

ELECTRIC ACTUATORS WITH EPAC CONTROLS IN SIL VERSION

SA3 - SA100

SAR3 - SAR100

FUNCTIONAL SAFETY - SIL
Electric Actuators with Safety Integrity Level



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AUMA FOR VALVE AUTOMATION

Armaturen- Und Maschinen- Antriebe

AUMA, the globally leading manufacturer of electric actuators for the automation of industrial valves.

AUMA actuators work reliably all around the globe for managing the flow of liquids or gases, powders or granulates. Their use sees them placed in sectors such as in water supply and waste water sector, in power plants, pipelines, refineries, and industrial plants of any kind.

YOUR EXPERT PARTNER FOR ELECTRIC ACTUATORS

AUMA India is a subsidiary of AUMA Germany, a global leader in manufacturing electric actuators for automating industrial valves.

AUMA India shares the proud heritage and proven expertise of the AUMA Group, headquartered in Germany to cater the electric actuators requirement of the Indian market.

AUMA INDIA



AUMA India has a world-class manufacturing facility with high end-machines and technology to manufacture a large variety of superior quality products.

In-line with the philosophy of its parent company, AUMA India regularly invests for the up-gradation of its manufacturing facility and development of new products to meet the ever changing industry requirement.

AUMA India offers a broad portfolio of electric actuators with customised solutions for diverse applications across process industry.

AUMA SOLUTION - APPLICATIONS

Power

AUMA India actuators are relied upon for controlling water and steam flows in pipeline throughout the power plants. Offering a uniform interface for all automated valves, AUMA India actuators are specially designed to adapt to the power plant control solution

- Conventional power plants (coal, gas, oil)
- Co-generation power plants
- Hydroelectric power plants
- Biogas power plants
- Solar thermal power plants
- Nuclear power plants



Water

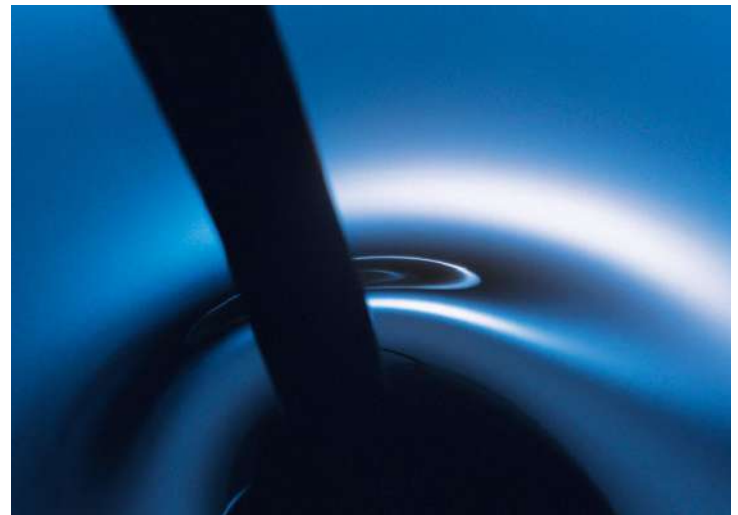
From potable water treatment and distribution, sewage treatment to civil engineering constructions for water applications, AUMA actuators automate valves of any size and design

- Sewage treatment plants
- Water treatment plants
- Drinking water distribution
- Seawater desalination

Oil & Gas

AUMA India actuators meet the crucial requirements particularly harsh and arduous climatic conditions of Oil & Gas Industry

- Exploration, offshore plants
- Refineries
- Distribution
- Tank farms
- Petrochemical complexes



Industry

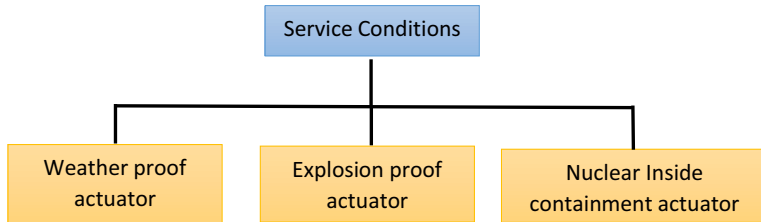
Any process technology requires pipes & valves and consequently AUMA India actuators. AUMA India provide tailor-made solutions to plant-specific requirements

- Cement works, Steel mills
- Air conditioning
- Chemical industry
- Paper & pulp, Food industry
- Pharmaceutical industry
- Shipbuilding industry

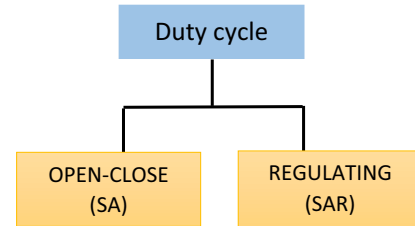
AUMA ACTUATORS - PORTFOLIO

Electric multi-turn actuators by AUMA India are used for the automation of all types of industrial valves and dampers. They are the most versatile products within the AUMA family. AUMA India actuators are manufactured to comply with IS/ISO 22153:2020 / EN 15714- 2. Whether for OPEN-CLOSE duty (SA) or for regulating duty (SAR) or for higher torque requirement (SA.) or for use in potentially explosive areas (SAEx or SAREx)- a large number of versions are available. AUMA India actuators are designed for different service conditions and duty cycles.

Actuators based on Service



Actuators based on Duty cycle



Weather proof actuators :

With Ingress Protection 68(IP68), AUMA India SA and SAR weather proof actuators are suitable for all valves in non-hazardous locations. AUMA India weather-proof actuators with or without integral starter are designed to suit harsh environments.



Explosion proof actuators :

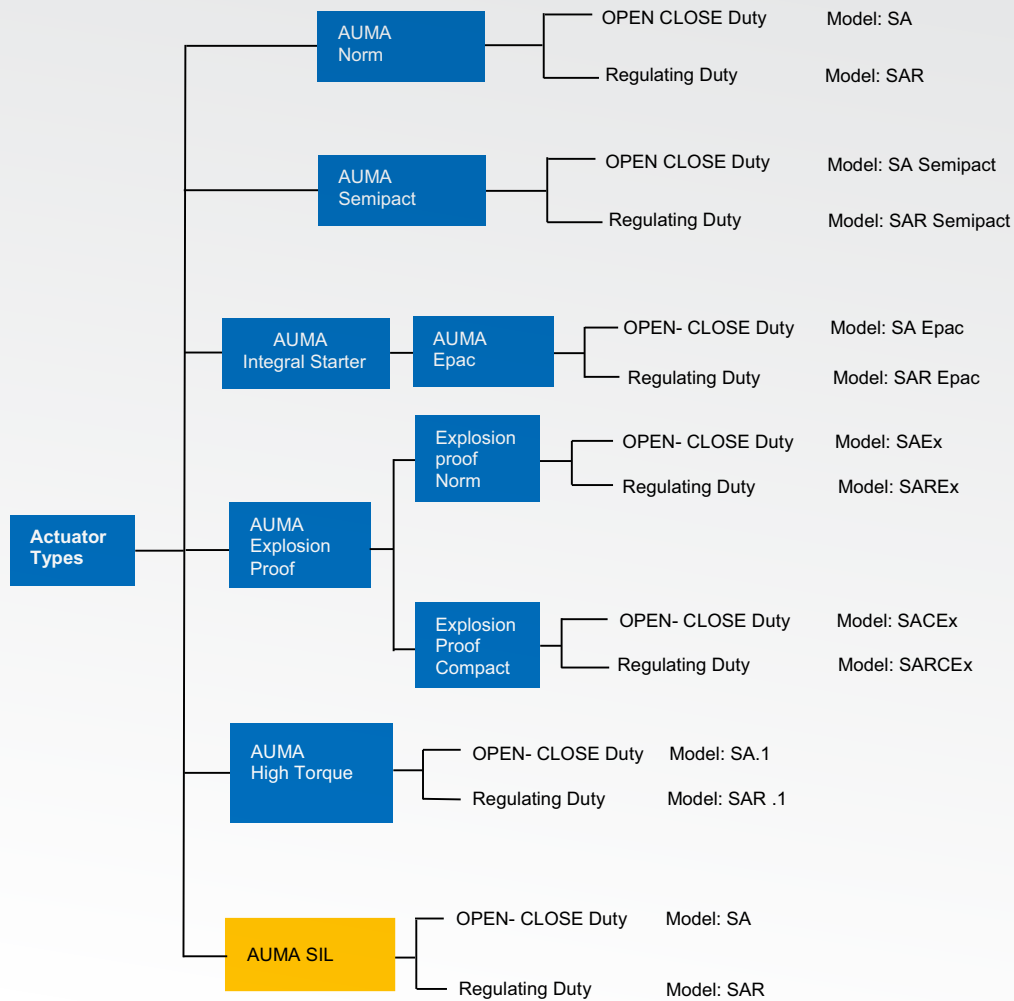
The enclosures of flame proof/explosion proof actuators SAEx & SAREx are designed to withstand, an internal explosion of flammable gases or vapor, which may occur without suffering damage and without communicating the internal flame to external through the joints of the enclosure. All technical specifications and features of AUMA India actuators except that constructional features of enclosure are made to provide flame path and withstand the explosion pressure as per the standard.

Nuclear Inside Containment actuators :

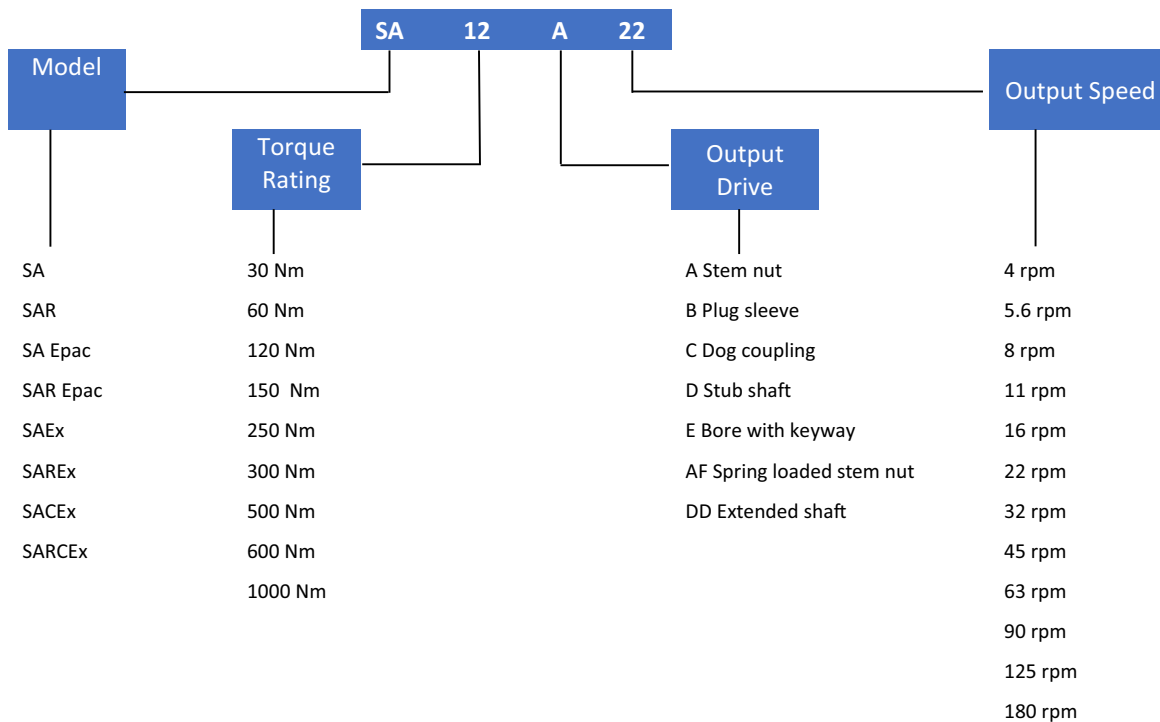
AUMA India SAI 6 – SAI 100 NORM actuator (without controls) are qualified for use in nuclear power plants in India and for DBE conditions inside and outside containment.



