MOBA PRODUCTS FOR MOBILE APPLICATIONS

Intelligent Systems
- Better Machines
With 40 years of experience in the field of mobile automation and control engineering of construction machinery and more than 20 years in the equipment of waste disposal vehicles, MOBA Mobile Automation AG is a well-known expert in the development and manufacturing of high quality products and components. Founded in 1972 as an engineering office, today more than 350 employees work for the MOBA Group all over the world. The MOBA Group is an international organization in addition to headquarters in Limburg, Germany, there are two subsidiaries in Langenlonsheim and Dresden. With branch offices in Italy, France, Spain, Switzerland, Great Britain, USA, India and China as well as sales offices and authorized dealers all over the world, MOBA is close to the market and its customers.

**MOBA business fields**

MOBA products are used in road construction and earth moving machines as well as in cranes and aerial work platforms/lifting platforms, garbage trucks, forklift trucks or fodder mixing wagons. MOBA produces high end sensors, regulating and control systems as well as panels and devices for the communication between human and machine.

**The key areas of competence include:**

- On-board computers
- CAN technology
- Leveling
- Positioning
- Human machine interface
- Telematic systems (RFID)
- Sensor and control technology
- Mobile weighing systems
- Software
- Process automation
- Process visualization

**High quality products for flexible usage**

From the development of an idea to series production at its own factory, MOBA offers every customer a high level of evolved know-how and guaranteed quality. With its in-depth understanding, MOBA gears its products and services to the expectations of customers while also developing trendsetting ideas. Thanks to its expertise in the fields of mechanics and electronics own layout creation and equipment fitting, MOBA wins over customers not only with individual solutions but also with the modification of existing components.

The products of MOBA and the expertise of its engineers and developers are in demand wherever vehicles or self-propelled machinery need to carry out complex work functions. This requires “intelligent” electronics and control systems. MOBA creates modular, open systems based on CAN technology. This means the components of MOBA’s modular systems can be integrated into existing systems and equipment at any time and provide for subsequent extensions to open-system interfaces. The decentralized system enables MOBA to develop customer-specific solutions in the shortest possible time, as a component supplier or a system-based designer. With the new MOBA platform, the company also offers single components which can be easily integrated into variable applications.
Our Know-how — For your success!

Automation of Excavators — Top level excavator systems. 04
Automation of Motorgraders — Leveling system GS-506. 06
Automation of Dozers — Leveling system GS-506. 08
MOBA Dual-Laser-matic — Machine control for kilvers and tow graders. 10
Automation of Cold Milling Machines — Leveling system MLS-508. 12
Automation of Asphalt Pavers — MOBA-matic grade & slope control. 14
MOBA Pave-IR™ — New technology for asphalt pavers. 16
Automation of Rollers — MOBA compaction assistant. 18
Automation of Slipform Pavers — Leveling and steering control. 20
MOBA Drilling System MDS-2000 — Efficient integration of precision and speed. 22
MOBA System for the Mobile Crane — Higher performance and efficiency. 24
MOBA System for the Aerial Work Platform — Higher performance and efficiency. 26
MOBA Crane Hook Scale System — High tech for more convenient loading. 28
MOBA Body Scale System — M-SCALE makes your vehicle a scale. 30
MOBA Rear Loader Scale System — Saving costs with ON-board scales. 32
MOBA Side Loader Scale System — Saving costs with ON-board scales. 34
MOBA Front Loader Scale System — Saving costs with ON-board scales. 36
Fork Lift Truck Scales LTS — Greater efficiency and tighter inventory control. 38
Economy, efficiency, flexibility.

The use of 3D machine control is getting more and more common on construction sites. Instead of a stakeout, the driver can read the survey data from the screen of the machine control system. This saves time, material and fuel, which makes it possible to increase productivity at every stage of the project. Since the survey data is shown on the screen, the need for a stakeout diminishes, which for one speeds up the work process and improves quality. The height of the correct surface or the position of the object is always available and stakes are no longer needed. The availability of precise survey data is important in material handling. Transporting a too deep cut and performing the fill cause more expenses.
**GNSS antenna**
When utilizing satellite positioning, the position and height of the machine are known at all times. A GNSS feature enables a 3D world where it is possible to utilize the digital terrain models as well as the lines tied to the coordinates.

