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User's Manual

External control unit

External Control Unit Perfomaster

simco.nl/0930

This manual was originally written in English.

The product may have undergone changes that are not reflected in this manual.

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Explanation of symbols

The following symbols may appear in this manual or on the product

WARNING Indicates special information to prevent injury or significant damage to the product or the environment

DANGER Indicates information for preventing electric shocks

SHARP EDGES Indicates information for preventing injury by sharp edges

NOTE Important information for making the most efficient use of the product and for preventing damage to the product or the environment

HINT Advice about the use of the product

CLASS II EQUIPMENT with functional earthing

MANUAL OPERATION The product is connected to a power source. Eventual communication takes place analogously via the connector.

Preface

This manual is intended for the installation and use of the External Control Unit Perfomaster.

This manual must always be accessible to the operating personnel.

Read this manual completely before installing and commissioning this product.

Instructions in this manual must be followed to ensure proper operation of the product and to make a warranty claim.
The warranty provisions are described in the General Terms and Conditions of Sale of Simco (Nederland) B.V.

NOTE

If there are any problems or doubts, please get in touch with Simco-ION Netherlands or the agent in your region.

NOTE

Product names may be abbreviated in the documentation.

Below the abbreviations and full product names with the link to the relevant documentation.

Abbreviated product name	Full Simco-ION product name	Documentation link
External Control Unit Perfomaster Also named: device, external control unit, control unit, product	External Control Unit Perfomaster	0932

Introduction

Device applications

The External Control Unit Perfomaster is used to set the high voltage of the Perfomaster, to convey the output pulse of the Perfomaster and to pass that pulse on to a PLC. The External Control Unit Perfomaster is available for the Perfomaster type PM 2010 (Setpoint 0 10 V) or for the Perfomaster type PM 2024 (Setpoint 0 24 V).

Specific conditions of use

The product is intended to be a part of a machine or process.

The product must NOT be used in a fire or explosion-hazardous environment.

Device description

The External Control Unit Perfomaster is connected to a Perfomaster using a 5-pole cable. The power supply for the Control Unit is connected to the MACHINE-connector. This also acts as the power supply for the Perfomaster connected to the DEVICE-connector. The level of the output voltage is set by using the dial on the External Control Unit Perfomaster. The detection pulse from the Perfomaster is passed on to the connected PLC and is also visualised by the indicator LED on the External Control Unit Perfomaster.

Available device versions

The External Control Unit Perfomaster has the following device versions:

