

# Leica PowerDigger

Setting new standards  
for excavator guidance



**SitePOWER**  
by Leica Geosystems

- when it has to be **right**

**Leica**  
Geosystems

# Leica PowerDigger

## The next generation of excavator guidance is right here!



### PowerDigger means better performance

The constant development of sensors and software has made it the most accurate and reliable system on the market, improving your daily work, and securing excellent productivity for users.

### PowerDigger means better features

If you think that an excavator guidance system is a new feature – then think again. Our latest PowerDigger control box is just the next generation in the line of the well proven excavator guidance systems.

### PowerDigger means flexibility

The PowerDigger is a truly upgradeable system. You can start with a single grade system that will allow you to do most operations such as fixed depth, slopes, trenching, blind cuts, grading etc.

### PowerDigger upgrade

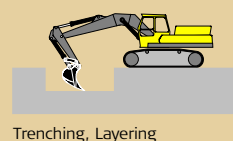
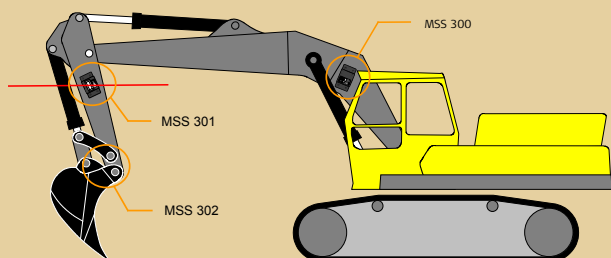
Adding on the MRS300 Sensor will upgrade your system to dual grade system. It will give you the freedom of movement in any direction on a sloping surface as the system will compensate for machine, pitch, roll and rotation.

Mounting a tilt bucket sensor will add a further dimension to your machine control.

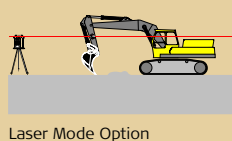
### Upgrade to 3D guidance

A growing number of our customers have also chosen to upgrade their PowerDigger to a 3D capable system. This can be done by adding PowerDigger 3D computer as the control panel for RTK GNSS receiver.

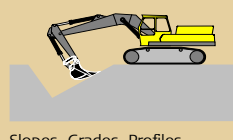
## PowerDigger



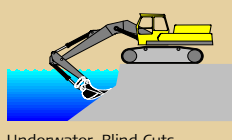
Trenching, Layering



Laser Mode Option



Slopes, Grades, Profiles



Underwater, Blind Cuts

### Basic system sensors

#### MSS 300 Angle Sensor

Can be used as boom, stick or bucket sensor. Normally it is only used as the boom sensor.

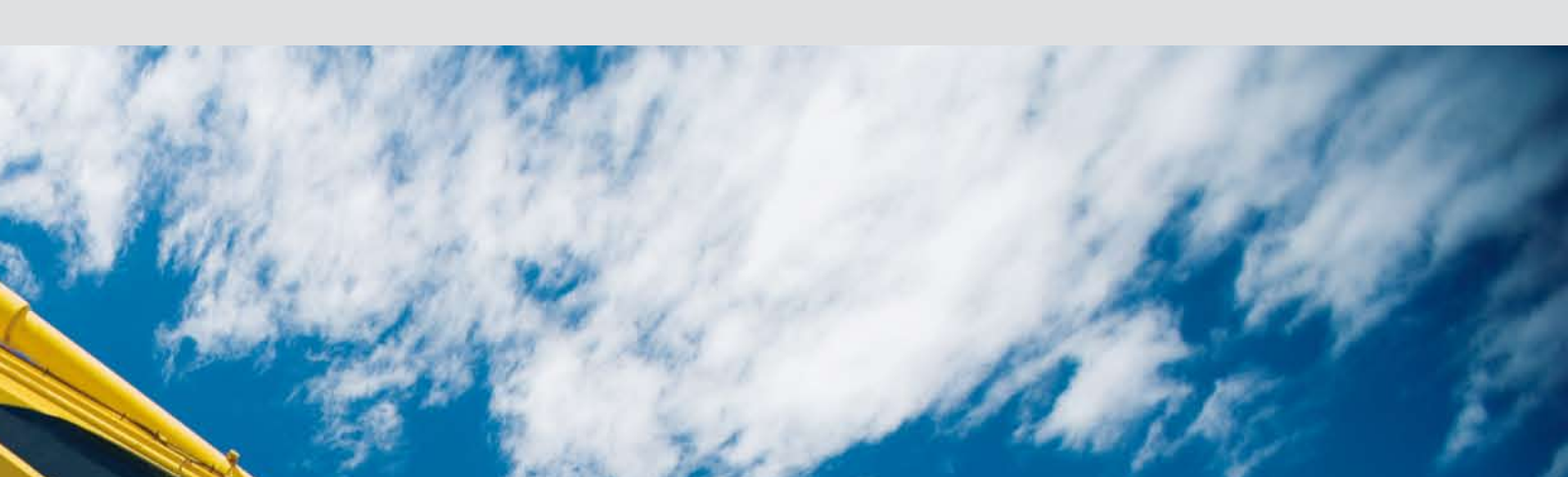
#### MSS 301 Angle Sensor incl. Laser Catcher

Why mount two sensors when you can combine everything in one? The MSS 301 is a combined stick angle and laser sensor. It's compact and easy to position in the right spot.