**Operating panel – 2D**
- 2.7” VGA monochrome display
- 128 x 64 pixels
- Five function buttons and four arrow keys
- Completely compatible with the Vision 3D system

**Operating panel – 2D**
- 5.7” rugged touch-screen display
- Transflective TFT-LCD
- Touch screen type: capacitive
- 480 x 640 pixels (VGA)
- Completely compatible with the Vision 3D system

**Operating panel - 3D**
- 8.4” rugged touch-screen display
- Transflective TFT-LCD
- Touch screen type: capacitive
- Resolution: 800x600 pixels (SVGA)
- Operating temperature: -20 . . . + 60°C
- Dimensions: 263 x 237 x 65 mm
- Weight: 1.9 kg
- Interfaces: LVDS, 2x USB

**MOBA 3D interface unit**
Modular Platform:
- Rugged Windows XP MPC (1,6 GHz, IP54)
- GNSS receiver optimized for rugged conditions
- RTK radio module

- **Boom sensor**
- **Frame sensor**
- **Stick sensor**
- **Bucket sensor**
- **Tilt sensor**
- Measuring axis: X, Y, Z (three-axis)
- Resolution: 0.05°
- Measuring range: 360° per axis
- IP classification IP67
Efficient integration of precision and speed.

The MOBA GS-506 leveling system fits everything the individual components are optimally designed for each machine and its application. The result is a combination of precision and speed which together ensure the most efficient use of your machines. Intelligent software guides the user quickly and intuitively through all processes. This provides reliability and helps to prevent errors.
Control panel
A quick glance at everything important. All control information and current work status is always visible to the operator. The operator can also enter corrections, call up system information, or change central settings.

Controller
The controller is equipped with the most modern microprocessor technologies. 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 seconds.

Connecting box/Mainfall
Makes the correct connections. The connecting box is the connection point for all sensors active in the system. This makes cable routes shorter, thereby reducing possible sources of errors. The mainfall sensor is also integrated into the box; it measures the inclination of the grader on the longitudinal axis.

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

Cross-slope sensor
Maintains specified slope values. The cross-slope sensor works with a dynamic fluid sensor. It records current measurement values for blade slope, vehicle inclination and blade rotation, while taking into consideration interfering factors such as acceleration or impacts. This ensures the desired cross-slope in relation to the direction of travel is maintained.

Proportional hydraulic valve
Converts signals into motion. The hydraulic unit controls the cylinder movements based on signals generated by the controller. The specially developed proportional valves ensure that the speed of the movement is consistent with the measured deviation.

Laser receiver – LS-3000
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°. This allows for proportional evaluation over the entire reception range.
Efficient integration of precision and speed.

The MOBA GS-506 leveling system fits everything the individual components are optimally designed for each machine and its application. The result is a combination of precision and speed which together ensure the most efficient use of your machines. Intelligent software guides the user quickly and intuitively through all processes. This provides reliability and helps to prevent errors.
**GNSS antenna**

» Extra rugged GNSS precision antenna

**Cross-slope sensor**

Maintains specified slope values. The cross-slope sensor works with a dynamic fluid sensor. It records current measurement values for blade slope, vehicle inclination and blade rotation, while taking into consideration interfering factors such as acceleration or impacts. This ensures the desired cross-slope in relation to the direction of travel is maintained.

**Connecting box/Mainfall**

Makes the correct connections. The connecting box is the connection point for all sensors active in the system. This makes cable routes shorter, thereby reducing possible sources of errors. The mainfall sensor is also integrated into the box; it measures the inclination of the grader on the longitudinal axis.

**Control panel**

A quick glance at everything important. All control information and current work status is always visible to the operator. The operator can also enter corrections, call up system information, or change central settings.

