

## TECHNICAL GUIDE GRAPHIX.series®



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### ALL-IN-ONE LASER STATION GUIDE



Class 1 fibre laser marking station with integrated control electronics

- Allows quick and precise marking on different types of materials (see marking guide p9).
- Ideal for small to medium-sized series. For larger series, it is preferable to opt for a model with a motorised door, using the customisation service.
- Use for:
  - deep or light engraving,
  - la decoration,
  - identification for traceability of any part.

### Composition:

• Aluminium profile structure with control buttons on the front panel.



External dimensions (l x p x h): • 800 x 755 x 985 mm (31.496" x 29.724" x 38.779") 3 power ratings available: • 20 W, 30 W et 50 W



### Integrated control panel:

- Fault indicator light
- Marking in progress indicator light
- Simulation mode/marking mode key selector
- Push button arming for switching on the station and restarting after an emergency stop
- Switch on/sitch off the light selector
- Emergency stop push button
- Stop marking push button
- Start marking push button

### External connector panel:

- 3 USB ports (keyboard, mouse, USB key, code reader)
  Ethernet port (Internet connection for use of the
  - communication protocol and remote control)
- Alimentation port (a single connection to operate the entire station)
- Fume extractor port



4 adjustable

feet

### ALL-IN-ONE LASER STATION GUIDE



ULBRARE SET

### Assisted door opening:

- Easy access to parts
  - 2 positions



l<sup>st</sup> position (passage of 270 mm (10.629"))



2<sup>nd</sup> position (passage of 550 mm (21.653"))

### Marking head:

- Co-developed by Technomark and Scanlab
- See marking head guide page 6

### High loading capacity:

 500 x 500 x 400 mm (l x p x h) (19.685" x 19.685" x 15.748")

#### Fixing inserts:

- 1 hole every 125 mm (4.921")
- Possibility of mounting various part supports (clamping system, rotating axis...)
- Enables perfect repeatability

### **CUSTOMER BENEFITS**

- + All-in-one station (on-board electronis) allowing for a small footprint
- + High loadind capacity for marking high and/or bulky parts.
- Column extended by 100 mm in height as standard (3.937") compared to the Graphix V1, equivalent to a total passage of 400 mm (15.748").



TECHNOMar

smart traceabilit

## Ol ALL-IN-ONE LASER STATION GUIDE

### **TURNING OFF THE STATION**

For safety reasons, the Graphix laser marking station must be **switched off** after use. The following steps must be carefully followed:



Once the markings are complete, leave the station door open.



Turn the control panel key to the left.



Remove the control panel key from the station.



1. Click on **2** 2. A pop up window opens, click on ok to exit the creation mode.

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 Click on the stop button.
 A pop up window opens, click on ok to shut down the system.



Turn off the power of the machine by pressing the main switch.



### 02. ACCESSORIES & OPTIONS GUIDE



### **Connectivity pack:**

Adjustable screen, keyboard and mouse

### Through-going side opening (single or double):

- Marking of long parts
- Parts passage of 80 x 80 mm (3.149" x 3.149"), other sizes available on request

### Retractable drawer:

for keyboard and mouse

### Fume extractor:

For materials that generate particles (paint, plastic, etc.) after marking



### Rotating axis:

- Circumferential marking
- Marking on cylinder
- Clamping :
- From the inside: from Ø30 to Ø90 mm (1.181" to 3.543")
- From the outside: from Ø2 to Ø30 mm (0.078" to 1.181") or from Ø30 mm to Ø80 mm (1.181" à 3.149") according to the jaws

### **CUSTOMER BENEFITS**

Station designed for the user's comfort and to adapt to the different types of parts to be marked (long parts, cylindrical parts...) thanks to its numerous accessories.





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## 03. MARKING HEAD GUIDE

Marking head with on-board camera codeveloped by Technomark and Scanlab.



2 sizes of marking window available depending on the focal lenght:

- focal 160 : 100 x 100 mm (3.937" x 3.937")
- focal 254 : 140 x 140 mm (5.511" x 5.511") in option



Galvanometric head driver card



Laser torch

**On-board caméra** which enables Smart View function

### **CUSTOMER BENEFITS**

- Precision and speed of execution: scan speed up to 12 m/s
- On-board camera to simplify marking (see Smart View function guide p11)
- Unlike the Graphix VI head, the one of the Graphix V2 is designed by Technomark, there
  is therefore better control of its operation and better follow-up in case of breakdown or
  repair.



