ICR88x System, ICR89x System
FASTER. MORE RELIABLE. MORE BRILLIANT.
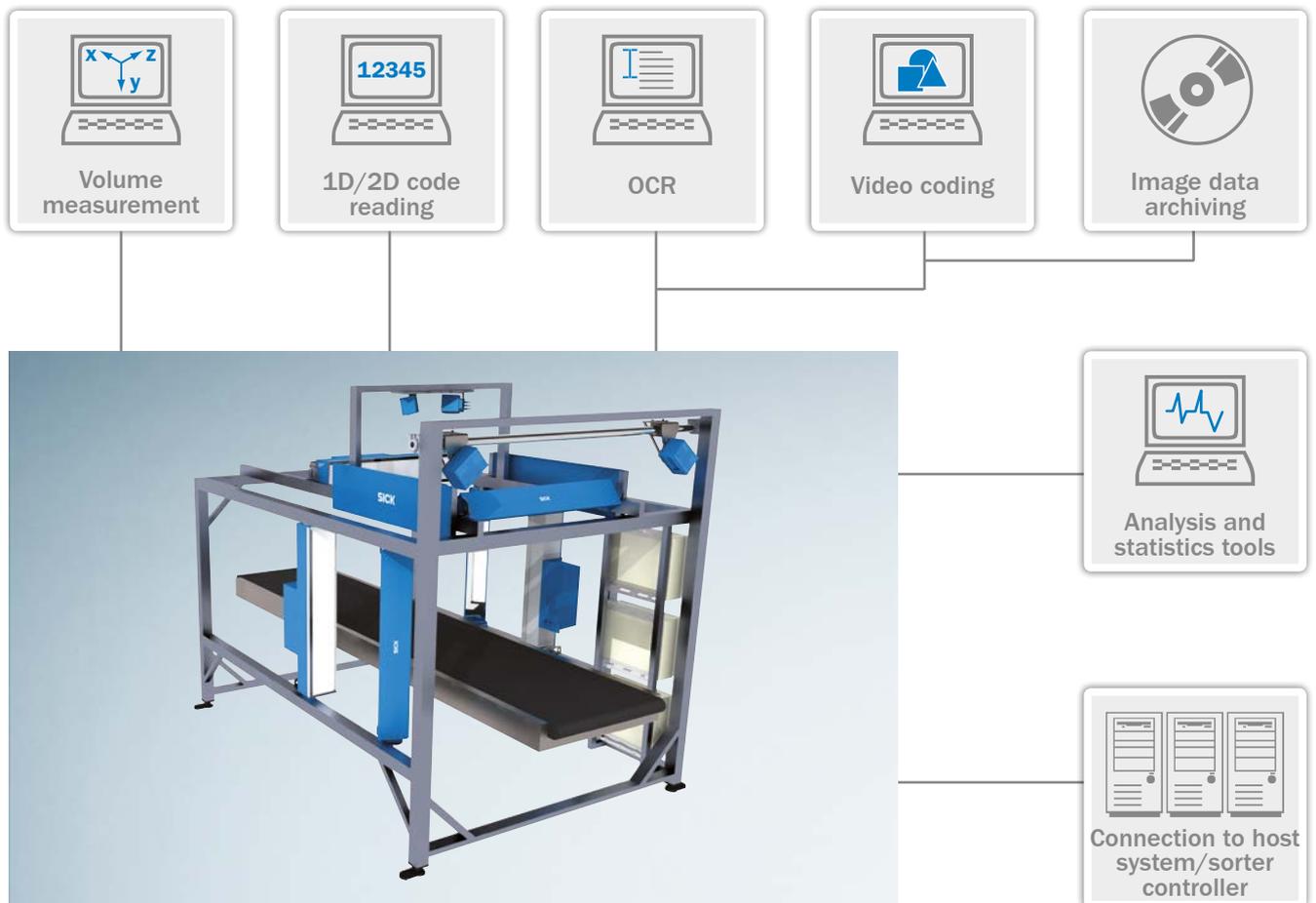
Track and trace systems

SICK
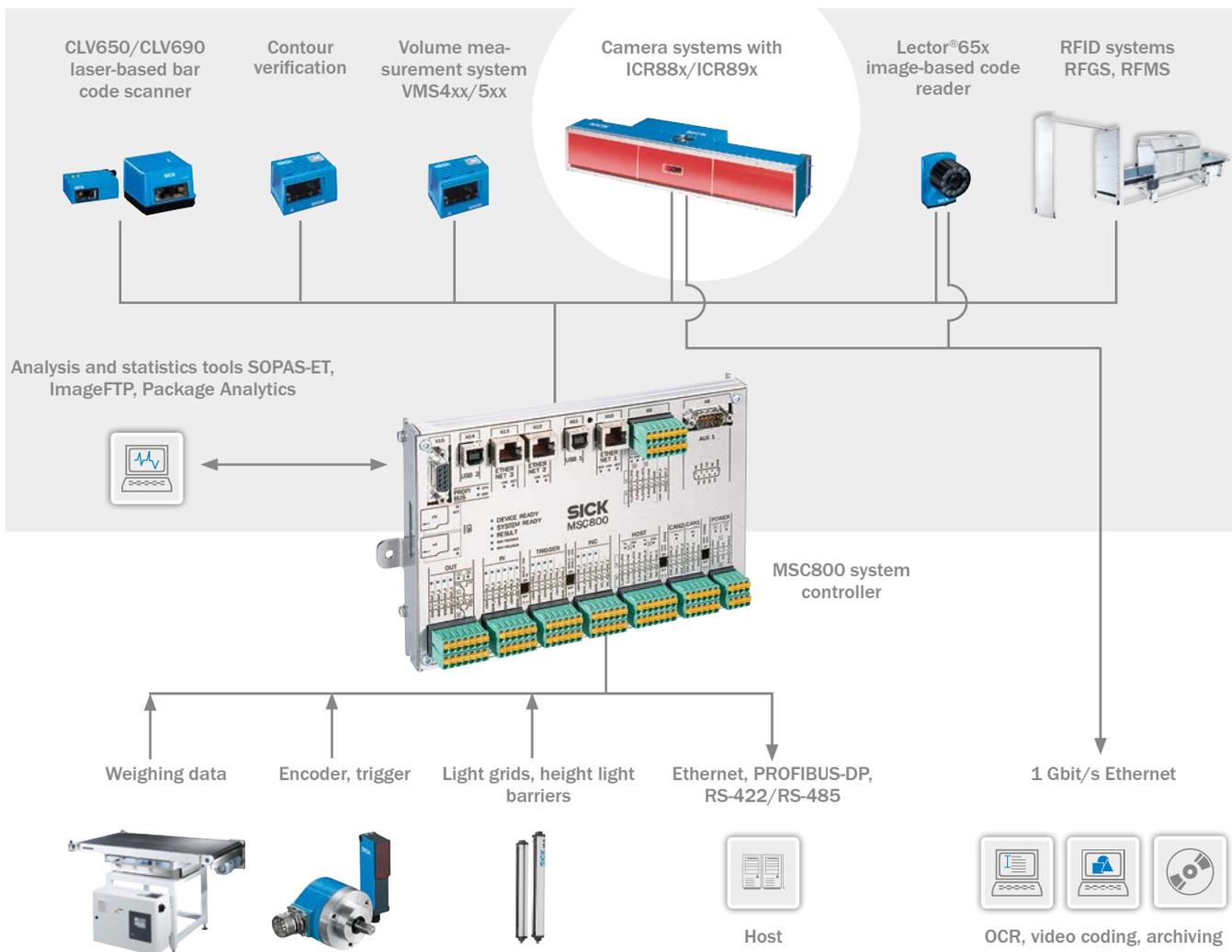Sensor Intelligence.

