



AUMAN
Manufacturing Control



exxer Skills for
the Future

THE UNION OF EXPERTISE AND SKILLS A NEW LEVEL OF EXCELLENCE IN EDUCATION!

EXXER was born from the merger of two companies passionate **about technology, innovation, and education.**


With the purpose of offering more and more excellence tools to assist in technological education, we believe the union of practical and theoretical learning is what makes the difference in accelerating human and world development!



TECHNOLOGY ● INNOVATION ● EDUCATION

AUMAN

manufacturing control

 Control systems are divided into two main areas: continuous process control and discrete process control. Discrete process control, also called “manufacturing process control”, has the predominance of digital (discrete) information from sensors and actuators, which are used in important industries such as automotive, metalworking, textiles, food and beverage, electronics, and white goods, among others. The AUMAN series is designed to create experiences that allow developing manufacturing control skills through the practical use of discrete sensors and actuators in typical industry applications

The kits of this series include


- control of conveyor belts for moving parts
- parts separation process according to different characteristics
- pneumatic XYZ manipulator
- electric–pneumatic XYZ manipulator.



The AUMAN series equipment was developed for a multidisciplinary and practical approach to the topics addressed, allowing the experience of problem situations found in the industry.

Every equipment is composed of sensors and actuators applied to typical manufacturing industry tasks that allow the student to develop programming logic and problem–solving skills while exploring the technology of the sensors employed.


They are equipped with modern PLCs that support industrial networks and IoT protocols, increasing the application of kits for connectivity and communication systems of controlled processes.

 The development tools with included licenses are professional and their use is facilitated by learning materials and tutorials.

Software and applications complement the learning solution, ensuring greater effectiveness through more dynamic and modern learning.

All kits in this series have a comprehensive courseware, focused on teaching by skills and easy to use by instructors.

We have complete solutions for training and updating teachers, ensuring the best use of the kit’s resources.

 **Ask our experts for more information and the detailed technical features of each equipment in the series.**



MAIN SKILLS AND COMPETENCE

- Understand the characteristics and operate principle of different types of digital sensors;
- Understand and use pneumatic actuators (valves, pistons, etc.);
- Understand, configure and use electric actuators and related controllers;
- Interpret, analyze and assemble pneumatic systems
- Implement Automatic Systems;
- Use digital inputs and outputs in PLCs
- Implement control systems in real situations;
- Design and apply state machines.
- Use Petri nets to solve automation problems.
- Understand and use PROFINET and IO-link industrial networks
- HMI (Human Machine Interface) Programming

Projects

- Kits perfect for project-based learning, as they present real and increasingly complex challenges.
- PLC programming using the Simmaq 3D simulator, which makes virtual 05 real environments on the computer.



TECHNOLOG HIGHLIGHTS

The SMC pneumatic actuators and valves are the most modern and compact ones, with low energy consumption and great durability.

Electric actuators are a complementary mechatronic technology to pneumatic actuators. They allow controlling position and speed more precisely, in addition to several other configurable parameters.

IO-Link technology has established itself as a de facto standard in sensor networks. Even discrete sensors have become intelligent.

Digital twin of series kits on Simmaq 3D simulator.

The Simmaq simulator allows expanding the use of the kits in this series, bringing new virtual environments that can be controlled by the real or simulated PLC and can be used by students beyond the school environment (thanks to its web licensing system), enabling to use it in e-learning or blended courses.



 The usability and learning process of each student are extremely important, so we developed learning solutions to provide benefits and differentials for users.

KEY BENEFITS

- Protected components
- Industrial devices
- Multidisciplinary

KEY DIFFERENTIALS

- Safety
- No tools required
- Simulator
- Augmented Reality
- Coursewar

DEVICE SETTINGS

Part number	Description	Power	Options
AUMAN2000-Lxx-001 AUMAN2000-Lxx-002	Pneumatic Parts Sorter	Monofásico 110/220VCA 50/60Hz	Siemens Altus
AUMAN3000	Manufacturing Process with Commands*	Monofásico 110/220VCA 50/60Hz	(Without CLP)
AUMAN4000-Lxx-001 AUMAN4000-Lxx-002	Electropneumatic Parts Sorter	Monofásico 110/220VCA 50/60Hz	Siemens Altus

* AUMAN3000 can be controlled by AUSUP series kits

FEATURES

With modular configuration, Safety with NR-12, development software included, protection of main components and courseware included.