**MOBA 3D panel**

» 10.2” resistive touch screen display

» Robust, protected against dust, humidity, hot and cold conditions

» Withstands heavy vibrations

» IP54

**MOBA 3D interface unit**

Modular Platform:

» Rugged Windows XP MPC (1.6 GHz, IP54)

» GNSS receiver optimized for rugged conditions

» RTK radio module
Precise land leveling with MOBA.

The MOBA Dual-Laser-matic is a modular system configurable in accordance with the individual requirements and useable for nearly all applications involving a grading blade, a kilver, tow grader or a scraper.
Dual Laser-matic
» HMI with graphic display
» Easy operation via push buttons
» Clearly arranged display
» Temperature-stable LCD display
» Rugged design with the established MOBA sealing method
» LEDs support the panel display
» Individual parameter settings
» Slope display during height adjustment

Controller
Accurate hydraulic control or topographic measurement is carried out by the Laser-matic Digital Controller. Up to 10 hydraulic configurations can be saved, which allows the controller to be used in various machines without additional calibration.

Cross-slope sensor
Maintains specified slope values. The cross-slope sensor works with a dynamic fluid sensor. It records current measurement values for blade slope, vehicle inclination and blade rotation, while taking into consideration interfering factors such as acceleration or impacts. This ensures the desired cross slope in relation to the direction of travel is maintained.

Ultrasonic sensor – Sonic-Ski® plus
Contact-free sensing from the ground, string line or curb for the grade control. That means maximum flexibility by using different references, no mechanical wear, no soiling of the sensor. The Sonic-Ski® plus sensor is the first such device equipped with multiple ultrasonic oscillators. Five sensors determine the distance to the reference point, while a sixth is used for temperature compensation.

Laser receiver – LS-3000
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°. This allows for proportional evaluation over the entire reception range.
Leveling system for planners.

The MOBA leveling system MLS-508 provides automatic control of the milling drum in elevation and inclination. It offers a full range of functions that enables you to make the most efficient use of your mill. Equipped with state-of-the-art technology, the system nevertheless offers complete handling convenience.
Control panel – MLP-508
A quick glance at everything important. All control information and current work status is always visible to the operator. The operator can also enter corrections, bring up system information, or change central settings.

Controller MLC-508
The controller is the heart of the MLS-508. It contains the control board and the power outputs for the valves. Here, the sensor signals and the commands from the operator meet, which are then processed and passed to the hydraulics.

Wire-rope sensor
This wire-rope sensor is a common sensor for distance detection and is typically used in combination with the side plate. Via a steel wire rope which is fixed at the side plate, the sensor recognizes any change in height. It is the most accurate sensor at a competitive price. The wire rope can be exchanged by the user himself if any wear or damage is visible.

Slope control – Digi-Slope sensor
The Digi-Slope sensor has to be mounted on the screed to detect the current slope of the working tool. The unit offers the accuracy required even if operated with heavy vibration (compaction) and high temperature environments.

Grade control – Sonic-Ski® plus
Contact-free sensing from the ground, string line or curb for the grade control. That means maximum flexibility by using different references, no mechanical wear, no soiling of the sensor. The Sonic-Ski® plus sensor is the first such device equipped with multiple ultrasonic oscillators. Five sensors determine the distance to the reference point, while a sixth is used for temperature compensation.

Laser receiver – LS-3000
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°. This allows for proportional evaluation over the entire reception range.
Most versatile range of grade sensors to meet all job-site conditions.

The MOBA-matic control system is the most versatile asphalt paver leveling control system available. Its ruggedness, wide variety of sensors, and ease of use make it the best choice for the road building professional. Let our more than 35 years in the grade control design and manufacturing business benefit your next job.
Controller – MOBA-matic II
The digital controller is the interface between user, sensors and level control. The current operating status is shown via 3 indication ranges and the complete system can be handled via only 4 buttons, making it very easy to operate.

Slope control – Digi-Slope sensor
The Digi-Slope sensor has to be mounted on the screed to detect the current slope of the working tool. The unit offers the accuracy required even if operated with heavy vibration (compaction) and high temperature environments.

