ISM Online access module

02.17

Operating Instructions

USA

51580954

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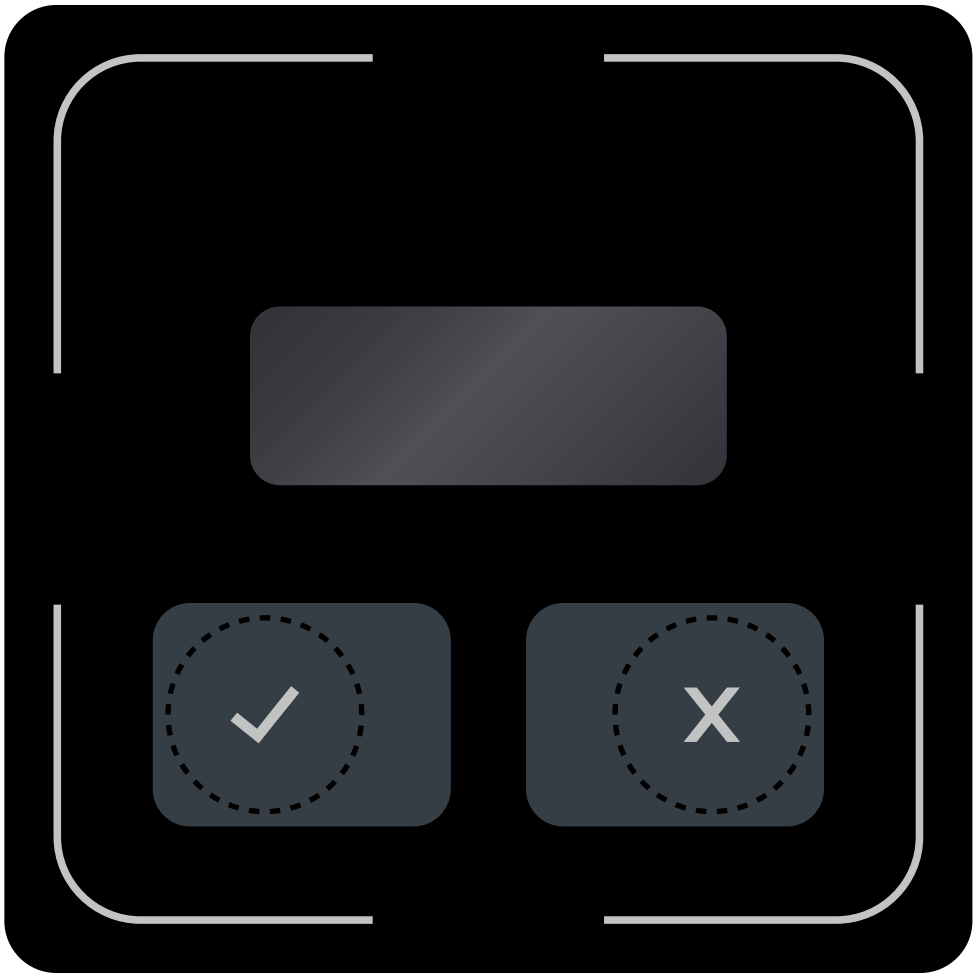

JUNGHEINRICH

Machines. Ideas. Solutions.

Foreword

References to the Operating Instructions

Safe operation of the ISM online access module requires knowledge that can be acquired from these ORIGINAL OPERATING INSTRUCTIONS. Information is set out concisely and in a clear format. The chapters are arranged by letter and the pages are numbered sequentially.

These operating instructions document only the ISM online access module option in connection with the gateway (GW 110). Industrial trucks can be equipped at the factory or after the fact with the ISM online access module option.

➔ Retrofitting of the ISM online access module option must be performed by the manufacturer's customer service or customer service that is authorized by the manufacturer.

Please refer to the operating instructions of the respective truck for truck-specific information.

All operators of industrial trucks should be familiar with applicable local, regional and national regulations. Operators in the United States should be familiar with the standards and regulations of the Occupational Safety and Health Administration (OSHA) (OSHA) and ANSI/ITSDF B56.1/B56.9 Safety Standards, the Safety Standard for Low Lift and High Lift Trucks of the Industrial Truck Standards Development Foundation (ITSDF).

Safe operation of the industrial truck requires special knowledge that is acquired from the ORIGINAL OPERATING INSTRUCTIONS, from the training required by OSHA under 29 CFR 1910.178, and by training the operating personnel in factory installations and their functions.

Further information about OSHA requirements for powered industrial trucks can be found on the OSHA Internet page www.osha.gov OSHA (Regulations (Standards - Powered industrial trucks 29 CFR) Powered industrial trucks – 1910.178).
Further information regarding the ITSDF Safety Standards for Low Lift and High Lift Trucks can be found on the Internet page www.itsdf.org ITSDF B56.1/B56.9.

Safety instructions and markings

Safety instructions and important information together with their relative importance are indicated by the following safety warning symbols and indicator words:

⚠ DANGER!

Danger indicates an hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING!

Warning indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION!

Caution indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Notice is used to address practices not related to personal injury.

➔ This message appears if special information, instructions, or indications are needed with regard to procedures, equipment, tools, pressures, loads, and other special data.

- ● Denotes standard equipment
- ○ Denotes optional equipment

It is impossible for the manufacturer to foresee every possible operational circumstance that could involve a potential hazard. For that reason, the warnings in this manual and the warning labels on the equipment itself do not encompass all possible circumstances.

With the use of tools, procedures, work methods or operating techniques that are not expressly recommended by the manufacturer, you yourself must ensure that your safety and that of third parties is not compromised.

You should also ensure the product will not be damaged or made unsafe by the operation, lubrication, maintenance or repair procedures you choose.

The information, specifications and illustrations in this manual are based on information available at the time it was published.

In the interests of technical advancement, the manufacturer reserves the right to make changes, while retaining the essential features of the ISM online access module option without amending these Operating Instructions at the same time. No claim of certain characteristics of the ISM online access module may therefore be inferred from the content of these operating instructions.

Specifications, measurements, settings, illustrations, and all other data are subject to change at any time.

Before performing work, you should request the latest version of all available information from the manufacturer. Up-to-date information can be obtained from your dealer.

Jungheinrich Aktiengesellschaft

Friedrich-Ebert-Damm 129
22047 Hamburg - Germany

Phone: +49 (0) 40/6948-0

www.jungheinrich.com

02.17 US

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A Compliance with regulations - Legal requirements and common sense

In 1998 OSHA produced a report on its wide-ranging study into the use of powered industrial trucks in industry. This report was published in the **US Federal Register**/ Vol. 63, No. 230.

In this report OSHA sets out the many reasons why employers should train their employees in connection with the use of powered industrial trucks and why untrained personnel should only use industrial trucks in controlled operating conditions such as a training session.

The report shows how **extremely important** a training program as required by the OSHAguidelines is for the safety of equipment and personnel in connection with the use of powered industrial trucks (29 CFR 1910.178)

In simple terms, extensive training prior to using an industrial truck is **extremely important** and **must** take place before an industrial truck is used, since accidents leading to injury and death or property damage are almost always the consequence of disregarding the underlying risks held by the use of industrial trucks or of ignoring safety instructions and safety precautions designed to minimize or eliminate such risks.

The training by OSHAis designed to address those risks. OSHA demonstrates in its report that the training requirements for operators and employers are based on experience and good judgment.

Jungheinrich has provided an truck which complies with the requirements of 29 CFR 1910.178 and ANSI/ITSDF B56.1/B56.9 . Jungheinrich representatives are available to assist and answer any questions which may arise concerning the load capacity, operation, use and maintenance of the truck.

According to OSHApersonnel do not start out with the knowledge and skills needed to safely operate trucks with electrical drive. Quite the contrary: This knowledge can only be acquired through theoretical and practical training. Therefore the fact that a truck is in compliance with legal regulations and the requirements of standards is not by itself sufficient to guarantee the safety of persons and machines.

It is up to you, the operator, and your employer to be aware of your responsibilities and of all national and regional regulations and laws governing training requirements and the safe use of powered industrial trucks, not only because the law requires it but because it is a matter of common sense.

Powered industrial trucks may only be operated by trained and tested persons. Training programs must satisfy OSHA requirements and as a minimum address the topics mentioned here.

Safe operation is the responsibility of the operator ANSI/ITSDF B56.1/B56.9. The user portion of ANSI/ITSDF B56.1/B56.9 is recommended to employers and operators for careful review and observance.

B Recognition and avoidance of risks

In its 1998 investigation into the use of powered industrial trucks, OSHA determined the ways in which accidents commonly occur and the causes of these accidents. OSHA concluded that considerable risks to operators themselves and to other persons in their immediate vicinity can be put down to the inadequate or non-existent training of operating personnel.

According to OSHA, incorrect and unsafe operation are the principal causes of accidents in connection with powered industrial trucks and the resulting injuries and fatalities. It is therefore no coincidence that in reviewing its own research, OSHA found that in almost all cases accidents were attributable to situations or actions which the operator, or the employer and the operator together, could have influenced or could have prevented.

This finding was confirmed by a simple check of the accident causes cited by OSHA . Of the 208 accidents investigated involving powered industrial trucks, 184 of which were fatal accidents or resulted in serious injuries, a full 50 percent of them were due to loading problems, including overloading, unstable loads, dropped loads, or incorrect lifting of loads.