AUMA ACTUATORS - CLASSIFICATION



Example

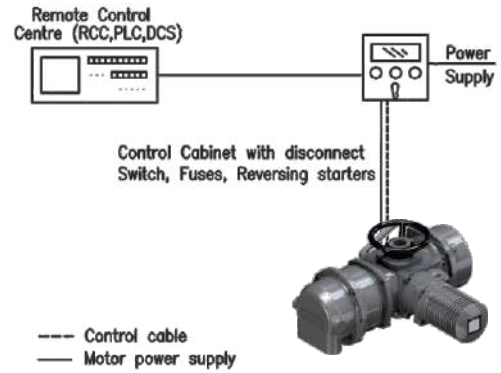


AUMA ACTUATORS - CLASSIFICATION

AUMA Norm actuator:

The SA actuator is offered with

- Electric motor to drive the actuator.
- Torque switch for sensing torque.
- Limit switches for both end positions sensing.
- Blinker transmitter for running indication.
- It is necessary to install reversing contactor separately and is to be wired to the motor for switching the directions.



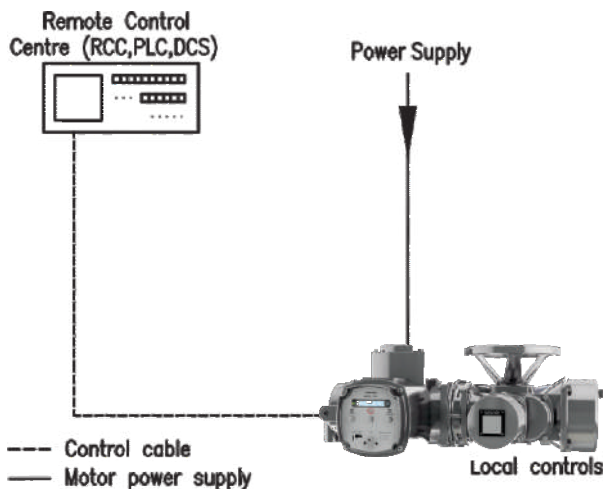
AUMA Norm

AUMA Integral starter (epac controls) actuator:

The modern controls in the integral starter actuators integrate all electrical components such as limit, torque, thermostats, all monitoring elements and position transmitters.

This results in following simplification:

- No extensive wiring in the external control cabinet.
- Several actuators can be connected to common supply cable using isolation switch for each actuator.
- Actuator signals are processed in the controls, only feedback to process control system is necessary.
- Integral starter housing can be easily replaced due to multi-pin plug & socket connector between actuator & integral starter unit.
- Actuator can be operated from Local or Remote position using selector switch of the integral starter unit.
- Option of mounting Integral starter separately at a distance from actuator. (Wall-mountable epac)



Integral starter - AUMA Epac

Actuators with integral controls (epac) can further be categorized into intrusive -type and non-intrusive type.

Intrusive actuator :

Intrusive actuators allow actuator parameters such as position and torque limits to be set by opening the switch compartment cover of the actuator during commission / maintenance, as needed.



Intrusive actuator

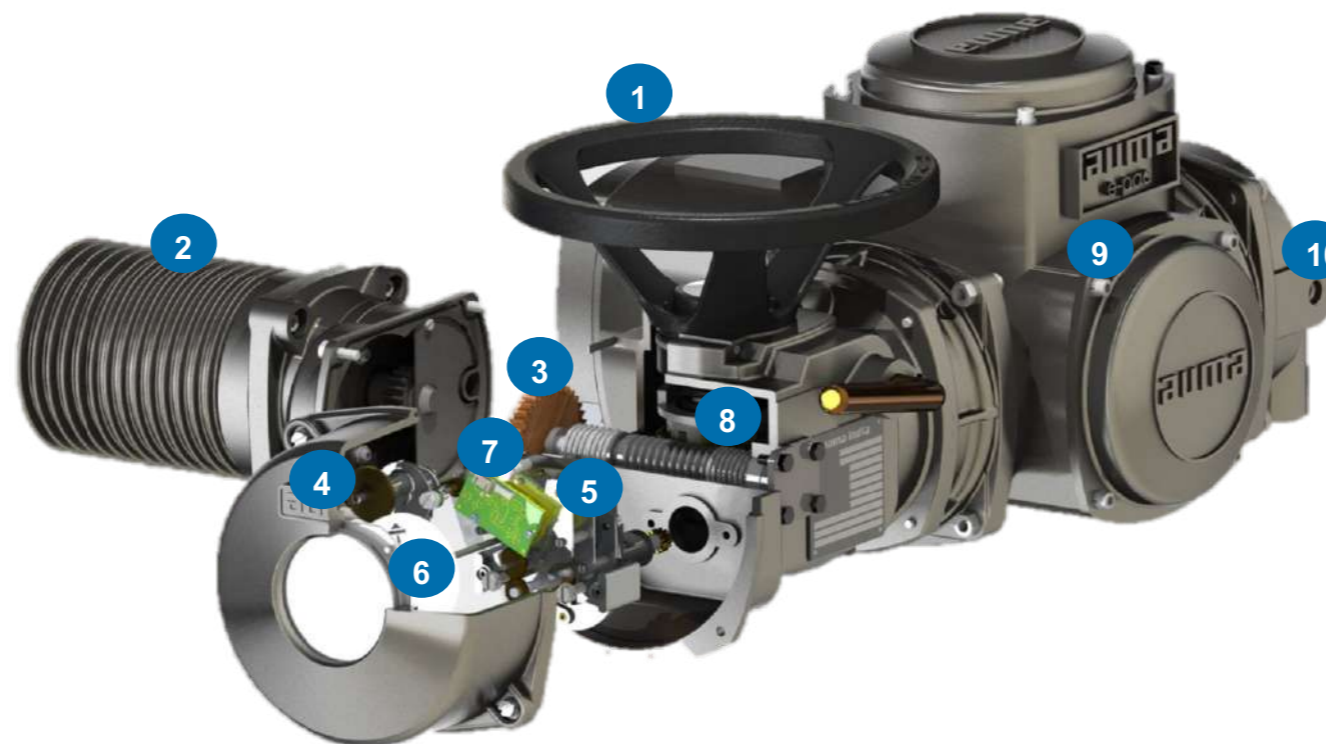
Non-intrusive actuator :

Non-intrusive actuators are provided with absolute encoder which enables to set the actuator parameters such as position and torque limits without opening the actuator cover. Set-up is accomplished by means of local pushbuttons and LCD provided on the actuator itself.



Non-Intrusive actuator

Typical Actuator Constructional View



1 Provided with a handwheel to enable operation of the actuator during commissioning or in case of power failure.

2 AUMA India motors are specifically designed with high starting torque with low inertial to unseat the valves from end positions. The RDOL starter is used for operation of the actuator motor.

3 AUMA India actuators are available with a wide range of output speed achieved by special combination of gears located outside the grease filled housing. Output speed can be easily altered by changing the gear pair and/or motor at site.

4 Switch compartment comprise of mechanism for limit and torque sensing.

5 A reduction gear unit (RGU) in the actuator is used for mechanical position indication.

6 A mechanical position indicator is provided to indicate valve position even without power supply during manual actuator operation.

7 Valve position can be signaled to the local control unit / DCS via the potentiometer or a 4 – 20 mA signal (via EWG/RWG position transmitters/absolute encoder).

The space heater minimizes condensation within the switch compartment.

10 All electrical connections are terminated inside the terminal compartment through 64 pin non modular double sealing connector for ease of connection and maintenance.

As a standard, AUMA India actuators are supplied with adequate cable entries closed with metallic plugs and o-rings to prevent ingress of dust and water during transportation and storage. Additionally, cable glands can be provided based on customer requirement.

9 The integral control e-pac consists of control module, power module and SIL module for performing the standard & safety functions. It also comprise of a local push button station for local operation & programming of the actuator and includes selector switch, push buttons and LCD & LED indications.

8 A well proved principle of worm gearing is used to reduce the motor speed to required output speed of actuator. Self-locking feature is achieved by worm gearing up to 90 rpm at output. The sliding worm is positioned between two sets of springs on worm shaft. The worm moves axially in relation to torque applied on actuator. Via lever & gears, the torque measure is transmitted to control unit.

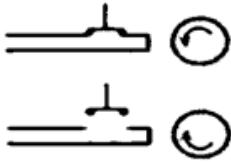
The valve mounting flange is according to ISO 5210/ ISO 5211. Various output drives are available for adaption to various types of valves.

Emergency Shut Down:

The closing of Emergency shut down contact at the remote command centre (REC) will enable the actuator to move in OPEN/ CLOSE direction and STAYPUT (as programmed locally) overriding any existing REMOTE or LOCAL signals.

2-Wire make/ Break:

The remote command signal through 2 Wires. The make (NC) of these wires will operate the actuator on OPEN/CLOSE direction and the break (NO) of these wires will operate the actuator in CLOSE/OPEN direction. The required option is programmable.

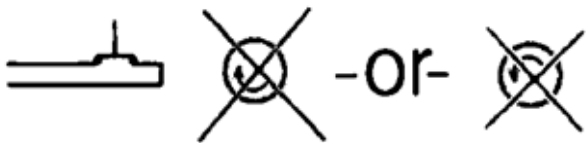


Timer function:

It is possible to run the actuator to a pre-defined travel time in ON-OFF steps. The ON-OFF intervals shall be adjustable from 1-30 seconds for both directions independently. This feature is useful in increasing the operating time in large butterfly valves to prevent water hammer effect.

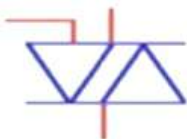
Inhibit Open/ Close:

With this function, it is possible to prevent the actuator from Opening/ Closing. Selection of either Open/ Close is programmable.



Thyristor Reversing Units:

The Integral starter unit can be provided with solid state starter (Thyristor) for regulating duty application. The thyristor control comes with relevant protection circuits.



Remote Annunciation Relays:

There are 5 assignable relays are provided can be programmed for example Actuator running open, Actuator running close, Open torque switch tripped, Close torque switch tripped, Thermo switch/ Thermal overload relay trip etc.

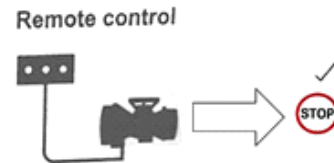


Fault/ healthy annunciation:

In case of any fault like power fail, torque fault, single phase etc., annunciation to indicate the same is provided.