Material control – MOBA Sonic
To achieve a constant asphalt layer thickness, the MOBA Sonic is the optimum solution for regulating the quantity of material in front of the screed. It can be used to control the speed of the auger as well as of the conveyors. Because the MOBA Sonic is of a non-contacting sensor, it is not affected by the problems associated with mechanical paddle type switches.

Grade control – Sonic-Ski® plus
Contact-free sensing from the ground, string line or curb for the grade control. That means maximum flexibility by using different references, no mechanical wear, no soiling of the sensor. The Sonic-Ski® plus sensor is the first such device equipped with multiple ultrasonic oscillators. Five sensors determine the distance to the reference point, while a sixth is used for temperature compensation.

Contact-free multi-spot grade control – Big Sonic-Ski®
The Big Sonic-Ski® is a contact-free averaging system which produces the smoothest road surfaces and improves riding quality without using string line. It combines three Sonic-Ski® plus sensors using the dual averaging principle to sense nearly all surfaces, irrespective of their condition. The modular beam arrangement of up to 13 meters consists of handy modular components which can be mounted by only one person.

Laser receiver – LS-3000
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°. This allows for proportional evaluation over the entire reception range.
Paving the way to higher quality.

Segregation is a leading cause of premature failure in asphalt roads. Dozens of studies have concluded that material segregation can be identified by use of thermal images. PAVE-IR™ provides the asphalt contractor a method for detecting segregation in real time. The PAVE-IR™ system produces a complete thermal profile for the entire project. In addition to displaying real-time data to the operator, the project files are stored and can be transferred to the office for review using MOBA Pave Project Manager™ software. With MOBA PAVE-IR™ asphalt paving, contractors now have the upper hand in the fight against segregation.
Sensor beam
- Modularly expandable
- Linear recording of temperature
- Accurate calibration with software support
- Automatic sensor traverse detection
- CAN technology

Junction box SC-106
- Junction box for up to 6 sensors
- CAN interface

Odometer
- Distance and speed measurement
- Accurate calibration with software support
- Variable installation by magnet bracket
- Automatic sensor detection
- CAN technology

GPS antenna
- Detection of geographic coordinates
- Automatic localization / current position
- Compact antenna receiver
- Easy installation and application
- Automatic antenna detection

On-board computer – MOBA Operand
- WIN CE computer with CAN technology
- Color 400 x 240 TFT touch screen display
- Internal memory space
- Interfaces: 1x CAN, 2x RS-232, 2x USB
- Flexible mounting

External memory stick
- Robust USB stick
- High storage capacity
- Data exchange between office and Operand (job site)
- Software update
Always on the right track:

The MOBA control system for rollers is a flexible system which provides the ideal technology for individual requirements and may be used for asphalt rollers as well as for earth working rollers. The modular structure allows system extensions at any time. The components are ideally adjusted to individual requirements; this is a user-friendly system for optimizing performance and operational costs.
Operating panel (HMI)
» Individual information and HMI design
» Rugged design with the established MOBA sealing method
» LEDs support the panel display
» 2 digital outputs, 2 CAN interfaces

Compaction assistant
» System support to roller driver
» Display of the target crossings and actual crossings
» Driver orientation precisely to the centimeter
» Improvement of compaction results and enhancement of compaction performance

GNSS antenna
» Receives GLONASS and GPS signals
» Position detection precisely to the centimeter
» The use of cost-free signals reduces operational costs
» Very easy system initialization

T-Connector Signal Conditioner
» Convert digital/analog signals to CANopen

IR-Temperature sensor
» With protection tube and cable 1 m
» Connector: 5-pole Binder M12, female
Highly customizable system.

The MPA-100 has been used on slipform pavers since the beginning of 2007 and is used both for leveling control and steering control on the machine.
MOBA process amplifier — MPA-100 and handset

The MPA-100 is an integrated digital controller with LCD based HMI for easy operation. Several sensor signals can be processed by the controller. The controller has fault diagnosis capability for easy troubleshooting.

Grade and steering sensor

The grade and steering sensors use contact-free Hall effect transducer technology for longer life; the mechanical linkage to the string line is easy to install and operate.