SYSTEMATIC ALL-IN-ONE SOLUTIONS

From simple bar code reading to complex identification solutions with data archiving: SICK is your professional partner for automating logistics processes.

- Development and production of most sensors in-house
- Ultra high-performance and reliability of products
- Unique system flexibility thanks to complete product portfolio
- End-to-end, professional project management
- More than 25 years of experience in system engineering
- Services available worldwide: from consulting and design to system support

- Close partnerships with other providers of key technologies (OCR, weighing)
- Everything from a single source – one contact for your entire identification solution

Volume measurement

1D/2D code reading

OCR

Video coding

Image data archiving

Analysis and statistics tools

Connection to host system/sorter controller

Using the MSC800 embedded controller, each component is networked for optimal and reliable communication to create a comprehensive identification solution.

- Connection of all external sensors (photoelectric sensors, encoders, digital I/Os)
- From simple one-side reading to a complex six-side camera tunnel
- Additional volume measurement for cubical and non-cubical objects with calibration (optional)

- Integration of other laser-based and image-based code readers
- Integration of weighing data to create a complete DWS system (DWS = Dimensioning Weighing Scanning System)
- Connection to host systems via multiple interfaces
- Pre-configured identification solutions

CLV650/CLV690 laser-based bar code scanner

Contour verification

Volume measurement system VMS4xx/5xx

Camera systems with ICR88x/ICR89x

Lector®65x image-based code reader

RFID systems RFGS, RFMS

Analysis and statistics tools SOPAS-ET, ImageFTP, Package Analytics

MSC800 system controller

Weighing data

Encoder, trigger

Light grids, height light barriers

Ethernet, PROFIBUS-DP, RS-422/RS-485

1 Gbit/s Ethernet

Host

OCR, video coding, archiving

BASIC CONFIGURATION AND SAMPLE APPLICATIONS

Top reading

- Single-side reading on all common conveyor systems
- Camera system focuses in conjunction with the VMS4xx/5xx volume measurement system or MLG light grid
- Maximum read rate even for small codes and at high conveying speeds

- CEP (courier, express, parcel and postal services)
- Retail (distribution, mail order, inbound/outbound)
- Automotive (tire reading)
- Food and beverage (inbound/outbound, integrated with weigh scale for complete DWS system)
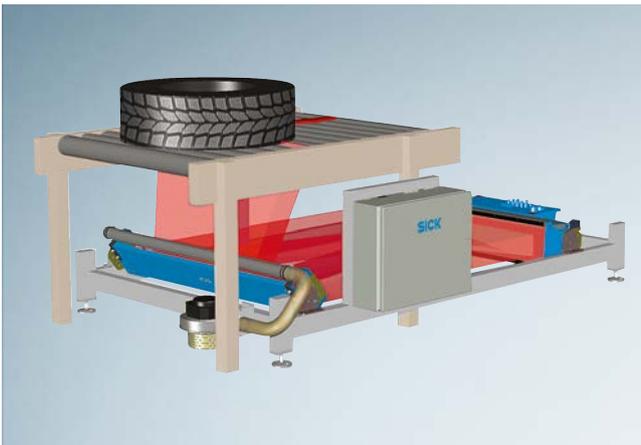
Bottom reading

- Omnidirectional code reading on belt sorters and roller conveyors
- Maximum read rate even for small codes and at high conveying speeds

- CEP (courier, express, parcel and postal services)
- Retail (distribution)
- Automotive (tire reading)

5-side reading with 3 cameras

- Omnidirectional code reading on all conventional conveyor systems
- Five-side coverage with three cameras thanks to 45° angle side reading
- Objects must be aligned ± 15° on conveyor
- Camera system focuses in conjunction with the VMS4xx/5xx volume measurement system

- CEP (courier, express, parcel and postal services)
- Retail (distribution, inbound/outbound)
- Revenue recovery

5-side reading with 5 cameras

- Omnidirectional code reading independent of the rotational position of the objects
- Maximum read rate (even when space between objects is minimal) through redundant coverage of package sides
- Camera system focuses in conjunction with the VMS4xx/5xx volume measurement system

- CEP (courier, express, parcel and postal services)
- Food and beverage (inbound/outbound, integrated with weigh scale for complete DWS system)
- Retail (distribution, inbound/outbound)
- Revenue recovery

DWS system

- Combined identification system for bar code reading, image capturing, volume and weight measurement
- All data is captured centrally
- Certified systems including alibi memory and MID display

- CEP (courier, express, parcel and postal services)
- Food and beverage (inbound/outbound, integrated with weigh scale for complete DWS system)
- Retail (distribution, inbound/outbound)
- Revenue recovery
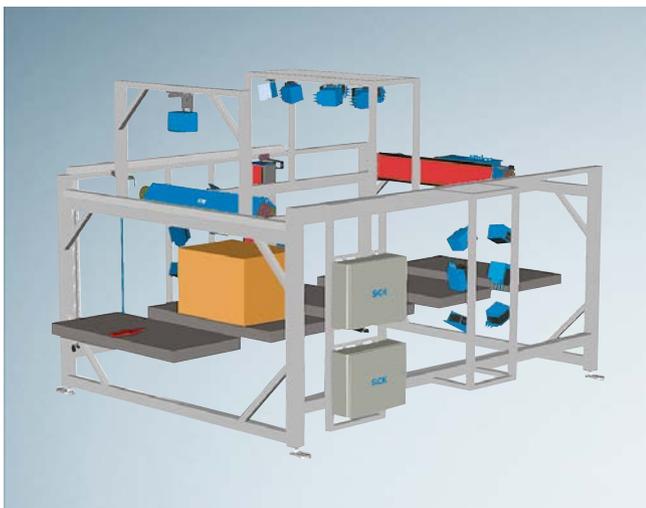
Laser/camera hybrid system

- Omnidirectional code reading of up to six sides
- Redundant coverage of different sides for improved read rate of subsurface codes (→ counter skew)
- Top camera system can be expanded inexpensively for multi-side reading
- Package imaging for tracking purposes, etc. (optional)

- CEP (courier, express, parcel and postal services)
- Retail (distribution, inbound/outbound)
- Automotive (tire reading)
- Food and beverage (inbound/outbound, integrated with weigh scale for complete DWS system)
- Airport (baggage tracking)

CAPTURING IMAGES WITH REAL TIME PROCESSING
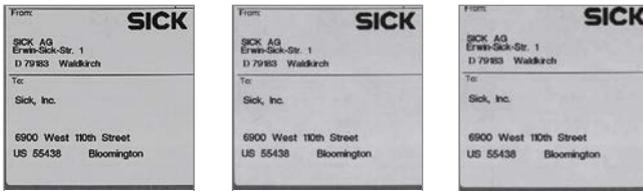
Comparison of image quality with different settings (from left to right): original bitmap image, JPEG at 50% quality, JPEG at 25% quality

