

Image Processing, OCR and Optical Measurement for Heavy Industries

This tagged accessible reading edition presents the approved brochure content in a linear text format. Image descriptions summarize the informative visuals in the original brochure.

Page 1 - cover

Source reference: original brochure, page 1.

Image Processing, OCR and Optical Measurement for Heavy Industries

Image description: Industrial imaging equipment around a hot steel product on a roller table, with small insets of a software image view, an illumination unit and a camera. The LogoTek mark is a logo, not OCR text.

Page 2 - overview and applications

Source reference: original brochure, page 2.

LogoTek supplies computer-vision and scanner-based systems for measurement and machine control. The source also describes OCR systems for identifying steel products such as heavy plates, billets and slabs. It says systems are designed for heavy-industry conditions; components are selected for vibration and dirt resistance and, where needed, cooling. Software functions include image processing, text recognition, visualization and control of scanners, sensors and lighting.

Application fields listed in the source

- OCR of paint-marked blooms, slabs, heavy plates and coils.
- OCR of stamped billets and slabs.
- Camera-based dimensional measurement for machine control and tool positioning.
- Scanner-based slab and billet measurement.
- Detection of the number and volume of slabs and blooms.
- Display-luminance measurement with calibrated cameras.
- Infrared-camera applications.

Image description: An industrial hall and installed imaging equipment.

Page 3 - image processing and OCR

Source reference: original brochure, page 3.

Identification of paint-marked codes

The source describes reading paint-marked steel identifiers with image processing, customer-symbol-set training, adapted illumination and a database check against valid IDs. It names coils, blooms, heavy plates and slabs as applications. It says identification rates can approach 100% under these conditions.

Machine control and stamping position

The source's example finds a position for a second billet stamp that avoids the existing heat number. HQL lamps illuminate the billet; software locates its coordinates and calculates a stamping position. It claims tolerance to surface and lighting variation and very high reliability.

Identification of stamped heat numbers

The source describes a roller-table billet-identification system using cameras, material sensors, illumination and an illumination controller with image-processing software. It notes that rough billet surfaces and changing light make automatic reading difficult, while claiming reliable identification.

Display measurement and photogrammetric survey

The source describes a semi-automatic calibrated-camera system for checking the luminance and uniformity of LED displays used in avionics HMI panels. A control unit generates test images; results are stored in a database for test reports.

Image descriptions: A code-recognition software screen; a photographed stamping installation with component labels; and an equipment diagram for billet identification.

Page 4 - optical measurement

Source reference: original brochure, page 4.

Dimension measurement of slabs and blooms

The source describes laser scanners and distance sensors for slab dimensions and profiles. It lists class 1 infrared and class 2/3 red-light devices depending on material temperature, and cooled protective housings for continuous-casting environments.

Crane-load changes and piece counting

The source describes two scanners on a lifting beam to estimate the volume and number of billets carried by a crane. An industrial PC in the crane cab processes the data and shows the storage yard. It claims high reliability in several operating cranes.

Steel-slab positions

The source describes scanners mounted on cranes that measure floor profiles; analysis software computes slab outlines and sends positions to a WMS. It cites a German steel mill and an embedded PC running Windows XP, with health and contamination diagnostics logged to files.

Infrared-camera applications

The source lists contactless temperature detection, furnace heat-leak localization, ladle monitoring, heavy-plate temperature on a cooling bed and furnace-insulation inspection.

Image descriptions: A hot-slab measurement installation, crane-lifting equipment, a slab-position software screen and a thermal-camera image.

Page 5 - Image Processing Application Framework IPA

Source reference: original brochure, page 5.

The source describes IPA as a HALCON/C++ software framework for image-processing applications. Its interface supports visualization, parameter setting, archiving and communication. An IPA-HMI database client can support character training and client/server systems.

Technical data in the source

Group	Item	Listed functions or interfaces
Functional overview	Applications	OCR; camera-based optical measurement; 2D-scanner measurement; machine control.
Functional overview	Functions	Image processing; camera/scanner and illumination control; parameter setting; visualization; status monitoring; archiving; database plausibility checking; communication with Level 1/2 systems.
Functional overview	Development and extensions	HALCON/C++; IPA-SERVER; IPA-HMI.
OCR	Character types	Paint-marked identifiers; stamped codes.
OCR	Features	Neural-classifier-based OCR with individual character training and plausibility checks; the source claims reading rates near 100%.
Interfaces	Ethernet/TCP/IP	Telegram communication with Level 2/3 computers; exchange of identification results and status information.
Interfaces	ODBC	Database communication with WMS and material tracking; Oracle, SQL Server and Access are listed.
Interfaces	OPC	Machine-control automation interface, including PLC communication over OPC and Ethernet.
Interfaces	RS232/RS422	ASCII telegram exchange over serial interfaces.
Archiving/logging	Archiving	Image data in adjustable folders and database records for processed images.
Archiving/logging	Logging	ASCII status files and telegram logging.

For larger tracking systems, the source describes IPA-SERVER with IPA-HMI stations. IPA-HMI displays processing and recognition results, status and reports, with access controlled by user groups. IPA-SERVER coordinates data exchange among IPA stations, server and HMI, including transfer to Level 2/3 host computers; it lists SQL Server and Oracle support.

Image descriptions: Two IPA software screenshots show recognition imagery, parameters, material/record tables and status areas. The table above follows the four visual group headings rather than interleaving the original two columns.

Page 6 - image-processing components and company

Source reference: original brochure, page 6.

Components

- Cameras: The source says LogoTek uses robust cameras for harsh environments and prefers cameras made by IDS.
- Lenses: Lenses from various manufacturers, including filters and lens controllers.
- Illumination: HQL or LED lighting and flashes in metal housings; cooling for high-temperature sites.
- Electrical cabinets: Protective housings for cameras, industrial PCs, illumination controllers and network components.
- Camera housings: Housings with air purge or Vortex coolers; the source states operation in environments up to 100°C.
- Other accessories: Available on request, according to the source.

About LogoTek

The source describes LogoTek's industrial-automation work in southern Germany, including material tracking based on identification technology and OCR/optical-measurement systems.

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Image descriptions: Product photos show an illumination unit, protected camera, swivel head, camera housing and lens.