

**ASYS
GROUP**

INSIGNUM 3000 Label



Technical Properties

Footprint:	Length:	830 mm
	Width:	1470 mm
	Height:	1480 mm
PCB Dimension:	Length:	70 mm – 460 mm
	Width:	50 mm – 460 mm
	Thickns.:	0.8 mm – 4 mm
Power:	230 V / 115 V; 16 A	
	50/60 Hz	
Weight:	553 kg	

Performance Data

- › Marking-area: 460 mm × 460 mm
- › Module-size: > 7,5 mil (600 dpi)
- › Label-size: > 10 × 10 mm
- › Repeatability: +/- 0,25 mm @ 3 Sigma
- › Printer: 300 dpi; 600 dpi
- › Cycle-time: 4,8 sec.*



* From Label to label inclusive printing, scanning and alignment

Features and options

- › Second printer (option)
- › Fiducial-camera (option)
- › Z-axis (option)
- › Smallest footprint
- › Fast PCB-exchange
- › XL Version: Fo up to 610 mm board length (option)
- › Zebra Printer Xi 4, 300 dpi as standard

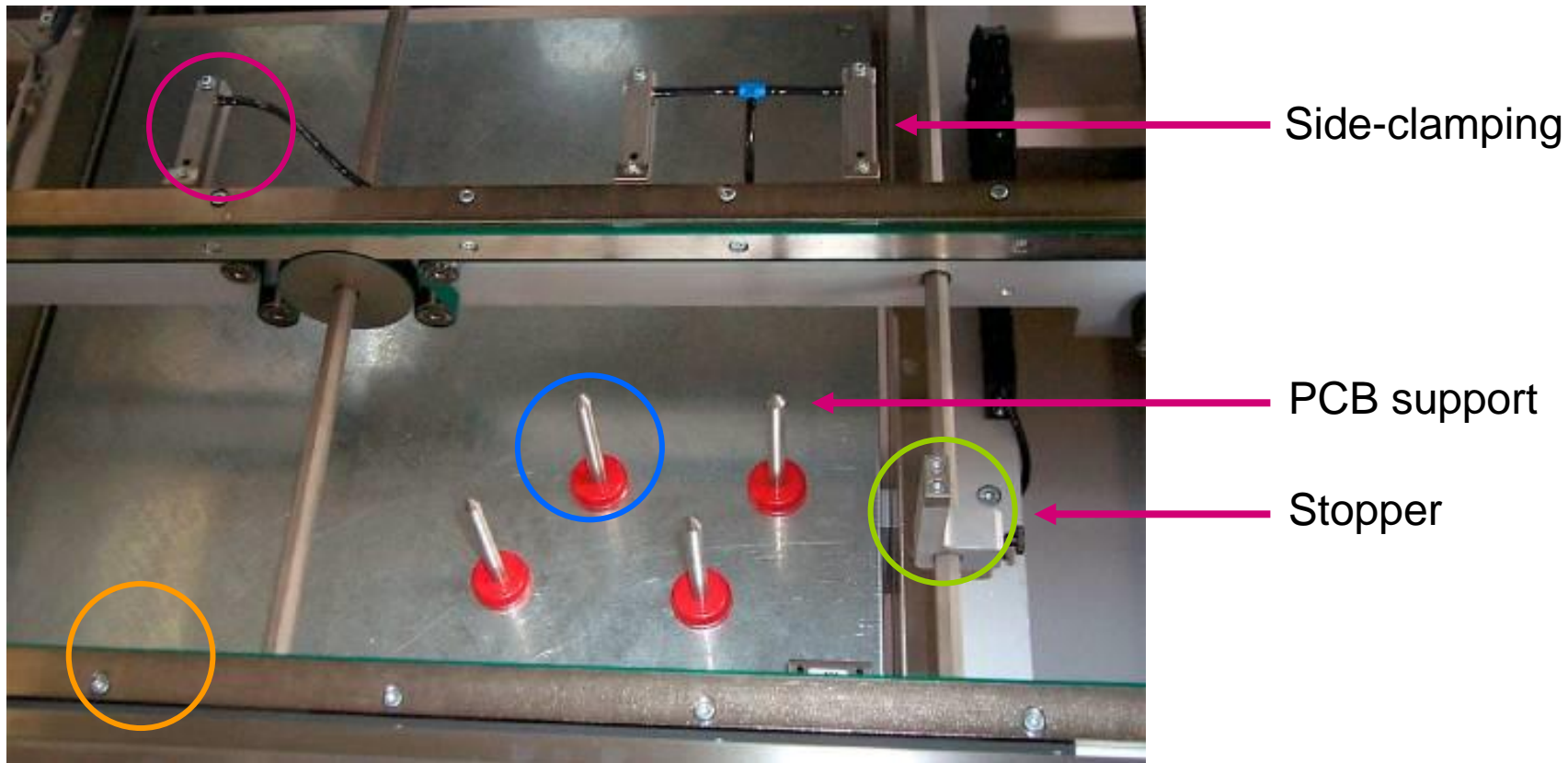


Cycle-time

- › Transport: 6,0 sec.
- › External flip-unit: ~ 10,0 sec. (complete turn-handling)
- › Printing, placement: 4,8 sec. (See slide 4)
- › Fiducial-recognition: 3 sec. (two fiducials)



INSIGNUM 3000 Label – PCB positioning

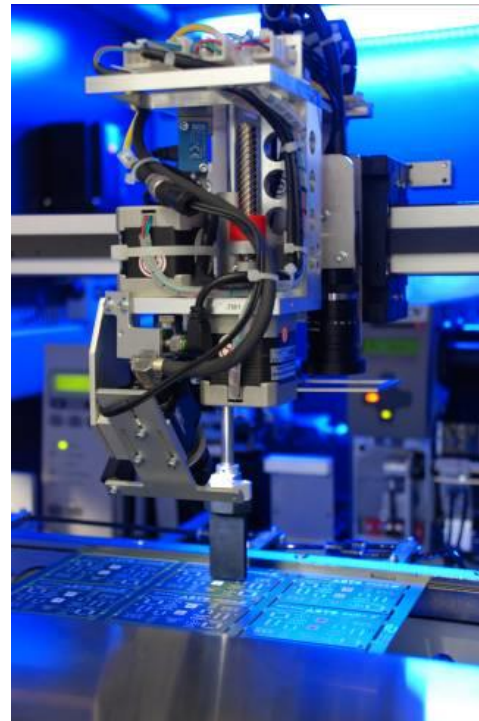


INSIGNUM 3000 Label – Turn and Z-axis



Application head

Rotation 360° with 0,1° steps



Label-placement

Z-axis movement by stepper-motor,
40 mm stroke

INSIGNUM 3000 Label – Label specification

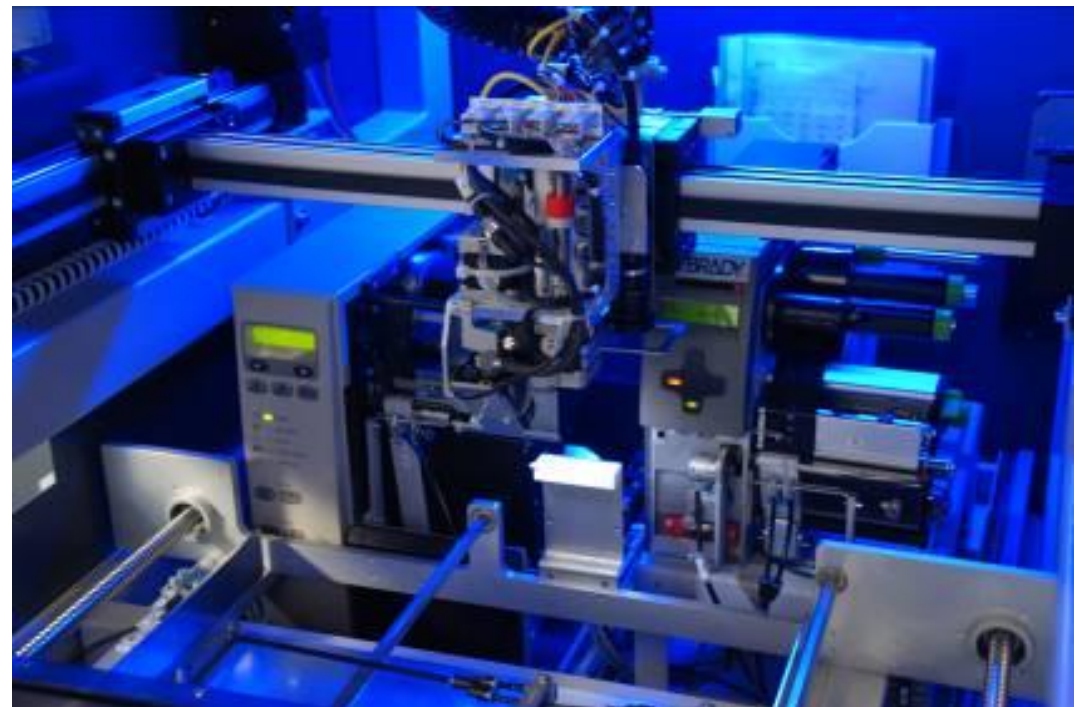
Label-format

- › max. (L × B) 40 × 90 mm
- › min. 10 × 10 mm
(min. Label-tape 30 mm)

