# Tex AUTOMATION

Catalogo 1.2

(ENGLISH)

MADE IN ITALY

# ELECTRONIC SYSTEMS FOR INDUSTRIAL MACHINERY CONTROL

## Tex Automation

For over thirty years **Tex Automation** has contributed to the successand technological growth of countless manufacturers of industrial machinery, operating in the most diverse automation sectors, such as CNC machining of metal, stone, wood, fabric, glass and food, as well as in robotics, packaging and many other sectors.
The growing commercial success of our systems is due to both the flexibility of their programming and the variety of available configurations, as well as the excellent price / performance ratio that characterizes them.

## What we do for you

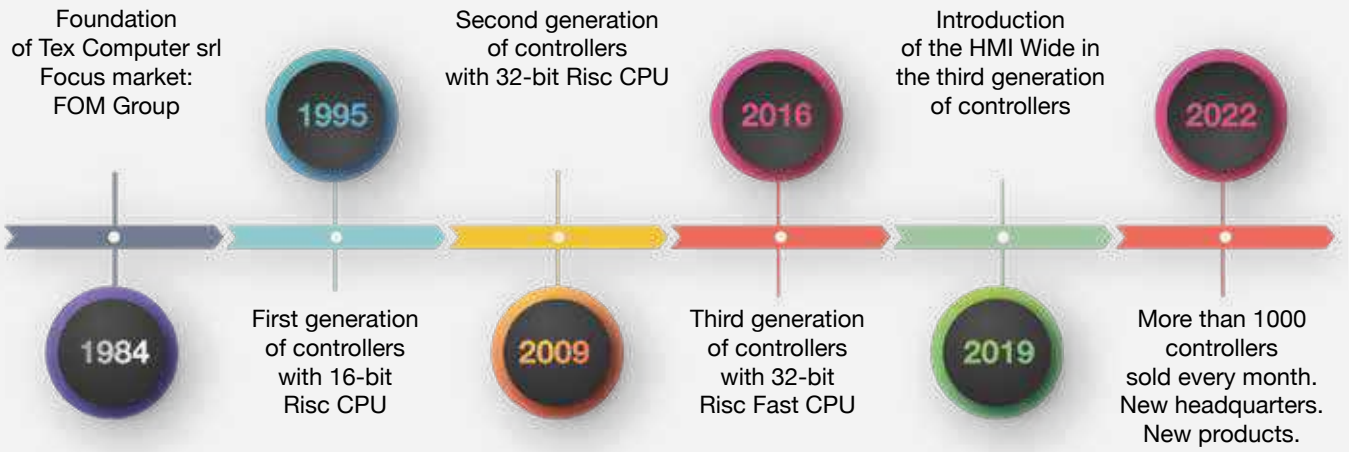
We support our customers by offering complete package supply solutions that can be extend to the integration of machinery in industry 4.0-type architectures in order to reach the global efficiency targets recommended by the ecological transition policies.

**+200**
OEM active clients

**+100000**
Installations in the last 10 years

**+15**
Supplied countries

**+30**
Years of experience




# POWER FAMILY

The **Power family** is a line of “All in One” General purpose PLC / CNC Controllers.
It uses a specially designed structured language allowing a great programming flexibility between the components that make it up:

**A powerful CNC**
It provides high-level functions, allowing the execution of sequences of motion commands for axes, both real and virtual, interpolated or not. In addition to the classic linear, circular and helical interpolations, it supports the generation of complex motion profiles such as NURBS (splines) shape fittings with polynomials up to the 6th degree, roto-translation in the space of the axes, translation of the tool path through the RTCP (Rotating Tool Center Point), tangential tool, master / slave synchronization of axes in Gantry, Gearing or Camming configuration.

**A flexible PLC**
It has variables and structures of various sizes with the support of a large assortment of trigonometric, mathematical and logical operators and functions.
The PLC executor can use, in addition to the main cyclic task, a synchronized task with the sampling time of the axes and multiple secondary tasks that can be executed in parallel.
By using the PLC, it is possible to manage the non-interpolated movement of the axes, the gearing, the interrupt inputs, the I/O with advanced timer functions, the execution of graphic commands, the communications on serial ports, ethernet, canbus through both protocols standard (eg Modbus,CANopen and EtherCAT) and custom (eg Texcom).

**A complete HMI interface**
The HMI interface is managed through graphic pages that can be created both in textual form, thanks to advanced commands, and graphically using the DrawingTool development tool.
The pages, which can be managed both by the PLC and by the CNC, harmonize with the various user programming environments available (ISO, Macro, etc.) and allow for high-level data entry sessions that also include the display of tooltips and the automatic opening of the touch screen keyboard suitable for the type of data being edited.
Multilingual management and use of Unicode fonts are supported

# POWER A

NEW

industry 4.0 READY

## UP TO 32 INTERPOLATED AXES

18,5” WXGA touch only (capacitive)
(mm. 485x305)

STONE GLASS METAL ROBOT CERAMIC PACKAGE TEXTILE FOOTWEAR OTHER

**Power A** is the TOP level of the Power Family having been designed to offer the best possible performance in the management of PLC and CNC tasks while also improving communications via Ethernet.
Its higher performances allow it to control the movement of the axes, even those managed via EtherCAT, in sampling times from 500µs upwards.
The interpolated movements are processed in cooperative multitasking via six CNC channels.
The retentive memory and the RTC clock of Power A do not require a backup battery, thus reducing the maintenance.
The Power A manages the axes and the I/O mainly via EtherCAT, therefore in its basic version it is equipped with a few I/O, 6 pairs of Step/Direction outputs and as many interfaces for 5V Line Driver incremental encoders; on request it is possible to develop ad hoc expansion cards to make additional resources available.
Its basic equipment also includes an LVDS port with which it is possible to remote the HMI.

| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 36 | 16 (0,6A) | 6 | - | 3SPTD Relay | 9 | - | 8 |

*Other available configurations*

10” WSVGA touch only
(mm. 310x192)

10” WSVGA 56 keys
(mm. 310x300mm)

15” XGA touch only
(mm. 398x269)

15” XGA 80 keys
(mm. 490x400)

VMT
(mm. 340x223)

BOX
(mm. 280X150)

# POWER B

NEW

industry 4.0 READY

## UP TO 4 INTERPOLATED AXES


10” WSVGA capacitive touch
(mm. 310x192)


This “All In One” controller has been designed to meet the specific technical and economic requirements for the production, in medium/high volumes, of series machines.
Its maximum competitive advantage is realized in the market segment of machines with 3 interpolated axes, however we have obtained an extremely interesting cost/performance ratio even when there are no axes to manage.
Power B has been designed in a compact panel enclosure, which can also be oriented vertically, which can be equipped with a 7 “or 10” LCD touch screen.
Its graphic controller, which can also support larger LCDs, is equipped with a 128 MB (expandable) Flash memory that can contain explanatory images or movies created to facilitate the use and/or maintenance of the machine through tutorials, allowing thus the implementation of a local support service for technical assistance (LIoT).
Its basic equipment can be easly extended via CANopen; if the quantities to be produced are interesting, it is also possible to create an ad hoc expansion card to add the necessary resources to a specific application.

| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 16 | 16 (0,6A) | - | - | - | 7 | - | 3 |

*Other available configurations*

7” WVGA 20 keys
(mm. 243x146)

10” WSVGA touch only
(mm. 310x192)

15” XGA touch only
(mm. 398x269)

BOX
(mm. 210X120)

# POWER D+

industry 4.0 READY

## UP TO 28 INTERPOLATED AXES

15” XGA touch only
(mm. 398x296)

BOX
(mm. 296x241)

STONE GLASS METAL ROBOT CERAMIC PACKAGE TEXTILE FOOTWEAR OTHER

This “All-in-One” system is suitable for the control of complex machines, with up to 28 interpolable axes, manageable both in wired logic (+/-10V and/or Step/Direction) and via CANopen (standard), EtherCAT or Mechatrolink-II (optional) fieldbuses.

Particularly suitable for machines cycles very fast can run ISO files of considerable size dimensions with a numberof axes and/or I/Os extremely high on board.

Power D+ can be equipped by I/O expansions available in two versions: one expansion providing up to 96 digital I/O plus 16 analog inputs the other expansion providing up to 128 digital I/Os.

| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 55 | 32 (1A) | - | FDC25 (128 I/O) | - | 13 | 8 (also 0/20mA) | 8 on FDC16 |
| | | | FDC25 (64 I/O) | | | | |

*Other available configurations*

15” XGA 80 keys
(mm. 490x400

15” XGA 28 keys
(mm. 400x355)

18,5” XGA touch only
(capacitive) - (mm. 485x305)

VMT
(mm. 340x223)

# POWER I

industry 4.0 READY

## UP TO 4 INTERPOLATED AXES


VMT
(mm. 340x223)

BOX
(mm. 310X167)


Among the “All in one” controllers, managing the axes via the EtherCAT fieldbus, Power I is the cheapest one. It can also manage axes both in wired logic (+/- 10V and / or Step / Direction) and CANopen.

This controller is particularly suitable for automations with a limited number of axes, where good computing power, high execution speed and/or Wi-Fi/BLE connectivity are required.

| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 19 | 8 (0,6A) | 6 | INT-SPI (32 I/O) | - | 9 | - | 4 |

*Other available configurations*

15” XGA 80 keys
(mm. 490x400

15” XGA 28 keys
(mm. 400x355)

15” XGA touch only
(mm. 398x269)

10” WSVGA 56 keys
(mm. 310x300)

10” WSVGA touch only
(capacitive) - (mm. 310x192)

# POWER U

industry 4.0 READY

## UP TO 12 INTERPOLATED AXES


15” XGA 28 keys
(mm. 400x355)

BOX
(mm. 310X167)


It is the controller of the Power Family which targets the automation of medium complexity machines, with up to 12 interpolated axes that can be managed both in wired logic (+/-10V and/or Step/Direction) and via the fieldbus CANopen (standard), EtherCAT or Mechatrolink-II (optional).

From an economic point of view, the maximum competitive advantage is obtained by adding the optional expansion card to the basic controller which allows you to expand the “on board” digital I/O up to a maximum of 155 points which can be distributed according to the various needs.

