FAGOR

FAGOR AUTOMATION

Open to your world

LASER
CNC 8060 / CNC 8070

Leading-edge technology

at your fingertips

The all New Fagor CNC platform utilizes most advanced firmware to deliver custom solutions

Open solution

FAGOR CNC's can be easily adapted to excel with all customer applications through the integration of customized HMI, creation and modification of graphic interface and the integration of third-party software, etc.

Flexible solution

FAGOR AUTOMATION offers solutions that can be adapted to any machine configuration, including all the peripherals for each application: keyboards, monitors, remote terminals and external sensors, etc.

Robust solution

Products developed by FAGOR AUTOMATION are designed to operate with utmost efficiency under the most stringent industrial environments. They are robust, reliable, ergonomically designed thus ensuring guaranteed performance under most demanding industrial conditions.

Laser programming software

FAGOR AUTOMATION and LANTEK have collaborated on the Lantek Expert Inside software integration for the FAGOR CNC 8060 and FAGOR CNC 8070 Laser models.

This new laser programming software is a specially designed CAD/CAM solution that automates sheet metal cutting process.

With this integration, users can enjoy improved agility, efficiency and productivity due to enhanced operator control during the management of nesting jobs on the production floor.

This means the regular production demands of the user are optimized for tasks such as repeating single parts or reusing any scrap piece without requiring any intermediate procedures.

LANTEK is a very powerful, flexible and intuitive software that will transform your manufacturing process in to an enjoyable activity.

Powered by lantek

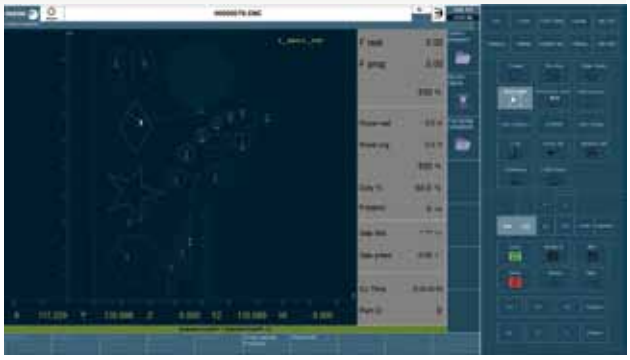
User Specific HMI

Operating modes

The all new user interface has been developed considering the complexities of various laser cutting machines. Its intuitive navigation provides easier access to different operating modes, minimizing programming steps. The user interface is easily configurable depending on the unique needs of any user.

PROGRAM selection and PREVIEW

In AUTOMATIC operating mode, the program selection screen offers a preview of the selected program in a separate viewing window.

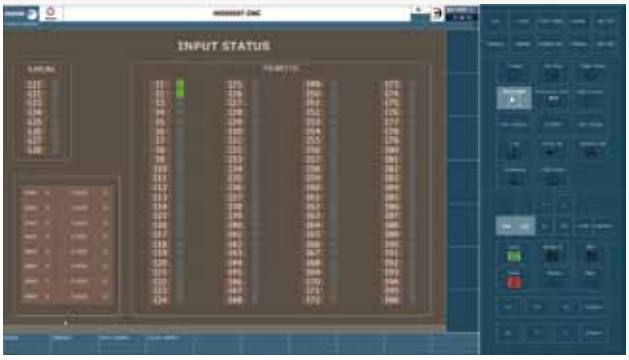


Profile selection

Allows the user to select part of a program by defining the start and end point or only the piercing point (PP). Both options can also be combined together. The part program selected is displayed with solid lines and the unselected part in dotted lines.

CUT VIEW

This sectional view displays a preview of the selected program. The colors in the graphic view represent the different cutting parameters used during the program execution. The continuous movement of the cursor and the change in color represents part cutting progress.



I/O, AXES and LASER monitoring

This mode displays the status of the I/Os, the axes and the laser. The different screens in this operating mode can be accessed by the corresponding softkeys.

Simple and intuitive data management

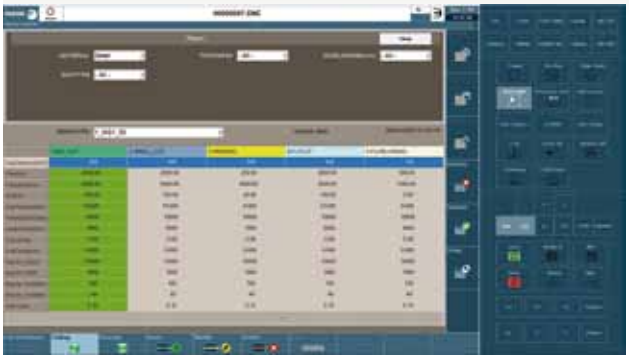
The information related to materials and cutting processes is organized in Technology Tables and Materials Lists, which provide simple, intuitive management of all process-related data.

