



Leica AS400 Installation Manual

Version 1.0
English

- when it has to be **right**

Leica
Geosystems

Introduction

Purchase



Congratulations on the purchase of a Leica AS400 system.

This manual contains important safety directions as well as instructions for setting up the product and operating it. Refer to Chapter 4, **Safety Directions** on page 14 for further information. Read carefully through this Installation Manual before you switch on the product.

The AS400 is to be used solely in combination with a Leica Geosystems auto-guidance system such as the mojo3D. Therefore it is mandatory to also observe the directions and instructions contained in the corresponding User Manual.

To ensure safety when using the system, please also observe the directions and instructions contained in the User Manual and Safety Handbook issued by the:

- Agricultural machinery manufacturer.
-

Product identification

The type and serial number of your product are indicated on the type plate. Enter the type and serial number in your manual and always refer to this information when you need to contact your agency or Leica Geosystems authorized service workshop.

Type: _____

Serial No.: _____

Symbols used in this manual

The symbols used in this manual have the following meanings.





Type	Description
 Danger	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious personal injury.
 Warning	Indicates a potentially hazardous situation or an unintended use which, if not avoided, could result in death or serious personal injury.
 Caution	Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor or moderate personal injury, appreciable material, financial and environmental damage, or all of these.
	Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner.

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1 System Description

To understand the installation manual

All pictures and schematics are for reference purposes only, and there may be slight deviations from the actual look of the AS400. These deviations are caused by individual applications, and have no effect on the functional capabilities of the AS400.

Use only genuine replacement parts

Leica Geosystems' genuine replacement parts are especially designed for the Leica AS400, and meet high standards for safety and reliability. We advise you that components or parts not provided by Leica Geosystems for the AS400 should not be used, because their use may jeopardise the safety and function of the AS400. Leica Geosystems accepts no responsibility for any such redesigns or adaptations. Any unauthorised changes to the Leica AS400 voids the company warranty. In addition, conformity declarations could be voided, and local authority regulations violated, by unauthorised changes. These statements also apply to the removal of factory-applied seals.



The Leica AS400 supports you and improves your efficiency, while working in the field. The responsibility for quality and work-related results rests as always with the driver. As is the case with all machinery, basic rules apply. The more precisely the system is adjusted, calibrated, and operated, the higher will be the quality of the results.

Caution

The Leica AS400 is designed to assist the machinery operator to use the equipment more efficiently.

Precautions:

Even when relying on the functions of the Leica AS400, the driver is still responsible for observation of the machinery and the surrounding area. In dangerous situations, the driver should shut down or assume manual control.

1.1

Components

Leica AS400 components

The Leica AS400 comprises the following parts.



- a) Voltage Port
 - b) Data Port
-

2 Leica AS400 Installation and Operation

2.1 Leica AS400 Installation Instructions

Installation

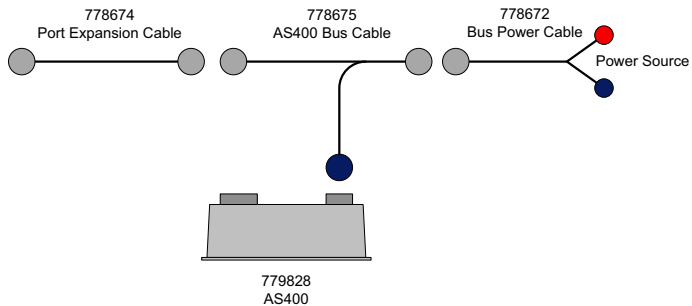
1. Mount the Leica AS400 in a suitable out-of-the-way location.
 2. Connect the data cable to the data port on the Leica AS400. It may be necessary to twist the connectors until the locating tabs in the connectors align. Push the connectors firmly together, while twisting the locking ring.
 3. Using the same twisting action, connect the required automatic section control cable to the voltage port on the Leica AS400.
-

The following sections illustrate methods of connecting the Leica AS400 to the mojo3D and other devices.