Code Types

- › Interleaved 2/5
- › Code 128 A, B, C
- › PDF 417
- › Data Matrix
- › Code 93
- › Code 39

Other codes on request



INSIGNUM 3000 Label – Camera-system

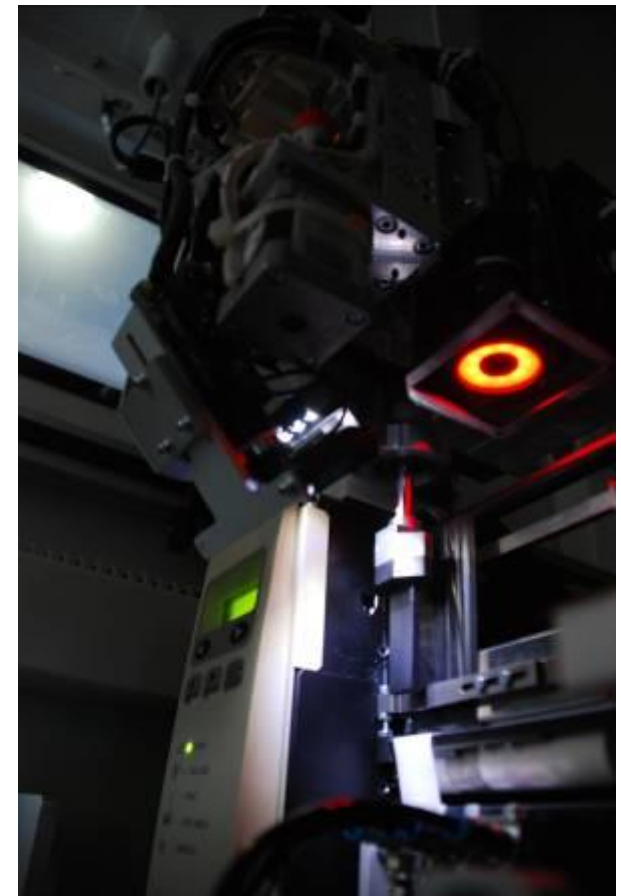
One camera, two functions

- › **Code-verification**

Immediatly after printing

- › **Label-alignment**

During movement



INSIGNUM 3000 Label – Label Printer

Label Printer:

- › Zebra 110 Xi 4

Printhead:

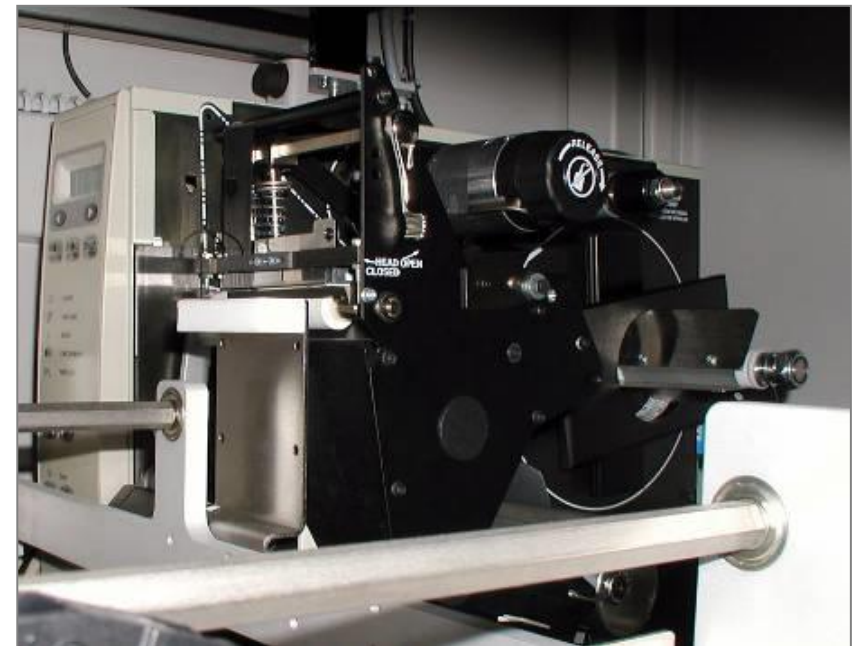
- › Thermo-Transfer-head
- › Resolution 300 dpi
(12 dots/mm, 1024 dots/row)
- › 600 dpi as an option

