

Bettis OM3 - SCE300

Local Interface Module



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NOTICE

The present Installation, Operation and Maintenance Manual (IOM) has to be considered to be an integral part of the main IOM for the Bettis SCE300 electric actuator.

Section 1: Optional Module 3: Local Interface Module

1.1 Local Interface Functionality

The OM3 Local Interface module is supplied as an option on Bettis SCE300 actuators and fits all models. It is possible to receive the actuator already equipped with the OM3 if ordered together with the basic version. Alternatively, only for the waterproof version, it is possible to order the OM3 as a separate kit to be installed afterwards on the basic actuator. The subsequent retrofitting of the OM3 on existing SCE300 is not allowed in the explosion-proof version. The OM3 is an optional module allowing local control with the following additional functionalities:

- Selection of Local/Remote actuator control through the selector (lockable in both positions).
- Open/Close command through the non intrusive push buttons.
- Actuator position indication by means of 2 LEDs.

NOTICE

For decommissioning instructions, please refer to the relevant section in Installation, Operation and Maintenance Manual for Bettis SCE300 electric actuator.

⚠ WARNING

SCE300 actuator must be electrically isolated before any disassembling and reassembling operations. Before any disassembling or reassembling operations, please follow in detail the relevant paragraph of the basic installation and operating manual (latest revision available).

⚠ WARNING

The electronic parts of the SCE300 actuators and all optional modules can be damaged by a discharge of static electricity. Before you start, touch a grounded metal surface to discharge any static electricity.

⚠ WARNING

It is assumed that the installation, configuration, commissioning, maintenance and repair works are carried out by qualified personnel and checked by responsible specialists.

⚠ WARNING

Repair work, other than operations outlined in this manual, is strictly reserved to qualified Emerson personnel or to personnel authorized by the company itself.

1.2 Manufacturer

Manufacturer with respect to Machinery Directive 2006/42/EC: Emerson as specified on the actuator label.

Section 2: Assembling Procedure

To assemble the OM3 Local Interface module onto the SCE300 actuator, proceed as follows:

- Ensure that all the parts received with the OM3 are available, see Figure 1.

Figure 1. OM3 Kit for SCE300 Actuator

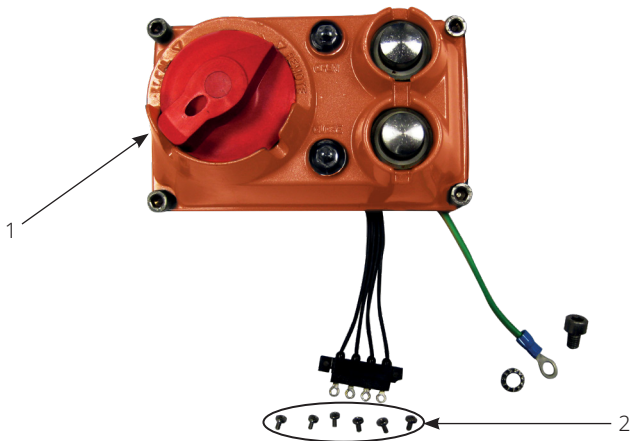


Table 1. Parts List

Parts	Quantity	Description
1	1	Local Interface module
2	4	Screws for connecting connector

- Gather the right tools for the assembly: a 5 mm Allen key and a screwdriver as shown in Figure 2.

Figure 2. Tools for Installing OM3 Kit



- With the Allen key, loosen the 4 cover screws and remove the terminal board enclosure cover, see Figure 3. You will see the terminal board inside the actuator. Remove the ground cable from the cover in the enclosure. The position of the connections is shown on the yellow label that you will find inside the cover just removed, see Figure 4.

