

ACTUATOR P/N 63.04.150

INSTALLATION INSTRUCTION



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1 GENERAL INFORMATION

Prior to use, read this Installation Instruction carefully and familiarize yourself with the product. Installation and start-up should not be carried out before reading and understanding this document. Keep this Installation Instruction readily available so that you can reference it as needed.

1.1 What is the Purpose of this Installation Instruction?

This Installation Instruction serves as an aid for the installation and operation of the product and supports the technical staff with all operating and maintenance tasks to be performed. Furthermore, this Manual is aimed at preventing dangers to life and health of the user and third parties.

1.2 Who is this Installation Instruction Targeted to?

This Installation Instruction provides a code of conduct for personnel tasked with the set-up, operation, maintenance, and repair of stationary engines. A certain level of technical knowledge with respect to the operation of stationary engines and basic knowledge of the electronic components used are necessary. Persons who are merely authorized to operate the stationary engine are to be trained by the operating company and explicitly informed of the potential hazards.

1.3 What Symbols are Used in the Installation Instruction?

The following symbols are used in this Manual and must be observed:



Warning

This symbol indicates warnings for possible risks of property damage or risks to health. Read these warning notices carefully and take the mentioned precautionary measures.

1.4 What Abbreviations/Acronyms are Used in the Installation Instruction?

The following abbreviations/acronyms are used in the Installation Instruction.

Abb.	Term
DC	Direct Current

2 SAFETY INSTRUCTIONS

The device is operated on a stationary gas engine. Please follow therefore all safety instructions of the equipment manufacturer, especially with regard to sections under high voltage. All work must be performed by trained and authorized personnel only.



Risk of Injury

Turn off the engine prior to assembly and secure it from re-starting in order to avoid damage or injury.



Risk of Injury and Destruction

The engine must be equipped with an independent emergency shutdown switch to avoid overspeed, which can cause destruction and/or injury.

2.1 Proper Disposal

After the expiration of its service life, MOTORTECH equipment can be disposed of with other commercial waste, or it may be returned to MOTORTECH. We will ensure its environmentally friendly disposal.

3 INTENDED USE

3.1 Functional Description

The actuator converts the speed controller signals into a throttle movement and regulates the fuel supply and the speed of the engine. MOTORTECH uses only top quality bearings in the actuator which guarantee a long service life, even under the most severe conditions.

3.2 Applications

The actuator can be used for stationary gas engines which do not need more than 16 Nm (12 lb-ft) torque to completely open the throttle.

Any use other than the one described in the Installation Instruction shall be considered improper use and will result in the voiding of all warranties.

