

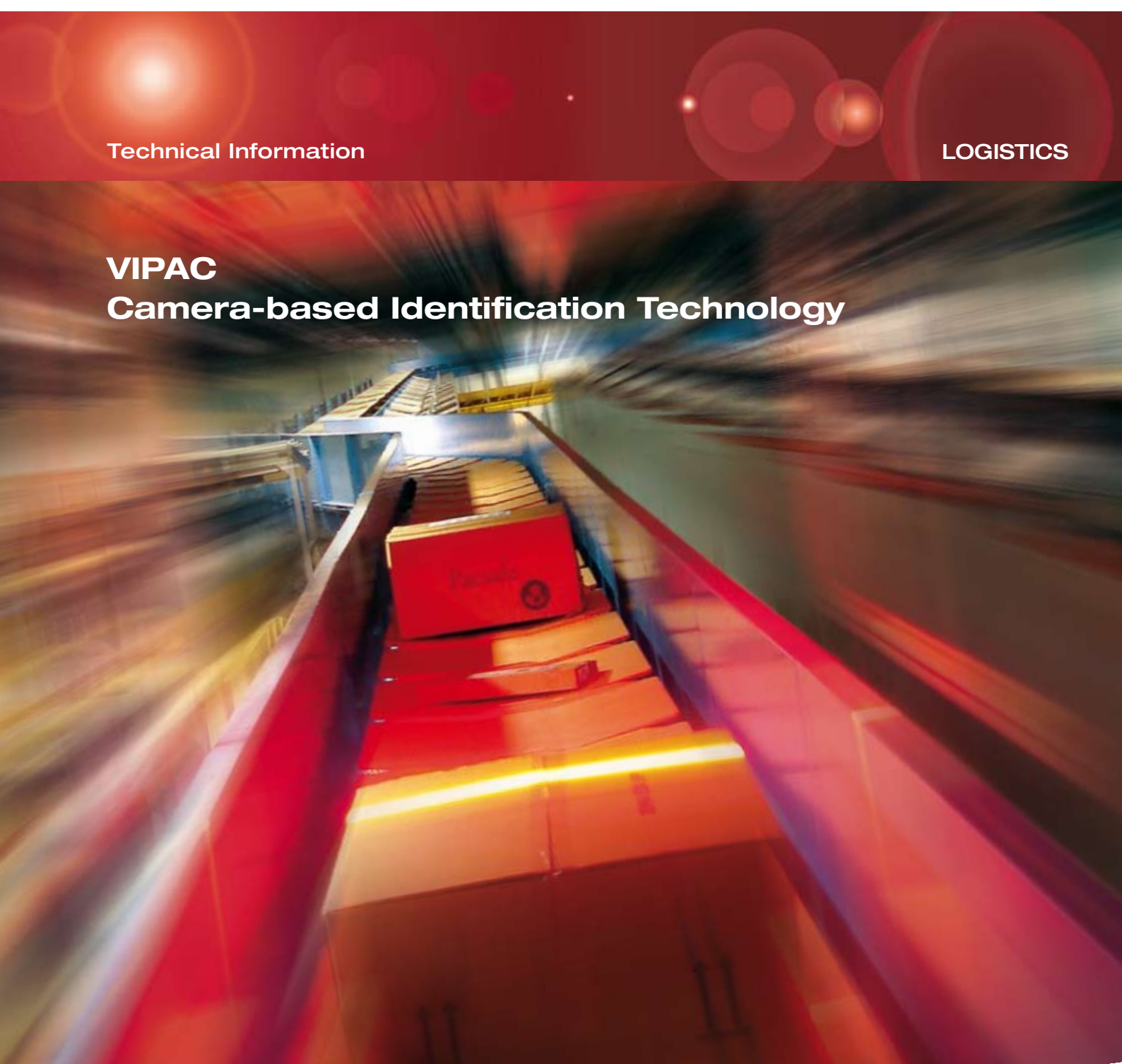


VITRONIC
machine vision people

Technical Information

LOGISTICS

VIPAC Camera-based Identification Technology



VIPAC in overview

Barcode reading software

- Highest read rates at conveying speeds of up to 4.5m/s (885fpm)
- Detects behind plastic film
- Interprets partially damaged or destroyed barcodes
- Captures all sides and position of the object
- Clear spot detection allows additional labeling

2-D code reading software

- Highest reading rates at conveying speeds of up to 4.5m/s (885fpm)
- Detects behind plastic film
- Interprets barcodes are partially damaged or destroyed barcodes
- Captures all sides and position of the object
- Clear spot detection allows additional labeling

Optical character recognition software (OCR)

- Highest reading rates utilizing data base comparison
- Reads behind plastic film
- Clear spot detection allows additional labeling

Web-based monitoring software

- Archives images up to several months
- Allows the image-based follow-up of objects/items
- Documents the condition of forwarded items
- Allows precise identification of image
- Optimizes through NoRead analysis

