

STOP MODULE

Installation, use and maintenance manual

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1. Introduction

1.1. Purpose of the manual

The purpose of this manual is to provide users with detailed information on the installation, operation, and maintenance of the product, with special regard to safety regulations.



WARNING

Read the manual carefully before installing and using the product.



WARNING

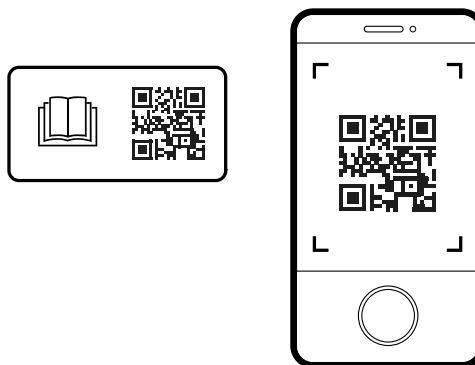
Failure to follow the instructions may result in damage to the product, the system in which it is installed and, in the worst cases, damage to property or persons with even fatal consequences.



NOTE

Store the manual in a protected and easily accessible place next to the installation location for possible consultation. A digital copy of this manual can be downloaded from the manufacturer's website or via the QR code shown on the product itself.

The complete installation, use and maintenance manual of the product, constantly updated in its contents, can be downloaded by scanning the QR code shown in the product with the smartphone camera and following the relative link.



1.2. Product overview

STOP MODULE, available as an accessory to the pumps NERA, it is equipped with:

- MC4 connectors for quick and easy panel connection.
- Button for starting and stopping the pump.
- Connections for floater and pressure switch.
- Protection against overvoltage

2. Safety

2.1. Symbols



TIP

This symbol indicates a TIP or recommendation.



NOTE

This symbol indicates a NOTE or an indication or concept to be emphasised.

**CAUTION**

This symbol indicates CAUTION, thus an indication which failure to respect can lead to minor or moderate damage.

**WARNING**

This symbol indicates a WARNING, thus an indication which, in the event of non-compliance, may lead to serious, even fatal damage to persons or things.

**DANGER**

This symbol indicates an ELECTRICAL HAZARD, which if not avoided will result in death or electrocution.

2.2. Qualified personnel

**WARNING**

The installation, use and maintenance of the product are strictly for qualified personnel who have undergone appropriate training. Any use by unqualified personnel must be carried out under the approval, responsibility, and close monitoring of the latter.

**WARNING**

Failure to follow the instructions may result in damage to the product, the system in which it is installed and, in the worst cases, damage to property or persons with even fatal consequences.

**WARNING**

Failure to comply with the instructions may lead to loss of warranty.

**WARNING**

Keep out of the reach of children.

2.3. Safety warnings

**WARNING**

During installation and use of the product, comply with the general safety regulations, working in a clean, dry environment, free of hazardous substances and using the appropriate accident prevention tools (gloves, helmet, goggles, shoes, and whatever else is necessary).

**WARNING**

The product is suitable for installation in industrial environments. In case of installation in a residential environment, it is recommended to adopt all the safety precautions required by local regulations.

**WARNING**

The unsuitable use of the product, non-original spare parts or tampering with the hardware and/or firmware of the product may lead to serious damage to property or persons in addition to the loss of warranty. The manufacturer waives all liability due to the improper use of its products.

**WARNING**

Before commissioning the product, ensure that the installation is safe and in accordance with local regulations.

**WARNING**

Comply with the provisions to meet EMC requirements.

**WARNING**

Use cables of the appropriate type and cross-section according to the electrical characteristics of the load, the ambient temperature and local regulations.

**WARNING**

Any insulation tests may only be performed in accordance with the manufacturer's instructions. Failure to do so may result in damage to the unit.

**CAUTION**

Electronic boards and components may be damaged by electrostatic discharge. We therefore, recommend to don't touch the components.

**CAUTION**

Take care during installation and electrical connection that no foreign bodies enter into the device.

**DANGER**

During the entire period in which the device is powered, regardless of whether it is operated or remains in stand-by (digital shutdown), high voltage is present inside the device and at the input and output terminals.

