



AUSUP
Control and Supervision



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



MAUSUP


Control and supervision

 The heart of automation is control and supervision systems. This series brings essential kits for every automation laboratory, allowing it to deal with automated control systems through PLCs (programmable logic controllers) and the technologies for supervising these systems through HMI (man-machine interface) and SCADA software (supervisory control and data acquisition).


 The devices of the most used models and manufacturers on the market are applied, accelerating the student's entry in the job market. In addition, models are chosen with a diversity of resources that maximize their learning application.

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

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 COMPETENCIES

- Understand the internal structure of a PLC;
- Program in different Programming Languages;
- Implement Automatic Systems;
- Use digital and analog inputs and outputs;
- Use timers and counters;
- Implement Control Systems in real situations;
- Develop HMI screens;
- Establish communication between HMI and PLC;
- Develop supervisory screens;
- Establish communication between supervisory systems and PLCs;
- Understand the industrial networks present in the PLC.

Projects

- PLC programming using the Simmaq 3D simulator, which makes virtual 05 real environments on the computer.



TECHNOLOGY HIGHLIGHTS

The PLC is the main component of an automation system. Learning to program this device is essential for training in the areas of control and automation, mechatronics, electronics and the like. Local supervision of machines or processes also requires mastery of HMI (Human–Machine Interface) programming and SCADA (Supervisory) software.

More and more PLCs have connectivity features for industrial networks and IoT (Internet of Things). The PLCs chosen to compose this family have several industrial and IoT protocols. In this series we use PLCs from manufacturers with a large presence on the market: Siemens and Altus.

Siemens is one of the most well-known and used brands in the world, presenting a development platform for all its Automation solutions, the TIA Portal.

Altus is a Brazilian automation company that operates in important markets such as oil and sanitation.

More and more PLCs have connectivity features for industrial networks and IoT (Internet of Things). The PLCs chosen to compose this family have several industrial and IoT protocols.

The PLCs that equip the kits with Dock Station design are called compact PLCs, and are typically used in machines and small processes and have inputs and outputs integrated into the CPU.

The PLCs that equip the kits with Rack design are modular PLCs, typically used in more complex processes that require more processing. They have expandable input and output cards as required by the application. They have higher processing speed, more computational resources and advanced functions.

Through the Sismaq Simulator it is possible to expand the use of the kit, controlling digital twins of 5 industrial machines through the physical PLC.



 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

- Modular configuration;
- Safety: compliance with NR-12;
- Development software included;
- Protection of main components;
- Courseware included.

KEY DIFFERENTIALS

- Compact and lightweight;
- Mobility and easy to use in any environment;
- Ergonomics;
- Main PLC models on the market;
- Integration with Sismaq simulator.

DEVICE SETTINGS

Partnumber	CLP	IHM	Constructivo	Herramientas de desarrollo	Aplicaciones
AUSUP2000	S7-1200	KTP700	DOCK STATION	TIA Portal Basic WinCC Basic (IHM)	Exxer App SimMaq
AUSUP2000	XP340	P2070N	DOCK STATION	Mastertools FVDesigner	Exxer App SimMaq
AUSUP3000	S7-1500	KTP700	RACK	TIA Portal Professional WinCC Unified	Exxer App SimMaq
AUSUP3000	NX3008	P2070N	RACK	Mastertools FVDesigner BluePlant	Exxer App SimMaq

FEATURES

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

AUSUP2000 DOCK STATION



Settings

- Natural anodized aluminum rear closure;
- Plastic side closure;
- TS-type front plate with indelible identification.

DIMENSIONS

Altura	150mm
Ancho	400mm
Profundidad	340mm
Peso	15Kg

ELECTRICAL FEATURES

Alimentación	Single phase 110/220Vac 50/60Hz
Conexiones	Terminales de seguridad de 4 mm

FEATURES

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

AUSUP3000 RACK STATION



Settings

- Desktop rack: modular structure;
- Structure made of aluminum and steel profile, for fitting modules without using tools;
- Modules with aluminum profile base, plastic closure;
- Front panel with indelible engraving of symbols and indications.

