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FOBA®
Laser at your service

Fiber laser marker Y-Series

Applied variety: a range of system variants enables many applications

The powerful **fiber laser markers** in the Y-Series are ideally suited for industrial part marking. They are used in almost all metal and plastic processing industries for precise and efficient direct marking of parts and products: from automotive construction through medical and security technology to electronics. All kinds of codes (QR codes, DMC / DataMatrix Codes, Barcodes), alphanumeric characters, logos and letterings are marked reliably and highly accurate with fiber lasers. The **vision system** which can be optionally integrated in the marking unit, features **markings in zero-defect quality** and **process reliability** through automatic optical verification and validation steps. The Marking Field Calibration as well as parameter sets for optimizing marking speed, quality and accuracy allow optimum adaptation to the respective application.

The modular construction enables highest flexibility, application-specific configuration and easy integration in production lines and stand-alone systems like FOBA → fiber laser marking machines: The Y-Series includes 9 different fiber laser sources, spanning power and pulse width ranges on one modular platform.

Available laser systems (fiber marking lasers)
Y.0100, Y.0200, Y.0300, Y.0500, Y.0201, Y.0301, Y.0021

Marking features	
Marking head	CP10 with various precision optics for focusing (f = 100/ 163/ 254/ 420 mm)
Marking fields*	Various fields, ranging from 60 x 76 mm2 (f = 100 mm) up to 315 x 368 mm2 (f = 420 mm)
Speed*	Up to 1,000 characters/sec.* (up to 1,200 characters/ sec.* with High-S tuning)

Laser sources	
Type	Pulsed Ytterbium fiber lasers (Yb): Y.0100 (10W), Y.0200 (20W), Y.0300 (30W), Y.0500 (50W), Y.0201 (20W), Y.0301 (30W), Y.0021 (2W), several pulse frequency ranges, wavelength 1064 nm
Laser class	4 (according to DIN EN 60825-1:2014)

Interfaces
− PC software FOBA MarkUS and FOBA Draw (on separate, external, optional Windows 7 or Windows XP PC)
− TCP/IP und Profibus

Supply	
Electrical requirements	L/N/PE 100 − 240 VAC, 50/60 Hz
Power consumption	Y.0100, Y.0200, Y.0300, Y.0201, Y.0301, Y.0021: 400 VA | Y.0500: 700 VA
IP rating	− Marking unit IP54 − Supply unit IP21

Cooling	Air-cooled, auto overheat protection
Temperature	5 - 35° C
Humidity	10 - 90 %, non-condensing
Weight	− Marking unit approx. 8 kg − Supply unit approx. 20 kg

Scope of delivery and Options, accessories

Scope of delivery	− Marking laser with selectable tunings (High-Q tuning, High-S tuning) and pilot laser
Options, accessories	− IMP camera (integrated in CP10 marking head) − Lighting for camera systems IMP, Point & Shoot − Exhaust systems

application dependent

Available laser systems (fiber marking lasers)

Y.0050-cw, Y.0100-cw

Marking features:

Marking head	CP10 with various precision optics for focusing (f = 100/ 163/ 254/ 420 mm)
Marking fields*	Various fields, ranging from 60 x 76 mm2 (f = 100 mm) up to 315 x 368 mm2 (f = 420 mm)
Speed*	Up to 1,000 characters/sec.* (up to 1,200 characters/ sec.* with High-S tuning)

Laser sources

Type	**CW Ytterbium fiber lasers (Yb):** (Yb): Y.0050-cw (5W), Y.0100-cw (10W), wavelength 1064 nm
Laser class	4 (according to DIN EN 60825-1:2014)

Interfaces

− PC software FOBA MarkUS and FOBA Draw (on separate, external, optional Windows 7 or Windows XP PC)
− TCP/IP und Profibus

Supply

Electrical requirements	L/N/PE 100 − 240 VAC, 50/60 Hz
Power consumption	Y.0100, Y.0200, Y.0300, Y.0201, Y.0301, Y.0021: 400 VA | Y.0500: 700 VA
IP rating	− Marking unit IP54 − Supply unit IP21
Cooling	Air-cooled, auto overheat protection
Temperature	5 - 35° C
Humidity	10 - 90 %, non-condensing
Weight	− Marking unit approx. 8 kg − Supply unit approx. 20 kg

Scope of delivery and Options, accessories

Scope of delivery	− Marking laser with selectable tunings (High-Q tuning, High-S tuning) and pilot laser

