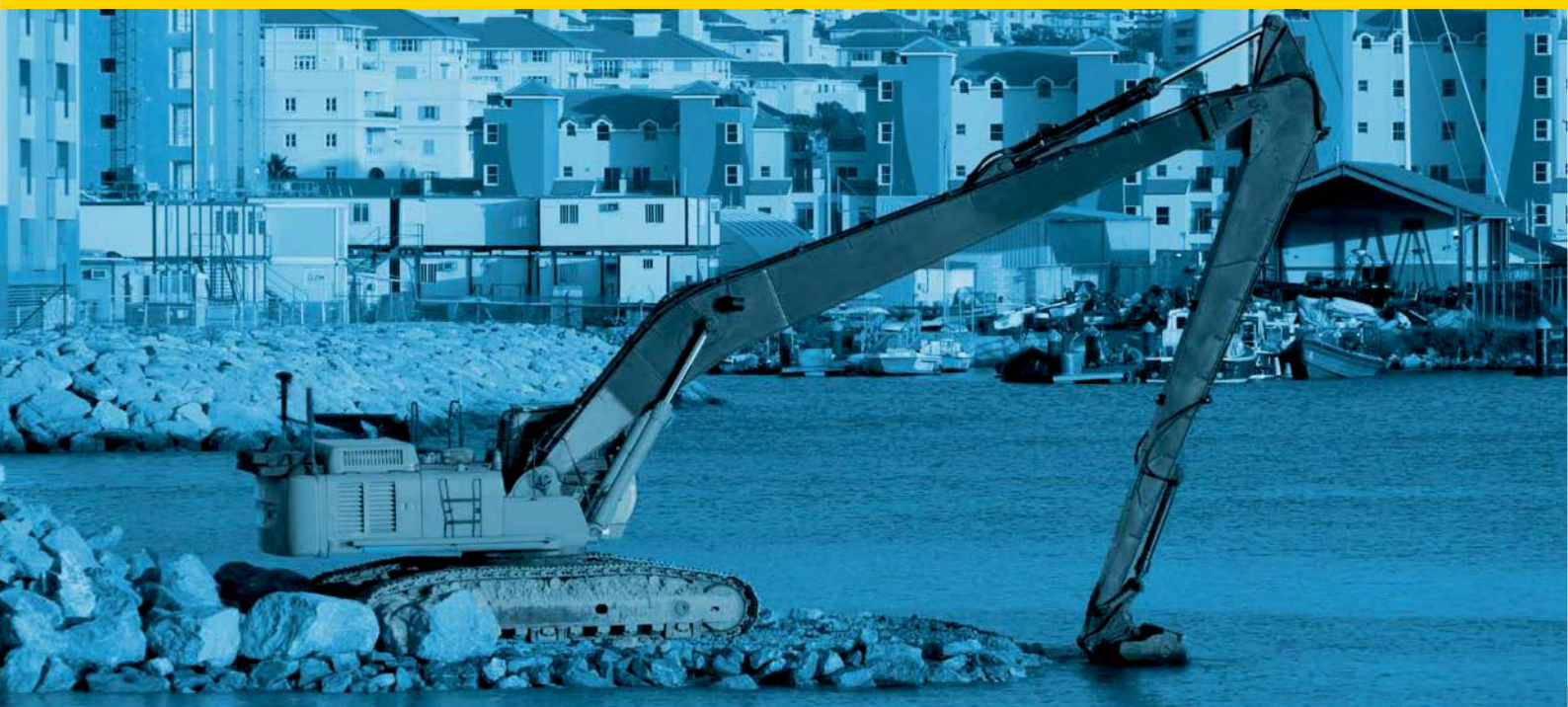


Xsite[®] EASY, Xsite[®] PRO und Xsite[®] PRO ADVANCED

FIRST CLASS EXCAVATOR CONTROL SYSTEMS



MOBA[®]
MOBILE AUTOMATION

Xsite[®] EXCAVATOR CONTROL SYSTEMS – FOR PRECISE RESULTS AND EFFICIENT USE OF THE MACHINERY

At modern construction sites, precise work results, efficient use of the machinery and adhering to the project schedule are becoming increasingly important requirements. To achieve these objectives, machine control systems based on state-of-the-art technologies are deployed. Such systems aid operators in precisely and efficiently fulfilling specifications. Excavator systems comprising the Xsite[®] product group offer ideal solution for these requirements. They make it possible to perform the work in accordance with the contractors

clear objectives. Control measurements conducted with the Xsite[®] systems reduce effort and expenses caused by re-measurements and corrections. Less personnel expenditure and more efficient earth-moving will significantly reduce costs. The visualisation of all data on the display allows the operator to directly track and control the work process. This way, personnel, time, material and fuel are saved. Consequently, quicker and more successful project completion is made possible through the best use of the machine.