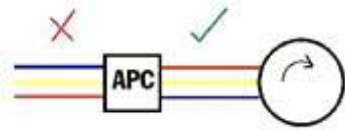
Local Stop:

The actuator with this feature, enables the user to stop the actuator by operating the local STOP push button provided on the front panel, even when the actuator selector switch is locked in REMOTE position.



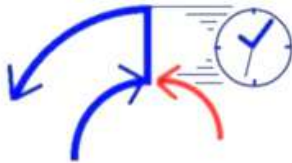
Automatic Phase correction:

The actuator with automatic phase correction in-built, will check the phase sequence of the input power supply and correct it in case wrong phase sequence connected to ensure correct direction of operation of the actuator.



Instantaneous reversal protection:

This feature assures that the motor does not get an instantaneous reversal signal. Even if an instantaneous reversal signal is given to the actuator, a time delay of 500 m sec is built-in to prevent instantaneous reversal of the motor direction and ensures the safety of the motor and the driven equipment.



Smart Torque function:

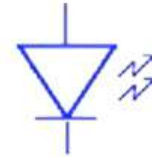
The absolute encoder plays an important role in protecting the actuator, motor and the valve. In addition to its role of tripping the actuator under overload conditions, absolute encoder perform the smart function during the valve unseating process and prevents nuisance tripping.

Anti- Hammer protection:

If the actuator is tripped by the absolute encoder in a particular direction, it will not allow actuator to run again in the same direction i.e., Anti- Hammer protection is provided in the actuator.

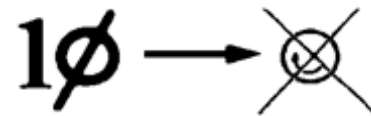
Opto – isolation of input signals:

All the remote-control inputs (OPEN- STOP- CLOSE) to the actuator are isolated optically from the actuator internal electronics to ensure perfect isolation between customer controls and actuator controls.



Single Phasing protection:

This feature protects actuator motor during the absence of any of the incoming phase.



Self- Diagnostic:

The Integral starter in electronic control version is self-diagnostic with local LCD and LEDs for status and fault annunciation.



AUMA ACTUATORS IN SIL VERSION

AUMA India actuator with SIL capability are specifically designed for the functional safety with safety integrity level upto - SIL 3 suitable for highest safety requirements.

These actuators comes with advanced control technology, world-class quality for meeting the stringent SIL specification. The actuators are equipped with an absolute encoder for the accurate direct measurement of limit & torque and an additional SIL module specially designed for the execution of the safety functions along with additional limit switches. Actuators are also provided with enhanced graphical display technology, bluetooth technology, Double Sealing system combined with IP68 corrosion protection and Profibus DP / Modbus in 2-wire communication, 4-20mA command signal & hardwired interface .



Technical data:

The actuator is suitable for:

- 415V, 50Hz, 3 ph AC supply, It can also be offered for supply voltages and frequency depending on customer requirements as given in the below table:

3-Phase AC												
Voltage (V)	380		400		415		440		460		480	
Frequency (Hz)	50	60	50	60	50	60	50	60	50	60	50	60

Please contact AUMA India, for the requirement of single phase epac requirement.

- Permissible variation of mains power supply voltage: $\pm 10\%$
- Permissible variation of mains frequency: $\pm 5\%$
- Ambient Temperature: -20 deg C to +70 deg C
- Relative humidity: Up to 100%
- Enclosure protection: IP 68
- Altitude: AUMA India actuators are capable of operation at an altitude at least 1000m above sea level accordance with IS/ISO 22153:2020.
- Corrosion Protection: The efficient AUMA corrosion protection is decisive for a high life endurance level of the devices. The AUMA corrosion protection system is based on a chemical preliminary treatment, followed by a two-layer coating of the individual components. In compliance with the corrosivity categories according to EN ISO 12944-2, various AUMA corrosion protection levels are provided to suit the international corrosion protection standard.

Depending on manufacturing location, AUMA may incorporate other processes to achieve the customers desired corrosion protection level. Coating facility in AUMA India is in line with other subsidiaries of AUMA Group to maintain global standards in painting/coating quality.

AUMA India offers C3 & C4 corrosion protection coating solutions as per EN ISO 12944-2. Special corrosion protection coating requirements will be catered based on request.

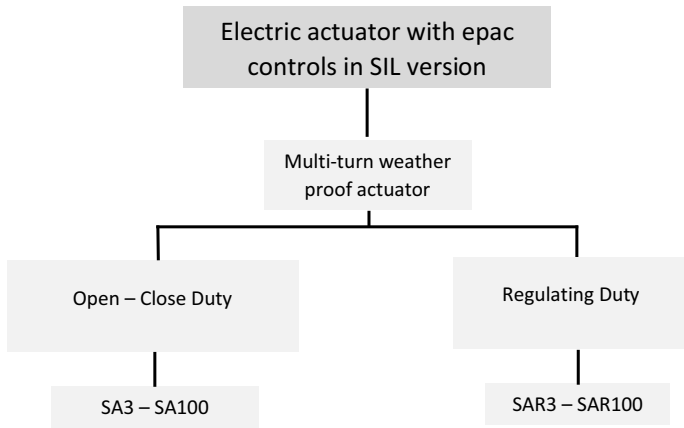
- Colour: The standard colour is smoke-grey. Other colours are available.



Paint line

AUMA ACTUATORS IN SIL VERSION

Product Range:



Allocated Safety Function:

The SIL capability depends on the safety functions performed by the device in case of emergency, with the objective to achieve safe system state. AUMA India actuators are suitable for the following safety functions:

Safe OPEN/Safe CLOSE

Upon request of the safety function, the actuator travels in direction end position OPEN or end position CLOSE.

Safe STOP

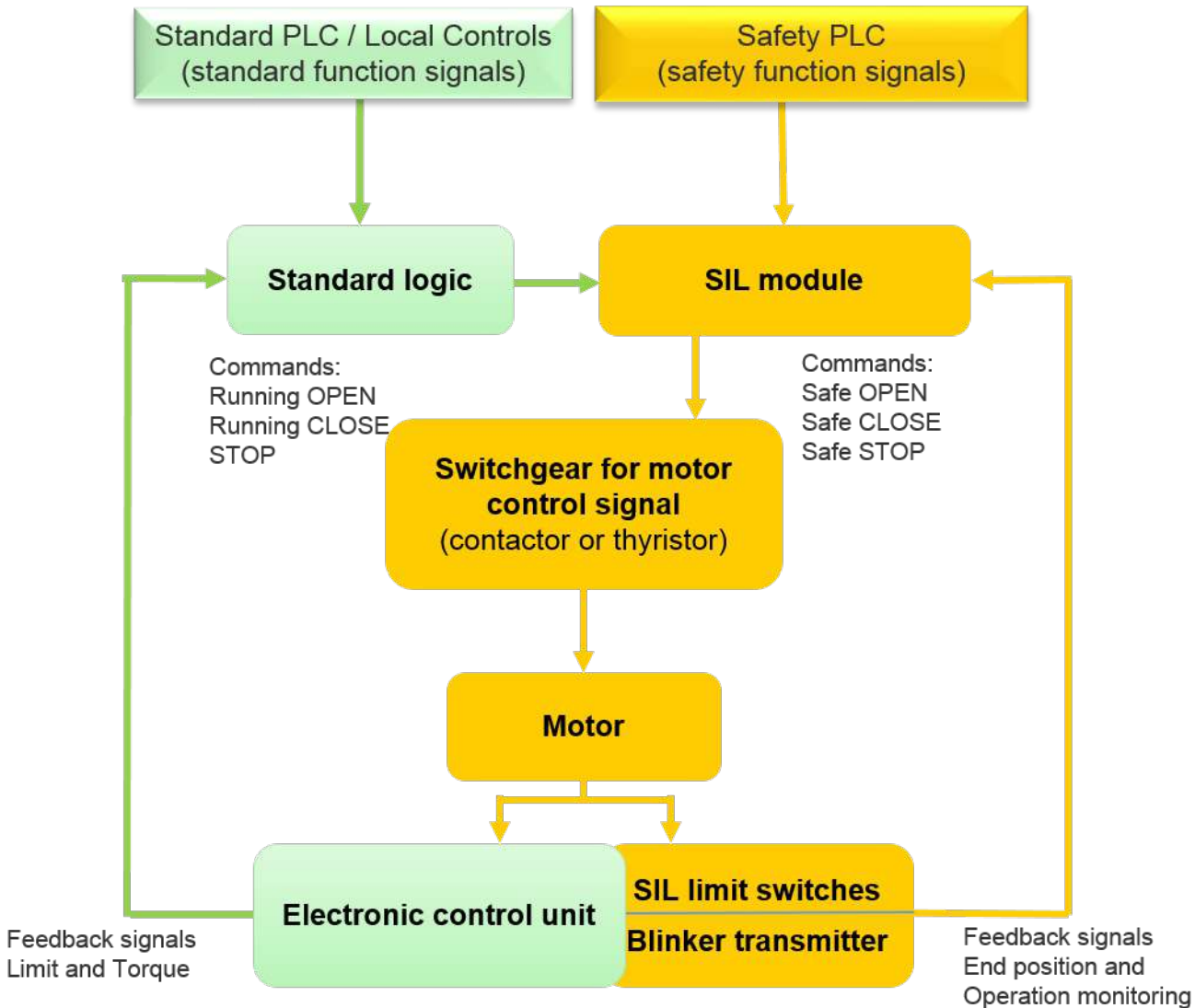
Upon request of the safety function, the actuator motor is disconnected from the mains and the actuator will be in stayput condition.

Signal processing in SIL version actuators:

In actuator with SIL classification, standard operation, the signals within integral controls are always sent via the SIL module. This includes operation commands or any other signal from the standard PLC or the local controls.

Safe end position feedback

For this safety function, the actuator is used as sensor within the SIS. The actuator issues a safe signal via the control unit as soon as one of the end positions OPEN or CLOSE or the tripping torque are reached.



AUMA ACTUATOR CONTROLS IN SIL VERSION

SIL capability with Profibus DP feature in AUMA India actuator is achieved by using SIL module in the integral controls (epac), absolute encoder, additional mechanical limit switches in the switch compartment and the Profibus termination board in the terminal compartment.

AUMA India actuator with epac controls in SIL version is also available with MODBUS interface, 4-20mA command signal and hardwired interface.



1

Epac Controls:

Intelligent epac controls consists of microcontroller based electronic cards, SIL module, motor starter, control transformer, local push button station.

Microcontroller based electronic cards for signal conditioning, digital inputs & outputs, analog inputs & outputs, relays, isolators for performing control functions in the actuator

SIL module consists of an additional electronic board, responsible for executing the safety functions in the actuator. The SIL module integrates comparatively simple components such as transistors, resistors and capacitors for which the failure modes are completely known and determines safety figures which allow implementation in SIL.