25 percent of the cases involved the tipping or overturning of the industrial truck. A further 20 percent of the accidents were caused by the industrial truck falling from a platform or a trailer or by persons falling from an elevated position in an industrial truck. Although only 4% of the accidents were due to an absence of training and instruction, OSHA nevertheless noted that many accidents could also have been caused by inadequate training.

For example, the overturning of a truck could just as easily be caused by poor or inadequate instruction of the operator with regard to the loading of the industrial truck. Other, less frequent accident causes, which could nevertheless still have been avoided by employers and operators, were excessive speed and the use of inappropriate equipment.

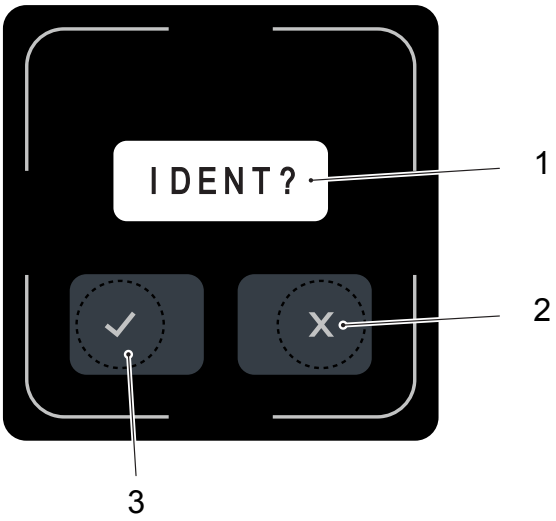
The following measures are therefore of vital importance:

– Operators must be trained and aptitude-tested before working with a powered industrial truck.
– Operators must be physically, mentally, and emotionally capable of operating a powered industrial truck.
– Operators must possess and apply all practical knowledge in relation to the safe loading and correct operation of the industrial truck. The capacity limits of the machine must be known and must never be exceeded.
– All circumstances that could cause the industrial truck to tip or overturn must be avoided. Attention must be paid in this regard to shifting centers of gravity, correct loading and the safe transport of loads, and to defensive driving, taking account of edges, bends, slopes, and other driving conditions.
– Without appropriate operator training and the correct type of truck, passengers should never be carried nor persons lifted under any circumstances. Furthermore, the correct procedure for this must be observed.
– Traffic rules must always be observed. Operators must always be aware of the position of colleagues and of other trucks and must pay attention to local conditions.

– The manufacturer shall not be held liable for the consequences of dismantling the industrial truck or for modifications outside the manufacturer's control.
– The manufacturer's liability is limited to the configuration of the industrial truck or plant described in the declaration of conformity. The manufacturer is absolved from all liability if modifications or additions are made or equipment from another manufacturer is used. In such a case the manufacturer's liability is transferred to the user/customer.
– These Operating Instructions shall cease to be valid if the machine is modified by a company outside our Group, even if original spare parts are used and our company logo can still be seen on the machine.

C General

1 Description of indicators and controls



Item	Display or operating elements	Function
1	Display	Display of the following information: – Input commands – Shock events – Error messages
2	Button X	– Turn off the industrial truck. – Only with activated query of the truck status, see page 22: – establish operational readiness when the operator has determined damage.
3	Button ✓	– Make the industrial truck ready for operation. – Only with activated query of the truck status, see page 22: – Confirmation that the operator has not determined any damage to the truck.

2 Overview of the individual transponder types

For the operation of the JUNGHEINRICH ISM online access module (information system for stacker management), the following transponder types are used.

2.1 Operator transponder

The operator transponders fulfill the following functions:
– Assignment of the transponder to an operator.
– Access authorization for selected industrial trucks.

2.2 Master transponder

The master transponders fulfill the following functions:
– Assignment of the transponder to an operator (usually warehouse manager).
– Access authorization for **all** industrial trucks of the fleet.
– Cancellation of slow travel and truck stop in case of previous improper driving (shock).
– Access authorization for industrial trucks in long-term storage.

2.3 Long-term storage transponders

The long-term storage transponders fulfill the following functions:
– Assignment of the transponder to an employee (usually warehouse manager).
– Longterm storage of an industrial truck. An operator's transponder can no longer be used to make the industrial truck ready for operation.
– Reset longterm storage of an industrial truck.

2.4 Technician transponder

The technician transponders fulfill the following functions:

– Assignment of the transponder to an employee/technician.
– Access authorization for **all** industrial trucks of the fleet.
– Access authorization for industrial trucks in long-term storage.

2.5 Delivery transponder

On delivery of the industrial truck, a delivery transponder is glued to the access module. The delivery transponder fulfills the following functions:

– Access authorization for the industrial truck during delivery (before initial configuration).
– The transponder **cannot** be used after initial configuration of the access module.

➔ The initial configuration of the access module is done in the management portal. After the initial configuration, there is an authorization list with at least one valid master transponder in the ISM online access module.

– Access authorization for the industrial truck if the industrial truck has been disconnected in the management portal. In this case, no or an empty authorization list is present in the ISM online access module.

D Operation

1 Establishing normal operation of the industrial truck/ preparing it for operation

After initial configuration, preparing an industrial truck for operation with the ISM can only be done with a valid operator, master or technician transponder.
The following steps must be performed.

1.1 Release of the EMERGENCY OFF switch

Procedure

- Release the EMERGENCY OFF switch.

To release the EMERGENCY OFF switch, refer to the operating instructions.

Depending on the initial configuration and the software version of the access module, the indicator "IDENT?" or "CONNECT?" appears on the display of the access module, see page 18.

Depending on the industrial truck, it may take a few seconds after the EMERGENCY OFF switch is triggered until the "IDENT?" or "CONNECT?" indicator lights up.

1.2 Indicators on the display of the ISM online access module after release of the EMERGENCY OFF switch

After release of the EMERGENCY OFF switch, depending on the initial configuration and the software version of the access module, different indicators appear on the display of the access module.

The indicators and the meaning of the indicators on the display of the access module are described in the following sections.

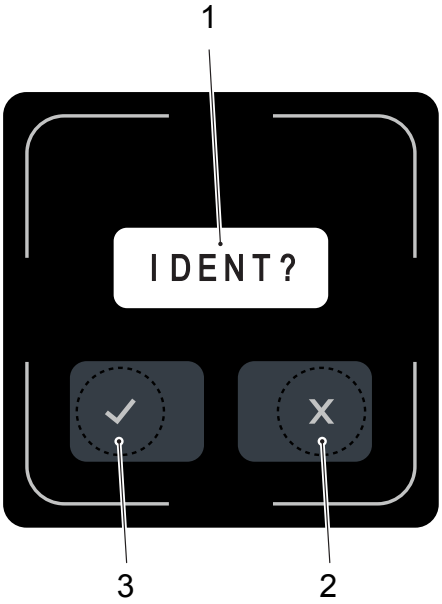
1.2.1 Display of the software versions, lock number and CAN-Bus model

Requirements

– EMERGENCY OFF switch released, see page 17.
– On the display of the access module, the indicator "IDENT?” or "CONNECT?” is displayed.

Procedure

- At the same time, press the buttons (2,3).
- On the display (1) of the access module, the following pieces of information are displayed one after another:
  - Software version of the access module (Beginning with a **Z**: ...).
  - Software version of the data recorder (Beginning with a **D**: ...).
  - Software version of the radio module (Beginning with a **F**: ...).
  - Lock number of the access module.
  - Set CAN-Bus model.



After the information mentioned has been displayed, (1)"IDENT?” or "CONNECT?” appears on the display.

1.2.2 Indicators on the display of the ISM online access module (starting with software version 03.0000 of the access module)

Indicator	Meaning
IDENT?	Initial configuration of the ISM online access module has been performed: – ISM Online access module is known to the management portal. – Authorization list with at least a valid operator, master or technician transponder present in the ISM online access module. – Operational readiness of the industrial truck can **only** be established with a valid operator, master or technician transponder. – An operator’s transponder **cannot** be used to make the industrial truck ready for operation.

Indicator	Meaning
CONNECT?	Initial configuration of the ISM online access module was not performed (e.g. on delivery of the industrial truck): – No authorization list present in the ISM online access module (e.g. in factory setting). – Empty authorization list present in the ISM online access module. – Only a delivery transponder can be used to make the industrial truck ready for operation.

1.3 Logging into the ISM online access module

1.3.1 Logging in with a valid operator, master and technician transponder

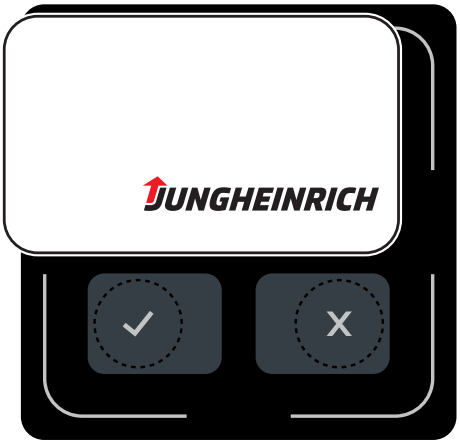
Requirements

– EMERGENCY OFF switch released, see page 17.
– On the display of the access module, the indicator "IDENT?" is displayed.

Procedure

- Place the valid transponder on the access module.
- The access authorization is checked by the access module.

If there is a valid operator transponder, a beep will sound.



