SICK AppSpace

GIVING SPACE TO YOUR IDEAS AND SOLUTIONS

SICK

Sensor Intelligence.

DECIDE FOR YOURSELF: GIVING SPACE TO YOUR IDEAS AND SOLUTIONS

Finding a sensor solution that's both tailored to your requirements and easy to operate – sounds time-consuming and difficult, or even impossible, doesn't it? Not with the SICK AppSpace eco-system – where the application developer defines the solution themselves. Intelligent software tools, high-performance programmable devices, and a dynamic developer community create a solid foundation for designing customized sensor solutions. This enables completely new and adaptive solutions for automation applications. With SICK on board, you can take a significant step toward the future and Industry 4.0.

High investment security
Through the use of an eco-system for a wide range of SICK devices

Quick and efficient development
Tailor-made sensor apps specially tuned to your requirements

High level of flexibility
Due to a high degree of freedom in the development of sensor apps

Less expensive to develop
Since the sensor apps can be reused on various programmable SICK devices and are available worldwide

Expert service
Provided by developers for developers via the SICK Support Portal

Exchange of experience and networks
With other members due to automatic access to the SICK AppSpace Developer's Club

Risk-free introduction
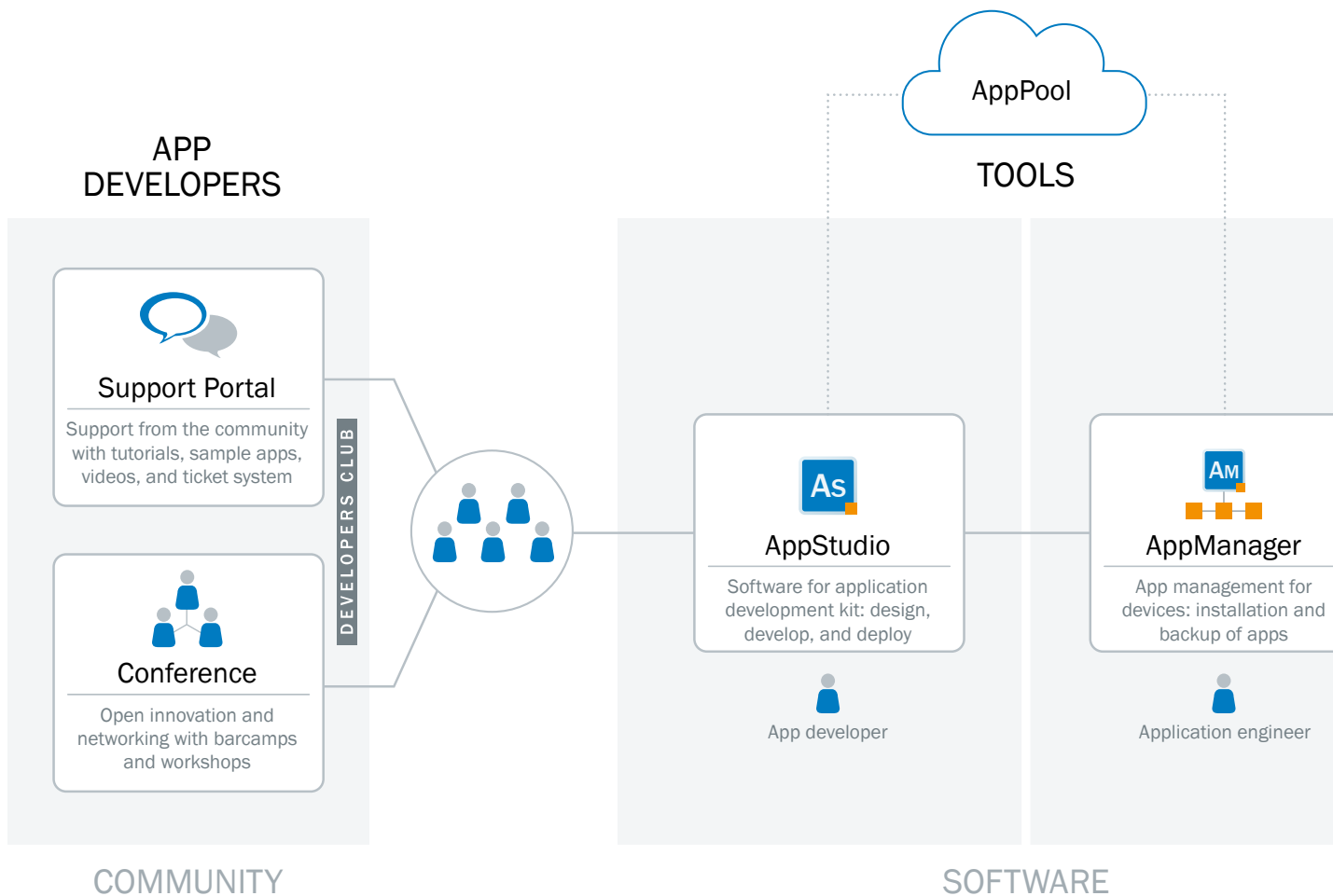Thanks to free 90-day trial license

SICK AppSpace is the connection between programmable sensors and customer-specific applications, driven by a dynamic community of developers.