Print-speed:

- › from 25–75 mm/s in 25 mm steps

Printformats:

- › Bitmapfonts and Barcodes: 0° / 90° / 180°
- › Vectorfonts: 0° / 90° / 180°



INSIGNUM 3000 Label – Label Printer Zebra 110 Xi 4

Fonts:

- › Arial, Courier
- › Other fonts on request

Font-size:

- › min 0,9 mm height

Font-style:

- › On request



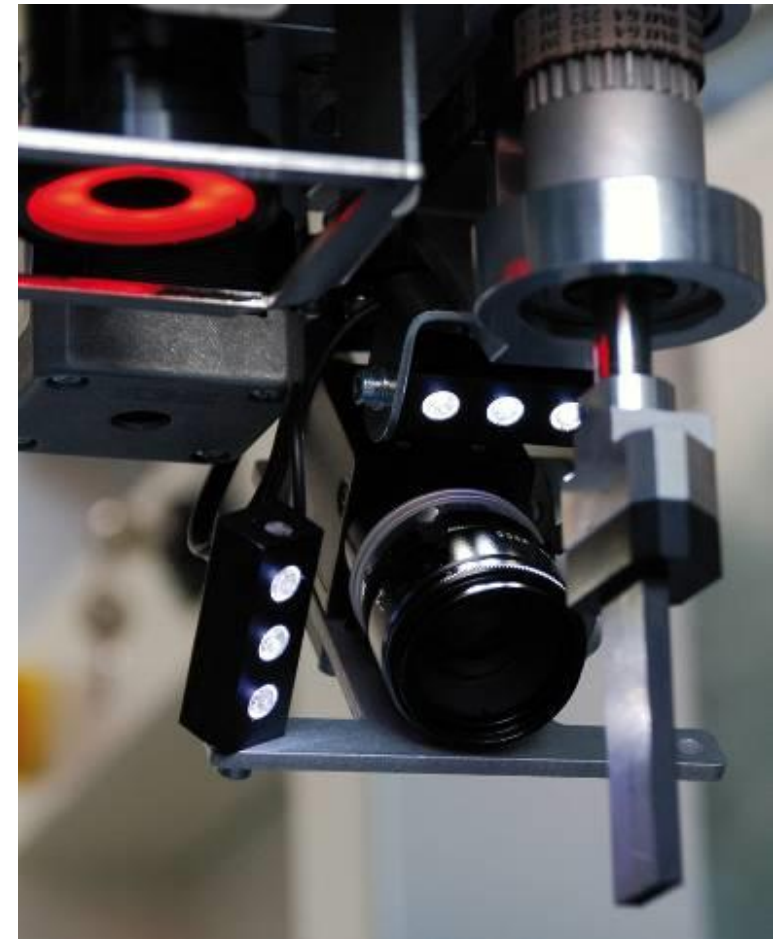
INSIGNUM 3000 Label – Label Printer Zebra 110 Xi 4

- › Easy handling
- › Fast label-exchange
- › Service-friendly



INSIGNUM 3000 Label – Camera-alignment (optional)

- › Label-alignment in $0,1^\circ$ steps and X/Y correction
- › Repeatability $\pm 0,25$ mm @ 3Sigma



BDS-I / BST-I / BFS-I controlled from INSIGNUM 3000 Label



BDS-I



BFS-I



BST-I

BDS-I Description and details

The Bare Board Loader separates PCBs from a stack and feeds them to the production line, by dropping the bottom PCB onto a conveyor belt.

- › Pneumatic side clamping head
- › Anti-static conveyor belts

Options:

Electrical width adjustment



BST-I Description and details

The Bare Board Unloader collects PCBs at the end of the production line into a single stack.

- › Pneumatic side clamping head
- › Anti-static conveyor belts

Options:
Electrical width adjustment



BFS-I Description and details

The flip-unit is used to invert PCBs 180°. This flip function will change the leading and trailing edge. The incoming PCB is pneumatically stopped on the conveyor system and flipped over by a rotating system. After completion of the process the PCB is offloaded to the downstream system or back to the laser-system.