Technology tables

These make it possible to select optimum parameters for the cutting process specific to a profile. The user can also select piercing conditions associated with different materials.

These conditions can be modified during program exceution.

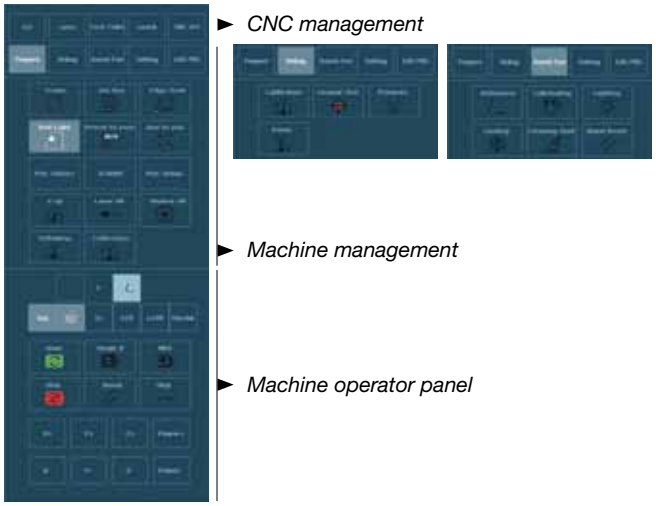
Tables are fully configurable by the user / OEM, according to the established permissions.



Materials lists

The common parameters associated with a material that affect the CUTTING and PIERCING processes are organized in the Materials Lists. The technological data for a specific material can be selected using specific command in the part program.

Virtual panel



► *CNC management*

► *Machine management*

► *Machine operator panel*

The virtual panel is a customizable interface used to interact with the CNC from the touch screen. The panel is easily configurable by the OEM (position, size, buttons, appearance, etc.), so its appearance can be configured to fit any customized interface, as well as its functionality, depending on the needs of each OEM.

The virtual panel can manage the manual movement of axes, the handwheel, including specifics keys for operating the machine and the laser system, as well as accessing customizable data entry screens and for carrying out machine adjustments.

The virtual panel, apart from making machine operations easier and more intuitive for the user, can also emulate the physical machine operator panel hence eliminating it's need.

Laser programming softw

Complete Autonomy- a CNC part program file in 5

5 QUICK STEPS FOR PROGRAM CREATION

The easiest programming software to create new nesting based on DXF, DWF and Parametric files and modifying nestings that have been created using Lantek Expert.

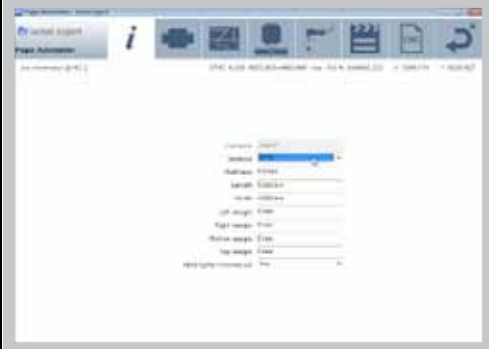
This user-friendly interface, extremely suitable for touch screens, enables the review of real-time information, provides quick ability to incorporate customer demands and ensures consistency and accuracy.

- Software Enabled: No Internet connection or USB dongle needed
- Dedicated sheet metal cutting postprocessor for creating the part programs
- Touch enabled screen support
- Intuitive, logical and easy to use
- Friendly interface

Powered by lantek

1

Define general sheet data



Define general information about the nesting job. This is the minimum information required to create a job: material, thickness, length and width of the sheet, left/right and bottom/top margins.

2

Import parts drawing from external files

Import parts from external files: DXF, DWG and PARAMETRIC files. It is also possible to open an existing nesting job made with Lantek Expert.

are

easy steps

3

Create manual or automatic nesting

Nest all the selected parts: with a manual nesting (the user can put the parts in the sheet as per his convenience) or with an automatic nesting (based on the configuration parameters of the machine).