Detlef Deuil
Head of Product Management
Vertical Integration Products

AT A GLANCE

APP DEVELOPERS

TOOLS

AppPool

Support Portal
Support from the community with tutorials, sample apps, videos, and ticket system

DEVELOPERS CLUB

Conference
Open innovation and networking with barcamps and workshops

AppStudio
Software for application development kit: design, develop, and deploy

App developer

AppManager
App management for devices: installation and backup of apps

Application engineer

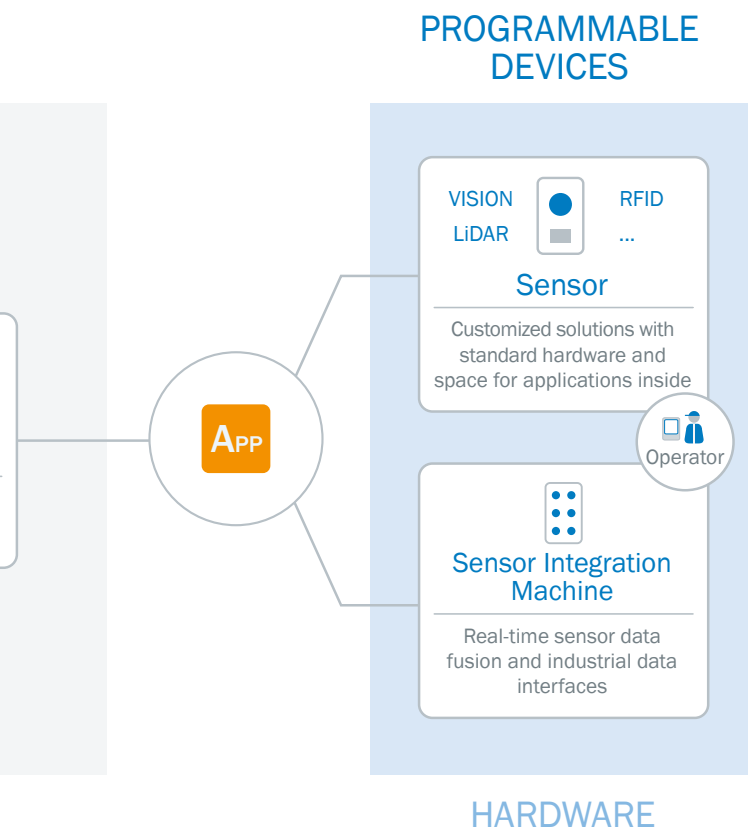COMMUNITY

SOFTWARE

A strong community of developers

The SICK AppSpace Developer's Club is a valuable community with many advantages. Once a SICK AppStudio license has been purchased, your one-year membership starts automatically and you can enjoy the benefits of club membership. It also authorizes members to participate in the annual SICK AppSpace Developer's Conference. In addition to talks and product demonstrations, you can also actively participate in the further development of the SICK AppSpace eco-system. An extensive information platform, the SICK Support Portal, is available to assist you with your daily work.

Uniform software tools for all programmable sensors

With SICK AppSpace, you as a system integrator or original equipment manufacturer (OEM) simply develop the configuration for your application yourself using standard programming languages. Thanks to SICK AppStudio, you can make use of a broad range of functions that come preinstalled in the sensor. You manage the sensor apps you have developed yourself with the SICK AppManager and transmit them to programmable SICK hardware.

PROGRAMMABLE
DEVICES

VISION   RFID
LiDAR   ...

Sensor

Customized solutions with
standard hardware and
space for applications inside

APP

Operator

Sensor Integration Machine

Real-time sensor data
fusion and industrial data
interfaces

HARDWARE

SICK APP SPACE

An app for the hardware

When programming is done, an app is available which can
be loaded easily and without great effort to the respective
programmable device with SICK AppManager. So far, program-
mable SICK devices are available in the Vision, LiDAR, and RFID
areas. This portfolio is constantly updated to include devices
for other sensor technologies. The Sensor Integration Machine
(SIM) brings together all the algorithms and functions of the
technologies mentioned above, while also enabling data fusion
and evaluation for corresponding SICK sensors. It opens new
avenues for tailor-made application development and works as
an interface to other Industry 4.0 and cloud services.

SOFTWARE TOOLS FOR TAILOR-MADE APPLICATION SOLUTIONS WITH GOOD PROSPECTS

The SICK AppSpace eco-system contains two software tools. SICK AppStudio is used for developing sensor apps for programmable SICK sensors and Sensor Integration Machines (SIMs). SICK AppManager supports application engineers in the field with easy management and installation of the sensor apps on programmable devices. SICK uses a standard programming language and therefore saves the programmer from having to learn additional languages. All programmable sensors from SICK are programmed on a standardized user interface, avoiding a time-consuming teach-in process for future projects. You automatically receive a permanent software license when joining the SICK AppSpace Developer's Club. A partial license is also available if you want to try it out first.