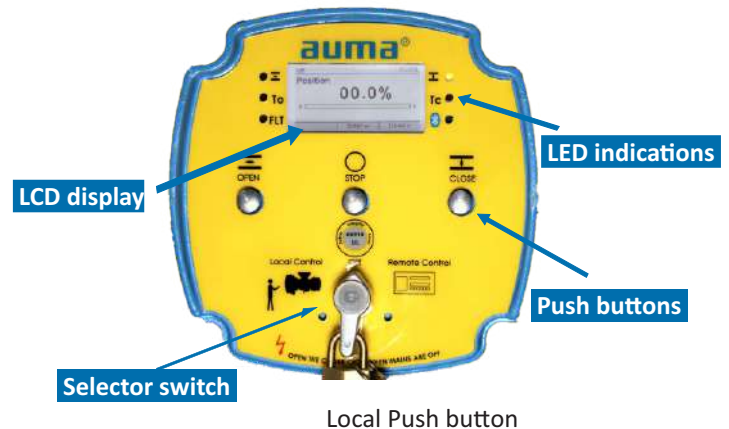
SIL Card

Motor Starter (RDOL starter) is used for operation of actuator motor.

Control Transformer is used in the integral starter to derive the required voltages to use it internally from the main power supply, to avoid the need of an additional external control voltage.

Local push button station is used for local operation & programming of the actuators and consists of:

- Selector switch
- Push buttons
- LCD display
- LED indications



Selector switch is provided to select the actuator in any of the three positions, namely LOCAL, OFF, REMOTE. A switch knob with a padlock is provided to lock the selector switch in any of the three positions.

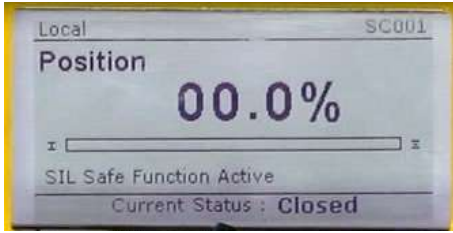
Push buttons OPEN-STOP-CLOSE push buttons are provided for operating the actuator in local mode. Further, same push buttons are used for navigating through the menu in the programming mode.

Actuator operation option using selector switch & push buttons:

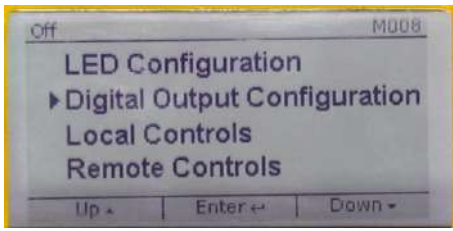
- When the selector switch position is in LOCAL mode, local operation is possible using above 3 push buttons.
- When the selector switch position is in OFF mode, the combination of above 3 push buttons helps in parameter setting and calibration.
- When the selector switch position is in REMOTE mode, remote operation is permissible.

2

LCD display on the local push button station provides latest status and valve position. Using the intuitional menu structure, it provides calibration and diagnostic information, including torque curve, operation and failure records etc.



LCD display - operation mode



LCD display - programming mode

LED indications on the sides of the LCD screen are provided to have Information regarding the running indication of the actuator (status), bluetooth status and faults status, if any.

Configurable LEDs on local push button station represents different conditions. The default LED settings are as below:

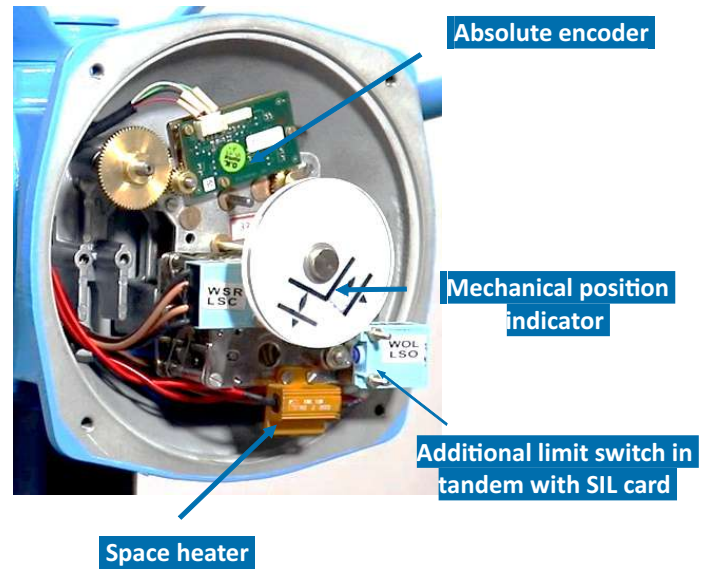


LED indications

	End position open	LED is blinking then actuator is running in OPEN direction and is continuously ON when end position OPEN is reached.
	End position close	LED is blinking then actuator is running in CLOSE direction and is continuously ON when end position CLOSE is reached.
To	Trip Torque open	LED is ON when Trip torque OPEN is activated
Tc	Trip Torque close	LED is ON when Trip torque Close is activated
FLT	Common fault	LED is ON in fault condition
	Bluetooth	LED is ON when Paired and Connected with AUMA India Utility Software/ Whenever BT is connected

Switch compartment:

Switch compartment, houses the sensor system for automatic actuator switch off once the end positions or preset positions or set torque is reached. This sensor system consists of absolute encoder for direct end position and torque measurement and recording, along additional mechanical limit switches in tandem with SIL card mechanical position indicator, reduction gearing unit, position transmitters & potentiometer and space heater.



Switch compartment

Absolute Encoder is used for the accurate measurement of continuous position and torque in both directions. This absolute encoder communicates to main microcontroller on CAN bus.



Absolute Encoder

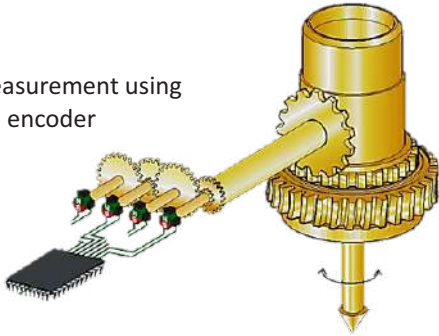
Typical arrangement of absolute encoder in the switch compartment, depicting the two main functions:

- Direct Torque measurement
- Direct Position measurement

Direct positioning measurement using absolute encoder :

- A combination of 3 magnets mounted on gears and 3 sensors (measure the angle), are used to provide the information on number of turns to compute the total travel.
- In the power off condition, this absolute encoder gives and retains the correct number of turns.

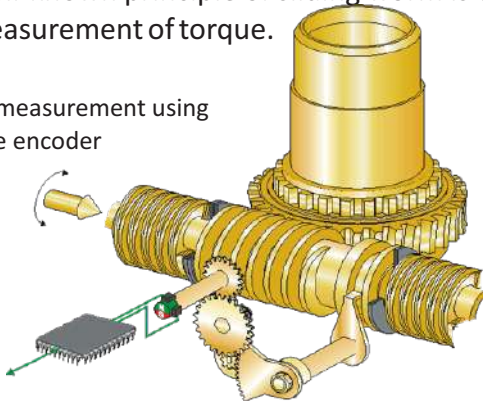
Limit measurement using absolute encoder



Direct Torque measurement using absolute encoder :

- The absolute encoder is used for torque measurement in the actuator and switch off the motor when pre-set torques are reached.
- Well-known principle of sliding worm is used for the measurement of torque.

Torque measurement using absolute encoder



3

Terminal compartment:

All electrical connections are terminated inside the terminal compartment through 64 pin plug & socket non modular double sealing connector for ease of connection and maintenance. Terminal compartment also houses the Profibus DP termination card for fieldbus communication.



64 Pin Non-modular double sealing connector

Profibus DP termination card



Profibus Communication:

Profibus offers a complete family of fieldbus versions:

- Profibus PA for process automation,
- Profinet for data transmission based on Ethernet
- Profibus DP for automation of power plants and other process industries
 - DP-V0 (fast cyclic and deterministic data exchange),
 - DP-V1 (acyclic access to device parameters and diagnostic data)
 - DP-V2 (further functions such as time stamp or redundancy),

Hence, Profibus DP is the ideal solution for plant automation as per International standard IEC 61158 / 61784.

AUMA India actuators with Profibus DP

- Support Profibus DP-V0, DP-V1 and DP-V2
- High speed data exchange (up to 1.5Mbit/s - corresponds to approx. 0.3ms/actuator)
- Integration with the DCS
- Cable length up to approx. 10km with repeaters (without repeater up to 1,200m)
- Up to 126 devices can be connected
- Redundant line topology as an option

Installation package Electronic Device Description (EDD) for AUMA India actuators available as free download from its website: www.auma.co.in

Further, AUMA India have been allocated with GSD file no. AUMA1161.GSD and software for the GSD & DTM files are available on the AUMA India website.

AUMA ACTUATOR CONTROLS IN SIL VERSION

Optional Parking frame:

AUMA India actuators in SIL version are provided with the option of parking frame for safe storage of a disconnected plug or cover to protect against touching the bare contacts and against environmental influences.



Parking frame arrangement

Auma India actuator Epac controls in SIL version with Modbus interface :

Modbus is a 2-wire serial communication protocol that is used for information exchange between DCS and actuators. Modbus Protocol is a protocol which works on Master Slave communication principal. Our actuators are slave devices and can be addressed by unique ID which is 1 to 247. The Baud Rate that can be set is 1200 up to 36Kbits/sec. The 2 wire communication to the field devices which could be running a long distances. The Electronics Industries Association (EIA) approved a balanced transmission standard called RS-485.

- Long Distance up to 1200Meters
- Number of participants 32
- Twisted pair cable



Priority of the safety functions:

In the event of an emergency if a safety function is requested while some functions are executed via the standard logic, the standard logic of epac will be bypassed and the safety function will be performed via the SIL module. The safety functions always overrule the standard operation.

Configuration of the safety functions:

In the event of an emergency if a safety function is requested while some functions are executed via the standard logic, the standard logic of epac will be bypassed and the safety function will be performed via the SIL module. The safety functions always overrule the standard operation.

Configuration of SIL function	Short Description
Safe ESD CLOSE/CLOSE	Safe CLOSING
Safe ESD OPEN/OPEN	Safe OPENING
Safe STOP CLOSE/OPEN	Safe STOP in direction CLOSE and direction OPEN
Safe ESD CLOSE/CLOSE + Safe STOP CLOSE/OPEN	Safe CLOSING and Safe STOP in direction CLOSE and direction OPEN
Safe ESD OPEN/OPEN + Safe STOP CLOSE/OPEN	Safe OPENING and Safe STOP in direction CLOSE and direction OPEN

When configuring a Safe ESD function and a Safe STOP function, the Safe ESD function is always prioritised compared to the Safe STOP function when requested simultaneously.

Easy adaptability with various interfaces:

- Hardwired interface (Controls on 4 wire)
- Field bus controls: Profibus DP / Modbus Interface
- Regulating duty: 4-20 mA command signal

Easy set up and access:

Set-up, commissioning, local operation and diagnostics/trouble shooting are via the local, non-intrusive interface with LCD display. All of these operations can be done in hazardous environments or adverse weather conditions without removing a single bolt or nut, which drastically reduces set-up time. The local push buttons provide full access to all of the functions.

Enhanced local graphical interface:

An advanced LCD graphical display is used for providing the clear and better visibility of the actuator stats along with programming menus.

Strong field adaptability:

Modular concept product design in AUMA actuator allows us to supply tailor-made solution for various plant-specific requirements. AUMA actuators provide complete flexibility with plug-in between actuator and Epac, customer end connection and Epac front panel for suitable orientation.



