MAS-200

Modular assembly system

Modular training system which emulates a real industrial assembly process

In the following TECHNOLOGIES...

ELECTRICAL PANEL | PNEUMATICS | VACUUM | SENSORS | IDENTIFICATION SYSTEMS | PROGRAMM. CONTROLLERS | MANIPULATORS | ROBOTICS

SMC
INTERNATIONAL TRAINING

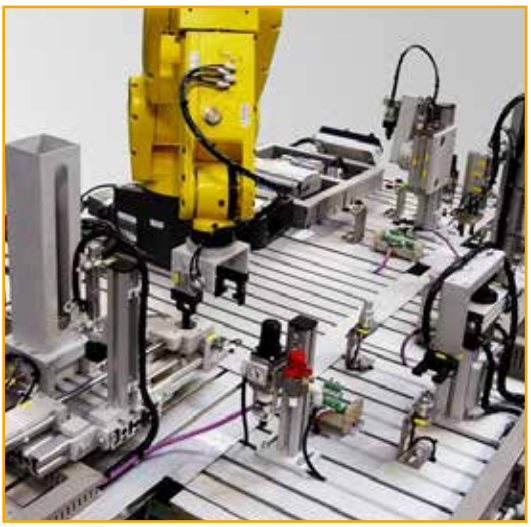
Develop the SKILLS...

- ANALYSIS
- TROUBLESHOOTING
- DESIGNING
- TECH DOCUM. CREATION
- TECH DOCUM. UNDERSTANDING
- OPERATION
- PROGRAMMING
- SETTING UP

Five completely autonomous stations that can be assembled to form a complete manufacturing cell

- INDUSTRIAL COMMUNIC.
- SCADA / HMI
- AUTOMATED SYSTEMS

MAS-200 - Modular assembly system



MAS-200 is a modular training system which emulates a real industrial assembly process, incorporating the technologies required by today's automated industry. The complete system consists of five stations. The various parts of the final assembled product (base, bearing, shaft and lid) are fed into four of the stations. The fifth station is located between the others and is responsible for transferring and assembling the parts.

The modular features of the equipment allow a vast range of options since the stations are completely autonomous, but can be assembled to form a complete manufacturing cell. The design of the MAS-200 allows simple and quick extraction of the stations, assisting individual work with each of them. All the components of which the MAS-200 is comprised are used in the industry, allowing the user to gain detailed knowledge of the technologies currently used in automated industry.

The MAS-200 system includes an optional SCADA tool which enables:
- Access to the status of the various field devices.
- Display, management and storage in the PC of information collected during the process.
- Control and modification of the process in real time.
- Display of the various phases of the process via a graphical interface.
- Recognition of alarms in the event of system failures.
- Generation of data logs and statistical data.

Each of the MAS-200 system stations carries out part of the process.

• MAS-201: Feeding of the base with detection and ejection of incorrect parts

This station feeds the base which supports the final assembled product.

• MAS-202: Positioning of the lid

This station allows the insertion of a lid into the workpiece.

• MAS-203: Insertion of the bearing

The third MAS-200 station feeds a bearing.