However, it is always possible to add remote I/O via the CANopen (standard) and/or EtherCAT (optional) fieldbuses.

| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 41 | 16 (1A) | 2 | FDC25 (128 I/O) | - | 15 | 4 | 4 |
| | | | FDC25 (64 I/O) | | | | |

*Other available configurations*

10” SVGA 16 keys
(mm. 190x270)

18,5” XGA touch only
(mm. 398x269)

15” XGA 80 keys
(mm. 490x400)

18,5” XGA touch only
(capacitive) - (mm. 485x305)

VMT
(mm. 340x223)

# POWER J+

industry 4.0 READY

## UP TO 4 INTERPOLATED AXES


10” WSVGA 56 keys (mm. 310x300)

BOX (mm. 296X241)

STONE GLASS WOOD METAL ROBOT CERAMIC OTHER

Recommended for applications with up to 4 interpolated axes where it is necessary to contain the costs and/or the overall dimensions of the controller which, being a very compact “All In One”, can be equipped also by a small 7” touch screen display.

Its basic equipment of 24 + 20 digital I/O can be expanded both locally, through an economical DIN rail interface with 16 + 16 digital I/O, and by remote I/O via CANopen.

| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 24 | 16 (0,6A) | 4 | INT-SPI (32 I/O) | - | 12 | - | 4 |

*Other available configurations*

7” WVGA touch only (mm. 243x146)

10” WSVGA touch only (mm. 310x192)

15” XGA touch only (mm. 398x269)

15” XGA 28 keys (mm. 400x355)

18,5” XGA touch only (capacitive) - (mm. 485x305)

VMT (mm. 340x223)

# POWER L

industry 4.0 READY

## UP TO 4 INTERPOLATED AXES

7” WVGA touch only
(mm. 243x146)

## OTHER

The market target of this “All In One” Programmable Automation Controller is the automation based on the movement of the axes in “open loop”, i.e. without the position feedback in the controller.

This type of motion management is possible if the motor is a stepper (or a brushless with closed position feedback only on the drive) controlled in Step/Direction or CANopen.

Since on an economic level the maximum competitive advantage is obtained by controlling the axes via Step/Direction outputs, Power L has been equipped with this type of outputs so as to be able to interpolate up to 4 axes, but in addition it also offers the possibility of closing the position loop via encoder in 2 of the most critical axes to be managed which, in the case of a Cartesian pantograph, are the X and Y axes.

| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 16 | 8 (0,6A) | 4 | INT-SPI (32 I/O) | - | 10 (12 bit) | - | 4 |

*Other available configurations*

7” WVGA 20 keys
(mm. 298x160)

BOX
(mm. 174X157)

# POWER Z

7” WVGA touch only
(mm. 243x146)

## OTHER

This PLC+HMI controller with integrated “Motion control” functionality represents the access product to the Power Family.

Compared to all the other, it does not include the CNC executor, therefore it cannot perform interpolated movements, but it still offers the possibility of managing sophisticated applications such as gearing, camming and “on fly” cutting.

As in the case of Power L, its market target is the automations that can be managed through axes controlled in open loop, but in this case only 3 axes can be managed via Step/Direction outputs. In addiction Power L includes one +/-10V analog output, two 5V Line Driver incremental encoders inputs and one CANopen port, so it is  possible to manage a maximum of 4 axes.

Its basic equipment of 10+10 digital I/O can be expanded both locally, through an economical DIN rail interface providing 16+16 digital I/O, and by remote I/O via CANopen.

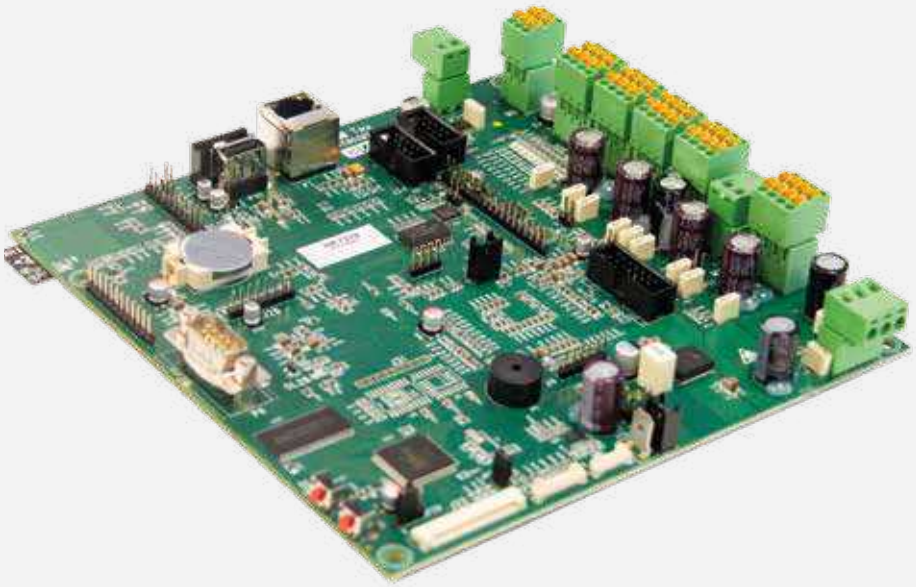
| Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|
| **Inputs** | **Outputs** | | | | **Inputs** | **+/-10V Outputs** | |
| 24V PNP | 24V PNP protected | PNP 60mA | Expansion Card | Other type | 14 bit resolution | form 16 bit DAC | from 14 bit PWM |
| 10 | 8 (0,35A) | 2 | INT-SPI (32 I/O) | - | 5 | - | 1 |

*Other available configurations*

BOX
(mm. 184X145)