**DANGER**

Disconnect the device from the power supply, check that the load is completely stopped and wait at least 15 minutes before intervening on it or on the load applied to it.

**DANGER**

If the motor is of the permanent magnet type, the device may be energized by the passive rotation of the motor. In this case, both the power supply and the load should be disconnected before working on the device itself.

**DANGER**

Ensure that the device is fully closed and all fixing screws are properly tightened before supplying power. Do not remove the protective parts for any reason while the device is powered on.

**DANGER**

It is recommended to install the appropriate protection devices upstream of the device, such as a circuit breakers, fuses and a residual current device (RCD).

**DANGER**

Make sure that the device and the loads connected to it are properly grounded with the appropriate connection terminals before commissioning.
Ensure that the grounding system is compliant and refer to local regulations for grounding devices.
Each load must be fitted with its own earthing cable, the length of which must be as short as possible. Do not make interconnected grounding connections.
Leakage currents may exceed 3.5 mA. It is recommended to use the reinforced ground connection if necessary.

**DANGER**

Pay attention as the photovoltaic panels exposed to sunlight supply a DC voltage to any connected devices.

2.4. Acoustic emission

The device has an acoustic emission:

< 65 dB.

2.5. Certifications

The product has the following certifications:

- CE

3. Maintenance

3.1. Maintenance


WARNING

Before carrying out any work on the device, carefully read the chapter [Safety \[4\]](#) in the manual.


WARNING

Failure to follow the instructions may result in damage to the product, the system in which it is installed and, in the worst cases, damage to property or persons with even fatal consequences.


WARNING

Failure to comply with the instructions may lead to loss of warranty.

The device requires the following maintenance:

Intervention	Interval
Check the correct tightening of the power terminals	Every 12 months
Verify the maintenance of the protection rating (ingress of dust or water) by checking the tightening of the screws in the mechanical closing parts, the gaskets, and the cable glands.	Every 12 months


TIP

For more information contact the dealer or technical support at service@nastec.eu or by opening a support ticket on the portal service.nastec.eu

3.2. Warranty

Nastec guarantees that the products accompanied by this warranty are free from material or workmanship defects. The Company has the right to inspect any product returned under warranty, and confirm that the product contains a material or workmanship defect. The Company has the exclusive right to decide whether to repair or replace defective equipment, parts or components. To qualify for the warranty coverage, the buyer must return the product to the place of purchase. Subject to the terms and conditions listed below, the Company agrees to repair or replace any part of this product that has material or workmanship defects. The Company will evaluate products under warranty for 24 months from the date of installation (only in case of product registration) but no longer than 36 months from the date of invoice. IN NO EVENT shall the Company be liable for any other costs incurred by the customer in removing and/or fastening any product, part or component thereof. The Company reserves the right to change or improve its products or any part thereof, without being obliged to provide such a change or improvement for products previously sold. THIS WARRANTY DOES NOT APPLY to products damaged by natural events, including lightning, normal wear and tear, normal maintenance services, or any other condition beyond the control of the Company. THIS WARRANTY WILL BE VOIDED if any of the following conditions occurs:

- The product is used for purposes other than those for which it was designed and manufactured.
- The product has not been installed in accordance with applicable codes and rulings.
- The product has not been installed by qualified personnel.
- The item has been damaged due to negligence, abuse, misapplication, tampering, alteration, improper installation, operation, maintenance and storage.

If the customer wishes to make a warranty claim, it is necessary:

- Fill in the warranty claim on the service.nastec.eu portal
- Wait for the result from the Nastec technical support service. The outcome may envisage the following:
 - Absence of warranty based on the information received. A quotation for repair or spare parts may be made upon request.
 - Warranty advanced based on information received. Nastec will decide if the product is to be replaced under warranty. However, Nastec reserves the right to inspect the product.
 - Need to receive the product by the manufacturer in order to establish the potential warranty. Following the analysis of the returned product, Nastec will establish the unquestionable existence or absence of the warranty conditions by providing a detailed report on the damage found and its origins. If the warranty is applicable,

Nastec will repair the device. Nastec is willing to refurbish the product upon offer. In the absence of a warranty, Nastec will make an offer to repair and/or refurbish the device. After 60 days from the offer, if no response is received from the buyer, Nastec will scrap the product upon notice. Nastec does not cover any warranties provided by the buyer to third parties, without its prior authorization.