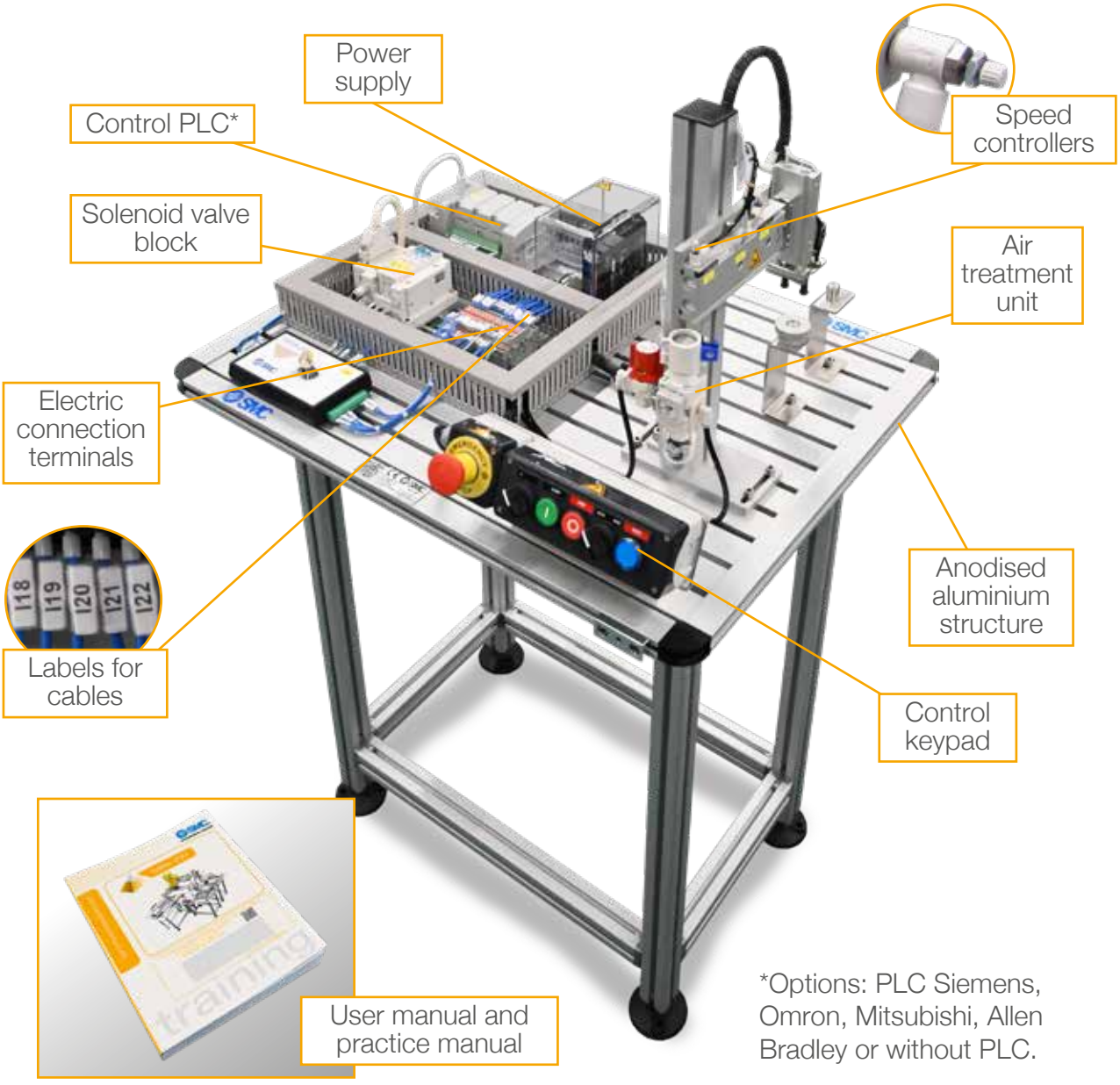
• MAS-204: Insertion of the shaft

This station, MAS-204, feeds a shaft for the workpiece.

• MAS-205: Transfer of the parts

The fifth and last MAS-200 station is responsible for the assembly or disassembly of all the components. There are two versions of this station: one of them with a pneumatic index plate and the other with a six axis robot.

Common element in all stations

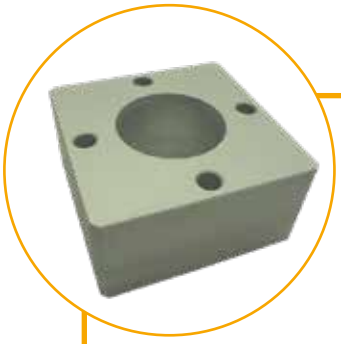


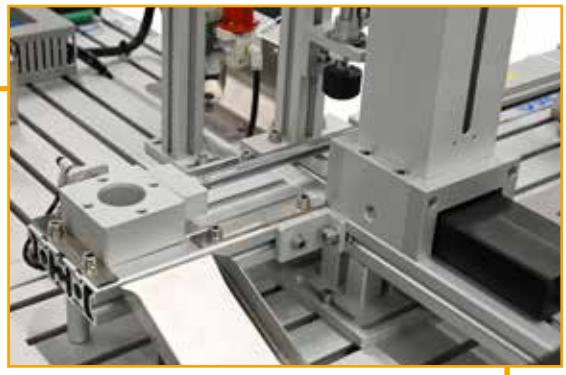
*Options: PLC Siemens, Omron, Mitsubishi, Allen Bradley or without PLC.

MAS-201 - Feeding of the base with detection and ejection of incorrect parts

The first station feeds the base for the final assembled product, checks for orientation and moves it to the assembly position (located in the same station).

The troubleshooting simulation system TROUB-200 is included, which generates up to 16 different breakdowns to be diagnosed by the user.





Breakdown simulation system

MAS-202 - Positioning of the lid

This station inserts a lid into the workpiece. The lid is moved from its initial position, where its presence is detected, to the assembly position.