# POWER X

## 4 STEPPER DRIVERS INCLUDED



**Power X** is an “electronic board without case” which must be inserted on board the mechanical carpentry of the machine; with it, the “All In One” controller concept extends to include the integrated management of 4 two-phase stepper motors, which can be powered up to 36Vdc, with absorption of 1.8A or 3A rms/phase.
If necessary, it is however possible to control one or more external drives, alternative to those integrated on the board, by means of the Step/Direction outputs which are available in a flat cable connector.
The card is equipped with a 128 MB (expandable) Flash memory that can contain explanatory images or videos created to facilitate the use and / or maintenance of the machine through tutorials, thus allowing the implementation of a local support to the technical assistance service (LIoT).
The following solutions can be adopted for the user interface:
a) Connect one of our standard remote panels to the LVDS port of the board, which can be equipped with a 7”, 10” or 15 “display
b) Assemble the LCD display with the relative interface card to the LVDS port of the card directly on the mechanical carpentry of the machine; in this case, in addition to the displays listed above, it is also possible to use the 18.5 ”display.
c) Use a Windows PC by creating ad hoc software to manage the exCom.NET communication libraries provided free of charge.
*Applications:*
Small CNC routers, professional and semi-professional machine, tools engraving machines, test machines, small automations.

*Disply configurations*

7” WVGA 20 keys
(mm. 298x160)

10” WSVGA touch only
(mm. 310x192)

15” XGA touch only
(mm. 398x269)

18,5” XGA touch only
(capacitive) - (mm. 485x305)

VMT
(mm. 340x223)

# TC REMOTE I/O

TC Remote I/O is a compact modular system with which the analog and digital I / O of industrial controllers can be expanded.

Thanks to the adoption an optimized construction shape that eliminates the power supply and bus termination modules, surprising results have been obtained in the simplification of wiring.

Each system consists of a CPU module, to be connected as a slave, with the possibility of housing from 3 to 14 additional I/O modules for the EtherCAT systems (6 for CANopen).
Analog inputs and outputs and encoder inputs are also implemented on some CPU models.

## CPU CANopen

| *Model* | *Slots* | *Option* |
|---|---|---|
| MOD.A | 6 | |
| MOD.A-IA | 6 | 4 analog input |

## CPU EtherCAT

| *Model* | *Slots* | *Option* |
|---|---|---|
| MOD.B.3M | 3 | |
| MOD.B.8M | 8 | |
| MOD.B.12M | 12 | |
| MOD.B.14M | 14 | |
| MOD.B-IA.3M | 3 | 4 analog input |
| MOD.B-IA.8M | 8 | 4 analog input |
| MOD.C.3M | 3 | 8 digital input, 8 digital output, 4 analog input<br>2 analog output, 2 encoder input |
| MOD.C.8M | 8 | 8 digital input, 8 digital output, 4 analog input<br>2 analog output, 2 encoder input |

## EtherCAT & CANopen Modules

| *Model* | *Input* | *Output* |
|---|---|---|
| MOD.TEX BUS 16DI 24V | 16 | |
| MOD.TEX BUS 16DO 24V | | 16 |
| MOD.TEX BUS 8DI/8DO 24V | 8 | 8 |

Tex

SG 4.0

Microsoft

**Tex Smart Gateway 4.0**, is an intelligent system able to make Power Controls (OT Operative Technology) and the server or computer of the factory (IT Informative Technology) communicate with each other, thus realizing the integration between the data produced by the 2 worlds as required by the I4.0 paradigm. It can be suitable for both very simple machines designed to perform a single work cycle or for a single completely standardized processas (for example, slicers, cutters, circular saws, drills, crushers and grinding mills) or to start implementing I4.0 type architectures, allowing you to create:

- interconnection to factory IT systems with remote loading of instructions and/or part programs
- automated integration with the logistics system of the factory or with other machines in the production cycle
- continuous monitoring of working conditions and process parameters

**TSG_Runtime**

It is a software for Windows operating systems, it is the heart of the system. It is capable of interfacing in a standardized way both to various devices on the OT side (max. 5 for each Runtime) and to the management systems of the End User. The standard adopted is the OPC 40501-1 Machine Monitoring and Job Overview published by UMATI (Universal MAchine Technology Interface). On the Power controls series (OT side) requires the use of a specific interface called HMIxI4.0 while on the IT (server o PC) side it manages a set of “Frontier Tables” to interface with the most popular relational Databases.

**TSG_DesktopUI**

The system is also equipped with a software for Windows PC, called TSG_DesktopUI, with which it is possible to issue work orders by attaching part-programs and/or recipes that can be created and stored remotely, through the same program, by the Technical Office of the End User.

# DEVELOPMENT TOOLS

To be able to move easily between the various development enviroments, the Power syste have been especially designed some TOOLS that allow to semplify the main programming activities.

**PowerStudio**
It is the diagnostic, testing and debugging tool dedicated to the controls of the Power family.
In addition to managing the transfer of application projects, it allows you to quickly monitor all system resources: variables, electrical axes, parameters, FTP management, etc.

**DrawingTools**
It is the graphic development environment, which allows you to easily manage the entire application project. It creates the graphic pages of HMI and manages their integration in the project. It offers a functional and complete development environment, to always have the whole project under control.

**PowerUpload**
It is the application dedicated to updating the operating system and the application project.
It allows, even a non-expert user, to carry out an update in a simple, intuitive and safe way.

**MacroEditor**
It is the manager of part programs in CNC Macro format. Macro CNC programming also allows the end user to create a work program, based on a library of customizable macro functions, and on a simple and intuitive interface based on graphic pages.
Operating on a PC connected to the control, Macro Editor allows you to create and modify programs remotely, and to manage their synchronization with the control.

