Escuela Universitaria
Politécnica - La Almunia
Centro adscrito
Universidad Zaragoza

**ESCUELA UNIVERSITARIA POLITÉCNICA
DE LA ALMUNIA DE DOÑA GODINA (ZARAGOZA)**

ANEXOS

Automatización de granja de ganado porcino

Pig farm automation

608.22.36

Autor: Guillermo Aldunate Ozcariz

Director: Pedro Huerta Abad

Fecha: 06/06/2023

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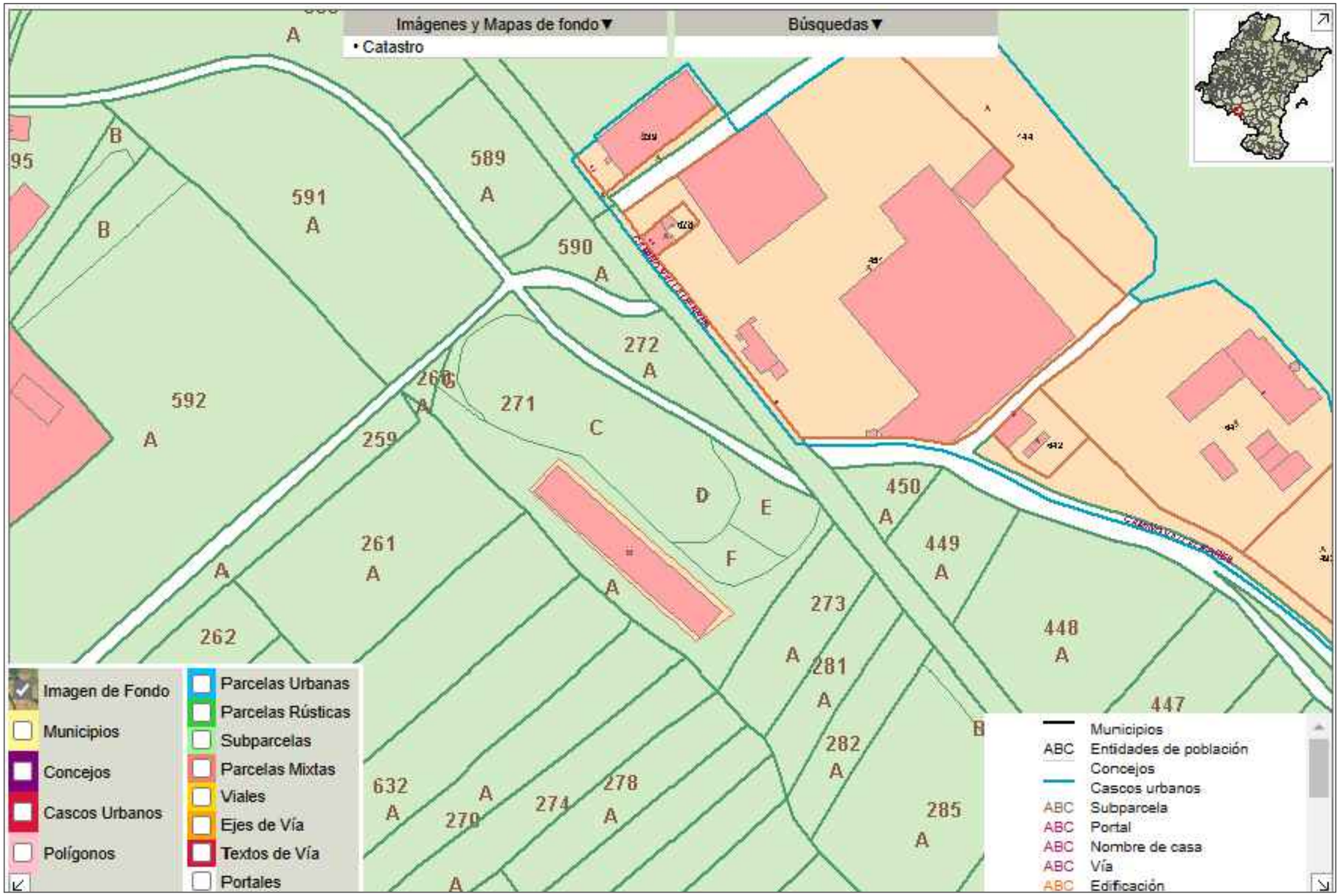

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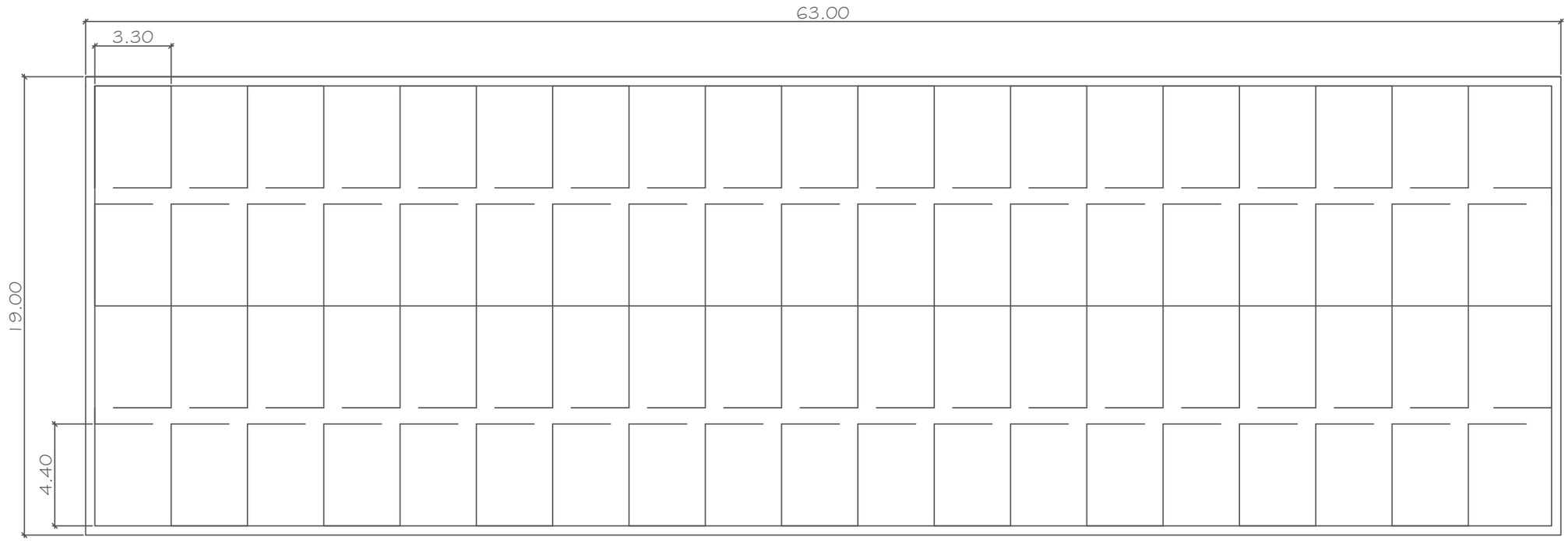

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PLANOS TFG GRANJA DE CERDOS

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Nº identificación: 608.22.36

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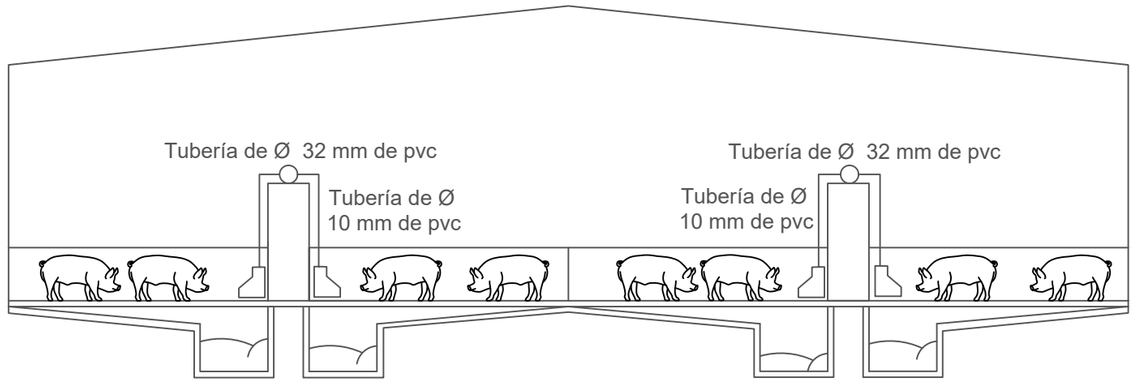

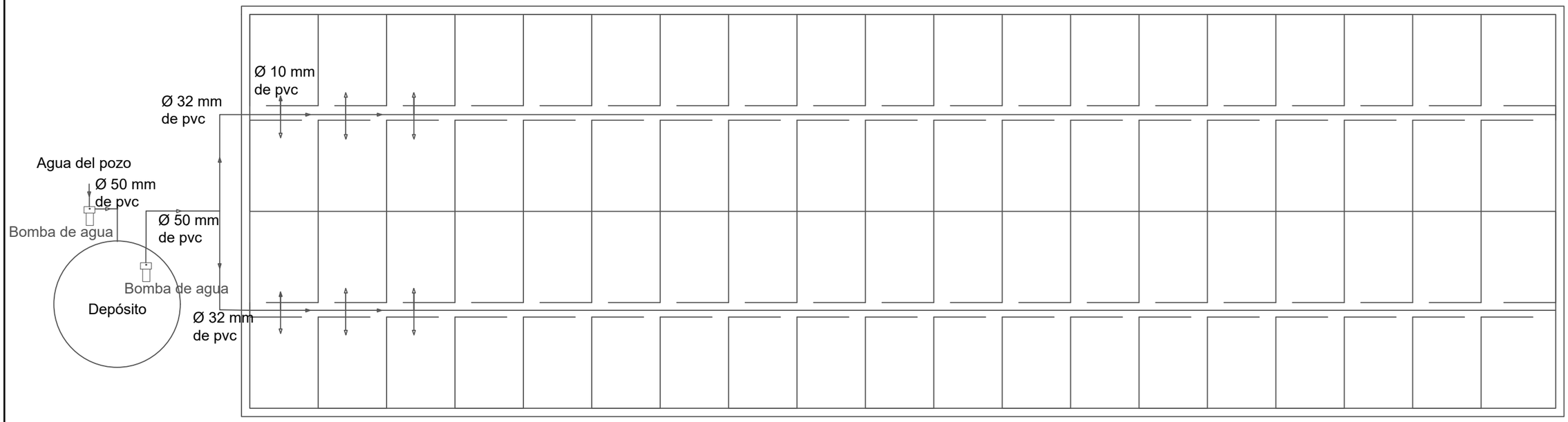

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Instalción de Suministro de Agua

ESCALA: 1:200

PLANOS TFG GRANJA DE CERDOS

Nº identificador: 608.22.36

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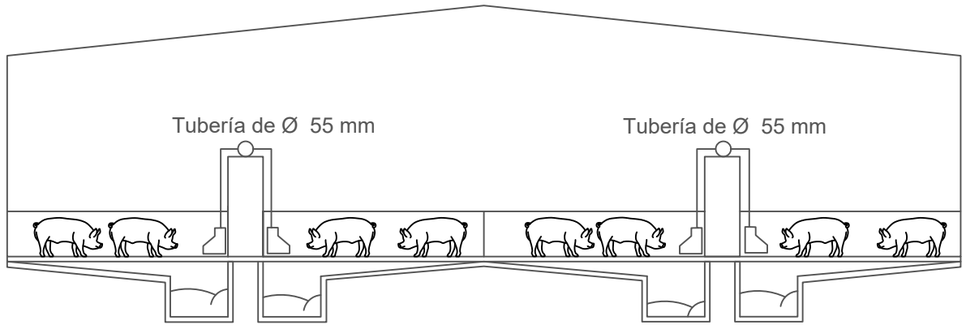

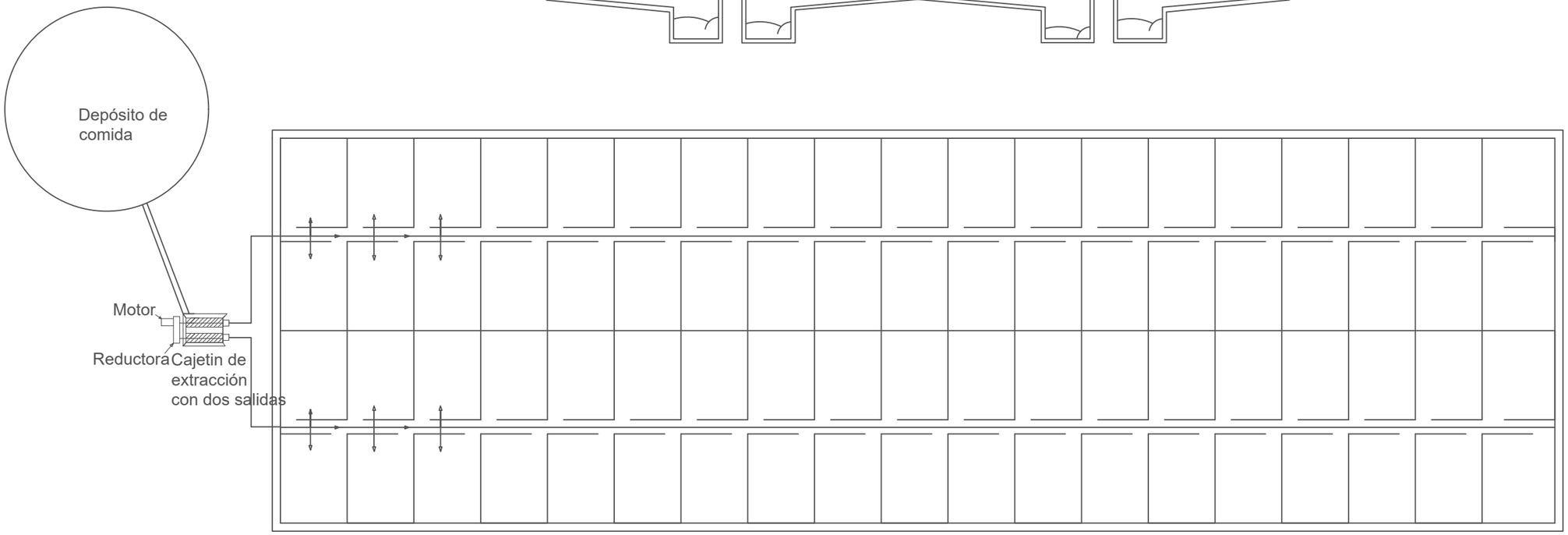

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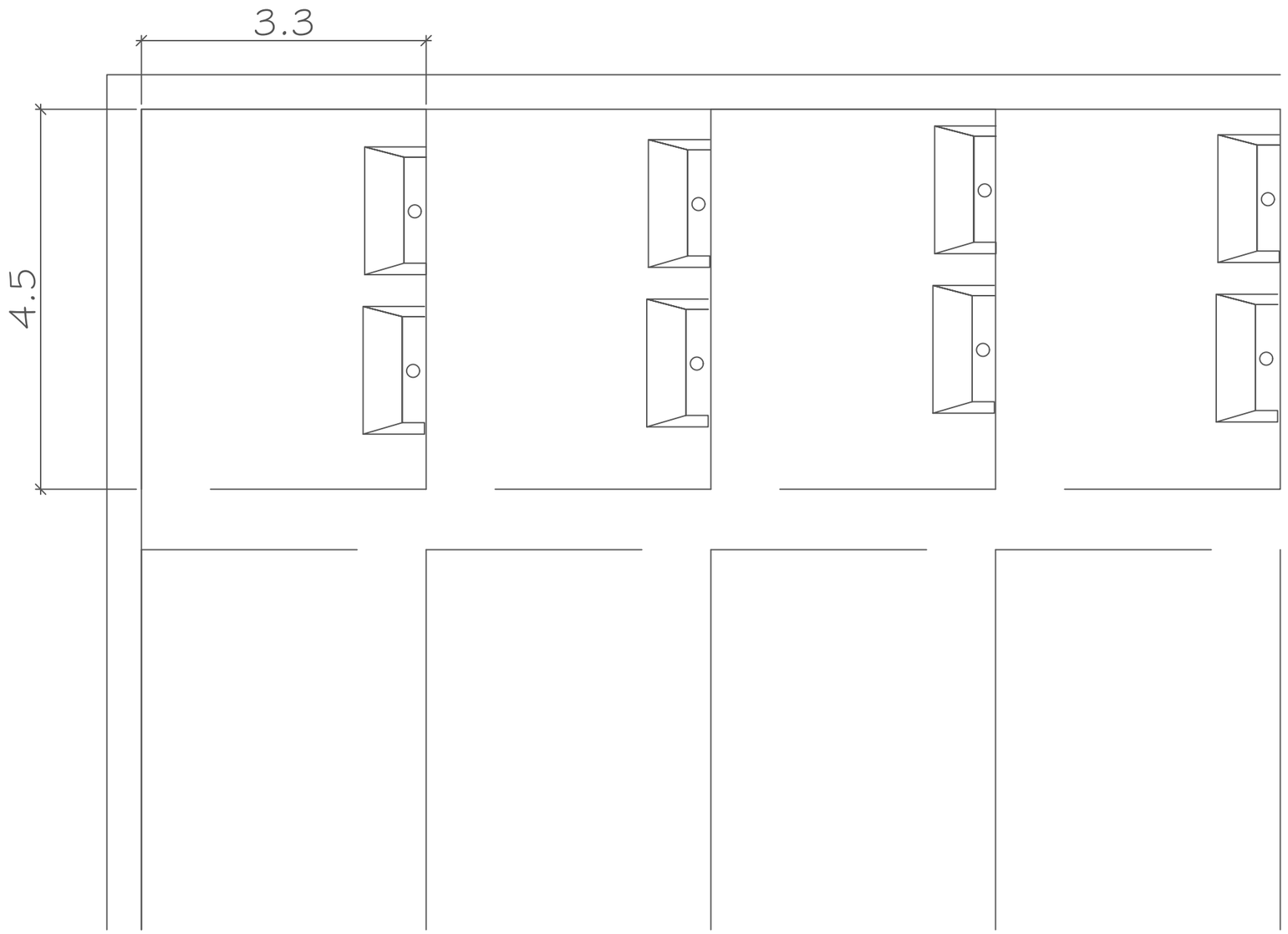

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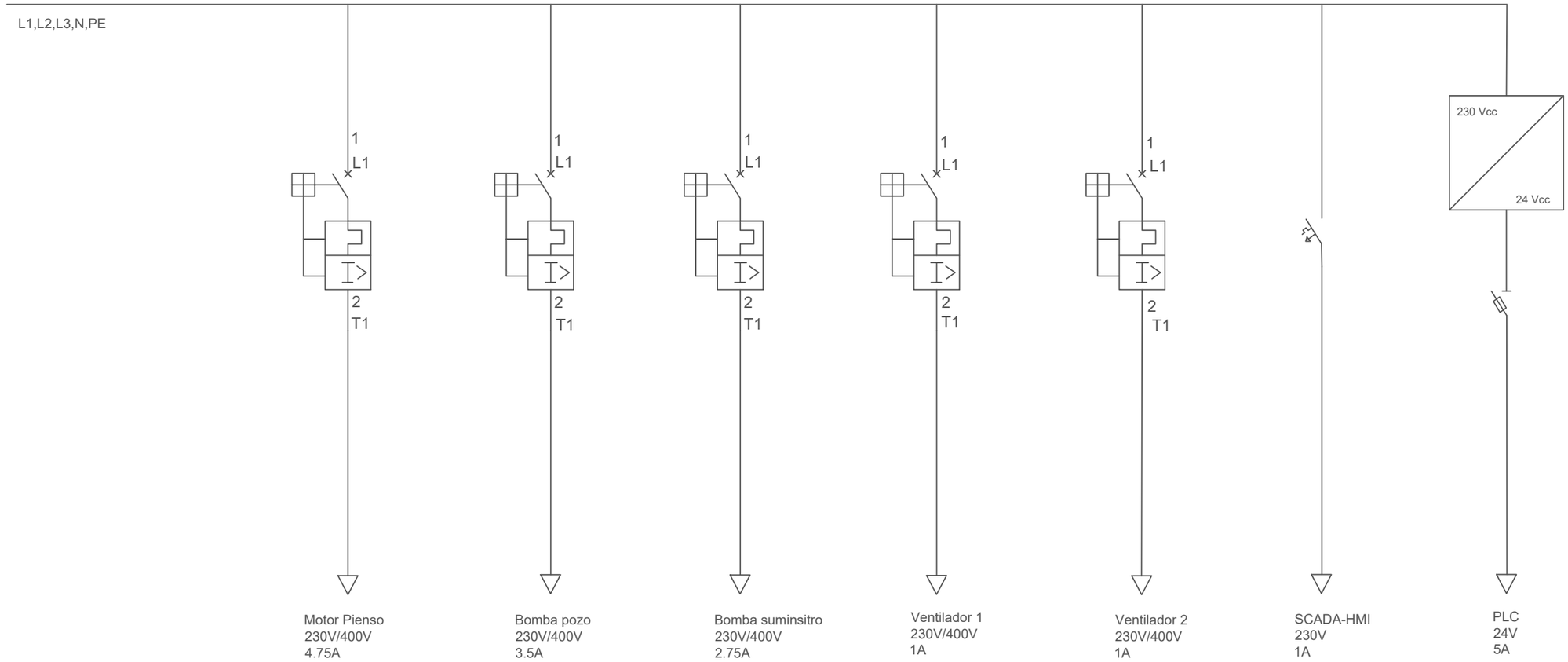