- › Pneumatic Flip mechanism
- › Transport height 950 mm +/- 50 mm
- › 180° Flip Function
- › Pass-through

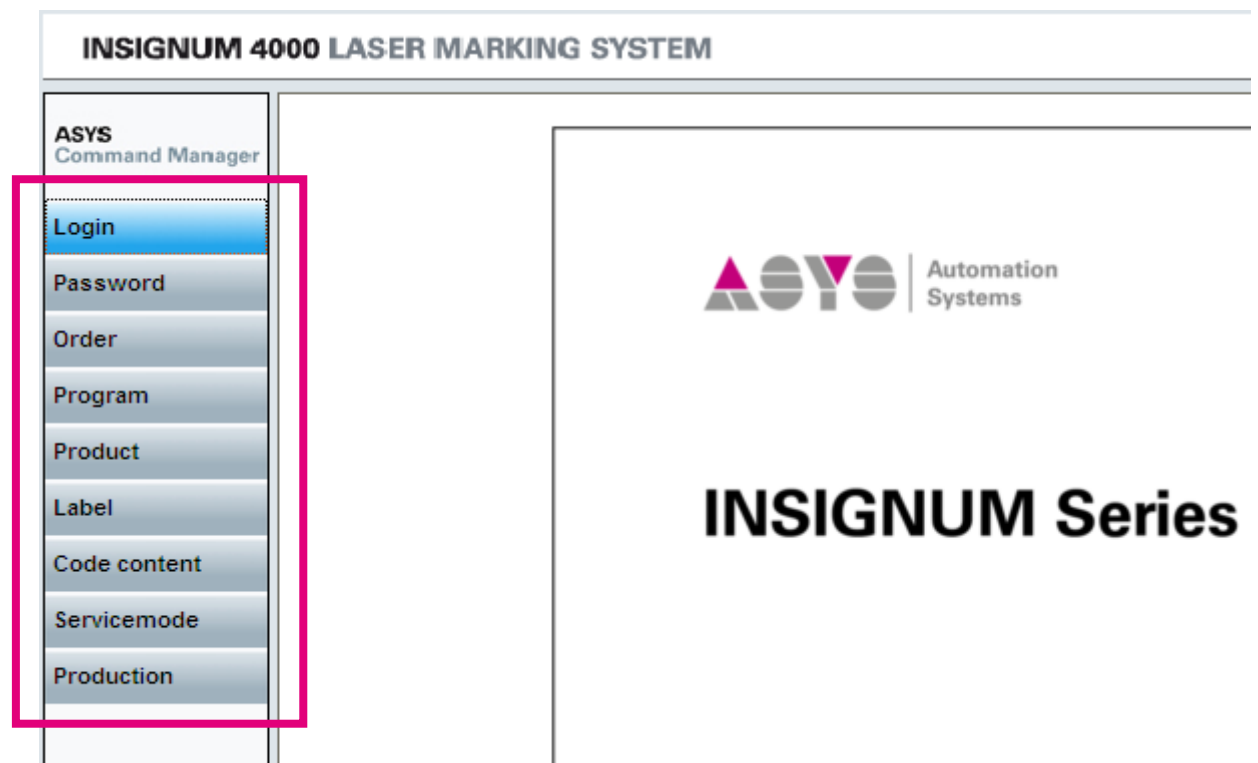
Options:

Electrical width adjustment



Programming and teaching

The ASYS-marking software consist of different modules:



Cut-out main-menu

User interface

The screenshot shows the software interface for the INSIGNUM 4000 LASER MARKING SYSTEM. The interface includes a left sidebar with a 'Production' menu, a central tree view showing 'Machine', 'Side', 'Blocks', and 'Segments', and a main control area with various parameters and a camera view.

Annotations with arrows point to specific features:

- Program-name**: Points to the 'Program' entry in the tree view.
- Content of the barcode**: Points to the 'Product' entry in the tree view.
- AIM Verification**: Points to the 'Symbol contrast' parameter in the 'Barcode' section.
- Fiducial recognition**: Points to the camera view showing a barcode with fiducial markers.
- Cycle-time**: Points to the 'Cycle time' parameter in the 'Barcode' section.

The main control area displays the following parameters:

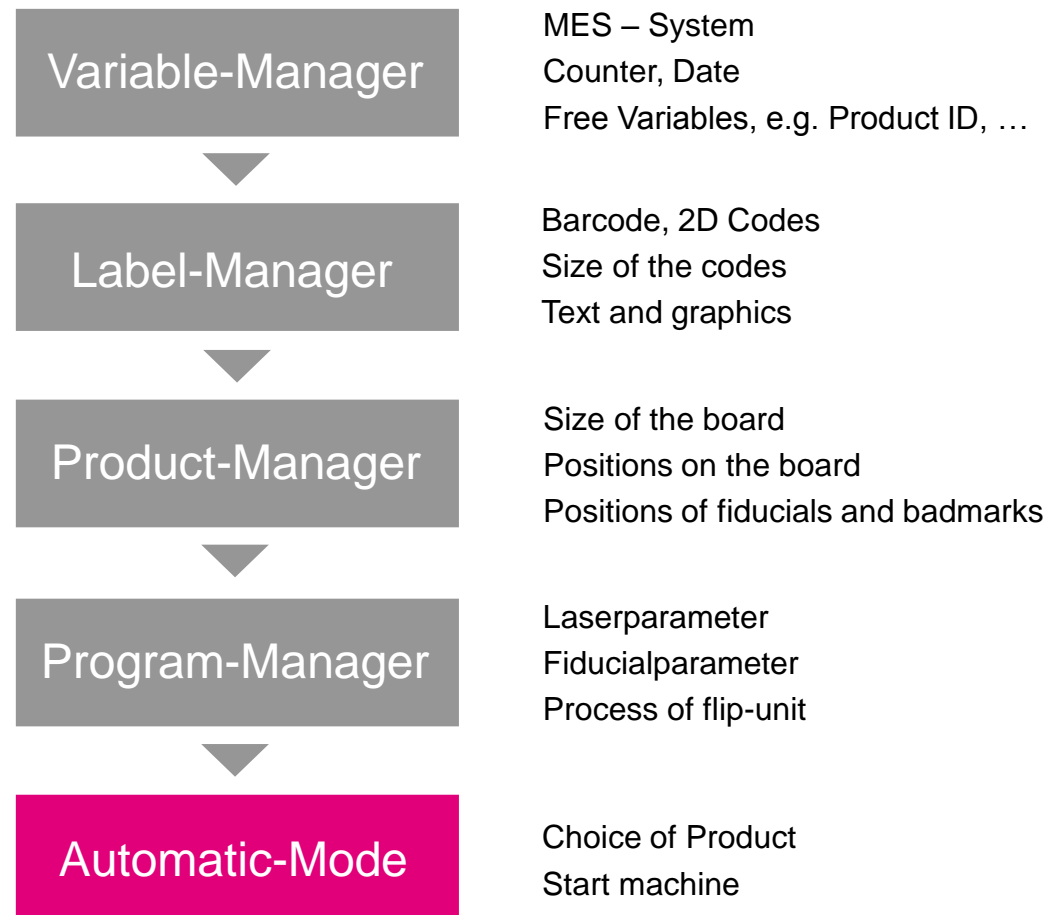
Parameter	Value
Automatic	0.00
Transport	0.00
Process	0.00
Cycle time	0.00

The 'Barcode' section includes the following parameters:

Parameter	Value
Symbol contrast	
Print growth	
Axial non-uniformity	
Skewed error correction	
Overall	

The camera view shows a barcode with three fiducial markers: a square, a circle, and a cross.