3.3. Product registration

By registering the product on the portal service.nastec.eu, it is possible to activate the manufacturer's warranty valid for 24 months from the registration date up to a maximum of 36 months from the date of manufacture, according to the warranty conditions. Registration must be completed within one month from the date of installation of the product.

The warranty is offered through the distribution chain. It is therefore necessary to specify the official distributor or importer from which the product was purchased. Alternatively, the distributor can register the product in the customer's name.

3.4. Spare parts

The manufacturer provides spare parts for the device. Contact your dealer for more information.



WARNING

It is recommended to use only original spare parts.



WARNING

Failure to follow the instructions may result in damage to the product, the system in which it is installed and, in the worst cases, damage to property or persons with even fatal consequences.



WARNING

Failure to comply with the instructions may lead to loss of warranty.

3.5. Disassembly and repair

If it is necessary to disassemble and repair the device, it is recommended that the safety instructions be strictly observed.



WARNING

The installation, use and maintenance of the product are strictly for qualified personnel who have undergone appropriate training. Any use by unqualified personnel must be carried out under the approval, responsibility, and close monitoring of the latter.



WARNING

Failure to follow the instructions may result in damage to the product, the system in which it is installed and, in the worst cases, damage to property or persons with even fatal consequences.



WARNING

Failure to comply with the instructions may lead to loss of warranty.



TIP

For more information contact the dealer or technical support at service@nastec.eu or by opening a support ticket on the portal service.nastec.eu

3.6. Disposal



Devices marked with this symbol cannot be disposed of in household waste but must be disposed of at appropriate waste drop-off centres. It is recommended to contact the Waste Electrical and Electronic Equipment drop-off centres (WEEE) in the area. If not disposed of properly, the product may have potential harmful effects on the

environment and on human health due to certain substances present within. Illegal or incorrect disposal of the product is subject to severe administrative and/or criminal penalties.

4. Transport and storage

4.1. Transport

Avoid subjecting the product to severe shocks or extreme weather conditions during transport. The packaging must remain dry and at a temperature between -20°C (-4°F) and $+70^{\circ}\text{C}$ ($+158^{\circ}\text{F}$). Do not stack packages without first checking feasibility with the manufacturer.

**TIP**

It is advisable to always indicate FRAGILE on the packaging

4.2. Inspection on delivery

Upon receipt of the product, check:

- the integrity of the packaging
- the integrity of the content
- the presence of all components

In case of problems, notify the forwarder immediately.

**WARNING**

The manufacturer declines all responsibility for damage to the product due to transport

4.3. Handling

The product must be handled by hand or using suitable lifting equipment in relation to its weight and the regulations in force.

If necessary, use dedicated handling equipment (cranes, ropes, trolleys), using the lifting points provided in the product.

During handling it is recommended to:

- Handle with care
- keep away from suspended loads
- always wear accident prevention equipment
- be careful not to damage electrical cables

Do not handle the product using electrical cables as lifting gear.

**WARNING**

Failure to follow the instructions may result in damage to the product, the system in which it is installed and, in the worst cases, damage to property or persons with even fatal consequences.

4.4. Storage

The product must be stored in its packaging in a dry place, without sudden changes in humidity and temperature and protected from mechanical (weights, vibrations), thermal and chemical agents.

The temperature of the storage environment must be between -20°C (-4°F) and 70°C ($+158^{\circ}\text{F}$) with a maximum relative humidity of 85% (non-condensing).

If the product remains in stock for more than 24 months from the manufacturing date shown on the packaging, it is necessary to check the mechanical integrity of its parts and supply power to it at least once every 12 months.