1.3.2 Logging in with the delivery transponder

On delivery of the industrial truck, a delivery transponder is glued to the access module. The delivery transponder allows the industrial truck to be made ready for operation before the initial configuration.

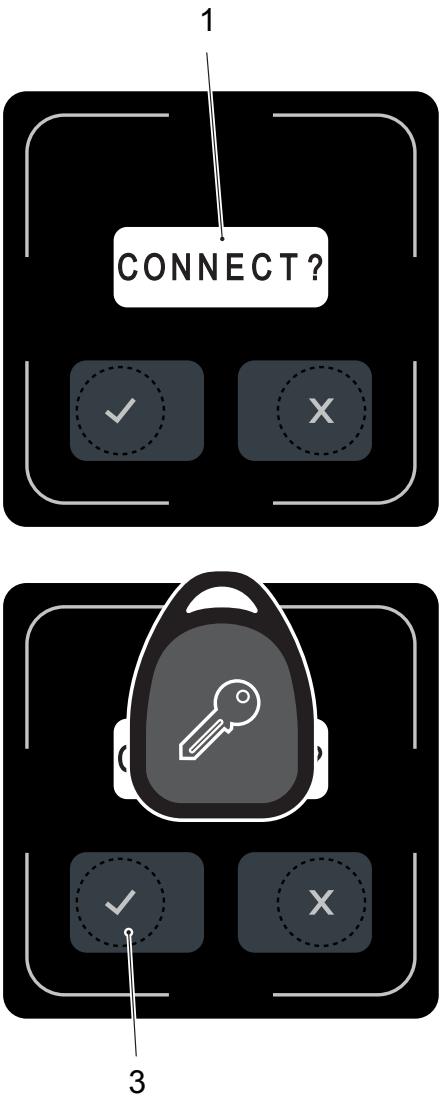
Requirements

– EMERGENCY OFF switch released, see page 17.
– Initial configuration of the access module has not been performed (no or empty authorization list present in the ISM online access module).
– On the display (1) of the access module, the indicator "CONNECT?” is displayed (starting with the software version "03.0000” of the access module).

Procedure

• Place delivery transponder on the access module.
• The access authorization is checked by the access module.
  If there is a valid delivery transponder, a beep will sound. On the display of the access module, the indicator "ok?” is displayed.
• Press the (3) key.

The industrial truck is ready for operation.



1.4 Checking the industrial truck status

Switching the industrial truck on with one-level, two-level or without checking of the industrial truck status is set in the management portal.

1.4.1 No checking of the industrial truck status

Requirements

– Checking of the industrial truck status is deactivated.

Procedure

- Place the valid transponder on the access module, see page 20.
- On the display of the access module, the indicator "go!" is displayed.

The industrial truck is ready for operation.

1.4.2 One-level checking of the industrial truck status

Requirements

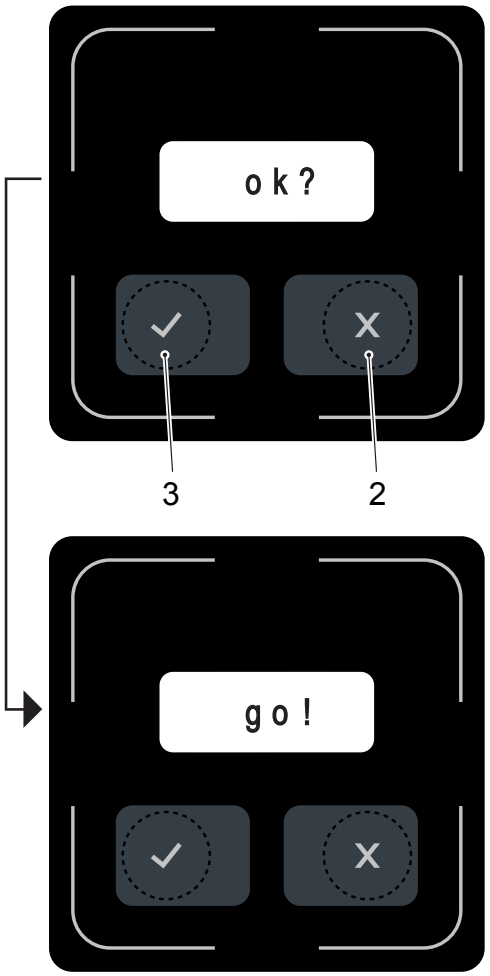
– One-level checking of the industrial truck status is activated.

Procedure

- Place the valid transponder on the access module, see page 20.

  On the display of the access module, the indicator "ok?" is displayed. No steering and hydraulic movements can be performed with the industrial truck.

- Determine external status of the industrial truck within 30 seconds after the illumination of the "ok?" indicator:



➔ If the status of the industrial truck has not been determined within 30 seconds, the indicator on the display of the access module changes from "ok?" to "IDENT?". The login process must be started over.

  - If **no damage** to the industrial truck has been determined, press the (3) key.

    The perfect exterior status of the industrial truck has been confirmed.
  - If **damage** to the industrial truck has been determined, press the (2) key.

    The damaged status of the industrial truck has been confirmed.
- On the display of the access module, the indicator "go!" is displayed.

The industrial truck is ready for operation.

1.4.3 Two-level checking of the industrial truck status

Switching on the industrial truck with the two-level checking of the industrial truck status is only possible starting with the software version "03.0000” of the access module.

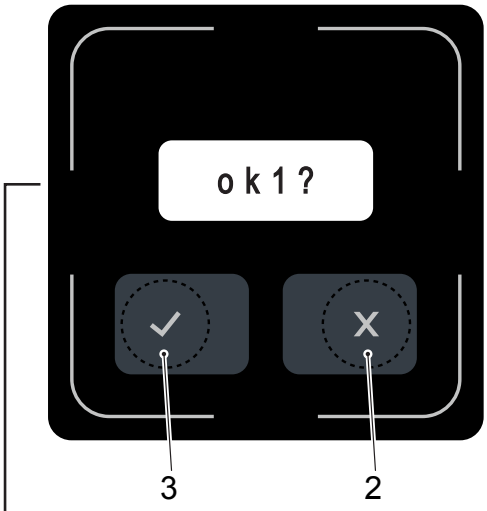
Requirements

– Two-level checking of the industrial truck status is activated.

Procedure

- Place the valid transponder on the access module, see page 20.

  On the display of the access module, the indicator "ok1?” is displayed. No steering and hydraulic movements can be performed with the industrial truck.



- Determine external status of the industrial truck within 30 seconds after the illumination of the "ok1?” indicator:

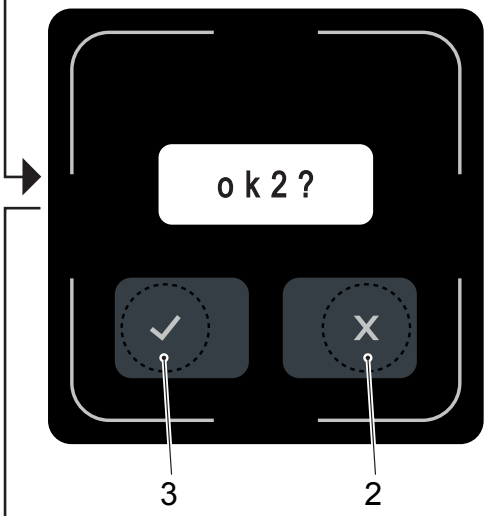
  If the status of the industrial truck has not been determined within 30 seconds, the indicator on the display of the access module changes from "ok1?” to "IDENT?.” The login process must be started over.

  - If **no damage** to the industrial truck has been determined, press the (3) key.

    The perfect exterior status of the industrial truck has been confirmed.

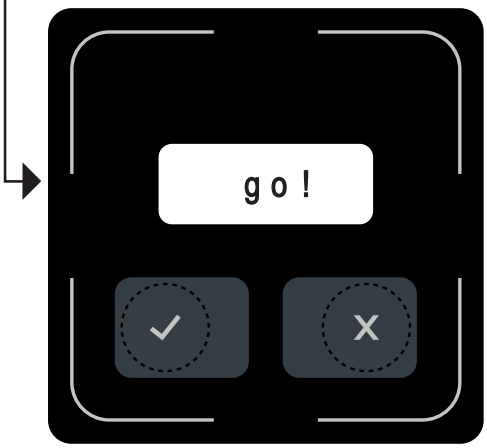
  - If **damage** to the industrial truck has been determined, press the (2) key.

    The damaged status of the industrial truck has been confirmed.



- On the display of the access module, the indicator "ok2?” is displayed.

  Industrial trucks that support the “slow travel” function under ISM can now be driven at this reduced speed. The same applies to the hydraulic speeds.



- Perform a test run with the industrial truck. While so doing, check the travel and hydraulic movements:

  - If **no defects** have been determined during the test run, press the (3) key.

    The perfect status of the industrial truck has been confirmed.

  - If **defects** have been determined during the test run, press the (2) key.

    The damaged status of the industrial truck has been confirmed.

- On the display of the access module, the indicator "go!” is displayed.

The industrial truck is ready for operation. The travel and hydraulic movements can be performed at the maximum released speeds.

1.5 Behavior in case of invalid operator transponder

Requirements

– EMERGENCY OFF switch released, see page 17.