**ISO Manager**
It is the manager of part programs in ISO code.
It allows you to create, modify, transfer, archive ISO machining files for the CNC.

**Web Server**
Any web browser is suitable to access to the internal Web Server of all the Power Controllers.
Browsing through the pages, you can get diagnostic, status and configuration information, without the support of any development tool.

# INDUSTRY FIELDS


STONE AND GLASS PROCESSING


CERAMICS


METALWORKING


WOODWORKING


FOOTWEAR AND TEXTILE


ROBOTICS


PACKAGING


OTHER PROCESSES

The newly conceived industrial machines base their growing commercial success in the choice of an omni-comprehensive control technology, that is able to manage every aspect of automation with a single device: from PLC to CNC, from HMI to IT/OT communication.
The “All In One” controllers of the Power family offer a wide range of devices, reliable, precise, scalable in cost and performance, with a profitable success story in many industrial applications.
The movements of the axes can be applied to actuators built according to kinematic models serial type (Cartesian / SCARA / Articulated with 4 DOF) or parallel type (DELTA rotary / linear with 3 DOF).

The management of the movement queue integrated with the Look-ahead function allows you to automatically adjust the feed speed of the tool based on the centrifugal acceleration, perform the automatic correction of the tool radius, carry out the emptying and finishing cycles of closed profiles, the graphic simulation, the backward execution of the machining program in G-code, the restart from a point, etc.

The CNC is assisted by an ISO/MACRO editor which allows the end user to create the desired machining program on the machine.

The CNC executor can take advantage of up to 6 parallel tasks, with the possibility of defining safety zones to avoid collisions between axes managed by multiple tasks.

# STONE AND GLASS PROCESSING


BRIDGE SAWS


MACHINING CENTRE AND CNC ROUTERS


POLISHING MACHINES


GLASS CUTTING


WATERJET


TILE WORKING

Natural stone and glass are widely used materials for various furnishing solutions. The controllers of the Power family have been specifically designed to facilitate the processing of these materials, which is why they have been successfully used in precision machinery for cutting, drilling, polishing and/or grinding, stone carving. etc.

***Recommended controller:***

In the glass sector, where high processing speeds are often required, the use of Power I, Power D and Power A controllers is recommended.

***Specific functions:***

• Tool Center Point • Axis tangent to the profile • Fittings with polynomials up to the 6th degree that offer greater fluidity of movement • Emptying cycles (CYCLE)• Polishing cycles (POLISH) • NURBS curves (SPLINE) • Tool correction • Rototranslation • HMI graphics

# CERAMICS


HANDLING SYSTEMS


MOSAIC MACHINE


GRINDING - GLAZING

For many years Tex Automation has been developing successful solutions for automations such as manipulators, palletizers, screen printing, machines for the production of mosaics, sanding machines, enamelling machines, CNC processing of sanitary ware. In this sector, all the models of the Power family have been successfully used, which are selected from time to time based on the general complexity of the application, the number of axes to be controlled and the type of I/O required.

***Recommended controller:***

When greater performance and high processing speeds are required, the use of Power D is recommended, as in the case of machines for the production of mosaics where it is necessary to manage very fast digital outputs to control the gluing actuators.

***Specific functions:***

• High processing speeds • Fast digital outputs

# METALWORKING


MILLING MACHINES


TURNING MACHINES

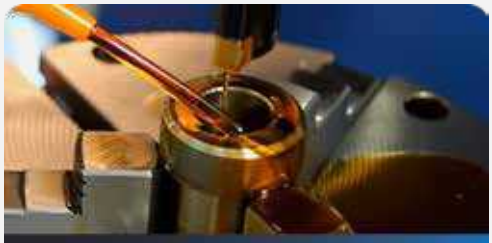

SAWING MACHINES


BAR FEEDERS


TAPPING AND DRILLING MACHINES


GEAR CUTTING MACHINES


GRINDING MACHINES


BROACHING MACHINES


PUNCHING MACHINES


ENGRAVING MACHINES


OXYFUEL AND WATERJETS


PLASMA AND LASER

The great flexibility and modularity of the Power family allows its use in various types of machines in the field of metalworking, in particular those for milling, turning, drilling, cutting, deburring, tapping, bending, grinding, engraving, punching and toothing.

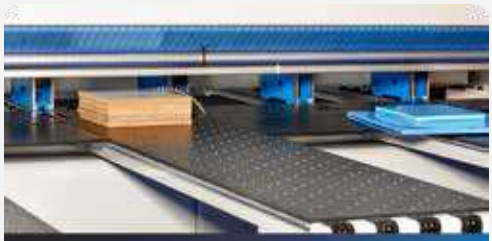
***2D and 3D thermal cutting:***
Tex Automation Power controllers guarantee precision and reliability in the gestions of thermal cutting machines; in fact they are used successfully by machine manufacturers for plasma cutting, oxyfuel and laser cutting.

***Recommended controller:***
For simple machines, such as linear cutting, punching, bar loaders, drilling/tapping, controllers such as Power B, Power U and Power I are suitable, while for more complex ones, such as machining centers, lathes, grinders, etc., are indicated Power I, Power D and Power A.