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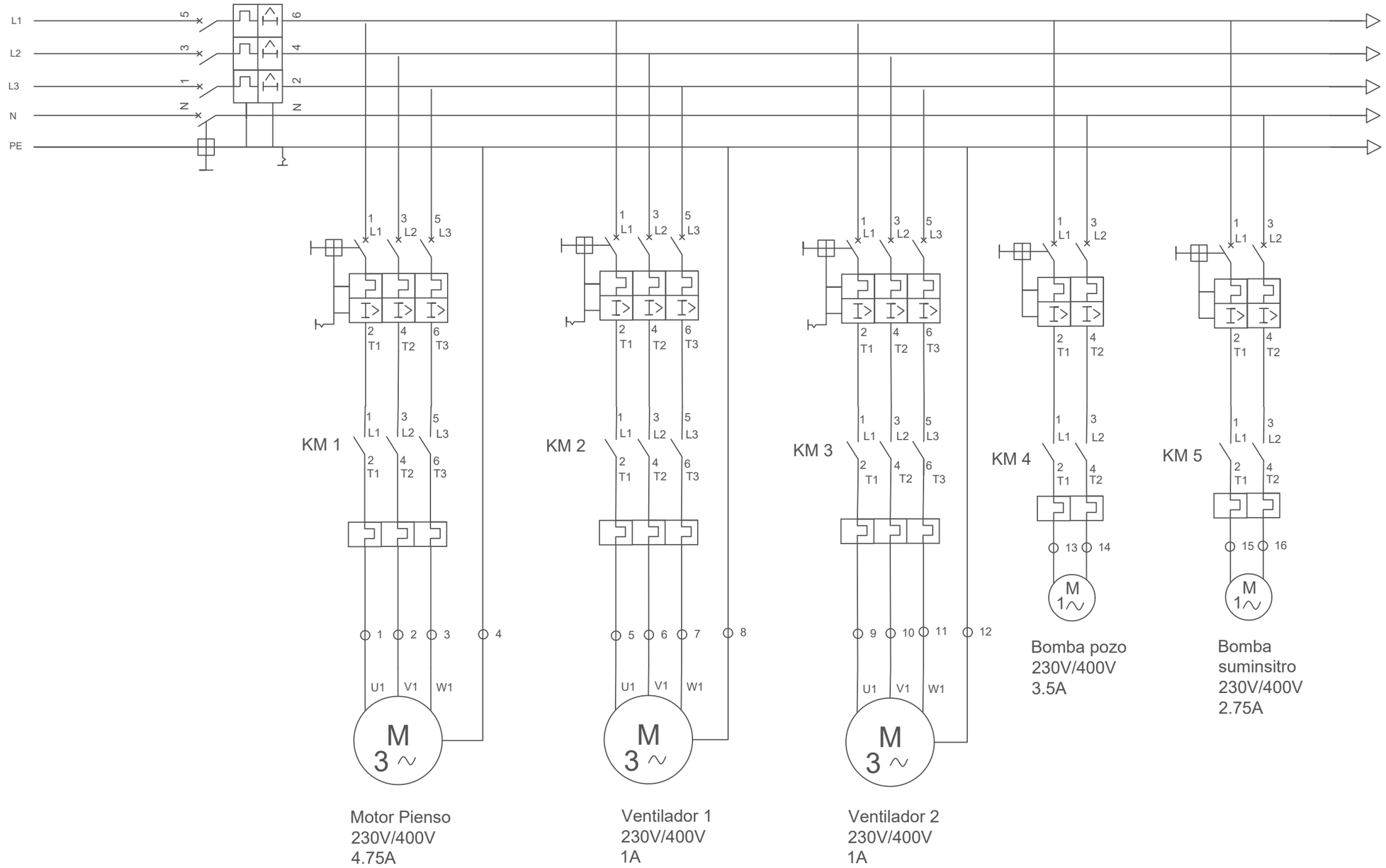

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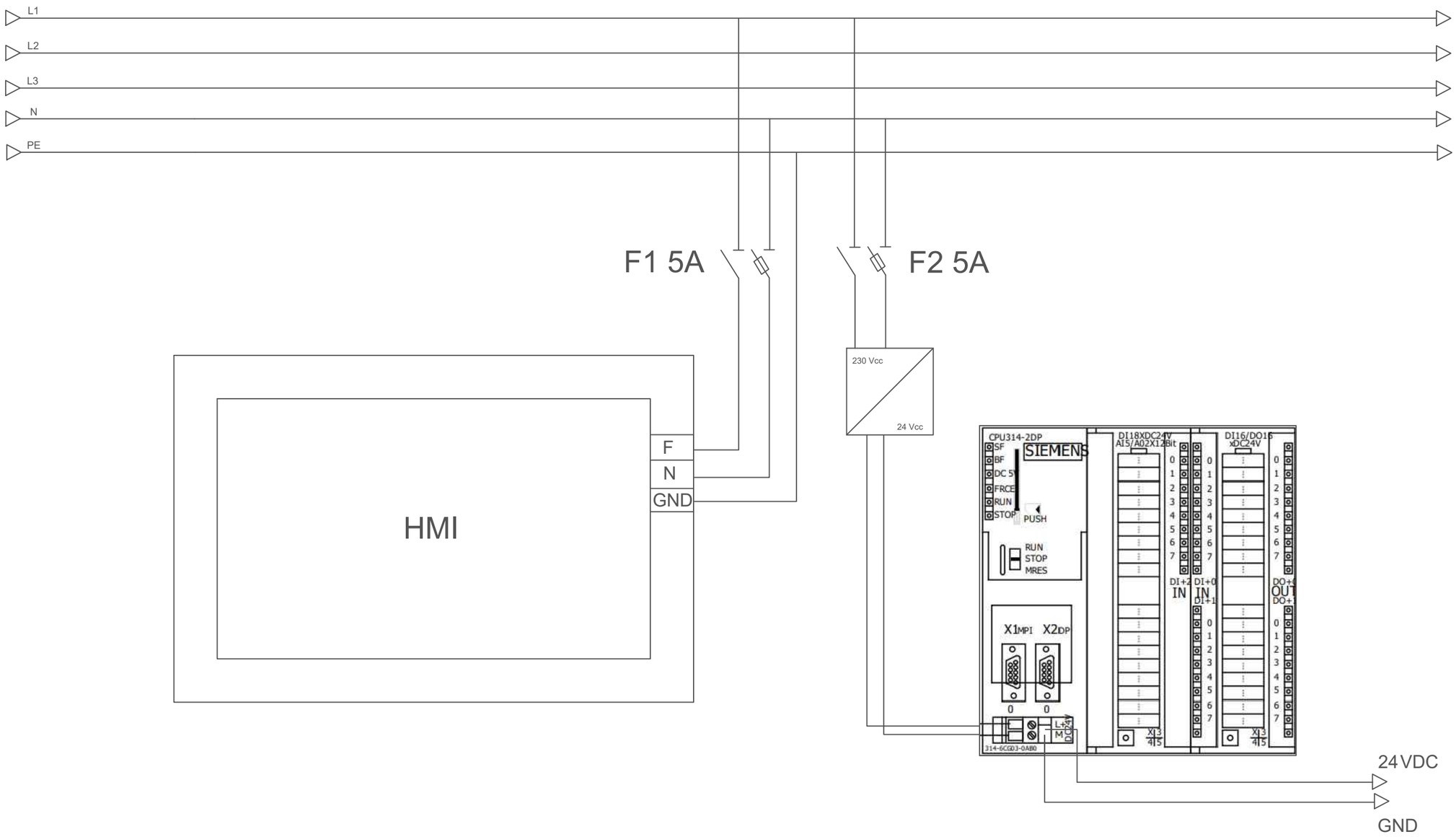

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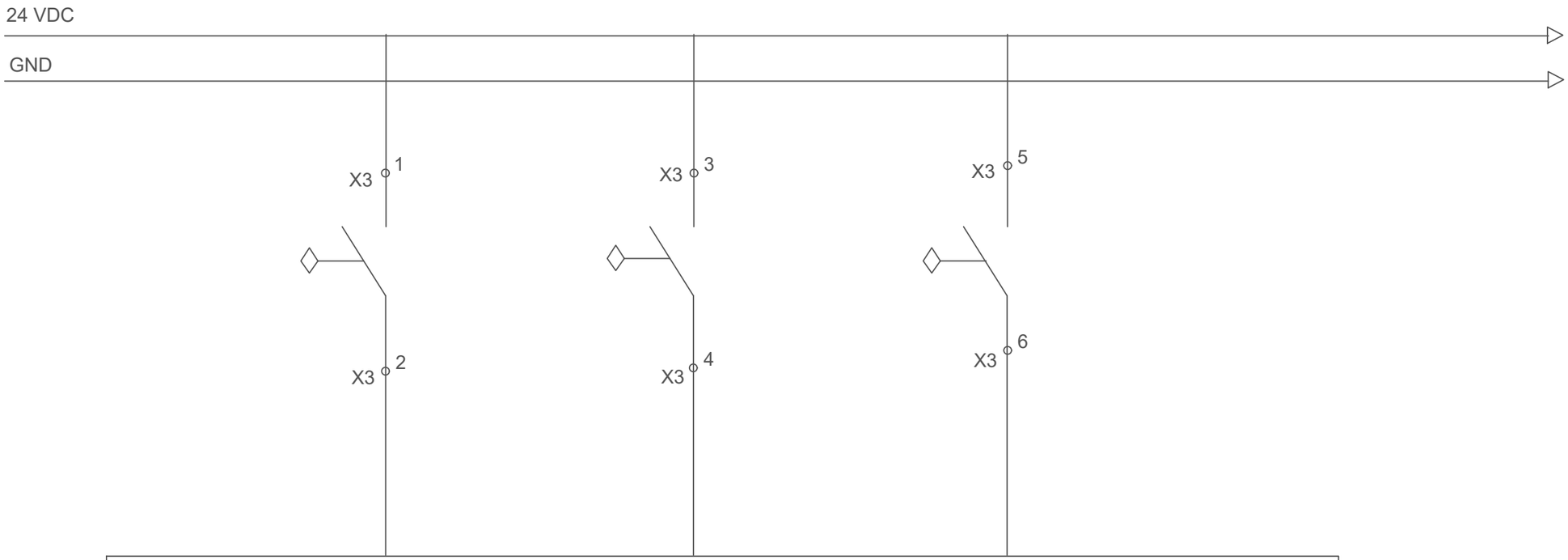

Paro de emergencia	
Simbolo	Paro de emergencia
Dirección	E 124.4

Sensor final de agua	
Simbolo	Sensor final de agua
Dirección	E 124.5

Sensor final de comida	
Simbolo	Sensor final de comida
Dirección	E 124.6

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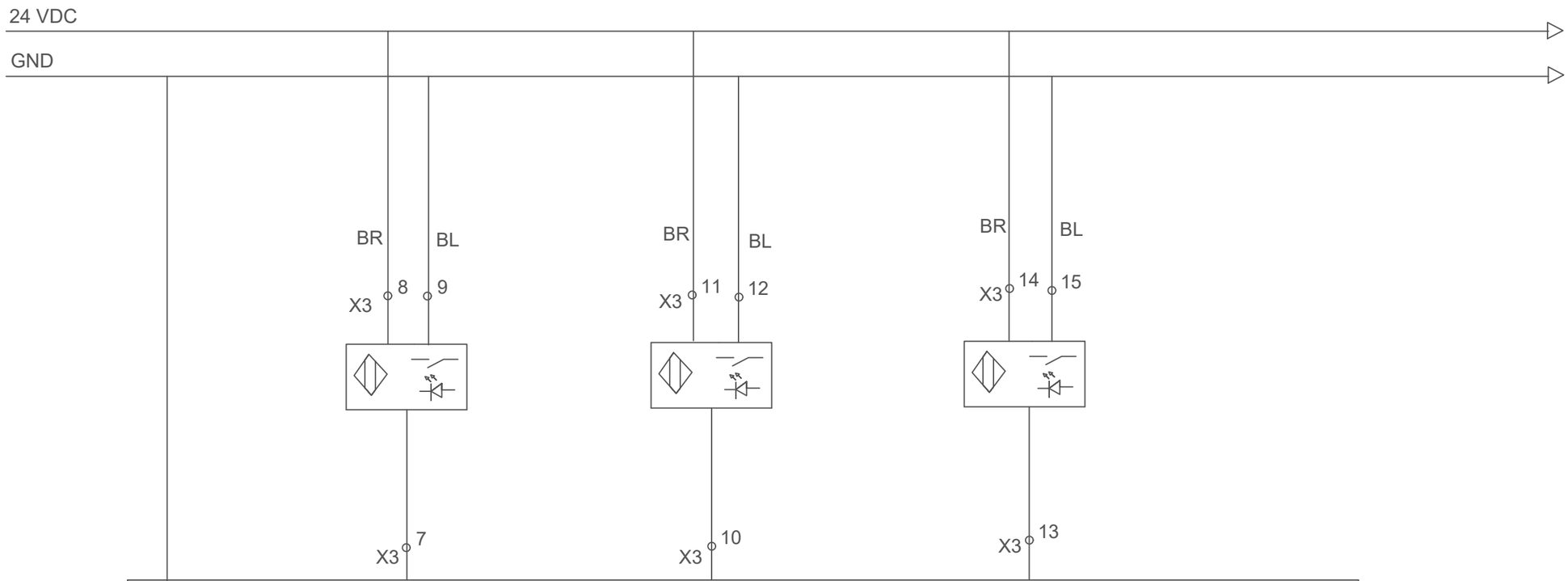

Sensor depósito	
Simbolo	Sensor depósito
Dirección	PEW 753

Sensor silo de comida	
Simbolo	Sensor silo de comida
Dirección	PEW 755

Sensor de temperatura	
Simbolo	Sensor de temperatura
Dirección	PEW 757

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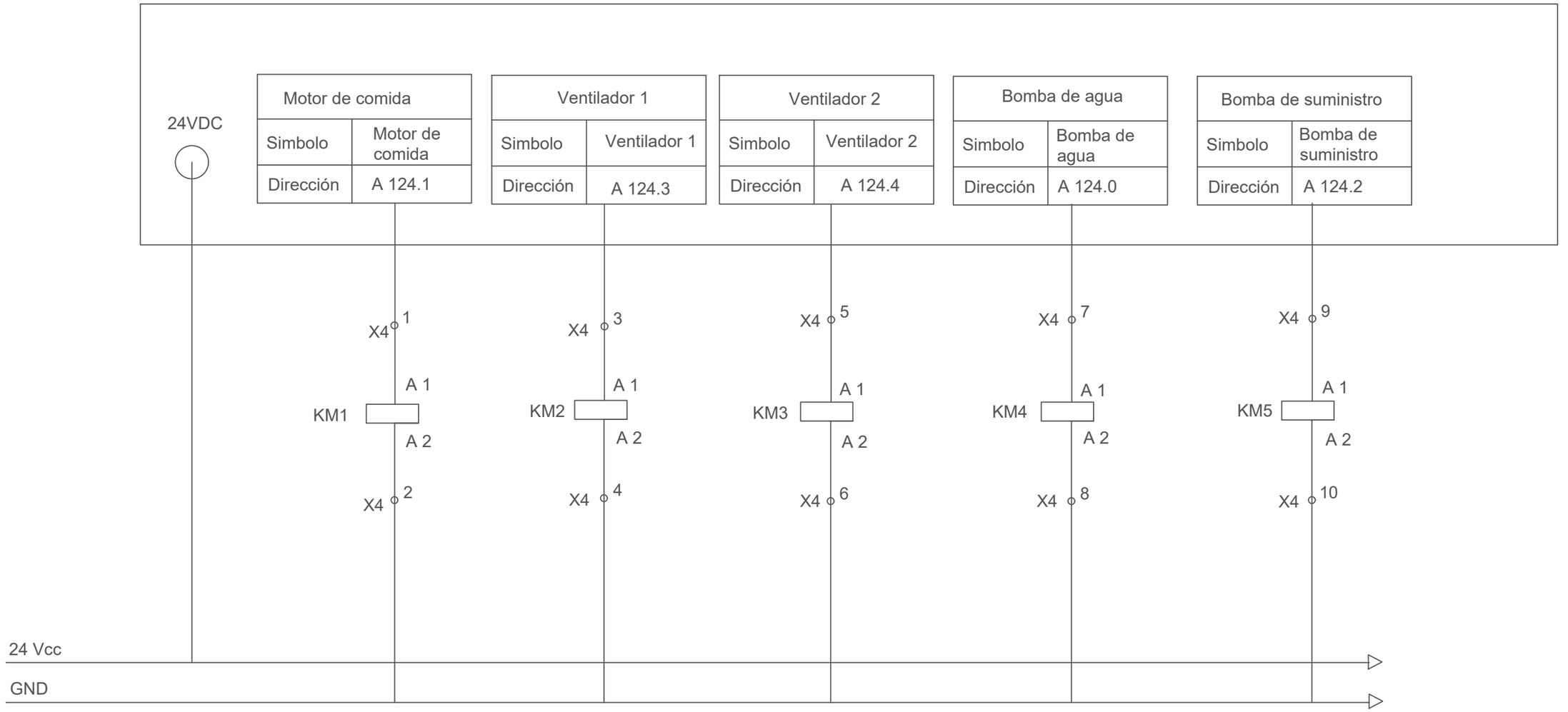

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Rev. A Fecha: 06/2023	Esquemas Salidas Digitales			Nºidentificador: 608.22.36
ESCALA: 1:1	PLANOS ELÉCTRICOS TFG			HOJA: 6/6

3. DATASHEETS DE COMPONENTES

SIEMENS

SIMATIC HMI

HMI Device
MP 277 (WinCC flexible)

Operating Instructions

Order No. 6AV6691-1DJ01-0AB0

09/2007
A5E00471979-02

Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

Danger
indicates that death or severe personal injury **will** result if proper precautions are not taken.

Warning
indicates that death or severe personal injury **may** result if proper precautions are not taken.

Caution
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

Caution
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

Notice
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:

Warning
This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

Trademarks

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Siemens AG
Automation and Drives
Postfach 48 48
90437 NÜRNBERG
GERMANY

Order No.: 6AV6691-1DJ01-0AB0
Edition 09/2007

Preface

Purpose of the Operating Instructions

These operating instructions provide information based on the requirements defined by DIN 8418 for mechanical engineering documentation. This information relates to the the place of use, transport, storage, mounting, use and maintenance.

These operating instructions are intended for:

- User
- Commissioning engineers
- Service technicians
- Maintenance technicians

Please read the section "Safety Instructions and General Notes" carefully.

The help integrated in WinCC flexible, the WinCC flexible Information System, contains detailed information. The information system contains instructions, examples and reference information in electronic form.

Basic Knowledge Required

General knowledge of automation technology and process communication is needed to understand the operating instructions.

It is also assumed that those using the manual have experience in using personal computers and knowledge of Microsoft operating systems.

Operating Instructions' Range of Validity

The operating instructions apply to the HMI device MP 277 in conjunction with the software package WinCC flexible.

Position in the Information Landscape

These operating instructions form part of the SIMATIC HMI documentation. The following information provides you with an overview of the SIMATIC HMI information landscape.

User manuals

- WinCC flexible Micro

  Describes basic principles of configuration using the WinCC flexible Micro Engineering System.

- WinCC flexible Compact/ Standard/ Advanced

  Describes basic principles of configuration using the WinCC flexible Compact Engineering System/WinCC flexible Standard/WinCC flexible Advanced.

- WinCC flexible Runtime

  Describes how to commission and operate your runtime project on a PC.

- WinCC flexible Migration
  - Describes how to convert an existing ProTool project to WinCC flexible.
  - Describes how to convert an existing WinCC project to WinCC flexible.
  - Describes how to convert an existing ProTool project including a change of the HMI device, for example from OP3 to OP 73 or from OP7 to OP 77B
  - Describes how to convert an existing ProTool project including a change from a graphics device to a Windows CE device.
- Communication
  - Communication Part 1 describes the connection of the HMI device to SIMATIC PLCs.
  - Communication Part 2 describes the connection of the HMI device to third-party PLCs.

Operating instructions

- Operating instructions for SIMATIC HMI devices.
  - OP 73, OP 77A, OP 77B
  - TP 170micro, TP 170A, TP 170B, OP 170B
  - OP 73micro, TP 177micro
  - TP 177A, TP 177B, OP 177B
  - TP 270, OP 270
  - TP 277, OP 277
  - MP 270B
  - MP 277
  - MP 370
- Operating instructions for mobile SIMATIC HMI devices.
  - Mobile Panel 177
  - Mobile Panel 277
- Operating instructions (compact) for SIMATIC HMI devices.
  - OP 77B
  - Mobile Panel 177
  - Mobile Panel 277
- Operating instructions for SIMATIC accessories
  - Industrial USB Hub 4

Getting Started

- WinCC flexible for first time users

  Based on an example project, this is a step-by-step introduction to the basics of configuring screens, alarms, recipes and screen navigation.

- WinCC flexible for power users

  Based on an example project, this is a step-by-step introduction to the basics of configuring logs, project reports, scripts, user management, multilingual projects and integration in STEP 7.

- WinCC flexible Options

  Based on an example project, this is a step-by-step introduction to the basics of configuring the WinCC flexible Sm@rtServices, Sm@rtAccess and OPC server options.

Online Availability

Technical documentation on SIMATIC products and SIMATIC systems is available in PDF format in various languages at the following addresses:

- SIMATIC Guide Technical Documentation in German:
  "http://www.ad.siemens.de/simatic/portal/html_00/techdoku.htm"
- SIMATIC Guide for Technical Documentation in English:
  "http://www.ad.siemens.de/simatic/portal/html_76/techdoku.htm"

Figures

The HMI device is sometimes shown in the form of photographs in these operating instructions. The photographs of the HMI device may differ slightly from the factory state of the HMI device.

Conventions

Configuration and runtime software differ with regard to their names as follows:

- "WinCC flexible 2005" for example, refers to the configuration software.

  The term "WinCC flexible" is used in a general context. The full name, for example "WinCC flexible 2005", is always used when it is necessary to differentiate between different versions of the configuration software.

- "WinCC flexible Runtime" refers to the runtime software that can run on HMI devices.

The following text notation will facilitate reading these operating instructions:

Notation	Scope
"Add screen"	• Terminology that appears in the user interface, for example dialog names, tabs, buttons, menu entries • Inputs required, for example limit values, tag values • Path information
"File > Edit"	Operational sequences, for example, menu commands, context menu commands
<F1>, <Alt+P>	Keyboard operation

Please observe notes labeled as follows:

Note

Notes contain important information concerning the product, its use or a specific section of the documentation to which you should pay particular attention.

Registered Trademarks

Names labeled with a ® symbol are registered trademarks of the Siemens AG. Other names used in this documentation may be trademarks, the use of which by third parties for their own purposes could violate the rights of the owner.

- HMI®
- SIMATIC®
- SIMATIC HMI®
- SIMATIC ProTool®
- SIMATIC WinCC®
- SIMATIC WinCC flexible®
- SIMATIC MP 277®

Representatives and Offices

If you have any further questions relating to the products described in this manual, please contact your local representative at the SIEMENS branch nearest you.