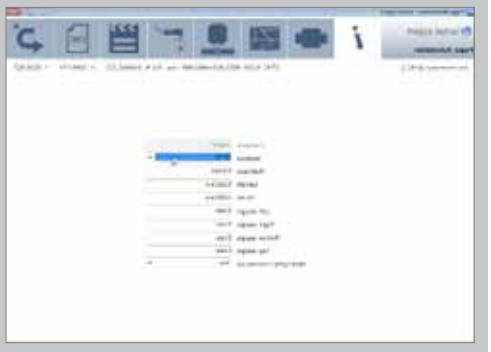
4

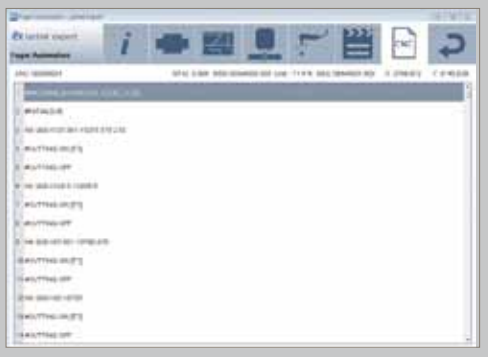
Apply manual or automatic technology data and machining path

Manage the technology: manual or automatic selection of lead-in/lead-out, move points of lead-in/lead-outs, select micro joints, move micro joints… Manual or automatic selection of the machining path and order.

5

Simulate and generate the CNC program





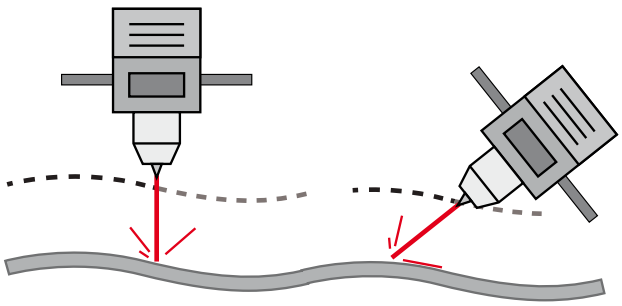
Simulate the part and generate the CNC program: the integrated Fagor postprocessor will create the specific part program for the CNC.

Specific functions

Solutions developed to maximize the potential of laser

To deliver the unique requirements of laser manufacturing machines, and more specifically, sheet (2D and 3D) and tube cutting machines, Fagor Automation has created a New CNC LASER platform including complete solution for most commonly used functionalities.

These features are available as integrated functions, facilitating their programming at ease.

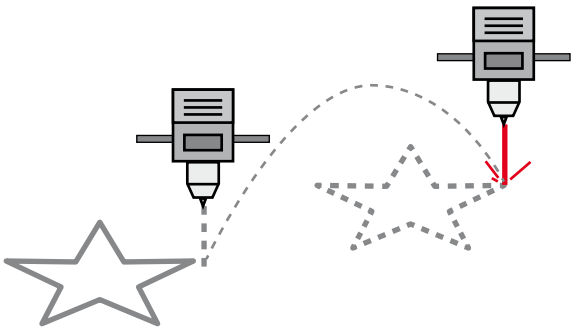


n axes GAP control

This function ensures a specific set distance is maintained between the laser nozzle and the sheet surface (GAP).

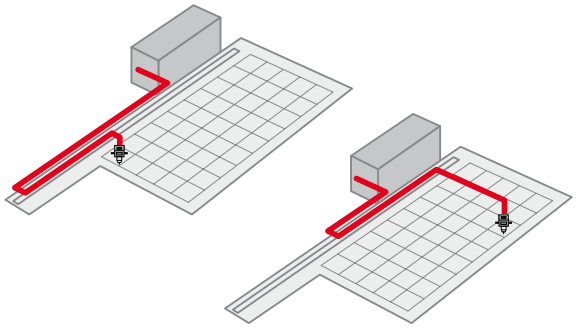
The CNC then makes all the necessary compensations to maintain the gap irrespective of the variation in sheet thickness.

For tracking uneven surfaces the CNC allows programming any channel axis and the theoretical path will be modified to follow the real surface at the distance indicated in the programmed GAP.



Leap frog

During the positioning on the XY plane between different cutting positions, the Z axis moves up to prevent collision with metal shavings or cut parts which may be protruding from the sheet surface. The trajectory of the “Leap Frog” is optimized by the CNC and dynamic behavior of the axis is maintained.