***Specific functions:***
• G-code interpreter • Open and fully customizable command library • Tool correction • Excavation cycles • Roto-translation of axes • Possibility of creating macros allowing you to easily build complex geometric profiles • Application of differentiated Jerk in the various phases of motion • Sixth degree polynomial for RTCP head compensation • Non-standard kinematics • THC (Torch Height Control) which implies the management of the axes also by the PLC

# WOODWORKING


MACHINING CENTRE AND CNC ROUTERS


PANEL SAWS


DOORS AND WINDOWS


PLANERS


EDGE BENDERS


SAW MACHINES

Woodworking requires easy-to-use machinery, which can best enhance the yield of the material, especially thanks to immediate interaction with the operator. In this sector Tex Automation offers reliable and powerful systems, suitable for carrying out different types of processes such as: cutting, drilling, milling for anube, engraving, smoothing and planing.

***Recommended controller:***

In machining centers where it is often necessary to perform simultaneously more machining programs it becomes really important to have the 4 CNC tasks that can become 6 if the Power D and Power A controllers are used. The Power B, on the other hand, is particularly suitable for managing simple machines that require a rather sophisticated HMI interface, such as edgebanders or sanders.

***Specific functions:***

• The typical functions of the wood sector • High-level programming environment • Macro functions • Optimization of the drilling cycle of the multi-tool heads • 4 to 6 CNC tasks

# PACKAGING


FLOW PACK


BLISTERING MACHINES


SLICERS

This is an industry that encompasses a huge variety of applications characterized by multiple degrees of complexity and wide differences in performance. For this reason, the Power family of controllers, thanks to its scalability in costs and performances and its programming flexibility, has found wide use both in the segment of die-cutting, case packer and cellophane wrapping machines, and in that of cutting and packaging of sausages and cheeses.

***Recommended controller:***

In this type of machinery Power A, Power D and Power I controllers are used when high performance and axis sampling times of 500 µS, Power I and Power B are required in almost any other application.

***Specific functions:***

• Gearing and camming commands • Inputs and outputs fastes • G-code programming • Function “Additive gearing” for cutting and rotary printing • Various fast 14-bit analog inputs • Advanced HMI functions

# ROBOTICS


DELTA ROBOTS


SCARA ROBOTS


CARTESIAN ROBOTS

Robots are increasingly used in the Digital Factory to increase the efficiency and accuracy of processes. Tex Automation's Power series controllers have been specifically designed for this market target. In fact, they are able to move the most commonly used robots, such as Cartesian robots, delta, scara, pick & place and palletizers, and they are also easy to use for special and multiprocess solutions.

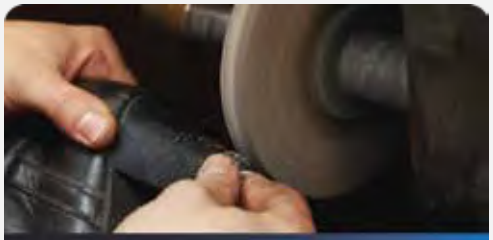
***Recommended controller:***

Given the high performance required in this sector, controllers such as Power I+, Power D and Power A are usually used, but, in order not to exceed the budget in the simplest and most economical solutions, Power B and Power J+ can also be used with satisfaction.

***Specific functions:***

• Smooth interpolation • Fittings 5th degree polynomials • Application of 6 different levels of jerk in the various phases of the movement • Programming environment based on a library of high-level functions (macro) • Possibility of inserting positions • The macros, and the related HMI pages, can be easily created or modified, to allow you to customize the application.

# FOOTWEAR AND TEXTILE


GRINDING MACHINES


GLUING MACHINES


CUTTING MACHNES


SEWING MACHINES


SPREADERS


WASHING MACHINES

Traditionally, the Italian textile-footwear sector is recognized worldwide for the quality of the finishes and the attention paid to details and fashion trends. Tex Automation collaborates profitably with italian and foreign partners in order to offer advanced technological solutions to be used in machines for the milling of soles, in nailers and perforators as well as in machines for cutting, spreading and sewing fabrics.

***Recommended controller:***

Given the speed of these movements, Power A, Power D or Power I controllers are preferred by piloting the drives via the step/direction outputs which allow the use of sampling times shorter than

those required to manage the axes via EtherCAT. To manage applications for machining that do not require the execution of high-speed profiles such as drilling, gluing and industrial washing, Power B and Power U are preferred.

***Specific functions:***

• NURBS (spline) functions • Management of the compensated tangent axis • Intelligent management of the JERK • Optimization the performance of the cutting, milling and gluing machines or leather and fabrics even when high speeds are required • Tool Center Point to compensate for the offset of the blade • INADVANCE function for gluing machines that allows of anticipate the closure of the glue dispensing • Efficient algorithms for the management of the electric shaft • PLC macro functions executed at high speed

# OTHER PROCESS


OTHER PROCESS


WINDING MACHINES

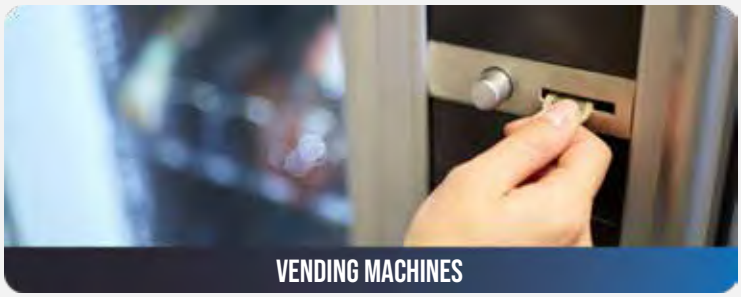

MESH WELDING


PAINTING MACHINES


TEST BENCHES


AUTOMATED STORAGE


DENTAL MILLING MACHINES


VENDING MACHINES

A key prerogative of Power controllers is certainly their adaptability, that is being a real “general-purpose” controlers that can be successfully used in any type of application.