Figure 3. Removing Terminal Board Enclosure Cover

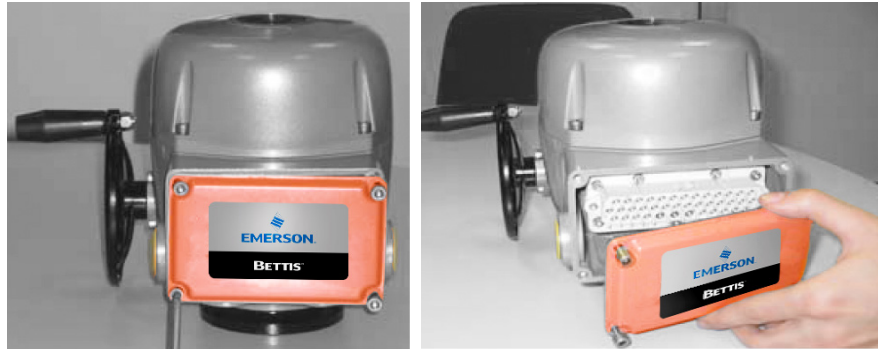
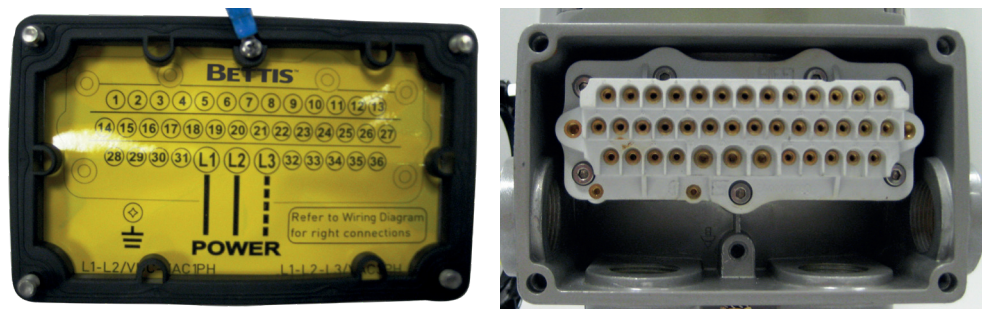


Figure 4. Electrical Connections

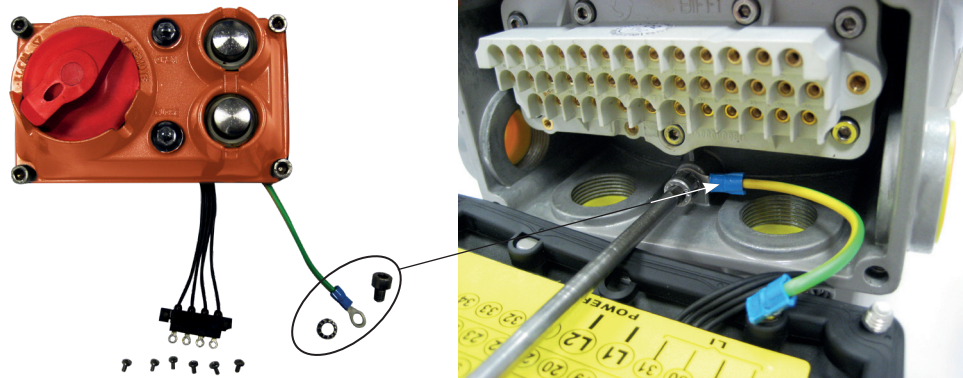


⚠ WARNING

Pay attention not to damage the joint surfaces of the cover/enclosure.

- Connect the Local Interface module to the ground stud by screwing the 'ground kit' (screw + toothed washer).

Figure 5. Grounding the Local Interface



- Take the 4 screws for connecting the Local Interface black connector to the terminal board, in positions 28-29-30-31 (see Figure 6 and wiring diagram) and connect it with the screwdriver, as shown in Figure 7.