Programming and teaching – workflow



Programming and teaching – Additional manager

Service-Manager

Laserparameter adjustments
Input/Outputs
Manual modes for axis

Task-Manager

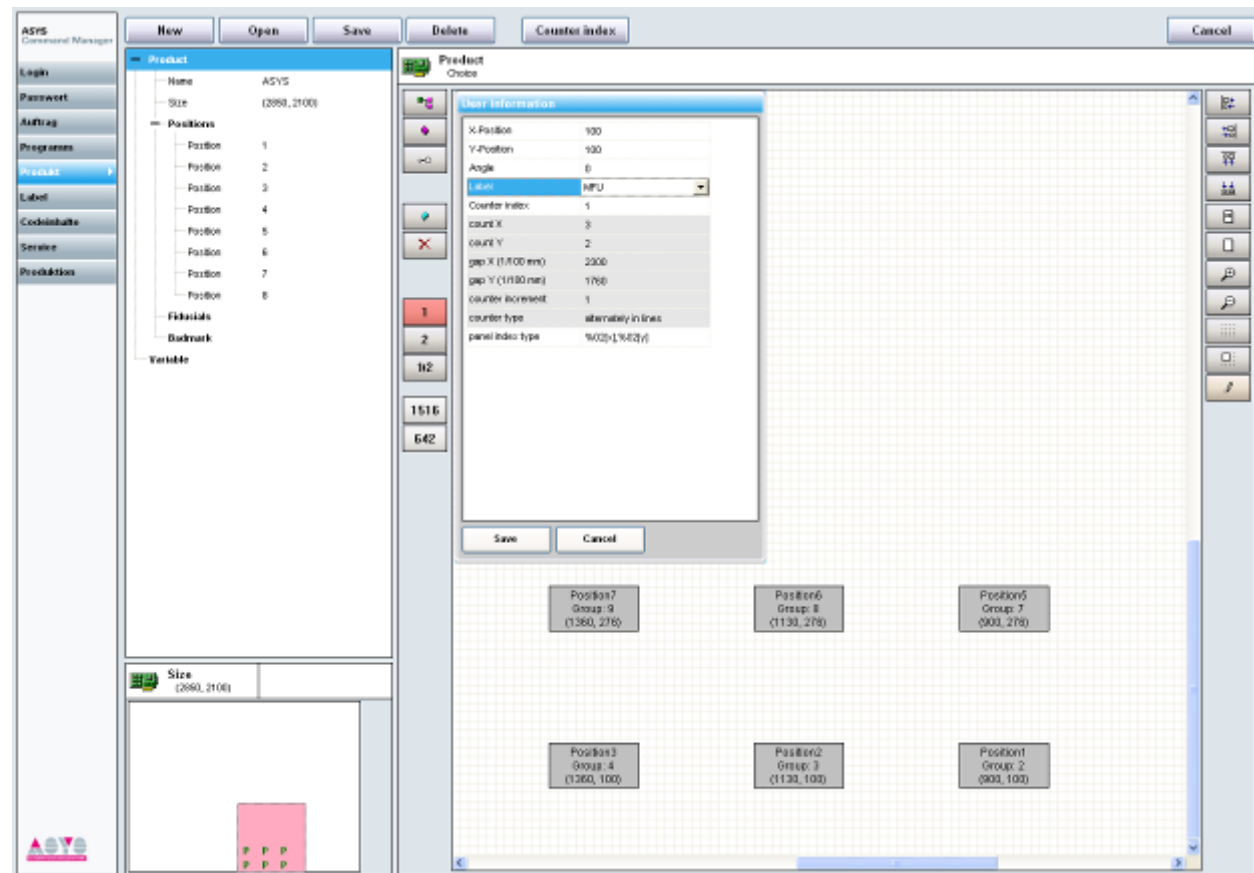
Creation of charges/batches

Password-Manager

Setup of different user-levels

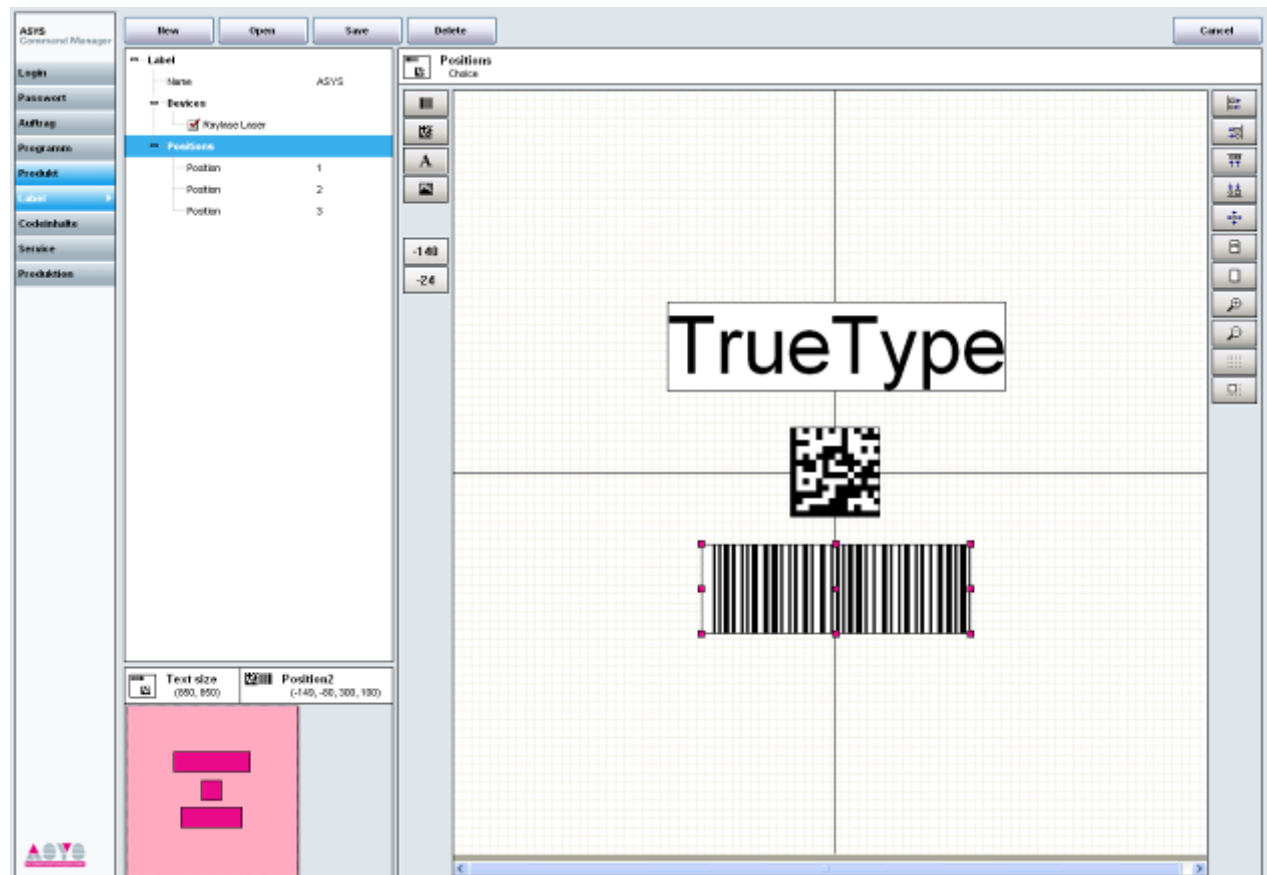
HMI – Cut-out Product-manager