If the product is put back into storage after it has been used, it is advisable to contact the manufacturer for further information on storage.

**TIP**

For more information contact the dealer or technical support at service@nastec.eu or by opening a support ticket on the portal service.nastec.eu

5. Technical features

5.1. Technical Data

Electrical specifications by model:

Model	V _{in} DC [VDC]	Max I _{in} [A]
STOP MODULE	26 – 190	10

General electrical specifications:

EMC compliance	EN61800-3 C2
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Environmental specifications:

Relative humidity of the operating environment	5 - 95 % non-condensing
Workplace temperature	from -10 °C (14 °F) to 60 °C (140 °F)
Maximum workplace temperature at nominal load	50°C (122 °F)
Power derating beyond maximum temperature	-2.5% every °C (-1.4% every °F)
Maximum altitude at nominal load	1000 m (3280 ft)
Power derating beyond maximum altitude	- 1% every 100 m (328 ft)

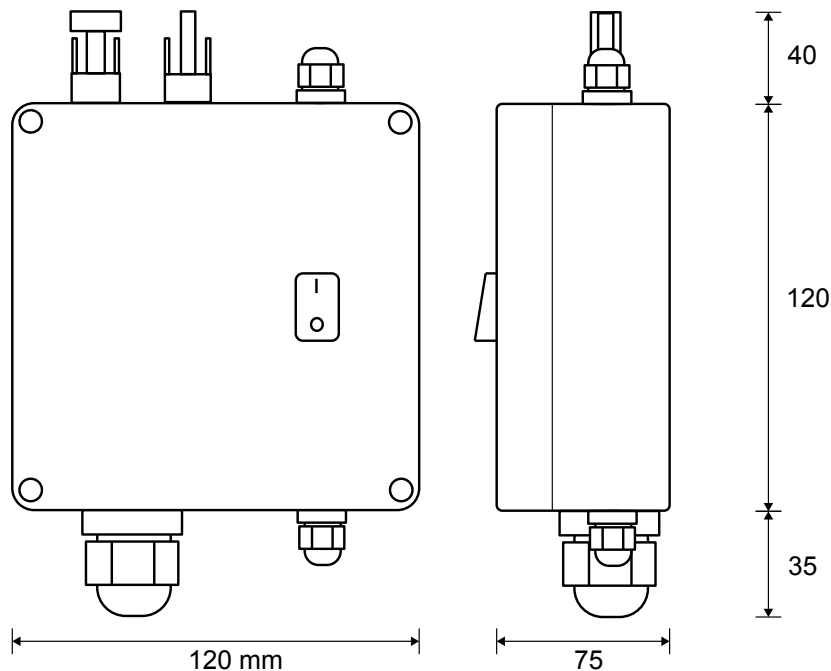
Mechanical specifications:

Protection rating	IP65 (NEMA 4)
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**WARNING**

Protect the device from direct exposure to weather and sunlight.

5.2. Dimensions and weight



Model	Maximum weight [kg]
STOP MODULE	0,6

5.3. Cables entry

Cable gland	Tightening torque [Nm]	Cable diameter [mm]	Quantity
MC4	-	-	2
M12	1,5	3,5-7	4
M25	8	10-17	1

6. Mechanical installation



WARNING

Read the safety chapter carefully before continuing.

6.1. Installation environment



WARNING

The environmental specifications stated in the technical data of the product must be strictly complied with.



WARNING

Do not install the device in environments at a risk of explosion, flooding, or in the presence of flammable fluids or solids. Ensure sufficient ventilation in the room.

Refer to local regulations when selecting the appropriate installation location.



WARNING

The degree of protection of the device is only ensured if, at the end of the installation, the cover screws and the cable glands have been properly tightened. Close the holes of unused cable glands with the appropriate plugs.

Protect the device from direct exposure to weather and sunlight.

Do not leave the device installed without cover or with the cable glands open, even if not connected to the power supply. The infiltration of dust, water or humidity may irreparably damage the device.

6.2. Cooling

The device is cooled by natural ventilation of the air through its surfaces.

