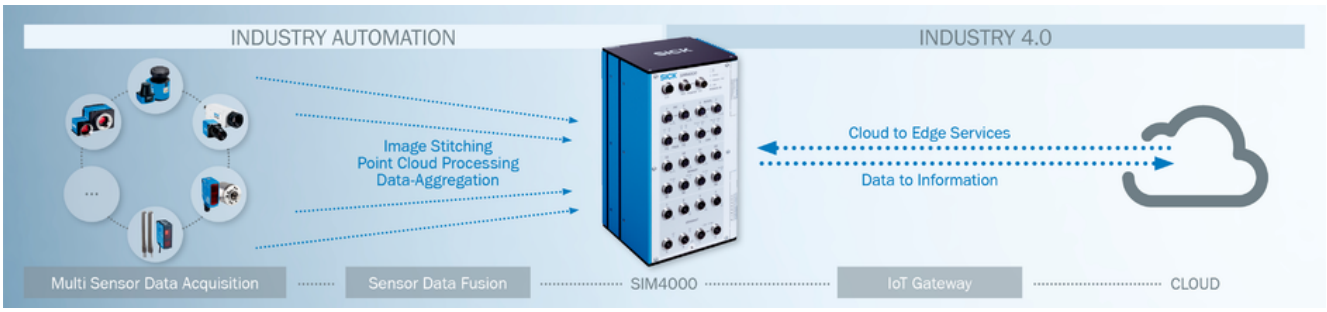
Product family overview

SIM4x00

Flexible. Intelligent. Communicative.

SICK
Sensor Intelligence.

Advantages



High-performance data processing in industrial automation and IoT gateway to the cloud

Merging very different sensors and cameras is necessary in industrial automation. Good thing there is already a solution for this. The SIM4x00 Sensor Integration Machine optimally unites the capabilities of a high-performance processor with highly flexible multi-sensor and multi-camera data acquisition. A “one-box” solution, it can be put into operation quickly, and the SIM4x00 processes the recorded sensor data individually and/or fuses it into a point cloud, then evaluates, visualizes, archives and, if desired, forwards it to the cloud as IoT gateway pre-processed data. Once there, it is clearly displayed in the context of Industry 4.0 data and evaluated into valuable information which could contribute to the improvement of quality control, process optimization and predictive maintenance. The extensive SICK Algorithm API as well as the large HALCON image processing library are available for sensor data and image processing in the SIM4x00.

Technical data overview

Supported products	2D and 3D vision sensors Incremental and absolute encoders GigE Vision cameras Image-based code readers Fixed mount barcode scanners RFID read/write device 2D and 3D LiDAR sensors Displacement measurement sensors Photoelectric sensors
Development environment	SICK AppStudio
Ethernet	✓
PROFINET	✓
EtherNet/IP™	✓
EtherCAT ®	✓
IO-Link	✓
Serial	✓
CAN	✓ (2)
USB	✓
Digital 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)
Enclosure rating	IP65

Product description

The programmable SIM4x00 Sensor Integration Machine – part of the SICK AppSpace eco-system – is opening up new possibilities for application solutions. Data from SICK sensors and cameras can be merged into a point cloud, evaluated, archived, and transmitted, e.g. to cloud platforms. 8-gigabit Ethernet interfaces are available for 2D or 3D cameras, and in some cases feature a voltage supply over Ethernet (PoE). Sensors can be integrated via IO-Link for distance and height measuring purposes. Thanks to the high-performance multi-core processor featuring hardware support, the SIM4x00 enables image preprocessing and handling of input and output signals in real time. The integrated HALCON library also makes it possible to find solutions for sophisticated image processing tasks.

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

Your benefits

- Tailored application development with SICK AppSpace
- High-performance, innovative application solutions through merging of sensor and camera data
- The integrated HALCON library and the SICK API algorithm opens up a whole host of image processing possibilities for every industrial field of application
- Recording, evaluation, and archiving of data from multiple cameras and sensors, enabling quality control, process analysis, and predictive maintenance for vertical integration in Industry 4.0
- Real-time-capable hardware reduces integration work in, for example, time-critical robotics applications
- Quick and easy commissioning thanks to prefabricated cables with M12 connections

Fields of application

- Multi-sensor or camera-based inspection, measurement, and identification of objects and devices in all areas of factory and logistics automation
- Data recording and archiving enable quality control, process analysis, and predictive maintenance for vertical integration in Industry 4.0

Ordering information

Other models and accessories ➜ www.sick.com/SIM4x00

Sub product family	Enclosure rating	Connections	Further functions	Supported products	Type	Part no.
SIM4000	IP65	I/O, Power main and CAN, Incremental, serial, Fieldbus, CAN, S1-S4, IO-Link Master, S5-S8, GigE Ethernet with POE, Ethernet 10GigE	HALCON13 (image processing library), JPEG compression, rectification, image stitching	2D and 3D vision sensors, incremental and absolute encoders, GigE Vision cameras, Image-based code readers, Fixed mount barcode scanners, RFID read/write device, 2D and 3D LiDAR sensors, displacement measurement sensors, Photoelectric sensors	SIM4000-0P03G10	1078787

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. 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 a wide range of 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 complete 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:

Contacts and other locations –www.sick.com

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