SICK AppStudio

By developers for developers

SICK AppStudio is a software tool for developing customer-specific applications for programmable SICK devices. Developers have a choice of numerous supported programming technologies. To create the applications in the sensor, a graphical flow editor is there to provide assistance in addition to Lua script. The individual design of the user interface can be created with JavaScript or with the help of a graphical UI builder (ViewBuilder). HALCON image processing procedures can also be integrated. Helpful integrated tools such as emulators, debuggers, resource monitors, and an extensive range of documentation and sample demo apps make the development process extremely easy. The PackageBuilder combines all the software components to make a single package and the access rights can be safely defined.

High flexibility during programming

LUA is used as the scripting language for calls and the logical wiring of API functions. If desired, native programmable functions can also be supplemented in C++ upon consultation with the SICK development team. You can design the web interface graphically with the UI images or using JavaScript or HTML5.

The performance of SICK AppStudio at a glance:

- AppExplorer for displaying and managing sensor app components
- Graphical flow editor for block programming (from I/O wiring via I/O logic editor to function blocks of AppTemplates)
- AppMonitor for visualizing system performance and usage
- ViewBuilder for graphic-assisted creation of a web user interface
- Convenient debugger with visualization in 2D and 3D images
- Recording and playback of data streams for optimization of sensor apps
- HALCON integration for image processing and image analysis

AppTemplate – configuring the sensor app in the field

In addition to the option of app development, apps can also be created easily with SICK AppStudio using templates and without programming knowledge. Oft-used standard functions or application-specific solutions are provided to the user in AppTemplates and can be composed using drag-and-drop. You can also create your own templates using SICK AppStudio, making it possible to configure your apps.

www.sick.com/SICK_AppStudio

SICK AppManager

Installation and management of sensor apps

Supporting the application engineer in the installation of sensor apps on programmable SICK devices in the field and in app management - that is the main job of the SICK AppManager software tool. This is achieved with its easy operability and clear presentation with only three windows for displaying connected programmable devices, currently loaded sensor apps and firmware versions as well as newly-available sensor apps and firmware packages.

SICK AppManager can be used to access both local sensor apps and apps from the SICK AppPool (cloud). The latter enables convenient worldwide use of uploaded sensor apps and their assignment to programmable SICK devices. All apps are stored in a protected area. You, the developer of the app, decide whether these can be used "publicly" or "privately" for a targeted group of users.

www.sick.com/SICK_AppManager

What are apps at SICK?

An app is an application software which represents a sensor or device function. It consists of Lua script with function calls and wiring of the SICK Algorithm API. For example, HALCON algorithms can be integrated as additional resources. The right parameters are prepared graphically using a UI builder or JavaScript and presented on a web user interface.

The following apps are available for support:
- SampleApps are short code examples for the app developer for gaining understanding of the API functionalities. They can be found in the SICK Support Portal
- SampleApps and DemoApps are short code examples or demonstration apps put together from code examples for the app developer for gaining understanding of the API functionalities and saving time and effort for programming. They are not suitable for direct use in real production environments. These apps can be found in the SICK Support Portal

- AppTemplates allow the user the create apps through easy configuration and without programming knowledge. Using Lua programming, AppTemplates can also be further developed if needed for more complex applications or as a basis for new programming.
- Sensor apps are executable programs for solving an application. The sensor apps are used in the production environment; the SICK devices are completely integrated in the application.

PROGRAMMABLE DEVICES - FLEXIBILITY AND SPACE FOR TAILOR-MADE APPLICATION SOLUTIONS

The programmable SICK devices such as sensors or Sensor Integration Machines (SIMs) give you the option of developing tailor-made cross-industry application solutions using SICK AppStudio. Programmable sensor apps are transmitted easily to the hardware from SICK AppStudio or via SICK AppManager. Since all programmable SICK devices from SICK AppSpace access a uniform programming environment and language, reusability on other SICK devices is guaranteed. This saves a considerable amount of effort for development, saving money. And the success story has just begun, as the portfolio of programmable devices technologies is continuously being expanded.
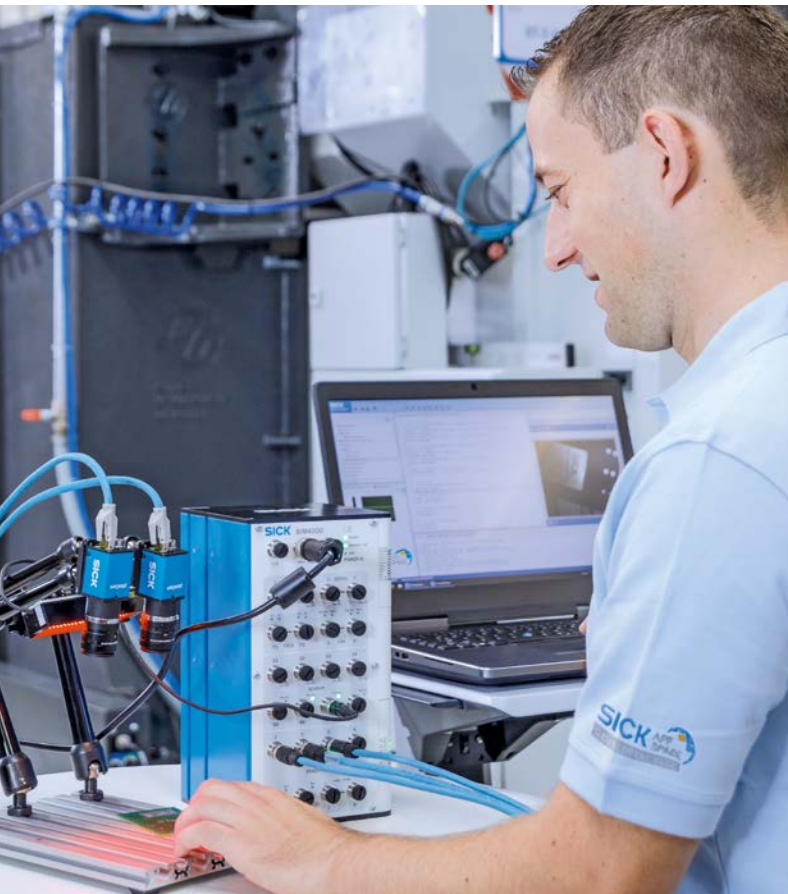
Programmable sensors from SICK