Your Siemens representative can be found at "http://www.siemens.com/automation/partner".

Training Center

Siemens AG offers a variety of training courses in order to familiarize you with automation systems. Please contact your regional Training Center, or the central Training Center in D90327 Nuremberg, Germany.

Phone: +49 (911) 895-3200

Internet: "http://www.sitrain.com/"

Technical Support

You can find technical support for all A&D projects

Using the support request form on the web at

"http://www.siemens.de/automation/support-request"

Phone: + 49 180 5050 222

Fax: + 49 180 5050 223

Further information about our technical support is available on the Internet at "http://www.siemens.com/automation/service".

Service & Support on the Internet

Service & Support provides additional comprehensive information on SIMATIC products through online services at "http://www.siemens.com/automation/support":

- The newsletter offers you the latest information about your products.
- A large document base is available using our Service & Support search engine.
- A forum for global exchange of information by users and experts
- Current product information, FAQs and downloads
- Your local Automation & Drives representative
- Information about field service, repairs, spare parts and much more under the heading "Services"

Table of contents

Overview

1

1.1 Product Overview

Application Options of the MP 277

The Multi Panels MP 277 represent an expansion of the 270s series.

The HMI devices are based on the innovative standard operating system, Microsoft Windows CE 5.0. The Multi Panels MP 277 are included in the "Multifunctional Platform" product category. The HMI devices offer extended communication possibilities with the corporate world. The Pocket Internet Explorer is already installed on these devices.

The MP 277 offers a variety of application uses, high performance and a favorable cost/performance ratio.

The devices are equipped with:

- PROFIBUS interface
- An Ethernet interface for the connection to PROFINET
- 2 USB port
- TFT screen with up to 64k color

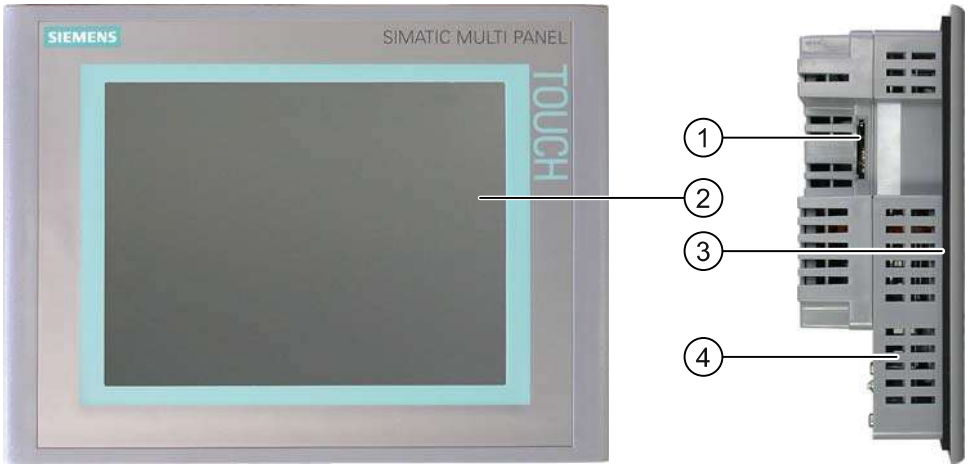
Based on the broad selection of device models, you will be able to choose the HMI device that's right for you.

In addition to the classic HMI application WinCC flexible, the HMI devices also support additional applications, for example:

- Sm@rtService
- Sm@rtAccess
- OPC server

1.2 Design of the HMI Device MP 277 8" Touch

Front view and side view



① Slot for a memory card
② Display / Touch screen
③ Mounting seal
④ Recesses for mounting clamps

Bottom view

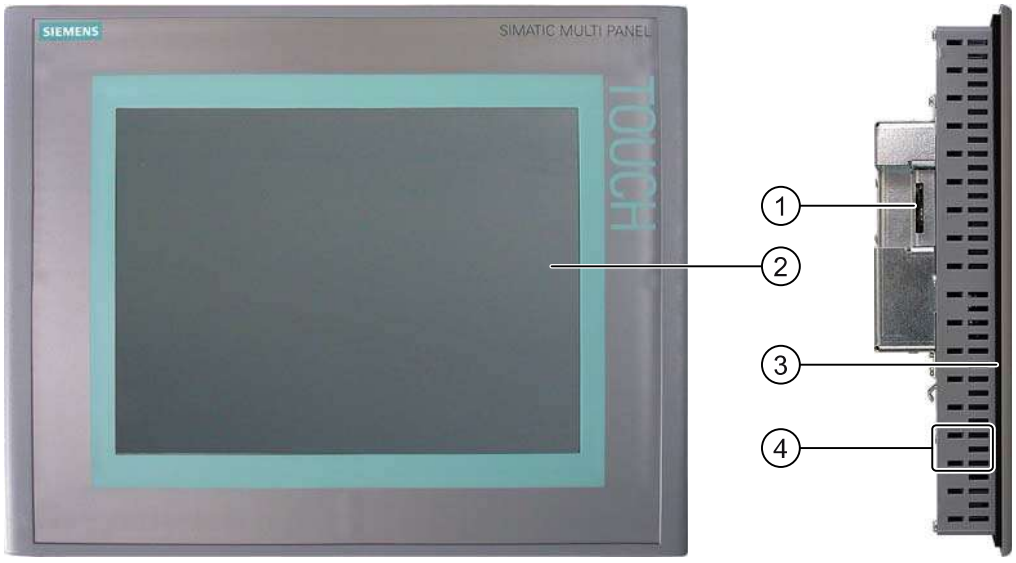
① Recesses for mounting clamps
② Ports

Rear view

① Rating label
② Slot for a memory card
③ DIP switch
④ Interface name

1.3 Design of the HMI Device MP 277 10" Touch

Front view and side view

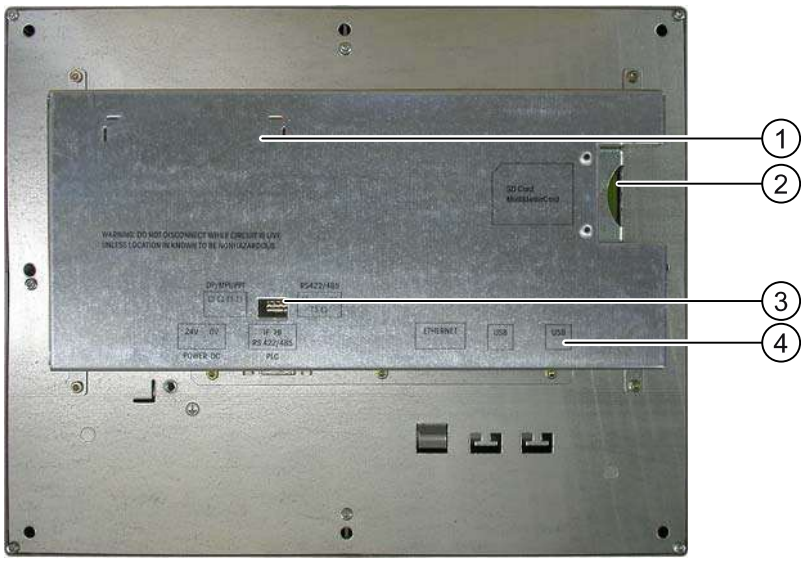


① Slot for a memory card
② Display / Touch screen
③ Mounting seal
④ Recesses for mounting clamps

Bottom view

① Recesses for mounting clamps
② Ports

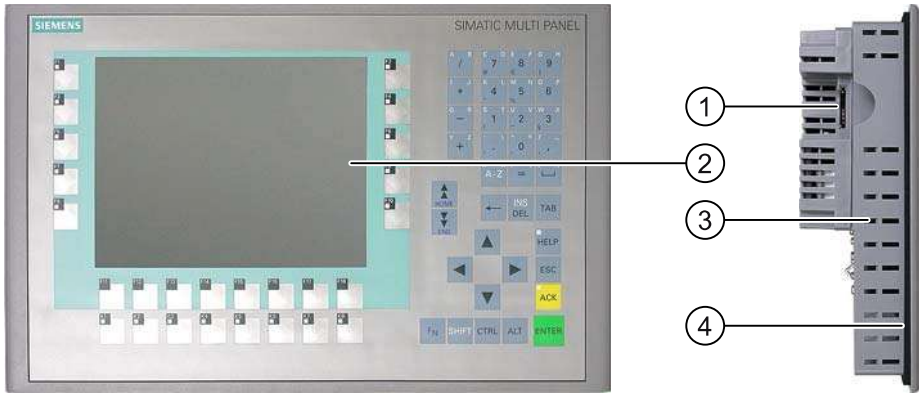
Rear view



① Rating label
② Slot for a memory card
③ DIP switch
④ Interface name

1.4 Design of the HMI Device MP 277 8" Key

Front view and side view

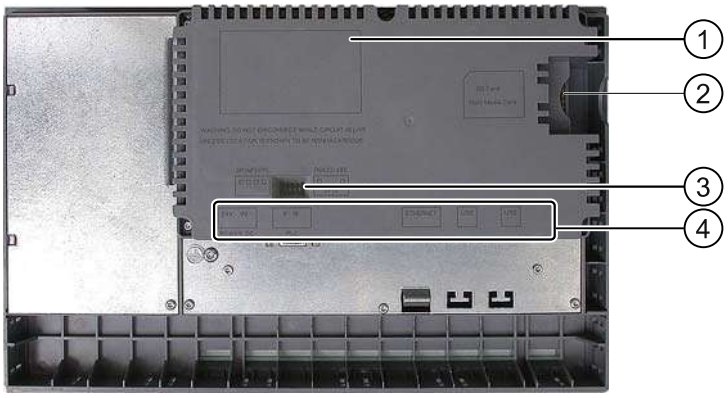


① Slot for a memory card
② Display
③ Recesses for mounting clamps
④ Mounting seal

Bottom view

① Recesses for mounting clamps
② Ports

Rear view



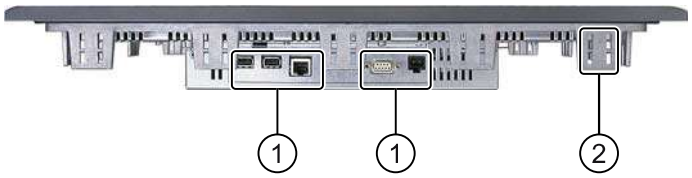
① Rating label
② Slot for a memory card
③ DIP switch
④ Interface name

1.5 Design of the HMI Device MP 277 10" Key

Front view and side view

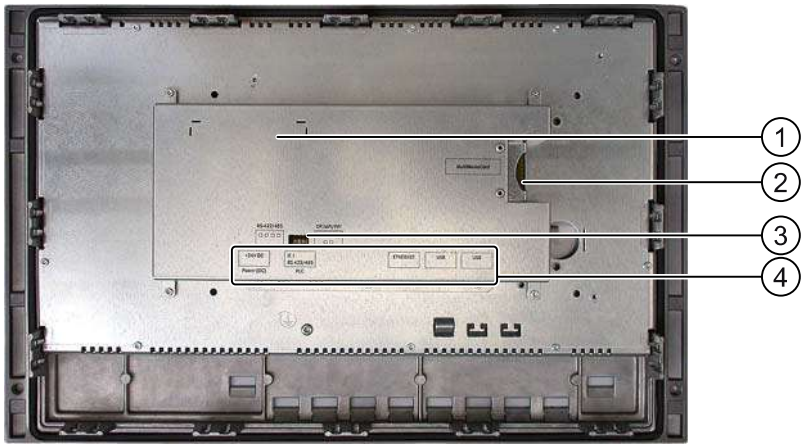
① Slot for a memory card
② Display
③ Recesses for mounting clamps
④ Mounting seal

Bottom view



① Ports
② Recesses for mounting clamps

Rear view



① Rating label
② Slot for a memory card
③ DIP switch
④ Interface name

1.6 Accessories

Accessory kit

The accessory kit contains the following:

- A terminal block for the power supply
- Mounting clamps for mounting the MP 277 8" Touch
- Mounting clamps for mounting the MP 277 10" Touch
- Mounting clamps for mounting the MP 277 8" Key
- Mounting clamps for mounting the MP 277 10" Key

Additional documents may be enclosed with the accessory kit.

RS 422-RS 232 Converter

The converter is required for connecting third-party PLCs. Connect the RS 422-RS 232 converter to the RS 422/RS 485 port. The converter converts the input signals to RS 232 signals.

The converter is not supplied with the HMI device. The converter can be ordered separately using order number 6AV6 671-8XE00-0AX0.

PC/PPI Cable

The cable is required when updating the operating system by bootstrapping. You can also use the cable for transfer. Connect the PC/PPI cable to the RS 422/RS 485 port. The cable converts the input signals to RS 232 signals.

The cable is not supplied with the HMI device. The cable can be ordered separately using order number 6ES7 901-3CB30-0XA0.

Note

If the connection fails during the operating system update, set the system to a lower bit rate. If you wish to communicate at high bit rates, you must use a PC/PPI cable version 3 or later. The version code is printed on the cable (e.g. "E-Stand 3" corresponds to version 3).

90° Angle Adapter

If space is restricted, you can use an angle adapter on the RS 422/RS 485 port.

The adapter is not supplied with the HMI device. The adapter can be ordered separately using order number 6AV6 671-8XD00-0XA0

Protective Foil

Protective foil is available for HMI devices with a touch screen.

The protective foil is not supplied with the HMI device.

The protective foil for the MP 277 8" Touch can be ordered separately using order number 6AV6671-3CC00-0AX0. The protective foil for the MP 277 10" Touch can be ordered separately using order number 6AV6671-3CC00-0AX0.

Memory Card

Only use the SD memory cards tested and released by Siemens or multimedia cards. More information can be found in the SIMATIC HMI catalog ST 80.

1.7 Functional Scope with WinCC flexible

The following tables show the objects that can be integrated in a project for an MP 277.

Alarms

Object	Specification	MP 277
Alarms	Number of discrete alarms	4,000
	Number of analog alarms	200
	Length of the alarm text	80 characters
	Number of tags in an alarm	Max. 8
	Display	Alarm line/Alarm window/Alarm view
	Acknowledge error alarm individually	Yes
	Acknowledge multiple error alarms simultaneously (group acknowledgement)	16 alarm groups
	Edit alarm	Yes
	Alarm indicator	Yes
ALARM_S	Display S7 alarms	Yes
Alarm buffer, retentive	Alarm buffer capacity	512 alarms
	Simultaneously queued alarm events	Max. 250
	View alarm	Yes
	Delete alarm buffer	Yes
	Print alarm line by line	Yes

Tags, values and lists

Object	Specification	MP 277
Tags	Number	2,048
Limit value monitoring	Input/Output	Yes
Linear Scaling	Input/Output	Yes
Text lists	Number	500 [1]
Graphics lists	Number	400 [1]

[1] The maximum total of text and graphics lists is 500.

Screens

Object	Specification	MP 277
Screens	Number	500
	Fields per screen	200
	Tags per screen	200
	Complex objects per screen (e.g. bars)	10
	Template	Yes

Recipes

Object	Specification	MP 277
Recipes	Number	300
	Data records per recipe	500
	Entries per recipe	1,000
	Recipe memory	64 KB
	Memory location	• Memory card [1)] • USB memory stick [1)] • Network drive

[1)] The number of recipe data records may be restricted by the capacity of the storage medium.

Logs

Note

The HMI devices are suitable for the logging of relatively small volumes of data.

Manage the data in several adjacent archives in a segmented circular archive. The use of a large circular archive has a negative effect on performance.

Object	Specification	MP 277
Logs	Number of logs	20
	Number of partial logs in a segmented circular log	400
	Entries per log	10,000
	Filing format	• CSV with ANSI character set
	Memory location	• Memory card [1)] • USB memory stick [1)] • Network drive

[1)] The number of entries in the log may be restricted by the capacity of the storage medium.

Safety

Object	Specification	MP 277
Safety	Number of user groups	50
	Number of users	50
	Number of authorizations	32

Infotexts

Object	Specification	MP 277
Infotexts	Length (no. of characters)	320 (depending on font)
	For alarms	Yes
	For screens	Yes
	For screen objects (for example for IO field, switch, button, invisible button)	Yes

Additional functions

Object	Specification	MP 277
Screen settings	Calibrating the touch screen [1)]	Yes
	Brightness setting	Yes
Language change	Number of languages	16
VBScript	User-specific extension of the functionality	Yes
	Number of scripts	50
Graphic objects	Vector and pixel graphics	Yes
Trends	Number	300
Task planner	Number of tasks	48
Text objects	Number	10,000
Direct keys	PROFIBUS DP direct keys	Yes
	PROFINET IO direct keys	Yes

1) Only MP 277 Touch

1.8 Software Options

The following software options are available for the MP 277:

- Sm@rtService

  The Sm@rtService option enables you to access a remote HMI device from the HMI device or PC via Ethernet.

- Sm@rtAccess

  The Sm@rtAccess option enables you to set up communication between different HMI systems.

- /Audit

  The /Audit option extends the HMI device to include functions for recording operations in an audit trail and an electronic signature.

- OPC server (OPC XML)

  The OPC server option enables you to establish communications to OPC-capable applications from the HMI device or PC via Ethernet.

1.9 Communications

Number of connections

Connection	MP 277
Number using a bus connection	6
Number of connections based on "SIMATIC HMI HTTP Protocol"	8

Note

In the following cases, you may not enable PROFINET IO in the control panel of the HMI device:

- Use of PLCs by other manufacturers
- Use of SIMATIC 500/505 via NITP

PLCs

The following table shows the PLCs which can be used with the HMI devices and the protocols or profiles that can be used.

PLC	Protocol	MP 277
SIMATIC S7	• PPI • MPI [1)] • PROFIBUS decentralized peripherals • TCP/IP (Ethernet)	Yes
SIMATIC S5	• PROFIBUS decentralized peripherals	Yes

PLC	Protocol	MP 277
SIMATIC 500/505	• NITP • PROFIBUS decentralized peripherals	Yes
SIMATIC HMI HTTP Protocol	• HTTP/HTTPS (Ethernet)	Yes
Allen-Bradley	PLC series SLC500, SLC501, SLC502, SLC503, SLC504, SLC505, MicroLogix and PLC5/11, PLC5/20, PLC5/30, PLC5/40, PLC5/60, PLC5/80 • DF1 [2) 5)] • DH+ via KF2 module [3)] • DH485 via KF3 module [4)] • DH485 [4)]	Yes
GE Fanuc Automation	PLC series 90–30, 90–70, VersaMax Micro • SNP	Yes
LG Industrial Systems (Lucky Goldstar) / IMO	PLC series GLOFA GM (GM4, GM6 and GM7) / Series G4, G6 and G7 • Dedicated communication	Yes
Mitsubishi Electric	PLC series MELSEC FX and MELSEC FX0 • FX	Yes
Mitsubishi Electric	PLC series MELSEC FX0, FX1n, FX2n, AnA, AnN, AnS, AnU, QnA and QnAS • Protocol 4	Yes
OMRON	PLC series SYSMAC C, SYSMAC CV, SYSMAC CS1, SYSMAC alpha and CP • Hostlink/Multilink (SYSMAC Way)	Yes
Modicon (Schneider Automation)	PLC series Modicon 984, TSX Quantum and TSX Compact • Modbus RTU [5)] PLC series Quantum, Momentum, Premium and Micro PLC series Compact and 984 via Ethernet bridge • Modbus TCP/IP (Ethernet)	Yes

1) Not possible when connected to S7-212.

2) Applies to PLCs SLC503, SLC504, SLC505, PLC5, MicroLogix

3) Applies to PLCs SLC504, PLC5 over DF1

4) Applies to PLCs SLC500 to SLC 505 and MicroLogix

5) Only with converter RS 422-RS 232 6AV6 671-8XE00-0AX0 (option)

See also

Enabling PROFINET IO (Page 6-39)

Safety Instructions and General Notes

2

2.1 Safety Instructions

Working on the cabinet

Warning

Open Equipment

The HMI device is an open equipment. This means that the HMI device may only be installed in housings or cabinets, whereby the device can be operated from the front panel.

Access to the housing or cabinet in which the HMI device is installed should only be possible by means of a key or tool and only for trained and authorized personnel.

Dangerous Voltage

Opening the cabinet will expose high voltage parts. Contact with these parts could be fatal.

Switch off the power supply to the cabinet before opening it.

Hazardous areas

When operating the HMI device in hazardous areas the following warning applies.

Warning

Explosion Hazard

Do not disconnect while circuit is live unless area is known to be non-hazardous. Substitution of components may impair suitability for Class I, Division 2 or Zone 2.

High Frequency Radiation

Notice

Unintentional Operating Situations

High frequency radiation, for example from a cell phone, may cause unintentional operating situations.

Proper use

Warning

Commissioning of the HMI device is forbidden until it has been absolutely ensured that the machine in which the HMI device is to be installed complies with Directive 98/37/EC.

2.2 Standards, Certificates and Approvals

Certificates and approvals

Caution

The following overview shows possible approvals.

The HMI device itself is certified as shown on the rear panel labels.

CE approval

The HMI device meets the general and safety-related requirements of the following EC directives and conforms to the harmonized European standards (EN) for programmable logic controllers published in the official gazettes of the European Union:

- 89/336/EEC "Electromagnetic Compatibility" (EMC Directive)
- 98/37/EG Directive of the European Parliament and Council of 22 June 1998 on the approximation of the laws and administrative regulations of the Member States concerning machinery

EC Declaration of Conformity

The EC Declarations of Conformity are kept available for the responsible authorities at the following address:

Siemens Aktiengesellschaft
Automation & Drives
A&D AS RD ST PLC
PO Box 1963
D-92209 Amberg, Germany

UL approval

Underwriters Laboratories Inc. conforming to

- UL 508 (Industrial Control Equipment)
- CSA C22.2 No. 142 (Process Control Equipment)

or

Underwriters Laboratories Inc. conforming to

- UL 508 (Industrial Control Equipment)
- CSA C22.2 No. 142 (Process Control Equipment)
- UL 1604 (Hazardous Location)
- CSA-213 (Hazardous Location)

Approved for use in

- Class I, Division 2, Group A, B, C, D or
- Class I, Zone 2, Group IIC or
- non-hazardous locations

FM Approval

Factory Mutual Research (FM) conforming to

- Approval Standard Class Number 3611, 3600, 3810

Approved for use in

- Class I, Division 2, Group A, B, C, D T4
- Class I, Zone 2, Group IIC T4

Label for Australia

The HMI device fulfills the requirements of standard AS/NZS 2064 (Class A).