- 0932 xx xxxx External Control Unit Perfomaster

Names and functions of the device parts

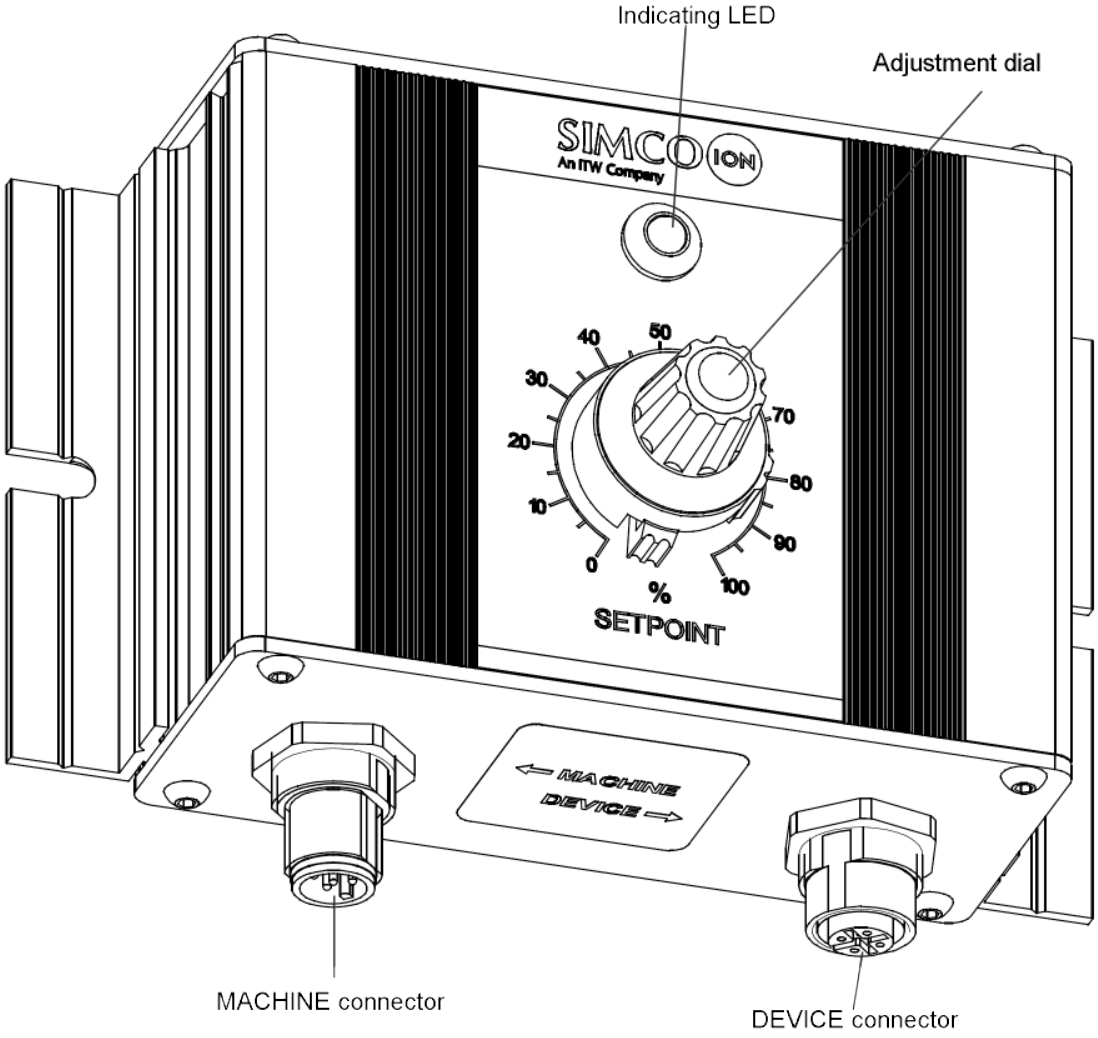

Figure: device parts

Description and operation

Checking package contents

Device

Warranty card

Safety

The following safety guidelines must be observed in order to avoid injuries and damage to objects or the product.

WARNING

- All work on the electrical system, including installation and repair, must be carried out by trained personnel in accordance with national and local regulations.
- The product must not be used in a fire or explosion-hazardous environment.

DANGER

- Never use a damaged product. Touching the live parts will cause an electric shock.
- Read the manual of the connected device for more information about the potential hazards of high voltages and installation instructions.
- The power must be turned off before any work on the equipment is started to prevent electric shock.
- The device is only intended for use with the Perfomaster only. Any other use is not allowed.

NOTE

- Making modifications, adjustments, etc., without prior written consent or carrying out repairs using non-original parts will invalidate the equipment's guarantee and withdraw the CE approval for the product.

Technical specifications

MACHINE-connector input	
Supply voltage	21 – 27 V DC
Current consumption	Max. 0,5 A DC (incl. Perfomaster connected)
MACHINE-connector output	
Output pulse	24V, max. 30 mA
Pulse duration	15 ms ±300 µs
Connection	M12 connector, 5-pin, male
DEVICE-connector input	
Open collector pulse connector	24V, max. 50 mA
DEVICE-connector output	
Perfomaster power supply	21 27 V DC, max. 0,5 A
V_{SET} for Perfomaster PM-2010	0 – 10 V, max. 1 mA
V_{SET} for Perfomaster PM-2024	0 – 24 V, max. 1 mA
Connection	M12 connector, 5 pole, female

Mechanical

Dimensions (lxwxh)	106 x 141 x 70 mm
Weight	0,35 kg

Material

Device part	**Material**
Casing	Aluminium

Ambient conditions

Use	Industrial, indoor use
Ingress Protection class	IP52
Temperature Ambient (Tamb)	0–55°C
Installation	Dust-free