Slope sensor

Maintains the specified slope values and works with a dynamic fluid sensor. It ensures that the desired cross slope in relation to the direction of travel is maintained.

Human machine interface — GD-310

The GD-310 is a digital operating panel for mobile application using state-of-the-art technology. The graphical display can be used as an option for integrating other machine functions.

Controller MPC-118

The mobile process controller MPC-118 can be programmed with CoDeSys for integrating all machine functions using a CAN interface. Designed for rugged applications and protected against harsh environmental conditions.

Controller MPC-50

The MPC-50 is an integrated digital controller without HMI which can be integrated into the main controller using a CAN interface.

Feedback sensor

The feedback sensor uses the contact-free Hall effect transducer technology for longer life. It is coupled to the steering track for detecting the current track position for precise and smooth error correction.
Efficient integration of precision and speed.

Designed for use in heavy duty terrain in quarries and for special civil engineering (unclassified roads, slope protection, surface blasting), the MOBA drilling system MDS-2000 reduces mechanical wear (e.g. drill bit), and allows for efficient resource planning as well as for the accurate completion and timely accounting of projects.
Angle measurement – slope sensor
» 2-axis sensor
» Measuring range ±60°
» CAN2

Depth measurement – rotary sensor MRS-305
» Endless encoder
» PWM and analog signal
» Wear-free

Rotation – Rotary sensor MRS-305
» Endless encoder
» PWM and analog signal
» Wearless

Direction finder – rotary sensor MRS-305
» Endless encoder
» PWM and analog signal
» Wear-free

Controller MPC-120
The mobile process controller MPC-120 is programmed with CoDeSys and contains 8 digital inputs, 4 analog inputs, 3 CAN interfaces, RTC and 1 RS-232/USB interface.

Operating panel (HMI) GD-320
The HMI GD-320 is equipped with the latest technology in digital operating panels for mobile applications. The 1/4 VGA monochrome display provides the operator with all information in a clearly arranged manner. The HMI is designed for mobile use in rugged conditions (IP67).

USB interface USB-100
» High protection class (IP67)
» Compact design
» All drill data can be stored
MOBA SYSTEM FOR THE AERIAL WORK PLATFORM — HIGHER PERFORMANCE AND EFFICIENCY

**Mobile automation:**

» Complete systems or components to automate your aerial work platform
» Our overall system integrates your existing applications
» Complies with DIN EN 280
**Platform HMI**
- Various graphic displays, e.g. with our new Windows CE color graphics
- Customer-specific in design and functionality
- Integration of customer-developed joysticks and emergency switches
- Rugged design with approved sealing, for mobile use

**Second operating panel HMI**
- The second HMI is placed on the chassis
- Can be identical with the platform operating unit
- Customer-specific in design and functionality
- Rugged design with approved sealing, for mobile use

**Basic controller - mobile process controller MPC-680**
- 30 digital inputs, 22 analog inputs, 20 digital outputs, 2 analog outputs and
  30 PWM-outputs > redundant, PL-d
- Approved security software (e.g. LMI)
- Free programmable application software (CoDeSys or C++)

**Mobile signal conditioner – MSC-01**
- 10 digital inputs and 10 analog inputs
- 8 digital outputs (PWM) redundant, PL-d
- 2 CAN buses
- Redundant IO extension for the basic controller, e.g. to control the working platform performance

**MRW 4-20 mA**
- Torque independent, redundant load cell designed for load limitation
- The MRW is the only mechanical linkage between the telescoping arm and the platform
- Performance-based operating range control
- More than 10,000 MRWs are in use

**Chassis slope sensor - mobile slope sensor MSS-721**
- High-precision and temperature-compensated
- 2-axis sensor
- Measuring range ± 30°
- Redundant and CANopen safety

**Wide angle slope sensor – MSS-731**
- High-precision and temperature-compensated
- 1-axis sensor
- Measuring range ± 180°
- Redundant and CANopen

**Platform slope sensor – MSS-515**
- Compact design
- 1-axis sensor
- Measuring range ± 15°
- CANopen

**NEW PRODUCT:**
The all-new MOBA HMImc:
Enables OEMs to design individual operating units according to customer demands.
MOBA SYSTEM FOR THE MOBILE CRANE – HIGHER PERFORMANCE AND EFFICIENCY

Your Partner for Mobile Automation.