Options, accessories	– IMP camera (integrated in CP10 marking head)
	– Lighting for camera systems IMP, Point & Shoot
	– Exhaust systems

application dependent

Fields of main application

Electronics industry; automobile/ autoparts industry; medical and security technology; machine and tool construction; ID and personalization sectors (personalization of cards, IDs and passports); all types of metal markings; production of plastics; markings that are imprinted when the object is stationary or in motion

Your product benefits

– High precision and cost effective production

– Optimum adaption to application-specific requirements

– Flexible, easy integration and configuration

– Optionally: marking head with integrated vision system

▼ Product datasheet Y.0XXX-Series

▼ Datasheet Software / Vision

▼ Laser purchasing guidelines

Further information

→ **Vision System**

→ **Laser marking**

→ **Laser engraving**

→ **Application examples**

→ **Y-Serie Mircosite**

→ **Laser marking machine**

→ **Laser engraving machine**

→ **FOBA Remote Service**
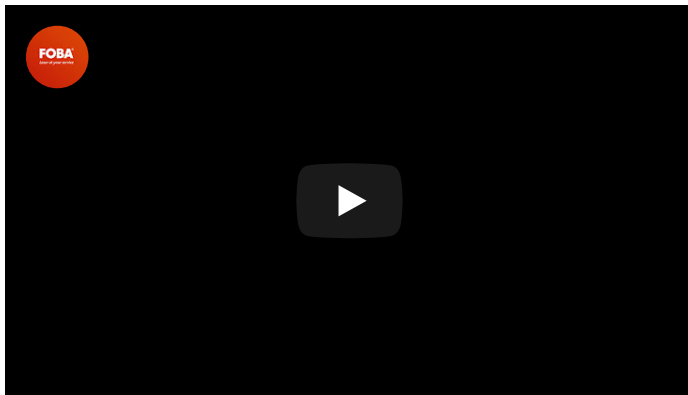
Fiber laser marker Y.0201-DN

Forward-thinking technology for backlit components:
The new standard for high-speed, high-precision day & night marking (paint removal)

Day & night design of painted controls as well as backlit dashboards and buttons requires fast, high-quality and high-precision marking (paint removal). Over the past 25 years, FOBA has established itself as a preferred marking solution for global manufacturers and automotive suppliers. FOBA lasers apply functional marks that convince on various colors, coatings and materials with their utmost black-white brilliance or superior light-dark contrast.

These proven solutions are now being enhanced by a new day & night marking laser especially **tailored for demanding paint removal applications: The Y.0201-DN** comes with an integrated vision system for increased precision and up to 80 percent less scrap due to marking, and with up to 50 percent shorter process times.* This makes the new high-precision fiber laser marker the new benchmark for the repeatable layered color and paint removal. The marking results are of superior quality, and users can rely on the low operating costs and extra productivity the system ensures.

*compared to similar products on the market

Technical specifications

Marking head	SS10 with high-precision focusing optic (f = 420 mm)
Marking field*	307 x 307 mm2
Marking speed*	Up to 20,000 mm/sec., up to 800 characters/sec.

Laser source

Type	Pulsed Ytterbium fiber laser (Yb), 20W, several selectable pulse durations from 4 to 200 ns, wavelength 1064 nm
Laser class	4 (acc. to IEC 60825-1)

Interfaces

– PC software FOBA MarkUS and FOBA Draw (on separate, external, optional Windows 7 or Windows 10 PC**)

– TCP/IP, Profibus, Profinet (optional)

Supply

Electrical requirements	L/N/PE 100 – 240 VAC, 50/60 Hz
Power consumption	400 VA
IP rating	– Marking unit IP64 – Supply unit IP21
Cooling	Air-cooled, auto overheat protection
Temperature	5 - 40° C
Humidity	10 - 90 %, non-condensing
Weight	– Marking unit approx. 10 kg – Supply unit approx. 19 kg

Scope of delivery, options and accessories

Scope of delivery	– Fiber laser marker
Options, accessories	– IMP camera for mark alignment andvalidation (integrated in marking head) – Lighting for camera systems IMP, Point & Shoot – Rotating units (with M-Series) – Customer specific plugins – Exhaust systems
Machine integration	– M2000/3000-B (workstations with worktable and programmable Z-axis) – M2000/3000-P (workstations with programmable axes X, Y, Z) – M2000/3000-R (workstations with 2-station rotary table and programmable Z-axis)

*Depends on the application ** with MarkUS version 2.12 as of Q2 2018

Fields of main application

Controls in day-night-design: The marking appears brilliantly in daylight and is backlit in the dark.