A decisive aspect of the SICK AppSpace concept: It is built on familiar products which have proven themselves in the market. The corresponding SICK devices are expanded with free programmability, thereby enabling tailor-made application solutions. An extensive integrated programming interface (API) and built-in libraries, such as SICK Algorithm API or powerful products from our partners, ensure enormous flexibility during development of these solutions and enable commissioning with a web user interface customized for the respective application. SICK is continuously expanding the range of programmable devices of various sensor technologies.

InspectorP63x   InspectorP65x   RFU65x   TiM871p

See page 18 for more details.

Sensor integration machine – using creativity. Solutions for applications.

The Sensor Integration Machine (SIM) opens new avenues for solving applications. Data from multi-sensor systems can be merged, evaluated, archived and transmitted. The one-box concept considerably reduces integration effort since no additional interface components with additional cabling and driver installation are necessary. Dual-talk enables both connection to the machine controller for time-critical sensor results as well as connection to cloud services based on pre-processed and fused sensor data for predictive maintenance, quality control or smart services.

Flexible. Intelligent. Communicative.

The SIM supports in the fusion and processing of multi-sensor systems in all areas of factory and logistics automation. No matter whether it is a retrofit or vertical integration in line with Industry 4.0, e.g., data collection, archiving or distribution to cloud services. Process applications are enabled such as quality control, process analyses or predictive maintenance based on sensor data. At the same time, measured values, read results or true-false decisions can be transmitted to the existing machine controller (PLC) via fieldbuses or I/Os.

Detection

Color

2D-Image Processing

Fast Motion Tracking

Height/Vol.

Sensor Data Fusion

**Image Stitching
Point Cloud Calculation
ID-Aggregation
Data Fusion**

Trigger Control

Ranging

Bar Code Track & Trace

Distance

RFID Track & Trace

DESIGNING THE FUTURE TOGETHER

You can actively participate in designing the future of SICK AppSpace. By joining the SICK AppSpace Developer's Club, you are automatically part of the SICK AppSpace community. As a member, you profit from countless benefits with no restrictions: The SICK AppStudio license, access to regular updates, the comprehensive SICK Support Portal and participation in the annual SICK AppSpace Developer's Conference and the chance to exchange valuable experiences and build a user network.

SICK Support Portal - competent support from the very beginning

It provides members of the SICK AppSpace Developers Club with automatic access to SICK AppStudio updates via SICK Support Portal and offers assistance if they have any questions. You can use the ticket system to access support from skilled partners. Remote access support is also available via these channels. In the SICK Support Portal, you will also find tutorials, release notes and answers to FAQs as well as sample apps, demo apps or AppTemplates for sensor app configuration. This makes it possible to quickly start devices in test runs. The SICK Support Portal offers absolute transparency in your daily work - both in tracking and status tracking of set requirements and in regard to our planned releases, you are always up to date.

SICK AppSpace Developer's Conference – mutual exchange

The Developer's Conference, which takes place once a year, is the optimal platform to bring together all SICK AppSpace Developer's Club members. Open dialog between the members of the club and SICK developers is the focal point here. What's more, members are able to actively shape the strategic further development of the SICK AppSpace eco-system. At open workshops (BarCamps), participants share their experiences and discuss future improvements across all areas, ranging from software, hardware, documentation, and support, right up to networking within the community. Application examples on-site show possible implementations and present the SICK AppSpace products. The results of the Developer's Conference are transparent and open for all members - including the planning on SICK's side regarding how the topics discussed will flow into further development.

> " *I really like the concept of the conference and its modern approach to working together. It gives us system integrators the opportunity to be part of the development process. Every delegate gets valuable practical feedback from development experiences. What's more, the event is very well organized and the atmosphere is fantastic.*

Alex Heurkens from Pliant bv from the Netherlands

ACHIEVING A GREAT DEAL TOGETHER

SICK AppSpace builds upon long-term partnerships in the integration of software in SICK AppStudio. This process is living, dynamic and not complete by a long shot.

MVTec and HALCON – seeing better together

The partnership with MVTec Software GmbH, which has been going strong since 2010, has been continuously expanded with the implementation of the extensive standard software HALCON for image processing for SICK AppSpace. The flexible software architecture allows for quick application development for industrial image processing and image analysis. The extensive image processing library is the perfect supplement to SICK's own algorithms and ensures very easy integration into SICK products.