Modularity Concept

Advanced field controls:

AUMA field devices with PROFIBUS DP offer access to

- Status and diagnostic data of field actuators
- Parameters of application functions to adapt to process requirements
- Data within the electronic device ID for detailed device identification such as actuator make, actuator model etc
- Operational data for preventive maintenance.

Abundant diagnostic data:

Controls has got in-built data logger with real time stamp for diagnostics. The data logger provides advanced operational & maintenance data for troubleshooting. Information may be viewed on the local display, easy to read. Programming and setting the parameter is done via front key provided on the front panel of the actuator. AUMA connect app for communication with mobile devices.



AUMA India SA / SAR range actuators with epac in SIL version are certified for the architecture up to SIL 2 for single channel configuration (1oo1) and up to SIL 3 for double channel configuration (1oo2).



CERTIFICATE

This certifies, that the company

Auma India Private Limited
38A & 39B, 2nd Phase, Peenya Industrial Area
Bengaluru-560058 – Karnataka, India

Is authorized to provide the product mentioned below

Description of product: **ELECTRIC ACTUATORS WITH EPAC CONTROLS IN SIL VERSION**
SA3 - SA100
SAR3 - SAR100

In accordance with: **IEC 61508:2010 Parts 1, 2, 3, 4, 5, 6, 7**

Registration No 20 21041 01
Test Report No PS-21041-20-L-01
File reference 21041-01

TÜV NORD Italia S.r.l. (TÜV NORD Group)
Via Turati, 70 20023 Cerro Maggiore (MI)



www.tuev-nord.it

Validity
from 2020-12-11
until 2023-12-11

Cerro Maggiore, 2020-12-11
prodotto@tuev-nord.it

Please also pay attention to the information stated overleaf

AUMA Connect App:

AUMA India has an AUMA connect - Bluetooth application for controlling, monitoring, configuring (settings of the parameters) and downloading the stored data of electric actuators without opening the actuator cover. This app can be downloaded from the Google Play store and installed on any Android mobile device with Android version 5.0 and above.

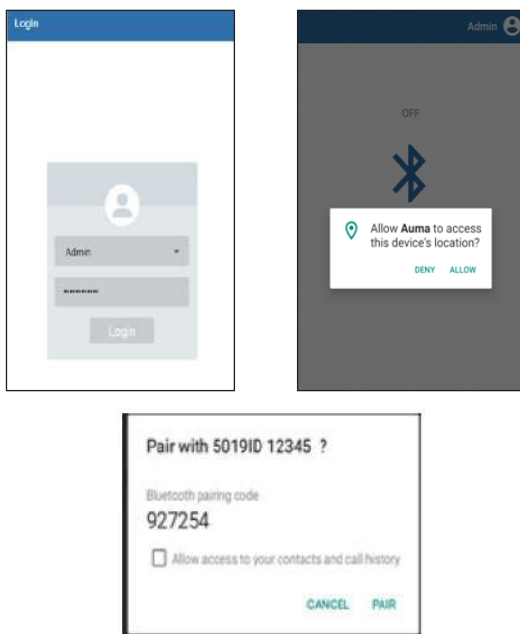
AUMA Connect App- Key features:

- Bluetooth as wireless interface
- User based Authentication
- Real time clock settings of the actuator
- Actuator ID configuration
- Downloading of Event logged data from actuator
- Remote operation for diagnostics
- Import & Export of actuator setting

AUMA Connect App- Benefits:

Enhanced security:

The app is password protected and can be accessed with authenticated username and password. For enhanced security an OTP is required to pair the AUMA India actuators with the AUMA Connect app.

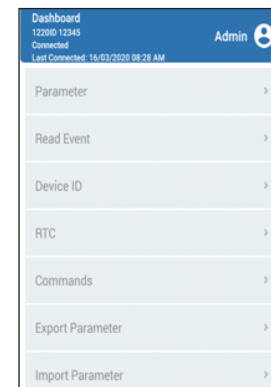


Simplified connectivity:

AUMA connect app on the mobile device will scan and show the list of nearby (within 10m range) bluetooth enabled AUMA India actuators only to avoid ambiguity. Actuators will be listed based on the device TAG/ werks number for easy identification & connection for monitoring & configuring.

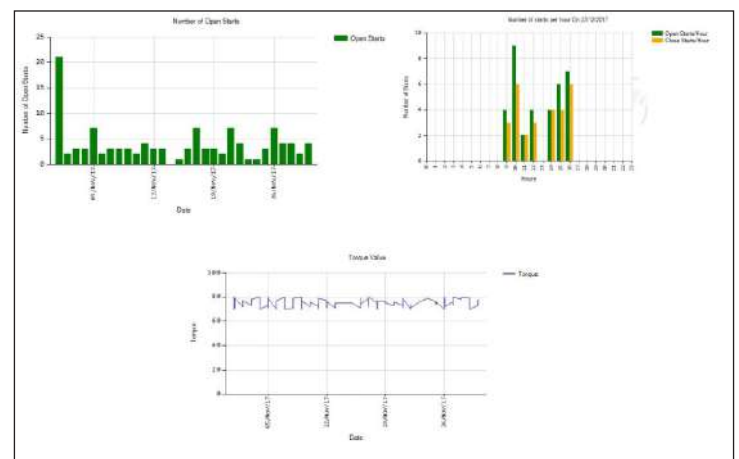
User-friendly interface on any Android based mobile device:

User friendly menu to control, monitor and configure actuators using the app on your Android based mobile device. It means no separate handheld device is required to monitor or configure the actuators at field.



Ample diagnostic data:

Events are downloaded from the actuator and transferred to the PC for diagnostics. Further, a powerful PC tool and specially designed AUMA India Utility Software (AIUS) is used for relevant data extraction & analysis.



Cyber security or industrial control systems security:

We, at AUMA India understand the importance of cyber security in the industrial control systems and are committed to provide safe and secure systems for the efficient plant operation. AUMA India offer actuators with Bluetooth connectivity for easy commissioning assistance and data downloading. AUMA India's Bluetooth enabled actuators use different level of password protection for Bluetooth connectivity to access data and modification of actuator settings to ensure adequate data security.

For more details on installation & usage of AUMA connect app, please contact AUMA India.

Technical Data for OPEN-CLOSE Duty

auma®	Technical Data - OPEN-CLOSE Duty									SA3 - SA100			
Model	Output Speed at 50Hz rpm	Torque Range ¹⁾ S2-15min Nm		Running Torque ²⁾ S2-15min Nm	Valve Attachment		Stem Dia. O/P drive Type A Max. mm	Permissible Thrust for Type A Max. kN	Hand-wheel Dia. Std. mm	Handwheel Ratio		Weight (without epac unit) ⁴⁾ approx.	
		Min. Nm	Max. Nm		Standard DIN:3210	Option ISO:5210				Std.	With TBG*	Std. kg	With TBG* kg
SA3	11	20	30	11	G 0	F 10	26	25	250	1:1	2:1	33	39
	16												
	22												
	32												
	45												
	63												
	90												
	125 ³⁾												
180 ³⁾													
SA3.5	16	20	35	11.5	G 0	F 10	26	25	250	1:1	2:1	33	39
SA6	4	20	60	21	G 0	F 10	26	40	250	1:1	2:1	33	39
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
	125 ³⁾												
180 ³⁾													
SA12	4	40	120	42	G 0	F 10	38	60	250	1:1	2:1	33	39
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
	125 ³⁾												
180 ³⁾													
SA15	4	50	150	53	G 0	F 10	38	60	250	1:1	2:1	33	39
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
	125 ³⁾												
180 ³⁾													
SA25	4	100	250	88	G 1/2	F 14	52	120	360	1:1	3:1	71	87
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
	125 ³⁾												
180 ³⁾													

1) Tripping torque adjustable for both direction.

2) Permissible average torque for the whole travel.

3) Non Self-locking.

4) The approximate weight of an epac unit is 16 Kg

We reserve the alter data according to improvements made. Previous data sheets become invalid with the issue of this data she et.

auma®

Technical Data for OPEN-CLOSE Duty													
auma®	Technical Data OPEN-CLOSE Duty										SA3 - SA100		
Model	Output Speed at 50Hz rpm	Torque Range ¹⁾ S2-15min Nm		Running Torque ²⁾ S1-15min Nm	Valve Attachment		Stem Dia. O/P drive Type A Max. mm	Permissible Thrust for Type A Max. kN	Handwheel Dia. Std. mm	Handwheel Ratio		Weight (without epac unit) ⁴⁾ approx.	
		Min.Nm	Max. Nm		Standard DIN:3210	Option ISO:5210				Std .	With TBG*	Std . kg	With TBG* kg
SA30	4	100	300	105	G 1/2	F 14	52	120	360	1:1	3:1	71	87
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
125 ³⁾	100	264											
180 ³⁾													
SA50	4	200	500	175	G 1/2	F 14	52	160	640	1:1	3:1	99	116
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
125 ³⁾	200	450											
180 ³⁾													
SA60	4	200	600	210	G 1/2	F 14	52	160	640	1:1	3:1	99	116
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
125 ³⁾	200	540											
180 ³⁾													
SA100	4	400	1000	350	G 3	F 16	65	190	800	1:1	4:1	131	152
	5.6												
	8												
	11												
	16												
	22												
	32												
	45												
	63												
	90												
125 ³⁾	400	900											
180 ³⁾													

Enclosure: IP68 -15:13947 (Part I):1993, Appendix C / IEC 60947 -I: 2004.

Actuators are rated for short time duty S2-15 min, based on 40°C ambient temperature. The nominal current is based on running torque approximately 35% of max. torque. The max. torque can be utilised for a short time (e.g. to seat or unseat a valve) and the current can rise to max. value, refer corresponding column for current at max. torque in Electrical Data.

Note: Revolution for Full Stroke (Min Max.) – 1 - 480 or 1 - 4800

* -Top Bevel Gear Set.

We reserve the alter data according to improvements made. Previous data sheets become invalid with the issue of this data sheet.