Applications examples:

Automobile and aerospace, Consumer electronics, Home appliances, Cockpit controls, operating/, control consoles and panels, front panels, faceplates, buttons, dashboards, Keys, switches, rocker, switches, rotary controls, Keyboards, Scales, instrument displays

Your product benefits

- Superior marking quality at 50 percent higher* marking speed + More throughput due to larger marking field + Enhanced application range due to smaller spot size and optimized beam quality (finest, highly precise removal, sharp contours, no melting)
- Low operating costs thanks to 8 times longer lifetime of laser source** + High uptime due to efficient and low maintenance air cooling, improved beam stability, resistance against critical environmental conditions (i.e. high temperatures) and dust-tight IP64 laser head
- Shortest setup with Autofocus in the M-Series workstations (3 times faster vs. manual focus finding) and due to intelligent software features (Parameter Matrix Tool, contour offset, mark alignment, etc.)

▼ Product datasheet Y.0201-DN

▼ Datasheet software / vision

▼ Laser purchasing guidelines

▼ Apps Note Day-Night-Design

Further information

→ **Vision System**
→ **Laser marking**
→ **Laser engraving**
→ **Application examples**
→ **Laser marking machine**
→ **Laser engraving machine**
→ **FOBA Remote Service**

Fiber laser marker

Ultrafast 100-Watt fiber laser for high contrast marks on robust metals and plastics

High performance pays off: In case of the new Y.1000 in form of highest marking quality and speed, increased productivity and reliable product traceability and system uptime. The small in size yet extremely powerful 100-Watt fiber laser marker applies crisp, clear marks on resistant materials that permanently withstand even the toughest conditions. This is why FOBA's Y.1000 is specifically suited for the marking of automobile parts and aerospace components – such as engine and powertrain parts, transmission components, hard plastic and plastic products such as cable or extrusion parts – that are exposed to high stresses and strains. In addition to the reliable marking quality, the fast line speeds meet the highest demands for increased throughput, manufacturing efficiency and productivity.
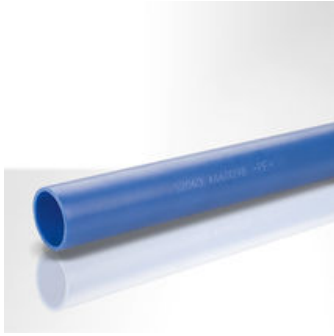
Technical specifications	
Marking head	CP10 with various precision optics for focusing (f = 100/163/254/420 mm)
Marking field*	2 (f = 100 mm) up to 498 x 367 mm2 (f = 420 mm)
Marking speed*	Up to 10 m/s (600 m/min)

Laser source	
Type	Pulsed Ytterbium fiber laser (Yb), 100W, several pulse frequency ranges, wavelength 1064 nm
Laser class	4 (acc. to IEC 60825-1)

User Interfaces
− PC software: FOBA Draw (on separate, external, optional Win 7PC), FOBA MarkUS as of Q2.2018 (on separate, external, optional Win 10 PC)
− Interfaces: Ethernet, RS-232 (Profibus, Profinet, TCP/IP as of Q2.2018 with MarkUS)

Supply	
Electrical requirements	L/N/PE 100 − 240 VAC, 50/60 Hz
Power consumption	700 VA max
IP rating	− Marking unit IP54 − Supply unit IP22
Cooling	Air-cooled, auto overheat protection
Temperature	10 - 35° C, up to 40°C with a duty cycle of 70%
Humidity	10 - 90 %, non-condensing
Weight	− Marking unit approx. 8 kg − Supply unit approx. 25kg

Scope of delivery, options and accessories	
Scope of delivery	Fiber laser marker with selectable tunings (High-Q tuning, High-S tuning) and pilot laser
Options, accessories	− Customer specific plugins − Exhaust systems

Depends on the application

Fields of main application

Resistant materials that are exposed to high stresses and strains and permanently withstand even the toughest conditions.

Applications examples:

automobile parts and aerospace components

engine and powertrain parts, transmission components

hard plastic and plastic products such as cable or extrusion parts

Your product benefits

- **High contrast marking at high-speed** on hard plastics, metals and other industrial products + Crisp and clear permanent codes at ultrafast line speeds ensure increased throughput, reliable traceability and tamper-proofing + High precision scan head delivers consistent high quality codes across the entire marking field
- **High performance and reliable uptime** with virtually maintenance-free, air-cooled laser
- **Built-in productivity** + High line speeds (up to 600 m /min) for mark-on-the-fl y applications + 498 mm wide marking field (with f = 420 mm lens) provides more time to mark, more throughput and higher productivity
- **High line integration capability** + Compact mechanical design for easy integration in tight environments + flexible configuration and interfacing options for line and OEM integrations

| ▼ Laser purchasing guidelines |
| ▼ Product datasheet Y.1000 |
| ▼ Case study: Can lid marking |

Further information

→ **Laser marking**
→ **Laser engraving**
→ **Application examples**
→ **Laser marking machine**
→ **Laser engraving machine**
→ **FOBA Remote Service**

Fiber laser marker LF101/LF201
Versatile fiber laser markers

ALLTEC LF101 and LF201 are compact, versatile and highly reliable for industrial direct part marking applications on a variety of metal, plastic and various other hard-to-mark materials in the electronics, tools/metal and automotive as well as automobile supplies industries.