The collaboration between SICK and MVTec represents a union of two strong brands. The perfect coordination between the two companies extends beyond just their products: SICK has an international reach as a leading manufacturer in the sensor sector, and has extensive expertise in the field of hardware. MVTec – an international technology leader for independent image processing software – is its ideal partner. This cooperation benefits customers in a range of industries, making it easier for them to access high-performance vision solutions.

HALCON
the power of machine vision

"We are delighted that SICK has decided to use the high-performance functionality of HALCON for a wider product portfolio. The reliable HALCON algorithms, which are used all over the world, will enable SICK to expand into new markets and industries. This will allow both companies to grow together and to pass on the beneficial effects of this synergy onto their customers.

Johannes Hiltner
HALCON Product Manager at MVTec

"

We are delighted that SICK was won over by our embedded concept and that the powerful functions of VisualApplets are being used in a wide range of sensor and integration technologies, making it possible to further develop SICK AppSpace.

Dr. Klaus-Henning Noffz
Chief Executive Officer at Silicon Software

Silicon Software – achieve more with embedding

Some programmable devices contain multi-core processors with FPGA-based hardware support (co-processors). FPGA programming has been enhanced with even more intelligence due to the implementation of VisualApplets from Silicon Software. Tailor-made algorithms can be created via drag-and-drop with graphic data flow charts and are transmitted to additional devices in just a few steps.

This collaboration is allowing SICK to offer its customers the right sensor solution with an even more focused approach. With the VisualApplets approach to FPGA programming using data flow charts on a graphic user interface and the wide range of functions with over 200 operators, the door to new markets and applications is open. This makes it very easy to use real-time data processing in programmable SICK devices and implement powerful application solutions. SICK application developers can benefit from the easy use and integration of VisualApplets in SICK products.

BY DEVELOPERS FOR DEVELOPERS

Product description

SICK AppStudio is a software tool for developing customer-specific applications on programmable SICK devices. Supported programming technologies include a graphical Flow Editor, Lua script and optional C++ or Java for creating sensor apps. HALCON image processing procedures can also be integrated. Helpful integrated tools such as emulators, debuggers, resource monitors, and an extensive range of documentation and demo apps make the development process easy. The graphical user interface for machine operators can be created individually as a web GUI using the ViewBuilder. The PackageBuilder combines all the software components to make a single package and the access rights are safely defined.

At a glance

- Overview illustration of input windows and status information
- AppExplorer for displaying and managing sensor app components
- Graphical Flow Editor for block programming
- AppMonitor for visualizing system performance and usage
- ViewBuilder for easily creating a web GUI
- Convenient debugger with visualization in the form of 2D and 3D images
- Recording and playback of data streams for optimization of sensor apps

Your benefits

- The editor with convenient auto-completion function makes program creation easier and quicker
- Emulator functions make programming of sensor apps possible even when no programmable SICK device is connected to the PC
- Time savings when searching for programming errors thanks to the debugger
- CPU and memory usage display provides information about the performance of the connected programmable devices in the functioning state
- Quick integration and creation of sensor apps thanks to many example programs
- Multiple instances allow for the simultaneous connection to several programmable devices
- A validation option ensures the correct assignment of sensor apps to the appropriate programmable device in the field

➜ **www.sick.com/SICK_AppSpace**

For more information, simply enter the link or scan the QR code and get direct access to technical data, downloads, videos and much more.

Detailed technical data

Product features

Supported programming languages	Flow-based programming Lua Java Native [1]
Language	English
Documentation	www.sick.com/SupportPortal
Supported product families	InspectorP63x, InspectorP64x, InspectorP65x, RFU62x, RFU63x, RFU65x, SIM4000

[1] On request.

Ordering information

Description	Type	Part no.
Application development kit, permanent software license including 1 year of membership to SICK AppSpace Developers Club	SICK AppStudio	1610199

INSTALLATION AND MANAGEMENT OF SENSOR APPS

Product description

The SICK AppManager software tool supports service technicians in the field with the installation of sensor apps on programmable SICK devices and the management of apps in the framework of the SICK AppSpace eco-system. SICK AppManager can be used to access local sensor apps and apps from the SICK AppCloud. The tool can also be used to run firmware updates.

At a glance

- Clear display in three windows: Connected programmable devices, currently loaded sensor apps and firmware versions and newly available sensor apps and firmware packages
- Optional connection to the SICK AppCloud for up- and downloading sensor apps

- Simultaneous installation of several programmable devices possible
- Back-up function for securing installed sensor apps
- SD card cloning for easy and safe transfer of sensor apps to identical programmable devices from SICK

Your benefits

- A clear display and easy operation facilitate the installation of sensor apps on programmable SICK devices in the field as well as app management
- Connection to the SICK AppCloud enables worldwide availability of sensor apps and their assignment to respective programmable devices

- Software package validation guarantees the correct assignment of sensor apps to the appropriate programmable device in the field
- Firmware updates of SICK devices can be run without additional software

➜ **www.sick.com/SICK_AppManager**

For more information, simply enter the link or scan the QR code and get direct access to technical data, downloads, videos and much more.