The troubleshooting simulation system TROUB-200 is included, which generates up to 16 different breakdowns to be diagnosed by the user.

Breakdown
simulation system

MAS-203 - Insertion of the bearing

The third station feeds a bearing. The bearing is moved from its initial position to the assembly position. Presence detection exists in both positions.

The troubleshooting simulation system TROUB-200 is included, which generates up to 16 different breakdowns to be diagnosed by the user.

Breakdown simulation system

MAS-204 - Insertion of the shaft

This station, MAS-204, feeds a shaft for the workpiece. As in previous stations, the material, the shaft, is moved from its initial position to the assembly position. Presence detection exists in both positions.

The troubleshooting simulation system TROUB-200 is included, which generates up to 16 different breakdowns to be diagnosed by the user.

Breakdown
simulation system

MAS-205 - Transfer of the parts

The fifth and last MAS-200 station is responsible for the assembly or disassembly of all the components which have been supplied by each of the supporting stations. There are two versions of this station, comprised of either an index plate with two handling devices or a robot with six axis.

The PLC in this station is a network master to the PLCs from the other stations. It contains the control panel, fitted with keypad, alarm, power supply, master PLC, pressure switch and the connections required for air and power.

MAS-205A: Pneumatic transfer

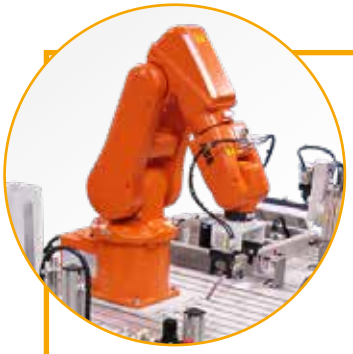
Breakdown simulation system

MAS-205B: Robotized transfer

In this version, the study of robotics is introduced. It is a widespread technology in the many sectors of automated industry.

The robot carries out assembly and disassembly tasks of all the parts comprising the turning mechanism. The robot has two grippers to hold the parts. It includes a programming console. A wide range of robots is offered. Please check availability.

Safety enclosure: consult cases where applicable.






MAS-200 - With this system you could...

MAS-200 comes up with different practical activities targeting skills in the technologies featuring in the table (below).

TECHNOLOGIES

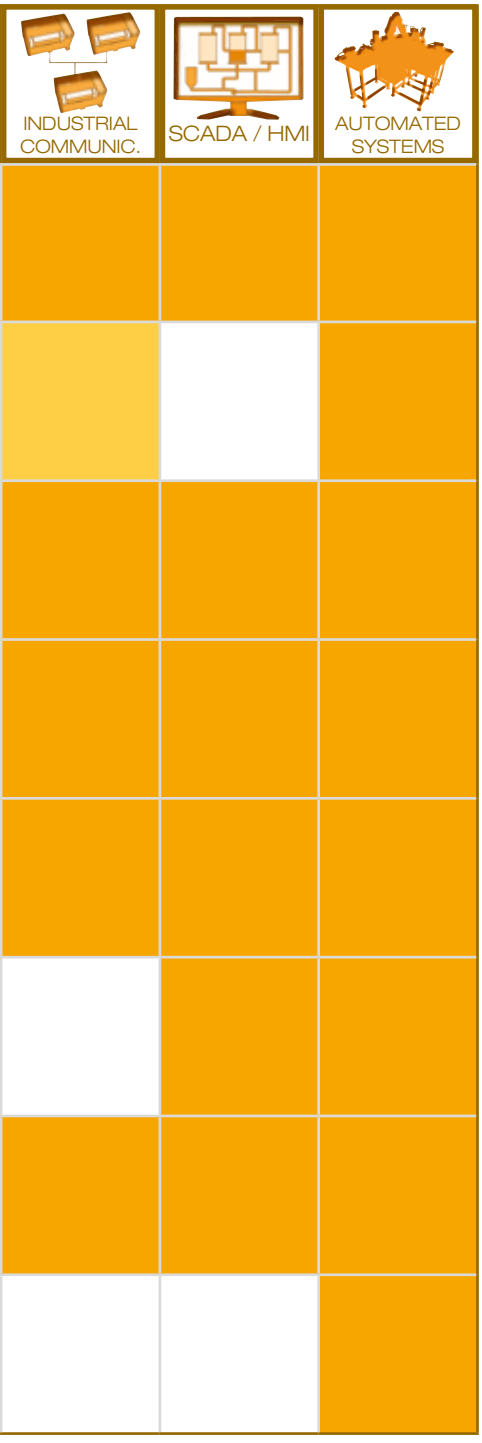
SKILLS	ELECTRICAL PANEL	PNEUMATICS	VACUUM	SENSORS	IDENTIFICATION SYSTEMS	PROGRAMM. CONTROLLERS	MANIPULATORS	ROBOTICS
ANALYSIS	■	□	□	□	□	■	■	■
TROUBLESHOOT.	■	■	□	■		□	■	□
DESIGNING	■	□	□	□	□	■	■	■
TECH DOCUM. CREATION	■	□	□	□	□	■	■	■
TECH DOCUM. UNDERSTANDING	■	□	□	□	□	■	■	■
OPERATION	■	■				■	■	■
PROGRAMMING					□	■		■
SETTING UP								