It is therefore necessary to ensure sufficient space around the device during installation.

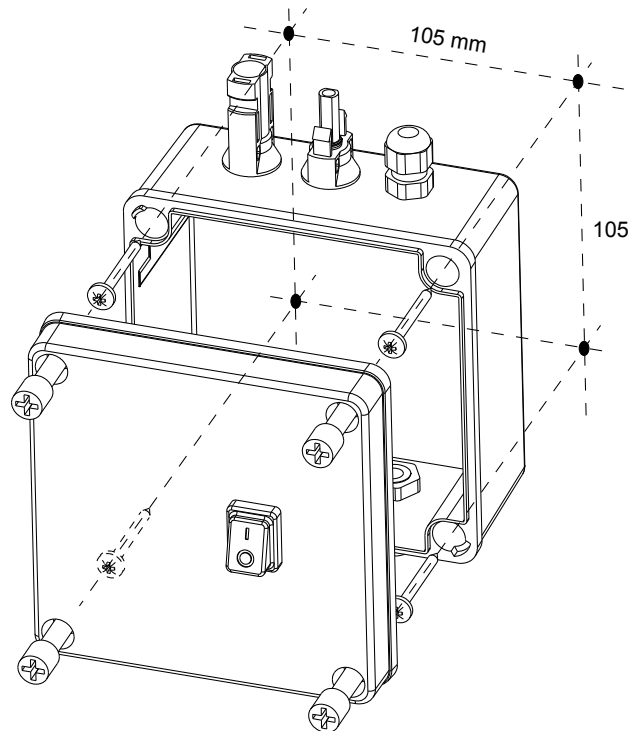
- 150 mm



During operation, the surfaces of the device can become hot enough to cause burns. Do not touch them.

In the case of installation inside electric cabinet, it is necessary to guarantee the appropriate air flow for the heat dissipation of all the components. The heat released by the device may be calculated from its conversion efficiency.

6.3. Wall installation



7. Electrical installation



WARNING

Read the safety chapter carefully before continuing.

7.1. Grounding



DANGER

Make sure that the device and the loads connected to it are properly grounded with the appropriate connection terminals before commissioning.

Ensure that the grounding system is compliant and refer to local regulations for grounding devices.

Each load must be fitted with its own earthing cable, the length of which must be as short as possible. Do not make interconnected grounding connections.

Leakage currents may exceed 3.5 mA. It is recommended to use the reinforced ground connection if necessary.

Use the following minimum cross-sections for ground cables:

- cross-section equal to the mains power cable cross-section up to 16 mm². (6 AWG)
- 16 mm² (6 AWG) for mains power cable cross-section between 16 mm² (6 AWG) and 35 mm² (1 AWG).
- cross-section equal to half the cross-section of the power supply cable when the latter is greater than 35 mm² (1 AWG).

7.2. Protection devices



DANGER

It is recommended to install the appropriate protection devices upstream of the device, such as circuit breakers, fuses and a residual current device (RCD).

Fuses and switches.

The control device can protect the motor from overloads by digitally controlling the absorbed current against the set rated current.

Instead, it is necessary to install overcurrent and short-circuit protection devices, such as fuses and circuit breakers, upstream of the device. These trigger in the event of failure of a component inside the device.

Residual Current Devices (RCD)

Install on the DC side:

- DC disconnect of suitable voltage and current
- DC fuses of suitable voltage and current on both the positive and negative poles. Generally, DC fuses are chosen for a current that is approximately double the short-circuit current of a string of panels and are installed only if the photovoltaic system consists of three or more strings.
- surge arresters of suitable voltage and current

7.3. Connecting cables



WARNING

The connecting cables must comply with local regulations, feature the appropriate cross-section, and meet the requirements for voltage, current, and temperature.

7.3.1. Power cables

Model	Maximum cross-section of the input cable with ground	Maximum cross-section of the output cable with ground	Cable tightening torque [Nm]	Ground cable tightening torque
STOP MODULE	3 x 6 mm ²	3x 6 mm ²	1	1



WARNING

Always use cables with appropriate cable lugs, which may be supplied with the product.