Xsite[®] series



Xsite[®] EASY



Xsite[®] PRO



Xsite[®] PRO ADVANCED



From Xsite[®] EASY to Xsite[®] PRO to the high-end system Xsite[®] PRO ADVANCED an upgrade in systems is possible any time - thanks to the modular design of the Xsite[®] excavator systems. The CAN bus sensors provide

flexibility with their ability to be combined with any systems and further used in upgrades. This way, the Xsite[®] systems can be quickly and flexibly adapted to all types of applications with minimal effort.

Xsite® EASY, Xsite® PRO AND Xsite® PRO ADVANCED – SUITABLE SYSTEMS FOR EVERY REQUIREMENT



| APPLICATION AREA | Xsite® EASY | Xsite® PRO | Xsite® PRO ADVANCED |
|--|-------------|------------|---------------------|
| » Trench construction, drainage, pipework | ✓ | ✓ | ✓ |
| » Construction of foundations | ✓ | ✓ | ✓ |
| » Underwater excavations | ✓ | ✓ | ✓ |
| » Levelling, slope construction and reworking | ✓ | ✓ | ✓ |
| » Documentation of pipe and cabling installation | ✗ | ✓ | ✓ |
| » Documentation of completed layers | ✗ | ✓ | ✓ |
| » Street and access road building (3D) | ✗ | ✗ | ✓ |

| WORK METHOD | Xsite® EASY | Xsite® PRO | Xsite® PRO ADVANCED |
|---|-------------|------------------|---------------------|
| » Grade detection via reference or laser | ✓ | ✓ | ✓ |
| » Determining the position in imported 2D design data | ✗ | ✓ ⁽¹⁾ | ✓ |
| » Determining the position in imported 3D design data | ✗ | ✓ ⁽¹⁾ | ✓ |
| » Determining the position in a self-made 3D model | ✗ | ✗ | ✓ |

(1) With GNSS positioning

Xsite® EASY is specifically suited for use in digging ditches, excavating foundations as well as in slope construction. With Xsite® PRO, the GNSS upgrade enables working in 3D mode. Xsite® PRO makes it possible to create small, local 3D projects (excavation pits, foundations, ditches, trenches, etc.) whilst the excavator is working at the construction site. Additionally, it is possible to import .dxf construction layout plans. On this basis, a 3D project can also be created with the excavator bucket.

The local elevation reference is calculated from a level or from laser readings. Conclusive documentation is made possible based on the GNSS position. Large design files are processed with Xsite® PRO ADVANCED. The high-end system features diverse additional 3D functionalities and is the ideal system for constructing roads and paths while using 3D terrain models. The models can be transmitted directly from the office to the system via a GSM link. With this method, alterations can be quickly entered.



Xsite® EASY, Xsite® PRO AND Xsite® PRO ADVANCED: SYSTEM COMPONENTS

1

Display

The Xsite® EASY display presents all values numerically and graphically. With 8.4 inch respectively, the Xsite® PRO and Xsite® PRO ADVANCED color displays provide a clear overview for the operator.

2

Slope sensors

The rugged slope measure record all machine movements. The simple wiring allows for rapid replacement of the bucket.

3

Laser receiver

The laser beam is the elevation reference. The laser receiver also compensates for elevation changes caused by subsidence or movement of the machine.

4

LED display

This additional display shows in a single view the work progress that has been made and if the target level was achieved.

5

Controller

The controller processes all incoming position data and compares the position of the bucket with the design information. Any deviations are shown on the display.

6

GNSS antenna

With the 3D application, the GNSS antenna receives the position and elevation data of the machine. When equipped with two antennas, the direction of the machine is also calculated.

7

GNSS compass

With the GNSS compass, the excavator's orientation is precisely known any time. Also when generating inclined surfaces, Xsite® PRO shows the target height correctly.

