Electrical Linear Actuator LME620-AI/-AN (Contrac)

Rated force 4 kN (900 lbf)











Electrical Linear Actuator LME620-AI/-AN (Contrac)

Operating Instruction

42/68-273-EN

09.2008 Rev. D

Manufacturer:

ABB Automation Products GmbH Schillerstraße 72 32425 Minden Germany Tel.: +49 551 905-534 Fax: +49 551 905-555 CCC-support.deapr@de.abb.com

© Copyright 2008 by ABB Automation Products GmbH Subject to change without notice

This document is protected by copyright. It assists the user with the safe and efficient operation of the device. The contents may not be copied or reproduced in whole or in excerpts without prior approval of the copyright holder.

ABB

1	Saf	fety	5
	1.1	General Safety Information	5
	1.2	Intended use	5
	1.3	Technical limits	5
	1.4	Warranty provision	6
	1.5	Labels and symbols	6
	1.5	.1 Symbols and warnings	6
	1.5	.2 Name plate	7
	1.6	Operator liability	7
	1.7	Personnel qualification	7
	1.8	Returning devices	8
	1.9	Disposal	8
	1.9	.1 Information on WEEE directive 2002/96/EC (Waste Electrical and Electronic Equipment)	8
	1.10	Transport safety information	8
	1.11	Storage conditions	9
	1.12	Installation safety information	9
	1.13	Electrical installation safety information	10
	1.14	Operating safety information	10
	1.15	Maintenance safety information	10
2	Des	sign and function	11
3	Ins	tallation	12
	3.1	Actuator check	12
	3.2	Installation position	12
	3.3	Installation instructions	12
	3.3	.1 Valve requirements	13
	3.4	Mounting examples	13
	3.5	Assembly with the valve	13
4	Ele	ectrical connection	14
	4.1	Cable shield	14
	4.1	.1 Signal part	14
	4.2	Integrated Electronic Unit AI (standard)	15
	4.3	Integrated Electronic Unit AI (bus communication)	15
	4.4	Electronic unit in field mount EAN823 (standard)	16
	4.5	Electronic unit in field mount EAN823 (bus communication)	17
	4.6	Configuration of digital input/output signals (standard control)	17
	4.6	.1 Standard	17
	4.6	.2 Downstream from step controller	18
5	Ор	eration	19
	5.1	Automatic / manual mode	19

ABB

Contents

6	Mai	intenance	20
6	.1	Inspection and overhaul	20
6	.2	Brake adjustment	20
7	Ala	rms / Errors	21
7	.1	Definition	21
	7.1.	1 Alarms	21
	7.1.	.2 Error	21
7	.2	Alarm diagram	22
7	.3	Error diagram	23
8	Tro	uble shooting	24
8	.1	Electrical test values	25
9	Тес	chnical data	26
9	.1	General information	26
10	Арр	pendix	27
1	0.1	Permits and certifications	27
11	Inde	ex	29



1 Safety

1.1 General Safety Information

The "Safety" chapter provides an overview of the safety aspects to be observed for the operation of the device.

The device is built based on state-of-the-art technology and is operationally safe. It was tested and left the factory in a proper state. The requirements in the manual as well as the documentation and certificates must be observed and followed in order to maintain this state for the period of operation.

The general safety requirements must be complied with completely during operation of the device. In addition to the general information, the individual chapters of the manual contain descriptions about processes or procedural instructions with specific safety information.

Only the observance of all safety information enables the optimal protection of personnel as well as the environment from hazards and the safe and trouble-free operation of the device.

1.2 Intended use

The actuators are used for operating final control elements (valves, vanes, etc.). They may only be operated using the appropriate Contrac electronic unit. Do not use these actuators for any other purpose. Otherwise, a hazard of personal injury or of damage to or impairment of the operational reliability of the device may arise. In addition to these operating instructions, the relevant documentation for the electronic unit and software tools must be observed.

Repairs, alterations and enhancements or the installation of replacement parts is only permissible as far as described in the manual. Further actions must be verified with ABB Automation Products GmbH. Excluded from this are repairs performed by ABB-authorized specialist shops.