IEC 61131

The HMI device fulfills the requirements and criteria conforming to IEC 61131-2, Programmable Logic Controllers, Part 2: Operating resource requirements and tests.

2.3 Notes about Usage

Industrial Use

The HMI device is designed for industrial use. The following standards are met:

- Requirements of the emission of interference EN 61000-6-4: 2001
- Requirements for noise immunity EN 61000-6-2: 2001

Residential Use

If the HMI device is used in a residential area, you must take measures to achieve Limit Class B conforming to EN 55011 for RF interference.

Suitable measures to achieve Limit Class B for suppression of radio interference include:

- Installation of the HMI device in a grounded cabinet
- Use of filters in electrical supply lines

Individual acceptance is required.

See also

Spare Parts and Repairs (Page 11-3)

2.4 Electromagnetic Compatibility

Introduction

The HMI device fulfills requirements of the EMC directive of the domestic European market and other requirements.

EMC-compliant Mounting of the HMI Device

EMC-compliant mounting of the HMI device and the use of interference-proof cables will ensure trouble-free operation. The "Directives for interference-free installation of PLCs" and the "PROFIBUS Networks" manual also apply for the installation of the HMI device.

Pulse-shaped Interference

The table below shows the electromagnetic compatibility of modules in relation to pulse-shaped interference. This requires the HMI device to meet the specifications and directives for electrical installation.

Pulse-shaped interference	Tested with	Corresponds to test intensity
Electrostatic discharge conforming to IEC 61000-4-2	Air discharge: 8 kV Contact discharge: 6 kV	3
Burst pulses (high-speed transient interference) conforming to IEC 61000-4-4	2 KV power supply cable 2 KV signal cable, > 30 m 1 KV signal cable, < 30 m	3
High-power surge pulses conforming to IEC 61000-4-5, external protective circuit required (refer to S7 300 PLC, Installation, chapter “Lightning and Overvoltage Protection”).		
Asymmetric coupling	2 kV power cable DC voltage with protective elements 2 KV signal/data cable, > 30 m, with protective elements as required	3
Symmetric coupling	1 kV power cable DC voltage with protective elements 1 KV signal cable, > 30 m, with protective elements as required	3

Sinusoidal Interference

The table below shows the EMC properties of the modules with respect to sinusoidal interference. This requires the HMI device to meet the specifications and directives for electrical installation.

Sinusoidal interference	Test values	Corresponds to test intensity
HF radiation (electromagnetic fields) according to IEC 61000-4-3	• 80% amplitude modulation at 1 kHz with 10 V/m in the range of 80 MHz to 1 GHz with 3 V/m in the range 1.4 GHz to 2 GHz with 1 V/m the range 2 GHz to 2.7 GHz • 10 V/m with 50 % pulse modulation at 900 MHz 10 V/m with 50 % pulse modulation at 1.89 GHz	3
RF interference current on cables and cable shielding conforming to IEC 61000-4-6	Test voltage 10 V at 80% amplitude modulation of 1 kHz in the range from 9 kHz to 80 MHz	3

Emission of Radio Interference

The table below shows the emission values of electromagnetic interference conforming to EN 55011, limit value class A, Group 1, measured at a distance of 10 m:

From 30 to 230 MHz	< 40 dB (V/m) quasi-peak
From 230 to 1000 MHz	< 47 dB (V/m) quasi-peak

Additional Measures

If you wish to connect an HMI device to the public network, ensure that it is compliant to Limit Class B conforming to EN 55022.

2.5 Transport and Storage Conditions

Mechanical and Climatic Transport and Storage Conditions

The transport and storage conditions of this HMI device exceed requirements conforming to IEC 61131-2. The following specifications apply to the transport and storage of an HMI device in its original packing.

The climatic conditions comply to the following standards:

- IEC 60721-3-3, Class 3K7 for storage
- IEC 60721-3-2, Class 2K4 for transport

The mechanical conditions are compliant with IEC 60721-3-2, Class 2M2.

Type of condition	Permitted range
Drop test (in transport package)	≤ 1 m
Temperature	from –20 to +60 °C
Air pressure	from 1080 hPa to 660 hPa, corresponds to an elevation of -1,000 m to 3,500 m
Relative humidity	from 10% to 90%, no condensation
Sinusoidal vibration conforming to IEC 60068-2-6	5 to 9 Hz: 3.5 mm 9 to 500 Hz: 9.8 m/s^2
Shock conforming to IEC 60068-2-29	250 m/s^2, 6 ms, 1,000 shocks

Notice

Ensure that no condensation (dewing) develops on or inside the HMI device after transporting it at low temperatures or after it has been exposed to extreme temperature fluctuations.

The HMI device must have acquired room temperature before it is put into operation. Do not expose the HMI device to direct radiation from a heater in order to warm it up. If dew has developed, wait approximately four hours until the HMI device has dried completely before switching it on.

Proper transport and storage, installation and assembly as well as careful operation and maintenance are required to ensure trouble-free and safe operation of the HMI device.

The warranty for the HMI device will be deemed void if these stipulations are not heeded.

Planning Application

3

3.1 Mounting Information

Mechanical and Climatic Conditions of Use

The HMI device is designed for use in a location protected from the weather. The conditions of use are compliant with requirements to DIN IEC 60721-3-3:

- Class 3M3 (mechanical requirements)
- Class 3K3 (climatic requirements)

Use with additional measures

Do not use the HMI device in the following locations, for example, without additional measures:

- In locations with a high degree of ionizing radiation
- In locations with extreme operating conditions, for example due to:
  - Corrosive vapors, gases, oils or chemicals
  - Electrical or magnetic fields of high intensity
- In plants requiring special monitoring features, for example:
  - Elevator systems
  - Systems in especially hazardous rooms

Mechanical Ambient Conditions

The mechanical ambient conditions for the HMI device are specified in the table below in terms of sinusoidal vibration.

Frequency range in Hz	Constant	Occasional
10 ≤ f ≤ 58	Amplitude 0.0375 mm	Amplitude 0.075 mm
58 ≤ f ≤ 150	Constant acceleration 0.5 g	Constant acceleration 1 g

Reduction of Vibration

If the HMI device is subjected to greater shocks or vibrations, you must take appropriate measures to reduce acceleration or amplitudes.

We recommend fitting the HMI device to vibration-absorbent material (metal shock absorbers, etc.).

Testing for Mechanical Ambient Conditions

The following table provides information on the type and scope of tests for mechanical ambient conditions.

Tested for	Test standard	Comments
Vibrations	Vibration test conforming to IEC 60068, part 2–6 (sinusoidal)	Type of vibration: Transitional rate of the frequency: 1 octave/minute. 10 ≤ f ≤ 58, constant amplitude 0.075 mm 58 ≤ f ≤ 150, Constant acceleration 1 g Vibration duration: 10 frequency cycles per axis in each of the three mutually vertical axes
Shock	Shock testing in accordance with IEC 60068, Part 2–29	Type of shock: Half-sine Shock intensity: Peak value 5 g, duration 11 ms Direction of impact: 3 shocks in ± direction of axis in each of the three mutually vertical axes

Climatic ambient conditions

The table below shows the climatic ambient conditions at which the HMI device may be operated.

Ambient conditions	Permitted range	Comments
Temperature • Vertical installation • Inclined mounting	 From 0° C to 50° C from 0° C to 40° C	See the "Mounting Positions and Type of Fixation" section
Relative humidity	10 % to 90 %, no condensation	
Air pressure	1080 to 795 hPa	Corresponds to an altitude of -1,000 m to 2,000 m
Pollutant concentration	SO_2: < 0.5 ppm; relative humidity < 60%, no condensation	Check: 10 cm^3/m^3; 10 days
	H_2S: < 0.1 ppm; relative humidity < 60%, no condensation	Check: 1 cm^3/m^3; 10 days

3.2 Mounting Positions and Type of Fixation

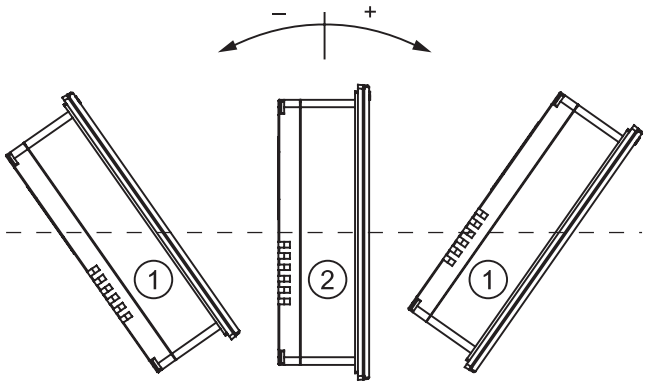
Mounting Position

The HMI device is designed for mounting in:

- Racks
- Cabinets
- Control boards
- Consoles

In the following, all of these mounting options are referred to by the general term "cabinet".

The HMI device is self-ventilated and approved for vertical and inclined mounting in stationary cabinets.



	Mounting position	Deviation from the vertical
①	Inclined	≤ 35°
②	Vertical	0°

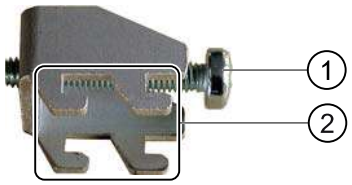
Caution

Impermissible ambient temperatures

Do not operate the HMI device without auxiliary ventilation if the maximum permissible ambient temperature is exceeded. The HMI device may otherwise get damaged and its approvals and warranty will be void!

Fixation

Metal mounting clamps are provided for mounting the device. The mounting clamps hook into the recesses on the HMI device. The overall HMI device dimensions are not exceeded by this.



① Recessed head screw
② Hooks

3.3 Preparing for Mounting

Selecting the Mounting Location for the HMI device

Points to observe when selecting the mounting location:

- Position the HMI device so that it is not subjected to direct sunlight.
- Position the HMI device to provide an ergonomic position for the operator. Choose a suitable mounting height.
- Ensure that the air vents of the HMI device are not covered as a result of the mounting.
- Observe the permissible mounting positions for the HMI device.

Degrees of Protection

The degrees of protection are only guaranteed when the following is observed for the mounting cut-out:

- Thickness of material at the mounting cut-out for protection classes IP65 or NEMA 4X/NEMA 12 (indoor use only):
  2 mm to 6 mm
- Allowable deviation from plane at the mounting cut-out: ≤ 0.5 mm

  This condition must be fulfilled for the mounted HMI device.
- Permissible surface roughness in the area of the seal: ≤ 120 µm (R_z 120)

Dimensions of Mounting Cut-Out

The table below shows the dimensions of the required mounting cut-out:

Mounting cut-out	MP 277 8" Touch	MP 277 8" Key	MP 277 10" Touch	MP 277 10" Key
Width	226^{+1} mm	338^{+1} mm	310^{+1} mm	434^{+1} mm
Height	166^{+1} mm	206^{+1} mm	248^{+1} mm	291^{+1} mm
Depth	61 mm	61 mm	61 mm	60 mm

Note

You can insert the MP 277 10" Key into the mounting cut-outs of the following HMI devices:

- MP 270B 10" Key
- OP 270 10"

Please observe the following:

Center the HMI device in the mounting cut-out. Otherwise you will not be able to affix the upper mounting clamps.

Maintaining Clearances

The HMI device must be installed with the following clearances:

- 50 mm respectively above and below the mounting cut-out for ventilation
- 15 mm respectively to the right and left of the mounting cut-out to attach the mounting clamps
- At least 10 mm clearance in addition to the mounting cut-out of the HMI device is required at the rear

Notice

Ensure that the maximum ambient temperature is not exceeded when mounting the device in a cabinet and especially in a closed enclosure.

3.4 Specifications for Insulation Tests, Protection Class and Degree of Protection

Test Voltages

Insulation strength is demonstrated in the type test with the following test voltages conforming to IEC 61131-2:

Circuits with a rated voltage of U_e to other circuits or ground	Test voltage
< 50 V	500 VDC

Protection class

Protection Class I conforming to IEC 60536, i.e. equipotential bonding conductor to profile rail required!

Protection against Foreign Objects and Water

Degree of protection conforming to IEC 60529	Explanation
Front	When mounted: • IP 65 • NEMA 4X/NEMA 12 (indoor use only)
Rear	IP20 Protection against touch with standard test fingers. There is no protection against ingress by water.

The degree of protection provided by the front can only be guaranteed when the mounting seal lies completely against the mounting cut-out.

3.5 Rated Voltages

The table below shows the rated voltage and the corresponding tolerance range.

Rated voltage	Tolerance range
+24 VDC	20.4 to 28.8 V (–15 %, +20 %)

Mounting and Connecting

4

4.1 Checking the Package Contents

Check the package contents for visible signs of transport damage and for completeness.

Notice

Do not install parts damaged during shipment. In the case of damaged parts, contact your Siemens representative.

Keep the supplied documentation in a safe place. The documentation belongs to the HMI device and is required for subsequent commissioning.

4.2 Mounting the HMI Device

Requirement

All packaging components and protective foils should be removed from the HMI device.

You will need the mounting clamps from the accessories kit for the installation of the HMI device. The mounting seal must be fitted on the HMI device. If the mounting seal is damaged, order a replacement seal. The mounting seal is part of the associated service pack.

Mounting

Notice

Always mount the HMI device according to the instructions in this manual.

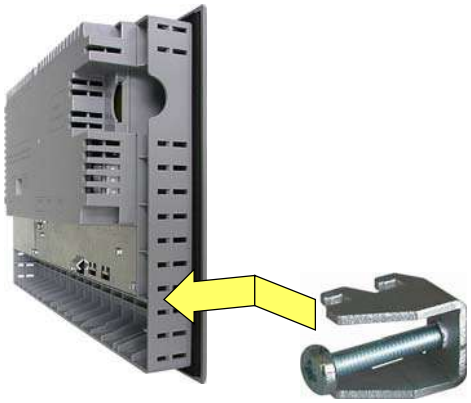
Proceed as follows:

1. Check that the mounting seal is fitted on the HMI device.

   Do not install the mounting seal turned inside out. This may cause leaks in the mounting cut-out.

2. Insert the HMI device into the mounting cut-out from the front.

3. Insert a mounting clamp into a recess of the HMI device.



4. Tighten the mounting clamp with a Phillips screwdriver.

   The permitted torque is 0.2 Nm.

5. Repeat steps 3 and 4 for all mounting clamps.

Notice

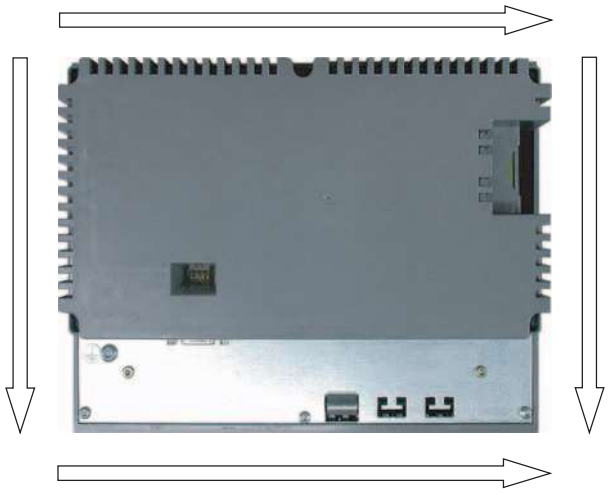
Check the fit of the mounting seal on the front. The mounting seal must not protrude from the HMI device.

Otherwise, repeat steps 1 to 5.

Positioning the mounting clamps on the MP 277 8" Touch

In total, you will need 10 mounting clamps for the installation.

The following figure shows the counting direction for the insertion of the mounting clamps.



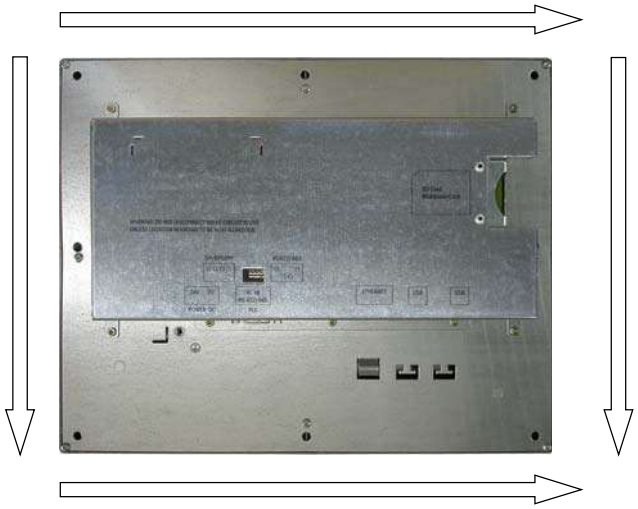
The following table shows the positioning of the mounting clamps on the MP 277 8" Touch. Observe the counting direction. The position indicated corresponds to the first recess occupied for each mounting clamp in the counting direction. The inserted mounting clamp covers several recesses.

Page	Number of mounting clamps	Mounting clamp position 1	Mounting clamp position 2	Mounting clamp position 3
Top	3	1	14	26
Right	2	1	12	-
Bottom	3	1	14	26
Left	2	1	18	-

Positioning the mounting clamps on the MP 277 10" Touch

You will need a total of 12 mounting clamps for the installation.

The following figure shows the counting direction for the insertion of the mounting clamps.



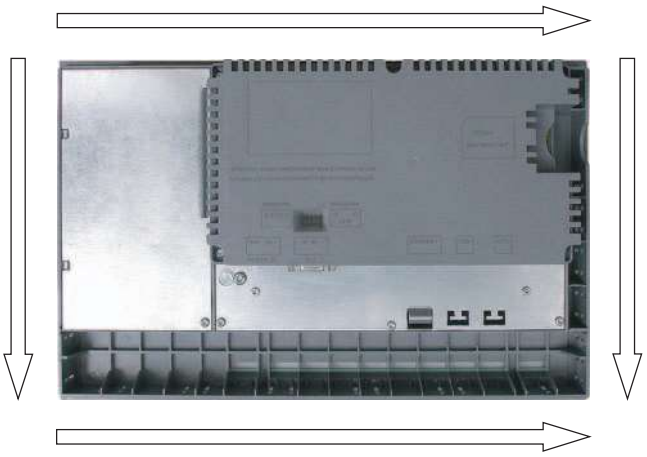
The following table shows the positioning of the mounting clamps on the MP 277 10" Touch. Observe the counting direction. The position indicated corresponds to the first recess occupied for each mounting clamp in the counting direction. With the MP 277 10" Touch, you can only use every other recess to attach the mounting clamp. Only those recesses were counted, which a mounting clamp can be used for. The inserted mounting clamp covers several recesses.

Page	Number of mounting clamps	Mounting clamp position 1	Mounting clamp position 2	Mounting clamp position 3
Top	3	2	11	20
Right	3	2	9	16
Bottom	3	2	11	20
Left	3	2	9	16

Positioning the mounting clamps on the MP 277 8" Key

You will need a total of 14 mounting clamps for the installation.

The following figure shows the counting direction for the insertion of the mounting clamps.



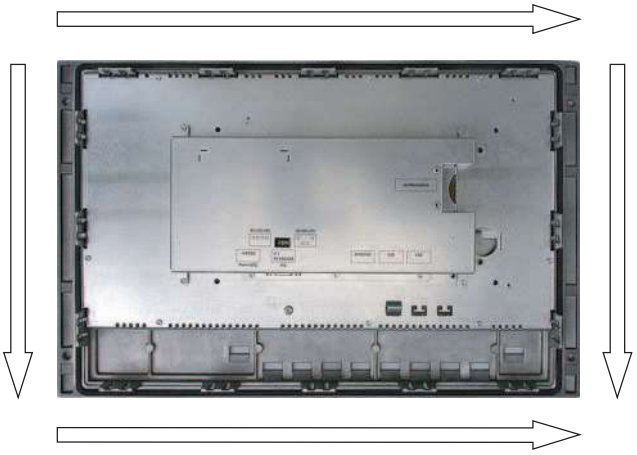
The following table shows the positioning of the mounting clamps on the MP 277 8" Key. Observe the counting direction. The position indicated corresponds to the first recess occupied for each mounting clamp in the counting direction. The inserted mounting clamp covers several recesses.

Page	Number of mounting clamps	Mounting clamp position 1	Mounting clamp position 2	Mounting clamp position 3	Mounting clamp position 4
Top	4	1	9	17	31
Right	3	1	5	11	-
Bottom	4	1	5	7	11
Left	3	1	8	14	-

Positioning the mounting clamps on the MP 277 10" Key

In total, you will need 10 mounting clamps for the installation.

The following figure shows the counting direction for the insertion of the mounting clamps.



The following table shows the positioning of the mounting clamps on the MP 277 10" Key. Observe the counting direction. The position indicated corresponds to the first recess occupied for each mounting clamp in the counting direction. The inserted mounting clamp covers two recesses.

Page	Number of mounting clamps	Mounting clamp position 1	Mounting clamp position 2	Mounting clamp position 3
Top	3	1	5	9
Right	2	1	5	-
Bottom	3	1	5	9
Left	2	1	5	-

4.3 Connecting the HMI Device

4.3.1 Overview

Requirement

- The HMI device must be mounted according to the specifications of these operating instructions.
- Always use shielded standard cables.

For further information, refer to the SIMATIC HMI catalog ST 80.

Connection sequence

Connect the HMI device in the following sequence:

1. Equipotential bonding
2. Power supply

   Perform a power-up test to ensure the power supply is connected with the correct polarity.
3. PLC
4. Configuring PC as necessary
5. I/Os as necessary

Notice

Connection sequence

Always follow the correct sequence for connecting the HMI device. Failure to do so may result in damage to the HMI device.

Disconnect the HMI device by completing the above steps in reverse order.

Connecting the Cables

When connecting the cables, ensure that you do not bend any of the contact pins. Secure the connectors with screws.

