IDM1xx WLAN
Hand-held Scanners

Hand-held Line
Revision History

<table>
<thead>
<tr>
<th>Rev. No.</th>
<th>Released Date</th>
<th>Description</th>
</tr>
</thead>
</table>

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Warranty

The currently released status of SICK General Terms of Delivery Factory Automation and Logistics Automation shall apply

Regulatory

FCC, CE

RohS All WLAN IDM devices are conform to RohS standards

Print out this manual

If you want to print out this manual please ensure that the original size is remained and the print out is of good quality. Otherwise the configuration codes contained in this manual may be distorted and cannot be scanned anymore.

Deutsche Version / German version

Das Handbuch ist auch in deutscher Sprache verfügbar. Es kann unter www.sick.com heruntergeladen werden.

This manual is available in German language as well. You can download it on www.sick.com.
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Getting Familiar with Your IDM WLAN

IDM140WLAN Series Scanner

IDM160WLAN Series Scanner

The Navigation Key provides up, down, left and right 4-direction navigation. And the Center key is used to launch an application, select an item, or activate the Virtual Keyboard.

IDM140 and IDM160 charging cradle

1. Power Indicator
2. Reserved
3. USB Bus Power Switch
4. USB interface port
5. DC Power Jack
Virtual Keyboard
A unique virtual keyboard has been provided by the Wi-Fi scanner to fulfill various inputs of alphabet, number, symbol and ASCII value. You can use 4 toggle keys (ABC 123 123 123 ) to switch into different keyboard layout before using the navigation key to locate your desired inputs for information entering.
Preparation before Using

Install the Battery

1. Ensure the battery contacts of the battery pack are facing the charging contacts inside the battery cavity.

2. Slide the battery pack into the battery cavity until hearing a click sound before locking it with the end cap. The scanner will give 4 beeps when the battery pack is installed properly if the battery pack still has power.

3. Secure the end cap with the screw provided (IDM140-WLAN) or via turning the integrated thumb wheel (IDM160-WLAN).

逸 You can use the overlapping battery label to pull out the battery if needed.

Charge the Battery
1. Plug the AC power plug into the appropriate AC wall socket.

2. Plug the DC power cord of the power supply unit into the DC power jack of the cradle. The cradle will issue the power on beeps. The center (IDM140 cradle) or upper (IDM160 cradle) indicator of smart cradle will give one blue blink. The power indicator of charging cradle will turn steady blue.

3. Place the scanner on the cradle. The status indicator of scanner will turn steady red if the battery is not fully charged. When the battery is fully charged, the status indicator of scanner will flash green at regular interval.

☐ Please charge the new battery pack for 8 hours prior to the first use.

**Use USB Bus Power**

1. If USB 3.0 is available in your host device, both battery charging and regular operation can be supported by the USB Bus Power without using external power supply.

2. If you want to use this feature, please slide the USB bus power switch to “ON”. Then connect the cradle and host device via USB cable.
Install necessary software

Before you start using the Wi-Fi scanner, you are recommended to install following software into your host machine. You can download the software for free on www.sick.com.

**SICK WaveCentre**
The WaveCentre is a useful Windows-based wireless management utility together with an IP virtual COM software driver. Once you installed WaveCentre into your host machine, it can create a virtual COM port for each connected Wi-Fi scanner corresponding to its IP address. Then the Wi-Fi scanner will work as a local serial device of the remote host.

**SICK IDM Wi-Fi Set Up Tool**
By using the SICK IDM Wi-Fi Set Up Tool, you can create Wi-Fi profiles, change configurations and upgrade firmware with ease. Please note that you have to install the USB virtual COM software driver before using the Set Up Tool.

To connect the scanner to the set up tool you have to set it into host link mode. This can be done via the scanner display under “Setup” and then “Advanced”. You then need to place the scanner on the cradle and go to section upload after opening the set up tool software.
Find out required information for network settings

SSID
The SSID is an 802.11 service set identifier of Independent Wireless Host or Access Point (AP).

Operation Mode
The Wi-Fi scanner supports both “Infrastructure” and “Ad-Hoc” modes. Please note that if you select Ad-Hoc mode, you are suggested to use the Static IP. And the Gateway and Subnet Mask have to be the same as the remote host.

