Disclaimer of liability

The information contained in these instructions corresponds to the technical status at the time of printing of it and is passed on with the best of our knowledge. The information in these instructions is in no event a basis for warranty claims or contractual agreements concerning the described products, and may especially not be deemed as warranty concerning the quality and durability pursuant to Sec. 443 German Civil Code. We reserve the right to make any alterations or improvements to these instructions without prior notice. The actual design of products may deviate from the information contained in the instructions if technical alterations and product improvements so require.

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Scan the QR code to find the latest documentation at the Downloads tab on the product web page.
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1 About this guide

1.1 Read me first

Please read this guide carefully before using the device to ensure safe and proper use. Softing does not assume any liability for damages due to improper installation or operation of this product.

1.2 Target audience

This guide is intended for experienced operation personnel and network specialists responsible for configuring and maintaining field devices in process automation networks. Any person using uaGate MB must have read and fully understood the safety requirements and working instructions in this guide.

1.3 Typographic conventions

The following conventions are used throughout Softing customer documentation:

- Keys, buttons, menu items, commands and other elements involving user interaction are set in bold font and menu sequences are separated by an arrow.
- Buttons from the user interface are enclosed in brackets and set to bold typeface.
- Coding samples, file extracts and screen output is set in Courier font type.
- Filenames and directories are written in italic.
- Device description files are located in C:\<Application name>\delivery\software\Device Description files.

Open Start → Control Panel → Programs

Press [Start] to start the application

MaxDlsapAddressSupported=23
CAUTION
This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Note
This symbol is used to call attention to notable information that should be followed during installation, use, or servicing of this device.

Hint
This symbol is used when providing you with helpful user hints.

1.4 Document feedback
Softing likes to encourage you to provide feedback and comments to help us improve the documentation. If you have a PDF copy of this document simply write your comments and suggestions to the PDF file using the editing tool in Adobe Reader and email your feedback to info.idi@softing.com. If you prefer to write your feedback directly as an email, please include the following information with your comments:

- document title
- document version (as shown on cover page, e.g. EN-042018--1.00)
- page number
2 About uaGate MB

2.1 Intended use

uaGate MB is a gateway for Modbus TCP controllers such as Schneider Electric, Wago, Beckhoff or Phoenix Contact. It has been designed to integrate OPC UA Server functionality in new and existing plants for easy and secure data connectivity with higher-level management systems, such as ERP, MES or SCADA systems. With the MQTT Publisher functionality integrating controller data into IoT cloud applications, the compact gateway offers future-oriented software solutions with industry-proven hardware.

Note

Faultless and safe operation of the product requires proper transport, proper storage and installation, and expert operation and maintenance in accordance with the manual.

Note

If the notes stated in this document are not observed or in case of inappropriate handling of the device, our liability is waived. In addition, the warranty on devices and spare parts does no longer apply.

For information about safety aspects refer to section Safety precautions.

2.2 Scope of delivery

The uaGate MB scope of delivery includes the following parts:

- uaGate MB device (order number GAA-YE-145133)
- Quick Startup Guide (this document)
2.3 Safety precautions

CAUTION

This product contains a lithium backup battery. The lithium content is less than 1 g. The battery has been successfully tested by the manufacturer in accordance with the "Manual of Tests and Criteria" of the United Nations (UN), Part III: Classification procedures, test methods and criteria, sub-section 38.3.

If the product is handled properly, this battery does not need to be replaced during the lifetime of the product. Therefore, opening the product is unnecessary and not permitted. The product must only be operated within the specified temperature range. Do not expose to heat above this temperature range and keep away from open fire. Store in a dry place. Improper handling of lithium batteries can cause the batteries to ignite or explode and pose a burn hazard to users.

CAUTION

During operation, the device's surface will be heated up. Avoid direct contact. When servicing, turn off the power supply and wait until surface has cooled down.

Note

Do not open the uaGate MB housing. It does not contain any parts that need to be maintained or repaired. In the event of a fault or defect, remove the device and return it to the vendor. Opening the device will void the warranty!
3  Hardware installation

3.1  Mounting and dismounting

Note
Make sure the uaGate MB is mounted in a manner that the power supply disconnecting device or interrupt facility can always be reached easily.

