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External Control Unit Perfomaster



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Preface

This manual is intended for the installation and use of the External Control Unit Perfomaster, in this guide also referred to as Control Unit. The Control Unit is used in combination with Perfomaster.

This manual must always be accessible to the operating personnel. Read this manual in its entirety before using this product.

Instructions given in this manual should be followed to ensure the proper working of the product and in order to avoid possible violation of the warranty terms.

The warranty terms are described in the SIMCO (Nederland) B.V. general terms and conditions.

Explanation of symbols



Warning

Indicates special information for preventing injury or significant damage to the product or the environment.



Danger

Indicates information for preventing electrical shocks.



Note

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

1 Introduction

The Control Unit 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 Control Unit is available for the Perfomaster type PM-2010 (Setpoint 0-10 V) or for the Perfomaster type PM-2024 (Setpoint 0-24 V).

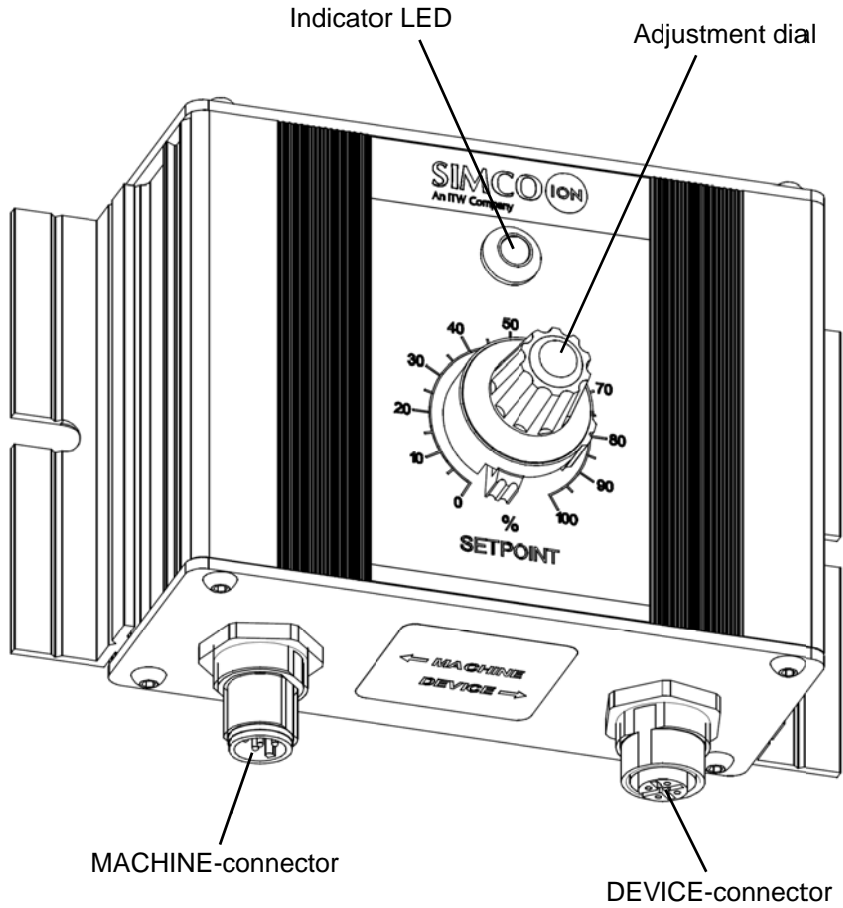


Fig. 1, External Control Unit Perfomaster

2 Description and operation

The Control Unit 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 Control Unit. The detection pulse from the Perfomaster is passed on to the connected PLC and is also visualised by the indicator LED on the Control Unit.

3 Safety

The following safety guidelines must be observed in order to prevent physical injury and damage to objects or to the Control Unit itself.



Danger:

- Read the Perfomaster manual for more information about the potential hazards of high voltages!



Warning:

- Electrical installation and repairs must be carried out by a skilled electrical engineer with the relevant training and qualifications.
- Disconnect the power supply before carrying out work on the unit.
- The Control Unit must not be used in environments that pose a fire or explosion hazard.
- The Control Unit is intended for use with the Perfomaster only. Any other use is not allowed.