1.3 Technical limits

The device is designed for use exclusively within the stated values on the name plate and in the technical specifications (see "Technical Specifications" chapter and data sheet). These must be complied with accordingly, e.g.:

- The maximum operating temperature may not be exceeded.
- The permitted operating temperature may not be exceeded.
- The housing protection system must be observed.

1.4 Warranty provision

A use contrary to the device's stipulated use, disregarding of this manual, the use of underqualified personnel as well as unauthorized alterations excludes the manufacturer of liability from any resulting damages. The manufacturer's warranty expires.

1.5 Labels and symbols

1.5.1 Symbols and warnings



Danger – <Serious damage to health / risk to life>

One of these symbols in conjunction with the "Danger" warning indicates an imminent danger. If it is not avoided, death or serious injury will result.



Warning – <Bodily injury>

The symbol in conjunction with the "Warning" message indicates a possibly dangerous situation. If it is not avoided, death or serious injury could result.



Caution – <Slight injuries>

The symbol in conjunction with the "Caution" message indicates a possibly dangerous situation. If it is not avoided, slight or minor injury can result. May also be used for property damage warnings.



Notice - < Property damage>

The symbol indicates a possibly damaging situation. If it is not avoided, the product or something in its area can be damaged.



Important

The symbol indicates operator tips or especially useful information. This is not a message for a dangerous or damaging situation.



1.5.2 Name plate



Fig. 1

- 1 Complete model name
- 2 Serial no./NL no. (no. of non-list version)
- 3 Rated force/year of manufacture
- 4 Permissible ambient
- temperature/protection class/CE mark 5 Min./max. stroke/max. actuating
- speed/heater
- 1) For LME620-AI only

- 6 Filling lubricant
- 7 Associated Contrac electronic unit
- 8 Permissible voltage range/line frequency ¹⁾
- 9 Power consumption/specifications for fuse protection ¹)
- 10 Blank for customer-specific entry

1.6 Operator liability

The operators must strictly observe the applicable national regulations in their countries with regards to installation, function tests, repairs, and maintenance of electrical devices.

1.7 Personnel qualification

The installation, commissioning and maintenance of the device may only be carried out through trained specialist personell authorized by the plant operator. The specialist personnel must have read and understood the manual and comply with its instructions.

1.8 Returning devices

Use the original packaging or a suitably secure packaging for returning the device for repair or for recalibration. Include the properly filled out return form (see attachment) with the device.

According to EC guidelines for hazardous materials, the owner of hazardous waste is responsible for its disposal or must observe the following regulations for its shipping:

All delivered devices to ABB Automation Products GmbH must be free from any hazardous materials (acids, alkali, solvents, etc.).

1.9 Disposal

ABB Automation Products GmbH actively promotes environmental consciousness and has an operational management system in accordance with DIN EN ISO 9001:2000, EN ISO 14001:2004 and OHSAS 18001. Our products and solutions should have minimum impact on the environment and persons during manufacture, storage, transport, use and disposal.

This includes the environmentally friendly use of natural resources. Through its publications ABB conducts an open dialog with the public.

This product/solution is manufactured from materials that can be reused by specialized recycling companies.

1.9.1 Information on WEEE directive 2002/96/EC (Waste Electrical and Electronic Equipment)

This product/solution is not subject to the WEEE directive 2002/96/EC and relevant national laws (e.g., ElektroG in Germany).

Dispose of the product/solution directly in a specialized recycling facility and do not use the municipal garbage. Only privately used products may be disposed of in the municipal garbage according to the WEEE directive 2002/96/EC. Proper disposal prevents negative effects on people and the environment, and supports the reuse of valuable raw materials.

If it is not possible to dispose of old equipment properly, ABB Service can accept and dispose of returns for a fee.

1.10 Transport safety information

Check the devices for possible damage that may have occurred during transport. Damages in transit must be recorded on the transport documents. All claims for damages must be claimed without delay against the shipper and before the installation.



1.11 Storage conditions

The actuators may be stored under aggressive, moist conditions for a short time. The equipment is protected externally against corrosive influences. However, direct exposure to rain, snow, etc., must be avoided.