4 PRODUCT DESCRIPTION

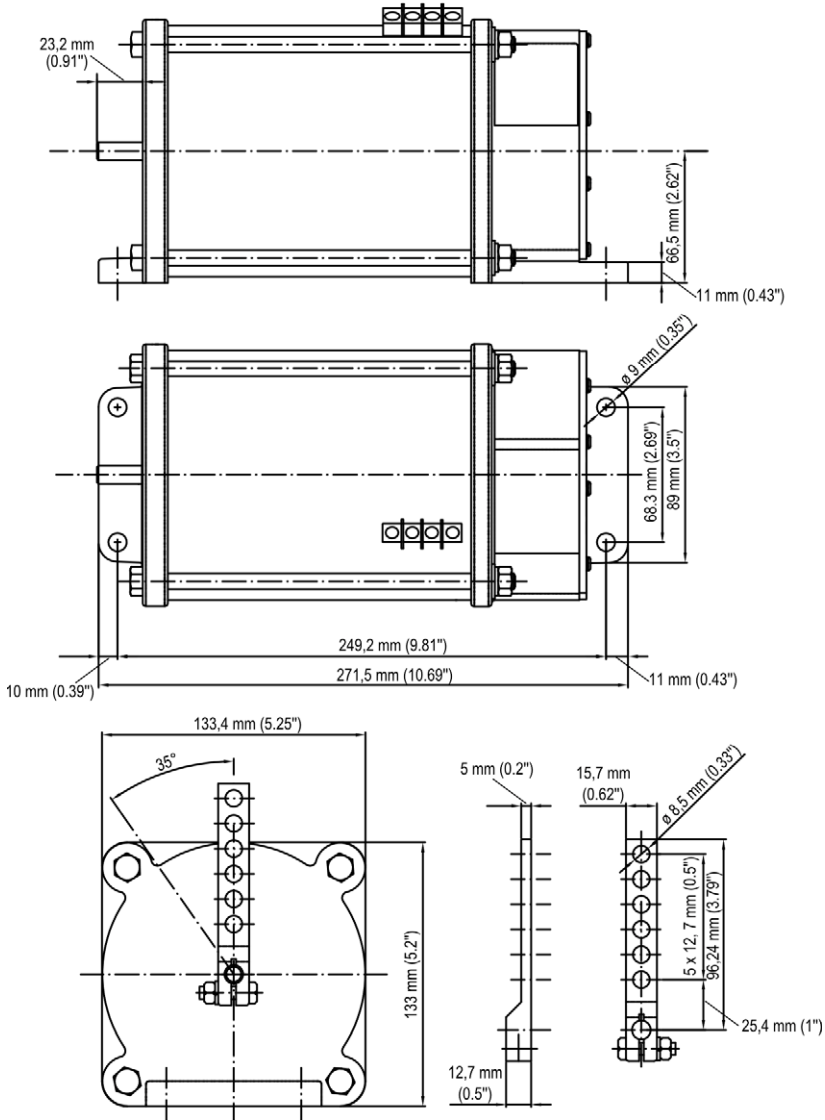
4.1 Technical Data

The device has the following technical characteristics.

Feature	Value
Dimensions	271 x 133.4 x 133.1 mm (10.69 " x 5.25 " x 5.24 ") (length x width x height)
Weight	13.6 kg (30 lbs)
Shape of device	See chapter <i>Overview Drawings</i> on page 8.
Available torque	max. 16 Nm (12 lb-ft)
Lever rotation angle	max. 35° ± 1° (clockwise and counter clockwise)
Supply voltage	24 V DC
Required current	5 A (up to 12 A for brief periods)
Surfaces	Fungus and corrosion resistant
Climatic environmental conditions	-55 °C to 95 °C (-65 °F to 200 °F) max. 95% humidity without condensation
Vibration and impact resistance	Up to 20 g acceleration within a frequency range between 50 to 500 Hz

4 PRODUCT DESCRIPTION

4.2 Overview Drawings



5 ASSEMBLY

5.1 Unpacking

Unpack the device taking care not to damage it, and ensure that the installation instructions are always stored with the device and are easily accessible. Check the contents for completeness and verify that the device type meets your application requirements.

Scope of Supply

The supply scope of the device consists of the following components:

- Actuator
- Lever
- Installation Instruction

Required accessories

- Connection set for connecting to a throttle

5.2 Determining the Mounting Location

The connection between a throttle and an actuator is done by means of a connection set. Basically, the connection should be as direct and short as possible. When selecting the mounting location, observe the following information:

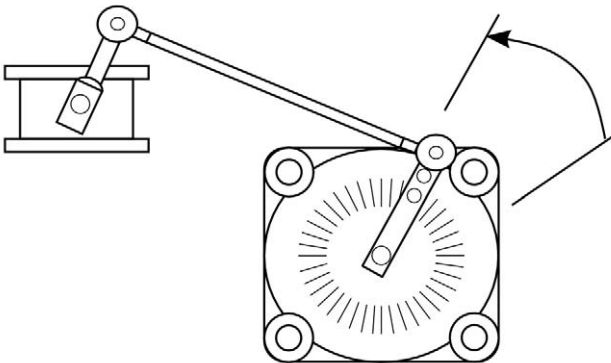
- Select a mounting location that is as close to the throttle lever as possible.
- Select a stable mounting location.
If needed, use a bracket that can withstand the forces related to the engine's vibrations. For commonly used engines, appropriate brackets can be purchased at MOTORTECH. In the case of questions, please contact your MOTORTECH contact person.
- Ensure that the connection between the actuator and the throttle is unhindered and smooth.