VICAM^{ssi2}

- The smallest, lightest, and most energy-efficient line-scan camera in the world
- Outstanding 170dpi image quality
- At speeds of up to 4.5m/s (885fpm)
- With red or white LED illumination
- Covers object widths of more than 1,200mm (~47")
- Maximum read rates for OCR, barcodes and 2-D codes
- Simplified transport, installation and service



VICAM^{mobile} OCR

- Portable hand-held camera for identification of text and codes
- Reads characters (written by hand or machine) with maximum read rates for labels and outer packaging
- Reads 1-D/2-D codes: even partially destroyed or incomplete codes
- High resolution and superior image illumination
- 100 per cent reading rate when connected to video coding



Volume measurement

- Certified volume measurements even over cross belt and tilt-tray sorters
- Savings on many volume measurement systems through margin bands
- Allows automated account generation and revenue recovery, form analysis, loading optimization, statistics
- Allows detection of defects on the packages
- The most compact system on the market
- Stand-alone or integrated into the VIPAC system



Video coding

- Permits reading rates up to 100 percent
- Multiple stations can be integrated into one video coding center
- Super-regional connection (remote)
- Ergonomic user interface for high throughput

Weighing

- Simple integration of third party in-motion scales
- Provides the basis for automated account generation and revenue recovery

VIPAC Identifies Characters, Barcodes, 2-D Codes, Volumes and Weight....

.... of various goods:

... in all currently used conveying and sorting systems:

PARCELS

PACKAGES

LETTERS

PALLETS

SHOES

ATHLETIC EQUIPMENT

BOOKS

CDS

DVDS

ELECTRICAL APPLIANCES

ELECTRICAL DEVICES

INTER-OFFICE MAIL

CLOTHES

FURNITURE

IRREGULAR GOODS THAT CANNOT BE PROCESSED BY MACHINES (I.E. TIRES)



Conveyor



Cross belt



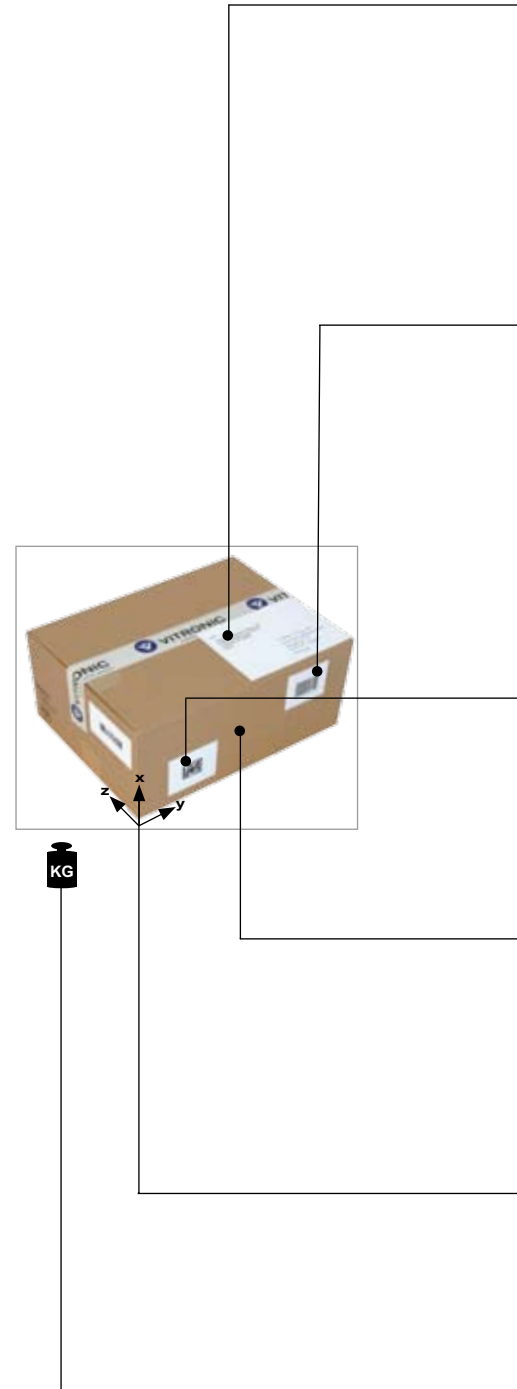
Tilt-tray



Workstation



Pallets

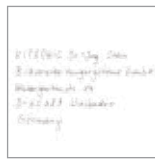


... reliable with high read rates on maximum conveyor speeds:

... and makes the generated data available:

Optical character recognition (OCR)

- Hand- and machine-written text
- Addresses (streets, house numbers, zip codes, countries)
- Product numbers, quantitative data, supplier numbers



Barcode reading

All currently used barcodes such as:

- 2/5 interleaved, Code 39, Code 93, Code 128
- EAN/UPC with add-on
- Codabar, Postnet, Planet
- 3/5, Four State



2-D code reading

All currently used 2D codes such as:

- DataMatrix ECC20
- PDF 417
- Maxicode



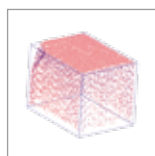
Clear spot detection

- Finds free areas for labelling
- Determines the 3D coordinates
- Supplies labelers with exact positioning data