Note
Depending on the installation position, the maximum ambient operating temperature may differ. Refer to section Technical Data for detailed information.

Installation and inspection

Installation and inspection must be carried out by qualified personnel only (personnel qualified according to the German standard TRBS 1203 or similar (Technical Regulations for Operational Safety). The definition of terms can be found in IEC 60079-17.
Mounting

1. Hook the upper notch of the cut-out on the uaGate MB back into a 35 mm DIN rail.

2. Press uaGate MB down towards the rail until it slides into place over the lip of the locking bar.

Note
Do not put stress on the device by bending or torsion.

Dismounting

1. Slide a screwdriver diagonally under the housing into the locking bar.

2. Lever the screwdriver upwards, pull the locking bar downwards - without tilting the screwdriver - and move the gateway upwards off the rail.
3.2 Connecting the power supply

The supply voltage (18 VDC ... 32 VDC) is connected by a 4-pole terminal block. The power supply is connected to the plug connector via flexible wires with a cross section of 0.75 to 1.5 mm². The ground connection wire must have a cross section of 1.5 mm².

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L2+</td>
<td>Redundant positive supply voltage</td>
</tr>
<tr>
<td>2</td>
<td>L+</td>
<td>Positive supply voltage</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Functional Earth</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Ground</td>
</tr>
</tbody>
</table>

**CAUTION**

The Functional Earth (FE) connection of the device has to be connected at low inductance with the Protective Earth (PE) of the system.
3.3 Connecting to the network

uaGate MB is equipped with two 10/100 Base-T Ethernet interface receptacles (RJ45). The ports correspond to the IEEE 802.3.

- IT for connecting to the IT network (the upper part in the diagram)
- MACHINE for connecting to the machine floor network
Note

Both network connections (ports) have their own network segment. Therefore make sure that the IP addresses used are different for each segment. Example:

<table>
<thead>
<tr>
<th>Subnet mask:</th>
<th>IP address 1:</th>
<th>IP address 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>255.255.255.0</td>
<td>192.168.1.1</td>
<td>192.168.2.1</td>
</tr>
</tbody>
</table>

Using a single common network

If there is only one (logical) network, it is recommended to connect uaGate MB only via the Ethernet interface of the IT side with the network. In this case, the Ethernet interface of the machine floor side should be disabled by setting the IP address to 0.0.0.0 and the subnet mask to 0.0.0.0.

3.4 Powering up the device

Turn on the power supply. The boot process takes a few seconds. For indication of proper operation of a uaGate MB refer to section LED status indicators.
3.5 Inserting an SD card

On the bottom of the device you find a slot for a micro SD card. You can save your gateway configuration data to a storage card and reload it from here in case your device settings have been accidentally corrupted.

**Note**

The micro SD card is not included in the scope of delivery. When selecting an SD card bear in mind the range of the uaGate MB operating temperature. The storage capacity of the micro SD card may not exceed 32 GB.

1. Remove the card slot cover on the bottom of the device.
2. Insert the SD card carefully into the slot until the card clicks into place.
3. Place the cover back on the housing.
4. Open the user interface of the gateway and check if the SD card is recognized by the device (see sections [IP connection to web server](#) and [Login](#)).
5. Start **Information** → **Gateway Status** → **Hardware Status**.
   The page will show you if the SD card is recognized in the file system and how much of the storage memory is available.
3.6 **Resetting the device**

If uaGate MB cannot be reached in the event of a configuration error, the device can be reset to the default factory settings by pressing the reset button at the bottom of the front panel. This is how to reset uaGate MB:

1. Disconnect the device from the power supply.
2. Reconnect the device to the power supply and press the reset button until the LEDs SYS, RUN and ERR light up for about one second.

**Note**

The reset button is only active for a few seconds during the restart to make sure that the configuration is not accidentally reset.
4  Configuration and login

4.1  IP address information

- The default IP address for the Ethernet interface in the machine floor LAN is 192.168.1.111 (see device label).