Figure 6. Position of the Local Interface Connector on the Terminal Board

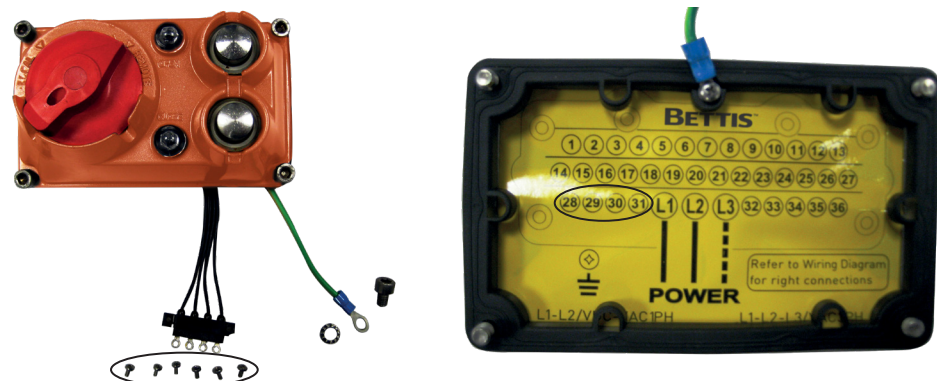
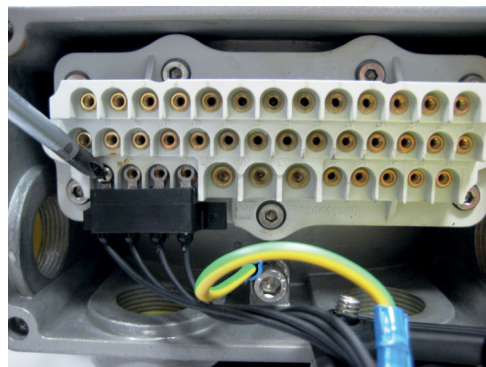


Figure 7. Connecting the Local Interface Connector



- Now the Local Interface is connected to the actuator, see Figure 8.
- Take the 4 screws removed from terminal board cover and use them to fix the Local Interface to the actuator, using the 5 mm Allen key, see Figure 9.

Figure 8. OM3 Kit Connected to the SCE300 Terminal Board

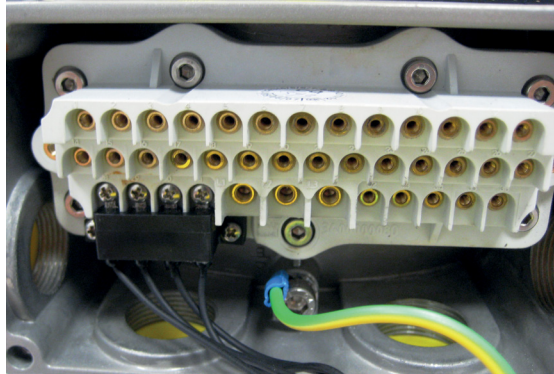
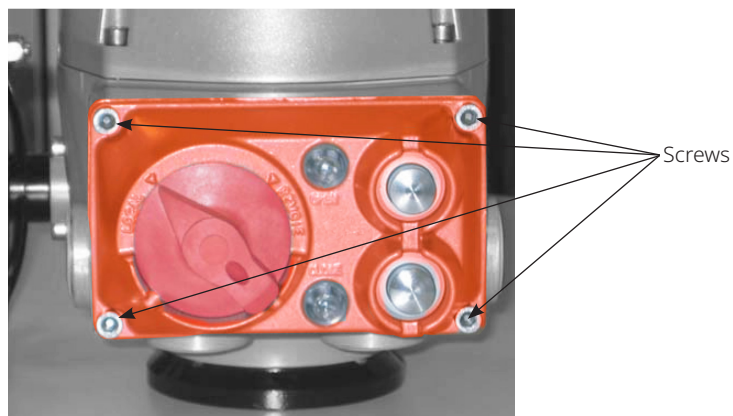


Figure 9. Fixing the Local Interface onto the SCE300 Actuator



NOTICE

Please note that the design of the Local Interface black connector has been engineered to allow the installation in one way only. Due to the special design, it is not possible to reverse the connection of the 4 cables to the terminal board and it is not possible to make a wrong connection of the connector.

- The installation of the OM3 Local Interface module onto the SCE300 actuator is now complete.

Section 3: Description of OM3 Local Interface

Figure 10. OM3 Local Interface Controls Layout

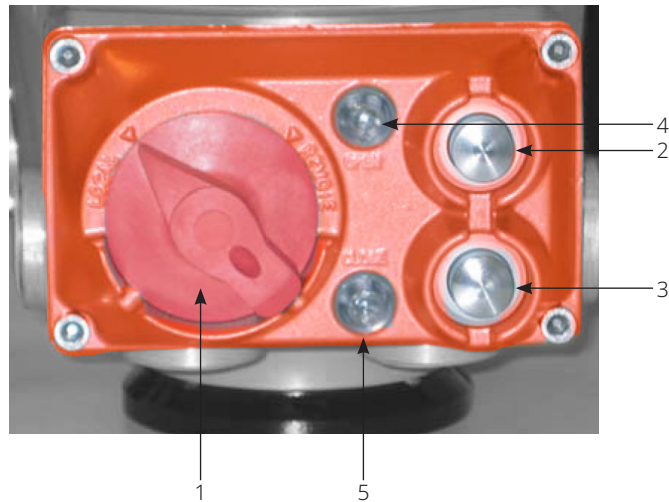


Table 2. Parts List

Position	Description
1	2-position lockable selector switch
2	OPEN push button
3	CLOSE push button
4	OPEN position and correct with maneuver indicating LED (default green color)
5	CLOSE position and correct with maneuver indicating LED (default red color)