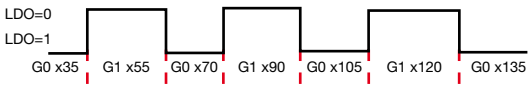


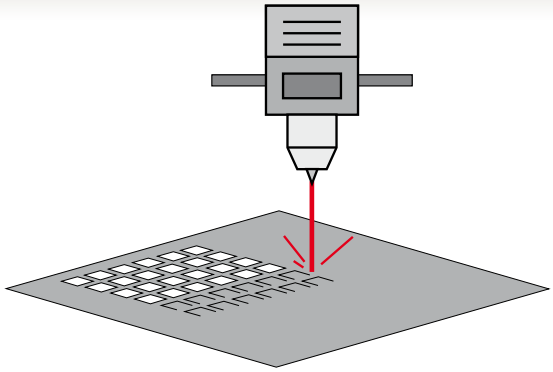
Laser path compensation

This is one of the typical functionalities on CO2 laser machines, used to keep the overall laser path constant to prevent variations in beam dispersion at the cutting point of the sheet.

Synchronized switching

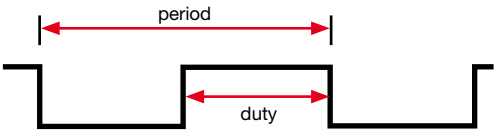
This feature permits controlling the trigger status of a signal (digital output) to the path type. This makes it possible to control the fast activation/deactivation of the laser cutting beam to generate parallel cutting patterns like Grid or Matrix.





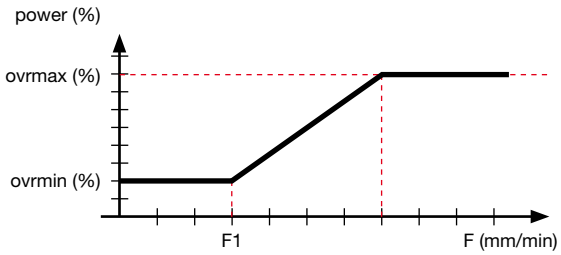
PWM (Pulse-Width Modulation)

PWM is used to control an operating cycle of the laser signal (DUTY cycle and period), thus allowing the user to modify the laser beam power.



Power control

This new functionality allows the laser power to be controlled through an analog output, or through the PWM DUTY cycle, depending on the speed of laser nozzle path. This allows the user to maintain a homogeneous and uniform cut.



Retrace function

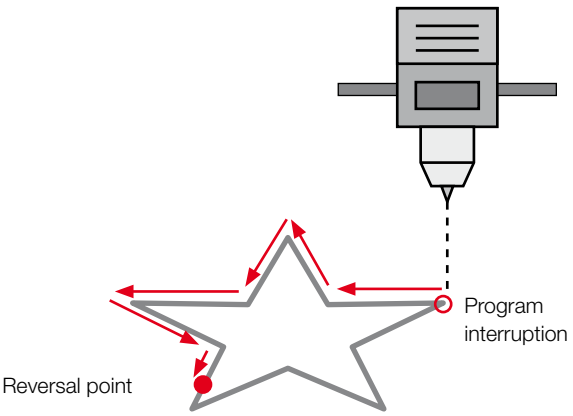
Quick resolution for unexpected situations.

This function makes it possible to resume a cutting operation from a specific point, e.g., if the beam is interrupted and the process has to be restarted from the point where it was interrupted.

Utilizing this function the user can execute the program path backwards.

The user can define the start and the end point of retrace function. Once the program retrace is completed to the end point it will restart the program execution.

Up to a maximum of 300 program blocks can be retraced.



Applications

Solutions based on machine technology

2D metal Laser Cutting Machines

High-performance solutions for sheet metal working. Based on Quadcore hardware and custom algorithms to maximize performance and efficiency.

Fast and distributed field-bus connectivity to laser, cutting heads and I/O devices based on EtherCAT .

Fagor HSSA *(High Speed Surface Accuracy)* machining system optimizes the CAD-CAM path and smooths the path by creating polynomials (Splines). This system helps to achieve high quality part finish and acceleration and jerk control, during high speed cutting, thus reducing mechanical vibrations and machine mechanical stress ensuring a long machine life.

Fagor *Dynamic Override* algorithm allows “on the fly” changes to acceleration and jerk control, allowing you to change/improve part finish (smoothness) during the cutting process.

5 axis metal Laser Cutting Machines

High-performance solutions for sheet metal working: the best control technology, based on Quadcore firmware and advance algorithms.

FAGOR CNCs can operate machines with a large variety of *kinematics* (mechanical head configurations), this can be combined with continuous 5-axis interpolation providing high quality part finish. RTCP function allows dynamic compensation of constant gap control and superior 5 axis cutting.

FAGOR *volumetric compensation* can significantly improves the machine precision, achieving up to 80% better accuracy.

Different algorithms are available (parametric or matrix compensation), in order to cover different aspects of machine structure.

Laser for tubes (2D and 3D)

Application includes: Tube cutting for machine and equipment construction, furniture, medical and construction industry etc.