- The IP address of the web server in the common LAN is configured per default via DHCP. Depending on the configuration of your local DHCP and DNS servers it is possible to reach the device by this host name in your network.

- uaGate MB supports the network connection protocol UPnP (Universal Plug And Play) for Windows 10. MAC, Linux and Android use Avahi/Zeroconf, the Zero Configuration network implementation protocol which identifies the gateway as an HTTPs server.
## 4.2 IP connection to web server

<table>
<thead>
<tr>
<th>Network with DHCP and DNS server</th>
<th>Network without DHCP and DNS server</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Connect the upper Ethernet socket (IT) to your network.</td>
<td>1. Connect the lower Ethernet socket (MACHINE) directly to a laptop.</td>
</tr>
<tr>
<td>2. Read the last 4 digits/letters of the uaGate MB MAC address (in the lower left part of the label). The host name of the device is <em>uagate</em> followed by the last 4 digits/letters of the MAC address. For example, if the MAC address is <em>123456789ab</em>, the host name is <em>uagate89ab</em>.</td>
<td></td>
</tr>
<tr>
<td>3. Open your browser and enter the address <em>http://&lt;hostname&gt;</em> or <em>https://&lt;hostname&gt;</em>. (*)</td>
<td>2. Set the laptop IP address to <em>192.168.1.1/24</em>.</td>
</tr>
<tr>
<td>4. The login window appears.</td>
<td>3. Open your browser and enter the address <em><a href="http://192.168.1.111">http://192.168.1.111</a></em> or <em><a href="https://192.168.1.111">https://192.168.1.111</a></em> (*)&amp;</td>
</tr>
<tr>
<td>4. The login window appears.</td>
<td>4. The login window appears.</td>
</tr>
</tbody>
</table>

(*) uaGate MB supports the HTTPs protocol, which provides a secure and encrypted transfer of sensitive data such as passwords so the data cannot be read by another network user. In addition, HTTPs uses a certificate to identify the server. At Softing we use the OPC UA Server certificate that has been generated before the last reboot.
### 4.3 Login

Log in with the respective login name and password. The following standard user names and passwords are available:

<table>
<thead>
<tr>
<th>Role</th>
<th>User name</th>
<th>Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>administrator</td>
<td>administrator</td>
</tr>
<tr>
<td>IT administrator</td>
<td>itadmin</td>
<td>itadmin</td>
</tr>
<tr>
<td>Service or maintenance engineer</td>
<td>mfadmin</td>
<td>mfadmin</td>
</tr>
</tbody>
</table>

**Note**

We highly recommend changing the standard passwords to new secure passwords after you logged in for the first time.

### 4.4 Completing your configuration

To complete your configuration, you need to configure:

- time settings
- IT settings
- machine settings including symbol import

For detailed information see the online help in the web server application.
5 LED status indicators

uaGate MB is equipped with four LEDs on its front side:

- **PWR** (Power supply) is permanently green if the 24 VDC power supply is OK.
- **RUN** (Running) is a constant value.
- **ERR** (Error) is on red.
- **SYS** (System) is on green.

The LED status indicators indicate the following:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Color</th>
<th>Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="none" alt="Off" /></td>
<td>none</td>
<td>off</td>
</tr>
<tr>
<td><img src="red" alt="Red" /></td>
<td>red</td>
<td>permanent</td>
</tr>
<tr>
<td><img src="green" alt="Green" /></td>
<td>green</td>
<td>permanent</td>
</tr>
<tr>
<td><img src="red" alt="Red" /></td>
<td>red</td>
<td>flashing</td>
</tr>
<tr>
<td><img src="green" alt="Green" /></td>
<td>green</td>
<td>flashing</td>
</tr>
</tbody>
</table>
## Meaning of the LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RUN</strong></td>
<td>Permanently green while the OPC UA endpoint has been opened and the device is fully functional and the web server is available.</td>
</tr>
<tr>
<td></td>
<td>Flashing green while the OPC UA namespace is built up (evaluating symbols etc.)</td>
</tr>
<tr>
<td><strong>SYS</strong></td>
<td>Permanently green while the firmware image is unzipped.</td>
</tr>
<tr>
<td></td>
<td>Flashing green while the consistency of the image is checked and the kernel is exchanged.</td>
</tr>
<tr>
<td></td>
<td>Flashing red while the firmware is replaced with the firmware image content. (During this time the device is not fully operational.)</td>
</tr>
<tr>
<td><strong>ERR</strong></td>
<td>Permanently red if the OPC UA endpoint could not be opened or an error during firmware update occurred.</td>
</tr>
<tr>
<td></td>
<td>Flashing green while the configuration has pending changes.</td>
</tr>
</tbody>
</table>