Region and Channel
The region is where the Wi-Fi scanner is used, and the channel number must be the same as the channel setting of AP or the remote host.

Security
The Encryption and Authentication will be used to communicate with the AP or the remote host, such as WEP, WPA and WPA2.

IP Type
Both Static IP and DHCP can be used in your wireless network. But you are recommended to use Static IP for better management purpose.

Remote IP Address and Port
The Remote IP Address is an IP address of the remote host. And the Port will be a listen port of e.g. WaveCentre used to communicate with your Wi-Fi scanners.

Local IP Address
The Local IP Address is the IP address of the Wi-Fi scanner.
Further settings

Date and Time Setup
After installing the fully charged battery pack into the battery cavity, the scanner will be powered on and booted automatically. You will hear power on beeps and the “Date” setup screen will be displayed after the welcome message.

1. Use the virtual keyboard to complete the date information input, then press “Enter” (L key) to save the setting.

2. The “Time” setup screen will be displayed after the “Date” setup screen. Use the virtual keyboard to complete the time information input, then press “Enter” to save the setting.

Once you completed the Date and Time settings, a “No Profile” message box will pop-up to remind you there is no profile existing in your Wi-Fi scanner. Press OK to enter the Desktop (main screen) then go to “SETUP” to create a new Wi-Fi profile.
Desktop overview

The Desktop is the main screen of Wi-Fi scanner which contains three parts, including Status Bar, Main Menu, and Function Bar.

### Signal Strength
- Connecting to the server
- Disconnected
- Almost no signal
- Very low signal
- Low signal
- Medium signal
- Good signal

### Battery Status
- Low battery
- Battery is 20% full
- Battery is 40% full
- Battery is 60% full
- Battery is 80% full
- Battery is fully charged
- Battery Charging

### Link Status
- No Wi-Fi Profile
- COM Port Close
- COM Port Open

### Other Icons
- Access Point
- Security
- Independent Wireless Device
- Profile
Configure your WLAN scanner
Once you entered the “SETUP” from the main menu of Desktop, you will find all available configuration items, including Wi-Fi Profiles, System Settings, Scanner Settings, Interface Settings, Online Scanning, Batch Scanning and Advanced Settings.

Wi-Fi Profiles
Here, not only you can create a new Wi-Fi profile, you can also edit or delete the existing Wi-Fi profiles.

System Settings
In System Setting, you can set or change the date and time, device name, language, LCD brightness, LCD backlight duration, key tones, administrator and user password and so on.

Scanner Settings
In Scanner Setting, you can set or change the details of each bar code symbology and all available options of Operation and Output.

Interface Settings
In Interface Setting, you can define the detailed working behaviors of Wi-Fi, USB COM and USB HID.

Online Scanning
In this setting, you can configure all available options of Online Scanning, including barcode type indication, display font size, record suffix, transmission format, and all detailed controls of Host ACK function.

Batch Scanning
In this setting, you can configure all available options of Batch Scanning, including desired input fields with validation, transmission sequence, field and record delimiters, timestamp format, “Auto Save” and “Auto Delete” functions, link control, transmission interface and so on.

Advanced
In Advanced Setting, you can enter Host Link Mode for connecting the Wi-Fi scanner to IDM Wi-Fi Set Up Tool, and perform Factory Default, Master Default and System Reset. Moreover, you are able to turn on/off the Wi-Fi radio through the setting of Radio Control.
Connecting the WLAN scanner

Before you connect the Wi-Fi scanner to a remote host, you should collect all required information for network setting, for example SSID name, password, IP addresses available etc.

To start you have to create a correct Wi-Fi profile for the Wi-Fi connection. There are two ways to create Wi-Fi profiles. The easy way is to use the scanner “SETUP” to create a new profile. If you want to create multiple profiles at the same time, you may consider using SICK IDM Wi-Fi Set Up Tool.

On following pages it's described how to set up a connection via using the scanner display and function keys. There are two possible connection types. One is an ad hoc connection (direct connection between scanner and host), the other is called infrastructure mode (connection via access point).
Ad Hoc Connection with WLAN capable PC

Go to Network settings, right click on wireless networks and open the settings window.