2



Slope sensor

3



Laser receiver

4



LED display

5



Controller

6

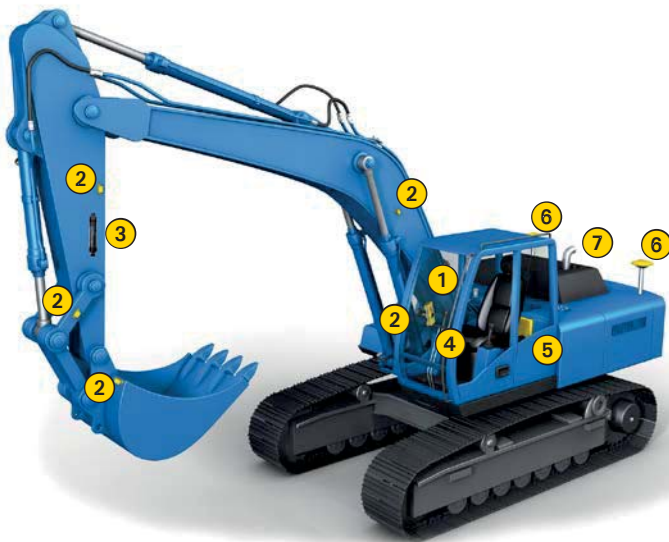


GNSS antenna

7



GNSS compass



- 1 Control panel
- 2 Slope sensors
- 3 Laser receiver
- 4 LED display
- 5 Controller
- 6 GNSS antenna
- 7 GNSS compass

1



Xsite® EASY, Xsite® PRO AND Xsite® PRO ADVANCED: SYSTEM OVERVIEW

| COMPONENTS | Xsite® EASY | Xsite® PRO | Xsite® PRO ADVANCED |
|--|-------------|------------|---------------------|
| » Touch-screen display ⁽¹⁾ | ✗ | ✓ | ✓ |
| » Sensors (bucket, arm & boom) | ✓ | ✓ | ✓ |
| » Sensor frame | ✓ | ✓ | ✓ |
| » Tilt bucket sensor | ✓ | ✓ | ✓ |
| » Double-block extension arm sensor | ✓ | ✓ | ✓ |
| » Laser receiver | ✓ | ✓ | ✓ |
| » LED display | ✓ | ✓ | ✓ |
| » One GNSS antenna | ✗ | ✓ | ✓ |
| » Two GNSS antennas | ✗ | ✓ | ✓ |
| » One GNSS antenna from third-party providers | ✗ | ✗ | ✓ |
| » Two GNSS antennas from third-party providers | ✗ | ✗ | ✓ |
| » GNSS compass | ✗ | ✓ | ✗ |

| 2D FUNCTIONALITIES | Xsite® EASY | Xsite® PRO | Xsite® PRO ADVANCED |
|--------------------------------------|-------------|------------|---------------------|
| » Depth, range and slope measurement | ✓ | ✓ | ✓ |
| » Grade detection via laser | ✓ | ✓ | ✓ |
| » Create profiles | ✗ | ✓ | ✓ |
| » Machine alignment | ✗ | ✓ | ✗ |

| 3D FUNCTIONALITIES | Xsite® EASY | Xsite® PRO ⁽⁴⁾ | Xsite® PRO ADVANCED |
|-------------------------------------|-------------|---------------------------|---------------------|
| » Create 3D models | ✗ | ✓ | ✓ |
| » Import 2D drawings ⁽³⁾ | ✗ | ✓ | ✓ |
| » Import points ⁽³⁾ | ✗ | ✓ | ✓ |
| » Import lines ⁽³⁾ | ✗ | ✗ | ✓ |
| » Import DTMs ⁽³⁾ | ✗ | ✗ | ✓ |
| » Save construction data | ✗ | ✓ | ✓ |

| WIRELESS INTERNET CONNECTION ⁽²⁾ | Xsite® EASY | Xsite® PRO | Xsite® PRO ADVANCED |
|---|-------------|------------|---------------------|
| » Wireless data transfer (FTP) | ✗ | ✗ | ✓ |
| » Telesupport | ✗ | ✓ | ✓ |

(1) Xsite® PRO & Xsite® PRO ADVANCED 8,4"

(2) Mobile web connection requires a SIM card

(3) Supported file formats: 2D drawings: DXF points (Xsite® PRO): DXF, XML points (Xsite® PRO ADVANCED): DXF, XML, GT, CSV, KOF, PXY lines : VGP, SBG, Anpakke DTM: DXF, XML

(4) With GNSS extension

Xsite® EASY – THE CLASSIC MODEL FOR LANDSCAPING

The entry-2D-system Xsite® EASY measures the depth, range and inclination of the bucket during the work process, so that its position is known at any time. The operator can work precisely - even at construction sites with poor visibility or under water.