2.1.1

Data Port Connection

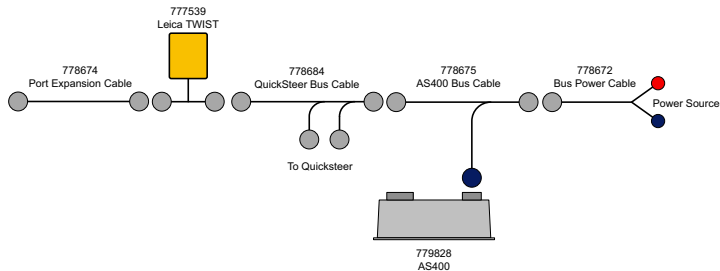
Data port connection



2.1.2

Data Port Connection with Leica Twist

Data port
connection with
Leica Twist



2.2

Leica AS400 Operating Instructions

Operation

Operation of the AS400 is completely controlled by a Leica Geosystems guidance system, such as the mojo3D. The configuration of the AS400 is carried out from the user interface of the Leica Geosystems guidance system. For details, refer to the user manual for the guidance system.

3 Care and Transport

3.1 Transport

Transport in the field

When transporting the equipment in the field, always make sure that you carry the product in its original transport container.

Transport in a road vehicle

Never carry the product loose in a road vehicle, as it can be affected by shock and vibration. Always carry the product in its transport container and secure it.

Shipping

When transporting the product by rail, air or sea, always use the complete original Leica Geosystems packaging, transport container or cardboard box, or an equivalent, in order to protect against shock and vibration.

3.2 Storage

Temperature limits

Respect the temperature limits when storing the equipment, particularly in summer if the equipment is inside a vehicle. Refer to Chapter 5, **Technical Data** on page 26 for information on temperature limits.

Operation and storage conditions

Electronic components of the Leica AS400 are designed for rough environmental conditions like agricultural applications. However, the Leica AS400 should always be installed inside the cab of the vehicle.



- Never use a pressure washer to clean the Leica AS400. If necessary, wipe with a moist cloth.
- Do not allow the Leica AS400 to fall onto a hard surface. Internal damage may result.

The life expectancy of the Leica AS400 can be extended by storing it under optimal conditions. Do not store the Leica AS400 in locations with high humidity or high temperatures, in direct sunlight, or near radiators or electrical generators.

3.3

Cleaning and Drying

Product and accessories

Use only a clean, soft, lint-free cloth for cleaning. If necessary, moisten the cloth with water or pure alcohol. Do not use other liquids: they may attack the polymer components of the Leica AS400.

Damp products

Dry the product, the transport container, the foam inserts and the accessories at a temperature not greater than 40°C/104°F and clean them. Do not repack until everything is completely dry. Always close the transport container when using in the field.

Cables and plugs

Keep plugs clean and dry. Blow away any dirt lodged in the plugs of the connecting cables.

4

Safety Directions

4.1

General



- The Leica AS400 Auto Section Controller is to be used solely in combination with a Leica Geosystems auto-guidance system, such as the mojo3D. It is therefore mandatory to observe the directions and instructions contained in the appropriate user manual.
 - Within the Leica AS400 user manual, only specific hazards of use are stated.
-

Description

- The following directions should enable the person responsible for the product, and the person who actually uses the equipment, to anticipate and avoid operational hazards.
 - The person responsible for the product must ensure that all users understand these directions and adhere to them.
-

4.2

Intended Use

Permitted use

- The Leica AS400 is intended for agricultural and forestry use only.
 - The Leica AS400 is intended to be fitted to agricultural tractors only. It is not permitted to install this product in any other vehicles.
-

Adverse use

The following activities are considered adverse uses:

- use of the product without instruction
 - use outside of the intended limits
 - disabling safety systems
 - removal of hazard notices
 - opening the product using tools
 - modification or conversion of the product
 - use after misappropriation
 - use of products with obviously recognizable damage or defects
 - use with accessories from other manufacturers without the prior explicit approval of Leica Geosystems
 - inadequate safeguards at a work site.
-



Adverse use can lead to injury, malfunction and damage.

It is the task of the person responsible for the equipment to inform the user about hazards and how to counteract them. The product is not to be operated until the user has been instructed on how to work with it.

 **Warning**

Unauthorised modification of agricultural machinery by mounting or installing the product may alter the function and safety of that agricultural machinery.

Precautions:

Follow the instructions of the machinery manufacturer. If no appropriate instruction is available, ask the machinery manufacturer for instructions before mounting or installing the product.

4.3**Limits of Use**

Environment

Suitable for use in an atmosphere appropriate for permanent human habitation: not suitable for use in aggressive or explosive environments.