The 10 and 20 Watt pulsed fibre laser marking systems quickly apply complex variable data (ID matrix/bar codes, logos, characters, [serial] numbers, individual data, etc.) on both moving and static products. Additional advantages include low maintenance and ease of integration with the system's dovetail joint mounting interface and a multilingual user interface.

Whether through engraving, high contrast color change, material removal or annealing — the solid-state laser marking systems LF101 and LF201 deliver high resolution and brilliant marking quality.

Marking features

Marking field*	Depends on the marking head that is used and the respective focusing optics
	– 6 mm marking head: 19.5 x 26 mm² (f = 50 mm) to 180.5 x 180.5 mm² (f = 258 mm)
	– 10mm marking head: 75.8 x 118.7 mm² (f = 100 mm) to 361.5 x 498.5 mm² (f = 420 mm)
Marking formats	– Standard fonts
	– Individual fonts such as high-speed or OCR fonts
	– Machine-readable codes: ID matrix, barcodes
	– Graphics and graphic components, logos, symbols etc.
	– Linear, circular, angular marking for text; rotation, reflection, expansion, compression of marking data
	– Sequences and series numbering
	– Automatic date, shift and time coding, real-time clock
	– Online coding of individual data (weight, content etc.)

Laser

Type	Pulsed Ytterbium (Yb) fiber laser, power classes 10/20 Watt, central emission wavelength 1,055 –1,075 nm
Laser class	4 (as per DIN EN 60825-1:2014)
Focusing	Precision optics:
	– Focal lengths of 6 mm marking head: f = 50/100/165/258 mm
	– Focal lengths of 10 mm marking head: f = 100/163/254/420 mm
Beam deflection	Digital high-speed galvanometer scanners
Beam orientation	90-degree (standard) and straight-out (option)

User interfaces

– Integrated keyboard
– Hand-held control device (can be configured in 16 languages), option
– Smart Graph PC software (can be configured in 20 languages), option
– Software interface

Software

Smart Graph	Graphics-oriented user interface under Windows® for the intuitive and fast preparation of complete marking jobs on PCs
	– System configuration
	– Text/data/graphics/parameter editor
	– Configurable in 20 languages, e.g. in German, English, Japanese
	– Easy access to standard CAD and graphics programs, thanks to import functions for the most important file formats
	– WYSIWYG
	– Various password-protected security levels
Smart Graph Com	ActiveX software interface for integration into operation software
Communication	– Ethernet (TCP/IP, 100Mbit LAN), RS232, digital I/Os
	– Inputs for encoders and product detector triggers
	– I/Os for the 'start', 'stop', 'external error', 'job select', 'trigger', 'trigger enable', 'encoder', 'system ready', 'ready to mark', 'marking', 'shutter closed', 'error', 'bad', and 'good' signals and machine/operator interlocks
	– Customer-specific solutions

Integration

- Direct integration into complex production lines through the laser's scripting interface
- Integration via Ethernet and RS232 interface
- Highly precise side guided height adjustment via dovetail joint

Supply

Electric requirements/ cooling	100 - 240 V (autorange), 250 VA, 1PH, 50/60 Hz/ air-cooled
IP rating	Marking unit IP54, Supply unit IP21
Temperature	5 - 40° C
Humidity	10 - 90%, non-condensing
Weight	Marking unit 6mm – 4,4 kg Marking unit 10mm – 6 kg Supply unit –19 kg

application dependent

Fields of main application

Electronics industry; automobile/ autoparts industry; medical and security technology; machine and tool construction; ID and personalization sectors (personalization of cards, IDs and passports); all types of metal markings; production of plastics; markings that are imprinted when the object is stationary or in motion

Your product benefits

- Compact design and flexible software and hardware platforms for simple integration into end customer lines and OEM machines
- Wide application scope
- High beam quality and high marking quality
- Minimal setup time, long lifespan
- Air-cooled, highly efficient, very low-maintenance laser
- Can be used independently of a PC