Complete solutions or components to automate your mobile crane:

» Sensors
» HMIs
» Controllers
Operating panel (HMI) — GD-630
» 800x480 WVGA display
» 7” with LVDS interface
» 800 cd/m² brightness / 262144 colors, sunlight readable
» Wide operating temperature range / super wide viewing angle

Graphic process controller — GPC-630
» 6 video inputs (2 real time)
» Dual display control
» Windows CE operating system (Linux and CoDeSys possible)
» 4 CAN interfaces / Ethernet and USB 2.0 interfaces

Mobile process controller — MPC-680
» TÜV approved safety software EN13849 PL d
» Integrated safety switches
» Free programmable comfort software (CoDeSys or C++)
» 30 digital and 22 analog inputs

Mobile signal conditioner — MSC-01
» Redundant IO-extension
» 2 physically separate CAN interfaces
» 10 digital inputs / 10 analog inputs
» 8 digital outputs (PWM) -> redundant, PL-d

Outrigger control (HMI)
» CANopen interface
» 18/24 keys, 1/6 LEDs
» 64x128 display with backlight

Handset (HMI)
» Cable connected for emergency or add-on function
» 1-axis joystick
» 20 keys, 19 LEDs, LED bar graph
» Emergency switch

Ultrasonic linear measurement — Duplex-Sonic-Meter DSM-500
» Contact-free length measurement for outriggers and telescopic booms
» Measuring range 5000 mm
» Redundant EN13849 PL d
» 2 physically separated CAN interfaces

Chassis slope sensor MSS-710
» 2-axis sensor
» Measuring range ±30°
» CANopen
» Redundant
» 2 physically separated CAN interfaces

Wide angle slope sensor MSS-730
» 1-axis sensor
» Measuring range ±360°
» CANopen
» Redundant
» 2 physically separated CAN interfaces
MOBA CRANE HOOK SCALE SYSTEM — GREAT CONVENIENCE WHEN LOADING

System benefits:

» Overload reserves of at least 300 percent of the rated load
» Additional mechanical breakaway safeguard
» Wireless and wire-controlled model
» Individual adjustment of the weighing mechanism
» Upgrade option with telematics system
Crane hook scale
- Digital signal amplifier and batteries are integrated into the weighing mechanism
- Overload reserves of at least 300% of the rated load
- Additional mechanical breakaway safeguard
- Wireless and wire-controlled model
- Individual adjustment of the weighing mechanism
- Upgrade option with telematics system

On-board computer MOBA Operand
- Operating system WinCE
- Development of applications by user possible
- Input through touch screen or keys
- Anti-glare and transflective display (angle of vision 100°)
- Operating temperature range from -30°C to +70°C
- CAN interface with CleANopen support
- E1 approval
- Robust and high quality
- Download of tachometer data possible

Massive description:
- Operating system WinCE
- Development of applications by user possible
- Input through touch screen or keys
- Anti-glare and transflective display (angle of vision 100°)
- Operating temperature range from -30°C to +70°C
- CAN interface with CleANopen support
- E1 approval
- Robust and high quality
- Download of tachometer data possible

alternative: CAN-Gateway CG-1
- CAN-Gateway
- Keyboard with 16 keys, RESET function
- Display: 128x64 monochrome
- Compact and rugged design
- GPRS module
- GPS mouse
- Bluetooth
- Micro SD card
- CE according to EMC guideline

Weighing terminal CP-100
- Calibratable display- and control unit/panel for electronic scales
- Configuration and diagnosis for scales
- Supplementary functions according to respective applications
- Data storage

Mobile printer
- Creation of time sheets/ records of performance or weighing certificates directly on-site
- Support for immediate fee collection
- Available as card printer or label printer