Procedure

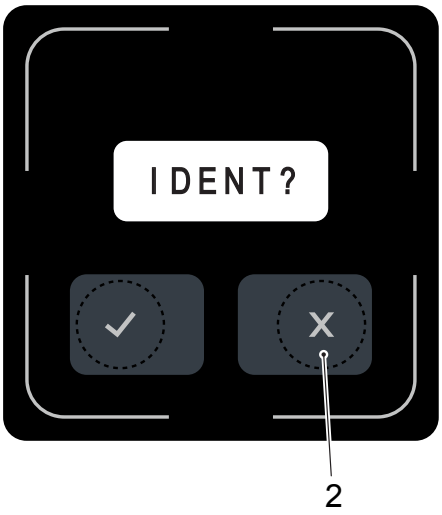
- If the indicator "XIDENT??" appears for 30 seconds on the display of the access module, an invalid operator transponder was held on the access module.

➔ The last two digits of the indicator "XIDENT??" provide the reason for the release of the industrial truck that was not granted, see page 35.

The industrial truck cannot be made ready for operation with this transponder.

1.6 Switching off the industrial truck

1.6.1 Switching off the industrial truck manually



Requirements

– The industrial truck has been made ready for operation.

Procedure

- Press the (2) key.

  The travel operation has ended. The industrial truck is switched off (exception: warehouse and system vehicles). On the display of the online access module, the indicator " ISM IDENT?" appears. A new travel operation can be started.

- Particularity for warehouse and system vehicles:
  - To switch off the industrial truck, press the (2) key again.

NOTICE

If the industrial truck could not be switched off by pressing the (2) button again, this has been prevented by the industrial truck.

▶For conscious switching off of the industrial truck by the operator, the (2) button must be pressed for at least 2 seconds.

The industrial truck is switched off.

1.6.2 Switching off the industrial truck automatically

Requirements

– The industrial truck has been made ready for operation.

Procedure

- After an adjustable period of time (timeout) has elapsed in which no vehicle activities have been performed with the industrial truck, the industrial truck switches itself off automatically.

➔ Depending on the vehicle type, the following vehicle functions can be defined as vehicle activities:
- Travel operations of the industrial truck
- Lifting and/or lowering operations of the industrial truck
etc.

The industrial truck is switched off. On the display of the online access module, the indicator " ISM IDENT?" appears. A new travel operation can be started.

1.7 Particularity for warehouse and system vehicles

For warehouse and system vehicles, after elapsing of a stand-by timer, the indicator "standby” on the display of the access module.

The industrial truck can no longer be used in this status. By placing the last operator transponder used on the access module, the industrial truck can be switched on again. The checking of the industrial truck status is omitted.

➔ All other valid operator transponders can only switch the industrial truck on after it has been switched off again, see page 26.

2 Behavior in case of shock events

Improper operator actions are stored in the data recorder and can be displayed via a message on the access module if necessary. The industrial truck can react in different ways to a shock event. The various reactions of the industrial truck are described below.

2.1 Saving the shock

In this configuration, all shock events are saved. The response of the industrial truck is not taken into consideration.

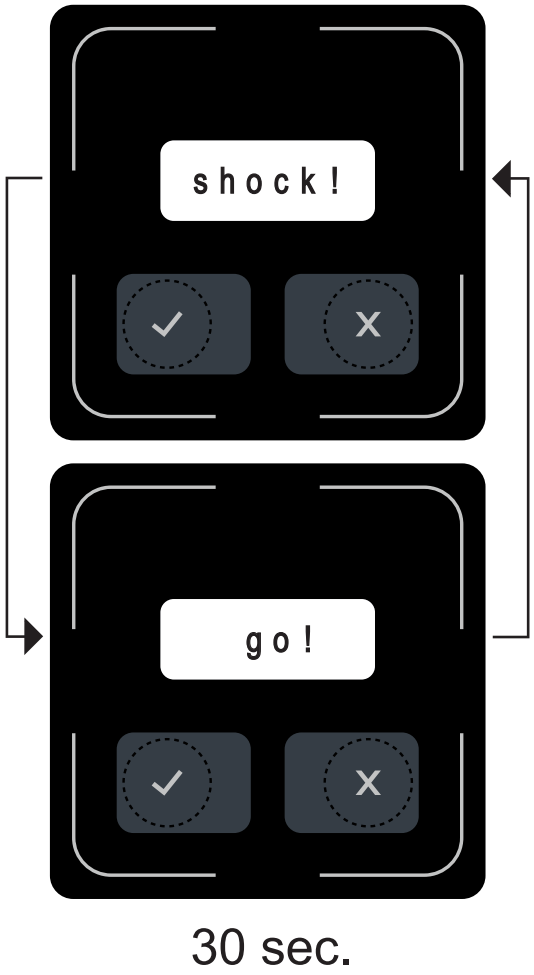
2.2 Saving and displaying shocks

In this configuration the operator is informed that a serious shock has occurred.

On the display of the access module, for 30 seconds a shock warning "shock!" is displayed. Then the message "go!" appears on the display.

The shock event is saved in the data recorder.

The response of the industrial truck is not taken into consideration.



2.3 Saving and displaying shocks with industrial truck in slow travel

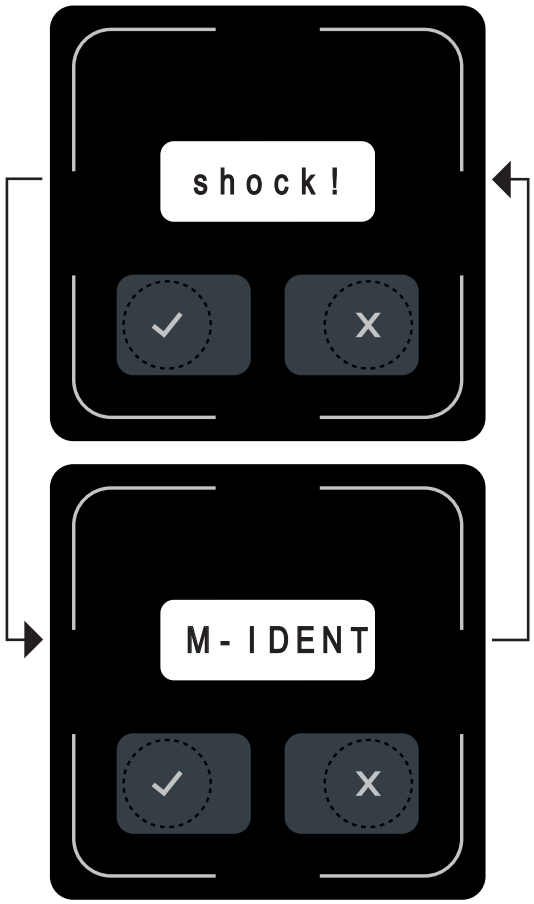
In this configuration the operator is informed that a serious shock has occurred.

The shock event is saved in the data recorder.

After such a shock event, the shock warning "shock!” and the command "M-IDENT” are displayed in alternation.

Industrial trucks that support the “slow travel” function under ISM online can now only be driven at this reduced speed.

The industrial truck can only be operated in slow travel after switching the operator or technician transponder off and then on again. The display of the access module once again displays the shock warning "shock!” and the command "M-IDENT” in alternation.



➔ The shock event and the slow travel of the industrial truck can only be canceled with a master transponder.

Reset shock event and cancel slow travel of the industrial truck:

Procedure

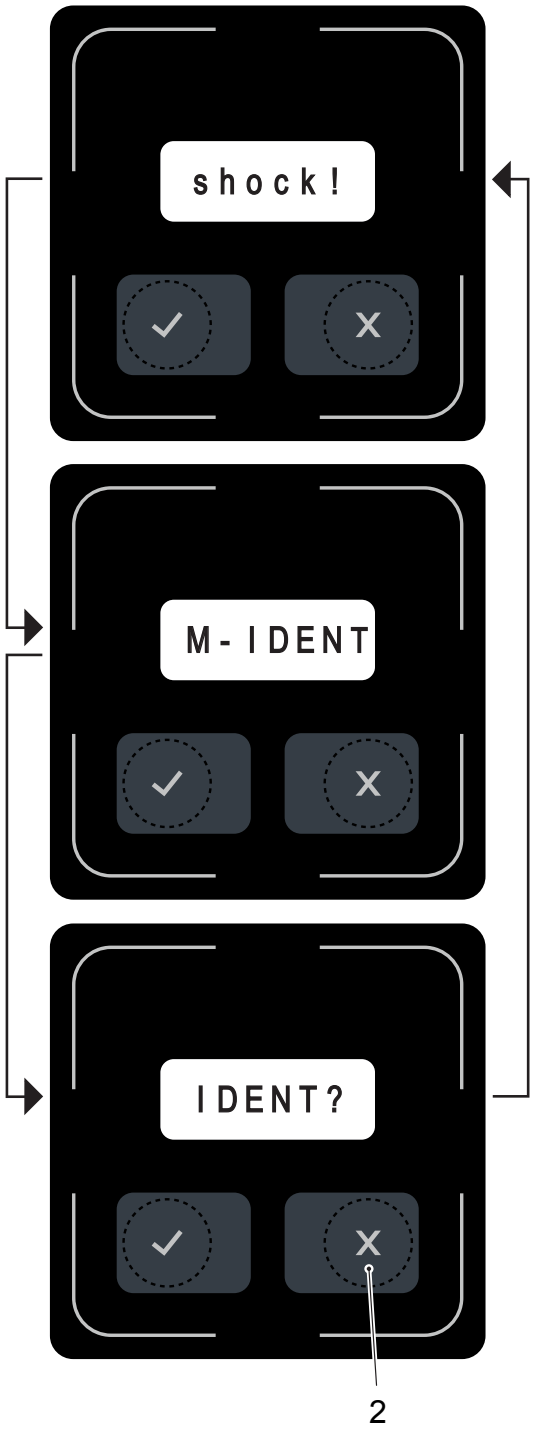
- Press the (2) key.