The permissible storage and transport temperatures must be observed.

Actuators equipped with an anti-condensation heater are additionally protected by desiccant, which is placed in the following locations where condensation may be a problem:

Position sensor:	in connection chamber
Electronic unit (separately supplied):	electrical connection area

The desiccant guarantees sufficient protection for approximately 150 days. It can be regenerated at a temperature of $90^{\circ}C$ ($114^{\circ}F$) within 4 h.

Important

Remove the desiccant prior to commissioning the actuator or the electronic unit.

If you intend to store or transport the device for a longer time, we recommend that you wrap it in plastic foil and add desiccant. Check that the desiccant is still effective on a regular basis.

During longer periods of downtime (> 6 months) with thrust rod extended, the chrome-plated stem surface must be protected with a suitable anti-corrosive agent. Before recommissioning, clean the thrust rod to avoid damage by the stripper and thrust rod gasket.

1.12 Installation safety information

- Depending on how they are set up, the actuators perform movements for positioning vanes and valves, etc.
- Only qualified specialists who have been trained for these tasks are authorized to mount and adjust the control actuator, and to make the electrical connection.
- When working on the actuator itself or the electronics always observe the locally valid accident prevention regulations and the regulations concerning the construction of technical installations.
- Make sure that no process forces are exerted on the control element.
- Do not use the motor or handwheel to lift the actuator.
- The load pick-up device on the actuator (eyebolt) must only be loaded in a vertical direction. Only use the load pick-up device for lifting/lowering the actuator (without final control element mounted).



1.13 Electrical installation safety information

The electrical connection may only be performed by authorized specialist personnel according to the electrical plans.

Comply with electrical connection information in the manual. Otherwise, the electrical protection class can be affected.

The secure separation of contact-dangerous electrical circuits is only guaranteed when the connected devices fulfil the requirements of the DIN EN 61140 (VDE 0140 Part 1) (basic requirements for secure separation).

For secure separation, run the supply lines separated from contact-dangerous electrical circuits or additionally insulate them.

1.14 Operating safety information



Warning - risk of injury!

Note that the actuator position may be changed accidentally by the repelling power of the valve when the brake is released! Make sure that process forces are not exerted on the thrust rod.

Before switching on, ensure that the specified environmental conditions in the "Technical Data" chapter or data sheet are complied with and that the power supply voltage corresponds with the power electronic unit.

When there is a chance that safe operation is no longer possible, put the device out of operation and secure against unintended operation.

When mounting the actuator in areas which may be accessed by unauthorized persons, take the required protective measures.

Switch off the power supply to the motor prior for manual operation.

1.15 Maintenance safety information

Switch off the supply voltage for the power electronic unit and, if necessary, disconnect the separately supplied anti-condensation heater (option) when working on the actuator or related subassemblies and take precautions to prevent unintentional switch-on.



2 Design and function



Fig. 2: LME620-AI/AN (illustrations may differ from actual installation)

- 1 Cover (for LME620-AI incl. electronic unit)
- 2 Handwheel
- 3 Thrust rod
- 4 Commissioning and service field (ISF)

Functionality

Actuator for the operation of final control elements with preferably linear movement. The actuator thrust rod transfers the force directly to the final control element.

A continuous power electronic unit controls the actuator. The electronic unit serves as the interface between actuator and control system.

During continuous positioning the power electronic unit varies the motor torque steplessly until the actuator force and the restoring process forces are balanced. High response sensitivity and high positioning accuracy with short positioning time ensure an excellent control quality and a long actuator life.



3 Installation

3.1 Actuator check

Before you start to install the actuator make sure that the delivery status corresponds to the ordered status and to the intended use.

- Make sure that the motor and the connection chambers are free of dirt, moisture and corrosion.
- Make sure adequate travel is provided for the valve stroke.

3.2 Installation position



Fig. 3

The actuator's gearing LME620-AI/-AN (Contrac) is lubricated with grease. This means that any mounting position can be selected.