3.1 Local Operator Interface

The following functions are available through the SCE300 Local Interface module (OM3):

- Selection of Local/Remote actuator control through the selector (lockable in both positions).
- Local actuator control: OPEN/CLOSE command through the non-intrusive push buttons.
- Actuator position indication by means of 2 LEDs (green and red).

3.2 Description of the Local Interface

3.2.1 2-Position Selector

- Local: to enable the local control only.
- Remote: to enable the remote control and local control with PC and PDA.

3.2.2 LEDs Indicating the Position of the SCE300 Actuator

The two LEDs indicate the actuator status according to the following logic:

Table 3. Actuator Position LED Indicators

Green LED	Red LED	Indication
ON	OFF	Actuator stopped in completely OPEN position
OFF	ON	Actuator stopped in completely CLOSED position
OFF	Flashing	Actuator running in CLOSING direction
Flashing	OFF	Actuator running in OPENING direction
ON	ON	Actuator stopped in INTERMEDIATE position

NOTES:

It is possible to invert LEDs color, so:

- Red color for OPEN position and maneuver;
- Green color for CLOSE position and maneuver.

To do this, see configuration section in the Installation, Operation and Maintenance manual.

3.2.3 OPEN/CLOSE Push Buttons

The two OPEN and CLOSE push buttons are push-to-run type only. Once the push buttons are released, the actuator stops.

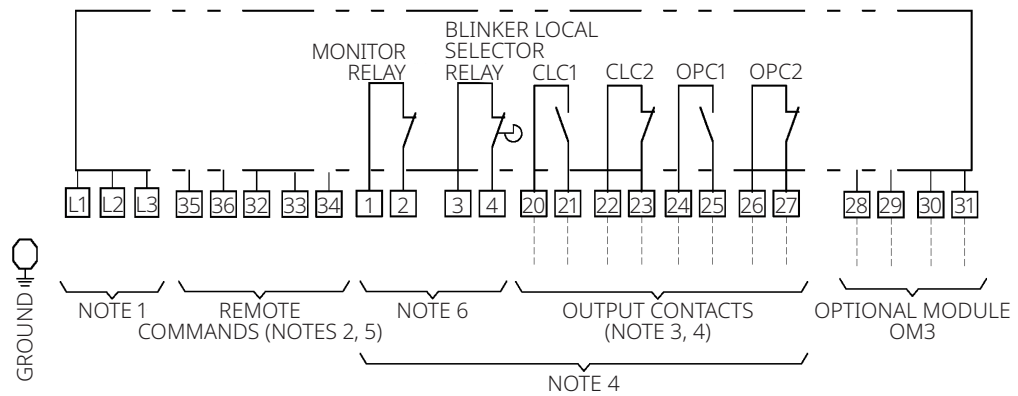
Section 4: To Locally Operate the Actuator

Once you have made sure that the actuator's basic configuration is as requested by your application, bring the 2-position selector to LOCAL and control the actuator by OPEN and CLOSE push buttons.

The actuator can be driven to the desired position by pressing and holding the OPEN or CLOSE push button. When the push button is released, the motor is de-energized and stops. Once you have reached the fully open or fully closed positions, the actuator will stop automatically.