Note:

- Making changes, adjustments etc. without prior written consent or carrying out repairs using non-original parts will invalidate the equipment's guarantee.

4 Technical specifications

MACHINE-connector

Input:	Power supply	21 - 27 V DC
	Energy consumption	Max. 0,5 A (incl. Perfomaster connected)
Output:	Output pulse	24 V, max. 30 mA
	Pulse duration	15 ms \pm 300 μ s
Connection		M12-connector, 5-pole, male

DEVICE-connector

Input:	Open collector pulse connector	24V, max. 50 mA
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

Environment

Operating environment	Industrial, operation inside
Temperature	0 - 55°C
Installation	Dust-free
Protection class	IP-52

Mechanical

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

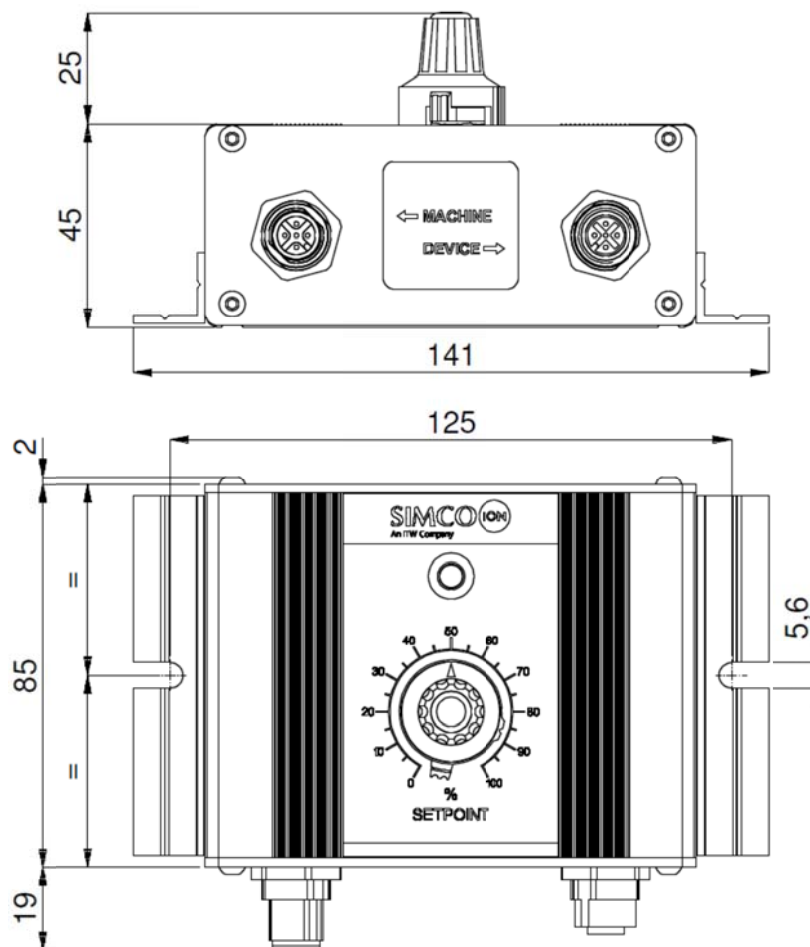


Fig. 2, Dimensions External Control Unit Perfomaster

5 Installation



Warning:

- **Electrical installation and repairs must be carried out by a skilled electrical engineer with the relevant training and qualifications.**
- **Disconnect the power supply before carrying out work on the unit.**
- **The Control Unit and the Perfomaster must be properly earthed. Earthing is needed to ensure proper operation of the equipment and to avoid electrical shocks upon contact.**
- **Read also the installation instructions for the Perfomaster before mounting and connecting the Perfomaster on the Control Unit and the machine.**



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.

5.1 Check

- Check whether the equipment received is undamaged and in the version required.
- Check whether the information on the delivery note corresponds with the information of the product received.

Contact SIMCO (Nederland) B.V. or your regional agent in case of problems and/or doubts.