3.3 Installation instructions

- Make sure that the actuator is accessible from all sides to ensure convenient hand wheel operation, electrical connection, and replacement of assemblies.
- Avoid direct exposure to rain, snow and other environmental influences.
- Make sure that the drive elements (thrust rod and valve stem) are not exposed to any
 additional vibrational loading equivalent to more than double the rated force (e.g., by a spring
 coupling or a vibration absorber between thrust rod and valve stem).
- The maximum rated force of the actuator must not be permanently exceeded. Occasionally and for short periods only, loads of up to twice the rated force are permissible.
- · When mounting the actuator close to heat sources use an insulating layer or shielding.
- In IMV 1 mounting position, the actuators are resistant against vibrational loading acc. to EN 60068-2-6, table C.2 up to 150 Hz and additionally 1 g/30 min. If the operating conditions do not allow you to estimate whether the actuator's vibrational loading is permanently exceeding the proven contingent by a significant amount, you will need to reduce the maintenance intervals accordingly.



Valve requirements 3.3.1

• The force in the end position can be up to 2.5 times higher than the rated force.

3.4 Mounting examples



Fig. 4: Mounting example LME620-AI/-AN (Contrac)

- Servo motor 1
- 2 Handwheel
- 3 Mounting screws (8.8)
- 4 External stop
- 5 Coupling

- 6 Valve stem
- Valve yoke 7
- 8 Valve
- 9 Mechanical position indicator
- 10 Thrust rod

3.5 Assembly with the valve

- 1. Drive the thrust rod completely in and put the actuator onto the valve yoke.
- 2. Make sure the valve stem is aligned with the center of the bore and at right angles to the actuator seat (permissible parallel deviation < 0.1 mm (0.009 inch) with regard to total stroke).
- 3. Fasten the actuator to the voke with screws of property class 8.8 (tensile strength 800 N/mm² (116032 pounds/square inch); yield strength 640 N/mm² (93550 pounds/square inch)).
- 4. Use the hand wheel to drive the thrust rod out; link the rod with the valve stem via the coupling.
- 5. Manually retract the thrust rod to check whether or not the external stop of the actuator is on the housing flange before the valve cone touches the cover.
- 6. If required, adjust with the coupling (only possible within certain limits!).

4 Electrical connection

Each actuator requires a Contrac electronic unit which is loaded with the type specific-software. Carefully consider the instructions for the electronic unit and compare the data labels of the actuator and the electronic unit in order to ensure a proper hard- and software assignment.

4.1 Cable shield

4.1.1 Signal part



Fig. 5: Fitting the shield

- 1. Remove approx. 2 cm of cable sheathing (3) from the end of the cable.
- 2. Separate the shield and peel it back to its inner sheathing (4).
- 3. Push the cable through the cable gland and fasten with clamp (1).
- 4. Make sure that the shielding is touching the clamp and the electronic unit housing (2).



4.2 Integrated Electronic Unit AI (standard)

i

Important

The power and signal cables are connected by universal plug to the integrated actuator electronic unit.



Fig. 6

To switch the actuator to automatic mode (AUT), the following conditions must be met:

- Digital inputs DI1, DI2 and DI3 must be activated via the operator interface.
- Power must be on for the digital input (DI1).
- AUT is activated via operator interface.

4.3 Integrated Electronic Unit AI (bus communication)



Fig. 7: PROFIBUS DP



4.4 Electronic unit in field mount EAN823 (standard)

i

Important

The electrical connection is provided by a plug on the actuator and the terminals on the electronic unit.



Fig. 8

To switch the actuator to automatic mode (AUT), the following conditions must be met:

- Digital inputs DI1, DI2 and DI3 must be activated via the operator interface.
- Power must be on for the digital input (DI1).
- AUT is activated via operator interface.



4.5 Electronic unit in field mount EAN823 (bus communication)



Fig. 9: PROFIBUS DP

4.6 Configuration of digital input/output signals (standard control)

4.6.1 Standard



Fig. 10: Potential wiring for default assignments

4.6.2 Downstream from step controller



Fig. 11: Potential wiring for "Downstream from step controller" operation



Important

When operating the unit downstream from a step controller, the selector switch must be in the $\frac{1}{2}$ position.

Important

When DI1 is assigned with DC +24 V, the electronic unit is write-protected.