DIMENSIONS

Altura	330mm
Ancho	1300mm
Profundidad	330mm
Peso	30Kg

ELECTRICAL FEATURES

Alimentación	Single phase 110/220Vac 50/60Hz
Conexiones	Terminales de seguridad de 4 mm

MAIN DEVICES – PLC

	CLP S7-1200 CPU 1215 DA SIEMENS	CLP NEXTO XPRESS CPU XP340 DA ALTUS	CLP S7-1500 CPU 1512C DA SIEMENS	CLP NEXTO CPU NX3008 DA ALTUS
INTERFACES	<ul style="list-style-type: none"> 2 PUERTOS ETHERNET RJ45 	<ul style="list-style-type: none"> 1 puertos Ethernet RJ45 1 puerto host USeB 2.0 1 puerto serie RS-485 1 puerto CAN 	<ul style="list-style-type: none"> 1 puertos Ethernet RJ45 	<ul style="list-style-type: none"> 1 puertos Ethernet RJ45 1 puerto host USB 2.0 1 puerto serie RS-485 1 puerto CAN
REDES INDUSTRIAIS	<ul style="list-style-type: none"> PROFINET IO Y CBA, MODBUS/TCP, ISO on TCP; 	<ul style="list-style-type: none"> PROFINET, MODBUS/TCP, EtherCAT, EtherNet/IP, Modbus/RTU (maestro y el esclavo) Y CANOpen; 	<ul style="list-style-type: none"> PROFINET IO Y CBA, MODBUS/TCP, ISO on TCP; 	<ul style="list-style-type: none"> PROFINET, MODBUS/TCP, EtherCAT, EtherNet/IP, Modbus/RTU (maestro y el esclavo) Y CANOpen;
PROTOCOLOS INTERNET	<ul style="list-style-type: none"> TCP/ IP, SNMP, DCP, LLDP, UDP, WEB Server ; 	<ul style="list-style-type: none"> TCP/ IP, DHCP, SNMP, DCP, LLDP, UDP, WEB Server 	<ul style="list-style-type: none"> TCP/ IP, DHCP, SNMP, DCP, LLDP, UDP, WEB Server 	<ul style="list-style-type: none"> TCP/ IP, DHCP, SNMP, DCP, LLDP, UDP, WEB Server
IoT	<ul style="list-style-type: none"> OPC-UA Server y MQTT. 	<ul style="list-style-type: none"> OPC-UA Server y MQTT. 	<ul style="list-style-type: none"> OPC-UA (Client/Server) y MQTT 	<ul style="list-style-type: none"> OPC-UA (Client/Server) y MQTT
ENTRADAS DIGITAIS	<ul style="list-style-type: none"> 14 (24VDC) con 6 conteo rápido 	<ul style="list-style-type: none"> 14 (24VDC) con 6 conteo rápido 	<ul style="list-style-type: none"> 32 (24VDC) con 4 conteo rápido 	<ul style="list-style-type: none"> 8 (24VCC);
SALIDAS DIGITAIS	<ul style="list-style-type: none"> 10 (24Vdc, Transistor) con 4 salidas rápidas (PWM) 	<ul style="list-style-type: none"> 10 (24Vdc, Transistor) con 4 salidas rápidas (PWM) 	<ul style="list-style-type: none"> 32 (24VDC) con 4 conteo rápido 	<ul style="list-style-type: none"> 8 (24VCC);
ENTRADAS ANALOGICAS	<ul style="list-style-type: none"> 2 (0..10Vcc) 	<ul style="list-style-type: none"> 5 (0..10Vcc / 4..20mA) 2 RTD 	<ul style="list-style-type: none"> 4 (0..10Vcc / 4..20mA) 1 RTD 	<ul style="list-style-type: none"> -
SALIDAS DIGITAIS	<ul style="list-style-type: none"> 2 (0..10Vcc / 4..20mA) 	<ul style="list-style-type: none"> 4 (0..10Vcc / 4..20mA) 	<ul style="list-style-type: none"> 2 (0..10Vcc / 4..20mA) 	<ul style="list-style-type: none"> -
LENGUAJE DE PROGRAMACIÓN	<ul style="list-style-type: none"> LD – Diagrama de escalera, FBD – Diagrama de bloques de funciones ST – Texto estructurado 	<ul style="list-style-type: none"> LD – Diagrama de escalera, FBD – Diagrama de bloques de funciones ST – Texto estructurado IL – Lista de instrucciones SFC – Secuenciación gráfica de funciones 	<ul style="list-style-type: none"> LD – Diagrama de escalera, FBD – Diagrama de bloques de funciones ST – Texto estructurado IL – Lista de instrucciones SFC – Secuenciación gráfica de funciones CFC – Gráfica de Funciones Continuas 	<ul style="list-style-type: none"> LD – Diagrama de escalera, FBD – Diagrama de bloques de funciones ST – Texto estructurado IL – Lista de instrucciones SFC – Secuenciación gráfica de funciones CFC – Gráfica de Funciones Continuas

MAIN DEVICES – IHM

The different models are equipped with the devices below, according to each configuration.