Electrical Data for OPEN-Close Duty

auma®	Electrical Data OPEN-CLOSE Duty									SA3 - SA100
Model	Output Speed at 50Hz rpm	Torque max. Nm	Three phase Squirrel cage AC Motor 415V, 50 Hz							
			Nominal Output kW	Speed rpm	Size	Nominal Current/Full load Current* A	Current at Max. Torque ¹⁾ A	Starting Current A	Power Factor Cos ϕ	Full Load Efficiency (%)
SA3	11	30	0.06	1400	63	0.29	0.31	1.2	0.6	48
	16		0.06	1400	63	0.29	0.38	1.2	0.6	48
	22		0.06	1400	63	0.29	0.50	1.2	0.6	48
	32		0.12	1400	63	0.65	0.87	2.3	0.53	50
	45		0.18	2800	63	0.58	0.9	3.3	0.66	65
	63		0.18	2800	63	0.58	1.3	3.3	0.66	65
	90		0.37	2800	63	1.32	1.9	5.7	0.61	64
	125		0.37	2800	63	1.32	1.6	5.7	0.61	64
SA3.5	16	35	0.06	1400	63	0.29	0.42	1.2	0.6	48
SA6	4	60	0.06	1400	63	0.29	0.29	1.2	0.6	48
	5.6		0.06	1400	63	0.29	0.31	1.2	0.6	48
	8		0.06	1400	63	0.29	0.38	1.2	0.6	48
	11		0.12	1400	63	0.65	0.7	2.3	0.53	50
	16		0.12	1400	63	0.65	0.87	2.3	0.53	50
	22		0.12	1400	63	0.65	1.2	2.3	0.53	50
	32	0.18	2800	63	0.58	1.3	3.3	0.66	65	
	45	0.37	2800	63	1.32	1.9	5.7	0.61	64	
	63	0.37	2800	63	1.32	2.4	5.7	0.61	64	
	90	0.55	2800	71	1.5	3.08	9.0	0.71	75	
125	0.55	2800	71	1.5	2.45	9.0	0.71	75		
180	0.55	2800	71	1.5	3.52	9.0	0.71	75		
SA12	4	120	0.06	1400	63	0.29	0.38	1.2	0.6	48
	5.6		0.12	1400	63	0.65	0.7	2.3	0.53	50
	8		0.12	1400	63	0.65	0.87	2.3	0.53	50
	11		0.12	1400	63	0.65	1.2	2.3	0.53	50
	16		0.25	1400	71	1.2	1.45	4.6	0.5	60
	22		0.25	1400	71	1.2	1.80	4.6	0.5	60
	32	0.37	2800	63	1.32	2.5	5.7	0.61	64	
	45	0.55	2800	71	1.5	3.08	9.0	0.71	75	
	63	1.1	2800	71	2.9	4.58	16.0	0.72	75	
	90	1.1	2800	71	2.9	6.50	16.0	0.72	75	
125	1.1	2800	71	2.9	5.10	16.0	0.72	75		
180	1.1	2800	71	2.9	7.50	16.0	0.72	75		
SA15	4	150	0.06	1400	63	0.29	0.45	1.2	0.6	48
	5.6		0.12	1400	63	0.65	0.8	2.3	0.53	50
	8		0.12	1400	63	0.65	1.2	2.3	0.53	50
	11		0.25	1400	71	1.2	1.36	4.6	0.5	60
	16		0.25	1400	71	1.2	1.66	4.6	0.5	60
	22		0.37	2800	63	1.32	2.2	5.7	0.61	64
	32	0.55	2800	71	1.5	2.75	9.0	0.71	75	
	45	1.1	2800	71	2.9	4.26	16.0	0.72	75	
	63	1.1	2800	71	2.9	5.67	16.0	0.72	75	
	90	1.3	2800	71	3.6	7.6	17	0.72	75	
SA25	4	250	0.12	1400	63	0.65	0.95	2.3	0.53	50
	5.6		0.25	1400	71	1.2	1.29	4.6	0.5	60
	8		0.25	1400	71	1.2	1.64	4.6	0.5	60
	11		0.55	1400	71	1.75	1.92	7.6	0.66	67
	16		0.55	1400	71	1.75	2.60	7.6	0.66	67
	22		0.55	1400	71	1.75	3.58	7.6	0.66	67
	32	1.1	2800	71	2.9	4.75	16.0	0.72	75	
	45	1.1	2800	71	2.9	6.58	16.0	0.72	75	
	63	2.2	2800	90	4.1	8.44	35	0.88	85	
	90	2.2	2800	90	4.1	12.5	35	0.88	85	
125	2.2	2800	90	4.1	8.95	35	0.88	85		
180	2.2	2800	90	4.1	13.6	35	0.88	85		

1) Current at max. torque. We recommended to select switch gear and cables suitable for those values.

* Whenever actuators are supplied with integral starter with TOLR, the tripping current set on the TOLR is same as nominal current / Full Load current.

We reserve the right to alter data according to improvements made. Previous data sheets become invalid with the issue of this data sheet.

Electrical Data for OPEN-Close Duty

auma®	Electrical Data OPEN-CLOSE Duty									SA3 -SA100
Model	Output Speed at 50Hz rpm#	Torque max. Nm	Three phase Squirrel cage AC Motor 415V, 50 Hz							
			Nominal Output kw	Speed rpm	Size	Nominal / Current Full Load Current*A	Current at Max.Torque ¹ A	Starting Current A	Power Factor COS ø	Full Load Efficiency (%)
SA30	4	300	0.12	1400	63	0.65	1.2	2.3	0.53	50
	5.6		0.25	1400	71	1.2	1.39	4.6	0.5	60
	8		0.25	1400	71	1.2	1.77	4.6	0.5	60
	11		0.55	1400	71	1.75	2.20	7.6	0.66	67
	16		0.55	1400	71	1.75	3.08	7.6	0.66	67
	22		1.1	1400	90	2.9	3.95	25.0	0.72	75
	32	1.1	2800	71	2.9	5.72	16.0	0.72	75	
	45	1.25	2800	90	2.7	8.65	22.0	0.81	79	
	63	2.2	2800	90	4.1	10.0	35	0.88	85	
	90	2.5	2800	90	4.7	15.5	35	0.88	84	
	125	2.5	2800	90	4.7	11.5	35	0.88	84	
	180	4.0	2800	90	9.0	16.5	60	0.82	82	
SA50	4	500	0.25	1400	71	1.2	1.48	4.6	0.5	60
	5.6		0.55	1400	71	1.75	1.95	7.6	0.66	67
	8		0.55	1400	71	1.75	2.60	7.6	0.66	67
	11		0.55	1400	71	1.75	3.58	7.6	0.66	67
	16		1.1	1400	90	2.9	4.80	25.0	0.72	75
	22		1.1	1400	90	2.9	6.65	25.0	0.72	75
	32	2.2	2800	90	4.1	8.52	35	0.88	85	
	45	2.2	2800	90	4.1	12.5	35	0.88	85	
	63	4.00	2800	90	9.00	17.1	60	0.82	82	
	90	4.00	2800	90	9.00	26.0	60	0.82	82	
	125	4.00	2800	90	9.00	18	60	0.82	82	
	180	4.00	2800	90	9.00	30	60	0.82	82	
SA60	4	600	0.25	1400	71	1.2	1.67	4.6	0.5	60
	5.6		0.55	1400	71	1.75	2.2	7.6	0.66	67
	8		0.55	1400	71	1.75	3.08	7.6	0.66	67
	11		0.55	1400	71	1.75	5.15	7.6	0.66	67
	16		1.1	1400	90	2.9	5.75	25.0	0.72	75
	22		2.2	1400	90	5.7	7.92	35	0.7	77
	32	2.2	2800	90	4.1	10.04	35	0.88	85	
	45	4.00	2800	90	9.00	15.05	60	0.82	82	
	63	4.00	2800	90	9.00	21.08	60	0.82	82	
	90	5.00	2800	112	10.8	31.08	90	0.84	88	
	125	5.00	2800	112	10.8	22.5	90	0.84	88	
	180	5.00	2800	112	10.8	35.5	90	0.84	88	
SA100	4	1000	0.55	1400	71	1.75	2.55	7.6	0.66	67
	5.6		0.75	1400	90	1.85	3.85	12.0	0.75	75
	8		0.75	1400	90	1.85	4.65	12.0	0.75	75
	11		1.1	1400	90	2.9	6.65	25.0	0.72	75
	16		2.2	1400	90	5.7	9.06	35	0.7	77
	22		2.2	1400	90	5.7	12.5	35	0.7	77
	32	4.00	2800	90	9	17.5	60	0.82	82	
	45	4.00	2800	90	9	26.00	60	0.82	82	
	63	7.5	2800	112	15	40.00	116.0	0.82	84	
	90	7.5	2800	112	15	60.00	116.0	0.82	84	
	125	7.5	2800	112	15	44.6	116.0	0.82	84	
	180	7.5	2800	112	15	68.00	116.0	0.82	84	

Permissible voltage variation: ±10%, Permissible frequency variation: ±5%, Permissible combined variation: 10% if voltage drops below there will be reduction of nominal output.

Auma motors are provided with 3 thermostiches one in each winding connected in series to protec1 windings. Our Warranty is void if those thermostiches are not connected In control circuit.

Motor data are approximate. Due to usual manufacturing tolerances there may be deviations from the values given.

* Whenever actuators are supplied with integral starter with TOLR, the tripping current set on the TOLR is same as nominal current / Full Load current.

1) Current at max. torque. We recommend to selec1 switch gear and cables suitable for those values.

Output speed (RPM) of the actuator at 60Hz shall be 1.2 times of the output speed (RPM) at 50Hz as indicated above.

We reserve the right to alter data according to improvements made. Previous data sheets become invalid with the issue of this data sheet.

Technical Data for Regulating Duty

auma	Technical Data Regulating Duty										SAR3 - SAR100			
Model	Output Speed at 50Hz rpm	Torque Range ¹⁾ S4-25%		Modulating Torque ²⁾ S4-25% Nm	Valve Attachment		Number of starts max. c/h	Stem Dia. O/P drive Type A Max.mm	Permissible Thrust for Type A Max. kN	Hand-wheel Dia. Std. mm	Handwheel Ratio		Weight (without epac unit) ⁴⁾ approx.	
		Min. Nm	Max. Nm		Standard DIN:3210	Option ISO:5210					Std.	With TBG*	Std. kg	With TBG* kg
SAR3	11	20	30	20	G 0	F 10	1200	26	25	250	1:1	2:1	33	39
	16													
	22													
	32													
	45													
SAR6	4	30	60	30	G 0	F 10	1200	26	40	250	1:1	2:1	33	39
	5.6													
	8													
	11													
	16													
	22													
	32													
45														
SAR12	4	60	120	60	G 0	F 10	1200	38	60	250	1:1	2:1	33	39
	5.6													
	8													
	11													
	16													
	22													
	32													
45														
SAR15	4	60	150	75	G 0	F 10	1200	38	60	250	1:1	2:1	33	39
	5.6													
	8													
	11													
	16													
	22													
	32													
45														
SAR25	4	120	250	125	G 1/2	F 14	1200.00	52	120	360	1:1	3:1	71	87
	5.6													
	8													
	11													
	16													
	22													
	32													
45														
SAR30	4	150	300	150	G 1/2	F 14	1200	52	120	360	1:1	3:1	71	87
	5.6													
	8													
	11													
	16													
	22													
	32													
45														
SAR50	4	250	500	250	G 1/2	F 14	1200	52	160	640	1:1	3:1	99	116
	5.6													
	8													
	11													
	16													
	22													
	32													
45														
SAR60	4	300	600	300	G 1/2	F 14	1200	52	160	640	1:1	3:1	99	116
	5.6													
	8													
	16													
	22													
32														
SAR100	4	500	1000	500	G 3	F 16	1200	65	190	800	1:1	4:1	131	152
	5.6													
	8													
	11													
	16													
	22													
	32													
45														

1) Tripping torque adjustable for both directions.
 2) Permissible average torque for the whole travel.
 3) The approximate weight of an epac unit is 16 kg. Enclosure: IP68 -IS:13947 (Part I) : 1993, Appendix C / IEC 60947-1 : 2004

Actuators are rated for intermittent duty S4-25% ED, based on 40 °C ambient temperature. The nominal current is based on modulating torque of approximately 35% of max. torque. The max. torque can be utilized for a short time (e.g. to seat or unseat a valve) and the current can raise to max. value, refer corresponding column for current at max. torque in Electrical Data.