***Recommended controller:***

For simple applications Power B, Power L or Power Z. For multi-axis and complex applications Power D, Power A and Power I

***Specific functions:***

• G-code  programming • Macro functions • Powerful PLC tasks • 4/6 parallel CNC tasks

# AXES

| | Drives Interfaces | | | | |
|---|---|---|---|---|---|
| | Step/Dir | +/-10V | EtherCAT | Mechatrolink | CANopen |
| POWER A | 6 *(5V Line Driver)* | 2 on PWM | * | - | 1 |
| POWER D+ | 16* *(5V Line Driver)* | 8* on DAC | * | * | 3 |
| POWER U | 8* *(5V Line Driver)* | 2 on PWM<br>4* on DAC | * | * | 2 |
| POWER I | 4 *(5V TTL)* | 4 on PWM | * | - | 1 |
| POWER J+ | 4 *(5V TTL)* | 4 on PWM | - | - | 1 (+1*) |
| POWER B | 4 *(5V Line Driver)* | 3 on PWM | - | - | 1 |
| POWER L | 4 *(5V TTL)* | 2 on PWM | - | - | 1 |
| POWER Z | 3 *(5V Line Driver)* | 1 on PWM | - | - | 1 |
| POWER X | 4 *(5V Push Pull)* | - | - | - | * |

* optional

| | Intepolated Axes | | Encoder Interfaces | | |
|---|---|---|---|---|---|
| | | | Incremental ABZ a 5V | | Absolute SSI |
| | External Driver | Integrated Stepper driver | Push Pull | Line Drive | |
| POWER A | 16 (+16*) | - | - | 6 | - |
| POWER D+ | 16 (+12*) | - | 8 *(+8* at FDC)* | 1 *(only AB)* | 16* |
| POWER U | 4 (+8*) | - | 4 | 4 | 8* |
| POWER I | 4 (+2*) | - | - | 5 *(1 only AB)* | - |
| POWER J+ | 4 | - | - | 5 *(1 only AB)* | - |
| POWER B | 4 | - | - | 3 | - |
| POWER L | 4 | - | - | 2 | - |
| POWER Z | - | - | - | 2 *(1 only AB)* | - |
| POWER X | 4 | 4 (1,8/3A @ 36Vdc) | - | - | - |

* optional

# I/O

| | Local Digital I/O | | | | | Local Analog I/O | | |
|---|---|---|---|---|---|---|---|---|
| | Inputs | Outputs | | | | Inputs | +/-10V Outputs | |
| | 24V PNP | 24V PNP protette | PNP 60 mA | Expansion card | Other type | 14 bit resolution | from 16 bit DAC | from 14 bit PWM |
| POWER A | 36 | 16 (0.6A) | 6 | - | 3 SPDT Relay | 9 | - | 8 |
| POWER D+ | 55 | 32 (1A) | - | FDC25 (128 I/O)* FDC26 (64 I/O)* | - | 13 | 8* (also 0/20mA) | 8* on FDC16 |
| POWER U | 41 | 16 (1A) | 2 | FDC25 (128 I/O)* FDC26 (64 I/O)* | - | 15 | 4* | 4 |
| POWER I | 19 | 8 (0.6A) | 6 | INT-SPI (32 I/O)* | - | 9 | - | 4 |
| POWER J+ | 24 | 16 (0.6A) | 4 | INT-SPI (32 I/O)* | - | 12 | - | 4 |
| POWER B | 16 | 16 (0.6A) | - | - | - | 7 | - | 3 |
| POWER L | 16 | 8 (0.6A) | 4 | INT-SPI (32 I/O)* | - | 10 (12 bit) | - | 2 |
| POWER Z | 10 | 8 (0.35A) | 2 | INT-SPI (32 I/O)* | - | 5 | - | 1 |
| POWER X | 10 | 4 (2.5A) | - | - | PNP (0,7A) | 4 | - | 1 (0-5V) |

* optional

# PORT

| | Ethernet 10/100T | Serial | USB | Wi-Fi Bluetooth | LVDS at 36 pin |
|---|---|---|---|---|---|
| POWER A | 2 (1 for EtherCAT) | 2 RS232 1 RS485 | 1 type 1.1<br>1 type 2.0 | | |
| POWER D+ | 2 (1 for EtherCAT) | 2 RS232 1 RS485 | 1 type 1.1<br>1 type 2.0 | - | |
| POWER U | 2 (1 for EtherCAT) | 2 RS232 1 RS485 | 1 type 1.1<br>1 type 2.0 | - | |
| POWER I | 2 (1 for EtherCAT) | 2 RS232 1 RS485 | 1 type 1.1<br>1 type 2.0 | - | |
| POWER J+ | 1 | 2 RS232 1 RS485 | 1 type 1.1<br>1 type 2.0 | - | |
| POWER B | 1 | 2 RS232 1 RS485 | 1 type 1.1<br>1 type 2.0 | | (at 30 pin) |
| POWER L | 1 | 1 RS232 1 RS232/485 | 1 type 1.1 | - | - |
| POWER Z | 1 | 2 RS232 1 RS485 | 1 type 2.0<br>rear side | - | - |
| POWER X | 1 | - | 3 type 2.0 | | |