Xsite® EASY speeds up work processes and saves the building contractor's time, money and fuel. It increases work quality and productivity. It provides great benefits even for smaller excavators and projects. Construction work for cable and pipe trenches, small-scale areas, foundations as well as excavation pits can be accomplished exactly and efficiently.

System benefits:

- » Inexpensive entry-level model
- » Measures depth, range and slope
- » Improves quality of work under conditions with restricted visibility
- » Enables precision dredging under water
- » An additional sensor measures the bucket's cross slope angle
- » The safety level is increased, because fewer personnel must be employed to perform control measurements in the work area



Excavation depth and range

The system measures the current excavation depth and the horizontal range by zeroing the favoured reference point before starting the actual excavation work.



Slope

The favoured slope is entered before work is commenced. During operation, the system constantly displays the difference between the target slope and actual slope.



Dredging under water

During dredging work under water, the bucket position and status are continuously shown on the display.



Laser receiver

The laser beam generated by the transmitter serves as reference level for grade detection. The laser receiver also compensates for height variations caused by the machine setting or getting 'bogged down'.



Slope of the tilt bucket

The bucket's cross slope angle is measured with an additional slope sensor, which is mounted on the bucket.



Height alarm

The system warns the operator when the bucket or the arm exceeds a defined height. This provides higher safety levels when working under an electrical power line, for example.



Example

- » Task: Laying sewage pipes
- » Solution:
 - › Installation of a laser transmitter at the construction site
 - › Enter defined elevation of the laser beam into Xsite® EASY
 - › Position the laser receiver on a level with the laser beam - ready to go!
 - › Once the display shows the set height, the target elevation has been achieved
 - › The green illuminated arrow of the LED display also indicates when the target level has been met

In addition to the functions of Xsite® EASY, the Xsite® PRO also offers the possibility to quickly and efficiently accomplish more complex projects. Accordingly, with Xsite® PRO, 2D profiles can be created and 2D drawings imported, for example. Simple 3D profiles are created directly in the system. Surveying and controlling tasks are eliminated for the most part, saving personnel, time and money thus enabling a continuous workflow.

Xsite® PRO proves its versatility on all types of construction sites for private, industrial and local government projects. Cable and pipe trenches, excavation pits, surface areas or ditch profiles can be worked on much more effectively - with or without GPS.

System benefits:

- » Optimizing workflows
- » Manual surveying is reduced
- » A 8.4 inch large, clear touch-screen display
- » Three-dimensional graphic directly in the system
- » Processed areas are measured via the bucket positioning and the data is stored
- » Work results are documented
- » Data import and export via USB
- » Freely selectable views
- » Telesupport



Comprehensive 2D capabilities

Measure depth, distance and slope and work with or without a laser. The large, well-lit touch screen makes work precise and efficient, whatever the conditions.



GNSS compass

With the GNSS compass, the excavator's orientation is precisely known any time. Also when generating inclined surfaces, Xsite® PRO shows the target height correctly.



Telesupport

The wireless internet connection makes it possible for the service center to remotely access the system. Thanks to this access, service technicians can provide remote assistance in case of problems - without having to be present at the construction site.



3D entry

With GNSS antennas, the system allows working in 3D. Different 3D profiles like ditches or roads can be created with an integrated tool. This provides independence from planning offices and furthermore, satellite positioning can be used even at small construction sites.



2D drawings

In case 2D drawings are used, the display shows the bucket position as a two-dimensional representation. At the same time, the bucket height is shown and can be adjusted to the target level.



GNSS positioning and orientation

The satellite positioning eliminates surveying work almost entirely. In case two GNSS antennas are installed, not only the position but the machine orientation is known any time.



Construction site documentation

Data regarding previously laid pipes, cables or finished layers can be recorded directly with the machine; the bucket is positioned at the favoured measuring point and the coordinates are saved.



Example

- » Task: Digging out an excavation pit
- » Solution:
 - › Reading in the construction layout plan, taking over the construction site elevation
 - › Recording the corner points
 - › Entering depth, working space and slope angle
 - › Calculating the 3D model
 - › Earth removal until finishing of planned design
 - › Measuring the completed pit and saving the coordinates

Xsite® PRO ADVANCED – ALL-ROUNDER WITH LARGE CONSTRUCTION SITE OPTIONS

Xsite® PRO ADVANCED has extensive 3D features. In addition to the 3D applications of Xsite® PRO, Xsite® PRO ADVANCED can also read in and directly use 3D data. If there is no 3D data, it is also possible to work in 2D formats. Data can be interchanged between office and machine at any time.