▼ Product datasheet LF101/201

▼ Laser purchasing guidelines

Further information

→ **Laser marking**
→ **Laser engraving**
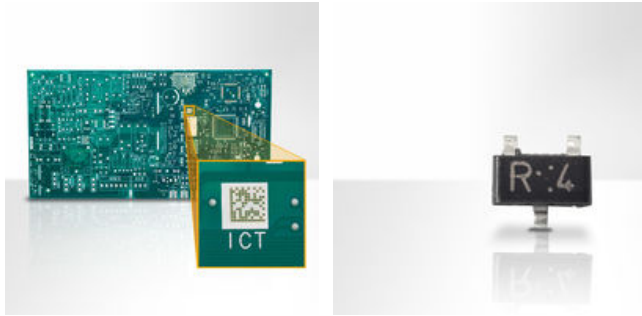→ **Application examples**

cw Fiber Laser Marker LF050

Fiber laser marker for mini and micro markings

LF050 is the marking laser for the electronics industry. The continuous wave fiber laser marker was developed for the marking of molded housings of discrete and integrated components as well as printed circuit boards. The marking process is precise, producing a high-quality mark in the shortest possible period of time.

LF050 applies various marking contents on moving or stationary components: Use-by dates and manufacturing data, batch and line numbers, 2D codes and barcodes, graphics and logos or customized data.

With LF050 line widths well below 30 μm can be achieved, enabling character heights of 150 μm and less.

Marking features	
Marking field*	142 x 193,5 mm² (f=163 mm), depends on the focusing optic used
Speed*	Up to 800 characters/s, up to 10m/s
Marking formats	− Standard font − Individual fonts such as high-speed or OCR fonts − Machine-readable codes: ID matrix, barcodes − Graphics and graphic components, logos, symbols etc. − Linear, circular, angular marking for text; rotation, reflection, expansion, compression of marking data − Sequences and series numbering − Automatic date, shift and time coding, real-time clock − Online coding of individual data (weight, content etc.)

Laser	
Type	Ytterbium (Yb) fiber laser, power class 5/10 W cw, wavelength 1,070 nm
Laser class	4 (as per DIN EN 60825-1:2014)
Focusing	Precision optics: Focal lengths f = 100/163/254 mm
Laser beam deflection	Digital high-speed galvanometer scanners

Operation	
Various options: PC, hand-held control device or software interface	
Hand-held device	− Graphic remote control via Ethernet for flexible control − Implementation of marking jobs, marking data entry − System configuration − Status and alarm displays − Extremely legible graphics display; quick, intuitive operation − Can be configured in 16 languages, including German, English, Chinese

Software	
Smart Graph (optional)	Graphics-oriented user interface that runs on Windows® 2000/XP for intuitive and quick creation of complete marking jobs on PCs − System configuration

- Text/data/graphics/parameter editor
- Can be configured in 17 languages, including German, English, Chinese
- Easy access to standard CAD and graphics programs, thanks to import functions for the most important file formats
- WYSIWYG
- Various password-protected security levels

Smart Graph Com	ActiveX software interface for integration into operation system
Communication	- Ethernet (TCP/IP, 100 Mbit LAN), RS232, optional: other digital inputs/outputs (8 bit wide) - Inputs for encoder and trigger - 5 inputs/7 outputs for start/stop, machine/operator interlocks, alarm outputs, etc., extensible with additional inputs/outputs - Client-specific solutions

Integration

- Direct integration into complex production lines with the help of the scripting interface of the laser
- Integration through Ethernet and RS232 interface
- Simple integration through flexible supply line (5 m > including fiber laser and supply lines)
- High-precision vernier adjustment for height with guard rail which is formed by means of a dovetail

Supply

Electrical requirements	100 - 240 V (Autorange), 150 VA, 1 PH, 50/ 60 Hz
Cooling	Air-cooled
Temperature	5 - 40° C (40 - 105° F)
Humidity	10 - 90 %, non-condensing
Weight	Supply unit 11 kg, Marking unit 7.5 kg

application dependent

Fields of main application

Electronics industry (molded housings of discrete and integrated components, printed circuit boards); packing industry (foils, tubular bags, composite packaging);
Marking that are applied when the object is stationary or in motion

Your product benefits

- Smallest possible markings thanks to a wavelength that is 10 times shorter (compared to CO_2 markers) and highest beam quality
- High-resolution, precise and legible laser marking
- Efficient and low-maintenance
- Reliable fiber laser source with simple air-cooling
- Quick and easy integration

▼ Product datasheet LF050

▼   Laser purchasing guidelines

Further information

→ **Laser marking**

→ **Laser engraving**

→ **Application examples**

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▼   Laser purchasing guidelines

Further information

→ **Laser marking**

→ **Laser engraving**

→ **Application examples**