  The industrial truck is switched off. On the display of the access module, the indicator "shock! – M-IDENT – IDENT?" appear in alternation.

- Place master transponder on the access module.

  On the display of the access module, the message "IDENT?" appears and a beep sounds. Slow travel of the industrial truck has been canceled.

- The industrial truck can be made ready for operation with a valid operator transponder, see page 20.



2.4 Saving and displaying shocks with the industrial truck stopped

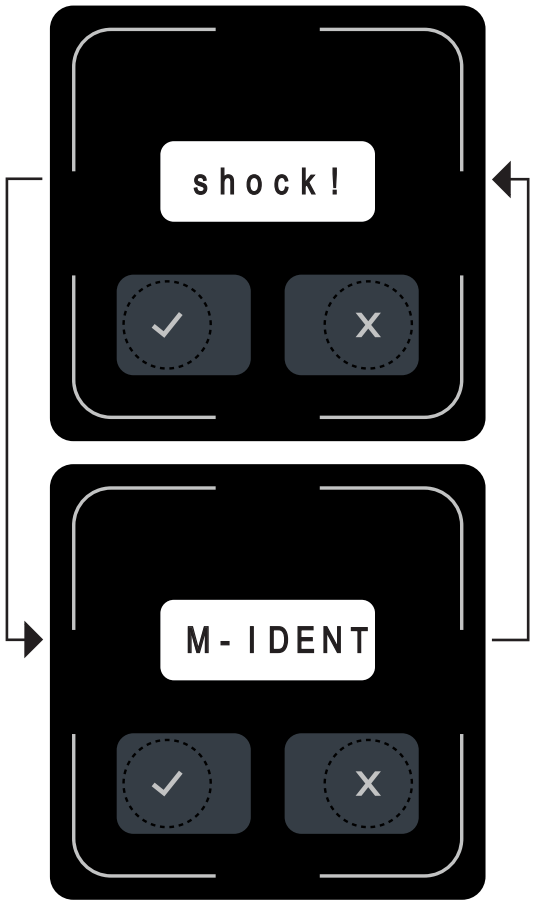
In this configuration the operator is informed that a serious shock has occurred.

After such a shock event, the shock warning "shock!” and the command "M-IDENT” are displayed in alternation.

The industrial truck is switched off after recognizing the shock event.

The industrial truck cannot be made ready for operation with the operator or technician transponder.

➔ The locking of the industrial truck can only be canceled by a master transponder.



Resetting a shock event / Canceling lock of the industrial truck:

Procedure

- Place master transponder on the access module.
  On the display of the access module, the message "IDENT?" appears and a beep sounds.
- The industrial truck can be made ready for operation again with a valid operator transponder or technician transponder, see page 20.

3 Troubleshooting

3.1 Faults

Malfunction	Possible cause	Actions
Industrial truck cannot be switched on	– No power supply available on the access module	– Connect the battery connector to the industrial truck. – Release the EMERGENCY OFF switch.
	– Properties of the transponder unclear – Heed the indicators on the ISM online access module: - XIDENT01 - XIDENT02 - XIDENT03 - XIDENT09	– Check properties of the transponder, see page 35.
Industrial truck cannot be switched on with the master transponder	– Access module is defective	– Replace ISM online access module.
No shocks are recorded	– Too-high switching threshold of the shock sensor	– Reduce switching threshold of the shock sensor in the management portal by the fleet manager.
Too many shocks are recorded	– Too-low switching threshold of the shock sensor	– Increase switching threshold of the shock sensor in the management portal by the fleet manager.
No data transmission of the industrial truck to the system	– Industrial truck is outside of the range of the gateway	– Drive industrial truck into transmission range of the gateway of approx. 98.5 ft (30 m). – Make sure that the visual connection of antenna of the radio module to the antenna gateway is ensured.
Industrial truck does not transmit any data	– Radio module is defective – Data recorder does not transmit any signals to the radio module	– Check radio transmission. – Replace radio module. – Replace data recorder.

3.2 Indicator "XIDENT??" on the display of the access module

Indicator	Possible cause	Actions
XIDENT01	– Operator transponder was taken away from the access module too fast – Operator transponder could not be read	– Keep operator transponder on the access module longer
XIDENT02	– Operator transponder locked with stored industrial truck	– Release industrial truck for operation again with long-term storage transponder – Place operator transponder on the access module again
XIDENT03	– Validity of the operator transponder expired	– Increased validity duration of the operator transponder in the management portal
XIDENT09	– Operator transponder can be read – No release for this operator transponder entered in the access module	Note: In addition to the indicator "XIDENT09” you will hear five short beeps. – Entering transponder for the industrial truck in the management portal

3.3 Error messages "Er. 101x - Er. 103x" on the display of the access module

Troubleshooting may only be performed by the manufacturer. The manufacturer has customer service technicians who are specially trained for these tasks.
The following information is crucial and helpful for the dealer to be able to respond to the fault quickly and accurately:
- Serial number of the industrial truck
- Error number from the display of the access module (if present)
- Error description
- Current location of the industrial truck.

Malfunction "Er. 101x - Er. 103x"

The access module has a self-diagnostic option that can be used to restrict error sources. The last digit of the error message limits the cause of the error source and is relevant for the manufacturer's customer service.

Indicator	Possible cause	Possible error source
Er. 101x	– Error or defect on the inputs or outputs of the optional sensors 1, 2 or 3	– Replace defective optional sensors 1, 2 or 3
Er. 102x	– Internal error (software error, internal hardware defective)	– Check wiring of the ISM online components – Defective ISM replace online components
Er. 103x	– Incorrect parameterization of the ISM online components	– Inconsistent parameterization Example: – Sensor threshold value 1 is greater than sensor threshold value 2 – Stand-by timeout is greater than timeout

4 Longterm storage of industrial trucks

The industrial trucks can be stored long-term and put back into operation with the help of a valid longterm storage transponder.

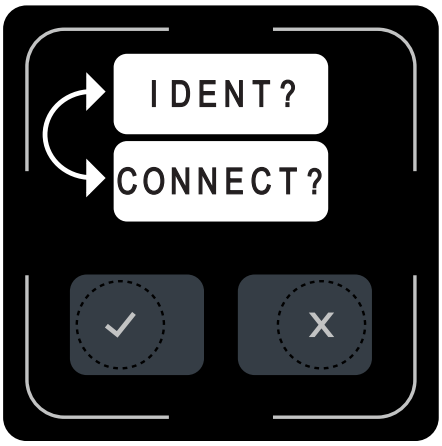
4.1 Release of the EMERGENCY OFF switch

Procedure

- Release the EMERGENCY OFF switch.

  To release the EMERGENCY OFF switch, refer to the operating instructions.

Depending on the initial configuration and the software version of the access module, the indicator "IDENT?" or "CONNECT?" appears on the display of the access module, see page 18.



Depending on the industrial truck, it may take a few seconds after the EMERGENCY OFF switch is triggered until the "IDENT?" or "CONNECT?" indicator lights up.

4.2 Extended shutdown of the industrial truck

Procedure

- Place the valid longterm storage transponder on the access module.

The industrial truck was stored long-term with the longterm storage transponder. On the display of the online access module, the indicator "ISM "locked"

is displayed.

4.3 Restarting the industrial truck after shutdown

4.3.1 Canceling longterm storage of the industrial truck

Requirements

– Industrial truck was stored long-term with longterm storage transponder, see page 38.

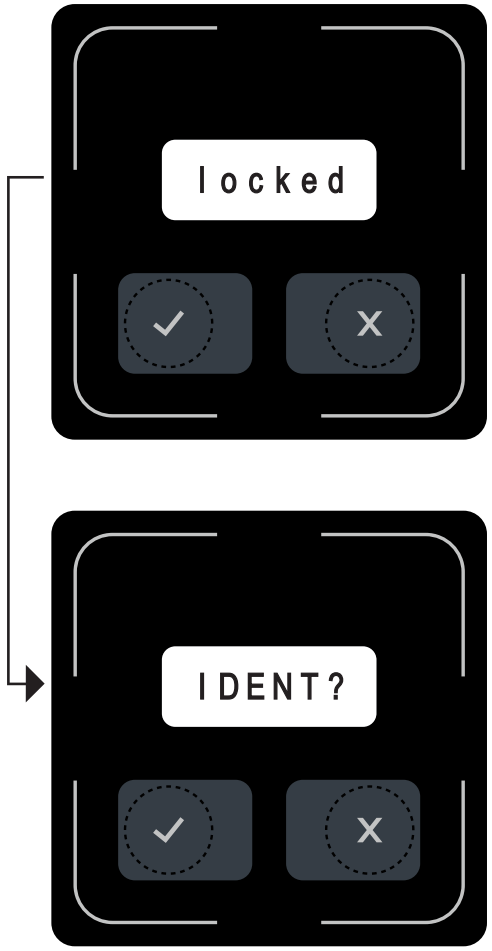
Procedure

- Place the valid longterm storage transponder on the access module.