Section 5: OM3 Wiring Diagram

Figure 11. OM3 Wiring Diagram

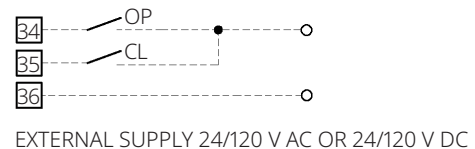
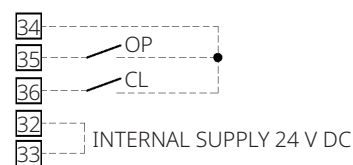


NOTES:

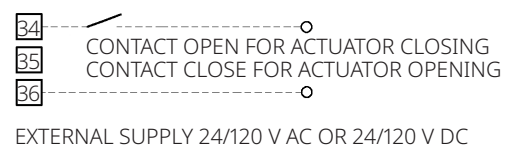
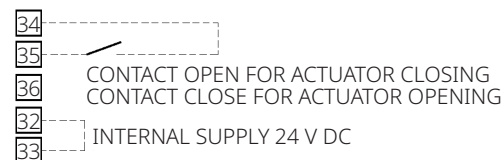
1. Power connection L1-L2 for V DC or V AC single phase motor supply from 24 to 48 V or from 100 to 240 V.
Power connection L1-L2-L3 for 3-phase motor supply from 208 to 575 V (check the actuator label for the correct voltage to be applied).
2. Remote command options:

Figure 12. Remote Command Options

STANDARD CONFIGURATION



2 WIRES SETTING (TO BE CONFIGURED)



3. Contacts shown in intermediate position CLC1-CLC2 end of travel signalling in CLOSING. Contacts shown in intermediate position OPC1-OPC2 end of travel signalling in OPENING.
4. Output contact rating: 240 V AC / 5 A - 30 V DC / 5 A - 120 V DC / 0.5 A.
5. Control command rating: 24 to 120 V AC or V DC.
Control signal: minimum duration > 600 ms.
Total current drawn for remote controls < 25 mA.
6. Blinker or local selector monitoring function (when OM3 is present) to be configured.

Section 6: Identification

6.1 Waterproof, Dustproof Version

SCE300 actuators with OM3 are designed and manufactured according to EN 60529 standards.

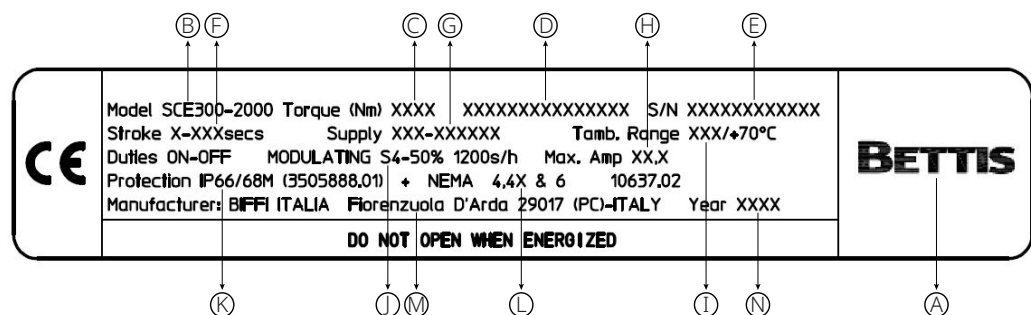
Specific types of protection are printed on the label, as follows:

- IP 66/68
- NEMA 4/4X/6 according to NEMA 250

6.2 Label for Application in Waterproof, Dustproof Areas

Marking description:

Figure 13. Actuator Label for Non-Hazardous Areas



- A. Manufacturer logo
- B. Product model
- C. Nominal output torque value
- D. Product code
- E. Serial number
- F. Stroking time range
- G. Power supply data
- H. Max current absorption in ampere (at 24 V DC)
- I. Environmental data
- J. Actuator duties
- K. Weatherproof protection degree (EU and US)
- L. Weatherproof certificate reference (EU and US)
- M. Manufacturer details
- N. Year of construction