The settings window will open. Mark the Internet protocol and click on settings.
Mark the radio button to use the following IP address and type in your desired IP address as well as the subnet mask.

Confirm with OK. Note: Other IP addresses, different from the ones used in this example are possible for sure. But they have to match to each other in terms of availability and address room.

Afterwards go to wireless networks and press “Add” under preferred networks.
In the following input mask you have to define a name for the network SSID (it's recommended to use either upper or lower case characters for easy handling). This name will also be used within the WiFi profile of IDM scanner.

Unmark the automatic key and insert your desired network key. It has to consist of 5 or 13 ASCII characters.

After pressing OK go to the advanced section and control the the type of network configured. It has to be set to Ad-hoc.

End your setting by clicking on Close.
Press OK and go back to network settings. Right-click on Wireless networks and choose “view available wireless networks”
You will be asked for the network key you created some minutes before. Type it in and confirm via Connect.

After a short while the connection will be established.
Start the WaveCentre Software. It serves as socket program.

Start the IDM WLAN scanner and go to the set up section.

Select Wi-Fi Profiles and confirm the question with yes.
You can either put in the network parameters manually or you can perform an auto search. The parameters found after auto search also need to be controlled and partly changed. Note: The remote IP address is the address of the PC, the local IP address is the address of the scanner. The default port setting is 63000.

In both ways it’s essential that the parameters of both PC and scanner match to each other. Otherwise a connection is not possible.

After finishing all input press L-key to save profile data. The IDM scanner will automatically perform a connection attempt. The connection can take some time. When it is not successful the scanner will automatically stop after a pre-defined time out. In this case check the network parameters and control that radio and WaveCenter have been started.

Also note that security clients, firewalls or different mechanisms can hinder a connection between scanner and PC.

Another connection attempt can be started by going to the Online section of the scanner desktop.
After successful connection you can see the connection status and the radio quality in the scanner status bar.

Also you can see the scanner displayed inside the WaveCenter software. If you mark the HID box the data from the scanner will be converted into keyboard input data.

After connecting the Wi-Fi scanner to the remote host, you are able to perform the online scanning function by entering “ONLINE” from the main menu of Desktop. Under this mode, all scanned barcodes will be displayed on the screen (and if configured also the type of symbology) and sent to the remote host concurrently.

If the scanner was unable to read very poor or invalid barcode, you can press the “Keyboard” icon to activate Virtual Keyboard for data entering.

To press “Func” (L key), you are able to view the scan logs and configure the display option. Under Options, you can configure “Barcode Type Indication”, “Font Size” and so on. All scan logs will be automatically recorded until the log storage is full.
Connection with WLAN in infrastructure mode (via access point)
The connection in infrastructure mode requires similar configuration of the IDM WLAN scanner. The main difference is to configure the access point as gateway. It’s important that the scanners IP address is in the correct range that can be handled and is allowed by the access point. Please check access point wireless settings for this.

Example pictures for Communication via Access point:

Example access point settings:

Example scanner settings:

Example PC settings:
Example communication:
Port number has to match!

Example communication result:
Batch Mode (Offline data collection)

In batch mode is used as a data collection device. It is an ideal cost-effective solution to fulfill most inventory applications. Before you start to use batch scanning, please enter “SETUP” then select “Batch Scanning” to configure all available options listed below. Moreover, the “Auto Save” and “Auto Delete” functions will help you to simplify the routine operation of data collecting.

**Input Fields**

Besides the field of “Item No.”, three more input fields are available for choice, including “Quantity”, “Location” and “Timestamp”. By default, both “Item No.” and “Quantity” fields are enabled. Please note that if you changed the composition of input fields, all stored data will be DELETED.

**Validation**

You can set the desired input range of each field. The scanner will do the validation automatically after the inputs of each field are completed.

**Field and Record Delimiters**

Both field delimiter and record delimiter can be changed to meet your application demand.

**Transmission Sequence**

The transmission sequence of each field can be re-arranged to meet your needs.