	KTP700 BASIC COLOR SIEMENS	P2070N P2 SERIES ALTUS
SETTING	<ul style="list-style-type: none"> • HMI 7" COLORFUL 	<ul style="list-style-type: none"> • HMI 7" COLORFUL
RESOLUTION	<ul style="list-style-type: none"> • 800X480 pixels 	<ul style="list-style-type: none"> • 800X480 pixels
INTERFACES	<ul style="list-style-type: none"> • 1 RJ45 Ethernet port 	<ul style="list-style-type: none"> • 1 RJ45 Ethernet 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.

Licenças Inclusas

TIA Portal:

Development and simulation tool for PLC programming;

- Plataforma: Windows;
- Licensing: 1 licença per kit.

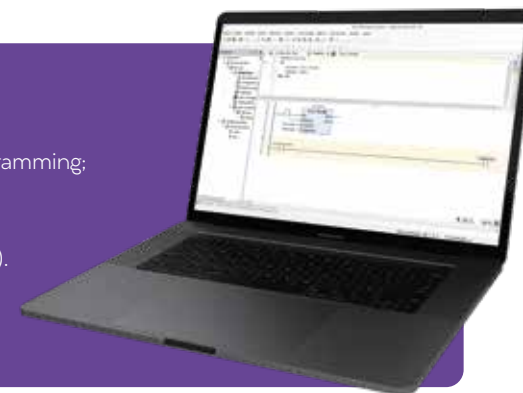


Licenças Gratuitas

MasterTools:

Development and simulation tool for PLC programming;

- Plataforma: Windows;
- Concesión: freeware (distribuição gratuita).



Licenças Inclusas

WinCC Basic:

Development tool for IHM;

- Platform: Windows;
- Licensing: 1 licença per kit.



Licenças Gratuitas

FVDesing:

Development tool for HMI;

- Platform: Windows;
- Licensing: freeware (free delivery).





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.

Partnumber	Use	Team(student/kit)	Use
AUSUP2000	control equipment and supervision	2 a 3	Frequent 1 kit per equipment
AUSUP3000	control game and supervision	2 a 3	Frequent 1 kit per equipment

Infrastructure		
	AUSUP2000	AUSUP3000
Electrical	1 single-phase plug	1 single-phase plug

Connectivity	
Network connections by season work	1 ethernet connection (PLC, Kit and computer by kit switch.)
WiFi	There's no need; According to the minimum requirements of software
Acceso a Internet	Recomendado
Computadora	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

Programmable logic controllers

- Understand the internal structure of a PLC;
- Use different programming languages;
- Learn how to use different variables;
- Develop Digital Logic;
- Implement Automatic Systems;
- Apply Timed logics in real problems;
- Use counters for various applications;
- Understand analog variables;
- Use the concepts of resolution and conversion of analog variables to implement monitoring and control systems;
- Understand the concepts of State Machine;
- Use State Machine logics to solve real problems;
- Understand the types of Control Systems;
- Use and test systems with different types of Control;
- Implement Control Systems in real situations;

Supervisory

- Create supervisory screens;
- Work with analog and digital variables;
- Integrate supervisory systems to PLCs..