Dimensions

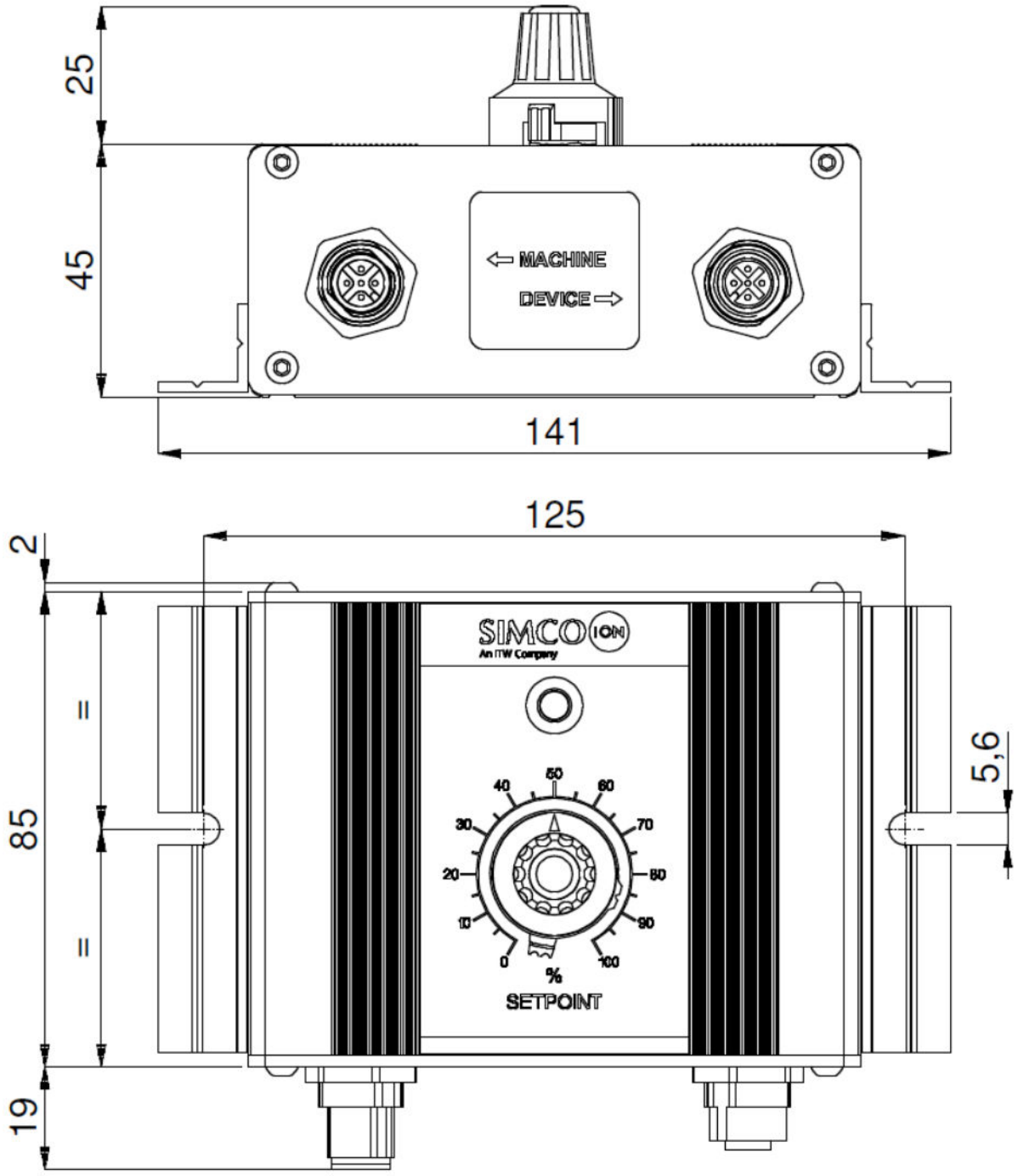

Figure: Dimensions External Control Unit Perfomaster

Installation precautions

Checks

- Check that the device is undamaged and that the correct version has been received.
- Check whether the necessary accessories are included.
- Check whether the details of the packing slip correspond to the details of the product received.

NOTE

If there are any problems or doubts, please get in touch with Simco-ION Netherlands or the agent in your region.

WARNING

- The equipment must be properly earthed. Earthing is necessary to ensure proper and safe operation and to prevent electric shocks upon contact.
- All work on the electrical system, including installation and repair, must be carried out by trained personnel in accordance with national and local regulations.
- The power must be turned off before any work on the equipment is started to prevent electric shock.
- Read the manual of the connected device for more information about the potential hazards of high voltages and installation instructions.

NOTE

The Control Unit is not to be used in a damp or dusty environment or an environment where chemicals or other corrosive materials are in use.

Connecting the Control Unit

- Use a device cord M12 female male to connect the Perfomaster to the device connector.
- Use a device connector M12 female or a device cord M12 female to connect the power

supply and the PLC output.

- See the following pages for the connections of the Control Unit and the Perfomaster.

Standard connection cables and connectors are available through Simco-Ion or your regional agent. See spare parts list in chapter spare parts.

NOTE

Both the GND of the power supply connected using the power cables of the Control unit and the external earth cable of the Perfomaster have to be earthed. Connect the external earth cable of the Perfomaster to an earthed machine part.