**Transmission Interface**

The scanner is preset to transmit all stored data through Wi-Fi. Alternatively, you can transmit the stored data through physical USB interface by changing the transmission interface to USB COM or USB HID. In this case, a charging cradle has to be used together with your scanner.

**Auto Save**

After completing the inputs of each record, the scanner will save the data into storage automatically then go to next record input immediately. You do not need to press “Save” (L Key) to save data. If you still prefer to save data manually, please disable this Auto Save function.

**Auto Delete**

The scanner is preset to keep all stored data after data transmission in case it needs to be retrieved later. You have to delete all records manually. If you prefer the scanner to perform “Auto Delete” after data transmission, please enable this function.

**Link Control**

For power saving, the Radio can be disabled during batch scanning. When you want to transmit the data via Wi-Fi, the scanner will activate the Radio and re-connect automatically.
Run Batch Scanning

After completing all necessary settings of batch scanning, you can enter “BATCH” from the main menu of Desktop to perform batch scanning.

Under this mode, all input data will be stored until the memory storage is full. If the “Auto Save” is enabled, all data will be saved automatically after the inputs of each record are completed. You can continue to the next record input immediately.

Navigation Key

For manual inputs, you can use the Navigation Key to activate virtual keyboard for manual data entry. Moreover, you can use the navigation key to browse previous input records as well.

Press “Func” (R key) to enter the function menu of batch scanning. Then select your desired function to perform the data transmission or to manipulate the stored records.

Transmit Data

The scanner is preset to transmit the stored data through Wi-Fi. During the transmission process, the scanner will give continuous short clicks and blue blinks. Then the scanner will give two short beeps after data transmission is completed.

If you want to transmit the stored data through USB interface, please make sure a cradle has been properly connected to the host with a USB cable. You have to place the scanner onto the cradle right after you press “Transmit Data”. All stored data will be transmitted via your specified interface (USB COM or USB HID).
Transmit and Save
To work with SICK WaveCentre, all transmitted data can be saved as a “TXT” or “CSV” file into your desired destination (folder) of the remote host. Please note that this function is only available for transmission via Wi-Fi interface.

Delete all Record(s)
If “Auto Delete” function is disabled, the scanner still keeps all stored data after transmission. You have to manually delete all stored records by executing this function.
Useful Tools

Enter “TOOLS” from the main menu of Desktop, you can find several useful tools, including Site Survey, Link Diagnostic, Data Validation, Scan Test, System Test, Device Information and User Settings.

Site Survey

The Site Survey is a very useful tool for finding all discoverable Access Points (AP) and Independent Wireless Hosts within radio range. After the “Searching” process is completed, a list will be provided for reference. You can check the detailed wireless settings of each AP or Independent wireless host.

Link Diagnostic

The Link Diagnostic is a tool for providing detailed link report. Once you run this tool, you have to select a desired Wi-Fi profile to perform diagnostic. After that, a detailed report of each link process will be provided for reference (see left screen). It’s very helpful for locating link problem if you have difficulty to make a successful link.
Data Validation
The Data Validation is a very useful tool for you to check valid input with ease. You are able to set and store maximum 10 master data for validation. Once you completed the master data setting, you can scan the barcodes and the scanner will compare the scanned data for you. If the scanned data is same as one of master data, a “Check” icon 📈 will be shown on the screen. Otherwise, a “Cross” icon ❌ will be shown on the screen instead.

System Test
In System Test, you are able to perform most equipment tests, including LCD display, light source, LED indicator, buzzer, vibrator and keypad.

User Settings
In User Setting, the user is able to configure frequently used settings, such as LCD backlight duration control, key tone and buzzer tone settings, and vibrator control.

Device Information
You can find most detailed information of your scanner, such as model number, firmware version, MAC address, device name and so on.

Remote Control
A complete serial command set has been implemented into the Wi-Fi scanner. You can use the Remote Control commands to control Wi-Fi scanner(s) from the remote host. The most useful remote commands are listed below for your reference.

Remote Message
This command allows you to send message together with beeping and vibration.

Remote Indication
This command allows you to page the scanner, or send beeping and vibration from the remote host.