We reserve the right to alter data according to Improvements made. Previous data sheets become Invalid With the Issue of this data sheet



Electrical Data for Regulating Duty

auma®	Electrical Data Regulating Duty								SAR3 -SAR100	
Model	Output Speed at 50Hz rpm [#]	Modulating Torque Nm	Three phase Squirrel cage AC Motor 415V, 50 Hz							
			Nominal output kW	Speed rpm	Size	Nominal Current / Full Load Current* A	Current at Max. Torque ¹ A	Starting Current A	Power Factor Cos Ø	Full Load Efficiency (%)
SAR3	1	20	0.06	1400	63	0.29	0.31	1.2	0.6	48
	16		0.06	1400	63	0.29	0.38	1.2	0.6	48
	22		0.06	1400	63	0.29	0.50	1.2	0.6	48
	32		0.12	1400	63	0.65	0.87	2.3	0.53	50
	45		0.18	1400	71	0.69	1.00	4.2	0.54	67
SAR6	4	30	0.06	1400	63	0.29	0.29	1.2	0.6	48
	5.6		0.06	1400	63	0.29	0.31	1.2	0.6	48
	8		0.06	1400	63	0.29	0.38	1.2	0.6	48
	1		0.12	1400	63	0.65	0.7	2.3	0.53	50
	16		0.12	1400	63	0.65	0.87	2.3	0.53	50
	22		0.12	1400	63	0.65	1.2	2.3	0.53	50
	32		0.25	1400	71	1.2	1.45	4.6	0.5	60
	45		0.25	1400	71	1.2	1.86	4.6	0.5	60
SAR12	4	60	0.06	1400	63	0.29	0.38	1.2	0.6	48
	5.6		0.12	1400	63	0.65	0.7	2.3	0.53	50
	8		0.12	1400	63	0.65	0.87	2.3	0.53	50
	11		0.12	1400	63	0.65	1.2	2.3	0.53	50
	16		0.25	1400	71	1.2	1.45	4.6	0.5	60
	22		0.25	1400	71	1.2	1.80	4.6	0.5	60
	32		0.55	1400	71	1.75	2.52	7.6	0.66	67
	45		0.55	1400	71	1.75	3.52	7.6	0.66	67
SAR15	4	75	0.06	1400	63	0.29	0.45	1.2	0.6	48
	5.6		0.12	1400	63	0.65	0.8	2.3	0.53	50
	8		0.12	1400	63	0.65	1.2	2.3	0.53	50
	11		0.25	1400	71	1.2	1.36	4.6	0.5	60
	16		0.25	1400	71	1.2	1.66	4.6	0.5	60
	22		0.55	1400	71	1.75	2.20	7.6	0.66	67
	32		0.55	1400	71	1.75	3.08	7.6	0.66	67
	45		0.55	1400	71	1.75	3.08	7.6	0.66	67
SAR25	4	125	0.12	1400	63	0.65	0.95	2.3	0.53	50
	5.6		0.25	1400	71	1.2	1.29	4.6	0.5	60
	8		0.25	1400	71	1.2	1.64	4.6	0.5	60
	11		0.55	1400	71	1.75	1.92	7.6	0.66	67
	16		0.55	1400	71	1.75	2.60	7.6	0.66	67
	22		0.55	1400	71	1.75	3.58	7.6	0.66	67
	32		1.1	1400	90	2.9	4.80	25.0	0.72	75
	45		1.1	1400	90	2.9	6.67	25.0	0.72	75
SAR30	4	150	0.12	1400	63	0.65	1.2	2.3	0.53	50
	5.6		0.25	1400	71	1.2	1.39	4.6	0.5	60
	8		0.25	1400	71	1.2	1.77	4.6	0.5	60
	11		0.55	1400	71	1.75	2.2	7.6	0.66	67
	16		0.55	1400	71	1.75	3.08	7.6	0.66	67
	22		1.1	1400	90	2.9	3.95	25.0	0.72	75
	32		1.1	1400	90	2.9	5.75	25.0	0.72	75
	45		2.2	1400	90	5.7	8.00	35	0.7	77
SAR50	4	250	0.25	1400	71	1.2	1.48	4.6	0.5	60
	5.6		0.55	1400	71	1.75	1.95	7.6	0.66	67
	8		0.55	1400	71	1.75	2.60	7.6	0.66	67
	11		0.55	1400	71	1.75	3.58	7.6	0.66	67
	16		1.1	1400	90	2.9	4.8	25.0	0.72	75
	22		1.1	1400	90	2.9	6.65	25.0	0.72	75
	32		2.2	1400	90	5.7	9.06	35	0.7	77
	45		2.2	1400	90	5.7	13.4	35	0.7	77
SAR60	4	300	0.25	1400	71	1.2	1.67	4.6	0.5	60
	5.6		0.55	1400	71	1.75	2.2	7.6	0.66	67
	8		0.55	1400	71	1.75	3.08	7.6	0.66	67
	16		1.1	1400	90	2.9	5.75	25.0	0.72	75
	22		2.2	1400	90	5.7	7.92	35	0.7	77
	32		2.2	1400	90	5.7	11.1	35	0.7	77
SAR100	4	500	0.55	1400	71	1.75	2.55	7.6	0.66	67
	5.6		0.75	1400	90	1.85	3.85	12.0	0.75	75
	8		0.75	1400	90	1.85	4.65	12.0	0.75	75
	11		1.1	1400	90	2.9	6.65	25.0	0.72	75
	16		2.2	1400	90	5.7	9.06	35	0.7	77
	22		2.2	1400	90	5.7	12.5	35	0.7	77
	32		4.00	1400	112	8.3	18.5	56	0.8	84
	45		4.00	1400	112	8.3	27	56	0.8	84

Permissible voltage variation: ± 10%. Permissible frequency variation: ± 5%. Permissible combined variation: 10% if voltage drops below there will be reduction of nominal output. Auma motors are provided with 3 thermo switches one in each winding connected in series to protect windings. Our Warranty is void if those thermo switches are not connected in control circuit.

Motor data are approximate. Due to usual manufacturing tolerances there may be deviations from the values given.

* Whenever actuators are supplied with Integral starter with TOLR, the tripping current set on the TOLR is same as normal current I Full Load current.

Output speed (RPM) of the actuator at 60Hz shall be 1.2 times of the output speed (RPM) at 50Hz as indicated above.

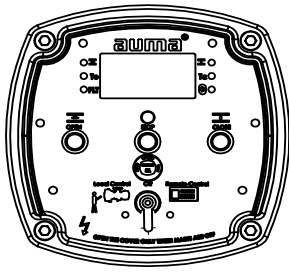
1) Current at max. Torque. We recommend to select switch gear and cables suitable for those values.

We reserve the alter data according to improvements made. Previous data sheets become invalid with the issue of this data sheet.

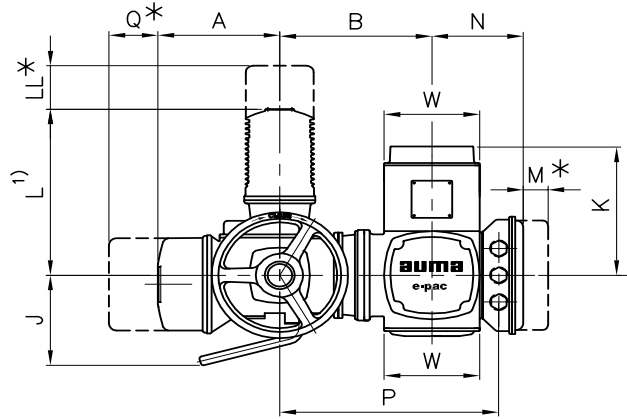
AUMA ACTUATORS IN SIL VERSION - DIMENSION SHEET

Electric Actuator with epac controls in SIL version (Hardwired Interface)

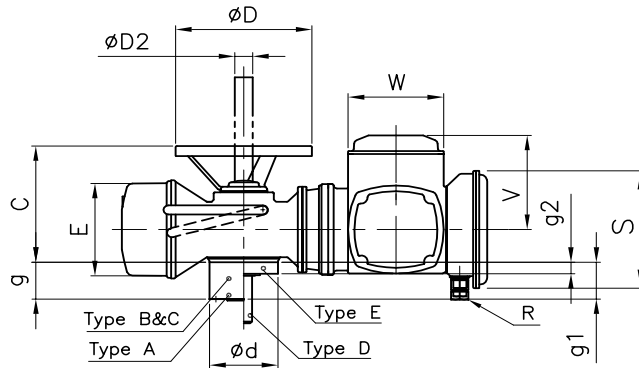
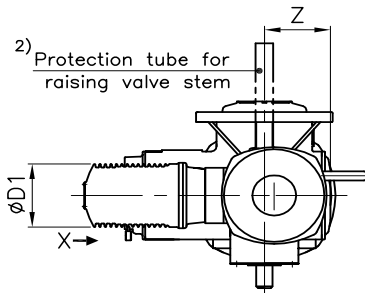
SA3 – SA100
SAR3 – SAR100



VIEW-X
(For Epac-SIL)



* Space for removal



- 1) Exact dimension according to motor used.
- 2) When ordering please mention required length.

Dimensions	SA3 & SA6 SAR3 & SAR6	SA12 & SA15 SAR12 & SAR15	SA25 & SA30 SAR25 & SAR30	SA50 & SA60 SAR50 & SAR60	SA100 SAR100
A	223	223	245	245	275
B	278.5	278.5	303.5	303.5	329.5
C	233	235	275	325	380
ØD	250	250	360	640	800
ØD1	110 – 125	110 – 125	110 – 160	125 – 160	125 – 200
ØD2	42 x 3.3	60 x 3.7	76 x 3.7	76 x 3.7	89 x 4.1
ØE	195	195	255	255	255
J	185	185	210	210	230
K	256	256	256	256	256
L max.	340	340	450	450	515
LL min.	35	35	45	45	60
M min.	40	40	40	40	40
N	240.5	240.5	240.5	240.5	240.5
P	400.5	400.5	425.5	425.5	451.5
ØQ min	65	65	65	65	65
R (Cable gland thread)	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5
S	255	255	255	255	255
V	185	185	185	185	185
W	175	175	175	175	175
Z	121	121	121	121	121
Ød	125	125	175	175	210
g (TYPE- A)	35	37	51	51	69
g1 (TYPE- B & C)	50	50	65	65	80
g2 (TYPE- D & E)	15	15	22	22	30
DIN 3210 Designation	G0	G0	G½	G½	G3

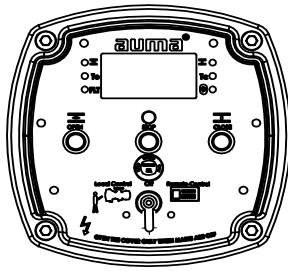
We reserve the right to alter data, dimensions and weights according to improvement made.
Figures and diagrams are not binding.