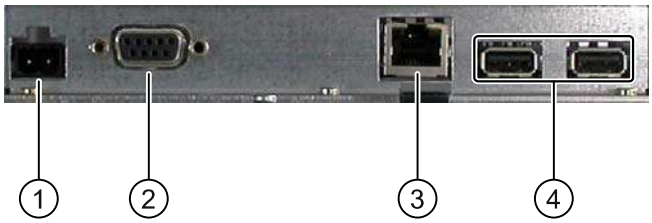
The pin assignment of the ports is described in the specifications.

See also

Safety Instructions (Page 2-1)

4.3.2 Ports

The figure below shows the ports of the HMI device MP 277.



① Power supply connector
② RS 422/RS 485 port (IF 1B)
③ Ethernet port
④ USB ports

Notice

Connecting external devices to the USB port

If you wish to connect external devices with 230V power supply to the USB port, ensure that the installation is non-isolated.

You can affix the USB and Ethernet connecting cables to the rear panel of the HMI device with cable ties.

See also

Power Supply (Page 12-8)

RS 422/RS 485 (IF 1B) (Page 12-9)

Ethernet (Page 12-10)

USB (Page 12-9)

4.3.3 Connecting the Equipotential Bonding Circuit

Electrical potential differences

Differences in potential between spatially separated system parts may occur. The differences in potential can lead to high equalizing currents over the data cables and therefore to the destruction of their ports. Equalizing currents may arise if the cable shielding is terminated at both ends and grounded at different system parts.

Differences in potential may develop when a system is connected to different mains.

General Requirements for Equipotential Bonding

Differences in potential must be reduced by means of equipotential bonding in order to ensure trouble-free operation of the relevant components of the electronic system. The following must therefore be observed when installing the equipotential bonding circuit:

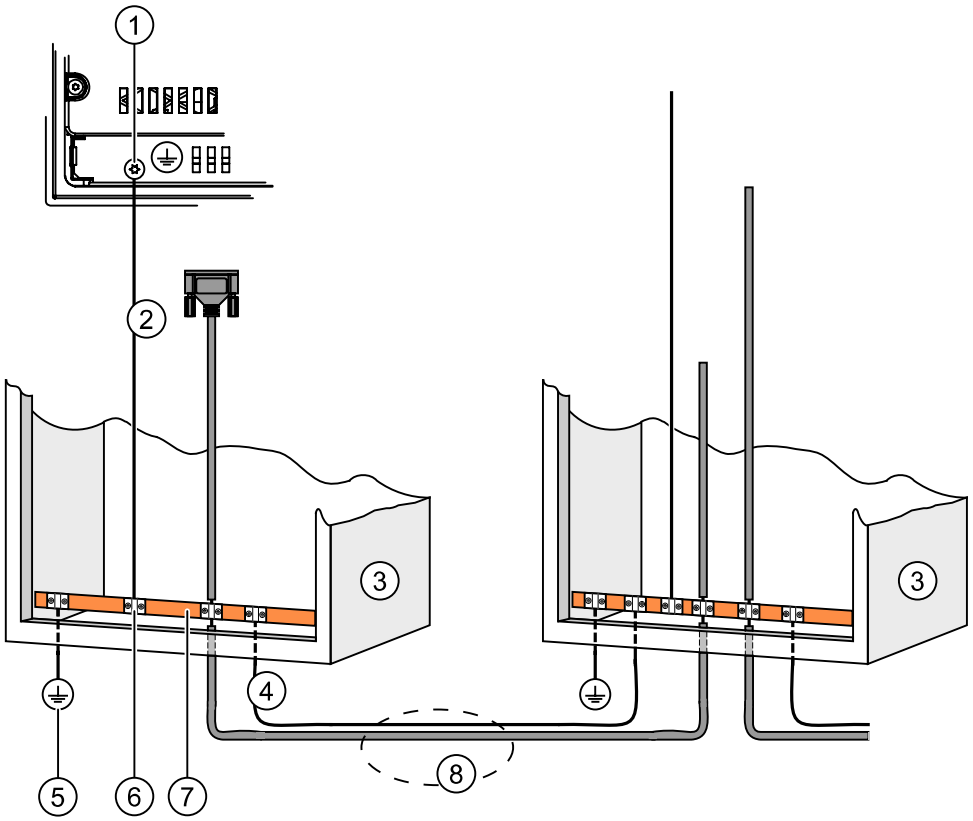
- The effectiveness of equipotential bonding increases as the impedance of the equipotential bonding conductor decreases or as its cross-section increases.
- If two system parts are connected to each other via shielded data lines with shielding connected to the grounding/protective conductor on both sides, the impedance of the additionally installed equipotential bonding cables may not exceed 10% of the shielding impedance.
- The cross-section of a selected equipotential bonding conductor must be capable of handling the maximum equalizing current. The best results in practical applications for equipotential bonding between two cabinets have been achieved with a minimum conductor cross-section of 16 mm².
- Use equipotential bonding conductors made of copper or galvanized steel. Establish a large surface contact between the equipotential bonding conductors and the grounding/protective conductor and protect these from corrosion.
- Clamp the shielding of the data cable on the HMI device flush and near the equipotential busbar using suitable cable clamps.
- Route the equipotential bonding conductor and data cables in parallel with minimum clearance between these.

Notice

Grounding conductor

Cable shielding is not suitable for equipotential bonding. Always use the prescribed equipotential bonding conductors. The minimum cross-section of a conductor used for equipotential bonding is 16 mm². When you install MPI and PROFIBUS DP networks, always use cables with a sufficient cross-section. The interface modules may otherwise be damaged or destroyed.

Wiring diagram



① Chassis terminal on the HMI device, example
② Equipotential bonding conductor cross-section: 4 mm²
③ Cabinet
④ Equipotential bonding conductor cross-section: min. 16 mm²
⑤ Ground connection
⑥ Cable clip
⑦ Voltage bus
⑧ Parallel routing of the equipotential bonding conductor and data cable

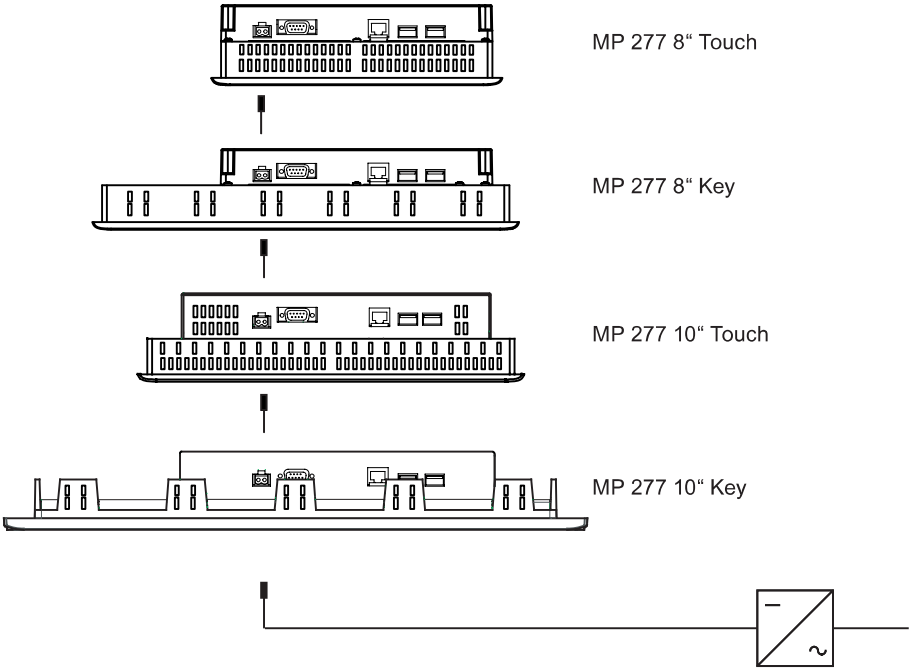
See also

Electromagnetic Compatibility (Page 2-4)

4.3.4 Connecting the Power Supply

Wiring diagram

The figure below illustrates the connection between the power supply and the HMI device.



Note when connecting

The power terminal block is included in the assembly kit. This power terminal block is designed for conductors with a maximum cross-section of 1.5 mm².

Mounting flange AQM63.0

QAM2110.040, QAM2120.040

QAM2120.200, QAM2120.600

Symaro™

Duct Temperature Sensors QAM21...

Passive sensors for acquiring the air temperature in air ducts.

Use

The duct temperature sensors are for use in ventilation and air conditioning plants as:

- Supply or extract air temperature sensors
- Limit sensors, e.g. for minimum limitation of the supply air temperature
- Reference sensors, e.g. for shifting the room temperature as a function of the outside temperature
- Measuring sensors, e.g. for measured value indication or for connection to a building automation and control system

Type summary

Type reference	*Probe length*	*Mounting clamps*	*Sensing element*
QAM2110.040	0,4 m	keine	Pt 100
QAM2112.040	0,4 m	keine	Pt 1000
QAM2112.200	2,0 m	4 Stück	Pt 1000
QAM2120.040	0,4 m	keine	LG-Ni 1000
QAM2120.200	2,0 m	4 Stück	LG-Ni 1000
QAM2120.600	6,0 m	6 Stück	LG-Ni 1000
QAM2130.040	0,4 m	keine	NTC 10k
QAM2140.020	0,2 m	keine	T1 (PTC)

Accessories
(Spare parts)

Name	*Type reference*
Capillary tube clamb for the QAM2120.200 and QAM2120.600 (6 pieces)	**AQM63.3**
Monting flange	**AQM63.0**

Ordering and delivery

When ordering, please give name and type reference, e.g.:
Duct temperature sensor **QAM2120.040**

The sensor is supplied complete with mounting flange AQM63.0 and, if required, mounting clamps AQM63.3.

Equipment combinations

All systems or devices capable of acquiring and handling the sensor's passive output signal.

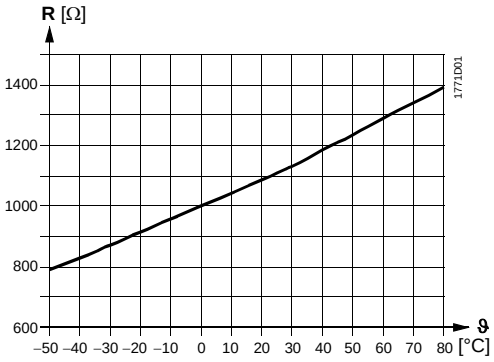
Function

The sensor acquires the air temperature via its sensing element whose resistance changes as a function of the temperature. The signal is delivered to a suitable controller for further handling.

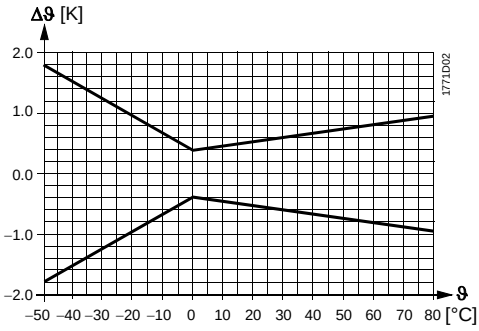
Sensing elements

LG-Ni 1000

Characteristic:

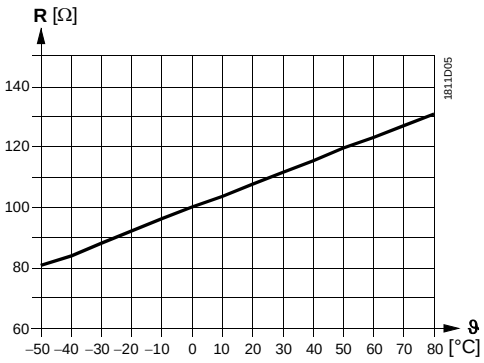


Accuracy:

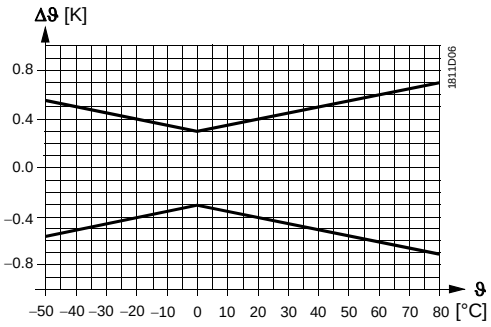


Pt 100 (class B)

Characteristic:

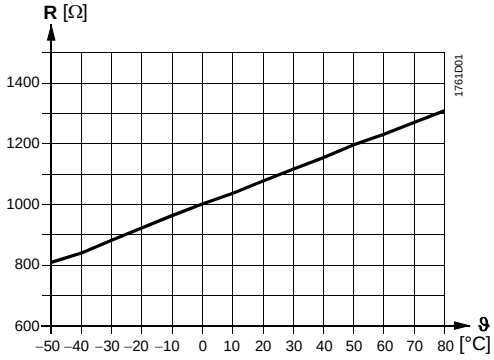


Accuracy:

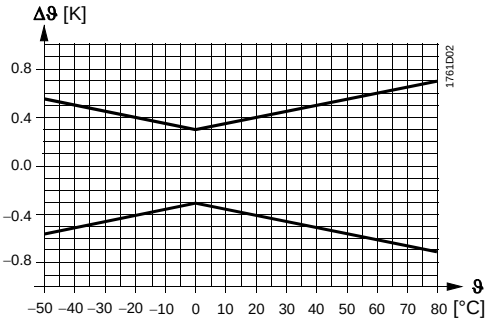


Pt 1000 (class B)

Characteristic:

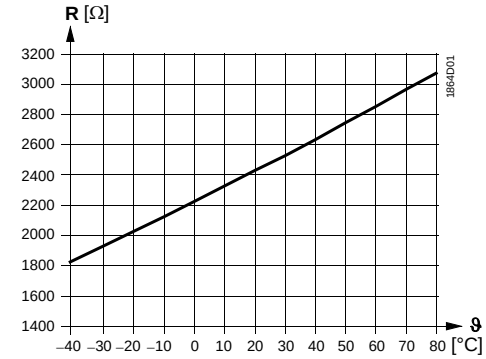


Accuracy:

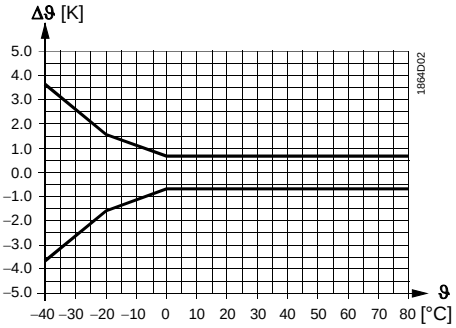


T1 (PTC)

Characteristic:

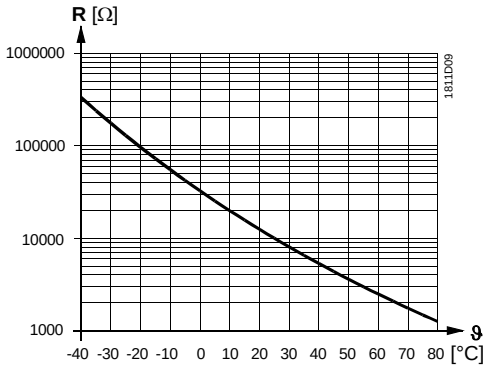


Accuracy:

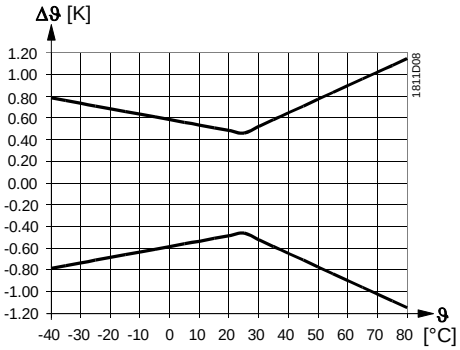


NTC 10k

Characteristic:



Accuracy:



Legend

R	Resistance value in Ohm
ϑ	Temperature in degrees Celsius
Δϑ	Temperature differential in Kelvin

Mechanical design

The duct temperature sensor consists of the following components:

- Two-sectional plastic housing comprised of base with connection terminals and removable cover (snap-on design)
- Fully active, flexible probe with sensing element which acquires the average temperature

The connection terminals can be accessed after removing the cover. Cable entry is made via a grommet which, if required, can be replaced by a cable entry gland M16 (IP 54).

After fitting the mounting flange, the sensor can be installed in 6 different immersion positions so that the sensor housing is always located outside the insulation for layers up to 70 mm. The probe with a length of 2 or 6 m is to be fitted across the air duct with the help of the mounting clamps supplied with the sensor.

Mounting notes

Mounting location

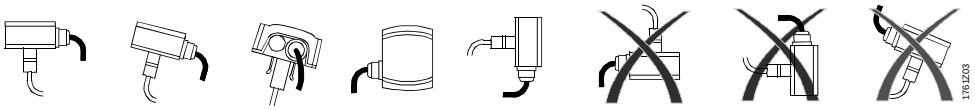
- *For supply air temperature control:* Downstream from the fan, if the fan is located after the last air handling unit. Otherwise, after the last air handling unit with a minimum distance of 0.5 m
- *For extract air temperature control:* Always upstream of the extract air fan
- *As a limit sensor for the supply air temperature:* As close as possible to the air outlet into the room
- *For dew point control:* Immediately after the spray trap of the air washer

Manually bend the probe so that it lies diagonally across the duct or in equally spaced windings across the entire duct cross-section. The probe must not touch the duct wall.

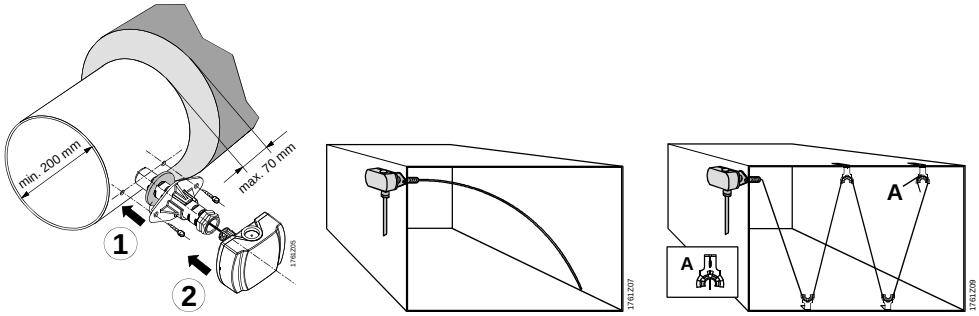
The sensor is supplied complete with Mounting Instructions.

Mounting positions

permitted: *not permitted:*



Mounting examples

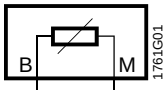


Technical data

Functional data	Operating range	−40...+80 °C for NTC type −50...+80 °C other types
	Sensing element	refer to "Type summary“
	Probe Length Min. bending radius	 refer to "Type summary“ 10 mm
	Time constant	30 s at 2 m/s
	Dead time	< 1 s
	Measuring accuracy	refer to “Function"
Protective data	Protection standard of housing With cable entry gland M 16 x 1.5	IP 42 to IEC 529 IP 54 to IEC 529 (not included as standard)
	Safety class	III to EN 60 730 (only with SELV or PELV)
Electrical connections	Screw terminals for	1 x 2.5 mm^2 or 2 x 1.5 mm^2
	Cable entry Grommet Cable entry gland	 for 5.5...7.2 mm dia. cable M 16 x 1.5 can be fitted
	Perm. cable lengths	refer to Data Sheet of the relevant controller
Environmental conditions	Operation Climatic conditions Temperature (housing) Humidity (housing)	to IEC 721-3-3 class 3K5 −40...+70 °C 5...95 % r. h.
	Transport Climatic conditions Temperature Humidity Mechanical conditions	to IEC 721-3-2 class 2K3 −25...+70 °C < 95 % r. h. class 2M2

Materials and colors	Probe	copper, polyolefine
	Base	polycarbonate, RAL 7001 (silver-grey)
	Cover	polycarbonate, RAL 7035 (light-grey)
	Mounting flange	PA 66 (black)
	Clamps	PA-GF 35 (black)
	Packaging	corrugated cardboard
Weight	Incl. packaging	
	QAM2110.040	ca. 0,15 kg
	QAM2112.040	ca. 0,15 kg
	QAM2112.200	ca. 0,3 kg
	QAM2120.040	ca. 0,15 kg
	QAM2120.200	ca. 0,30 kg
	QAM2120.600	ca. 0,53 kg
	QAM2130.040	ca. 0,15 kg
	QAM2140.020	ca. 0,15 kg

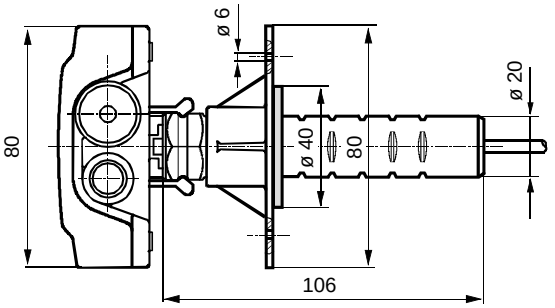
Internal diagram



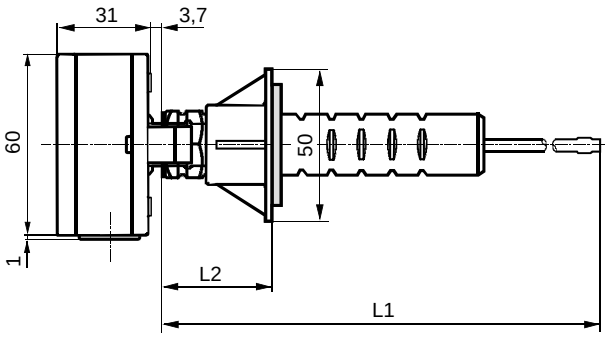
The internal diagram is identical for all types of duct temperature sensors covered by this Data Sheet.

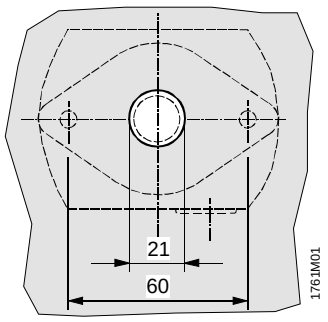
The connecting wires are interchangeable.