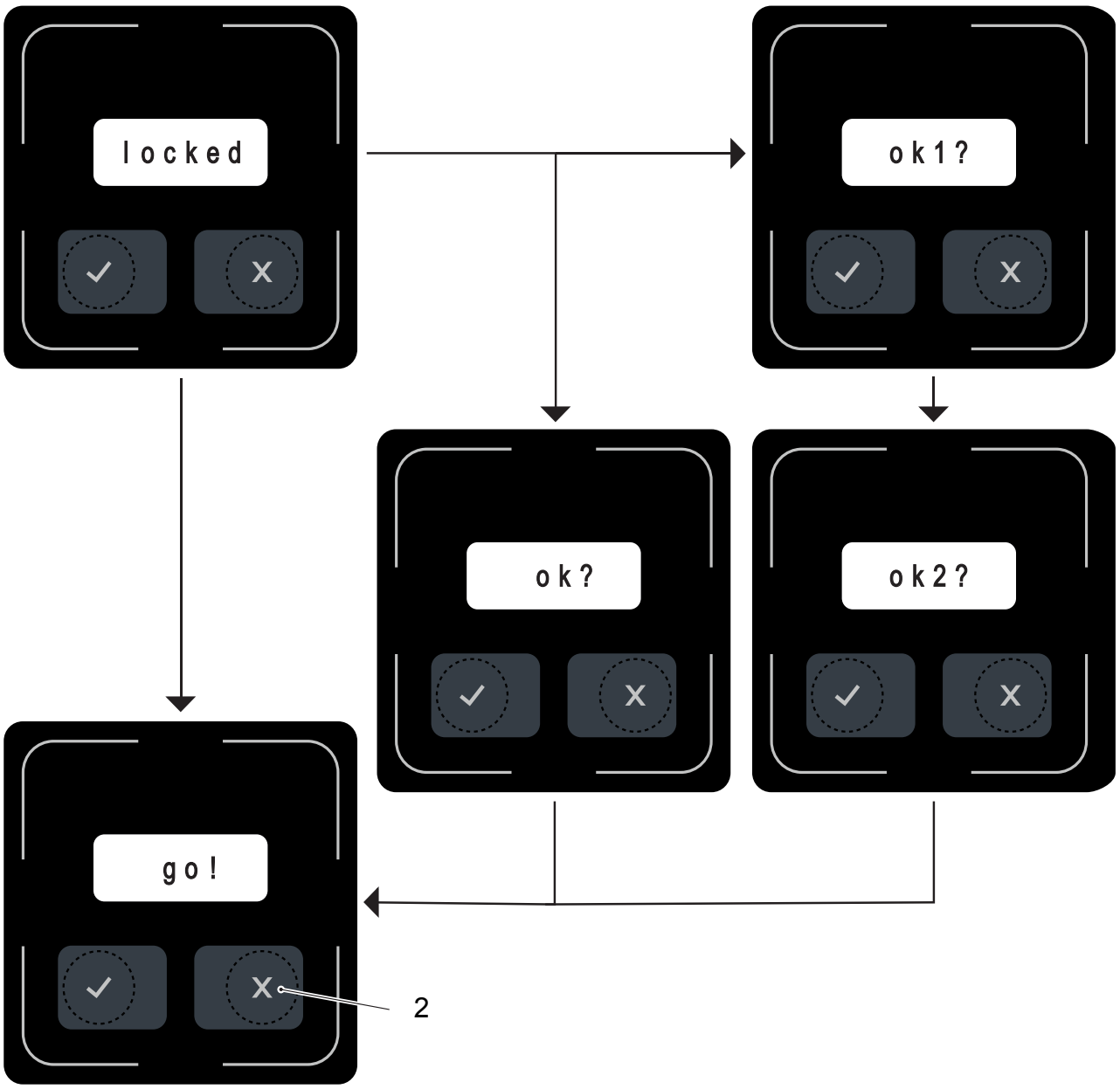
  The industrial truck is now released for operation again. On the display of the online access module, the indicator "ISM "IDENT?"

  is displayed.

- The industrial truck can be made ready for operation with a valid operator transponder, see page 20.



4.3.2 Switching on stored industrial truck with master transponder or technician transponder



An industrial truck stored long-term can be released for a travel order briefly with the master or technician transponder.
Example:
The industrial truck must be driven to a place where safe repair of the industrial truck can be guaranteed.

Requirements

– Industrial truck was stored long-term with longterm storage transponder, see page 38.

Procedure

- Place the valid master or technician transponder on the access module.
  On the display of the ISM online access module, depending on the check of the vehicle state, the indicator "ok?," "ok1?" or "go!" appears.
- Switch industrial truck on depending on the check of the vehicle state:

- Switch on industrial truck with deactivated check of the vehicle status, see page 22.
- Switch on industrial truck with activated one-level check of the vehicle status, see page 23.
- Switch on industrial truck with activated two-level check of the vehicle status, see page 24.

- On the display of the access module, the indicator "go!” is displayed.
  The industrial truck is ready for operation.

- Press the (2) key to switch the industrial truck off and take it out of operation.
  On the display of the online access module, the indicator "ISM "locked”

  is displayed.

➔ After the industrial truck has been reset into the proper status, the longterm storage of the industrial truck must be canceled, see page 39.

E Gateway (GW 110) of the ISM online

1 Technical data

The gateway (GW 110) with power pack corresponds to part 15 of theFCC regulations. Operation is subject to the following conditions:

– The gateway (GW 110) with power pack causes no damaging malfunctions.
– The function of the gateway (GW 110) with power pack is not influenced adversely by fault signals received.

1.1 Technical specifications of the gateway (GW 110)

Processor	Intel® Atom ™ Dual Core Processor 2 x 1.6 GHz (N2600)
RAM	1 GB DDR3
Mass storage	2 GB Flash
Operating system	Linux
Voltage supply	15 V DC (12 V to 24 V) via 2.5 mm stereo jack
Power consumption	approx. 13 W
Interfaces	– Ethernet 1000-BaseT/100-BaseT/10-BaseT Autoswitch (RJ45 connection) “LAN1” – Ethernet 100-BaseT/10-BaseT Autoswitch (RJ45 connection) “LAN2” – 2 x USB 2.0
Dimensions	– Width: approx. 138 mm – Height: approx. 317 mm – Depth: approx. 138 mm
Attachment	– 4 screws (5 mm) for attachment of the gateway – 2 screws (5 mm) for additional securing of the gateway
Weight	2.4 kg (without power pack)
Protection type	IP52
Electromagnetic Compatibility (EMC)	EN55022 Class B
Ambient temperature	0 °C to 45 °C (in operation)
Relative humidity	5 % to 95 % (in operation), no condensation
Communication	– Integrated GSM/GPRS module (quadband) 850 MHz / 900 MHz / 1800 MHz / 1900 MHz, Radio output power max. 2 W, Connection via FME male – Integrated narrow band radio module 433 MHz, Connection via SMA female – 6 LEDs for status indication

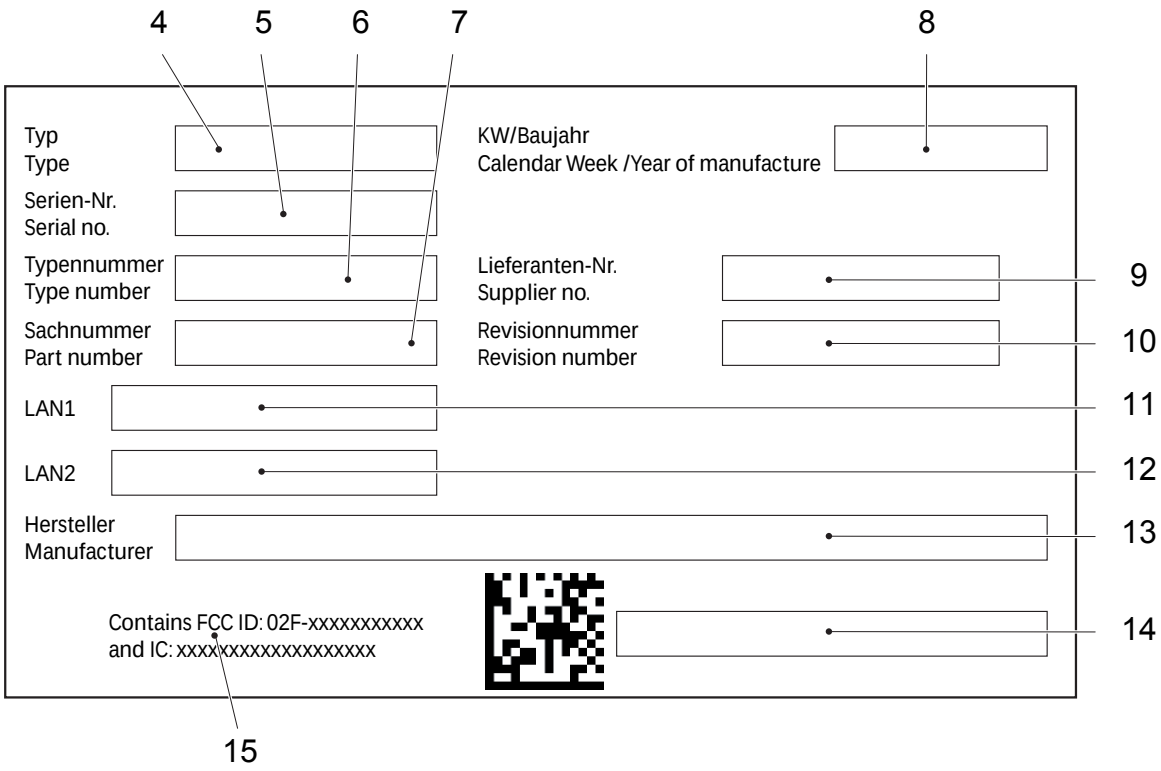
NOTICE

The gateway corresponds to the essential protection requirements that are specified in the directive of the advisory council for approximation of the laws of member states about electromagnetic compatibility 2014/30/EU, as well as in the low-voltage directive 2014/35/EU.