6.3 Explosion-Proof Version

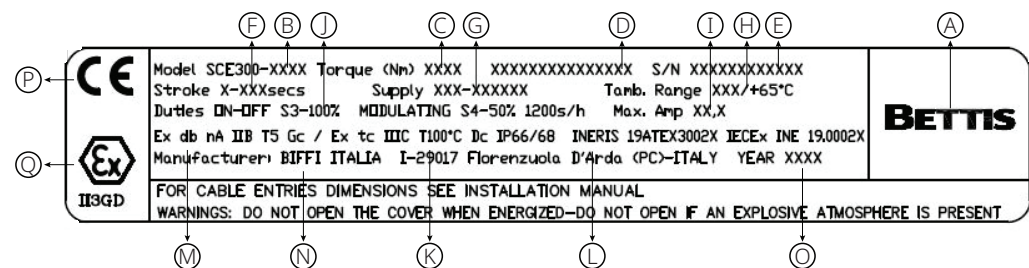
The version of SCE300 with OM3 suitable for installation in hazardous areas is designed and manufactured according to EN 50014, 50018, 50019, EN 50281-1-1 standards. The driven valve or associated gear reducer will form part of a separate risk analysis according to Directive ATEX 94/9/EC and following the EN 13463 norms. SCE300 actuators have IP 66/68 protection degree in accordance with EN 60529.

⚠ WARNING

Whenever SCE300 actuators must be installed in a hazardous area as defined by the applicable rules, it is mandatory to check whether the actuator nameplates indicate their suitability to a hazardous area, and the appropriate protection degree. Maintenance and repair works must be carried out by qualified personnel and checked by responsible specialists.

6.4 ATEX Label for Application in Hazardous Areas

Figure 14. Actuator Label for Hazardous Areas



- A. Manufacturer logo
- B. Product model
- C. Nominal output torque value
- D. Product code
- E. Serial number
- F. Stroking time range
- G. Power supply data
- H. Max current absorption in ampere (at 24 V DC)
- I. Environmental data
- J. Actuator duties
- K. Explosion-proof protection degree
- L. Weatherproof protection degree
- M. ATEX certificate reference
- N. Manufacturer details
- O. Year of construction
- P. Notified body for ATEX quality assurance (Ineris)
- Q. ATEX marking

Section 7: Safety Instructions

7.1 Foreword

This section is an integration of the base manual when additional Local Control Panel is added to a base unit; when this combination is used, both manuals must be used.

7.2 General Safety Instructions

The devices to which these safety instructions apply are Electrical Actuators for industrial valves Series SCE300 equipped with optional module Local Control Panel identified by SCE300-OM3. The above Electrical Actuators are designed for use on industrial and control valves suitable to be installed on heavy industrial, chemical, petrochemical, plants, refinery and/or pipelines for hazardous fluids.

The electrical actuators SCE300 with OM3 are produced by Emerson and identified by product designation: SCE300-XXX/OM3. For the general instructions relevant to the installation, operation and configuration, maintenance and troubleshooting, the base IOM must be used.

The electrical actuators SCE300-OM3 are designed in accordance with the applicable International Rules and Specifications but in any case the following regulations must be observed:

- The general installation and safety regulations effective at site of installation.
- The proper use of personal protective devices (glasses, clothing, gloves).
- The proper use of tools, lifting and transport equipment.

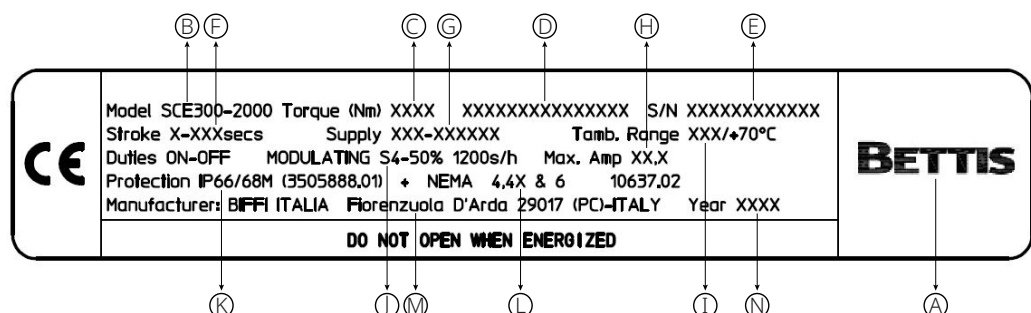
⚠ WARNING

Before the installation in hazardous areas, as defined by the local rules, it is mandatory to check if the nameplate of the electric actuator specifies the appropriate degree of protection.

7.3 Check for Right Application

Before the installation, check for protection mode and for the ambient temperature range written on the appropriate label.

Figure 15. Actuator Label - Protection Mode (K) and Ambient Temperature (I)



WARNING

Installation in ambient with the presence of explosive atmospheres not covered by the specified grade of protection specified in the label, or which could reach temperatures outside the range specified in the label, will invalidate the safety and the warranty.