5.2 Mounting the Control Unit

- Mount the Control Unit on a clearly visible, easily reached and stable 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.

5.3 Connecting the Control Unit



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 fig. 3 and Table 1 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 on page 9.

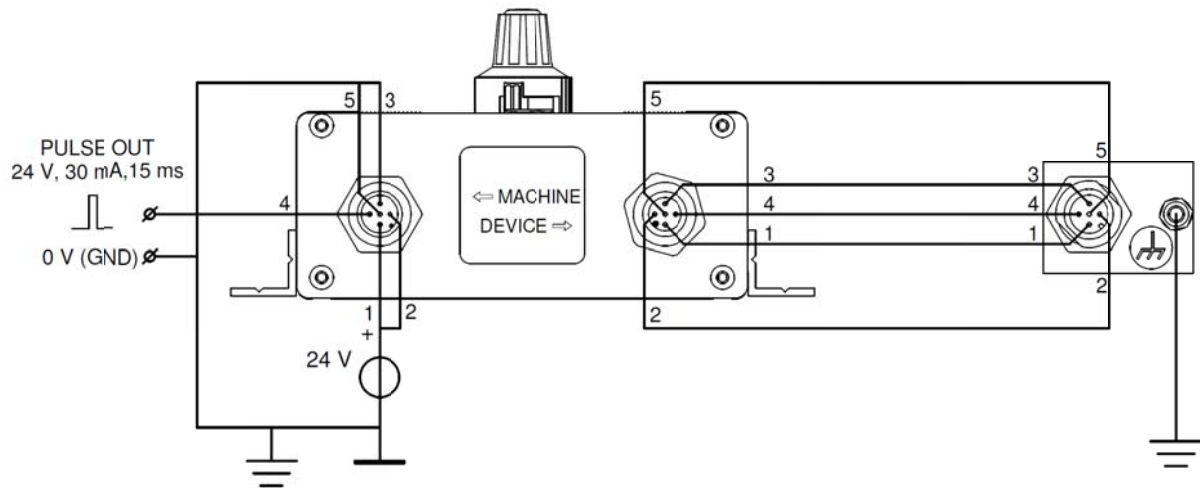


Fig. 3, External Control Unit - Perfomaster connections.

Table 1, 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 2, 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	V _{SET}	Yellow/green or grey

6 Commissioning and operation

- Consult chapter 6 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.

7 External Control Unit and checking the Perfomaster

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 9 (Faults) for solutions.

8 Maintenance



Warning:

- **Disconnect the power supply before carrying out work on the unit.**
- Keep the Control Unit free of moisture, dust, dirt and chemicals.
- The Control Unit contains no parts that require periodic maintenance.
- For maintenance of the connected Perfomaster, see the corresponding manual.

9 Faults



Warning:

- **Disconnect the power supply before carrying out work on the unit.**
- **Electrical installation and repairs must be carried out by a skilled electrical engineer with the relevant training and qualifications.**
- **Refer to the Perfomaster manual for problems regarding the Perfomaster.**

Table 3, trouble shooting

Problem	Possible Cause	Solution
LED's on Perfomaster do not light up	No power supply	Connect to power supply
	Wiring fault	Locate fault and repair. See 5.3
Output pulses are not detected	Output voltage is too low	Increase output voltage by changing voltage settings. See 6
	Wiring fault	Locate fault and repair. See 5.3
	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.

10 Repairs



Warning:

- **Disconnect the power supply before carrying out work on the unit.**
- **Electrical installation and repairs must be carried out by a skilled electrical engineer with the relevant training and qualifications.**

Control Unit parts cannot be repaired. To order parts, see the spares list.
 Request an RMA form for any returns by sending an email to service@simco-ion.nl.
 Pack the equipment properly and clearly state the reason for return.

11 Disposal



At the end of its service life, do not throw the device away with the normal waste but hand it in at an official collection point. By doing so, you will help to protect the environment.

Spare parts

Part number Description

General

9526350065 Button ø23 mm lockable
6811113020 Cover button ø23 mm

Connectors and connection cables MACHINE-connector

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

Connectors and connection cables DEVICE-connector

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 (Nederland) B.V.

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