1.2 Technical specifications of the power pack

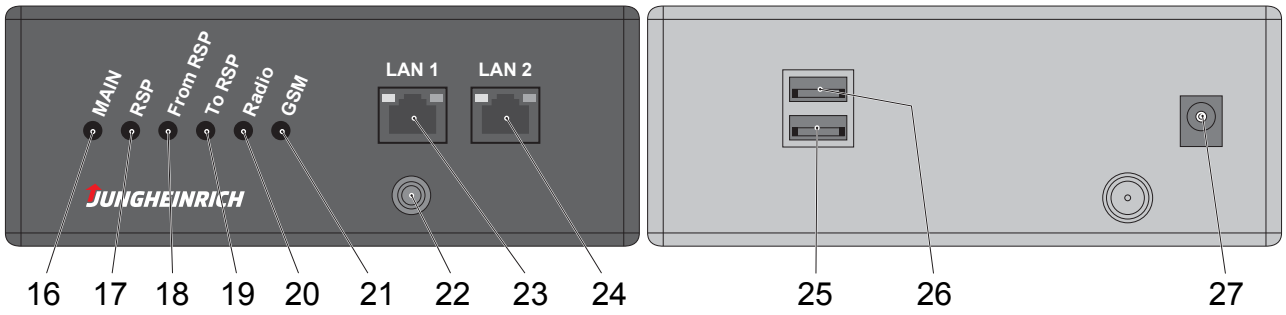
Voltage supply	100 V AC to 240 V AC
Supply frequency	50 Hz to 60 Hz
Maximum input current	1.0 A
Maximum input voltage	43.4 W
Output voltage	14.25 V DC to 15.75 V DC
Maximum output current	2.4 A
Input fuse	Internal primary amperage fuse Input limitation
Output reaction time	50 ms
Output fuse	– Short-circuit fuse – Overvoltage protection – Overcurrent protection
Safety certificates	– TÜV (EN 60950-1) – CE (Declared_CE Mark) – T-Mark (BS EN 60950-1) – RCM (AS/NZS60950.1) – UL (UL 60950-1) – cUL (CSA C22.2 NO.950)
Electrical construction	Switching line transformer
Electromagnetic Compatibility (EMC)	– FCC rules part 15: Class B – EN55022: Class B
Electromagnetic immunity to interference	– EN 55024 – EN 61000-4-2,-3,-4,-5
Dielectric strength	Primary - secondary 3000 VAC, 10 mA, 1 Minute
Leakage current	0.25 mA
Insulation resistance	Input - output 10 MΩ at 500V DC (min.)
Ambient temperature	0 °C to 40 °C (in operation)
Relative humidity	– 5% to 90% (in operation) – No condensation
Cooling	Convection cooling via surface
Housing (layout and material)	– EN 60950-1 – UL 94V-1 (housing)
Dimensions	– Width: approx. 1.8 in (48.0 mm) – Height: approx. 4.4 in (110.8 mm) – Depth: approx. 1.3 in (33.6 mm)

2 Nameplate



Item	Designation	Item	Designation
4	Type designation	10	Revision number
5	Serial number	11	Address of the network connection LAN1
6	Type number	12	Address of the network connection LAN2
7	Item number	13	Manufacturer
8	Calendar week / year of manufacture	14	Manufacturer's logo
9	Supplier number	15	FCC and IC identifier. The gateway (GW 110) with power pack corresponds to part 15 of theFCC regulations, see page 43.

3 Description of indicators and controls



Item	Designation
16	LED "MAIN”
17	LED "RSP”
18	LED "From RSP”
19	LED "To RSP”
20	LED "Radio”
21	LED "GSM” (LED is out of service)
22	Connection of the 915 MHz antenna “connection of gateway to industrial truck”
23	Network connectionLAN1
24	Network connectionLAN2
25	USB connection 1
26	USB connection 2
27	Voltage supply

4 Description of the LEDs

LED designation	Indicator	Meaning
MAIN (16)	OFF	– Gateway is not connected to the power network. During the operating phase: – Software "Maintask” not started.
	Flashing GREEN: - 1 seconds on - 1 seconds off	During the operating phase: – Normal operating condition after boot-up of the gateway. – Software "Maintask” is ready for operation.
	GREEN	During the boot-up phase (< 30 seconds after switching on the gateway): – LED lights up during boot-up of the gateway. During the operating phase: – Software "Maintask” is not ready for operation.
	RED	During the operating phase: – Software "Maintask” has determined an internal error.

LED designation	Indicator	Meaning
RSP (17)	OFF	During the boot-up phase (< 30 seconds after switching on the gateway): – LED does not light up during boot-up of the gateway. During the operating phase: – Connection software to transfer server not started.
	Flashing GREEN: - 1 seconds on - 1 seconds off	During the operating phase: – Normal operating condition after boot-up of the gateway. – Connection software to the transfer server is ready for operation.
	Flashing RED: - 1 seconds on - 1 seconds off	During the operating phase: – Error in the communication to the transfer server.
	GREEN	During the operating phase: – Connection software to the transfer server is not ready for operation.
	ORANGE	During the operating phase: – Gateway is receiving data from the transfer server.
	RED	During the operating phase: – Gateway is sending data to the transfer server.
From RSP (18)	OFF	During the boot-up phase (< 30 seconds after switching on the gateway): – LED does not light up during boot-up of the gateway. During the operating phase: – No data is present in the gateway that must be sent to the industrial truck. – No data is present in the gateway that must be processed by the gateway.
	ORANGE	During the operating phase: – Data is present in the gateway that must be sent to the industrial truck. – Data is present in the gateway that must be processed by the gateway.

LED designation	Indicator	Meaning
To RSP (19)	OFF	During the boot-up phase (< 30 seconds after switching on the gateway): – LED does not light up during boot-up of the gateway. During the operating phase: – No data is present in the gateway that must be sent to the transfer server.
	ORANGE	During the operating phase: – Data is present in the gateway that must be sent to the transfer server.
Radio (20)	OFF	During the boot-up phase (< 30 seconds after switching on the gateway): – LED does not light up during boot-up of the gateway. During the operating phase: – Radio connection to the industrial truck not ready for operation.
	GREEN	– Radio connection to the industrial truck ready for operation.
	ORANGE	– Gateway is receiving data from the industrial truck.
	RED	– Gateway is sending data to the industrial truck.
GSM (21)	OFF	No meaning. – The LED is out of service and is not controlled by the gateway.