7.4 Applicable Standards and Regulations

EN ISO 12100-1	Safety of Machinery - Basic Concepts, General Principles for Design, Part 1 - Basic Terminology, Methodology
EN ISO 12100-2	Safety of Machinery - Basic Concepts, General Principles for Design, Part 2 - Technical Principles and Specification
IEC/EN 60204-1	Electrical Equipment of Industrial Machines: Part 1 - General Requirements
2006/42/EC	Machinery Directive
2014/35/EU	Low Voltage Directive
2014/30/EU	EMC Directive

7.5 Terms and Conditions

Emerson guarantees each single product to be free from defects and to conform to current goods specifications. Except when differently specified, the warranty period in one year from the date of installation by the first user, or eighteen months from the date of shipment to the first user, whichever occurs first. No warranty is given for products which have been subject to improper storage, improper installation, misuse, or which have been modified or repaired by unauthorized personnel. Repair works due to improper use will be charged at standard rates.

7.6 Manufacturer's Liability

Emerson declines all liability in the event of:

- Use of product in contravention of local safety at work legislation.
- Incorrect installation, disregard or incorrect application of the instructions provided on the product nameplate and in this Installation, Operation and Maintenance manual.
- Modification of the product without Emerson's authorization.
- Work done on the product by unqualified or unsuitable personnel.

Section 8: Installation

8.1 Working Conditions

The electric actuators SCE300 with OM3 are suitable for the following ambient temperatures from -40 to +65 °C / -40 to +149 °F.

NOTICE

Check the 'temperature ambient range' embossed on the nameplate, for the correct utilization with respect to the ambient temperature conditions.

8.2 Electrical Connections

Before applying electrical power to the actuator check that the electrical parameters (supply voltage and current) shown on the nameplate, are correct for this installation.

NOTICE

The installation and maintenance must be carried out in accordance to the applicable rules regarding the electrical installations in hazardous area (other than mines) classified as Zone 1 (gas): IEC 60079-10; IEC 60079-14; IEC 60079-17 and/or other national standards.

8.3 Instructions for the Intrinsically-Safe Enclosures

NOTICE

The installation and maintenance of electric actuators SCE300 with OM3 must be carried out in accordance to the applicable rules regarding the electrical installations in hazardous area (other than mines) classified as Zone 1 (gas): IEC 60079-10; IEC 60079-14; IEC 60079-17 and/or other national standards.

⚠ WARNING

Do not operate the electric actuator electrically when the Local Control Panel is removed from the terminal board enclosure. Operating the unit with the electrical enclosures not protected by their covers could cause personal injury.

8.4 Installation in Ambient with Explosive Dusts

NOTICE

The installation and maintenance must be carried out in accordance with IEC 61241-14.

Special attention must be provided to these following points:

- The cable glands must have a protection degree at minimum IP 66/68 (IEC 60529).
- Periodically verify the quantity of dust deposited on the enclosure and clean it in the case the quantity is becoming more than 5 mm.

Section 9: Special Maintenance

WARNING

The maintenance and any repair works must be carried out by personnel specifically qualified and fully trained for works in hazardous areas.

9.1 Periodic Inspections

- A. Frequency of inspection may depend from the installation and working conditions; in general, at least one inspection every two years is recommended.
- B. Inspect the electrical actuator with particular attention to electrical enclosures conditions.

WARNING

Any damage or breaking found on the enclosures, lack of screws fixing the covers or loosen screws must require an immediate maintenance action.

- C. Keep the external surface clean: if the electrical actuators are installed in a dusty environment the specification stated in IEC 61241-14 must be followed ensuring in particular that the dust layer does not exceed 5 mm.
- D. Check the condition of cable connection and mounting bolts: any loose connection must be amended.

9.2 Repairs of Intrinsically-Safe Parts

WARNING

In case the maintenance should require the replacement of any component which forms part of the Local Control Panel only an original spare provided by Emerson MUST be used. Direct repair or reconstruction of the above components are not permitted without the Emerson permission. Not performing this procedure will invalidate the product safety and contractual guarantee.

Original spare parts must be required to Emerson. To ensure that right spare is provided, serial number printed on the electric actuator label must be specified when spares are ordered.

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