 **Danger**

Local safety authorities and safety experts must be contacted before working in hazardous areas, or in close proximity to electrical installations or similar situations by the person in charge of the product.

4.4**Responsibilities**

Manufacturer of the product

Leica Geosystems AG, CH-9435 Heerbrugg, hereinafter referred to as Leica Geosystems, is responsible for supplying the product, including the user manual and original accessories, in a completely safe condition.

Manufacturers of non-Leica Geosystems accessories

The manufacturers of non-Leica Geosystems accessories for the product are responsible for developing, implementing and communicating safety concepts for their products, and are also responsible for the effectiveness of those safety concepts in combination with the Leica Geosystems product.

Person in charge of the product

The person in charge of the product has the following duties:

- To understand the safety instructions on the product and the instructions in the user manual.
 - To be familiar with local regulations relating to safety and accident prevention.
 - To inform Leica Geosystems immediately if the product and the application becomes unsafe.
 - To ensure that the national laws, regulations and conditions for the operation of radio transmitters are respected.
-

 **Warning**

The person responsible for the product must ensure that it is used in accordance with the instructions. This person is also accountable for the training and the deployment of personnel who use the product and for the safety of the equipment in use.

4.5

Hazards of Use

Warning

The absence of instruction, or the inadequate imparting of instruction, can lead to incorrect or adverse use, and can give rise to accidents with far-reaching human, material, financial and environmental consequences.

Precautions:

- All users must follow the safety directions given by the manufacturer and the directions of the person responsible for the product.
 - The person responsible for the product must make all users fully aware of the dangers of use.
-

Prepare for possible emergencies

- Always have a fire extinguisher and First Aid kit at hand.
 - Always have actual emergency phone numbers for Fire department, ambulance and doctor handy.
-

Warning

If the product is improperly disposed of, the following can happen:

- If polymer parts are burnt, poisonous gases are produced, which may impair health.
- If batteries are damaged or are heated strongly, they can explode and cause poisoning, burning, corrosion, environmental contamination, or all of these.
- By disposing of the product irresponsibly you may enable unauthorized persons to use it in contravention of the regulations, exposing themselves and third

parties to the risk of severe injury and rendering the environment liable to contamination.

Precautions:



The product must not be disposed with household waste. Dispose of the product appropriately in accordance with the national regulations in force in your country. Always prevent access to the product by unauthorized personnel.

Product specific treatment and waste management information can be downloaded from the Leica Geosystems home page at <http://www.leica-geosystems.com/treatment> or obtained from your Leica Geosystems dealer.

4.6

Electromagnetic Compatibility EMC

Description

The term Electromagnetic Compatibility is taken to mean the capability of the product to function smoothly in an environment where electromagnetic radiation and electrostatic discharges are present, and without causing electromagnetic disturbances to other equipment.



Warning

Electromagnetic radiation can cause disturbances in other equipment.

Although the product meets the strict regulations and standards which are in force in this respect, Leica Geosystems cannot completely exclude the possibility that other equipment may be disturbed.



Caution

There is a risk that disturbances may be caused in other equipment if the product is used in conjunction with accessories from other manufacturers, for example field computers, personal computers, two-way radios, non-standard cables or external batteries.

Precautions:

Use only the equipment and accessories recommended by Leica Geosystems. When combined with the product, they meet the strict requirements stipulated by the guidelines and standards. When using computers and two-way radio, pay attention to the information about electromagnetic compatibility provided by the manufacturer.

 **Caution**

Disturbances caused by electromagnetic radiation can result in erroneous measurements. Although the product meets the strict regulations and standards which are in force in this respect, Leica Geosystems cannot completely exclude the possibility that the product may be disturbed by very intense electromagnetic radiation, for example, near radio transmitters, two-way radios or diesel generators.

Precautions:

Check the plausibility of results obtained under these conditions.

 **Warning**

If the product is operated with connecting cables attached at only one of their two ends, for example external supply cables, interface cables, the permitted level of electromagnetic radiation may be exceeded and the correct functioning of other products may be impaired.

Precautions:

While the product is in use, connecting cables, for example product to external battery, product to computer, must be connected at both ends.

 **Warning**

Electromagnetic radiation can cause disturbances in other equipment, in installations, in medical devices, for example pacemakers or hearing aids and in aircraft. It can also affect humans and animals.