Dimensions



Typ	L1	L2	
		max.	min.
QAM2140.020	200	97	37
QAM2130.040	400	97	37
QAM2110.040	400	97	37
QAM2120.040	400	97	37
QAM2112.040	400	97	37
QAM2112.200	2000	97	37
QAM2120.200	2000	97	37
QAM2120.600	6000	97	37





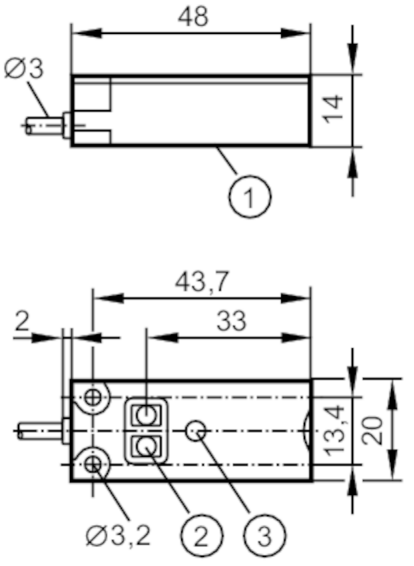
Drilling plan

Dimensions in mm

KQ6002

Capacitive sensor

KQ-3120NFPKG/2T



1 sensing face
2 Programming buttons
3 LED

Product characteristics		
Electrical design		PNP
Output function		normally open / closed; (selectable)
Sensing range	[mm]	12
Communication interface		IO-Link
Housing		rectangular
Dimensions	[mm]	20 x 14 x 48
Application		
Installation		detection through non-metallic container wall or on bypass pipes
Media		dry bulk material; liquids
Electrical data		
Operating voltage	[V]	10...30 DC
Current consumption	[mA]	< 17
Protection class		III
Reverse polarity protection		yes

KQ6002

Capacitive sensor

KQ-3120NFPKG/2T

Outputs			
Electrical design		PNP	
Output function		normally open / closed; (selectable)	
Max. voltage drop switching output DC	[V]	2.5	
Permanent current rating of switching output DC	[mA]	100	
Switching frequency DC	[Hz]	10	
Short-circuit protection		yes	
Type of short-circuit protection		yes (non-latching)	
Overload protection		yes	
Monitoring range			
Sensing range	[mm]	12	
Real sensing range Sr	[mm]	12 ± 10 %	
Accuracy / deviations			
Hysteresis	[% of Sr]	1...15	
Switch-point drift	[% of Sr]	-20...20	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM1 (4,8 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9 CDV	
IO-Link device ID		371d / 000173h	
Profiles		Smart Sensor	
SIO mode		yes	
Min. process cycle time	[ms]	100.8	
Operating conditions			
Ambient temperature	[°C]	-25...80	
Protection		IP 65; IP 67; IP 69K	
Tests / approvals			
EMC		EN 61000-4-2 ESD	8 kV AD
		EN 61000-4-3 HF radiated	10 V/m
		EN 61000-4-4 Burst	2 kV
		EN 61000-4-6 HF conducted	3 V
		EN 55011	class B
Shock resistance		EN 60068-2-27	30 g 6 shocks / 11 ms half-sine (x, y, z)
Vibration resistance		EN 60068-2-6	(10...55 Hz) / 1 mm amplitude, vibration duration 5 min., 30 min. per axis with resonance or 55 Hz
MTTF	[years]	725	
UL approval		Ta	-25...80 °C
		Enclosure type	Type 1
		voltage supply	Limited Voltage/Current

KQ6002

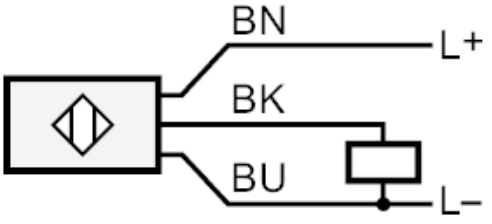
Capacitive sensor

KQ-3120NFPKG/2T

Mechanical data			
Weight	[g]	46.2	
Housing		rectangular	
Mounting		non-flush mountable	
Dimensions	[mm]	20 x 14 x 48	
Material		housing: PBT reinforced glass-fibre; Pushbuttons: TPE-U; cover: PC reinforced glass-fibre	
Displays / operating elements			
Display		Switching status	1 x LED, yellow
Teach function		yes	
Electronic lock		yes	
Remarks			
Pack quantity		1 pcs.	
Electrical connection			

Cable: 2 m, PVC; 3 x 0.14 mm²

Connection

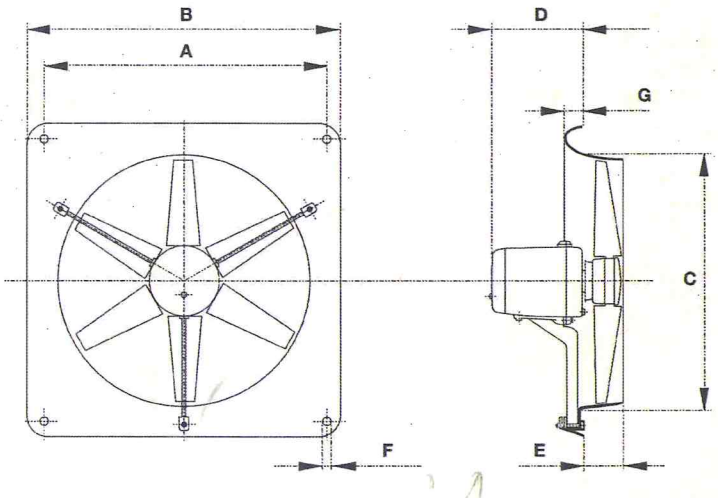


BK:	OUT / IO-Link
	Core colors :
BK =	black
BN =	brown
BU =	blue

Multifan fan dimensions

Impeller range (cm)	Number of poles	Size in mm							Dimensions packing in mm (lxbxh)
		A	B	C	D max.	E	F	G	
20	4	250	276	220	131	51	9	12	295X295X210
25	4	300	326	269	142	51	9	12	345X345X210
30	2,4	395	442,5	340	(192)	84	7,5	36	455x455x311
35	2,4	445	492,5	390	(192)	84	7,5	36	505x505x311
40	4,6	495	542,5	440	(192)	84	7,5	36	555x555x311
45	4,6	545	592,5	490	(192)	84	7,5	36	605x605x311
50	4,6	600	647,5	540	(192)	84	7,5	36	655x655x311
56	4,6	640	700	600	247	105	10	40	715x715x396
63	4,6	715	775	670	247	105	10	40	790x790x396
71	4,6	790	850	742	247	105	10	40	865x865x396
92	6	947	1005	942	247	93	10	40	motor: 371x222x216 frame: 1050x1050x170
125	4	1298	1370	1285	110	100	12	50	motor: 1070x510x380 frame: 1430x1430x225

Dimensional Scheme



ISO 9001

(Subject to alterations)

Multifan technical data 50 Hz single-phase

230V 50Hz n	Type	Article base number	Impeller range cm	Watt	W/1000 m³/h	dB(A)	Motor protection switch Amp.	Control-lable* T/E	Amp. 230V	Cond. µF/400	kg (packed)
2800 rpm	2E30Q	V2E3010	30	320	89,6	61	1,9	T/E	1,5	8	9
	2E30-6PP-40Q	V2E3012	30	600	142,9	64	4,2	T	2,4	16	12
	2E35Q	V2E3506	35	320	66,0	65	2,8	T/E	1,5	8	10
1400 rpm	4WS20		20	60	92,3	43	0,6	T/E	0,5	-	3,6
	4WS25		25	70	58,3	45	0,9	T/E	0,8	-	4,6
	4E30Q	V4E3006	30	104	43,3	44	0,6	T/E	0,5	3	9,4
	4E35Q	V4E3508	35	170	48,2	47	1,1	T/E	0,9	4	10,4
	4E40Q	V4E4007	40	237	48,9	50	1,3	T/E	1,1	6	11,3
	4E45Q	V4E4508	45	317	49,5	52	1,9	T/E	1,6	8	13,1
	4E50Q	V4E5009	50	443	53,3	55	2,4	T/E	2,0	12	15,5
	4E50-6PP-40Q	V4E5014	50	710	72,7	57	4,6	T/E	3,8	16	18
	4E50-6PP-45Q	V4E5020	50	530	59,9	60	3,2	T	2,7	16	15,5
	4E63Q	V4E6302	63	1600	92,5	68	8,4	-	7,0	31	28
	4E125-4PP-20Q	V4E1250	125	1140	30,5	64	5,8	-	4,8	25	39
	4E125-4PP-25Q	V4E1251	125	1580	36,9	65	8,2	-	6,8	40	41
900 rpm	6E40Q	V6E4001	40	170	45,2	47	1,3	T/E	1,1	6	10
	6E45Q	V6E4501	45	260	51,5	51	1,7	T/E	1,4	10	12
	6E50Q	V6E5003	50	310	43,2	51	1,8	T/E	1,5	8	13
	6E56Q	V6E5603	56	530	53,3	52	2,9	T/E	2,4	16	22
	6E63Q	V6E6303	63	600	49,9	53	3,6	T/E	3,0	16	23
	6E71Q	V6E7104	71	630	48,4	60	3,6	T/E	3,0	16	25
	6E71-4PP-40Q	V6E7107	71	730	46,7	60	4,2	T/E	3,5	16	26
	6E92Q	V6E9200	92	790	37,4	61	4,6	T/E	3,8	16	29

*** Controllable by Transformer (T) or Electronically (E)**

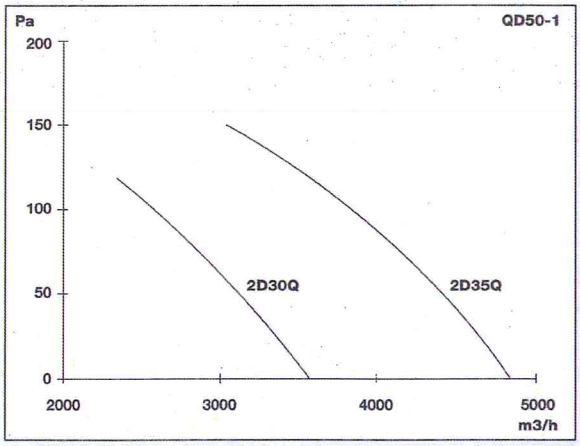
Multifan capacities single-phase in m³/h (50 Hz)

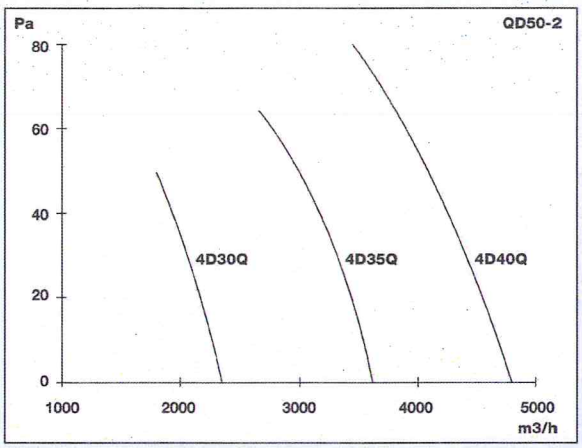
230V 50Hz n	Type	Article base number	Pa max	0 Pa	30 Pa	50 Pa	80 Pa	100 Pa	150 Pa	200 Pa	250 Pa
2800 rpm	2E30Q	V2E3010	120	3570	3180	2970	2750	2550	-	-	-
	2E30-6PP-40Q	V2E3012	250	4200	3950	3820	3650	3500	3190	2860	2320
	2E35Q	V2E3506	190	4850	4460	4260	4000	3800	3060	-	-
1400 rpm	4WS20		20	650	-	-	-	-	-	-	-
	4WS25		30	1200	970	-	-	-	-	-	-
	4E30Q	V4E3006	60	2400	2140	1870	-	-	-	-	-
	4E35Q	V4E3508	75	3530	3200	2910	-	-	-	-	-
	4E40Q	V4E4007	75	4840	4380	4030	-	-	-	-	-
	4E45Q	V4E4508	95	6400	5860	5400	4460	-	-	-	-
	4E50Q	V4E5009	110	8300	7610	7080	6110	5540	-	-	-
	4E50-6PP-40Q	V4E5014	120	9770	9200	8780	8070	7480	-	-	-
	4E50-6PP-45Q	V4E5020	80	8850	8230	7700	6170	-	-	-	-
	4E63Q	V4E6302	160	17290	16500	16100	15380	14770	13070	-	-
	4E125-4PP-20Q	V4E1250	70	37400	31600	27300	-	-	-	-	-
	4E125-4PP-25Q	V4E1251	70	42800	36960	32530	-	-	-	-	-
900 rpm	6E40Q	V6E4001	30	3760	2970	-	-	-	-	-	-
	6E45Q	V6E4501	50	5050	4230	3600	-	-	-	-	-
	6E50Q	V6E5003	60	7180	6000	5160	-	-	-	-	-
	6E56Q	V6E5603	80	9930	8980	8200	6400	-	-	-	-
	6E63Q	V6E6303	90	12020	10920	10100	8520	-	-	-	-
	6E71Q	V6E7104	100	13000	11900	11080	9550	7950	-	-	-
	6E71-4PP-40Q	V6E7107	90	15600	14000	12750	10650	-	-	-	-
	6E92Q	V6E9200	100	21100	18000	15870	12470	9570	-	-	-

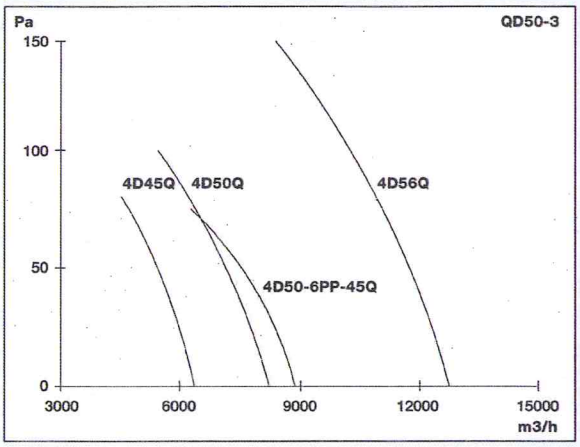
All air capacities without wire guard, without casing.
Data also valid for tube fans under same conditions as wall mounting fans.

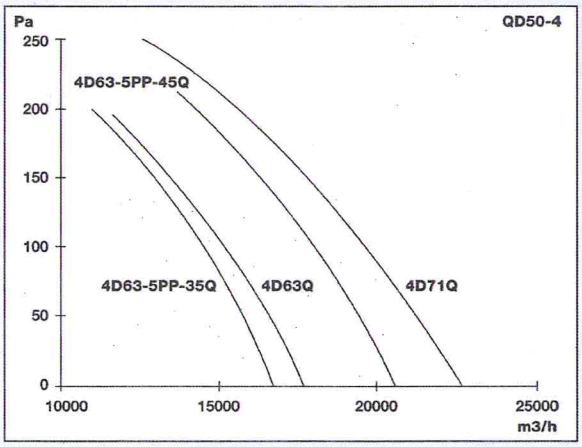
All motors are made according to the IP55 standard and the applied materials meet the standard of insulation class F (resistant to temperatures up to 155°C)

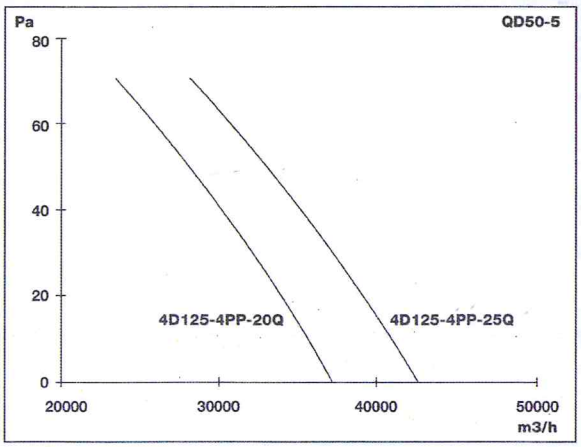
Multifan curves 50 Hz three-phase

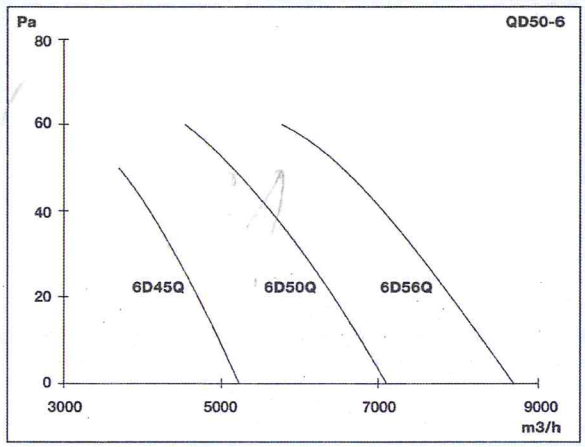


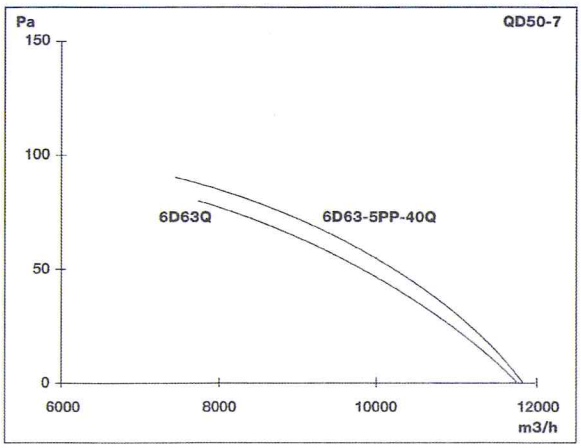


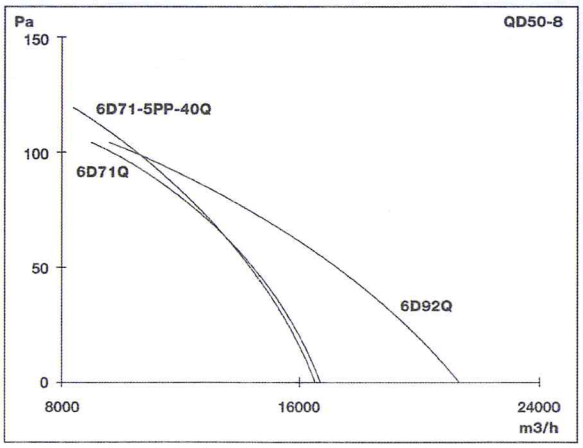












Beyond standard range custom orders possible.

More details available on request

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Hoja de datos 6ES7307-1EA01-0AA0

FUENTE ALIM. PS307 24 V/5 A
SIMATIC S7-300 fuente de alimentación estabilizada PS307 entrada: AC 120/230 V salida: DC 24 V/5 A

Entrada	
Entrada	AC monofásica
• Observación	Cambio de rango automático
Tensión de alimentación	
• 1 con AC valor nominal	120 V
• 2 con AC valor nominal	230 V
Tensión de entrada	
• 1 con AC	85 ... 132 V
• 2 con AC	170 ... 264 V
Entrada de rango amplio	No
Resistencia a sobretensiones	2,3 x Ue nom, 1,3 ms
Respaldo de red	Con Ue = 93/187 V
Respaldo de red con la nom, mín.	20 ms; Con Ue = 93/187 V
Frecuencia nominal de red 1	50 Hz
Frecuencia nominal de red 2	60 Hz
Rango de frecuencia de red	47 ... 63 Hz
Corriente de entrada	
• con valor nominal de la tensión de entrada 120 V	2,3 A

• con valor nominal de la tensión de entrada 230 V	1,2 A
Limitación de la intensidad de conexión (+ 25 °C), máx.	20 A
Duración de la limitación de intensidad de conexión con 25 °C	
• máx.	3 ms
I^2t, máx.	1,2 $A^2 \cdot s$
Fusible de entrada incorporado	T 3,15 A/250 V (no accesible)
Protección del cable de red (IEC 898)	Interruptor magnetotérmico recomendado: a partir de 6 A característica C

Salida	
Salida	Tensión continua estabilizada y aislada galvánicamente
Tensión nominal Us nom DC	24 V
Tolerancia total, estática ±	3 %
Compens. estática variación de red, aprox.	0,1 %
Compens. estática variación de carga, aprox.	0,5 %
Ondulación residual entre picos, máx.	50 mV
Ondulación residual entre picos, típ.	10 mV
Spikes entre picos, máx. (ancho de banda aprox. 20 MHz)	150 mV
Spikes entre picos, típ. (ancho de banda aprox. 20 MHz)	20 mV
Función del producto Tensión de salida es ajustable	No
Ajuste de la tensión de salida	-
Pantalla normal	LED verde para 24 V O.K.
Comportamiento al conectar desconectar	Sin rebase transitorio de Ua (arranque suave)
Retardo de arranque, máx.	2 s
Subida de tensión, típ.	10 ms
Intensidad nominal Ia nom	5 A
Rango de intensidad	0 ... 5 A
potencia activa entregada típico	120 W
Intensidad de sobrecarga breve	
• con cortocircuito durante el arranque típico	20 A
• con cortocircuito en servicio típico	20 A
Duración de la capacidad de sobrecarga con sobreintensidad	
• con cortocircuito durante el arranque	100 ms
• con cortocircuito en servicio	100 ms
Posibilidad de conex. en paralelo para aumento de potencia	Sí

Rendimiento	
Rendimiento con Ua nominal, Ia nominal, aprox.	87 %

Pérdidas con Ua nom, Ia nom, aprox.	18 W

Regulación	
Compens. dinám. variación de red (Ue nom ± 15%), máx.	0,1 %
Compens. dinám. variación de carga (Ia: 50/100/50%), Ua ± típ.	1 %
Tiempo de recuperación escalón de carga 50 a 100%, típ.	0,3 ms
Tiempo de recuperación escalón de carga 100 a 50%, típ.	0,3 ms

Protección y vigilancia	
Protección sobretensión en salida	Lazo de regulación adicional, desconexión < 28,8 V, rearranque automático
Limitación de intensidad	5,5 ... 6,5 A
Propiedad de la salida resistente a cortocircuitos	Sí
Prot. contra cortocircuito	Corte electrónico, rearranque automático
Intensidad de cortocircuito sostenido Valor eficaz	
• máx.	7 A

Seguridad	
Aislamiento galvánico primario secondario	Sí
Aislamiento galvánico	Tensión de salida MBTS/SELV Us según EN 60950-1 y EN 50178
Clase de protección	Clase I
Corriente de fuga	
• máx.	3,5 mA
• típico	0,5 mA
Grado di protección (EN 60529)	IP20