Detailed technical data

Product features

Language	English
Documentation	www.sick.com/SupportPortal
Supported product families	InspectorP63x, InspectorP64x, InspectorP65x, RFU62x, RFU63x, RFU65x, SIM4000

Ordering information

Description	Type
Software tool for the installation and management of sensor app software packages on SICK AppSpace sensors and Sensor Integration Machines. No license required.	SICK AppManager

InspectorP63x

Programmable. Compact. Versatile.

Technical data overview	
Application Development Kit	SICK AppStudio
Application Management	SICK AppManager
Operator interfaces	Webserver / SOPASair
Serial	✔
CAN	✔
Ethernet	✔
Task	Positioning, inspection, Measuring, reading
Sensor	CMOS matrix sensor, grayscale values
Sensor resolution	1,280 px x 1,024 px (1.3 Mpixel) 1,600 px x 1,200 px (1.9 Mpixel)
Light source	White / Blue / Red
Focus	Adjustable focus
Lens	C-mount or S-mount, replaceable, integrated for pre-assembled devices
Optical format	1/1.8"
Weight	430 g (only housing without lens and protective hood)
Dimensions	108 mm x 63 mm x 46 mm (only housing without lens and protective hood)

At a glance

- 1.3 and 1.9 MP programmable 2D cameras
- Flexible S- and C-mount lenses and integrated illumination
- *4Dpro* interfaces
- Aiming laser, beeper and feedback spot
- Powered by HALCON library
- Scripted in SICK AppStudio
- Web operator interface

Detailed information ➜ www.sick.com/InspectorP63x

InspectorP64x	InspectorP65x
Programmable. Cost-efficient. High-speed.	Programmable. Top performer. Long-range.

InspectorP64x	InspectorP65x
SICK AppStudio	SICK AppStudio
SICK AppManager	SICK AppManager
Webserver / SOPASair	Webserver / SOPASair
✔	✔
✔	✔
✔	✔
Positioning, inspection, Measuring, reading	Positioning, inspection, Measuring, reading
CMOS matrix sensor, grayscale values	CMOS matrix sensor, grayscale values
1,600 px x 1,088 px (1.7 Mpixel)	2,048 px x 1,088 px (2.1 Mpixel) 2,048 px x 2,048 px (4.2 Mpixel)
White / Blue / Red	White / Blue / Red
Adjustable focus	Adjustable focus / dynamic focus control
C-mount, replaceable	C-mount, replaceable, dynamic focus with integrated optics and illumination
2/3"	1"
635 g (only housing without lens and protective hood)	635 g (only housing without lens and protective hood)
142 mm x 90 mm x 46 mm (only housing without lens and protective hood)	142 mm x 90 mm x 46 mm (only housing without lens and protective hood)

InspectorP64x	InspectorP65x
• 1.7 MP programmable 2D cameras • Flexible C-mount lens and integrated illumination • *4Dpro* interfaces • Aiming laser, beeper and feedback spot • Powered by HALCON library • Scripted in SICK AppStudio • Web operator interface	• 2.1 and 4.2 MP programmable 2D cameras • Flexible C-mount lens and integrated illumination • *4Dpro* interfaces • Aiming laser, beeper and feedback spot • Powered by HALCON library • Scripted in SICK AppStudio • Web operator interface
➜ www.sick.com/InspectorP64x	➜ www.sick.com/InspectorP65x

RFU62x

Short-range ultra high frequency scanner

Technical data overview	
Application Development Kit	SICK AppStudio
Application Management	SICK AppManager
Product category	Write/read device with integrated antenna
Note	SICK AppSpace functionalities can be enabled with the SD card accessory SDK6U-P00100 (for firmware ≥ 2.0.0)
EtherCAT®	–
Serial	✔
CAN	✔
Ethernet	✔
PROFIBUS DP	✔ , optional over external fieldbus module, CDF600-2
PROFINET	✔
EtherNet/IP™	✔
USB	✔
Frequency band	UHF (860 MHz … 960 MHz)
Version	Mid Range
Scanning range	Max. 1 m
Weight	780 g
Dimensions	137 mm x 131 mm x 56 mm

At a glance

- Compact UHF RFID read/write device with integrated antenna for sensing ranges of up to 1 m
- Standard-compatible transponder interface (ISO/IEC 18000-6C / EPC C1G2)
- Supports industry-standard data interfaces and fieldbuses, as well as PoE
- MicroSD memory card for parameter cloning
- Extensive diagnostic and service functions

Detailed information	➜ www.sick.com/RFU62x

	RFU63x	RFU65x
	Simple integration – intelligence included	The measuring RFID device with integrated passage and direction detection
	SICK AppStudio	SICK AppStudio
	SICK AppManager	SICK AppManager
	Write/read device without integrated antenna / write/read device with integrated antenna	Write/read device with integrated antenna
	SICK AppSpace functionalities can be enabled with the SD card accessory SDK6U-P00100 (for firmware ≥ 2.0.0)	SICK AppSpace functionalities can be enabled with the SD card accessory SDK6U-P00100 (for firmware ≥ 2.0.0)
	✔ , optional over external fieldbus module, CDF600	✔ , optional over external fieldbus module, CDF600
	✔	✔
	✔	✔
	✔	✔
	✔ , optional over external fieldbus module, CDF600-2	✔ , optional over external fieldbus module, CDF600-2
	✔	✔
	✔	✔
	✔	✔
	UHF (860 MHz ... 960 MHz)	UHF (860 MHz ... 960 MHz)
	Long Range	Long Range
	Typ. 5 m	Typ. 5 m
	Typ. 3 m	
	Typ. 2 m	
	2.1 kg / 2.5 kg	5.2 kg
	239 mm x 197 mm x 40 mm / 239 mm x 239 mm x 64 mm	400 mm x 252 mm x 70 mm