Precautions:

Although the product meets the strict regulations and standards which are in force in this respect, Leica Geosystems cannot completely exclude the possibility that other equipment may be disturbed or that humans or animals may be affected.

- Do not operate the product with radio or digital cellular phone devices in the vicinity of filling stations or chemical installations, or in other areas where an explosion hazard exists.
 - Do not operate the product with radio or digital cellular phone devices near to medical equipment.
 - Do not operate the product with radio or digital cellular phone devices in aircraft.
-

4.7

FCC Statement, Applicable in U.S.

Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Warning

Changes or modifications not expressly approved by Leica Geosystems for compliance could void the user's authority to operate the equipment.

4.8

ICES-003 Statement, Applicable in Canada

Warning

This Class (A) digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe (A) est conforme à la norme NMB-003 du Canada.

4.9

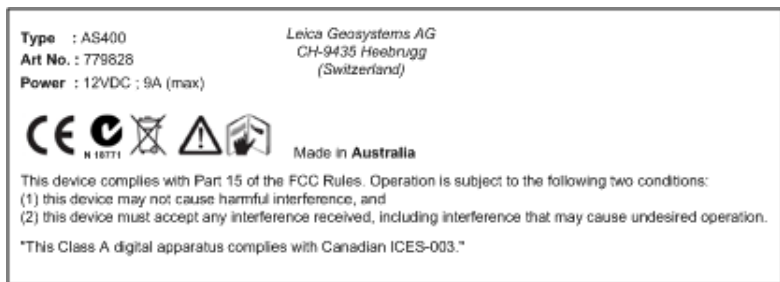
Labelling



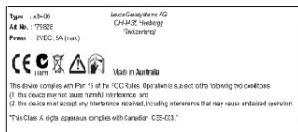
Changes or modifications not expressly approved by Leica Geosystems for compliance could void the user's authority to operate the equipment.

Labelling Leica AS400

The label shown below is attached to the side of the Leica AS400.



Placement of label on Leica AS400



5 Technical Data

Dimensions and weight

Enclosure

Height [mm]	Width [mm]	Depth [mm]	Weight [g]/[oz]
50	176	82	240 g [8.5 oz]

Electrical data

Power supply	Maximum current
10 V...16 V (Reverse polarity and over-voltage protected)	9 A (Input Current)

Environmental specifications

Operating and Storage Temperatures

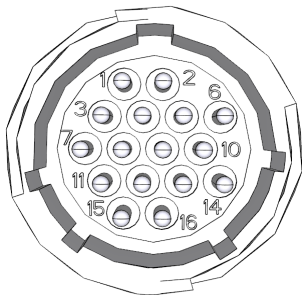
Operating temperature	Storage temperature
-10°C to +50°C (-14°F to +120°F)	-40°C to +85°C (-40°F to +185°F)

Protection against water, dust and sand

Protection rating
IP20

Connectors

Voltage Port



1. Unused
 2. Unused
 3. Section 1
 4. Section 2
 5. Section 3
 6. Section 4
 7. Section 5
 8. Section 6
 9. Section 7
 10. Section 8
 11. Master Switch Input / Dipole ON Input
 12. Section 9
 13. Section 10
 14. Section 11
 15. Section 12
 16. Section 13 / Dipole OFF input
-

Section voltage data

Item	Value
Nominal voltage	12 V (equal to input supply voltage)
Maximum current	8 A (Output Current)
Maximum section current	1.5 A
Maximum sections	13
Section control	Dry contact, normally open

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6

International Limited Warranty, Software License Agreement

International limited warranty

This product is subject to the terms and conditions set out in the International Limited Warranty which you can download from the Leica Geosystems home page at:

- <http://www.leica-geosystems.com/internationalwarranty>

or collect from your Leica Geosystems distributor.

The foregoing warranty is exclusive and is in lieu of all other warranties, terms or conditions, express or implied, either in fact or by operation of law, statutory or otherwise, including warranties, terms or conditions of merchantability, fitness for a particular purpose, satisfactory quality and non-infringement, all of which are expressly disclaimed.

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Total Quality Management: Our commitment to total customer satisfaction.



Leica Geosystems AG, Heerbrugg, Switzerland, has been certified as being equipped with a quality system which meets the International Standards of Quality Management and Quality Systems (ISO standard 9001) and Environmental Management Systems (ISO standard 14001).

Ask your local Leica Geosystems dealer for more information about our TQM program.

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