Remote Lock & Unlock
You can use this command to lock or unlock the scanner remotely. Once you locked the scanner, the scanner can’t work till you send unlock command.

How to use remote control
If you use SICK WaveCentre together with your Wi-Fi scanner, you can easily use all remote control functions without writing a program. If you want to use the remote control in your application, please contact your SICK representative to obtain a detailed documentation for development.
Administrator and User Password

Once you enabled the Administrator Password, the scanner will ask you to enter the administrator password before you can enter “SETUP” to configure the scanner. If you enable the User Password, it will help to prevent any unauthorized use of the scanner. Moreover, you can limit the available functions for all users.

When the scanner enters into sleep mode, you have to enter administrator password or user password right after the scanner wakes up. Please note there is NO master password available. You are recommended to keep your preset passwords in a safe condition for future use.
## Indications

### Scanner:

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Link Indicator</th>
<th>Beeper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio connected</td>
<td>1 blue blink per 3.5 sec.</td>
<td>Off</td>
</tr>
<tr>
<td>Radio disconnected</td>
<td>3 blue blinks per 3.5 sec.</td>
<td>Off</td>
</tr>
<tr>
<td>During connection</td>
<td>Quick blue blinks</td>
<td>Short clicks</td>
</tr>
<tr>
<td>Radio connection built</td>
<td>1 blue blink per 3.5 sec.</td>
<td>4 beeps in ascending tone</td>
</tr>
<tr>
<td>Radio connection lost</td>
<td>3 blue blinks per 3.5 sec.</td>
<td>4 beeps in descending tone</td>
</tr>
<tr>
<td>Data Transmission</td>
<td>Quick blue blink</td>
<td>Short clicks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Status Indicator</th>
<th>Beeper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under charging (on cradle)</td>
<td>Steady red</td>
<td>Off</td>
</tr>
<tr>
<td>Fully charged (on cradle)</td>
<td>1 green blink at regular interval</td>
<td>Off</td>
</tr>
<tr>
<td>Out of memory</td>
<td>2 red blinks</td>
<td>2 long beeps</td>
</tr>
<tr>
<td>Battery power low</td>
<td>1 red blink at regular interval (30sec)</td>
<td>1 beep at regular interval(30sec)</td>
</tr>
<tr>
<td>Battery power extremely low</td>
<td>8 red blinks</td>
<td>8 beeps</td>
</tr>
<tr>
<td>Good read</td>
<td>1 green blink</td>
<td>1 good read beep</td>
</tr>
<tr>
<td>Under Configuration</td>
<td>Steady red</td>
<td>Off</td>
</tr>
<tr>
<td>Upgrade state</td>
<td>Steady red</td>
<td>Short click</td>
</tr>
<tr>
<td>Sleep state / Battery no power</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>ACK Time-out Indication</td>
<td>Off</td>
<td>3 long beeps</td>
</tr>
<tr>
<td>Host ACK received</td>
<td>Off</td>
<td>1 beep</td>
</tr>
<tr>
<td>Error Beep</td>
<td>Off</td>
<td>1 long beep</td>
</tr>
</tbody>
</table>
Cradle: Once you supplied power to the cradle via power supply or USB interface, the center/upper indicator will be steady blue.
### Symbology ID Table

Each AIM Code Identifier contains the three-character string \[cjm\] where:

- \[j\] = Flag Character
- \[c\] = Code Character
- \[m\] = Modifier Character

The listed user defined characters are default values.

<table>
<thead>
<tr>
<th>Code Family</th>
<th>Primary Format</th>
<th>User def. ID</th>
<th>AIM ID</th>
<th>Code Family</th>
<th>Primary Format</th>
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</thead>
<tbody>
<tr>
<td>UPC</td>
<td>UPC-A</td>
<td>A</td>
<td>m</td>
<td>EAN/JAN-8</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>UPC-A with 2 suppl.</td>
<td>E</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UPC-A with 5 suppl.</td>
<td>E</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UPC-E</td>
<td>E</td>
<td>m</td>
<td>EAN/JAN-13</td>
<td>F</td>
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<tr>
<td></td>
<td>UPC-E with 2 suppl.</td>
<td>E</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UPC-E with 5 suppl.</td>
<td>E</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: A UPC-A bar code 012345678950 with 2 supplement 12 is transmitted as \[E0\]012345678950\[E1\]12