Mechanical installation

Mounting the External Control Unit Perfomaster

- Mount the Control Unit on a clearly visible, easily reached and stabile location on or close to the machine.
- Mount the Control Unit using 2 screws in the 2 notches in the flanges of the Control Unit.

Electrical connection

Connecting the Perfomaster

NOTE

- Always use a device connector suitable for the device type.
- When connecting the device connector to the device, never use a torque higher than 0,5 Nm (hand-tight). A higher torque may damage the connector or the device.
- The device male input connector can NOT be rotated. Rotating the connector will damage the device.

NOTE

Both the GND of the power supply connected using the power cables of the Control unit and the external earth cable of the Perfomaster have to be earthed. Connect the external earth cable of the Perfomaster to an earthed machine part.

- Use a device cord M12 female male to connect the Perfomaster to the device connector.
- Use a device connector M12 female or a device cord M12 female to connect the power supply and the PLC output.
- See the figure and table below for the connections of the Control Unit and the Perfomaster.

Standard connection cables and connectors are available through Simco-Ion or your regional agent. See spare parts list in chapter spare parts..

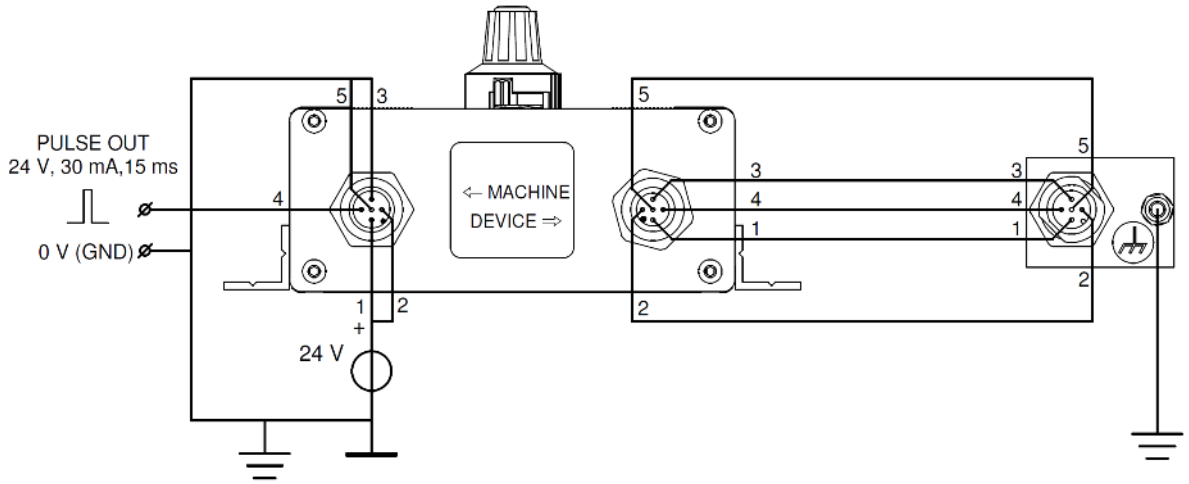

Figure: Electrical connections

Table: *Machine connector*

Machine connector		
Pin	**Name**	**Cable colour (standard)**
1	+24V DC	Brown
2	+24V DC	White
3	0V / GND	Blue
4	Pulse out	Black
5	0V / Earth	Yellow/green or grey

Table: *Device connector*

Device connector (Perfomaster)		
Pin	**Name**	**Cable colour (standard)**
1	+24V DC	Brown
2	Detector +	White
3	0V / GND	Blue
4	Detector	Black
5	Vset	Yellow/green or grey

Commissioning

- Consult chapter Commissioning of the Perfomaster user manual before commissioning and operating the Perfomaster.
- The level of the input power of the Perfomaster is set using the dial on the Control Unit.
- It is recommended to set the input power on 0 V at first (turn the dial all the way to the left) and to increase it later on.

Functional check

The system is working properly when the LED lights on the Perfomaster are green and light up red at each perforation. A single PLC pulse is relayed at each perforation, even if the material passes slowly and the breakthrough at perforation takes longer than 15 ms.

NOTE

If the level of power needs to be set higher than usual on a regular basis, or if the maximum setting is not sufficient, the electrodes may be dirty or worn. See chapter Faults for solutions.

Maintenance

General maintenance rules

- Keep the device clean and dry.
- Switch off the device before cleaning.
- Clean the device regularly to improve the operation.
- Check the connection cable(s) periodically for damage.

Regular cleaning

NOTE
The cleaning interval time depends on the type and degree of contamination.

The higher the degree of environmental contamination, the shorter the cleaning interval must be.