- UHF RFID read/write unit for industrial applications
- With or without integrated antenna, depending on the type (up to four external antennas can be connected)
- Standard-compliant transponder interface (ISO/ IEC 18000-6C/EPC G2C1)
- Supports common industrial data interfaces and fieldbuses
- MicroSD memory card for device parameter cloning
- Several diagnostic and service options available

- Compact UHF RFID read/write device in accordance with ISO/IEC 18000-63
- Positioning and angle detection by RFID transponders
- Integrated algorithms deduce the direction of entry and movement based on numerous measured values
- Supports data and fieldbus interfaces that are typically used in the industry

➜ www.sick.com/RFU63x

➜ www.sick.com/RFU65x

SIM4000

Flexible. Intelligent. Communicative.

Technical data overview	
Application Development Kit	SICK AppStudio
Application Management	SICK AppManager
Operator interfaces	Webserver / SOPASair
Ethernet	✔
PROFINET	✔
EtherNet/IP™	✔
EtherCAT®	✔
IO-Link	✔
Serial	✔
CAN	✔
USB	✔
Inputs/outputs	
I/O	4 opto-decoupled inputs, 7 inputs/outputs (configurable)
S1-S4	In each case 1 input, in each case 1 input/output (configurable)
S5-S8	In each case 1 input, in each case 2 inputs/outputs (configurable)
Supported products	2D and 3D vision sensors GigE vision cameras Incremental and absolute encoders Image-based code readers Bar code scanners RFID read/write devices 2D and 3D LiDAR sensors Displacement measurement sensors Photoelectronic sensors
Weight	5.12 kg
Dimensions	147 mm x 164.5 mm x 272 mm

At a glance

- Wide range of connections with 25 interfaces for Ethernet-based fieldbuses, cameras, illumination, sensors, encoders, and more besides
- 8-gigabit Ethernet interfaces for rapid image transmission
- Fieldbus and Ethernet interfaces with communication protocols such as OPC-UA and MQTT provide preprocessed data (edge computing) for the control and for cloud computing in parallel "dual talk", thereby allowing networking for digital factories.
- Precise synchronization of input and output signals
- Illumination control and supply
- IO-Link master connections
- Enclosure rating IP 65

Detailed information	➜ www.sick.com/SIM4000

INSPECTION OF CONTROL ELEMENTS WITH INSPECTORP65x

Task

To ensure that innovative touch operating elements, of dishwashers, for example, function reliably for their entire service life, service-life tests must be carried out for the pilot series of the operating elements. By means of a robotic system with a programmable InspectorP65x camera, it must be ensured that the test finger on the robot arm can be directed in a repeatable and precise manner.
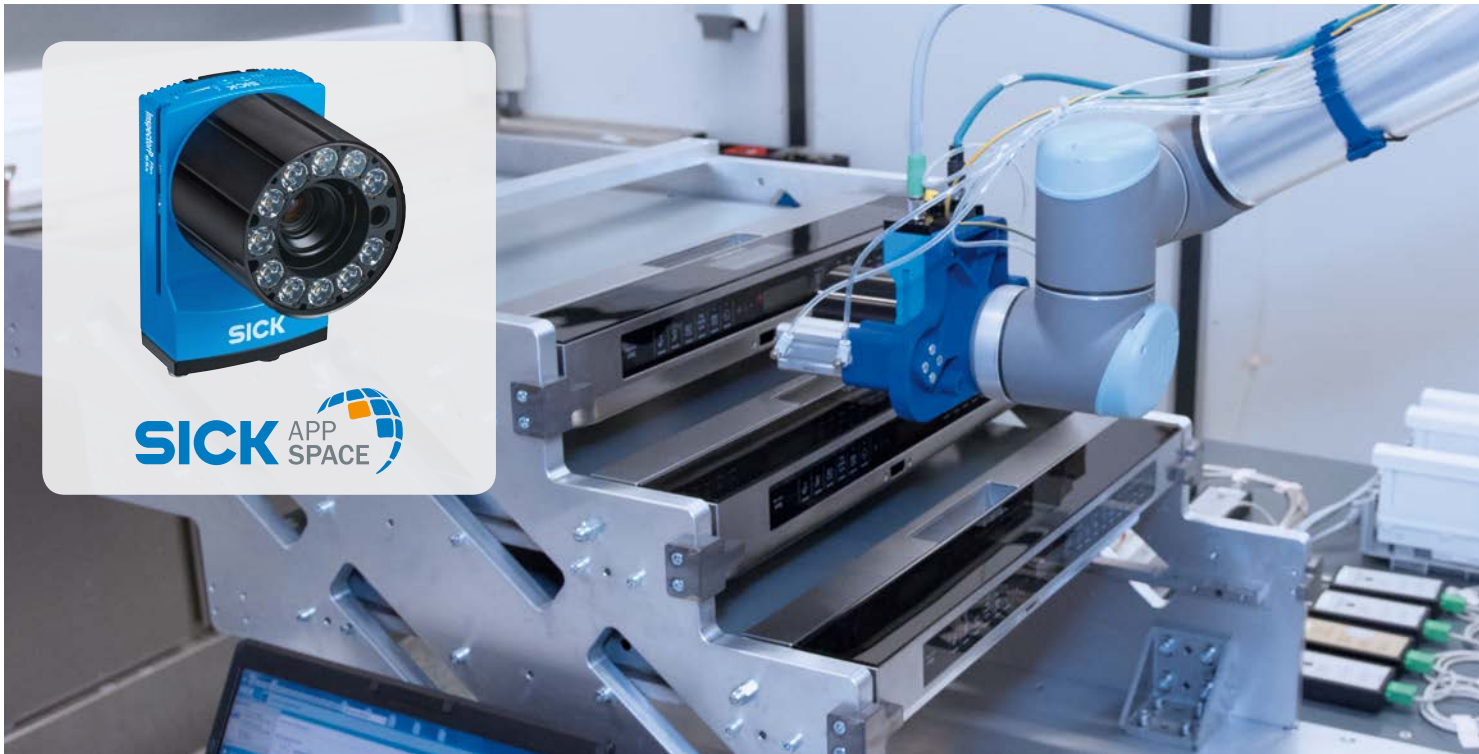
Solution