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Code 128</td>
<td>B</td>
<td>C</td>
<td>m</td>
<td>I</td>
<td>K</td>
<td>J</td>
<td>L</td>
<td>M</td>
<td>O</td>
<td>PDF417</td>
</tr>
<tr>
<td>GS1-128</td>
<td>C</td>
<td></td>
<td>1</td>
<td>S</td>
<td>X</td>
<td>I</td>
<td>X</td>
<td>I</td>
<td>R</td>
<td>PDF417/Micro PDF417</td>
</tr>
</tbody>
</table>

Example: A GS1-128 bar code 49123562 with 5 supplement 12345 is transmitted as \[E4\]49123562\[E2\]12345

<table>
<thead>
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<td>m</td>
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<td>0</td>
<td></td>
<td>G</td>
<td>A</td>
<td>m</td>
<td>G</td>
</tr>
</tbody>
</table>

Example: A GS1 DataBar bar code is transmitted as \[E5\]012345678900\[C3\]161010123451297

Example: A Composite Code bar code is transmitted as \[E5\]09923456789019\[C3\]161010123451297

Example: A UCC Coupon Code is transmitted as \[E5\]012345678900\[C3\]161010123451297

Remark: Above examples are given for the transmission of AIM ID.
## HEX/ASCII Reference Table

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> Example: ASCII “A” → HEX “41”; ASCII “a” → “61”

- □ : High Byte of HEX Value
- □ : Low Byte of HEX Value
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<th>Country</th>
<th>Phone</th>
<th>Tollfree</th>
<th>Email</th>
</tr>
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<tr>
<td>Australia</td>
<td>+61 3 9497 4100</td>
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<td><a href="mailto:sales@sick.com.au">sales@sick.com.au</a></td>
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<tr>
<td>Belgium/Luxembourg</td>
<td>+32 (0) 2 466 55 66</td>
<td></td>
<td><a href="mailto:info@sick.be">info@sick.be</a></td>
</tr>
<tr>
<td>Brasil</td>
<td>+55 11 3215-4900</td>
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<td><a href="mailto:sac@sick.com.br">sac@sick.com.br</a></td>
</tr>
<tr>
<td>Canada</td>
<td>+1(952) 941-6780</td>
<td>1 800-325-7425</td>
<td><a href="mailto:info@sickusa.com">info@sickusa.com</a></td>
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<tr>
<td>Ceska Republika</td>
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<td><a href="mailto:info@sick.cz">info@sick.cz</a></td>
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<tr>
<td>China</td>
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<td><a href="mailto:ghk@sick.com.hk">ghk@sick.com.hk</a></td>
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<tr>
<td>Danmark</td>
<td>+45 45 82 64 00</td>
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<td><a href="mailto:sick@sick.dk">sick@sick.dk</a></td>
</tr>
<tr>
<td>Deutschland</td>
<td>+49 211 5301-301</td>
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<tr>
<td>España</td>
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<tr>
<td>France</td>
<td>+33 1 64 62 35 00</td>
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<tr>
<td>Great Britain</td>
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<td>Russia</td>
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</tbody>
</table>

South Africa
Phone +27 11 472 3733
E-Mail info@sickautomation.co.za

South Korea
Phone +82-2 786 6321/4
E-Mail info@sickkorea.net

Slovenija
Phone +386 (0) 47 69 990
E-Mail office@sick.si

Suomi
Phone +358-9-25 15 800
E-Mail sick@sick.fi

Sverige
Phone +46 10 110 10 00
E-Mail info@sick.se

Taiwan
Phone +886 2 2375-6288
E-Mail sales@sick.com.tw

Türkiye
Phone +90 216 528 50 00
E-Mail info@sick.com.tr

United Arab Emirates
Phone +971 4 8865 878
E-Mail info@sick.ae

USA/Canada/México
Phone +1(952) 941-6780
1 800-325-7425 – tollfree
E-Mail info@sickusa.com

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