Thus, upon completion of a project for example, a work report can be transmitted directly to the office via internet connection. Xsite® PRO ADVANCED supports all types of earthworks projects, from the simple construction project to a large construction site. Tasks can be accomplished significantly more quickly, precisely and thus more effectively.

System benefits:

- » Flexible application for the widest variety and complexity of tasks
- » Creation of digital 3D terrain models
- » Time-consuming format conversions are eliminated, as the standard formats DXF and XML provide compatibility
- » Full 2D functionality
- » Positioning with one or two GNSS antennas
- » Wireless data exchange between machine and office
- » Convenient 8.4 inch touch-screen display
- » Telesupport



GNSS positioning and orientation

The satellite positioning eliminates surveying work almost entirely. In case two GNSS antennas are installed, in addition to the position also the machine orientation is known any time.



Import of 3D terrain models

When a 3D surface model has been created for a project, the operator can see the profile, cross section and height difference to the model surface on his screen. The system supports most common file formats directly from CAD programs, without the need for format conversion.



Wireless data transfer

With the wireless data transfer, data can be quickly exchanged between office and construction site any time. Terrain models can be sent wirelessly to the system and project data, saved by the system, can be transferred to the office for further processing or documentation.



Construction site documentation

Data regarding previously laid pipes, cables or finished layers can be recorded directly with the machine - the bucket is positioned at the favoured measuring point and the coordinates are saved.



Telesupport

The wireless internet connection makes it possible for the service center to remotely access the system. This access enables service technicians to provide assistance in case of problems - without them having to be deployed on-site.



Using multiple models

A project can consist of many different types of models in numerous formats. Surface models, lines, points and background maps can be displayed on the screen simultaneously, if desired. It is also possible to measure more than one target at the same time, for example to a surface model and to a line model in road construction.



Example

- » Task: Earth-moving for the expansion of a motorway intersection
- » Solution:
 - › Loading a digital 3D terrain model to Xsite® PRO ADVANCED
 - › Setting the excavator to working position
 - › Earth removal / depositing until the displayed area design is achieved
 - › Scanning the completed surface area and saving the coordinates
 - › The result is sent to construction management

TELESUPPORT – IMMEDIATE HELP AT THE PRESS OF A BUTTON

Telesupport and service

With the telesupport for Xsite® PRO and Xsite® PRO ADVANCED, you get rapid and uncomplicated assistance from our support team. A direct internet link to the system is established. Most problems can be solved in just a few minutes - without a service technician having to be present at the construction site. This saves money and time as machine downtimes are avoided.

Telematic functions

Data can be directly exchanged between office and machine via tele-communications link. The project data is transmitted from the office to a remote server where it is saved. The machine downloads the project data from the server. And versa, data can also be transmitted from the machine to the sever. This type of data transfer saves time and avoids errors that may occur during manual data transfer.