#### MSS 302 360°

This 360° bucket sensor can be mounted on the bucket, in the quick coupler or on the dog bone. The small size allows for it to be "hidden" in a protected location to avoid damage to cable or sensor.





**Quick key – multiple settings recalled**

With the “Quick Key” 10 different user defined settings can be saved and recalled by the push of just one button.

**Shortcut keys**

These shortcut keys are used to access the most commonly used functions. Today most users choose to install the PowerDigger System as a dual slope system. Function calls related to the dual slope function have therefore been moved “upwards” as yet another shortcut key for fast and easy use.

**Multiple bucket displays**

A multi-color bucket display visualizes the bucket position. Essential when digging under water, in deep trenches or whenever the bucket is out of sight.

**Machine Heading Display**

When working with both X and Y slopes the heading of the machine is clearly displayed on the LCD display.

**4” Full Colour LCD Graphic Display**

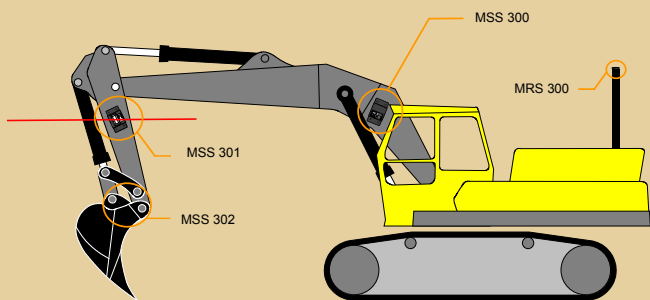
At just a glance you can overlook all guidance and status information on the crisp and clear LCD display – even in direct sunlight. This – combined with the bright LED numbers and possibility for guidance by audio signals – makes the PowerDigger System the most versatile system on the market.

**Easy navigation through menus**

A QuickNav™ multifunction button has been added. This button will aid the driver to quickly navigate through the PowerDigger menus.



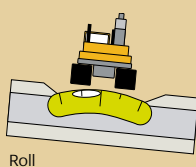
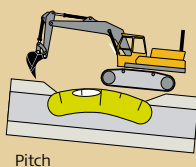
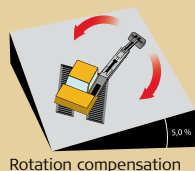
# PowerDigger Pro



**PowerDigger Pro senses complete machine attitude - pitch, roll, and rotation (heading).**

**MRS 300 Rotation Sensor**

The MRS 300 is a pitch, roll and direction sensor used to determine the attitude of the excavator. While working, the accurate roll and pitch measurement from the MRS 300 easily compensates for the rolling and pitching motion of the machine to give the required cm-accuracy (sub-inch level).



PowerDigger Specifications	
<b>PowerDigger Control Box</b>	
Graphic Display:	4" LCD
Size (WxHxD):	12x16x5 cm (4.7x6.3x2.0 in)
Supply:	9-28V full polarity and load dump protected
Operating temperature:	-40 to 70° C (-40 to 160° F)
Seal:	Dust and waterproof (IP66)
<b>MSS 300 Angle Sensor</b>	
Housing:	All steel
CAN Connection:	Two M12 connectors
Size:	8x12x3 cm (3.1x4.7x1.2 in)
Operating angle:	180 deg
Operating temperature:	-40 to 70° C (-40 to 160° F)
Seal:	Hermetically sealed (IP68)
<b>MSS 301 Angle Sensor with Laser Catcher</b>	
Housing:	All steel
Laser window:	5 cm (2.0 in) integrated laser receiver
CAN Connection:	Two M12 connectors
Size:	8x12x3 (3.1x4.7x1.2 in)
Operating angle:	180 deg
Operating temperature:	-40 to 70° C (-40 to 160° F)
Seal:	Hermetically sealed (IP68)

PowerDigger Specifications	
<b>MSS 302 Bucket Sensor</b>	
Housing:	All steel
CAN Connection:	One M12 connector
Size:	2.5x2.5x5.0 cm (1.0x1.0x2.0 in)
Operating angle:	360 deg
Operating temperature:	-40 to 70° C (-40 to 160° F)
Seal:	Hermetically sealed (IP68)
<b>MSS 303 Angle Sensor</b>	
Housing:	All steel
Laser window:	5 cm (2.0 in) integrated laser receiver
CAN Connection:	Two M12 connectors
Size:	8x12x3 (3.1x4.7x1.2 in)
Operating angle:	180 deg
Operating temperature:	-40 to 70° C (-40 to 160° F)
<b>MRS300 Rotation Sensor</b>	
Housing:	All steel
CAN Connection:	Two M12 connectors
Size:	Diameter 7 cm (2.8 in) Height 80 cm (31.5 in) including mast
Direction sensor:	360 deg ± 3 deg
Pitch and roll angle:	180 deg
Operating temperature:	-40 to 70° C (-40 to 160° F)
Seal:	Dust and waterproof (IP67)