AUMAN2000

Pneumatic Parts Sorting System



Settings

- Steel structure with electrostatic coating
- Pneumatic actuators
- Miscellaneous sensors

DIMENSIONS

Height	1600mm
Width	1400mm
Depth	700mm
Weight	180Kg

ELECTRICAL FEATURES

Energy	Monofásica 220Vav – 50/60Hz
Pneumatics	min pressure 6 BAR

FEATURES

With modular configuration, Safety with NR-12, development software included, protection of main components and courseware included.

AUMAN3000

Manufacturing Process with Commands



Settings

- Steel structure with electrostatic coating
- Pneumatic actuators
- Miscellaneous sensors

DIMENSIONS

Height	833mm
Width	1800mm
Depth	760mm
Weight	20Kg

ELECTRICAL FEATURES

Energy	Monofásico 127/220Vca 50/60Hz
Pneumatics	presión mín. 6 BAR

MAIN DEVICES

The different models are equipped with the devices below, according to each configuration (part number):

	Siemens S7-1200 CPU 1215	Altus Nexto Xpress CPU XP340
Interfaces	2 Ethernet RJ45 ports	1 Ethernet RJ45 ports 1 host USB 2.0 port 1 RS-485 serial port 1 CAN port
Industrial networks	PROFINET IO and CBA, MODBUS/TCP ISO on TCP;	PROFINET, MODBUS/TCP, EtherCAT EtherNet/IP, Modbus/RTU (master and slave) and CANOpen;
Protocols Internet	TCP/ IP, SNMP, DCP, LLDP, UDP WEB Server ;	TCP/ IP, DHCP, SNMP, DCP, LLDP UDP, WEB Server
IoT	OPC-UA Server e MQTT.	OPC-UA Server e MQTT
Digital Inputs	14 (24VDC) where 6 are quick count	16 (24VDC) where 4 are quick count
Digital Outputs	10 (24Vdc, Transistor) 4 fast outputs (PWM)	16 (24Vdc, Transistor) 4 fast outputs (PWM)
Analog Inputs	2 (0..10Vcc)	5 (0..10Vcc / 4..20mA) 2 RTD
Analog Outputs	2 (0..10Vcc / 4..20mA)	4 (0..10Vcc / 4..20mA)
Programming Language	LD – Ladder Diagram, FBD – Function Block Diagram ST – Structured Text	LD – Ladder Diagram, FBD – Function Block Diagram ST – Structured Text IL – Instructions List SFC – Sequential Function Chart

	Siemens KTP700 Basic Color	Altus P2070N Série P2
Display	HMI 7" color	HMI 7" color
Resolution	800x480 pixels	800x480 pixels
Interfaces	1 Ethernet RJ45 ports	1 Ethernet RJ45 port 1 RS232 serial port 1 RS485 serial port

DEVELOPMENT TOOLS

Our learning solutions are complemented with the development tools and professional software necessary for student training.

For Siemens controllers

Licenses Included

TIA Portal:

- Development and simulation tool for PLC programming;
 - Platform: Windows;
 - Licensing: 1 license per kit.



Licenses Included

WinCC Basic:

- Development tool for HMI;
 - Platform: Windows;
 - Licensing: 1 license per kit.

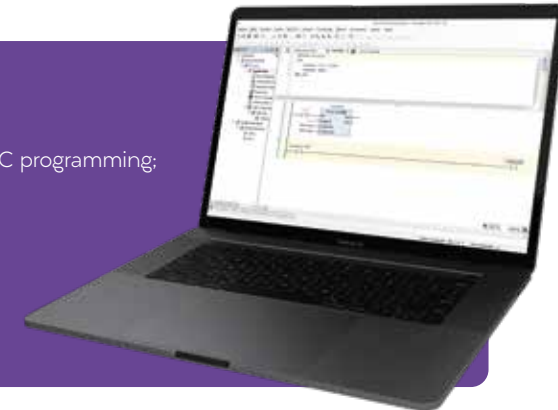


For Altus controllers

Licenses Free

MasterTools:

- Development and simulation tool for PLC programming;
 - Platform: Windows;
 - Licensing: freeware (free delivery).



Licenses Free

FVDesing:


- Development tool for HMI;
 - Platform: Windows;
 - Licensing: freeware (free delivery).





USE

Guidelines on the recommended use of the Kit!