## 04. software Guide

The Graphix V2 software is **developed by Technomark** (unlike the Graphix V1). The objective: to offer easy-to-use, fully mastered software and **make laser marking accessible to all**. There are two modes of use:

#### **Creation mode**

This mode allows to create marking files from A to Z:

- Insert text, shapes, 2D codes and import images,
- Choose their size, font and positioning,



• Adjust the height of the marking head according to the height of the part to be marked.

Once the creation of the file is complete, it is possible to do the marking. There are two options for doing this:

### 1. Simplified settings for novice users

In order to make successful markings without technical knowledge, has Technomark developed a material database integrated with the Graphix driving software. The operator simply selects one of the 3 criteria (contrast, speed or depth), to obtain directly the machine settings and the desired rendering.









### **MY FIRST MARKING DONE IN LESS THAN 1 MINUTE**



Press +
 Indicate the height of the part



Click on the text bar
 Specify characters to be marked



Open the settings menu
 Uncheck the «Use general settings» box



Select material family
 Select material
 Select the desired rendering



Press the button to activate the camera



Move the marking with the mouse to the desired position on the part



- 1. Activate the marking preview (optional with the camera)
- 2. Check that the positioning is correct



Turn the key selector to the right to activate the marking



1. Deactivate the preview 2. Start marking



## 04. software Guide

### 2. Advanced settings for experts

It is of course possible, for those who have technical knowledge of laser marking, to make their own settings, in order to precisely adjust the rendering of the desired marking.



### a. Management of personalised profiles

- Choosing the profile to be edited or creating a profile
- Deleting a profile
- Saving a pro

### b. Marking settings

- Frequency
- Scanning speed

Positioning the part

- Power
- Spacing
- Filling orientation (horizontal, vertical or cross lines)

NB: If the marking settings are not saved in a custom profile, they will only be saved on the marking file.

### **Production mode**

This mode only allows marking to be carried out according to predefined settings. Trois étapes suffisent :

- Selection of the fileStart of a marking or a marking campaign

NB: it's not possible to modify the marking files in this mode, it's necessary to go through the creation mode. However, it's possible to enter variables using the keyboard or a barcode reader.



•

- Reduction of operator actions
- Reduced risk of errors
- Saves time



# 05. COMMUNICATION PROTOCOL

¥ —						
Interf	ace	set	ting			
Grid origin						
			X	[	<del>0</del>	
Color of drawing						
#000000 Hex	a RGE	3	Pale	ette		
Managemer	nt of m	narki	ng cycl	es		
Production	cycle r	nana	igemei	nt		
Display inputs st		Dis	play ou	itput	s	
M4 inline	otoco		TCD			
TCP port : 707	0.000	"	TCP	•		
RS232 port : Disabled						
Baudrate RS232 :						
IP : 10.0.2.15	(	OS p	aramet	te		
Software langua	ae					
Language Engl	ish	Ŧ				

The majority of the M4 Inline machine's communication protocol commands work as standard on the Graphix laser station.

The following commands are available:

- Opening the marking file
- Variable filling
- Retrieving the contents of a variable
- Retrieving the name of the current file
- Saving the current file
- Z-axis origin tap
- Recovery of the machine state

More information on the functioning of the communication protocol can be found in the dedicated user manual.



# **06** SMART VIEW FUNCTION GUIDE



### Smart View\* function thanks to the on-board camera in the marking head:

- Direct view of the part on the screen
- Positioning of the marking on the image of the part in augmented reality
- Positioning precision less than 1 mm (0.039")

### **CUSTOMER BENEFITS**

- Simplification of laser marking as it is no longer necessary to move the part for the marking to be placed in the right place
- Time saving through on-screen control
- Reduction of the risk of error and therefore of the number of rejects
- This function makes it easier to carry out radial marking and multi-level marking (see marking guide p12 for more information)

\*the Smart View function is an option, Smart View licence (NOG-200) is required to use it.



## 07. MARKINGS GUIDE

There are many possibilities for marking (types, locations, materials, etc.) and they can be easily implemented.