Any type of tube structure and shapes can be cut including round, square, rectangle, etc. as well as angled and spiral tubes.

Different kind of laser processes:

- Straight & Angle Cutting
- Slotting
- Marking
- Notching
- Hole Making

Laser Blanking

Flexibility in the contour design provided by CNC programming.

Fagor CNC can control multiple and independent heads (more than one cutting process at the same time).

Due to very fast synchronization algorithm integration of Coil movement and cutting can be achieved at very high speed.

Optimum nesting of blanks on the material belt.

- Combination of several workpieces on a material belt.
- Arrangement of blanks at different angles.
- Separating bars not needed between workpieces.
- Reduced variety of coils, as blanks can be freely. arranged.

IoT solutions

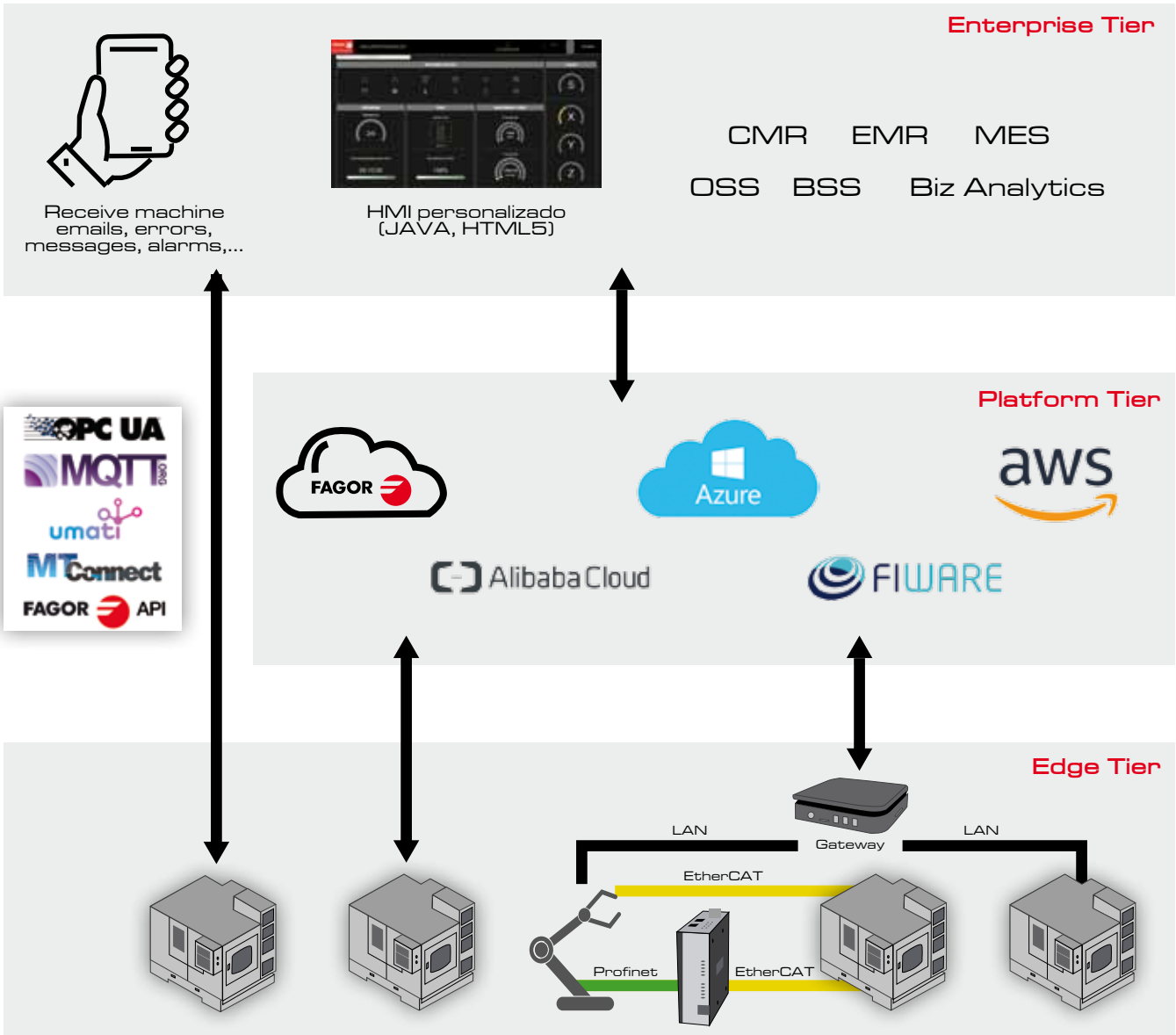
Connectivity from sensors to machines and the cloud