# PANEL

| panel | pixel | LxH mm | POWER D<br>BOX<br>304x214 | POWER U<br>BOX<br>280x206 | POWER I<br>BOX<br>250x138v | POWER J+<br>BOX<br>242x127 |
|---|---|---|---|---|---|---|
| 7” WVGA *small* | 800x480 | 197x125 | | | | |
| 7” WVGA *touch only* | 800x480 | 243x146 | | | | ☑ |
| 7” WVGA *- 20 keys* | 800x480 | 289x160 | | | | ☑ |
| 10” SVGA *- 16 keys* | 800x600 | 290x270 | | ☑ | ☑ | ☑ |
| 10” SVGA *touch only* | 800x600 | 308x225 | | ☑ | ☑ | ☑ |
| 10” WSVGA *capacitive* | 1024x600 | 264x180 | | | ☑ | ☑ |
| 10” WSVGA *touch only* | 1024x600 | 310x192 | | | ☑ | ☑ |
| 10” WSVGA *- 56 keys* | 1024x600 | 310x300 | | ☑ | ☑ | ☑ |
| 10” XGA CNC *- 80 keys* | 1024x768 | 434x400 | ☑ | ☑ | | |
| 10” XGA *touch only* | 1024x768 | 308x225 | | ☑ | ☑ | ☑ |
| 15” XGA *touch only* | 1024x768 | 396x296 | ☑ | ☑ | ☑ | ☑ |
| 15” XGA *- 28 keys* | 1024x768 | 400x355 | ☑ | ☑ | ☑ | ☑ |
| 15” XGA *- 80 keys* | 1024x768 | 490x400 | ☑ | ☑ | | |
| 18” WXGA *- 80 keys* | 1366x768 | 485x305 | ☑ | | ☑ | |
| VTM 10" WXGA | 1280x800 | 223x340 | ☑ | ☑ | ☑ | ☑ |

| panel | pixel | LxH mm | POWER B<br>BOX<br>210x120 | POWER X<br>BOX<br>170x170 | POWER L<br>BOX<br>170x122 | POWER Z<br>BOX<br>192x120 |
|---|---|---|---|---|---|---|
| 7” WVGA *small* | 800x480 | 197x125 | ☑ | | | ☑ |
| 7” WVGA *touch only* | 800x480 | 243x146 | ☑ | | ☑ | |
| 7” WVGA *- 20 keys* | 800x480 | 289x160 | ☑ | | ☑ | |
| 10” SVGA *- 16 keys* | 800x600 | 290x270 | ☑ | ☑ | | |
| 10” SVGA *touch only* | 800x600 | 308x225 | ☑ | ☑ | | |
| 10” WSVGA *capacitive* | 1024x600 | 264x180 | ☑ | | | |
| 10” WSVGA *touch only* | 1024x600 | 310x192 | ☑ | ☑ | | |
| 10” WSVGA *- 56 keys* | 1024x600 | 310x300 | ☑ | ☑ | | |
| 10” XGA CNC *- 80 keys* | 1024x768 | 434x400 | ☑ | ☑ | | |
| 10” XGA *touch only* | 1024x768 | 308x225 | ☑ | | | |
| 15” XGA *touch only* | 1024x768 | 396x296 | ☑ | ☑ | | |
| 15” XGA *- 28 keys* | 1024x768 | 400x355 | ☑ | ☑ | | |
| 15” XGA *- 80 keys* | 1024x768 | 490x400 | ☑ | ☑ | | |
| 18” WXGA *- 80 keys* | 1366x768 | 485x305 | ☑ | ☑ | | |
| VTM 10" WXGA | 1280x800 | 223x340 | ☑ | ☑ | | |
| | | | ☑ | ☑ | | |

** It is possible to view small videos*

# CPU

| | CPU RISC 32 BIT | | MEMORIA | | | | |
|---|---|---|---|---|---|---|---|
| | CLOCK (MHz) | AXIS MANAGEMENT | Flash EPROM | | RAM | | |
| | | | PARALLEL | SERIAL | BUFFERED | MAGNETIC | VOLATILE |
| POWER A | 308 | 8 µS | 24 MB | - | - | 8 MB | 4* MB |
| POWER D+ | 264 | 10 µS | 24 MB | - | 16 MB | - | 4* MB |
| POWER U | 264 | 15 µS | 16 MB | - | 8 MB | - | - |
| POWER I | 264 | 12 µS | 16 MB | 128 MB (+128* MB) | 8 MB | - | 8* MB |
| POWER J+ | 264 | 15 µS | 16 MB | - | 4 MB | - | - |
| POWER B | 264 | 15 µS | 24 MB | 128 MB (+128* MB) | 8 MB | - | - |
| POWER L | 132 | 20 µS | 11 MB | - | 4 MB (+4* MB) | - | - |
| POWER Z | 264 | 15 µS | 8 MB | - | 2 MB | - | - |
| POWER X | 264 | 15 µS | 24 MB | 128 MB (+128* MB) | 8 MB | - | - |

* optional

*Datas subject to modification without notice*

Note

FomGroup
BCR
CIMAtech
GrafSynergy

FomAsia
FomBrasil
FomChina
FomEspaña

FomFrance
FomIndia
FomIran
FomLatinoAmérica

FomRomânia
FomRussia
FomTurkey
FomUSA

Comall
FST
profteQ
Rim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