### Types of marking:

- Production of different types of markings: alphanumeric (straight, radial, angular), time stamps, logos, 1D and 2D codes (barcodes, Datamatrix, QR codes), shapes.
- On different types of surfaces: metals and some plastics.

### Multi-level marking:

- Marking on different heights of a part, in stepped (1) or in curved shape\* (2)
- Optimisation of the laser path in 3 dimensions thanks to the multiplane software function
- Mise en oeuvre optimisée grâce à la fonction Smart View.



2



\*Please note that this type of file needs to be made up of several objects to be marked.

#### Marking of 2D codes

- Creation of standards-compliant codes directly in the software
- Marking of barcodes, QR codes and Datamatrix

2D codes can be marked in different ways:

- Mark only the black areas
- Mark only the white areas

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• Marking both: optimised implementation thanks to an intelligent marking function that allows both white and black parts to be marked in a single action of the operator.



This new way of marking will increase the contrast, and therefore simplify proofreading (possible with a smartphone).



# **OB** FREQUENTLY ASKED QUESTIONS

### Station questions:

### • Can we have an electric door on the station?

The station has a manual door only. It is possible to consult our customisation team to have a motorised door operated manually or remotely on the station.

### Is there a need for a specific type of vehicle to transport the station?

It is necessary to have a vehicle which can accommodate the station alone or with its box, so a footprint of :



(31.49" x 29.72" x 38.77") Without box



(40.15" x 45.27" x 49.21") With box (included in delivery)



(39.37' x 44.09" x 51.18") With box on wheels (on request)

### Marking head questions:

### Is it possible to have a bigger marking window?

At the moment there is no bigger window. However, it is possible, through our customization team, to have the head moved in X and/or Y.

### • Where do the components of the laser station come from?

80% of our suppliers are French, and all strategic laser components are premium components. The software was developed by Technomark and the galvanometric head and control electronics were co-developed by Technomark and Scanlab. The laser source is manufactured by a premium Asian laser manufacturer and purchased via a German partner.

### Smart View function questions:

Is the dynamic positioning of the camera is precise?

Yes, the positioning reflects reality in real time (the margin of error is less than 1 mm (0.039")).



# **OB** FREQUENTLY ASKED QUESTIONS

### Is it possible to make an arc laser projection?

No. If we want to simulate a circle with a diameter of 50 mm, what will be projected by the laser will be a square of 50 x 50 mm (1.968" x 1.968") corresponding to the envelope of the circle. Laser projection (or red light) is not required with the camera.

### Software questions:

### Will there be extra material in the database?

Yes, the database is intended to evolve over time through the capitalisation of customer experiences.

• When using the advanced/customised settings, can we choose to make several passes on the same object with different settings?

No, but it's possible to copy and paste the text/logo line in the same place using different parameters. Be careful, the quality of the result obtained is not guaranteed if the objects are not perfectly superimposed.

On the other hand, by creating a profile from existing profiles (PASSX2, PASSX3...), it is possible to repeat the marking, with the same parameters, several times.

### Accesories question:

## Is it necessary to add an electronic card or reconfigure the station to use the D axis? No, just connect the axis and declare it in the system. Please note that the connection must be made when the station is switched off. The available axis is the LC axis (low capacity). See p15 of the station's user manual for more information.

### Sécurity questions:

### • Does the station guarantee the safety of the operator?

The laser beam is dangerous to the eyes and skin, which is why the station has green laser protection windows for the eyes. In addition, in order to prevent the beam from coming into contact with the skin, it is not possible to start marking when the station door is open (PLe door safety functions). The operator is therefore perfectly safe. Class 1 fibre laser station compliant with the Machinery Directive 2006/42/EC and NF EN ISO 13849-1.



# **OB** FREQUENTLY ASKED QUESTIONS

### • What is the safety device for the side openings?

To ensure eye protection, the double brush on each side blocks the rays. It's strongly recommended to not insert hands into the station during the marking process as this may cause burns.

### Repair question:

 If one of my customers has a problem with their laser, can TMK provide remote assistance or do they have to send their station back?

For any after-sales problems, customer service is available by telephone on +33 (0)4 77 31 04 05 or by e-mail at the following address: services@technomark.fr. In addition, if the laser station is connected to the Internet, it is possible to take control of the machine directly (subject to local network compatibility), and therefore to intervene remotely.