Transponder reader BTR – Manual waste bin identification
- Scanning of barcodes and transponders
- Data transfer to the on-board computer via Bluetooth
- Very compact (fits into a pocket)
- Easy one button operation
System benefits:

» No travel to a stationary scale means cost reduction
» Legally approved billing on the spot
» Legal for trade
» The scale needs no maintenance
» Shock and vibration proof encapsulated electronics
» Communication of individual components via CAN bus
» No restrictions in using the body/the lifter
» Easy operation
» Upgrade option with telematics systems
» Development, manufacture, installation and service from one source
**Weighing terminal – CP-100**
- Approved display and control panel for electronic scales
- Configuration and diagnosis/problem recognition of scale
- Additional functions to customer requirements
- Data storage on USB-memory

**Sensor junction box – SC-106**
- Junction box for up to 6 load cells
- CAN interface

**Slope sensor**
- Measuring and mathematical compensation of the vehicle’s slope during weighing
- Robust
- Low space requirements

**Mobile printer**
- Creation of receipts directly on-site
- Enables immediate fee collection

**External control box with LED display**
- Easy input of information by driver even outside the driving cab
- Can be operated when wearing gloves
- Confirmation of the input made through installed LED display
- Optical display of successful identification at the respective lifting side

**Load cells of body scale**
- Maintenance-free
- Force-fit connection, no locking necessary
- Overload protection and breakaway quick-closing device
- Easy operation/set-up, assembly kit for vehicle manufacturers
MOBA REAR LOADER SCALE SYSTEM —
M-SCALE TURNS YOUR VEHICLE INTO A SCALE

System benefits:

» No travel to a stationary scale means cost reduction
» Legally approved billing on the spot
» Legal for trade
» The scale needs no maintenance
» Shock and vibration proof encapsulated electronics
» Communication of individual components via CAN bus
» No restrictions in using the body/the lifter
» Easy operation
» Upgrade option with telematics systems
» Development, manufacture, installation and service from one source
Back / rear comb antenna
» Antenna for HDX-Long Range transponder identification
» Highest reading range
» Installation in protected areas

IDC transponder reader
» Identification of 123.2 kHz read-only HDX and FDX transponder according to the guidelines of BDE/VKS and 125 kHz read-only FDX transponder often used Europe-wide.
» Reliable functionality even under severe conditions
» Highest reading range through optimized antennas
» E1 approval for attachment to and integration into vehicles

On-board computer MOBA Operand
» Operating system WinCE
» Development of applications through user possible
» Input through touch screen or keys
» Anti-glare and transfective display
» Operating temperature range from 30°C to + 70°C
» CAN interface with CleAnopen support
» E1 approval
» alternative: CAN-Gateway CG-1

External control box with LED display
» Easy input of information by driver even outside the driving cab
» Can be operated when wearing gloves
» Confirmation of the input made through installed LED display
» Optical display of the successful identification at the respective lifting side

Weighing device/unit
» Calibratable display and control panel for electronic scales
» Configuration and diagnosis for scales
» Supplementary functions according to individual applications
» Junction box for up to 8 load cells

Load cells for dynamic scales
» Fully automated weighing of containers during the tipping process
» Useable in 0.5 kg steps for 2 wheel container and in 2.0 kg steps for 4 wheel container
» Low space requirements
» Stainless steel

Acceleration cells
» Compensation for acceleration during the weighing of moving objects
» Overload-proof up to 2000g
» High accuracy and interference resistance
» Low space requirements
System benefits:

» No travel to a stationary scale means cost reduction
» Legally approved billing on the spot
» Legal for trade
» The scale needs no maintenance
» Shock and vibration proof encapsulated electronics
» Communication of individual components via CAN bus
» No restrictions in using the body/the lifter
» Easy operation
» Upgrade option with telematics systems
» Development, manufacture, installation and service from one source
Antennas for container identification
» Antennas for HDX-Long Range transponder identification
» Maximum readability even when installed in the vehicle
» Protected installation

IDC transponder reader
» Identification of the 123.2 kHz read-only HDX and FDX transponder according to BDE/VKS and of the 125 kHz read-only FDX transponder often used Europe-wide
» Reliable functionality even under severe conditions
» Highest reading range with optimized MOBA antennas
» E1 approval for the attachment to and integration into vehicles