(all dimensions are in mm)

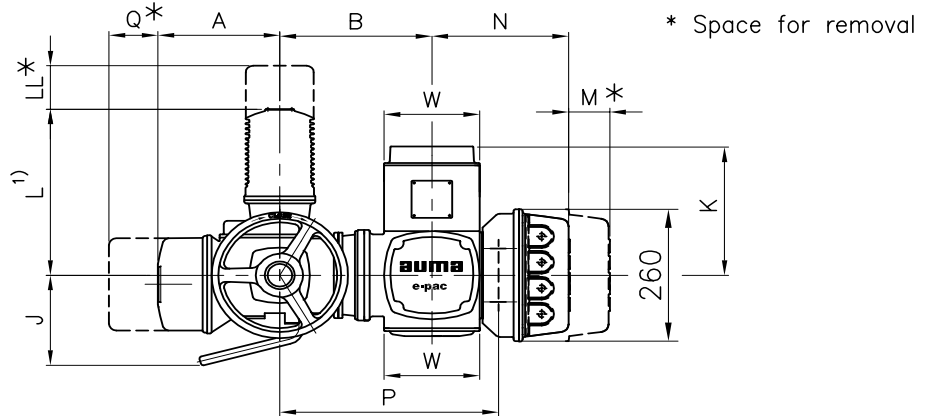
AUMA ACTUATORS IN SIL VERSION - DIMENSION SHEET

Electric Actuator with epac controls in SIL version (Profibus Interface)

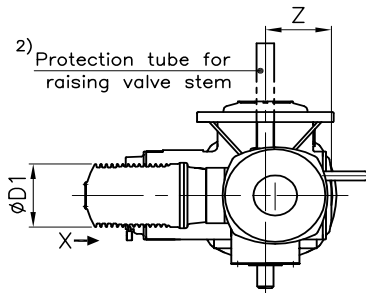
SA3 – SA100
SAR3 – SAR100



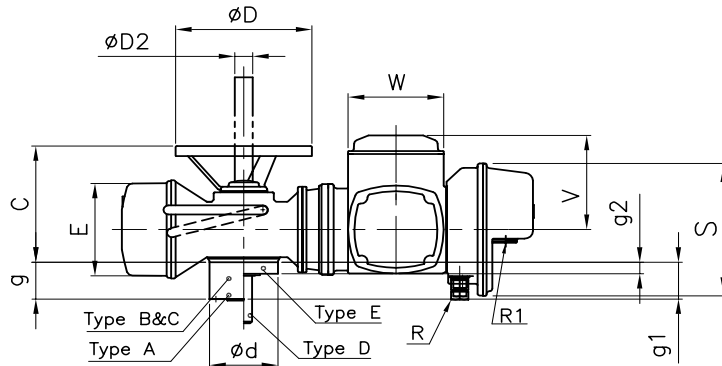
VIEW-X
(For Epac-SIL)



* Space for removal



2) Protection tube for raising valve stem



- 1) Exact dimension according to motor used.
2) When ordering please mention required length.

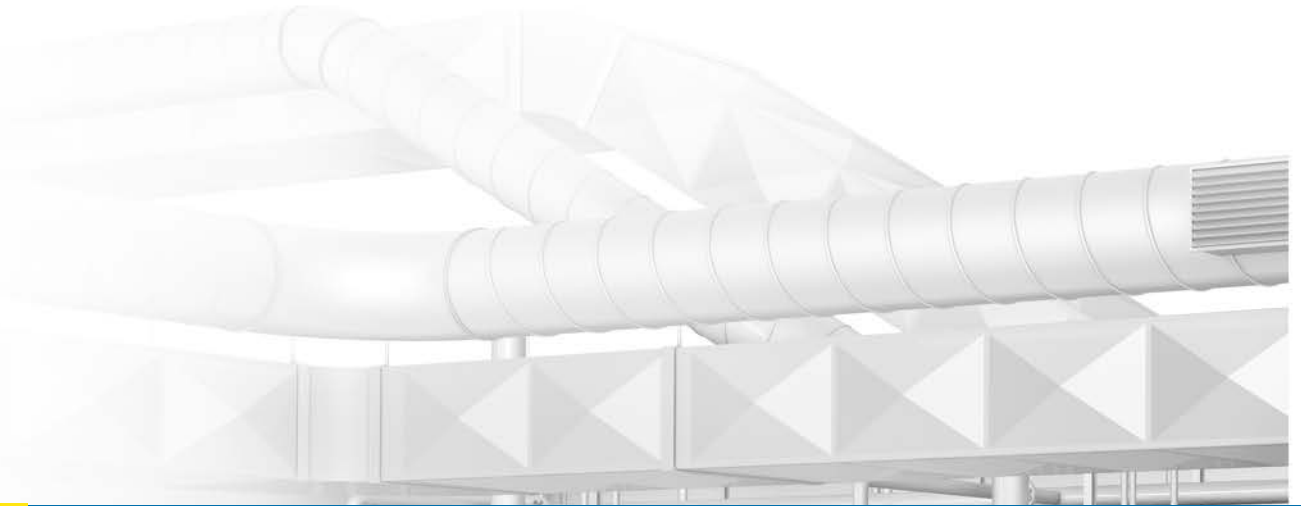
Dimensions	SA3 & SA6 SAR3 & SAR6	SA12 & SA15 SAR12 & SAR15	SA25 & SA30 SAR25 & SAR30	SA50 & SA60 SAR50 & SAR60	SA100 SAR100
A	223	223	245	245	275
B	278.5	278.5	303.5	303.5	329.5
C	233	235	275	325	380
øD	250	250	360	640	800
øD1	110 – 125	110 – 125	110 – 160	125 – 160	125 – 200
øD2	42 x 3.3	60 x 3.7	76 x 3.7	76 x 3.7	89 x 4.1
øE	195	195	255	255	255
J	185	185	210	210	230
K	256	256	256	256	256
L max.	340	340	450	450	515
LL min.	35	35	45	45	60
M min.	40	40	40	40	40
N	252	252	252	252	252
P	400.5	400.5	425.5	425.5	451.5
øQ min	65	65	65	65	65
R (Cable gland thread)	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5	2Nos M32x1.5 1 No M25x1.5
R1 (Cable gland thread)	4 Nos M20x1.5	4 Nos M20x1.5	4 Nos M20x1.5	4 Nos M20x1.5	4 Nos M20x1.5
S	255	255	255	255	255
V	185	185	185	185	185
W	175	175	175	175	175
Z	121	121	121	121	121
ød	125	125	175	175	210
g (TYPE- A)	35	37	51	51	69
g1 (TYPE- B & C)	50	50	65	65	80
g2 (TYPE- D & E)	15	15	22	22	30
DIN 3210 Designation	G0	G0	G½	G½	G3

We reserve the right to alter data, dimensions and weights according to improvement made.
Figures and diagrams are not binding.

(all dimensions are in mm)

Dimension Sheet, Output Drives

Output drives according to DIN 3210				SA3 - SA100 SAR6 - SAR100					
Dimension (in mm)	SA3/SA6	SAR3/SAR6	SA12/SA15	SAR12/SAR15	SA25/SA30	SAR25/SAR30	SA50/SA60	SAR50/SAR60	SA100/SAR100
DIN 3210	G0		G0		G 1/2		G 1/2		G 3
F max. kN	25/40	40	60		120		160		190
TYPE-A Stem nut	125		125		175		175		210
ød1	60		60		100		100		130
ød2 f8	M 10		M 10		M 16		M 16		M 20
ød3	28		40		55		55		70
ød4	26		38		52		52		65
ød5 max.	35	73	37	67	51	95	51	95	69 119
g	3		3		4		4		5
h1	15		15		22		22		30
h2	102		102		140		140		165
øk	1		1		2		2		3
L1	30	67	37	67	51	95	51	95	70 120
L2	4		4		4		4		4
Z	1.7		3.9		2		4.2		6 12
Weight	12		12		18		18		22
b1 JS9	28		40		55		55		70
ød4	26		38		52		52		65
ød5	42		42		60		60		80
ød6 H8	50		50		65		65		80
g1	3		3		4		4		4
h1	45		45		65		65		80
IL3	45.3		45.3		64.4		64.4		85.4
t1	1.7		2		6		6		12
Weight kg	14		14		20		20		24
b2 H11	28		40		55		55		70
ød4	28		28		38		38		47
ød5 DIN:3210	26		38		52		52		65
ød5 max.	50		50		75		75		100
ød7	50		50		65		65		80
g1	3		3		4		4		4
h1	10		10		12		12		15
h3	1.7		2		6		6		12
Weight kg	6		6		8		8		12
b3 h9	20		20		30		30		40
ød8 g6	15		15		22		22		30
øg2	50		50		70		70		90
L4	55		55		76		76		96
L5	22.5		22.5		33		33		43
t2	1		1.5		3.5		3.5		6
Weight kg	6		6		8		8		12
b4 JS9	20		20		30		30		40
ød9 H8 Din3210	20		32		45		45		60
ød9 max.	15		15		22		22		30
g2	3		3		4		4		4
h1	55		56		77		77		100
L6	22.8		22.8		33.3		33.3		43.3
t3	1		1.5		3.5		3.5		6
Weight kg	6		6		8		8		12
TYPE-B Plug sleeve	20		20		30		30		40
ød4	15		15		22		22		30
ød5	50		50		70		70		90
ød6 H8	55		55		76		76		96
g1	22.5		22.5		33		33		43
h1	1		1.5		3.5		3.5		6
IL3	6		6		8		8		12
t1	20		20		30		30		40
Weight kg	15		15		22		22		30
b3 h9	20		20		30		30		40
ød8 g6	15		15		22		22		30
øg2	50		50		70		70		90
L4	55		55		76		76		96
L5	22.5		22.5		33		33		43
t2	1		1.5		3.5		3.5		6
Weight kg	6		6		8		8		12
TYPE-C Dog coupling	20		20		30		30		40
ød4	15		15		22		22		30
ød5	50		50		70		70		90
ød5 max.	55		55		76		76		96
g1	22.5		22.5		33		33		43
h1	1		1.5		3.5		3.5		6
IL3	6		6		8		8		12
t1	20		20		30		30		40
Weight kg	15		15		22		22		30
b3 h9	20		20		30		30		40
ød8 g6	15		15		22		22		30
øg2	50		50		70		70		90
L4	55		55		76		76		96
L5	22.5		22.5		33		33		43
t2	1		1.5		3.5		3.5		6
Weight kg	6		6		8		8		12
TYPE-D Stub shaft	20		20		30		30		40
ød4	15		15		22		22		30
ød5	50		50		70		70		90
ød5 max.	55		55		76		76		96
g1	22.5		22.5		33		33		43
h1	1		1.5		3.5		3.5		6
IL3	6		6		8		8		12
t1	20		20		30		30		40
Weight kg	15		15		22		22		30
b3 h9	20		20		30		30		40
ød8 g6	15		15		22		22		30
øg2	50		50		70		70		90
L4	55		55		76		76		96
L5	22.5		22.5		33		33		43
t2	1		1.5		3.5		3.5		6
Weight kg	6		6		8		8		12
TYPE-E Bore with keyway	20		20		30		30		40
ød4	15		15		22		22		30
ød5	50		50		70		70		90
ød5 max.	55		55		76		76		96
g2	22.5		22.5		33		33		43
h1	1		1.5		3.5		3.5		6
L6	22.8		22.8		33.3		33.3		43.3
t3	1		1.5		3.5		3.5		6
Weight kg	6		6		8		8		12



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