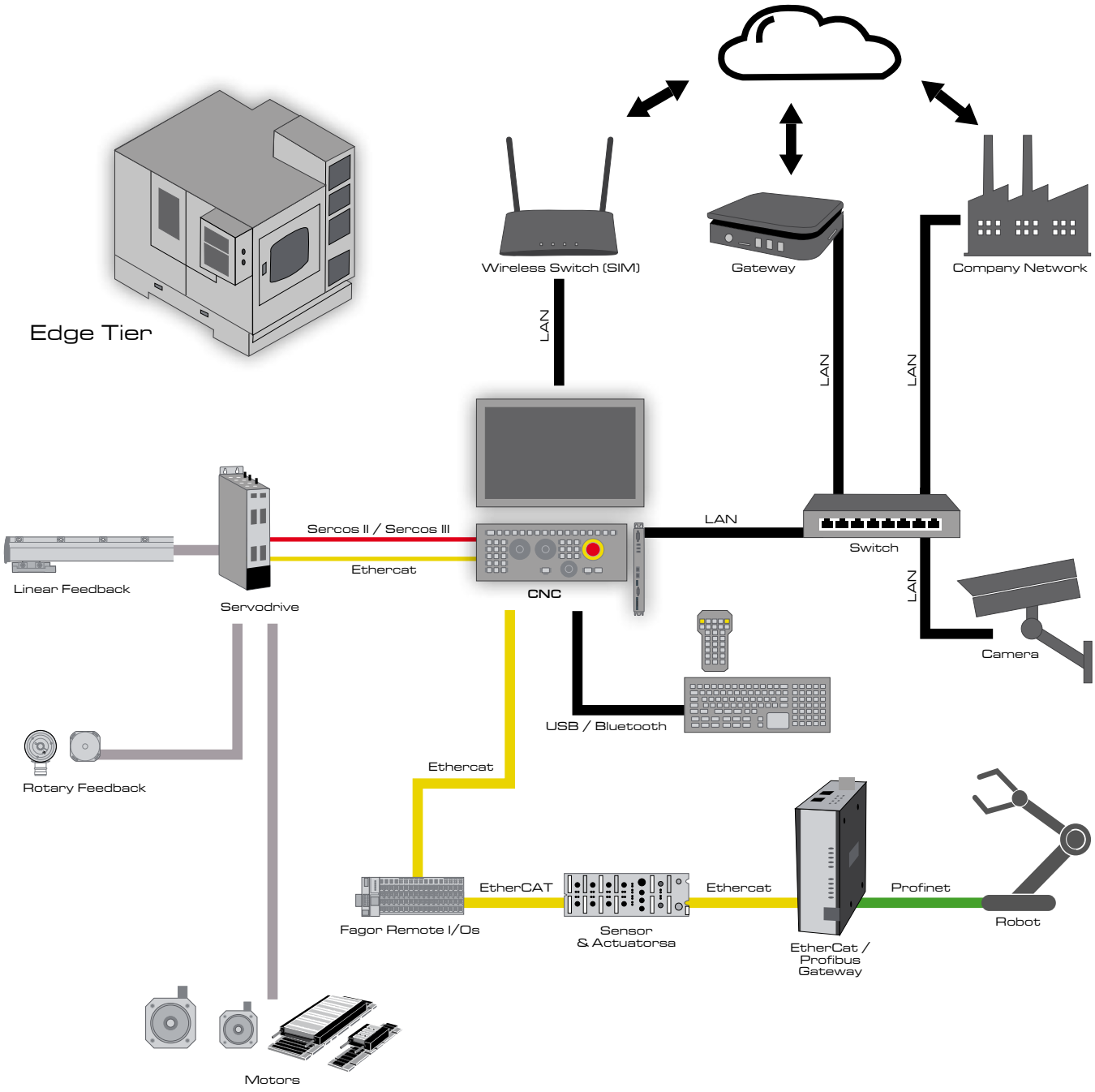
The Fagor Automation CNC is ready to help you to connect your machine and take benefit from the Industrial IoT (Industry 4.0).

It offers scalable connectivity and interoperability through the complete architecture of the Industrial Internet of Things. From a single machine level (sensors, actuators) or a complete machine floor, through the complete platform (data and analytic services) to the enterprise level (business domain).