Customer-specific video coding solutions for address data entry

Detailed analysis of individual images using XML overlay information:
Blue boxes = regions of interest,
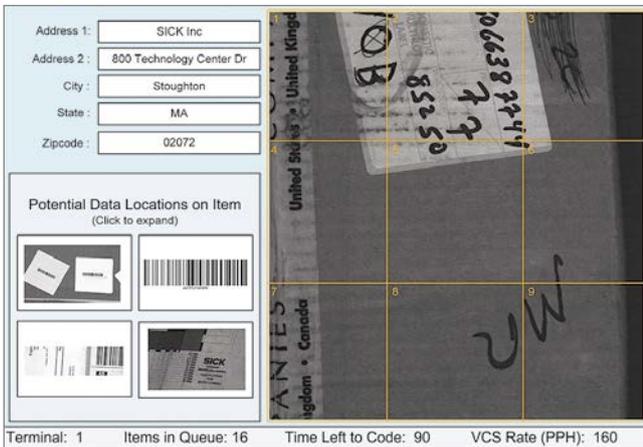Green boxes = decoding successful ("good read")

JPEG compressor

The JPEG compressor can change the quality of the image to suit the application. Settings range from very high quality for OCR scanning to very high compression for image archiving. This resource-intensive processing of raw data takes place directly on the integrated hardware of the ICR88x/ICR89x camera system. This means that decoding performance is not compromised.

OCR and video coding

If the system cannot read a code, or if there is no routing information stored in the database for a particular ID code, video coding or OCR (optical character recognition) can be used to read the address information from the image generated by the ICR88x/ICR89x camera systems. Thanks to the ROI (region of interest) data generated in the camera system, the image can be processed in a minimum amount of time. The package can remain on the sorter during this time, which greatly reduces the number of packages that must be processed subsequently by hand.

Archiving image data

Archived image data allows all shipments captured by the camera to be tracked in full. All images and additional package data, such as volume and bar codes, are displayed on a customized interface. "No reads" can also be analyzed offline. This makes the system highly transparent, since systematic errors (defective printers, etc.) can be identified and corrected based on the images.

Multiple Image Output Channels

ICR88x and ICR89x cameras support multiple image output channels. The user can send different resolution images and file formats to multiple external sources simultaneously.

SOFTWARE SOLUTIONS
FROM SICK

Configure your SICK components using the core SOPAS-ET engineering tool to diagnose an error quickly and easily, access online help, and perform preventive diagnostics for maintenance purposes. Image data is saved, visualized and analyzed using ImageFTP.

SOPAS-ET

This configuration software was developed as an engineering tool with all SICK devices in mind. SOPAS-ET allows you to group all of your configured components and manage them as one project.

Thanks to real-time control, you are always aware of the status of all functions and are notified of changes immediately. This uniform environment results in optimum system efficiency: any situation can be responded to without delay by means of a quick and easy diagnosis.

Comprehensive online help provides assistance if needed.
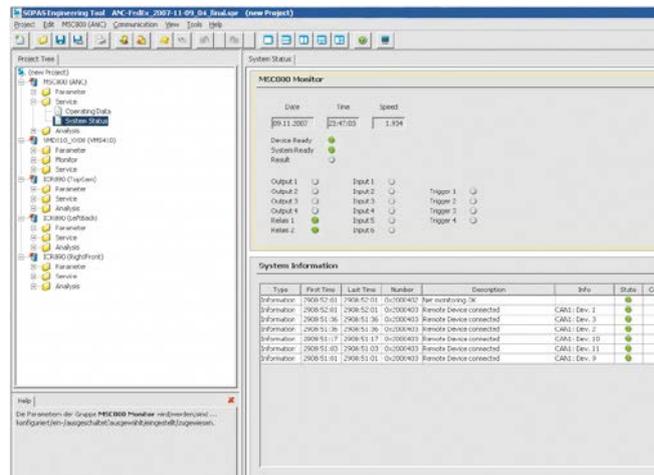
ImageFTP

This tool is a combination of an FTP server and an image viewing program. ImageFTP is used to save, visualize and analyze image data from the ICR88x/ICR89x system.

Different image views can be used to display both the images from individual cameras and a multi-side reading. An XML overlay can be used to show the user additional information (volume data, decoded bar codes, package dimensions).

An object search can be carried out offline using the index number, bar codes or other package properties.
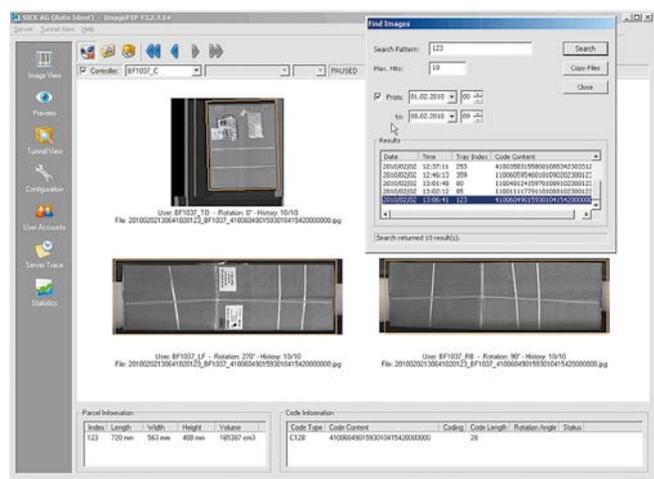
PACKAGE ANALYTICS — FOR OPTIMAL MONITORING OF SYSTEM PERFORMANCE

Wherever you are, with the SICK Visualization Platform (SVP), you can analyze your reading statistics from anywhere in the world.

Description

SICK's Package Analytics software enables comprehensive real-time monitoring of system performance by automatic logistics systems. Be it individual packages on a conveyor or a facility which processes several million packages a day: Package Analytics enables workers in distribution centers with large handling volumes to make quick decisions, even if under time pressure. The software maximizes the quality, precision, and efficiency of acceptance, sorting, and shipping processes. The Package Analytics Software from SICK provides valuable data for calculating trends and high-resolution images and videos for inspections, as well as track and trace.
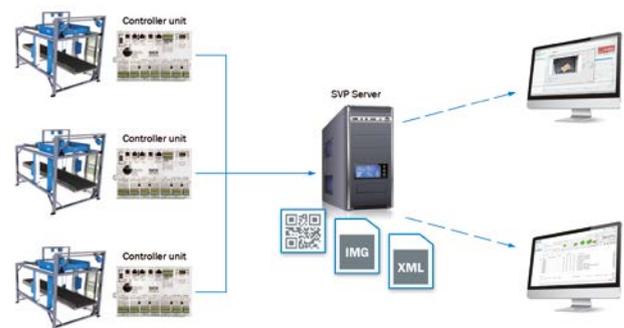
Package Analytics offers the following functions:

