ▶ Measuring range: $\pm 30^\circ$
- ▶ Measuring accuracy of over $\pm 0.1^\circ$
- ▶ Ingress protection IP 67



Wire rope sensor

- ▶ Very precise height position measurement for milling applications
- ▶ Measuring range: 500 mm
- ▶ Measuring accuracy: $\pm 0.1^\circ$ (± 0.3 mm)
- ▶ Ingress protection IP 54
- ▶ The user can replace the steel wire (wearing part)



Laser receiver

- ▶ Compatible with all common rotating laser transmitters for machine control
- ▶ Digital linear detection of the laser beam
- ▶ No mast required for height adjustment
- ▶ Receiving range: 290 mm/360°
- ▶ Measuring accuracy: ± 1 mm
- ▶ Ingress protection IP 67
- ▶ Select reference point with a single button press



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