HMI

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

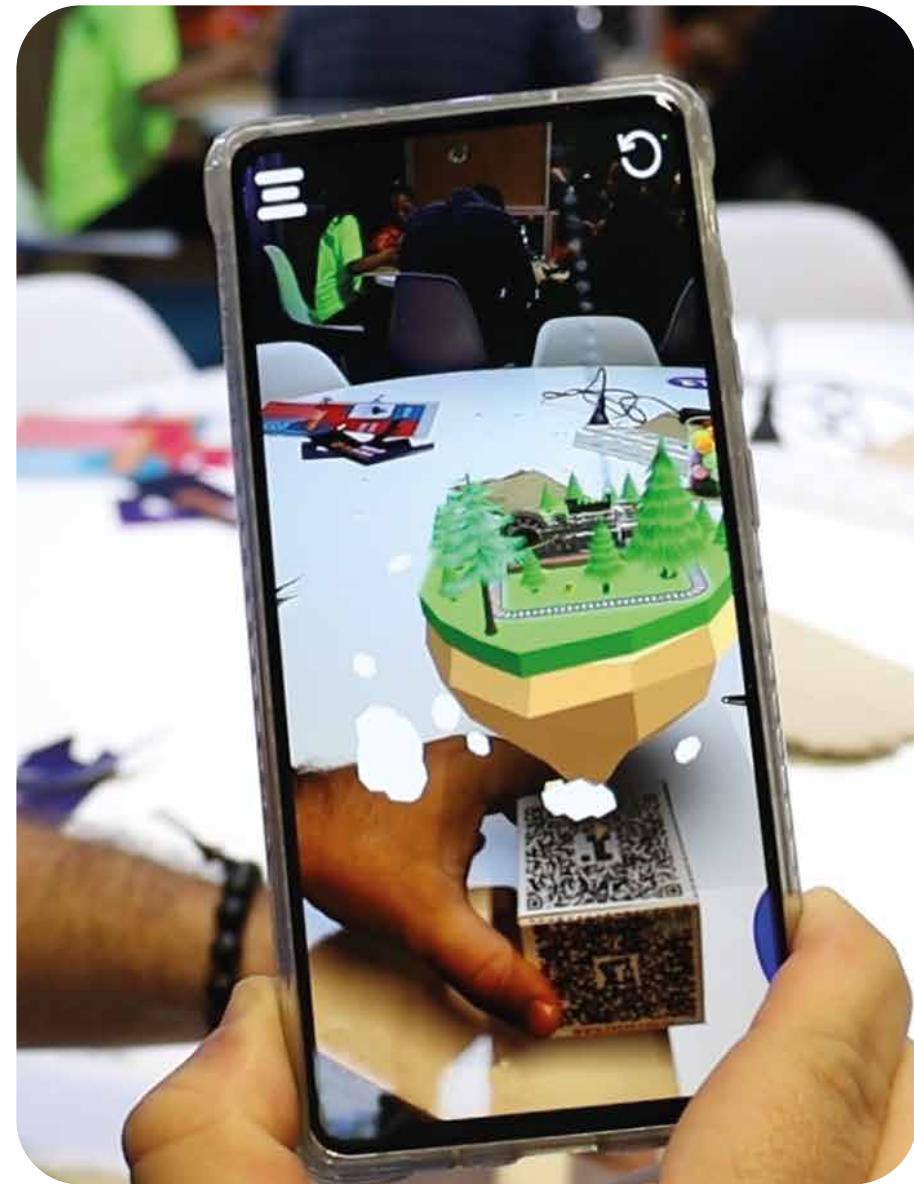
MOBILE APPLICATIONS

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.

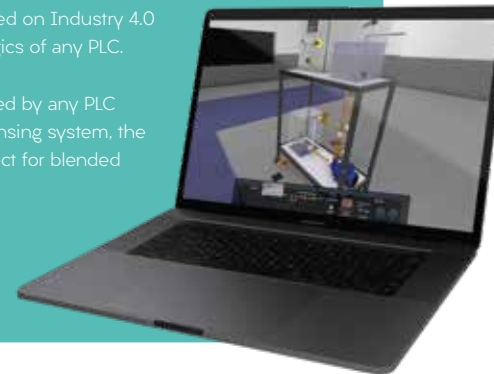


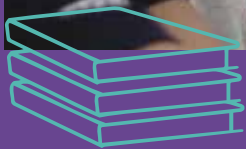
DESKTOP APPLICATIONS

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.

SimMAQ

- Simmaq is a software for virtual commissioning, based on Industry 4.0 enabling technologies. It allows to testing control logics of any PLC.
- Simmaq has 5 virtual machines that can be controlled by any PLC through the Modbus protocol. Through the web licensing system, the user can use the software anywhere, making it perfect for blended and e-learning courses.





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)