- Display and search for data and images anywhere with secure network access
- View system, facility or company performance
- Filter data by time, place or important attributes, e.g. no-reads, package size, damaged bar codes or packages
- ROI extraction for efficient and cost-effective storage and network traffic
- Automatic notifications in the event of a drop in performance level or for system error messages
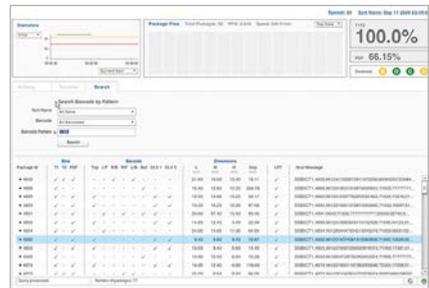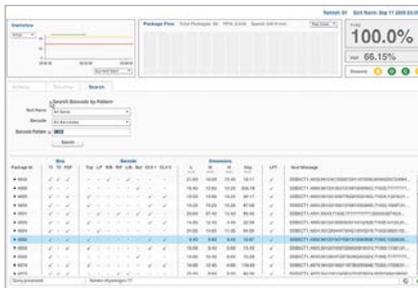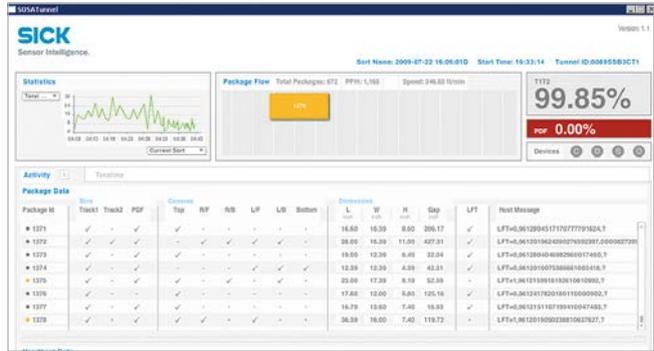
Validation of: 1) side-by-side 2) label position and quality 3) condition of package 4) shipments of valuable products

Technical data

- **Operating system:**
  - Linux 32-bit and 64-bit (Centos 6.3, Red Hat, Ubuntu) – others available on request
  - Windows (XP, 7)
- **Supported browsers:**
  - Internet Explorer, Mozilla Firefox, Google Chrome – others available on request
- **Hardware requirements:** Minimum hardware requirements are application-specific, varying according to storage requirements for data and images. SICK offers a complete hardware range. Package Analytics can also be operated on customer hardware, provided that it meets SICK's specifications.
- **Minimum screen resolution:** 1024 × 768 px
- **Antivirus:** Package Analytics can work with most antivirus programs. Certain user-defined ports must be excluded from the virus scan.
- **Communication interface:**
  - TCP/IP between application and system
  - XML messaging for data transfer

PRODUCT FAMILY OVERVIEW

	ICR88x System	ICR89x System
	More compact. More reliable. More brilliant.	Faster. More reliable. More brilliant.

Technical data overview		
Sensor	Dual-line CMOS sensor	Dual-line CMOS sensor
Focal length of the lens	80 mm	135 mm
Covered conveyor width	800 mm (200 dpi)	1,175 mm (170 dpi) 1,300 mm (150 dpi)
Reading distance	0.5 m … 1.35 m	1.4 m … 3.3 m
Depth of field	550 mm (200 dpi)	1,600 mm (170 dpi) 1,700 mm (150 dpi)
Scanning frequency	19,100 Hz	19,100 Hz / 30,000 Hz

At a glance		
	• High-end camera system, optimized for applications with short reading distances • Dual-line CMOS sensor for the best possible read rates • High scanning frequency of up to 19 kHz for high-resolution images (> 200 dpi) • All decoders are integrated in the camera • Maximum reliability, no external PC required • System can read all common 1D and 2D codes • Parameter cloning for all components • Additional track and trace solutions can be integrated	• Dual-line CMOS sensor for maximum bar code and OCR read rates • Maximum scanning frequency up to 30 kHz for high-resolution images (200 dpi) at up to 3.8 m/s • Large reading field of up to 1,200 mm • Ability to read all common 1D and 2D codes and postal codes • Five image output channels for OCR, video coding, archiving, and diagnostics • Parameter cloning for all components • Intelligent control standby mode • Industrial design – an external PC is not required

Detailed information		
	➜ 12	➜ 20

MORE COMPACT. MORE RELIABLE. MORE BRILLIANT.

Product description

The track and trace system based on the line-scan camera ICR88x is the ideal solution for all high-end linear and 2D code reading applications in transport and logistics processes. The code reading system has a modular camera design and includes an LED illumination module, focus control, and a high-performance decoder.

The ICR88x System is optimized for small sorter applications. Thanks to the short reading distance of the integrated ICR88x camera, the system can be installed with a very compact footprint.

At a glance

- High-end camera system, optimized for applications with short reading distances
- Dual-line CMOS sensor for the best possible read rates
- High scanning frequency of up to 19 kHz for high-resolution images (> 200 dpi)
- All decoders are integrated in the camera
- Maximum reliability, no external PC required
- System can read all common 1D and 2D codes
- Parameter cloning for all components
- Additional track and trace solutions can be integrated

Your benefits

- Compact design with no deflector mirror for easy installation
- Dual-line CMOS sensor provides outstanding image quality for the best possible read rates
- Image output option for tracking and analysis software
- Maintenance-free system
- Low energy consumption due to reduced lighting, integrated decoder, and standby mode
- Easy configuration with the SOPAS engineering tool saves time
- MTTR of under 10 minutes and 80,000 h MTBF minimizes downtime and ensures high reliability

➜ **www.mysick.com/en/ICR88x_System**

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

ICR88x System

Features

	Read field width 600 mm	Read field width 800 mm
Camera type	ICR88x	
Controller	MSC800	
Illumination width	750 mm	900 mm
Focus	Dynamic focus control	
Read field height	600 mm	
MTBF	80,000 h	
MTTR	< 10 min	
Image resolution	> 200 dpi (at 2.5 m/s)	200 dpi (at 2.5 m/s)
Misalignment of the object	± 45°	
Amount object sites/cameras	Top or side reading (1 camera)	
Conveyor type	Belt Crossbelt Roller Tilt tray Others on request	
Typical conveyor height	500 mm … 1,200 mm	

Performance

Bar code types	Interleaved 2 of 5 Codabar Code 128 Code 39 EAN/UPC with add-on GS1-128 / EAN 128 Postal codes
Print ratio	2:1 … 3:1
Minimum object distance	50 mm
2D code types	Data Matrix ECC200 MaxiCode QR code PDF417 Others on request
Number of objects per second	10

Mechanics/electronics

	Read field width 600 mm	Read field width 800 mm
Dimensions system (L x W x H)	1,050 mm x 1,400 mm x 2,250 mm (height up to 2,950 mm, depends on the height of the conveyor)	1,700 mm x 1,600 mm x 2,200 mm (height up to 2,700 mm, depends on the height of the conveyor)
Trigger	SICK WL18-3P430 [1]	
Encoder	SICK DFV60 [2]	
Power consumption	Depends on the configuration	

[1] If supplied by SICK.