A symbol on the touch operating element is selected as a reference image which is used as the starting point for the robot program. The sensor app in the InspectorP65x is programmed in such a way that the camera mounted on the robot arm detects the operating element using the reference image, and uses it to determine the position of the pushbuttons. The values are sent to the robot, which then moves into the actuation position in a repeatable manner and tests the individual pushbuttons with the test finger.

The signals of the pushbutton actuation are measured in order to find out whether the parameters change during the course of service life.

Your benefits

The control of the robot by the InspectorP65x camera in the automated testing process results in high efficiency, an increase in repeatability, and thus in reliable values in the test results. By using the robot through the night, the throughput of the operating elements increases, saving time and relieving employee's workloads. There is also no need to carry out the precise alignment the operating elements manually, since the camera automatically aligns with the reference image. This quality level cannot be achieved when judging by eye or using a mechanical system. Communication between InspectorP65x and the robot controller takes place via Ethernet. With the high image resolution, the compact housing, exchangeable optics, and a choice of illumination, the InspectorP65x offers an optimal combination of performance and flexibility. With the HALCON image processing library, installed as standard, even the most challenging application demands can be met. An integrated web server makes it possible to visualize a graphical user interface on any browser-compatible display device.

PCB INSPECTION WITH SIM4000 AND picoCam304x

Task

In the PCB industry, there is a wide range of inspection and identification tasks due to the huge variety of electronic components, plug connectors, and other components. To ensure the required product quality as well as consistent traceability along the individual production steps, industrial image processing is often used here.

Solution

The SIM4000 Sensor Integration Machine is used with two picoCam304x 2D streaming cameras. With a resolution of 4 megapixels, the cameras are suitable for both inspection tasks, e.g. for quality control activities such as component testing, and for identification tasks such as Data Matrix code reading on the printed circuit board. The SIM4000 carries out both applications with the help of HALCON procedures and transfers the results to the higher-level PLC via fieldbus. SICK AppStudio is used to program the application.

Your benefits

The solution is easily scalable. You can expand it with additional lanes by adding more cameras to the SIM4000 and extending the sensor app or adding another app. What's more, the SIM4000 controls and supplies the illumination directly without additional components. As a result, all of the components required for the solution come from a single source. Both the hardware and programming are independent of standard PCs and their interfaces, e.g., Windows, and therefore last considerably longer than these. No equipment cabinet is required as the SIM4000 can be mounted directly on the application. The compact industrial streaming cameras enable installation even in situations with restricted space. The integrated HALCON image processing library also guarantees high accuracy levels and provides solutions for even the most demanding applications.

RFID-BASED ACCESS CONTROL WITH RFU6xx

Task

To control access to a defined area, all access rights and profiles for authorized persons and vehicles must be managed via software. Device-specific software is also required to manage access control and meet additional safety requirements.

Solution

The application software was programmed within SICK AppStudio and, when combined with RFU6xx RFID devices, provides a convenient and reliable solution enabling fast access for over 350 vehicles per hour. As the vehicle approaches the barrier the RFU6xx devices read the content from the transponder mounted on the windshield. If accepted, access is then granted.

Your benefits

The implemented solution stands out thanks to the straightforward management of access profiles and rights within the software. SICK AppSpace turns a standard device into a product that meets the demanding requirements for a modern access system with increased safety requirements. Access rights are saved locally on the RFID device without the need for additional hardware. Identification is quick and reliable, thereby reducing unwanted waiting times in peak hours.

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, we are always close to our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations ➜ **www.sick.com**

SICK
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