5 ASSEMBLY

5.3 Mounting the Device

Mount the actuator on the engine as follows:

1. Attach a suitable bracket to the engine, if necessary.
2. Mount the actuator to the bracket with M8 bolts (5/16").
3. Determine the required length of the connecting rod using the following criteria:
 - The throttle lever must be parallel to the actuator lever.
 - In the completely open and completely closed throttle positions, the actuator should still have some play, and not yet be at the end stop.
 - When the throttle is completely opened, the actuator lever must be at a right angle to the connecting rod.



- **Note:**
Depending on arrangement, the various holes in the actuator lever can be used for the connection.
4. If necessary, shorten the connecting rod to the desired length.
 5. Mount the ball bearing swivel heads on both ends of the connecting rod and on the throttle and actuator levers.
 6. Connect the wiring between the actuator and the speed controller. To select the proper wires, see the technical information for the actuator. We recommend:
 - 15 mm (0.6") wire cross section for a length of up to 3 m (9.84')
 - Line lengths greater than 4 m (13.12') require a larger wire cross section.
 7. Use ring eyelets to connect the wires to the actuator. The terminal block connections are arbitrary.

6 START-UP

Carry out the following tests prior to starting the engine:

1. Ensure that both the throttle's connecting rod and lever as well as the actuator are securely mounted.
2. Move the actuator's lever manually to the maximum position to ensure that the connection is not obstructed and friction is minimal.
3. Then let go of the lever.
 - ▶ The connection must quickly and gently return to the minimum position.

7 DISTURBANCES

If the master control indicates an error, and the actuator is a possible source of the error, the following tests can be used to test the functionality of the actuator:

1. Disconnect the actuator from the speed controller.
2. Measure the resistance between both connection cables of the actuator.
 - ▶ The resistance should be approximately $2\ \Omega$.
3. Measure the resistance between housing and connection cables of the actuator.
 - ▶ The resistance should be greater than $1\ M\Omega$.
4. Disconnect the connection to the actuator and move the actuator's lever as far as possible in all directions.
5. Check for any type of friction or obstruction within the actuator.
 - ▶ If the actuator passes these simple tests, it is likely that another part of the control system is the source of the problem.
6. Reconnect the actuator connections and ensure that no friction or obstruction occurs.

Further support for error correction can be found in the control system documentation.

8 MAINTENANCE

To guarantee the functionality of the system, lubricating the ball bearing swivel heads must be a part of all maintenance procedures.

8.1 Customer Service Information

You can reach our customer service during business hours at the following phone and fax number, or by e-mail:

Tel. +49 5141 9399 0
 Fax +49 5141 9399 99
 E-mail service@motortech.de

8.2 Returning Equipment for Repair / Inspection

To return the device for repair and inspection obtain a return form and return number from MOTORTECH.

Fill out the return form completely. The completely filled out return form guarantees fast, uncomplicated processing of your repair order.

Send the device and the return form to one of the two addresses below or to the nearest MOTORTECH representative:

MOTORTECH GmbH

Hogrevestrasse 21–23
 29223 Celle

Germany

Tel. +49 51 41 - 93 99 0
 Fax +49 51 41 - 93 99 98

www.motortech.de
motortech@motortech.de

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1400 Dealers Avenue, Suite A
 New Orleans, LA 70123

USA

Tel. +1 504 355 4212
 Fax +1 504 355 4217

www.motortechamericas.com
info@motortechamericas.com

8.3 Instructions for Packaging the Equipment

For return shipment, equipment should be packaged as follows:

- Use packaging material that does not damage the equipment surfaces.
- Wrap the equipment with sturdy materials and stabilize it inside the packaging.
- Use sturdy adhesive film to seal the packaging

8.4 Spare Parts and Accessories

For spare parts and accessories, please refer to our current Product Guide, which is available for download at www.motortech.de.

WE UPGRADE GAS ENGINES

Original MOTORTECH Accessories for Stationary Gas Engines

As a supplier, MOTORTECH develops, produces and distributes accessories as well as spare and wearing parts for nearly all kinds of stationary gas engines worldwide: Ignition control and monitoring, industrial spark plugs and high tension leads, wiring systems and gas regulation– from detonation to speed control and complete gas engine management. On-site support and special training courses complete our service.

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