- Brush the dirty parts with a hard, non-metallic brush.
- Vacuum the device or blow it off with clean compressed air (max. 6 bar).

The External Control Unit Perfomastercontains no parts that require periodic maintenance.

For maintenance of the connected Perfomaster, see the corresponding manual.

Troubleshooting

WARNING

Disconnect the power supply before carrying out work on the unit

Work must only be carried out on the equipment by an electrical engineer with the relevant training and qualifications

Refer to the Perfomastermanual for problems regarding the Perfomaster.

Table: Faults with the Perfomaster

Problem	Possible cause	Solution
LED's on Perfomasterdo not light up	No power supply	Connect to power supply
	Wiring fault	Locate fault and repair. See chapter installation.
Output pulses are not detected	Output voltage is too low	Increase output voltage by changing voltage settings. See chapter installation.
	Wiring fault	Locate fault and repair. See chapter installation.
	Output Control Unit connected to the wrong type of PLC input	Control Unit provides a 24 V pulse of 15 ms to earth. Select suitable input to the PLC.

Warranty

The Simco-ION warranty conditions are described in and published on the internet.
These conditions can be viewed on:

https://www.simco-ion.co.uk/wp-content/uploads/Extended-warranty-conditions_GB.pdf

Simco-ION Warranty Conditions GB

Warranty Period

The device has a one-year warranty as standard, which commences on the invoice date.

The warranty becomes four years by registering the device on the Simco-ION website.

To register the device, it is necessary to state the serial number of the device. This information can be found on the device nameplate.

https://www.simco-ion.co.uk/warranty

Warranty registration site GB

Repairs

Review these conditions before submitting equipment for repair (RMA procedure) to Simco-ION.

NOTE

- Only Simco-ION can and may repair this product.
- In the event of a defect within or outside the warranty, the product can be offered to Simco-ION for repair.

- Refer to the problem analysis in chapter Troubleshooting, and follow the advice.
- If it is certain that the Simco-ION product causes the problem, offer it for repair.
- Use the RMA procedure before offering the product to Simco-ION.

Return Merchandise Authorisation

In case of problems and questions, please get in touch with Simco-ION or a Simco-ION representative in your region.

A malfunctioning or defective product can be returned to Simco-ION for repairs following the RMA (Return Merchandise Authorisation) procedure below.

RMA Request

- Fill in the Simco-ION RMA form at

  https://www.simco-ion.nl/repair or

  https://www.simco-ion.co.uk/repair
- By entering the item and serial numbers, you can determine whether your product will be repaired under warranty or if costs are involved.

Return sending

- Pack the defective product properly.
- Indicate the RMA number on the package.
- Send the package to the stated return address of Simco-ION.

Storage and disposal

Storage

Always store the Simco-ION products in a dry and cool place.

Disposal

- When disposing of the product, follow the local environmental regulations.
- Do not dispose the product with regular waste at the end of its life, but offer it at an official point. This way, you help to protect the environment.

Spare parts

Table: *general spare parts*

Part number	Description
9526350065	Button ø23 mm lockable
6811113020	Cover button ø23 mm

Table: *connectors and connection cables MACHINE-connector spare parts*

Part number	Description
7519020350	Connector device M12 female right ø4 6 mm cables
7519020351	Connector device M12 female right ø6 8 mm cables
7519020355	Connector device M12 female right-angled ø4 6 mm cables
7519020356	Connector device M12 female right-angled ø6 8 mm cables
7519020365	Cable device M12 female right 5 m
7519020366	Cable device M12 female right 10 m
7519020380	Cable device M12 female right 10 m shielded cable carrier
7519020375	Cable device M12 female right-angled 5 m
7519020375	Cable device M12 female right-angled 10 m

Table: *connectors and connection cables DEVICE-connectors spare parts*

Part number	Description
7519020352	Connector M12 male right ø4 6 mm cables
7519020353	Connector M12 male right ø6 8 mm cables
7519020357	Connector M12 male right-angled ø4 6 mm cables
7519020358	Connector M12 male right-angled ø6 8 mm cables
7519020383	Cable device M12 female male right 5 m shielded cable carrier
7519020384	Cable device M12 female male right 10 m shielded cable carrier
7519020386	Cable device M12 female male right 5 m cable carrier
7519020387	Cable device M12 female male right 10 m cable carrier
7519020390	Cable device M12 female male right 2 m
7519020391	Cable device M12 female male right 5 m
7519020392	Cable device M12 female male right 10 m

Spare parts can be obtained from the agent in your region or from Simco-Ion Netherlands.

Closing

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