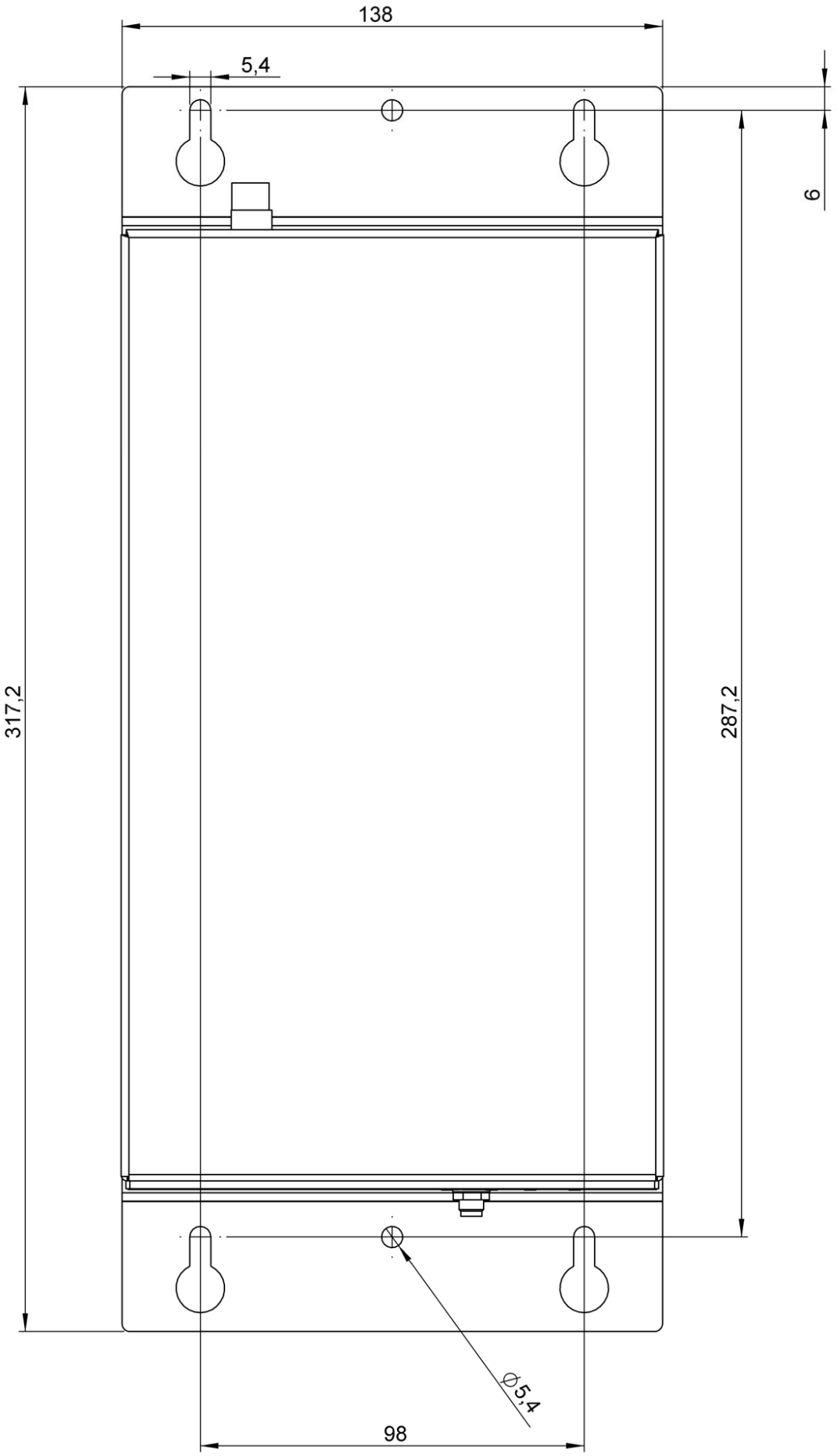
5 Troubleshooting

This chapter enables the user to localize and eliminate basic faults by himself. When trying to locate a fault, follow the order of actions shown in the table for rectifying faults.

➔ If, after carrying out remedial actions, the gateway cannot be restored to operation or if a fault or a defect is indicated by the illumination of other LEDs, contact the manufacturer's customer service. Additional troubleshooting may only be performed by the manufacturer. The manufacturer has customer service technicians who are specially trained for these tasks.

LED designation	Indicator	Remedy
MAIN (16)	OFF	– Check voltage supply of the gateway. – Disconnect voltage supply from the gateway for at least 30 seconds (e. g. unplug plug, switch outlet voltage-free, etc.). – Restore voltage supply to the gateway.
RSP (17)		
From RSP (18)		
To RSP (19)		
Radio (20)		
GSM (21)		
MAIN (16)	GREEN	During the boot-up phase (> 30 seconds after switching on the gateway): – Disconnect voltage supply from the gateway for at least 30 seconds (e. g. unplug plug, switch outlet voltage-free, etc.). – Restore voltage supply to the gateway.
	RED	– Disconnect voltage supply from the gateway for at least 30 seconds (e. g. unplug plug, switch outlet voltage-free, etc.). – Restore voltage supply to the gateway.
RSP (17)	GREEN	During the boot-up phase (> 30 seconds after switching on the gateway): – Disconnect voltage supply from the gateway for at least 30 seconds (e. g. unplug plug, switch outlet voltage-free, etc.). – Restore voltage supply to the gateway.

6 Hole pattern of the gateway (GW 110)



F Maintenance of the ISM online components and the gateway (GW 110)

1 Operating safety

The checks and servicing operations contained in this chapter must be performed in accordance with the maintenance intervals as indicated in the servicing checklists.

Personnel for maintenance and servicing

➔ The manufacturer’s sales department has a customer service team specially trained for these tasks. Signing a maintenance agreement with the manufacturer’s responsible sales center will ensure problem-free operation.

Maintenance and servicing of the following components may only be performed by the manufacturer's customer service team or by customer service authorized by the manufacturer.

– ISM online components
– Gateway (GW 110)

Maintenance and servicing must be performed in accordance with the procedures described in this chapter.

Customer service

Customer service is specially trained on the ISM online components and gateway (GW 110) and is in a position to perform maintenance and service work independently. Customer service is familiar with the standards, regulations and safety requirements that must be followed for these tasks.

In unusual circumstances not described in these Operating Instructions, please contact the industrial truck manufacturer.

2 Safety regulations for maintenance

Applicable safety regulations for the maintenance and replacement of the ISM online components and gateway (GW 110)

Before maintenance or replacement of the ISM online components and gateway (GW 110), the following prerequisites for the work area must be taken into consideration:

– There is no danger of fire.
– Tools and equipment for firefighting are present in the work area.
– There is sufficient ventilation of the work area.
– The work area is clean and dry.

Attention must be paid that the spare parts are identical to the original components. The spare parts must corresponds to the original equipment with respect to quality and performance. All parts must be fitted in accordance with the manufacturer's instructions.

NOTICE

Only original spare parts are subject to the manufacturer's quality control. To ensure safe and reliable operation of the industrial truck, use only the manufacturer's spare parts.

3 Working on the electrical system

3.1 Preparing the industrial truck for maintenance and servicing

⚠ WARNING!

Risk of accidents due to electrical current

Work on the ISM online components is only permitted when the electrical power is turned off. The capacitors built into the industrial truck must be completely discharged. The capacitors are completely discharged after approx. 10 min.

▶ Only suitably-trained electricians may work on the ISM online components.

▶ Take all necessary actions before beginning work to exclude the possibility of an electrical accident.

▶ Park and secure the industrial truck (see appropriate section in the operating instructions for the industrial truck in question).

▶ Unplug the industrial truck's battery plug.

▶ Remove rings, metal armbands, etc.

To prevent accidents during maintenance and service work on the ISM online components, the following necessary safety measures must be adhered to:

Procedure

- Lower the lifting accessory of the industrial truck completely.
- Park the industrial truck safely (see operating instructions for the industrial truck).
- Switch the industrial truck off; see operating instructions for the industrial truck.
- Press the EMERGENCY OFF switch.
- Disconnect the battery to prevent the industrial truck from being switched on accidentally.

3.2 Preparing the gateway (GW 110) for maintenance and service work

⚠ WARNING!

Risk of accidents due to electrical current

Work on the gateway (GW 110) is only permitted when the electrical power is turned off. The capacitors built into the gateway must be completely discharged. The capacitors are completely discharged after approx. 10 min.

▶Disconnect network supply before performing work on the gateway.

▶Remove rings, metal armbands, etc.

To prevent accidents during maintenance and service work on the gateway (GW 110), the following necessary safety measures must be adhered to:

Procedure

- Disconnect network supply to the gateway (GW 110).

4 Cleaning

NOTICE

Risk of damage to the ISM online components and the gateway (GW 110)

Cleaning the ISM online components and the gateway (GW 110) with water can cause damage to the electrical system.

▶ Do not clean ISM online components and the gateway with water.

▶ Clean ISM online components with weak suction or compressed air (use a compressor with a water trap) and a non-conductive, anti-static brush.

5 Permanent decommissioning and disposal

The proper permanent decommissioning or disposal of the ISM online components and gateway (GW 110) must be carried out in accordance with the applicable legal provisions of the country in which the devices are used. In particular, regulations related to the disposal of electronics must be observed.

Disassembly of the ISM online components and gateway (GW 110) may only be performed by trained persons and the manufacturer's recommended procedures must be followed.

⚠ CAUTION!

Old parts endanger the environment

Old parts must be disposed of correctly in accordance with applicable environment protection regulations.

▶ Comply with safety regulations when handling these old parts.

G Maintenance and inspection

⚠ WARNING!

Risk of accident due to neglected maintenance

Ignoring routine maintenance can cause the industrial truck to break down and the ISM online components to fail and presents a potential risk to personnel and equipment. The same applies for the gateway (GW 110).

▶A thorough and professional maintenance service is one of the most important requirements for the safe use of the industrial truck with ISM online components. The same applies for the gateway (GW 110).

Operating conditions for the industrial truck can have a significant impact on the wear of ISM online components. The maintenance intervals specified below assume single-shift operation and normal usage conditions. Under more strenuous conditions such as a very dusty environment, large fluctuations in temperature, or multi-shift operation, shorten intervals accordingly.

NOTICE

To agree on maintenance intervals, the manufacturer recommends a usage analysis on-site in order to prevent damage due to wear.

The maintenance checklist below sets out the jobs to be done and the intervals at which they are required. Maintenance intervals are defined as:

W	=	Every 50 operating hours, or at least once a week
A	=	Every 500 operating hours
B	=	Every 1000 operating hours, or at least once a year
C	=	Every 2000 operating hours, or at least once a year
●	=	Standard maintenance interval
✳	=	Cold storage maintenance interval (in addition to standard maintenance interval)

➔ W maintenance intervals must be performed by the operator.

1 Maintenance check list

1.1 Maintenance checklist - electrical system

Information system stacker management (ISM online components)

Information system stacker management (ISM online components)		W	A	B	C
1	Test the access module; check for damage and make sure it is properly attached.			●	
2	Check the data recorder for damage and make sure it is securely attached.			●	
3	Check the radio module for damage and make sure it is securely attached.			●	
4	Check cabling for damage and to make sure it is properly attached.			●	

Gateway (GW 110)

Gateway (GW 110)		W	A	B	C
1	Test the gateway; check for damage and make sure it is properly attached.			●	
2	Test the power pack; check for damage and make sure it is properly attached.			●	
3	Check the antenna for damage and make sure it is securely attached.			●	
4	Check cabling for damage and to make sure it is properly attached.			●	