[2] 0.2 mm resolution (for belt conveyor only)

Ambient data

Bar code print contrast (PCS)	≤ 40 %
Ambient temperature operation	0 °C ... +50 °C
Ambient storage temperature	−20 °C ... +70 °C
Permissible relative humidity	95 %, non-condensing
Ambient light immunity	2,000 lx, on code

Camera ICR88x

General notes

Items supplied	Consisting of camera, decoder and lighting

Features

Sensor	Dual-line CMOS sensor
Sensor resolution	8,192 px x 200 dpi (at 2.5 m/s transport speed)
Covered conveyor width	800 mm (200 dpi)
Focal length of the lens	80 mm
Reading distance	0.8 m ... 1.35 m [1]
Reading field	Front
Focus	Dynamic focus control
Depth of field	550 mm (200 dpi)
Scanning frequency	19,100 Hz
Light source	Visible red light, 620 nm Visible blue light, 465 nm
MTBF	80,000 h
MTTR	< 10 min

[1] At 0,2 mm code resolution.

Performance

Bar code types	Interleaved 2 of 5 Codabar Code 128 Code 39 EAN/UPC with add-on GS1-128 / EAN 128 Postal codes
Print ratio	2:1 ... 3:1
Transport speed	≤ 4.8 m/s, 100 lpi
Minimum object distance	≥ 50 mm
2D code types	Data Matrix ECC200 MaxiCode PDF417 Others on request

Interfaces

Serial (RS-232)		✔
	Function	AUX
	Data transmission rate	≤ 56,700 Baud

Ethernet	✔ (3)
Function	AUX, real-time image output
Data transmission rate	1x 10/100 Mbit/s, 2x Gbit/s
Protocol	TCP/IP
CAN bus	✔ (2)
Function	SICK CAN sensor network
Data transmission rate	10 kbit/s ... 1 Mbit/s
Protocol	CSN (SICK CAN Sensor Network)
PROFIBUS DP	✔, via MSC800 controller
IN/OUT power supply	✔
Optical indicators	5, LED, status displays
Memory card	SD card, 128 MB

Mechanics/electronics

Dimensions (L x W x H)	874 mm x 348 mm x 231 mm
Enclosure rating	IP 64 (DIN 40 050)
Protection class	III (IEC 1010-1)
Electrical connection	7 x M12; 2 x RJ45;
Power consumption	155 W, typical
Lens	80 mm (standard)
Housing material	Die-cast aluminum Aluminum extruded profile
Weight	28.5 kg
Housing color	Light blue (RAL 5012)

Ambient data

Bar code print contrast (PCS)	≤ 40 %
Ambient temperature operation	0 °C ... +50 °C
Ambient storage temperature	–20 °C ... +70 °C
Permissible relative humidity	95 %, non-condensing
Ambient light immunity	2,000 lx, on code
Shock load	IEC 68-2-27 IEC 68-2-32
Vibration load	IEC 68-2-6

Controller MSC800

Features

MTBF	> 80,000 h
MTTR	< 5 min, per component
System part	Logic controller and power supply unit

Interfaces

Serial (RS-232, RS-422/485)	✔ (4)
Function	Data output, parameter set-up, analyses
Data transmission rate	0.3 kBaud ... 115.2 kBaud
Protocol	SICK standard, application-specific protokoll on request
Electrical connection	Sub-D, 9-pin

Ethernet	✔ (3)
Function	Data output, parameter set-up, analyses
Data transmission rate	10 MBit/s / 100 MBit/s
Protocol	TCP/IP, half/full-duplex
Electrical connection	RJ45
PROFIBUS DP	✔
Function	Data output, parameter set-up, analyses
Data transmission rate	12 MBaud
Protocol	PROFIBUS DP
Electrical connection	Sub-D, 9-pin
CAN bus	✔ (2)
Data transmission rate	20 kbit/s ... 1 Mbit/s
Protocol	CANopen protocol, CAN-SENSOR network
Electrical connection	Cable gland
Digital switching inputs	✔ (14)
Function	PNP, configurable, opto isolated, reverese polarity protected
Electrical connection	Cable gland
Digital outputs	✔ (4)
Function	PNP, configurable, short-circuit proof
Electrical connection	Cable gland
Relay outputs	✔ (2)
Function	Potential-free
Electrical connection	Cable gland
USB	✔
Electrical connection	Micro USB female connector, type B
Service interface	✔
Electrical connection	Service socket
Optical indicators	2 x LED per power supply module 6 x LED fuse module (12 pole terminal block) 48 x LED logic controller

Mechanics/electronics

Enclosure rating	IP 65 (EN 60529 (1991-10), EN 60529/A2 (2002-02))
Protection class	I (EN 61140 (2002-03); A1 (2006-08))
Electrical safety	In accordance with EN 60439-1 (1999); A1 (2004)
Output voltage of the power supply modules	24 V DC
Supply voltage	230 V AC (100 V AC ... 264 V AC)
Mains frequency	50 Hz ... 60 Hz
Power consumption	10 W, typical

Ambient data

Ambient temperature operation	0 °C ... +40 °C
Ambient storage temperature	−20 °C ... +70 °C
Permissible relative humidity	95 %, non-condensing
Electromagnetic compatibility (EMC)	EN 61000-6-2 (2001-10), EN 61000-6-4 (2001-10)
Shock load	IEC 68-2-27
Vibration load	IEC 68-2-6

Type code

Read field width [1] [2]

| 60 | 600 mm |
| 80 | 800 mm |

Conveyor type

B	Belt
C	Cross belt sorter
K	Chain conveyor
R	Roller conveyor
T	Till-tray sorter

Number of reading sites

| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |

Number of cameras

1	1
2	2
3	3
4	4
5	5

Focussing

O	Fixfocus
M	MLG
V	VMSx10 (single-head)
W	VMSx20 (double-head)

Frame

| C | Customer frame |
| F | SICK frame (including mecanical design) |

Extension add. Components

0	Standard
1	Scale
2	OPS
3	RFID
4	Lector

Extension add. Special functions

0	Standard
1	LFT: MID/OIML
2	Image display
3	Remote: MPR or something like it

| IRS | | - | | | | | | | | |

[1] Assignment read field width: the tolerance is max. 50mm, e. g. at 650 mm read field width will be still a 060, 651 mm would already be a 080 system.

[2] The step of the read field width is fixed at 200 mm.

Ordering information

ICR88x System

Amount object sites/ cameras	Read field width	Image resolution (at 2.5 m/s)	Misalignment of the object	Model name	Part no.
Top or side reading (1 camera)	600 mm	> 200 dpi	± 45°	System type IRS060-x11xxxx	On request
	800 mm	200 dpi		System type IRS080-x11xxxx	On request

Reading field diagram

Camera type ICD880 with illumination type ICI890 (900 mm)

Reading field height in mm (inch)

Reading distance in mm (inch)
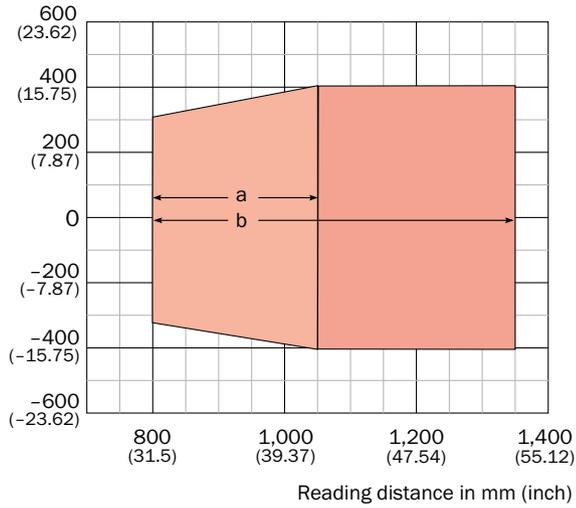
Resolution

a: 0.15 mm (5.9 mil), 250 dpi

b: 0.20 mm (7.9 mil), 200 dpi

FASTER. MORE RELIABLE. MORE BRILLIANT.