Fagor Automation has integrated variety of protocols for different level and needs of connectivity such as ETHERCAT, CAN OPEN, SERCOS II, SERCOS III, ETHERNET/LAN, USB, BLUETOOTH, WIFI, FAGOR API, OPC UA, UMATI, MTCONNECT, MQTT …

In addition, multi-platform solutions and the design of a OEM-specific HMI are enabled by programming in JavaScript and HTML5, languages widely known to all open source web developers.

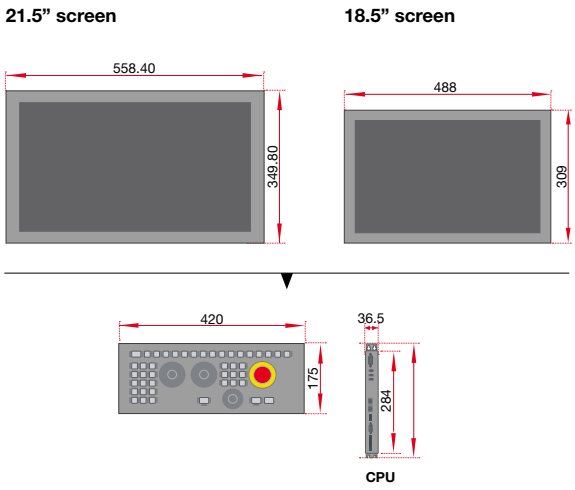



Edge Tier
Wireless Switch (SIM)
Gateway
Company Network
LAN
LAN
LAN
LAN
Linear Feedback
Servodrive
Sercos II / Sercos III
Ethercat
CNC
Switch
Camera
USB / Bluetooth
Rotary Feedback
Ethercat
Fagor Remote I/Os
EtherCAT
Sensor
& Actuatorsa
Ethercat
EtherCat /
Profibus
Gateway
Profinet
Robot
Motors

Configuration

Customized solutions

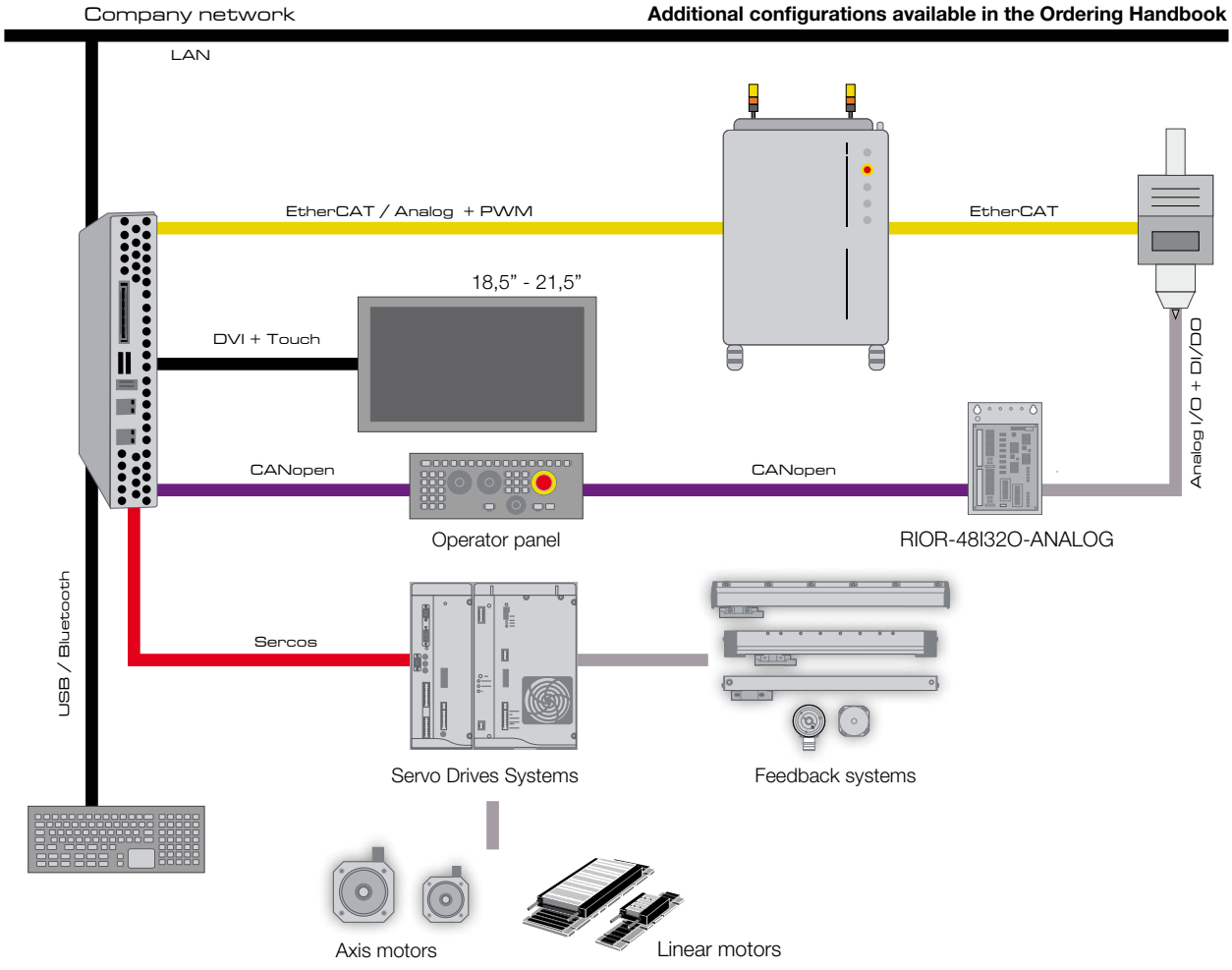
FAGOR allows users to configure an open and flexible solution that best suits their needs: there is a choice of two monitor sizes (21.5” and 18.5” widescreen).