5 Operation

5.1 Automatic / manual mode

The servo motor triggered by the power electronics controls the axially fixed drive sleeve/nut assembly via grease-lubricated spur gears. A ball bearing screw (see Figure Fig. 12) radially fixed by an anti-twist arrester converts the rotary motion to a linear one.

A position sensor detects the current thrust rod position via mechanical reduction gearing without backlash.

The motor brake locks the actuator in the current position if the power supply is cut off.



Fig. 12: Ball bearing screw with nut, cross-section

Manual mode allows you to move the actuator manually when the electrical power is off.



Caution - Risk of injury!

When pressing the hand wheel lock, restoring force from the valve may be present in the hand wheel.

To prevent the hand wheel from turning unintentionally, hold the hand wheel with one hand.

1. Press the hand wheel lock.

i

Important

Turning the hand wheel to the right causes the thrust rod to extend.

- 2. Turn the hand wheel to move the part-turn actuator to the desired position.
- 3. Release the lock.



6 Maintenance



Important

All maintenance activities may only be performed by properly qualified persons.

Contrac actuators feature a robust construction. As a result, they are highly reliable and require minimal maintenance. The maintenance intervals depend upon the effective load and are therefore not specified here.

The built-in microprocessor evaluates the actual load factors (e.g. torques, forces, temperatures, etc.) and derives the remaining operating time until the next routine maintenance is required.

Use the configuration program to view this information.

6.1 Inspection and overhaul

- Only use original spare parts for components such as ball bearings and gaskets when overhauling the actuators.
- Maintenance activities should be performed once the remaining calculated time has expired.
- Inspection or maintenance is due after the time specified in the table.

Overhaul intervals:

Interval	Measures
1 x per year	Visual check of the gaskets for leaks, change if necessary
Max. every 10 years, preferably once the calculated time before the next maintenance operation has expired	Change, roller bearings and gaskets on motor and gearing. Check gear wheels for wear; replace if necessary.

Make sure that no chippings or other material get into the gearbox during the maintenance work.

6.2 Brake adjustment



Warning - risk of injury!

Note that the actuator position may be changed accidentally by the repelling power of the valve when the brake is released! Make sure that process forces are not exerted on the thrust rod.

Since the brake is permanently released in AUT mode it is not exposed to mechanical wear. Any readjustment is not necessary. Enables users to test the configuration software of the brake.



7 Alarms / Errors

7.1 Definition

7.1.1 Alarms

The actuator or electronic unit is in a critical state (e.g., high temperature), which currently does not affect the actuator, electronic unit, process or persons. The actuator functions are available. Previous alarms are stored in the "Saved Alarms" area in the electronic unit. The graphic user interface use to output the stored alarms.

7.1.2 Error

The actuator or electronic unit is in a critical state, e.g., positioning time-out, which currently is impairing the actuator, electronic unit, process or persons. The actuator is switched off and the actuator functions are no longer available. Previous error messages are stored in the "Saved Errors" area in the electronic unit. Use the graphic user interface to output the stored errors. Error messages cannot be reset until the cause of the error has been eliminated.

Alarms / Errors



7.2 Alarm diagram



7.3 Error diagram





8 Trouble shooting

This chapter only covers hardware-related errors. For additional troubleshooting information, refer to the online help for the operator interface.