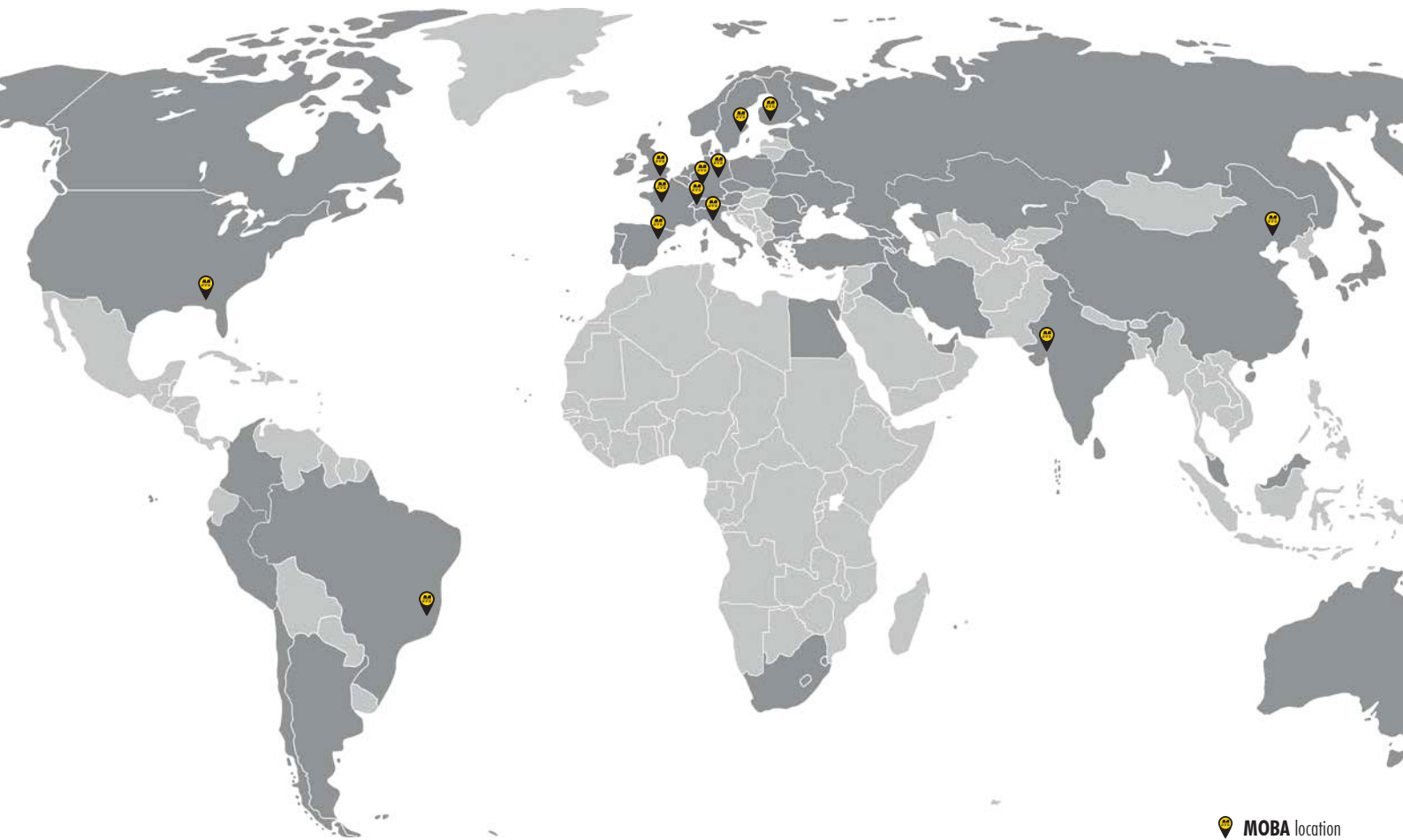


Telesupport - how it works:

1. Get help: your inquiry is received by a staff member
2. Allow telesupport / access to the system
3. A connection is set up to your system and your request is processed



WHEREVER YOUR MACHINES ARE IN USE,
WE ARE CLOSE BY.



 **MOBA location**
 **Dealer**

MOBA worldwide

After you purchase our products we won't leave you to fend for yourself. In addition to headquarters in Limburg/Lahn and German branch offices in Dresden and Langenlonsheim, MOBA is represented by its subsidiaries in Europe, USA, India and Asia, and by a worldwide dealer network in all key markets in the sectors it serves.

MOBA Mobile Automation AG

65555 Limburg / Germany
Tel.: +49 6431 9577-0
E-mail: sales@moba.de

MOBA Electronic S.r.l.

37069 Villafranca die Verona / Italy
Tel.: +39 045 630-0761
E-mail: mobaitalia@moba.it

MOBA France

77500 Chelles / France
Tel.: +33 (0) 1 64 26 61 90
E-mail: infos@mobafrance.com

MOBA Mobile Automation Ltd.

HP178LJ Haddanham / United Kingdom
Tel.: +44 184 429 3220
E-mail: ilewis@moba.de

MOBA-ISE

08211 Barcelona / Spain
Tel.: +34 93 715 87 93
E-mail: moba-ise@moba-ise.com

MOBA Corporation

Fayetteville GA 30214 / USA
Tel.: +1 678 8179646
E-mail: mobacorp@moba.de

MOBA do Brasil

Belo Horizonte - MG / Brasil
Tel.: +55 31 7513-4959
E-mail: mobadobrasil@moba.de

Novatron Oy

33960 Pirkkala / Finland
Tel.: +358 (0) 3 357 26 00
E-mail: sales@novatron.fi

Novatron MCS AB

192 79 Sollentuna / Sweden
Tel.: +46 (0) 8 660 52 00
E-mail: sverige@novatron.eu

MOBA India PVT. LTD.

Gujarat - 382044 / India
Tel.: +91 989 855 6608
E-mail: sdesai@moba.de

MOBA Mobile Automation Co., Ltd.

116600 Dalian / China
Tel.: +86 411 39269311
E-mail: ysun@moba.de



www.moba.de
www.mobacommunity.com
www.moba-platform.com

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