■ This shows how the MAS-200 is suitable to develop skills in the specific technology.

□ This shows that MAS-200 can help develop skills in the specific technology even though there are other more appropriate products in the range.

eLEARNING-200

Find out more about the theory behind the technologies developed in MAS-200 with our eLEARNING-200 courses.



RELATED eLEARNING-200 COURSES
Introduction to industrial automation (SMC-100)
Principles of pneumatics (SMC-101)
Introduction to electricity (SMC-102)
DC electricity (SMC-103)
Solid state (SMC-105)
Introduction to wiring (SMC-106)
Sensors technology (SMC-108)
Programmable controllers (SMC-109)
Robotics (SMC-113)

**See eLEARNING-200 chapter for more information*

MAS-200 - Options

MAS-200 has a series of optional extras.

• Programming tools

The programming tools comprise the appropriate programming software, the industrial system communication programming software and cables for the chosen PLC.

*See Programming Tools chapter

• SCADA: Supervisory Control and Data Acquisition

This is a standard-use software application in industry, making it easier to supervise and control processes from the computer screen.

• MAS-200 application for autoSIM-200

We have a 3D application where users can simulate, supervise and control MAS-200 from an autoSIM environment.

autoSIM is required. See autoSIM-200 chapter

MAS-200 - Configuration

Getting the right MAS-200 specification is as easy as:

• Steps to follow

1.- Choose the PLC.

2.- Select the required stations.

3.- Add any optional extras.

• Considerations

- Any station can operate independently and be purchased separately.

- To work with the full system, you need either version of the MAS-205 station.

MAS-200 - Technical features

MAS-201 843x580x1300mm	Modules	Sensors (type & quantity)	Input / Output
	Part feed Position verification Displacement Incorrect part rejection	Auto switch, Reed type (x4) Inductive (x1)	Digital 9/5
	Other devices (quantity)	Actuators (type & quantity)	
	Breakdown simulation system (x1)	Pneumatic linear (x4)	
MAS-202 743x580x1300mm	Modules	Sensors (type & quantity)	Input / Output
	Part transfer	Auto switch, Reed type (x4) Vacuum pressure switch (x1)	Digital 9/5
	Other devices (quantity)	Actuators (type & quantity)	
	Breakdown simulation system (x1) Vacuum pad(x3)-Vacuum ejector (x1)	Pneumatic linear (x2)	
MAS-203 743x580x1200mm	Modules	Sensors (type & quantity)	Input / Output
	Part transfer	Auto switch, Reed type (x3) Barrier type photocell (x2)	Digital 9/4
	Other devices (quantity)	Actuators (type & quantity)	
	Breakdown simulation system (x1)	Pneumatic rotary actuator (x1) Pneumatic gripper (x1)	
MAS-204 743x580x1120mm	Modules	Sensors (type & quantity)	Input / Output
	Part transfer	Auto switch, Reed type (x4) Fiber optic photocell (x2) Solid state (x2)	Digital 12/4
	Other devices (quantity)	Actuators (type & quantity)	
	Breakdown simulation system (x1)	Pneumatic rotolinear (x1) Pneumatic gripper (x1)	
MAS-205A 743x400x1320mm	Modules	Sensors (type & quantity)	Input / Output
	Handling parts by external gripper Handling parts by internal gripper Dividing plate	Auto switch, Reed type (x10)	Digital 15/10
	Other devices (quantity)	Actuators (type & quantity)	
	Breakdown simulation system (x1) Bar code reader (x1)	Pneumatic linear (x8) Pneumatic gripper (x2)	
MAS-205B 743x580x1550mm	Modules	Sensors (type & quantity)	Input / Output
	Robot		Digital 7/6
	Other devices (quantity)	Actuators (type & quantity)	
	Robot controller unit (x1) Programming console (x1)	Six axis robot (x1) Pneumatic gripper (x2)	