Load cells of dynamic scales
» Fully automated weighing of full and empty container while the lifter is moving forwards and backwards
» Usability in 0.5 kg steps for 2 wheel container and in 2.0 kg steps for 4 wheel container
» Low space requirements
» Stainless steel

Acceleration cell
» Compensation for accelerations during the weighing of moving objects
» Overload-proof up to 2000g
» High accuracy and interference resistance
» Little space requirements

On-board computer MOBA Operand
» Operating system WinCE
» Development of applications by user possible
» Input through touch screen or keys
» Anti-glare and transflective display (range of vision 100°)
» Operating temperature range from -30°C to +70°C
» CAN interface with CleANopen support
» E1 approval
» Robust and high quality
» Download of tachometer data possible
» alternative: CAN-Gateway CG-1
MOBA FRONT LOADER SCALE SYSTEM — M-SCALE TURNS YOUR VEHICLE INTO A SCALE

System benefits:
» No travel to a stationary scale means cost reduction
» Legally approved billing on the spot
» Legal for trade
» The scale needs no maintenance
» Shock and vibration proof encapsulated electronics
» Communication of individual components via CAN bus
» No restrictions in using the body/the lifter
» Easy operation
» Upgrade option with telematics systems
» Development, manufacture, installation and service from one source
Load cell front loader scale
» Maintenance-free
» Force-fit connection, no locking necessary
» Overload protection and breakaway quick-closing device

Antenna for container identification
» Antenna for HDX-Long Range transponder identification
» Maximum readability even when installed in vehicle

Slope sensor
» Determines the longitudinal slope and cross slope

IDC transponder reader
» Identification of 123.2 kHz read-only HDX and FDX transponder according to BDE/VKS plus 125 kHz read-only FDX transponder
» Reliable functionality
» Highest reading range with optimized antennas

On-Board computer — MOBA Operand
» Operating system WinCE
» Development of applications by user possible
» Input through touch screen or keys
» E1 approval
» Anti-glare and transflective display (range of vision 100°)
» Operating temperature range from -30°C to +70°C
» CAN interface with CleAnopen support
» alternative: CAN-Gateway CG-1

Telematic
» Acquisition of geopositon data (for all actions and the track)
» Radio data transmission (e.g. job data and geo position data)
» Driver guidance with truck navigation software
» Driver guidance via recorded or planned GPS-coordinates

Mobile printer
» Creation of time sheets/records of performance or weighing certificates directly on-site
» Support for immediate fee collection
» Available as card printer or label printer
Fork Lift Truck Scales LTS — Greater Efficiency and Tighter Inventory Control

**System benefits:**

» Time saving potential due to optimized routes
» Transportation and weighing in one process
» Easy installation at all fork lift trucks with norm carriage
» No limitation of the normal usage of fork lift trucks
» Little jugging out and therefore little loss of capacity
» Average accuracy is better than 0.5%, related to the actual load
» Highly robust application, protected against overburdening up to 100%
» Practically maintenance-free
Fork carriage
» Double fork carriage with integrated load cells
» Capacity of 2.5-12.5 tons
» ISO II to IV
» Quick mounting system for loads up to 2.5 tons and 5 tons

Load terminal — MC2020 LTS
» Universal weighing terminal
» Configuration and diagnosis
» Additional application-specific features
» Perfectly readable, illuminated display
» Easy to use, tactile key boards

Large scale display — GA-06
» Additional external display of the weight value
» Easy to read at long distance
» Dust and water protected
» Easy to add on
WHEREVER YOUR MACHINES ARE PUT TO USE, WE ARE CLOSE BY.

MOBA worldwide

You will never stand alone with our products. In addition to our corporate headquarters in Limburg/Lahn, Germany, and our German branch offices in Dresden and Langenlonsheim, our subsidiaries in Europe, the USA, India and Asia as well as a global dealer network represent MOBA in all important markets of the business sectors supplied by MOBA.