Error	Possible cause	Troubleshooting
Valve cannot be moved by actuator.	Failure either on the actuator or the valve (e.g., stuffing box tightened too much).	Disconnect actuator from valve. If the actuator moves, the valve is the possible cause. If the actuator does not move, the actuator is the possible cause.
The actuator does not respond.	Incorrect electronic unit or incorrect data record.	Compare information on name plates for actuator and electronic unit.
	Incorrectly configured electronic unit.	Check/update the settings for the parametrization software.
	No communication with the control system.	Check wiring.
	Incorrect wiring between actuator and electronic unit.	Check wiring.
	Defective motor/brake.	Check the winding resistance of the motor and brake. Check the brake lock.
	Binary inputs on the electronic unit are not wired.	Make connection.
	Brake does not release (no mechanical "click").	Check the brake air gap (approx. 0.25 mm (0.010 inch)) and electrical connection to the brake. Check winding resistance of the brake coil.
Actuator does not run in AUT mode, although "AUT" is selected in the user interface.	Digital input 1 (DI 1) not wired.	Make connection. Check the software settings for the digital inputs.
LEDs in the commissioning and service panel (CSP) flash synchronously.	Actuator is not adjusted properly.	Adjust actuator.
LEDs flash alternately.	Electronic unit / drive malfunction.	Drive the actuator beyond the adjusted end position (either manually or using the pushbuttons on the CSP). Disconnect from
Malfunction when approaching the end position.	Actuator in limit range of positioning sensor.	valve, if necessary. Drive the actuator back into the operating range and connect it to the valve. Readjust the actuator for the operating range.



8.1 Electrical test values





	Winding resistance ± 5 % at 20 °C (68 °F)
Motor	L1 (bl.) - L2 (sw): 3,4 Ω
	L1 (bl.) - L3 (viol.): 3,4 Ω
Brake	50 Ω



9 Technical data

9.1 General information

	LME620-AI (integrated electronic unit)	LME620-AN (separate electronic unit)
Operating mode	S9 – 100 %; stallproof acc.	to IEC 60034-1 / EN 60034-1
Protection Class	IP	9 66
Humidity	≤ 95 % average; cond	densation not permitted
Ambient temperature	-10 55 °C (15 130 °F)	-10 65 °C (15 150 °F)
	-25 55 °C (-15 130 °F)	-25 55 °C (-15 130 °F)
Mounting position	any position; preferably IMB 3 a	acc. to IEC 60034-7 / EN 60034-7
Coating	2-layer component ep	boxy (RAL 9005, black)
Anti-condensation heater	-	Optional, separate power supply or power feed from Contrac electronic unit
Power supply for motor and sensors	Only via Contrac electronic unit (refer	to the data sheet for the electronic unit)
Cable between actuator and electronic unit	-	Select from 5 m (16 ft), 10 m (32 ft) or 20 m (65 ft) max. 30 m (98 ft) for electronic unit EAN823 max. 480 m (1575 ft) for electronic unit EAS822
Weight; approx.	approx. 24 kg (53 lbs)	(read the data sheet for the electronic unit) approx. 20 kg (44 lbs)

Model	LME620-AN; LME620-AI
Rated force	4 kN (900 lbf), adjustable to 0.5 / 0.75 or 1x rated force
Starting force	1.2 x rated force (break-away torque in end positions for short time 2 x rated force)
Rated speed	2 mm/s (12.7 s/inch) (adjustable from 0.1 mm/s (254 s/inch) to 2 mm/s (12.7 s/inch))
Stroke	Min. 0 … 12 mm (0 … 0.47 inch) Max. 0 … 60 mm (0 … 2.36 inch)
Associated electronic unit (data sheet)	LME620-AI: integrated electronic unit LME620-AN: Designed for field installation: EAN823 (10/68-8.26) Designed for rack installation: EAS822 (10/68-8.23)
Motor	24 V 3~ asynchronous motor for operation with electronic unit EAN823 or EAS822
Sensors	Position and temperature sensor always available



10 Appendix

10.1 Permits and certifications

	Symbol	Description
CE mark	CE	By placing the CE mark on the model plate, ABB Automation Products GmbH declares its conformance with the following directives:
		- EMC directive 89/336/EEC.
		- Machinery directive 2006/42/EC

i

Important

All documentation, declarations of conformity and certificates are available in the download area of ABB.

www.abb.com/instrumentation

Statement about the contamination of devices and components

The repair and/or maintenance of devices and components will only be performed when a completely filled out explanation is present.

Otherwise, the shipment can be rejected. This explanation may only be filled out and signed by authorized specialist personnel of the operator.