7.3.2. Control cables

Model	Maximum cross-section of the control cables	Tightening torque [Nm]
Control terminals of all models	1 mm ²	0,5



WARNING

Use shielded cable for control cables.



WARNING

Always use cables with appropriate cable lugs, which may be supplied with the product.

7.4. Electromagnetic Compatibility (EMC)

The device meets the requirements of electromagnetic compatibility according to the EN61800-3 standard. However, to ensure the electromagnetic compatibility of the system in which it is installed, it is necessary:

- use ground connection cables that are as short as possible.
- use shielded signal cables with the shield connected at one end only.

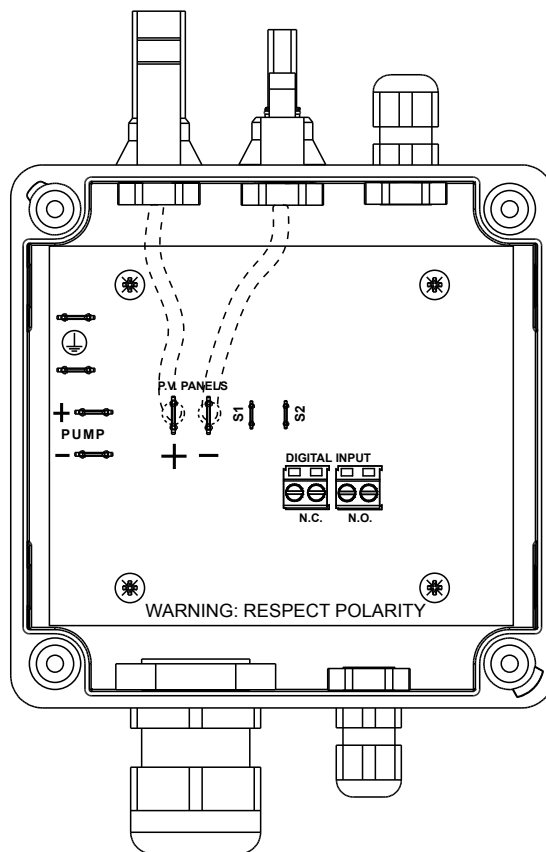


WARNING

Install signal, motor, and power cables separately from each other at a distance of at least 30 cm. If the signal cables meet the power cables, cross them perpendicularly.

7.5. Electrical connections

7.5.1. Electrical connections



		A [mm]	Pre-insulated cable lug	Stripping diagram
DC Power Supply P.V. PANELS	+	60	6.3 x 0.8 mm female Faston	
	-	60	6.3 x 0.8 mm female Faston	
	P.E. ⊕	60	6.3 x 0.8 mm female Faston	
Pump PUMP	+	60	6.3 x 0.8 mm female Faston	
	-	60	6.3 x 0.8 mm female Faston	
	P.E. ⊕	60	6.3 x 0.8 mm female Faston	
Digital inputs DIGITAL INPUT	N.O.	60	Tip	Normally Open Contact: the pump stops when the contact is closed.
	N.O.	60	Tip	Normally Closed Contact: the pump stops when the contact is opened. By default, the contact is short-circuited by a cable.
	N.C.	60	Tip	
	N.C.	60	Tip	
Rocker switch	S1	-	4.8 x 0.8 mm female Faston	
	S2	-	4.8 x 0.8 mm female Faston	



DANGER

Polarity must be respected when connecting the DC power supply and the pump.



DANGER

The contacts of the digital inputs are not isolated, i.e. they are located at the potential of the power supply. Accidental contact with the live part can cause injuries and even death.

Use only voltage-free contacts.