Product description

The track and trace system based on the line-scan camera ICR89x is the ideal solution for all high-end linear and 2D code reading applications in transport and logistics processes. The outstanding image quality of the integrated ICR89x camera also makes it suitable for use in OCR and video coding applications. The code reading system features a modular camera design, LED illumination, focus control functionality, and a high-performance decoder. The system can be supplemented with additional products such as volume measurement systems, when appropriate for the application.

At a glance

- Dual-line CMOS sensor for maximum bar code and OCR read rates
- Maximum scanning frequency up to 30 kHz for high-resolution images (200 dpi) at up to 3.8 m/s
- Large reading field of up to 1,200 mm
- Ability to read all common 1D and 2D codes and postal codes
- Five image output channels for OCR, video coding, archiving, and diagnostics
- Parameter cloning for all components
- Intelligent control standby mode
- Industrial design – an external PC is not required

Your benefits

- Outstanding image quality thanks to a unique dual-line CMOS sensor that provides high read rates and OCR results
- Intelligent decoding algorithms ensure reliable reading performance and high throughput.
- High scanning frequency for high-resolution images (200 dpi) up to a conveyor velocity of 3.8 m/s
- Integrated verifier for efficient analysis of 1D/2D code quality
- High reliability with 80,000 h MTBF
- Short downtime when devices are replaced thanks to the intelligent cloning module
- High-contrast, even with color printing, due to optional blue/white illumination
- Standby mode minimizes energy consumption

Additional information

➔ **www.mysick.com/en/ICR89x_System**

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

ICR89x System

Features

	Read field width 600 mm	Read field width 800 mm	Read field width 1,000 mm	Read field width 1,200 mm
Camera type	ICR89x			
Controller	MSC800			
Illumination width	750 mm	900 mm	1,100 mm	
Focus	Dynamic focus control			
Read field height	600 mm			
MTBF	80,000 h			
MTTR	< 10 min			
Image resolution	> 200 dpi (at 3.8 m/s)	200 dpi (at 3.8 m/s)	170 dpi (at 3.8 m/s)	> 150 dpi (at 3.8 m/s)
Misalignment of the object	± 15° / ± 45° (depending on type)			
Amount object sites/cameras	Top or side reading (1 camera) 5-side reading (3 cameras) 5-side reading (5 cameras) or 6-side reading (6 cameras) Depending on type			
Maximum amount object sites/cameras	Up to 6-side reading (16 cameras)			
Conveyor type	Belt Crossbelt Roller Tilt tray Others on request			
Typical conveyor height	500 mm ... 1,200 mm			

Performance

Bar code types	Interleaved 2 of 5 Codabar Code 128 Code 39 EAN/UPC with add-on GS1-128 / EAN 128 Postal codes
Print ratio	2:1 ... 3:1
Minimum object distance	50 mm
2D code types	Data Matrix ECC200 MaxiCode QR code PDF417 Others on request
Number of objects per second	10

Mechanics/electronics

	Read field width 600 mm	Read field width 800 mm	Read field width 1,000 mm	Read field width 1,200 mm
Dimensions system (L x W x H)				
Top or side reading (1 camera)	–	1,700 mm x 1,600 mm x 2,200 mm (height up to 2,700 mm, depends on the height of the conveyor)	2,150 mm x 1,800 mm x 2,000 mm (height up to 2,700 mm, depends on the height of the conveyor)	2,200 mm x 2,000 mm x 2,000 mm (height up to 2,700 mm, depends on the height of the conveyor)
5-side reading (3 cameras)	2,100 mm x 1,950 mm x 2,100 mm (height up to 2,800 mm, depends on the height of the conveyor)	2,450 mm x 2,450 mm x 2,100 mm (height up to 2,800 mm, depends on the height of the conveyor)		
5-side reading (5 cameras) [1]	–	3,350 mm x 2,450 mm x 2,100 mm (height up to 2,800 mm, depends on the height of the conveyor)		3,800 mm x 2,500 mm x 2,100 mm (height up to 2,800 mm, depends on the height of the conveyor)
Trigger	SICK WL18-3P430 [2]			
Encoder	SICK DFV60 [3]			
Power consumption	Depends on the configuration			

[1] Technical data are also applicable for 6-side reading.

[2] If supplied by SICK.

[3] 0.2 mm resolution (for belt conveyor only)

Ambient data

Bar code print contrast (PCS)	≤ 40 %
Ambient temperature operation	0 °C … +50 °C
Ambient storage temperature	–20 °C … +70 °C
Permissible relative humidity	95 %, non-condensing
Ambient light immunity	2,000 lx, on code

Camera ICR89x

General notes

Items supplied	Consisting of camera, decoder, lighting and deflector mirror

Features

	ICD890-3200100	ICD890-3201100	ICD890-3301000	ICD890-3301100
Sensor	Dual-line CMOS sensor			
Sensor resolution	8,192 px x 200 dpi (at 2.5 m/s transport speed)		8,192 px x 200 dpi (at 3.8 m/s transport speed)	
Covered conveyor width	1,175 mm (170 dpi)	1,300 mm (150 dpi)	1,175 mm (170 dpi)	1,300 mm (150 dpi)
Focal length of the lens	135 mm			
Reading distance	1.4 m … 3 m [1]	1.6 m … 3.3 m [1]	1.4 m … 3 m [1]	1.6 m … 3.3 m [1]
Reading field	Front			
Focus	Dynamic focus control			
Depth of field	1,600 mm (170 dpi)	1,700 mm (150 dpi)	1,600 mm (170 dpi)	1,700 mm (150 dpi)
Scanning frequency	19,100 Hz		30,000 Hz	

[1] At 0,3 mm code resolution.

	ICD890-3200100	ICD890-3201100	ICD890-3301000	ICD890-3301100
Light source	Visible red light, 620 nm Visible blue light, 465 nm			
MTBF	80,000 h			
MTTR	< 10 min			

[1] At 0,3 mm code resolution.