Homologaciones	
Marcado CE	Sí
Aprobación UL/cUL (CSA)	cULus-Listed (UL 508, CSA C22.2 No. 142), File E143289
Protección contra explosiones	ATEX (EX) II 3G Ex nA II T4; cULus (ANSI/ISA 12.12.01, CSA C22.2 No.213) Class I, Div. 2, Group ABCD, T4, File E330455
Homologación FM	Class I, Div. 2, Group ABCD, T4
Homologación CB	No
Homologación para la construcción naval	En el sistema S7-300

CEM	
Emisión de interferencias	EN 55022 clase B
Limitación de armónicos en red	EN 61000-3-2
Inmunidad a interferencias	EN 61000-6-2

condiciones ambientales	
Temperatura ambiente	
• durante el funcionamiento	0 ... 60 °C

— Observación	Con convección natural
• durante el transporte	-40 ... +85 °C
• durante el almacenamiento	-40 ... +85 °C
Clase de humedad según EN 60721	Clase climática 3K3, 5 … 95% sin condensación

Mecánica

Sistema de conexión	conexión por tornillo
Conexiones	
• entrada de red	L, N, PE: 1 borne de tornillo resp. para 0,5 ... 2,5 mm² monofilar/flexible
• salida	L+, M: 3 bornes de tornillo resp. para 0,5 ... 2,5 mm²
• contactos auxiliares	-
Anchura de la caja	60 mm
Altura de la caja	125 mm
Profundidad de la caja	120 mm
Distancia que debe respetarse	
• arriba	40 mm
• abajo	40 mm
• izquierda	0 mm
• derecha	0 mm
Peso aprox.	0,6 kg
Propiedad del producto de la caja carcasa disponible en hilera	Sí
Montaje	Para montar en perfil soporte S7
Accesorios mecánicos	Adaptador para fijación sobre perfil normalizado (6EP1971-1BA00)
MTBF con 40 °C	2 480 589 h
notas adicionales	Siempre que no se diga lo contrario, son aplicables todos los datos para la tensión nominal de entrada y una temperatura ambiente de +25 °C

SIEMENS

Hoja de datos 6ES7314-6CH04-0AB0

SIMATIC S7-300, CPU 314C-2 DP CPU compacta con MPI, 24 DI/16 DO, 4 AI, 2 AO, 1 Pt100, 4 contadores rápidos (60 kHz), interfaz DP integrada, alimentación de DC 24V integrada, memoria de trabajo de 192 Kbytes, conector frontal (2x 40 polos) y Se necesita Micro Memory Card

Información general	
Versión funcional del HW	01
Versión de firmware	V3.3
Ingeniería con	
• Paquete de programación	STEP 7 V5.5 + SP1 y superiores o STEP 7 V5.3 + SP2 y superiores con HSP 203
Tensión de alimentación	
Valor nominal (DC)	
• 24 V DC	Sí
Rango admisible, límite inferior (DC)	19,2 V
Rango admisible, límite superior (DC)	28,8 V
Protección externa para líneas de alimentación (recomendación)	Automático magnetotérmico, curva C, mín. 2 A; automático magnetotérmico, curva B, mín. 4 A
Puenteo de caídas de red y tensión	
• Puenteo de caídas de red/de tensión	5 ms
• Tasa de repetición, mín.	1 s
Tensión de carga L+	
Entradas digitales	
— Valor nominal (DC)	24 V

— Protección contra inversión de polaridad	Sí
Salidas digitales	
— Valor nominal (DC)	24 V
— Protección contra inversión de polaridad	No
Intensidad de entrada	
Consumo (valor nominal)	880 mA
Consumo (en marcha en vacío), típ.	150 mA
Intensidad de cierre, típ.	5 A
I^2t	0,7 $A^2 \cdot s$
Entradas digitales	
• de la tensión de carga L+ (sin carga), máx.	80 mA
Salidas digitales	
• de la tensión de carga L+, máx.	50 mA
Pérdidas	
Pérdidas, típ.	13 W
Memoria	
Memoria de trabajo	
• integrada	192 kbyte
• ampliable	No
• Tamaño de la memoria no volátil para bloques de datos remanentes	64 kbyte
Memoria de carga	
• enchufable (MMC)	Sí
• enchufable (MMC), máx.	8 Mbyte
• Conservación de datos en MMC (tras última programación), mín.	10 y
Respaldo	
• existente	Sí; garantizado por la MMC (sin mantenimiento)
• sin pila	Sí; Programa y datos
Tiempos de ejecución de la CPU	
para operaciones de bits, típ.	0,06 µs
para operaciones a palabras, típ.	0,12 µs
para artitmética de coma fija, típ.	0,16 µs
para artitmética de coma flotante, típ.	0,59 µs
CPU-bloques	
Nº de bloques (total)	1 024; (DB, FC, FB); la cantidad máxima de bloques cargables puede verse reducida por la MMC utilizada por el usuario.
DB	
• Número, máx.	1 024; Banda numérica: 1 a 16000
• Tamaño, máx.	64 kbyte
FB	

• Número, máx.	1 024; Banda numérica: 0 a 7999
• Tamaño, máx.	64 kbyte
FC	
• Número, máx.	1 024; Banda numérica: 0 a 7999
• Tamaño, máx.	64 kbyte
OB	
• Descripción	Ver Lista de operaciones
• Tamaño, máx.	64 kbyte
• Nº de OBs de ciclo libre	1; OB 1
• Nº de OBs de alarma horaria	1; OB 10
• Nº de OBs de alarma de retardo	2; OB 20, 21
• Nº de OBs de alarma cíclica	4; OB 32, 33, 34, 35
• Nº de OBs de alarma de proceso	1; OB 40
• Nº de OBs de alarmas DPV1	3; OB 55, 56, 57
• Nº de OBs de arranque	1; OB 100
• Nº de OBs de errores asíncronos	5; OB 80, 82, 85, 86, 87
• Nº de OBs de errores síncronos	2; OB 121, 122
Profundidad de anidamiento	
• por cada prioridad	16
• adicional, dentro de un OB de error	4

Contadores, temporizadores y su remanencia	
Contadores S7	
• Cantidad	256
Remanencia	
— Configurable	Sí
— Límite inferior	0
— Límite superior	255
— predeterminado	Z 0 a Z 7
Rango de contaje	
— Límite inferior	0
— Límite superior	999
Contadores IEC	
• existente	Sí
• Clase	SFB
• Cantidad	ilimitado (limitado sólo por la memoria de trabajo)
Temporizadores S7	
• Cantidad	256
Remanencia	
— Configurable	Sí
— Límite inferior	0
— Límite superior	255

— predeterminado	sin remanencia
Rango de tiempo	
— Límite inferior	10 ms
— Límite superior	9 990 s
Temporizadores IEC	
• existente	Sí
• Clase	SFB
• Cantidad	ilimitado (limitado sólo por la memoria de trabajo)

Áreas de datos y su remanencia

Total de área de datos remanente	todos, máx. 64 kbytes
Marcas	
• Número, máx.	256 byte
• Remanencia disponible	Sí; MB 0 a MB 255
• Remanencia predeterminada	MB 0 a MB 15
• Nº de marcas de ciclo	8; 1 byte de marcas
Bloques de datos	
• Remanencia configurable	Sí; ajustando apropiadamente la propiedad de volatilidad del DB
• Remanencia predeterminada	Sí
Datos locales	
• por cada prioridad, máx.	32 kbyte; máx. 2048 bytes por bloque

Área de direcciones

Área de direcciones de periferia	
• Entradas	2 048 byte
• Salidas	2 048 byte
de ellas, descentralizadas	
— Entradas	2 003 byte
— Salidas	2 010 byte
Imagen del proceso	
• Entradas	2 048 byte
• Salidas	2 048 byte
• Entradas, configurables	2 048 byte
• Salidas, configurables	2 048 byte
• Entradas, predeterminado	128 byte
• Salidas, predeterminado	128 byte
Direcciones predeterminadas de los canales integrados	
— Entradas digitales	124.0 a 126.7
— Salidas digitales	124.0 a 125.7
— Entradas analógicas	752 a 761
— Salidas analógicas	752 a 755
Canales digitales	
• Entradas	16 048

— de las cuales centralizadas	1 016
• Salidas	16 096
— de las cuales centralizadas	1 008
Canales analógicos	
• Entradas	1 006
— de las cuales centralizadas	253
• Salidas	1 007
— de las cuales centralizadas	250

Configuración del hardware	
Número de aparatos de ampliación, máx.	3
Nº de maestros DP	
• integrada	1
• vía CP	4
Nº de FM y CP utilizables (recomendación)	
• FM	8
• CP PaP	8
• CP, LAN	10
Bastidores	
• Bastidores, máx.	4
• Módulos por bastidor, máx.	8; en el bastidor 3, máx. 7

Hora	
Reloj	
• Reloj de hardware (en tiempo real)	Sí
• respaldado y sincronizable	Sí
• Duración del respaldo	6 wk; a 40 °C de temperatura ambiente
• Desviación diaria, máx.	10 s; típ.: 2 s
• Comportamiento del reloj tras RED CON	El reloj continúa funcionando tras el corte de alimentación
• Comportamiento del reloj tras agotamiento de batería	El reloj continúa corriendo con la hora a la que se produjo la RED DES
Contador de horas de funcionamiento	
• Cantidad	1
• Número/banda numérica	0
• Rango de valores	0 a 2^31 horas (si se usa el SFC 101)
• Granularidad	1 h
• remanente	Sí; tiene que reiniciarse en cada rearranque
Sincronización de la hora	
• Soporta	Sí
• en MPI, maestro	Sí
• en MPI, esclavo	Sí
• en DP, maestro	Sí; para esclavo DP, solo hora de esclavo
• en DP, esclavo	Sí

• en el autómata, maestro	Sí
• en el autómata, esclavo	No
Entradas digitales	
Nº de entradas digitales	24
• De ellas, entradas usable para funciones tecnológicas	16
Canales integrados (DI)	24
Característica de entrada según IEC 61131, tipo 1	Sí
Número de entradas atacables simultáneamente	
Posición de montaje horizontal	
— hasta 40 °C, máx.	24
— hasta 60 °C, máx.	12
Posición de montaje vertical	
— hasta 40 °C, máx.	12
Tensión de entrada	
• Valor nominal (DC)	24 V
• para señal "0"	-3 a +5 V
• para señal "1"	+15 a +30 V
Intensidad de entrada	
• para señal "1", típ.	8 mA
Retardo a la entrada (a tensión nominal de entrada)	
para entradas estándar	
— parametrizable	Sí; 0,1 / 0,3 / 3 / 15 ms (es posible cambiar la configuración del retardo de entrada de las entradas estándar durante el tiempo de ejecución del programa. Tenga en cuenta que es posible que su nuevo tiempo de filtro ajustado sólo sea efectivo tras una ejecución del tiempo de filtro anterior.)
— Valor nominal	3 ms
para funciones tecnológicas	
— en transición "0" a "1", máx.	8 µs; Mínima anchura de impulsos/mínima pausa entre impulsos con la máxima frecuencia de contaje
Longitud del cable	
• apantallado, máx.	1 000 m; 50 m para funciones tecnológicas
• no apantallado, máx.	600 m; para funciones tecnológicas: No
para funciones tecnológicas	
— apantallado, máx.	50 m; con la máxima frecuencia de contaje
— no apantallado, máx.	no permitido
Salidas digitales	
Número de salidas	16
• de ellas, salidas rápidas	4; Atención: no debe conectar en paralelo las salidas rápidas de la CPU
Canales integrados (DO)	16

Protección contra cortocircuito	Sí; por pulsación electrónica
• Umbral de respuesta, típ.	1 A
Limitación de la sobretensión inductiva de corte a	L+ (-48 V)
Ataque de una entrada digital	Sí
Poder de corte de las salidas	
• con carga tipo lámpara, máx.	5 W
Rango de resistencia de carga	
• Límite inferior	48 Ω
• Límite superior	4 kΩ
Tensión de salida	
• para señal "1", mín.	L+ (-0,8 V)
Intensidad de salida	
• para señal "1" valor nominal	500 mA
• para señal "1" rango admisible, mín.	5 mA
• para señal "1" rango admisible, máx.	0,6 A
• para señal "1" intensidad de carga mínima	5 mA
• para señal "0" intensidad residual, máx.	0,5 mA
Conexión en paralelo de dos salidas	
• para aumentar la potencia	No
• para control redundante de una carga	Sí
Frecuencia de conmutación	
• con carga resistiva, máx.	100 Hz
• con carga inductiva, máx.	0,5 Hz
• con carga tipo lámpara, máx.	100 Hz
• de las salidas de impulsos, con carga óhmica, máx.	2,5 kHz
Corriente total de salidas (por grupo)	
Posición de montaje horizontal	
— hasta 40 °C, máx.	3 A
— hasta 60 °C, máx.	2 A
Posición de montaje vertical	
— hasta 40 °C, máx.	2 A
Longitud del cable	
• apantallado, máx.	1 000 m
• no apantallado, máx.	600 m

Entradas analógicas	
Nº de entradas analógicas	5
• Con medición de tensión/intensidad	4
• Con medición de resistencia/termorresistencia	1
Canales integrados (AI)	5; 4x intensidad/tensión, 1x resistencia
Tensión de entrada admisible para entrada de intensidad (límite de destrucción), máx.	5 V; permanente

Tensión de entrada admisible para entrada de tensión (límite de destrucción), máx.	30 V; permanente
Intensidad de entrada admisible para entrada de intensidad (límite de destrucción). máx	0,5 mA; permanente
Intensidad de entrada admisible para entrada de corriente (límite de destrucción). máx	50 mA; permanente
Tensión en vacío para emisores de resistencia, típ.	3,3 V
Intensidad de medida constante para sensores tipo resistencia, típ.	1,25 mA
Unidad técnica ajustable para medición de temperatura	Sí; Grados Celsius/grados Fahrenheit/Kelvin
Rangos de entrada	
• Tensión	Sí; ±10 V/100 kΩ; 0 V a 10 V/100 kΩ
• Intensidad	Sí; ±20 mA/100 Ω; 0 mA a 20 mA/100 Ω; 4 mA a 20 mA/100 Ω
• Termorresistencias	Sí; Pt 100/10 MΩ
• Resistencia	Sí; 0 Ω a 600 Ω/10 MΩ
Rangos de entrada (valores nominales), tensiones	
• 0 a +10 V	Sí
— Resistencia de entrada (0 a 10 V)	100 kΩ
Rangos de entrada (valores nominales), intensidades	
• 0 a 20 mA	Sí
— Resistencia de entrada (0 a 20 mA)	100 Ω
• -20 mA a +20 mA	Sí
— Resistencia de entrada (-20 mA a +20 mA)	100 Ω
• 4 mA a 20 mA	Sí
— Resistencia de entrada (4 mA a 20 mA)	100 Ω
Rangos de entrada (valores nominales), termoresistencias	
• Pt 100	Sí
— Resistencia de entrada (Pt 100)	10 MΩ
Rangos de entrada (valores nominales), resistencias	
• 0 a 600 Ohm	Sí
— Resistencia de entrada (0 a 600 ohmios)	10 MΩ
Termopar (TC)	
Compensación de temperatura	
— parametrizable	No
Linealización de característica	
• parametrizable	Sí; software
— para termorresistencias	Pt100
Longitud del cable	
• apantallado, máx.	100 m

Salidas analógicas	
Nº de salidas analógicas	2
Canales integrados (AO)	2

Salida de tensión, protección contra cortocircuito	Sí
Salida de tensión, intensidad de cortocircuito, máx.	55 mA
Salida de intensidad, tensión en vacío, máx.	14 V
Rangos de salida, tensión	
• 0 a 10 V	Sí
• -10 V a +10 V	Sí
Rangos de salida, intensidad	
• 0 a 20 mA	Sí
• -20 mA a +20 mA	Sí
• 4 mA a 20 mA	Sí
Conexión de actuadores	
• para salida de tensión con conexión a 2 hilos	Sí; sin compensación de la resistencia de los cables
• para salida de tensión con conexión a 4 hilos	No
• para salida de corriente con conexión a 2 hilos	Sí
Resistencia de carga (en rango nominal de la salida)	
• con salidas de tensión, mín.	1 kΩ
• con salidas de tensión, carga capacitiva, máx.	0,1 µF
• con salidas de intensidad, máx.	300 Ω
• con salidas de intensidad, carga inductiva, máx.	0,1 mH
Límite de destrucción por tensiones y corrientes aplicadas desde el exterior	
• Tensiones en las salidas con respecto a MANA	16 V; permanente
• Intensidad, máx.	50 mA; permanente
Longitud del cable	
• apantallado, máx.	200 m

Formación de valor analógico para entradas	
Principio de medición	Codificación instantánea (aproximación sucesiva)
Tiempo de integración y conversión/resolución por canal	
• Resolución con rango de rebase (bits incl. signo), máx.	12 bit
• Tiempo de integración parametrizable	Sí; 16,6/20 ms
• Supresión de perturbaciones de tensión para frecuencia perturbadora f1 en Hz	50 / 60 Hz
• Frecuencia de entrada permitida, máx.	400 Hz
• Constante del filtro de entrada	0,38 ms
• Tiempo de ejecución básico del módulo (todos los canales habilitados)	1 ms

Formación de valor analógico para salidas	
Tiempo de integración y conversión/resolución por canal	
• Resolución con rango de rebase (bits incl. signo), máx.	12 bit
• Tiempo de conversión (por canal)	1 ms

Tiempo de estabilización	
• para carga resistiva	0,6 ms
• para carga capacitiva	1 ms
• para carga inductiva	0,5 ms
Sensor	
Conexión de los sensores	
• para medición de tensión	Sí
• para medición de corriente como transductor a 2 hilos	Sí; con alimentación externa
• para medición de corriente como transductor a 4 hilos	Sí
• para medición de resistencia con conexión a 2 hilos	Sí; sin compensación de la resistencia de los cables
• para medición de resistencia con conexión a 3 hilos	No
• para medición de resistencia con conexión a 4 hilos	No
Sensores compatibles	
• Sensor a 2 hilos	Sí
— Intensidad permitida en reposo (sensor a 2 hilos), máx.	1,5 mA
Error/precisiones	
Error de temperatura (referido al rango de entrada), (+/-)	0,006 %/K
Diafonía entre las entradas, mín.	60 dB
Precisión de repetición en estado estacionario a 25 °C (referido al rango de entrada), (+/-)	0,06 %
Ondulación de salida (referida al rango de salida, ancho de banda 0 a 50 kHz), (+/-)	0,1 %
Error de linealidad (referido al rango de salida), (+/-)	0,15 %
Error de temperatura (referido al rango de salida), (+/-)	0,01 %/K
Diafonía entre las salidas, mín.	60 dB
Precisión de repetición en estado estacionario a 25 °C (referido al rango de salida), (+/-)	0,06 %
Límite de error práctico en todo el rango de temperatura	
• Tensión, referida al rango de entrada, (+/-)	1 %
• Intensidad, referida al rango de entrada, (+/-)	1 %
• Resistencia, referida al rango de entrada, (+/-)	1 %
• Tensión, referida al rango de salida, (+/-)	1 %
• Intensidad, referida al rango de salida, (+/-)	1 %
Límite de error básico (límite de error práctico a 25 °C)	
• Tensión, referida al rango de entrada, (+/-)	0,8 %; Error de linealidad ±0,06%

• Intensidad, referida al rango de entrada, (+/-)	0,8 %; Error de linealidad ±0,06%
• Resistencia, referida al rango de entrada, (+/-)	0,8 %; Error de linealidad ±0,2%
• Termorresistencia, referida al rango de entrada, (+/-)	0,8 %
• Tensión, referida al rango de salida, (+/-)	0,8 %
• Intensidad, referida al rango de salida, (+/-)	0,8 %
Supresión de tensiones perturbadoras para (f1 +/- 1%), f1 = frecuencia perturbadora	
• Perturbación en modo serie (pico de la perturbación < valor nominal del rango de entrada), min.	30 dB
• Perturbación en modo común, mín.	40 dB

Interfaces	
Nº de interfaces Industrial Ethernet	0
Nº de interfaces PROFINET	0
Nº de interfaces RS 485	2; MPI y PROFIBUS DP
Nº de interfaces RS 422	0

1. Interfaz	
Tipo de interfaz	Interfaz RS485 integrada
Norma física	RS 485
con aislamiento galvánico	No
Alimentación en interfaz (15 a 30 V DC), máx.	200 mA
Protocolos	
• MPI	Sí
• Maestro PROFIBUS DP	No
• Esclavo PROFIBUS DP	No
• Acoplamiento punto a punto	No
MPI	
• Velocidad de transferencia, máx.	187,5 kbit/s
Servicios	
— Comunicación PG/OP	Sí
— Enrutado	Sí
— Comunicación de datos globales	Sí
— Comunicación S7 básica	Sí
— Comunicación S7	Sí; Solo servidor, conexión de configuración unidireccional
— Comunicación S7, como cliente	No; pero a través de CP y FB cargables
— Comunicación S7, como servidor	Sí

2. Interfaz	
Tipo de interfaz	Interfaz RS485 integrada
Norma física	RS 485
con aislamiento galvánico	Sí
Alimentación en interfaz (15 a 30 V DC), máx.	200 mA

Protocolos	
• MPI	No
• PROFINET IO-Controller	No
• PROFINET IO-Device	No
• PROFINET CBA	No
• Maestro PROFIBUS DP	Sí
• Esclavo PROFIBUS DP	Sí
• Acoplamiento punto a punto	No
Maestro PROFIBUS DP	
• Velocidad de transferencia, máx.	12 Mbit/s
• Nº de esclavos DP, máx.	124
Servicios	
— Comunicación PG/OP	Sí
— Enrutado	Sí
— Comunicación de datos globales	No
— Comunicación S7 básica	Sí; sólo bloques I
— Comunicación S7	Sí; Solo servidor, conexión de configuración unidireccional
— Comunicación S7, como cliente	No
— Comunicación S7, como servidor	Sí
— Equidistancia	Sí
— Modo isócrono	No
— SYNC/FREEZE	Sí
— Activar/desactivar esclavos DP	Sí
— Nº de esclavos DP activables/desactivables simultáneamente, máx.	8
— Comunicación directa de datos (esclavo-esclavo)	Sí; como suscriptor
— DPV1	Sí
Área de direcciones	
— Entradas, máx.	2 kbyte
— Salidas, máx.	2 kbyte
Datos útiles por esclavo DP	
— Entradas, máx.	244 byte
— Salidas, máx.	244 byte
Esclavo PROFIBUS DP	
• Archivo GSD	Encontrará el archivo GSD actual en Internet (http://www.siemens.com/profibus-gsd)
• Velocidad de transferencia, máx.	12 Mbit/s
• Búsqueda automática de velocidad de transferencia	Sí; sólo con interfaz pasiva
• Área de direcciones, máx.	32

• Datos útiles por área de direcciones, máx.	32 byte
Servicios	
— Comunicación PG/OP	Sí
— Enrutado	Sí; sólo con interfaz activa
— Comunicación de datos globales	No
— Comunicación S7 básica	No
— Comunicación S7	Sí; Solo servidor, conexión de configuración unidireccional
— Comunicación S7, como cliente	No
— Comunicación S7, como servidor	Sí
— Comunicación directa de datos (esclavo-esclavo)	Sí
— DPV1	No
Memoria de transferencia	
— Entradas	244 byte
— Salidas	244 byte

Funciones de comunicación	
Comunicación PG/OP	Sí
Enrutado de registros	Sí
Comunicación de datos globales	
• Soporta	Sí
• Nº de círculos GD, máx.	8
• Nº de paquetes GD, máx.	8
• Nº de paquetes GD, emisor, máx.	8
• Nº de paquetes GD, receptor, máx.	8
• Tamaño de paquetes GD, máx.	22 byte
• Tamaño de paquetes GD (de ellos, coherentes), máx.	22 byte
Comunicación S7 básica	
• Soporta	Sí
• Datos útiles por petición, máx.	76 byte
• Datos útiles por petición (de ellos, coherentes), máx.	76 byte; 76 bytes (con X_SEND o X_RCV), 64 bytes (con X_PUT o X_GET como servidor)
Comunicación S7	
• Soporta	Sí
• como servidor	Sí
• Como cliente	Sí; a través de CP y FB cargables
• Datos útiles por petición, máx.	180 kbyte; con PUT/GET
• Datos útiles por petición (de ellos, coherentes), máx.	240 byte; como servidor
Comunicación compatible con S5	
• Soporta	Sí; a través de CP y FC cargables
Nº de conexiones	

• total	12
• usable para comunicación PG	11
— reservadas para comunicación PG	1
— configurables para comunicación PG, mín.	1
— configurables para comunicación PG, máx.	11
• usable para comunicación OP	11
— reservadas para comunicación OP	1
— configurables para comunicación OP, mín.	1
— configurables para comunicación OP, máx.	11
• usable para comunicación básica S7	8
— reservadas para comunicación básica S7	0
— configurables para comunicación básica S7, mín.	0
— configurables para comunicación básica S7, máx.	8
• usable para enrutado	4; máx.