Volume measurement

- Three-dimensional volume measurements
- From small parcels to objects on pallets



Weighing

- Integration of precision in-motion scales



Video coding

- Stores and transmits client and object-related data for manual competition
- Online and offline: realtime during sorting or for subsequent addition of data



Material management system

Sorter control

- VIPAC encompasses all existing all interfaces
- VIPAC allows simple implementation to existing client interfaces

Inline labeling

- Detects exact and clear position on objects surface for additional data labelling
- Easily connects to existing equipment

Web-based monitoring

- Stores data images up to 6 sides of object
- Connects the images with additional object- and client-related data



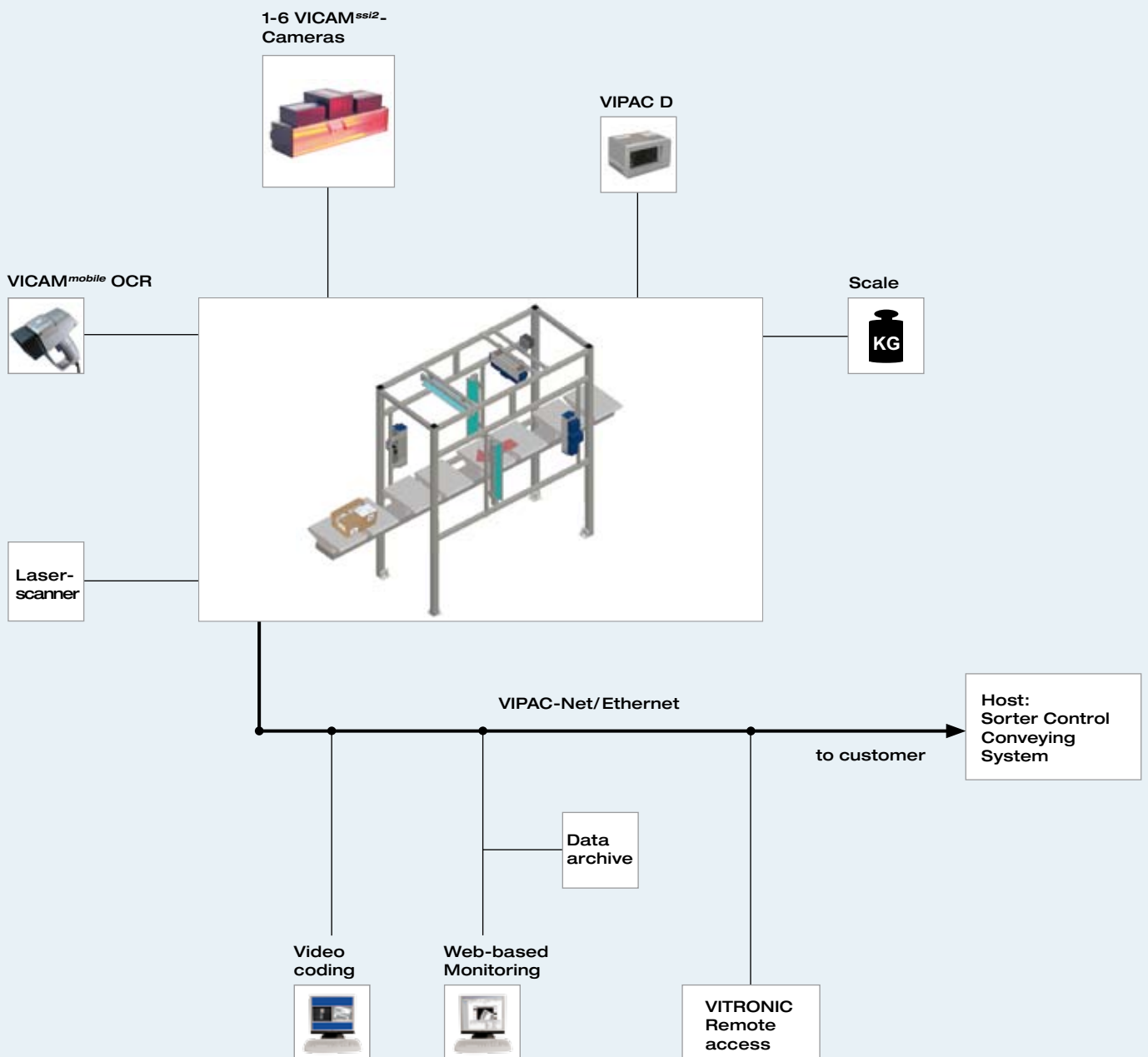
Archive retrieval

- Data is stored for retrieval in a user-friendly, web-based interface

VIPAC system design

The VIPAC camera-based identification system has a modular construction. Depending on the application, any number of modules can be provided to fulfill client-specific requirements: from single-sided reading system with one top camera to six-sided reading systems with up to 6 cameras.

All hardware and software components are integrated to one another and ensure increased accurate reading rates to the advantage of the user. Both the hardware and the software are developed, manufactured and sold by VITRONIC.





Production Facility



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