### LEDs turn off during reboot

If you reset the device using the reset button on the front plate or by clicking [Reboot] in Service Settings - Reset - Gateway restart in the web server interface, the LEDs are shortly switched off.
# 6 Technical data

| Power supply                           | 18 VDC ... 32 VDC; SELV/PELV supply mandatory  
Typical input current is 200 mA; maximum is 1 A (considering the rush-in current at switch-on). |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet</td>
<td>2x IEEE 802.3 100BASE-TX/10BASE-T (independent interfaces)</td>
</tr>
<tr>
<td>Operating temperature, horizontal DIN rail installation</td>
<td>-40 °C ... +50 °C (0 mm minimum distance)</td>
</tr>
<tr>
<td></td>
<td>-40 °C ... +55 °C (22.5 mm minimum distance)</td>
</tr>
<tr>
<td>Operating temperature, vertical DIN rail installation</td>
<td>-40 °C ... +35 °C (0 mm minimum distance)</td>
</tr>
<tr>
<td></td>
<td>-40 °C ... +55 °C (22.5 mm minimum distance)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40 °C ... +85 °C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>10 % ... 95 % (non-condensing)</td>
</tr>
<tr>
<td>Altitude</td>
<td>Must not exceed 2,000 m</td>
</tr>
<tr>
<td>Location</td>
<td>Indoor use only; no direct sunlight</td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>100 mm x 22.5 mm x 105 mm</td>
</tr>
<tr>
<td>Mounting</td>
<td>35 mm DIN Rail</td>
</tr>
<tr>
<td>Ingress protection</td>
<td>IP20</td>
</tr>
<tr>
<td>Weight</td>
<td>about 0.2 kg</td>
</tr>
<tr>
<td>IT network / cloud connection</td>
<td>OPC UA (Server, 20,000 items in total), MQTT (Publisher, up to 1,000 topics)</td>
</tr>
<tr>
<td>Industrial network connectivity</td>
<td>OPC UA, Modbus TCP</td>
</tr>
<tr>
<td>Supported controllers</td>
<td>Schneider Electric, Wago, Beckhoff, Phoenix Contact and more</td>
</tr>
</tbody>
</table>
7 Declarations of conformity

This device is compliant with EC directive 2014/30/EG for "Electromagnetic Compatibility" (EMC) and meets the following harmonized standards:

EN 55011 Industrial, scientific and medical (ISM) devices - radio disturbance - limits and methods of measurement
EN 55032 Electromagnetic compatibility of multimedia equipment (MME) and interference emission
EN 61000-6-4 Electromagnetic compatibility (EMC); Part 6-4: generic standard – emission for industrial environments
EN 61000-6-2 Electromagnetic compatibility (EMC); Part 6-2: generic standard - immunity for industrial environments

Note
To fulfill the EMC requirements, the other components of your installation (DC adapter, Industrial Ethernet devices, etc.) also have to meet the EMC requirements. A shielded cable must be used. In addition, the cable shield must be grounded properly.

CAUTION
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures!
Chapter 7 - Declarations of conformity

CE
A Declaration of Conformity in compliance with the above standards has been made and can be requested from Softing Industrial Automation.

ROHS
This product is ROHS compliant.

FCC
This equipment has been tested and found to comply with the limits for a Class A digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

VCCI
This Class A product conforms to the regulations of Voluntary Control Council for Interference (VCCI) by Information Technology Equipment.

WEEE
Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime. Packaging material and worn components shall be disposed of according to the regulations applicable in the country of installation.