Parameter setting
of positions;
amount of
positions; fiducial
positions; badmark
positions; size of
the board

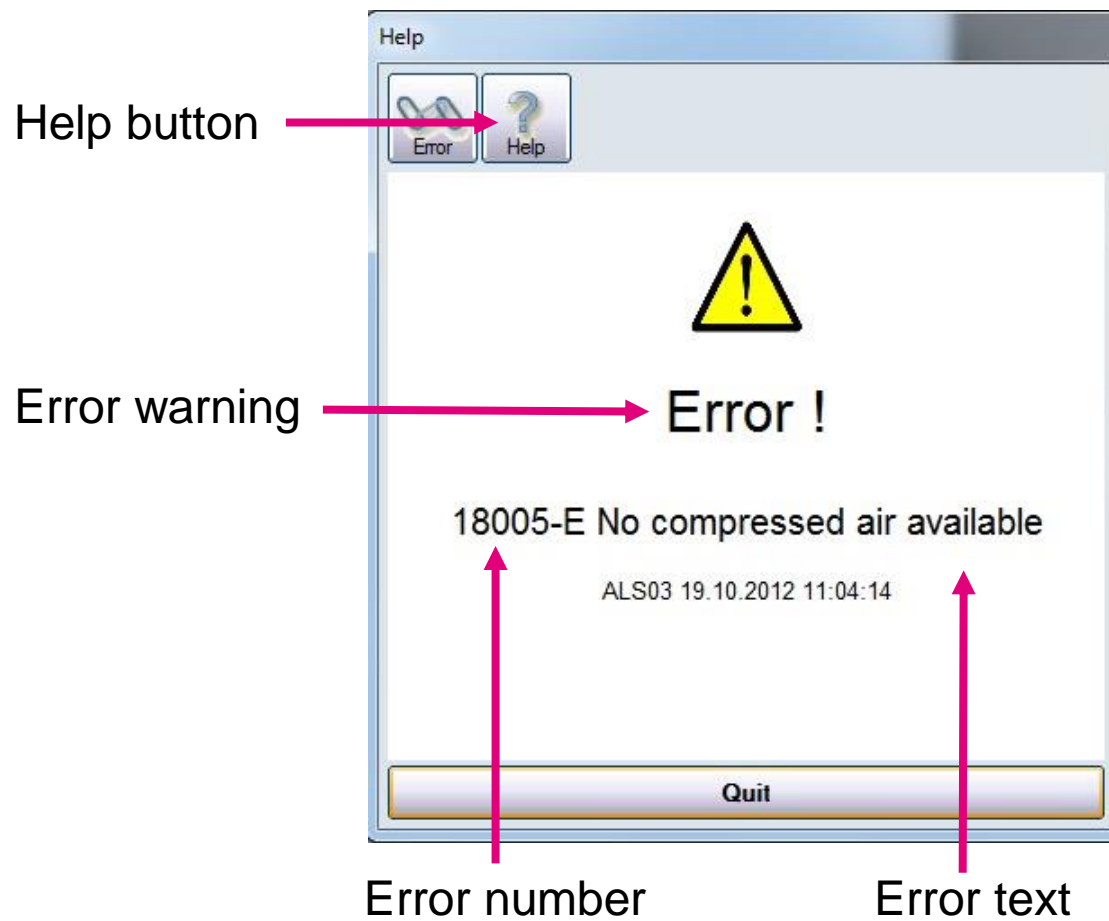


HMI – Cut-out Label-manager

Parameter setting
for label-type, font-
Type, code-type and
dimensions



Error handling



Error analysis

After pressing the help button a new window with a help text and a picture appears.