Dimensions in mm

Integrated solution

FAGOR AUTOMATION’s unique integrated platform brings together every electronic element of your machine (the CNC, digital servo motors and drives, linear and angular feedback,...) and ensures seamless integration, guaranteeing robust machine design and extreme performance to obtain maximum efficiency.



Technical characteristics

Main characteristics

	CNC 8060	CNC 8070
LCD monitor with touch screen	18.5" / 21.5"	18.5" / 21.5"
Mouse integrated into the keyboard	– / △	– / △
Browsing with an external mouse	△	△
User memory (Available user memory may vary depending on the software installed)	Minimum 3.35 Gb	Minimum 3.35 Gb
Memory expansion via CFast	32 GB and 128 GB	32 GB and 128 GB
Ethernet	○	○
USB	4 (2.0) + 1 (3.0)	4 (2.0) + 1 (3.0)
Block processing time	1 ms	Up to 0.167 ms
Position loop	0.256 ms	0.256 ms
Look Ahead	Up to 300	Up to 2400
Kinematics	–	○
HSSA II	△	△

Configuration

	CNC 8060	CNC 8070
Maximum number of axes	6	31
Maximum interpolated axes (*)	4	31
Maximum channels	1	4
Simulation channel	○	○
Maximum local digital I/O	16/8	16/8
Maximum remote digital I/O	1024/1024	1024/1024

Editing & Programming

	CNC 8060	CNC 8070
Languages supported	12 (**)	12 (**)
Customizable HMI	○	○
Pop-up browsing	○	○
ISO and parametric language	○	○
Operation Virtual Panel	○	○

Display & Simulation

	CNC 8060	CNC 8070
Graphic program simulation	○	○
CNC simulation software for PC	○	○
Tele-Diagnosis	○	○
Integrated manuals	○	○
Oscilloscope	○	○
Calculator	○	○
Finetune software (Auto-adjustment)	○	○
Third-party software	△ (***)	△

Specific features

	CNC 8060	CNC 8070
GAP Control	○	○
Leap Frog	○	○
Power control	○	○
Retrace	○	○
Synchronized switching	○	○
PWM	△	△
Laser path compensation	△	△
RTCP	–	△
Manual nesting (Powered by Lantek)	△	△
Automatic nesting (Powered by Lantek)	△	△

○ Standard

△ Optional

– Not available

(*) Products manufactured by FAGOR AUTOMATION since April 1st 2014 will include "-MDU" in their identification if they are included on the list of dual use products according to regulation UE 428/2009 and require an export license depending on destination.

(**) English, Spanish, Italian, German, French, Basque, Portuguese, Chinese, Russian, Czech, Korean and Dutch.

(***) Recommended to install only software for communication/connectivity with laser equipments.

MONDRAGON

HUMANITY AT WORK

Finance Industry Retail Knowledge

FAGOR

FAGOR AUTOMATION

Open to your world

Fagor Automation, S. Coop.
Bº San Andrés, 19
E-20500 Arrasate - Mondragón
SPAIN
Tel.: +34 943 039 800
Fax: +34 943 791 712
E-mail: info@fagorautomation.es

AENOR ER Empresa Registrada ER-073/1994

IQNet

Fagor Automation holds the ISO 9001 Quality System Certificate and the CE Certificate for all products manufactured.

Other languages are available in the Downloads section from Fagor Automation's website.

www.fagorautomation.com

EPS - CNC LASER EN 0720

worldwide automation