Funciones de aviso S7	
Número de estaciones conectables para funciones de aviso, máx.	12; depende de las conexiones configuradas para la comunicación PG/OP y S7 básica
Avisos de diagnóstico de proceso	Sí
Bloques Alarm-S activos simultáneamente, máx.	300

Funciones de test y puesta en marcha	
Estado de bloques	Sí; hasta 2 simultáneas
Paso individual	Sí
Nº de puntos de parada	4
Estado/forzado	
• Estado/forzado de variables	Sí
• Variables	Entradas, salidas, marcas, DB, tiempos, contadores
• Nº de variables, máx.	30
— de ellas, estado de variables, máx.	30
— de ellas, forzado de variables, máx.	14
Forzado permanente	
• Forzado permanente	Sí
• Forzado permanente, variables	Entradas, salidas
• Nº de variables, máx.	10
Búfer de diagnóstico	
• existente	Sí
• Nº de entradas, máx.	500
— Configurable	No
— de ellos seguros contra caída de red	100; Sólo son remanentes las 100 últimas entradas
• N.º de entradas legibles en RUN, máx.	499

— Configurable	Sí; de 10 a 499
— predeterminado	10
Datos de servicio técnico	
• Legibles	Sí
Alarmas/diagnósticos/información de estado	
LED señalizador de diagnóstico	
• Señalizador de estado entrada digital (verde)	Sí
• Señalizador de estado salida digital (verde)	Sí
Funciones integradas	
Nº de contadores	4; Ver manual "Funciones tecnológicas"
Frecuencia de contaje (contadores), máx.	60 kHz
Medida de frecuencia	Sí
Nº de frecuencímetros	4; hasta máx. 60 kHz (ver manual "Funciones tecnológicas")
Posicionamiento en lazo abierto	Sí
Bloques de función integrados (regulación)	Sí; Regulador PID (ver manual "Funciones tecnológicas")
Regulador PID	Sí
Nº de salidas de impulsos	4; Modulación de ancho de impulso hasta máx. 2,5 kHz (ver manual "Funciones tecnológicas")
Frecuencia límite (impulsos)	2,5 kHz
Aislamiento galvánico	
Aislamiento galvánico módulos de E digitales	
• Aislamiento galvánico módulos de E digitales	Sí
• entre los canales	No
• entre los canales y bus de fondo	Sí
Aislamiento galvánico módulos de S digitales	
• Aislamiento galvánico módulos de S digitales	Sí
• entre los canales	Sí
• entre los canales, en grupos de	8
• entre los canales y bus de fondo	Sí
Aislamiento galvánico módulos de E analógicas	
• Aislamiento galvánico módulos de E analógicas	Sí; junto para la unidad periférica analógica
• entre los canales	No
• entre los canales y bus de fondo	Sí
Aislamiento galvánico módulos de S analógicas	
• Aislamiento galvánico módulos de S analógicas	Sí; junto para la unidad periférica analógica
• entre los canales	No
• entre los canales y bus de fondo	Sí
Aislamiento	
Aislamiento ensayado con	600 V DC
Condiciones ambientales	

Temperatura ambiente en servicio	
• mín.	0 °C
• máx.	60 °C

Configuración

Software de configuración	
• STEP 7	Sí; STEP 7 V5.5 + SP1 y superiores o STEP 7 V5.3 + SP2 y superiores con HSP 203
• STEP 7-Lite	No
programación	
• Juego de operaciones	Ver Lista de operaciones
• Niveles de paréntesis	8
• Funciones de sistema (SFC)	Ver Lista de operaciones
• Bloques de función de sistema (SFB)	Ver Lista de operaciones
Lenguaje de programación	
— KOP	Sí
— FUP	Sí
— AWL	Sí
— SCL	Sí
— CFC	Sí
— GRAPH	Sí
— HiGraph®	Sí
Protección de know-how	
• Protección de programas de usuario/Protección por contraseña	Sí
• Codificación de bloque	Sí; con bloque S7 Privacy

Dimensiones

Ancho	120 mm
Altura	125 mm
Profundidad	130 mm

Pesos

Peso, aprox.	680 g

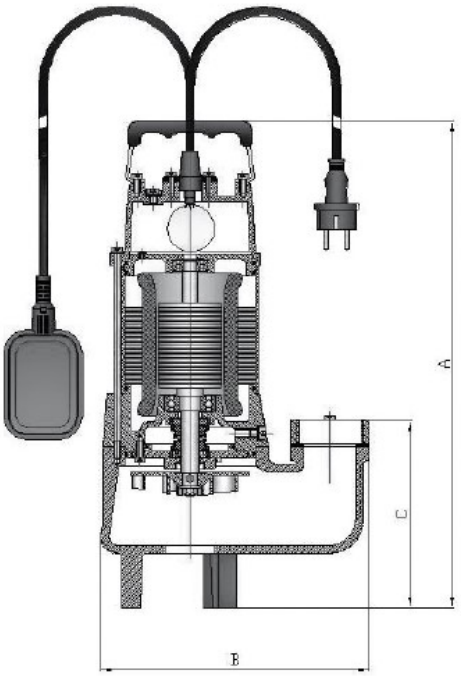
Última modificación: 19/08/2020

CARATTERISTICHE TECNICHE / *TECHNICAL PERFORMANCE*

Modello - *Model*		P2		P1 (kW)	Ampere		Q (m³/h - l/min)									
230V - 50Hz Monofase *Single-phase*	400V - 50Hz Trifase *Three-phase*	(kW)	(HP)		1ph	3ph	0	0,6	3,0	4,8	6,0	7,2	9,0	10,8	12,0	15,0
							0	10	50	80	100	120	150	180	200	250
							H (m)									
XTVS 35/G		0,28	0,36	0,45	2,10		7,0	6,9	6,5	5,6	4,9	4,1	3,2	2,2	1,9	
XTVS 50/G		0,37	0,50	0,55	2,60		8,0	8,0	7,8	7,2	7,0	6,5	5,8	3,9	3,2	0,8

Modello - *Model*		P2		P1 (kW)	Ampere		Q (m³/h - l/min)									
230V - 50Hz Monofase *Single-phase*	400V - 50Hz Trifase *Three-phase*	(kW)	(HP)		1ph	3ph	0	3,0	6,0	9,0	12,0	15,0	18,0	21,0	27,0	34,8
							0	50	100	150	200	250	300	350	450	580
							H (m)									
XTVS 75/G	XTVS 75/T	0,55	0,75	0,95	4,20	1,80	8,2	7,5	7,0	6,0	3,6	2,0				
XTVS 100/G	XTVS 100/T	0,75	1,0	1,15	5,30	2,00	9,5	9,0	8,0	7,0	5,7	4,3	2,4	0,5		
XTVS 150/G	XTVS 150/T	1,1	1,5	1,55	7,50	2,60	13,0	12,0	10,7	9,2	7,3	6,3	5,0	3,7	0,5	
XTVS 200/G	XTVS 200/T	1,5	2,0	1,70	9,70	3,90	14,0	13,2	12,0	10,5	8,8	7,9	6,7	5,5	3,0	0,5

Modello *Model*	Dimensioni *Dimensions*			DNM	Peso *Weight* kg
	A	B	C		
XTVS 35	360	165	80	1" 1/4	8,5
XTVS 50	400	165	80		9,0
XTVS 75	438	246,5	172,5	2"	16,0
XTVS 100	448	246,5	172,5		18,0
XTVS 150	458	246,5	172,5		19,0
XTVS 200	458	246,5	172,5		20,0



Laser Level Transmitter
Reliable Measurement in Narrow Vessels

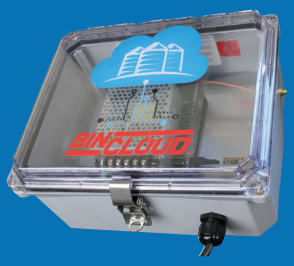
The LL-100 laser level measurement sensor is used for level control, plugged chute detection, and monitoring buildup. This non-contact device can be used in bulk solids, pellets, or granular materials of all material dielectrics in a variety of vessels. Laser can also be used in opaque liquids. It measures in a tight 1° beam, so there is no beam divergence, making it suitable for use in very narrow vessels or constrained spaces. Narrow beam laser measurement technology is resistant to reliability issues caused by surface angle, slope, texture, granularity, or material color.

Highly Accurate with a Rapid Update Rate

The laser level measurement sensor has a measuring range up to 160 feet and is highly accurate up to +/- 1 inch. It offers continuous level monitoring with a rapid update rate of eight times per second. The LL-100 can be aimed with great precision, making it suitable for vessels with interfering structure or with corrugation. It can also be applied in cramped, restrictive process equipment such as chutes or hoppers, or in confined equipment such as crushers. Laser is unaffected by heavy vapors and pressure making it very versatile across a wide variety of industries and materials.

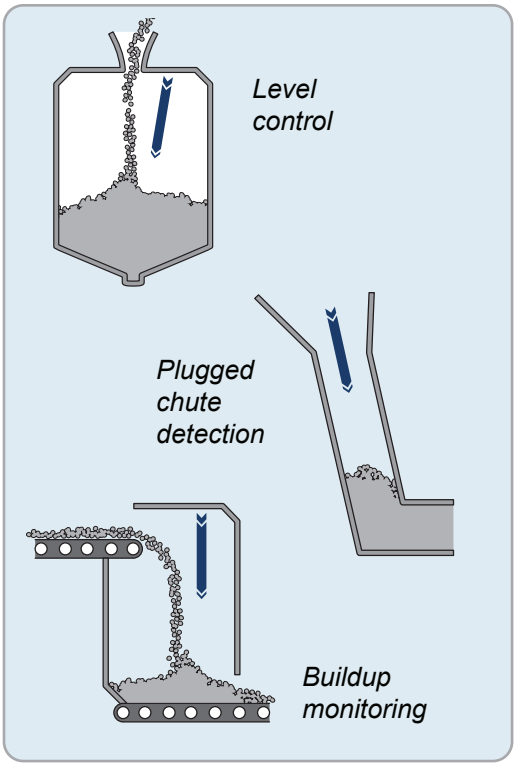
Reliable level or plugged chute detection:

- **Adjustable mounting flange flexible up to 10 degrees**
- **Narrow beam can be directed to the output or bottom of the silo**
- **Compatible with the BinCloud® Gateway and BinView**
- **Easily configured in the field using a USB port**
- **Configuration can be performed without filling or emptying the silo**
- **Integrated still-air barrier prevents dust particles from interfering with the optics**
- **Air purge option to keep lenses free of dust for reliable performance**



Simple Setup & Operation

The LL-100 requires 24 VDC input power and produces a 4-20 mA output. A USB port is used to input configuration parameters and adjust settings. The USB port can also be used to power, configure, and align the sensor in the event power is not available in the field. The status of the device can be viewed on a terminal device using the USB port.



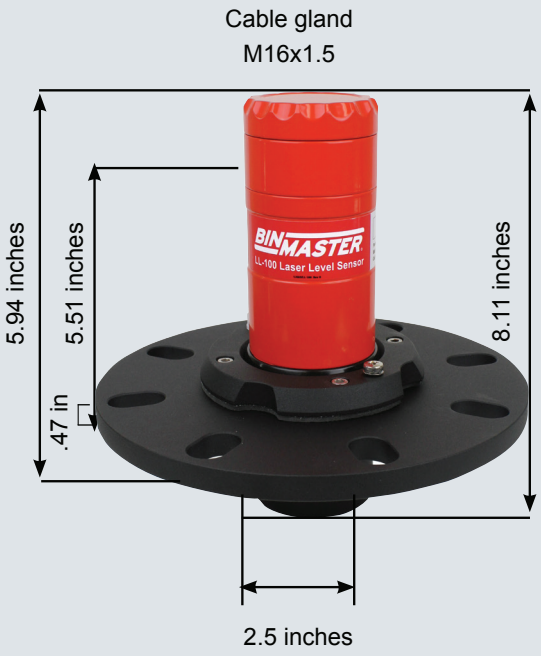
Flexible Mounting up to 10°

The LL-100 installs through a 2.5 inch process connection or a 4 inch flange connection on the roof of the silo, or is mounted inside the silo on a bracket above the material being measured. To point the laser beam at the desired measurement point, simply loosen the clamp ring on the adjustable flange and aim the body of the sensor to the desired angle. Then, tighten the clamp ring to hold the desired position.

The 4-20 mA outputs are used to set the full and empty parameters for the silo. The LL-100 laser sends pulses to the material surface and uses advanced algorithms to convert the timing of the pulses to a very accurate distance measurement. The sensor firmware automatically takes into account when the sensor is mounted at an angle, and adjusts the absolute distance accordingly.

Industrial Applications

- Minerals & mining
- Aggregates
- Ores
- Crushers
- Plastic
- Chemicals
- Fertilizer
- Pulp & paper
- Grains
- Biomass
- Food processing
- Power plants



Specifications

Range: 1 ft. to 160 ft. (.3m to 50m)
Resolution: 10mm
Accuracy: 1 standard deviation = 1 inch (2,5 cm)
Update Rate: 8 readings per second
Output: 4-20 mA NAMUR
Filling Rate: 0,01 to 100m/min
Power Supply: 24 VDC nominal (12-28 VDC)
Communication: USB 115200 baud 8-N-1
Operating Temperature: -4°F to 160°F (-20°C to 50°C)
Electrical Connection: M16 x 1,5
Enclosure Rating: IP66
Air Purge: 1/8" BSP option
Housing Material: Anodized aluminum
Lens Material: Impact-resistant acrylic
Beam Divergence to half power points: <1°
Laser Safety Classification: Class 1M
Caution: Do not view laser directly with optical instruments.

BINMASTER®

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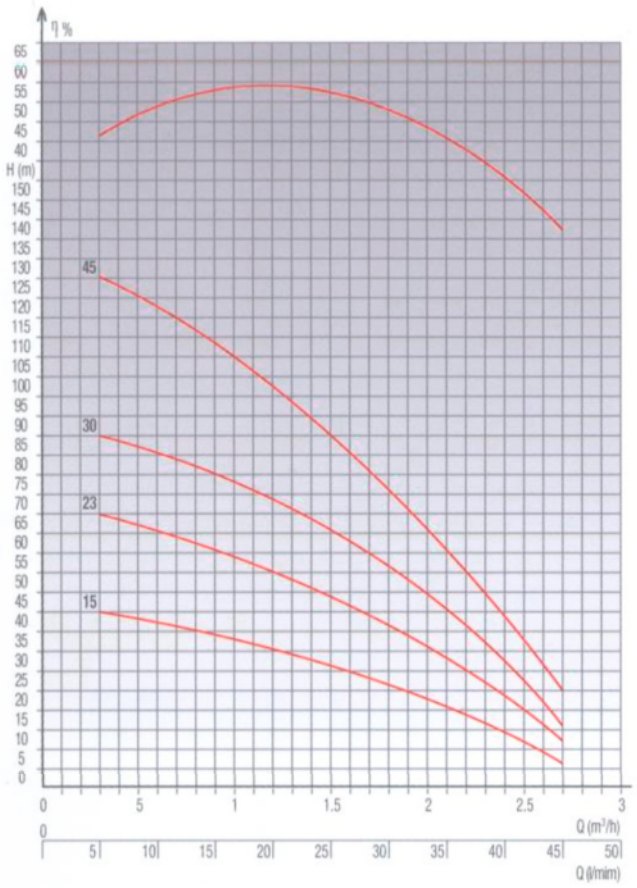
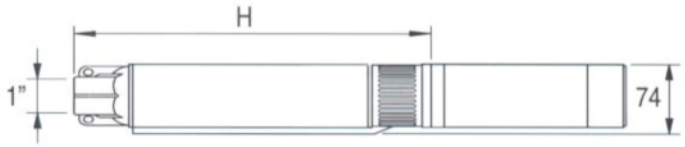
LLMS-BLC-0121

S3P





Tipo Type Type	Motore Motor Moteur		Q	Portata - Capacity - Debit							Dimensioni e Pesi Dimension and Weight Dimension et Masses	
			m³/h	0.3	0.6	0.9	1.2	1.8	2.4	2.7		
	kw	HP	L/min.	5	10	15	20	30	40	45	H/mm	kg
T3-15	0.33	0.50	PREVALENZA m TOTAL HEAD m HAUTEUR D'ELEVATION m	46	42	39	36	28	15	7	580	3.3
T3-23	0.55	0.75		70	66	61	55	43	24	13	780	4.4
T3-30	0.75	1		92	86	80	73	57	33	17	1000	5.6
T3-45	1.1	1.5		128	119	112	103	75	47	28	1380	7.6

Descrizione

Pompe sommerse centrifughe multistadio, per pozzi da 3", particolarmente adatte per impianti di sollevamento e distribuzione.

Impieghi

Impianti idrici, per usi domestici ed industriali, in servizio continuo o intermittente.
Impianti di pressurizzazione.
Impianti di irrigazione.

Caratteristiche costruttive

Flangia di accoppiamento al motore e corpo di mandata in ottone o acciaio inox.
Valvola di ritegno incorporata.
Giranti e diffusori in Noryl e diffusori in Poliacetalico autolubrificante.
Camicia, albero pompa, giunto, coprifilo, griglia di aspirazione e viterie realizzati in acciaio inox.
Max ø pompa 74 mm.

Description

Submersible multistage centrifugal pumps for 3" wells, particularly suitable for water rising and distribution installations.

Applications

Water plants and systems for residential and industrial use, for continuous or intermittent duty operation.
Pressurizing system.
Irrigation plants.

Design features

Motor coupling flange and discharge head are made in brass or stainless steel.
Incorporated non-return check valve.
Impellers and diffusers in Noryl and diffusers in self-lubricating Polyacetal.
Shell, pump shaft, coupling, cable shield, suction screen and all screws are in stainless steel.
Max ø pump 74 mm.

Description

Pompes immergées centrifuges multietagées pour puits de 3", conçues particulièrement pour installations d'élévation et distribution de l'eau.

Applications

Installations et systèmes pour utilisation domestique et industrielle, en service intermittent ou continu.
Systèmes de pressurisation.
Stations d'irrigation.

Caractéristiques constructives

Bride d'accouplement au moteur et pièce de refoulement en laiton ou en acier inox.
Clapet anti-retour incorporé.
Roues et diffuseurs en Noryl et diffuseurs Polyacétal auto-lubrifiant.
Chemise, arbre, accouplement, protège câble, crépine d'aspiration et boulons sont en acier inox.
Max ø pompe 74 mm.

Bocca di mandata in ottone o acciaio inox.
Brass or stainless steel discharge head.
Piece de refoulement en laiton ou en acier inox.

1

Valvola di non-ritorno incorporata sulla testata.
Discharge head non return valve.
Clapet anti-retour incorporé.

2

Bronzina superiore in gomma antisabbia.
Upper bush made in anti-sand rubber.
Palier superieur en caoutchouc anti sable.

3

Giranti in Noryl e diffusori in poliacetalico autolubrificante.
Impellers in Noryl and diffusers in self-lubricating polyacetal.
Roues en Noryl et diffuseurs en polyacetal auto-lubrifiant.

4

Camicia in acciaio inox.
Stainless steel shell.
Chemise en acier inox.

5

Filtro in acciaio inox.
Stainless steel strainer.
Crepine en acier inox.

6

Flangia d'accoppiamento in ottone o acciaio inox.
Brass or stainless steel bracket to couple to the motor.
Bride d'accouplement au moteur en laiton ou en acier inox.

7

Relación de documentos

(X) Memoria 93 páginas
(_) Anexos 104 páginas

La Almunia, a 06 de 06 de 2023

Firmado: Guillermo Aldunate Ozcariz