Performance

	ICD890-3200100	ICD890-3201100	ICD890-3301000	ICD890-3301100
Bar code types	Interleaved 2 of 5 Codabar Code 128 Code 39 EAN/UPC with add-on GS1-128 / EAN 128 Postal codes			
Print ratio	2:1 ... 3:1			
Transport speed	≤ 4.8 m/s, 100 lpi		≤ 4.8 m/s, 160 lpi	
Minimum object distance	≥ 50 mm			
OCR fonts	On request			
2D code types	Data Matrix ECC200 MaxiCode QR code PDF417 Others on request			
Number of objects per second	10			

Interfaces

Serial (RS-232)	✔
Function	AUX
Data transmission rate	≤ 56,700 Baud
Ethernet	✔ (3)
Function	AUX, real-time image output
Data transmission rate	1x 10/100 Mbit/s, 2x Gbit/s
Protocol	TCP/IP
CAN bus	✔ (2)
Function	SICK CAN sensor network
Data transmission rate	10 kbit/s ... 1 Mbit/s
Protocol	CSN (SICK CAN Sensor Network)
PROFIBUS DP	✔, via MSC800 controller
IN/OUT power supply	✔
Optical indicators	5, LED, status displays
Memory card	SD-Card, 1 GB

Mechanics/electronics

Dimensions (L x W x H)	1,224 mm x 348 mm x 231 mm
Enclosure rating	IP 64 (DIN 40 050)
Protection class	III (IEC 1010-1)
Electrical connection	7 x M12; 2 x RJ45;
Power consumption	250 W, typical

Lens	135 mm (standard)
Housing material	Die-cast aluminum Aluminum extruded profile
Weight	37 kg
Housing color	Light blue (RAL 5012)

Ambient data

Bar code print contrast (PCS)	≤ 40 %
Ambient temperature operation	0 °C ... +50 °C
Ambient storage temperature	−20 °C ... +70 °C
Permissible relative humidity	95 %, non-condensing
Ambient light immunity	2,000 lx, on code
Shock load	IEC 68-2-27 IEC 68-2-32
Vibration load	IEC 68-2-6

Controller MSC800

Features

MTBF	> 80,000 h
MTTR	< 5 min, per component
System part	Logic controller and power supply unit

Interfaces

Serial (RS-232, RS-422/485)	✔ (4)
Function	Data output, parameter set-up, analyses
Data transmission rate	0.3 kBaud ... 115.2 kBaud
Protocol	SICK standard, application-specific protokoll on request
Electrical connection	Sub-D, 9-pin
Ethernet	✔ (3)
Function	Data output, parameter set-up, analyses
Data transmission rate	10 MBit/s / 100 MBit/s
Protocol	TCP/IP, half/full-duplex
Electrical connection	RJ45
PROFIBUS DP	✔
Function	Data output, parameter set-up, analyses
Data transmission rate	12 MBaud
Protocol	PROFIBUS DP
Electrical connection	Sub-D, 9-pin
CAN bus	✔ (2)
Data transmission rate	20 kbit/s ... 1 Mbit/s
Protocol	CANopen protocol, CAN-SENSOR network
Electrical connection	Cable gland
Digital switching inputs	✔ (14)
Function	PNP, configurable, opto isolated, reverese polarity protected
Electrical connection	Cable gland
Digital outputs	✔ (4)
Function	PNP, configurable, short-circuit proof
Electrical connection	Cable gland

Relay outputs	✔ (2)
Function	Potential-free
Electrical connection	Cable gland
USB	✔
Electrical connection	Micro USB female connector, type B
Service interface	✔
Electrical connection	Service socket
Optical indicators	2 x LED per power supply module 6 x LED fuse module (12 pole terminal block) 48 x LED logic controller

Mechanics/electronics

Enclosure rating	IP 65 (EN 60529 (1991-10), EN 60529/A2 (2002-02))
Protection class	I (EN 61140 (2002-03); A1 (2006-08))
Electrical safety	In accordance with EN 60439-1 (1999); A1 (2004)
Output voltage of the power supply modules	24 V DC
Supply voltage	230 V AC (100 V AC ... 264 V AC)
Mains frequency	50 Hz ... 60 Hz
Power consumption	10 W, typical

Ambient data

Ambient temperature operation	0 °C ... +40 °C
Ambient storage temperature	–20 °C ... +70 °C
Permissible relative humidity	95 %, non-condensing
Electromagnetic compatibility (EMC)	EN 61000-6-2 (2001-10), EN 61000-6-4 (2001-10)
Shock load	IEC 68-2-27
Vibration load	IEC 68-2-6

Type code

Read field width [1] [2]

60	600 mm
80	800 mm
100	1000 mm
120	1200 mm
140	1400 mm

Conveyor type

B	Belt
C	Cross belt
K	Chain conveyor
R	Roller conveyor
T	Till-tray sorter

Number of reading sites

1
2
3
4
5
6

Numer of cameras

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10
F	16

Focussing

O	Fixfocus
M	MLG
V	VMSx10 (single-head)
W	VMSx20 (double-head)

Frame

C	Customer frame
F	SICK frame (including mecanical design)

Extension add. Components

0	Standard
1	Scale
2	OPS
3	RFID
4	Lector

Extension add. Special functions

0	Standard
1	LFT: MID/OIML
2	Image display
3	Remote: MPR or something like it

IRS		-								

[1] Assignment read field width: the tolerance is max. 50mm, e. g. at 650 mm read field width will be still a 060, 651 mm would already be a 080 system.

[2] The step of the read field width is fixed at 200 mm.

Ordering information

ICR89x System

Additional bottom side reading is generally possible with unchanged specification.

Amount object sites/ cameras	Read field width	Image resolution (at 3.8 m/s)	Misalignment of the object	Model name	Part no.
Top or side reading (1 camera)	800 mm	200 dpi	± 45°	System type IRS080-x11xxxx	On request
	1,000 mm	170 dpi		System type IRS100-x11xxxx	On request
	1,200 mm	> 150 dpi		System type IRS120-x11xxxx	On request
5-side reading (3 cameras)	600 mm	> 200 dpi	± 15°	System type IRS060-x53xxxx	On request
	800 mm	200 dpi		System type IRS080-x53xxxx	On request
	1,000 mm	170 dpi		System type IRS100-x53xxxx	On request
	1,200 mm	> 150 dpi		System type IRS120-x53xxxx	On request
5-side reading (5 cameras) [1]	800 mm	200 dpi	± 45°	System type IRS080-x55xxxx	On request
	1,000 mm	170 dpi		System type IRS100-x55xxxx	On request
	1,200 mm	> 150 dpi		System type IRS120-x55xxxx	On request

[1] Technical data are also applicable for 6-side reading.

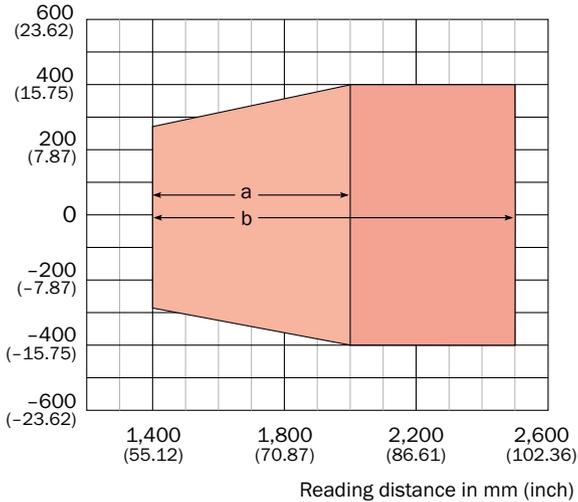## Dimensional drawings (Dimensions in mm (inch))