 We suggest this configuration for better use in class. Kits and activities are designed according to the team sizes listed on the side.

The minimum necessary infrastructure is a prerequisite to fully use all functionalities of the training kits.

We recommend the computing and connectivity requirements below for using the software and applications provided with the kit.

Product	Use	Team(student/kit)	Use
AUMAN2000	classifier pneumatic parts	3 to 4	Eventual 1 kit for 3 teams
AUMAN3000	Process of manufacture with commands	3 to 4	Eventual 1 kit for 3 teams
AUMAN4000	classifier parties electropneumatic	3 to 4	Eventual 1 kit for 3 teams

Infrastructure

AUMAN2000 / AUMAN3000 / AUMAN4000

Eléctrica	1 single-phase plug
Neumática	1 point per kit, Pressure min. of 6 BAR, flow min. from 30 l/min

Connectivity

Network connections by season work	1 Ethernet port for or kit
WiFi	–
Internet access	Recommended
Computer	Necessary; according to the minimum requirements of software



COURSEWARE

The training kits have a rich courseware with a practical focus, containing practical proposals aimed at training skills and competencies.

In addition to the **User Manual**, which contains information on operation and maintenance, the **Student Guide** is also provided, with proposals for practical activities to be carried out using the kit, and the **Facilitator Guide**, with answers to the proposed activities and guidelines to use the kit in a didactic way. In addition, **Video tutorials** are available to help you easily master the development tools and use the kit.

All of this content is available on our website at the **Facilitator Portal**.



SKILLS AND COMPETENCIES

Sensors and actuators

- Understand the characteristics and operate principle of different types of digital sensors;
- Understand and use pneumatic actuators (valves, pistons, etc.);
- Understand, configure and use electric actuators and related controllers;
- Interpret, analyze and assemble pneumatic systems
- Implementing Automatic Systems;

Applied programmable logic controllers

- Using digital inputs and outputs in PLCs
- Implementing control systems in real situations;
- Designing and applying state machines.
- Use Petri nets to solve automation problems.
- Understand and use PROFINET and IO-link industrial networks

HMI

- Create HMI screens;
- Work on analog and digital variables;
- Send command from the HMI to the PLC;
- Integrate HMI and PLC through networks.

MOBILE APPLICATIONS

A current learning solution is not complete without software and applications. Along with the kits of this series, exclusive licenses are provided for applications on computer and mobile devices that complement and enhance the use of the kits.

Exxer App

AUGMENTED REALITY KITS

The solutions can be visualized in 3D through augmented reality, allowing the student to have a first contact with such technology and identify their main characteristics.

Educational animations

Augmented reality animations that show the main devices in section, their assembly/disassembly process and the operating principles.





DESKTOP APPLICATION

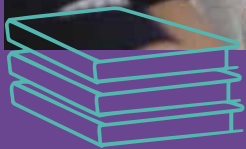


A current learning solution is not complete without software and applications. Along with the kits of this series, exclusive licenses are provided for applications on computer and mobile devices that complement and enhance the use of the kits.

Simulador Simmaq

- Kit visualization in augmented reality
- Data acquisition system
- Understand analog variables;





TRAINING

As important as teaching resources and tools is teacher training. We have a complete package of solutions for your training and upgrading needs.

Quick Start and Tutorials

Quick start is a quick video guide to learn, test and put the product into operation. Tutorials are videos that teach common procedures needed in classes using the kit.

Technical Delivery

In the technical delivery, our experts present the product, its features, as well as maintenance and safety precautions, and put it into operation together with the customers.

Operational Training

The purpose of operational training is to teach facilitators on how to use the kit. The kit courseware is presented and some proposed practices are carried out. It also includes all technical delivery activities.

Technological Training

Technological training is a deeper learning of technology and applied concepts. These courses are not focused on kits but on topics and technical skills to update trainers.

Headquarter:

Rua José Pinto Vilela, 156
Bairro Centro
Código Postal 37540-000
Santa Rita do Sapucaí — MG
Phone no: (35) 3473-4050

Branch:

Av. Rubem Bento Alves, 5167
Bairro Santa Catarina
Código Postal 95030-325
Caxias do Sul — RS
Phone no: (54) 3771-6600

 www.exxer.com

 [exxeroficial](https://www.instagram.com/exxeroficial)

 [company/exxer](https://www.linkedin.com/company/exxer)

 [@exxeroficial](https://www.youtube.com/@exxeroficial)