### The sensor system:

The sensors for the PowerDigger excavator system are gravitational reference sensors. The sensor technology and software have been under constant development since the introduction back in 1996. This development has led to the sensors being the most responsive and accurate excavator sensor on the market.

### Durable sensors

All sensors are fully waterproof down to at least 20m (70') head of

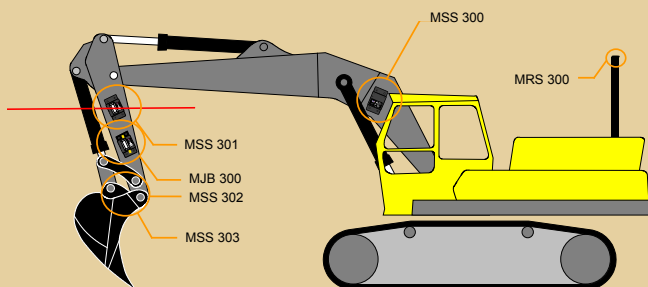
water – and so are the cables - so there is no need for expensive special equipment for backhoe dredgers. The hermetically sealed sensors will also withstand the stress and vibration on a hydraulic hammer.

### CAN bus equals quick installation

The CAN bus system makes installation extremely simple. We know that minimizing downtime is important for your business. Therefore all sensors come with

special welding plates or easy mounts to speed up the installation. The typical installation and calibration time for a basic system is less than three hours. To be this effective we ask that all fitters go through a thorough education at the factory before they are let out on their own.

# PowerDigger Pro with Cross Slope Option



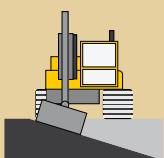
Add dual-axis bucket angle sensing for ultimate performance.

### MSS 303 Cross Slope Sensor

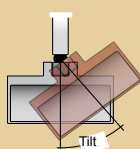
You can also update your PowerDigger to include a sensor for a tilt bucket. The compact size makes it easy to hide in the quick coupler.

### MJB 300 Junction Box

The MJB 300 Junction Box is expanding the CAN - lines for the cross-slope functionalities.



Cross Slope



Tilt

# The next generation

## PowerDigger Main Functions

A PowerDigger control box will clearly guide you to:

- A preset reference depth or slope
- A reference surface sloping in both directions (MRS 300 required)
- A complex profile of up to 11 combined surfaces
- You can offset your reference surface
- Use a point or a string line as height reference
- Use a laser (plane or slope) as reference
- You can measure distances and slopes
- Do blind cuts under water etc.

All this information will be displayed to you on the crisp and clear LCD display of the PowerDigger control box.

## PowerDigger Benefits

The PowerDigger guidance system improves the overall performance of your machine:

- Get your work done in fewer passes
- Improve your accuracy
- No more over cut
- Limit the cost for ground personnel

A PowerDigger guidance system will ensure your future position in the ever more competitive construction market.

## PowerDigger fits any machine

A PowerDigger guidance system can be fitted on any machine ranging from 1 to 600 plus tons, dual booms or long reach machines with a reach of more than 25m (80') – the standard system will fit them all. And the installation is easy. A standard system is typically installed and calibrated in less than 3 hours.

## PowerDigger Features

- Most accurate system on the market – 1 cm (0.5") or 0.2% of the reach.
- More than 30 functions
- Fits any machine
- 4" Colour Graphic display and very easy to use.
- Holds 20 different bucket settings.
- 100% waterproof (IP68) – no special sensors or cables needed for underwater use.
- Upgradeable from single grade to dual grade and 3D guidance.
- Upgrade with tilt bucket sensor.
- Bucket sensor can be mounted on the dog bone.
- Often used function keys can be activated from the joystick.



Asphalt, concrete or earth, shifting it or laying it. Whether you need simple laser height detection for excavators or need to control a concrete slipform paver to millimeters, Leica Geosystems can help you optimize site productivity with a complete range of machine automation solutions. Plan your own upgrade path to full 3D machine control workstations incorporating GPS navigation, terrain modelling software and automatic blade control.

Dozers, graders, excavators, concrete pavers and asphalt finishers are just some of the construction machines that can be fitted with scaleable, tough and reliable Leica Geosystems construction machine automation systems. With a wide range of support services to choose from, Leica Geosystems helps you master your site.

**When it has to be right.**

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**Leica PowerBox**  
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