Camera ICR89x
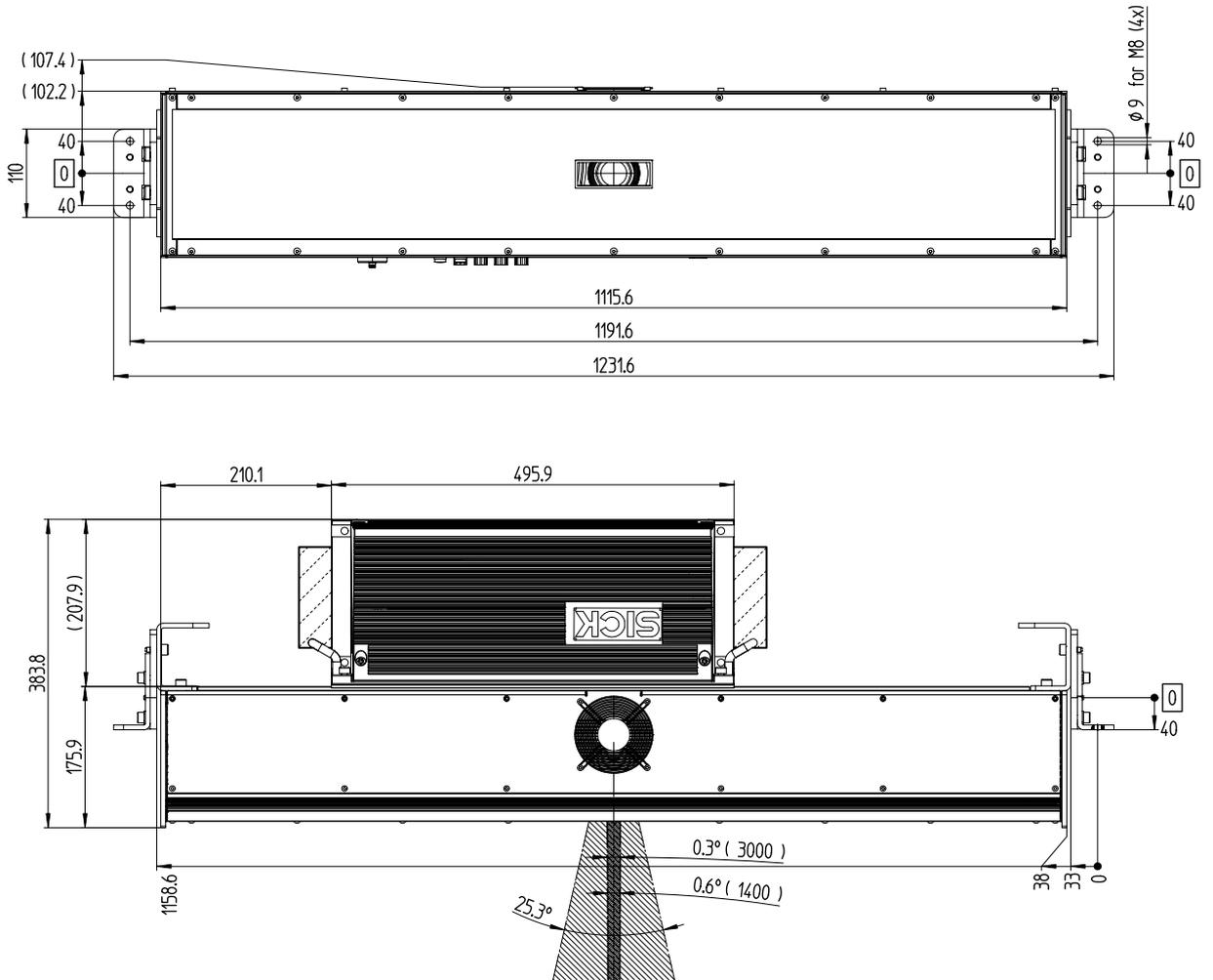
Reading field diagram

Camera type ICD890 with illumination type ICI890 (900 mm)
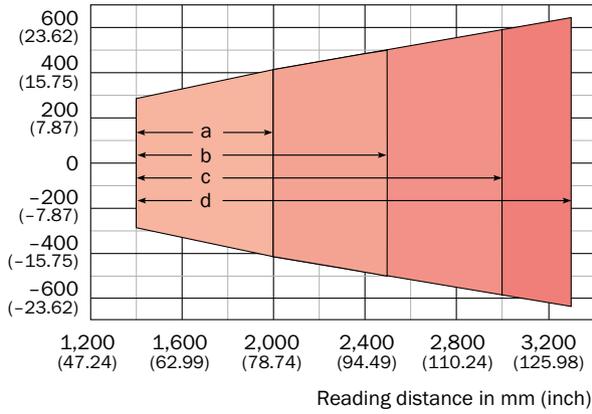
Reading field height in mm (inch)

Reading distance in mm (inch)

Resolution

- ☐ a: 0.15 mm (5.9 mil), 250 dpi
- ☐ b: 0.20 mm (7.9 mil), 200 dpi

Camera type ICD890 with illumination type ICI890 (1100 mm)
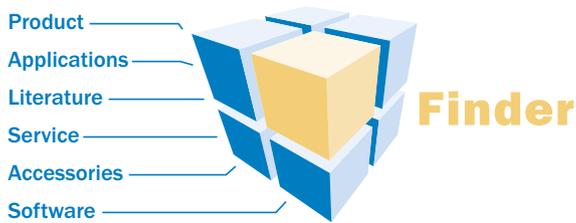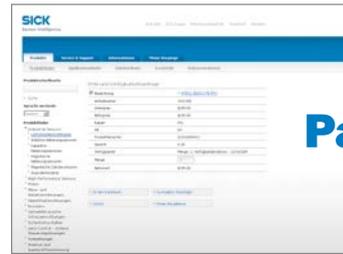
Reading field height in mm (inch)

Reading distance in mm (inch)

Resolution

- ☐ a: 0.15 mm (5.9 mil), 250 dpi
- ☐ b: 0.20 mm (7.9 mil), 200 dpi
- ☐ c: 0.25 mm (9.8 mil), ≥ 170 dpi
- ☐ d: 0.30 mm (11.8 mil), ≥ 150 dpi

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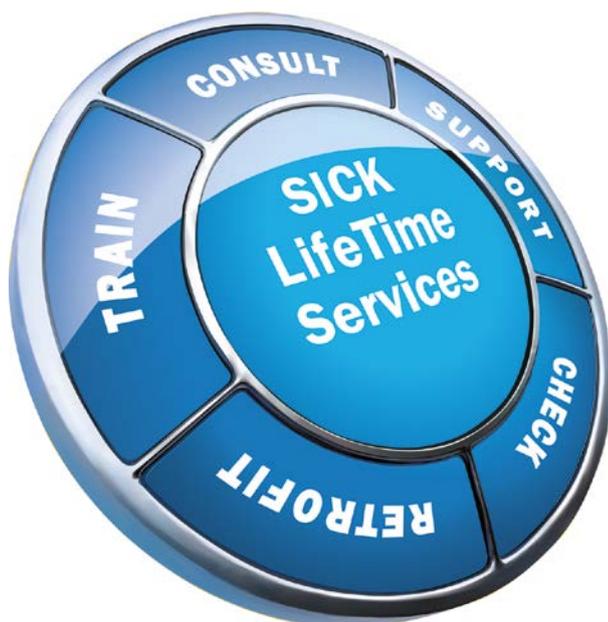
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