8. Commissioning

8.1. Preliminary checks

Before supplying power to the device, carry out the following electrical and mechanical checks:

- Verify proper grounding of the device, of the load, and of the entire system.
- Check the correct connection of the power and signal cables, paying particular attention to any polarity.
- Check that the connection terminals of the power and signal cables are correctly tightened.
- Check the implementation of electromagnetic compatibility (EMC) regulations and the correct connection of cable shields.
- Check that the protective devices are present and correctly installed.
- Check that the mechanical installation is correct, sturdy and complies with environmental and cooling requirements.
- Check that the seals are intact and correctly positioned in their seats.
- Check that the cable glands and screws are properly tightened.
- Check that the device is completely closed and that live parts are not accessible.

8.2. Powering



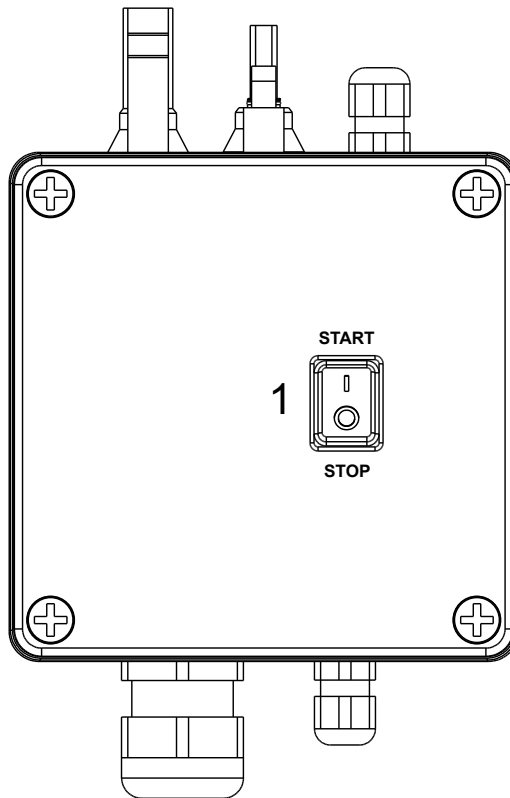
DANGER

Before supplying power to the device, make sure you have read, understood and implemented all the safety, mechanical, and electrical installation instructions.

At the end, it shall be possible to:

- power up the device.
- start the motor.

9. Use



1. START / STOP: pump start / stop

10. EC Declaration of Conformity

The manufacturer hereby:

Nastec srl

Via della Tecnica, 8, 36048, Barbarano Mossano, Vicenza, Italy

declares under its own responsibility that the product:

STOP MODULE

complies with the following directives:

- 2011/65 / EU - RoHS Directive
- 2014/35 / EU - Low Voltage Directive (LVD)
- 2014/30 / EU - EMC Directive
- 2006/42 / EC - Machinery Directive (MD)

and that the following harmonized standards and technical specifications have been applied:

- EN 61000-6-4:2007 + A1:2011
- EN 61000-3-2:2011
- EN 61000-3-3:2000
- EN 61000-6-2:2005 + AC:2005
- EN 61800-3:2004 + A1:2012
- EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017
- EN 60204-1:2006+A1:2009
- EN 63000:2018

Barbarano Mossano

15/11/2018

Ing. Marco Nassuato

Managing Director



11. UK Declaration of Conformity

The manufacturer hereby:

Nastec srl

Via della Tecnica, 8, 36048, Barbarano Mossano, Vicenza, Italy

declares, under its own responsibility, that the product:

STOP MODULE

complies with the following directives:

- UK SI 2012 No. 3032. Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (RoHS2)
- UK SI 2016 No. 1101. The Electrical Equipment (Safety) Regulations 2016
- UK SI 2016 No. 1091. Electromagnetic Compatibility Regulations 2016
- UK SI 2008 No. 1597. The Supply of Machinery (Safety) Regulations 2008

and that the following harmonised standards and technical specifications have been applied:

- BS EN 61000-6-4:2007 + A1:2011
- BS EN 61000-3-2:2011
- BS EN 61000-3-3:2000
- BS EN 61000-6-2:2005 + AC:2005
- BS EN 61800-3:2004 + A1:2012
- BS EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017
- BS EN 60204-1:2006+A1:2009
- BS EN 63000:2018

Barbarano Mossano

02/03/2022

Ing. Marco Nassuato

Managing Director