Customer details:

Company:					
Address:					
Contact per	son:		Telep	hone:	
Fax:			E-Mai	il:	
Device deta	lis:				
Туре:				Serial no.:	
Reason for	the return/desc	ription of the defect:			
Was this do		working with substances	which	noso a throat or boalth risk?	
Yes			5 WINCH	pose a tilleat of fleatur fisk?	
If yes, which	type of contam	ination (please place an λ	(next to	the applicable items)	
biological		corrosive/irritating		combustible (highly/extremely combustible)	
toxic		explosive		other harmful substances	
radioactive					
Which substa	ances have had	I contact with the device?			
1.					
2.					
3.					

We hereby certify that the devices/parts shipped were cleaned and are free from any dangerous or poisonous materials.

City, Date

Signature and company stamp

11 Index

1	١.
F	٩

Accessibility12
Actuator check12
Actuator electronic unit15
Adjustments9
Alarm diagram22
Alarms21
Alarms / Errors21
Appendix27
Assembly with the valve13
AUT mode15, 20
Automatic / manual mode19
В
Brake adjustment20
c
Cable shield14
Calculated time before next maintenance operation is required20
CE mark27
Configuration of digital input/output signals (conventional control)17
Contrac electronic unit
Corrosive influences
D
Default assignments17
Default assignments
Default assignments 17 Desiccant 9 Design and function 11 Disposal 8 Downstream from step controller 18 E E Electrical connection 14 Electrical installation safety information 10
Default assignments 17 Desiccant 9 Design and function 11 Disposal 8 Downstream from step controller 18 E 18 E 14 Electrical connection 14 Electrical installation safety information 10 Electronic unit in field mount EAN823 (bus communication) 17
Default assignments 17 Desiccant 9 Design and function 11 Disposal 8 Downstream from step controller 18 E 14 Electrical connection 14 Electrical installation safety information 10 Electronic unit in field mount EAN823 (bus communication) 17 Electronic unit in field mount EAN823 (standard) 16
Default assignments 17 Desiccant 9 Design and function 11 Disposal 8 Downstream from step controller 18 E 14 Electrical connection 14 Electrical installation safety information 10 Electronic unit in field mount EAN823 (bus communication) 17 Electronic unit in field mount EAN823 (standard) 16 EMC directive 27
Default assignments 17 Desiccant 9 Design and function 11 Disposal 8 Downstream from step controller 18 E 14 Electrical connection 14 Electronic unit in field mount EAN823 (bus communication) 17 Electronic unit in field mount EAN823 (standard) 16 EMC directive 27 Error 21

c
C
С
_

Functionality 11
G
General information
General Safety Information5
H
Heat sources12
1
Inspection and overhaul20
Installation12
Installation instructions12
Installation position12
Installation safety information9
Installation site12
Integrated Electronic Unit AI (bus communication) .15
Integrated Electronic Unit AI (standard)15
Intended use5
L
Labels and symbols6
Load pick-up device9
М
Maintenance20
Maintenance activities20
Maintenance intervals20
Ν
Name plate7
0
Operating safety information10
Operation19
Operator liability7
Overhaul20
Ρ
Permits and certifications27
Personnel qualification7
Position sensor
Process forces
R
Rated force12

Index

ind ox		
Repelling power10, 20	Transport safety information	8
Returning devices8	Trouble shooting	24
S	V	
Safety5	Valve requirements	13
Storage conditions9	Visual check	20
Storage period9	w	
Symbols and warnings6	Warranty provision	6
т	Wear	20
Technical data26	WEEE directive	8
Technical limits5	Winding resistance	25
Time until next maintenance is required20		

ABB has Sales & Customer Support expertise in over 100 countries worldwide.

www.abb.com/instrumentation

The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

Printed in the Fed. Rep. of Germany (09.2008)

© ABB 2008 🗅

42/68-273-EN Rev.

3KXE161003R4201



ABB Limited Salterbeck Trading Estate Workington, Cumbria CA14 5DS UK Tel: +44 (0)1946 830 611 Fax: +44 (0)1946 832 661

ABB Inc. 125 E. County Line Road Warminster, PA 18974 USA Tel: +1 215 674 6000 Fax: +1 215 674 7183

ABB Automation Products GmbH

Schillerstr. 72 32425 Minden Germany Tel: +49 551 905-534 Fax: +49 551 905-555 CCC-support.deapr@de.abb.com