

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 400 V/50 Hz

Multi-turn actuator			Motor											
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear			
											Contact-	Thyristor		
SAR 07.2	4	30	VD0R063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1		
	5.6					0.4	0.4	1.0	0.40	0.4	A1	B1		
	8					0.4	0.4	1.0	0.50	0.4	A1	B1		
	11		VD0R063-4-0,04	0.04	1,400	0.4	0.5	1.0	0.50	0.5	A1	B1		
	16					0.6	0.6	1.9	0.42	0.6	A1	B1		
	22					0.6	0.7	1.9	0.42	0.7	A1	B1		
	32		AD0R063-4-0,10	0.10	1,400	1.0	1.0	2.4	0.42	1.0	A1	B1		
	45					1.0	1.0	2.4	0.42	1.0	A1	B1		
	63					0.8	1.2	4.4	0.60	1.2	A1	B1		
90	AD0R063-2-0,20	0.20	2,800	0.8	1.3	4.4	0.60	1.3	A1	B1				
4				60	VD0R063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
5.6								0.4	0.5	1.0	0.43	0.5	A1	B1
8	0.6	0.7	1.6					0.38	0.7	A1	B1			
11	VD0R063-4-0,06	0.06	1,400		0.6	0.7	1.6	0.38	0.7	A1	B1			
16					0.7	0.9	3.0	0.52	0.9	A1	B1			
22					0.7	1.0	3.0	0.52	1.0	A1	B1			
32	VD0R063-2-0,12	0.12	2,800		1.6	1.9	4.6	0.42	1.9	A1	B1			
45					1.6	2.0	4.6	0.42	2.0	A1	B1			
63					1.8	2.3	9.0	0.53	2.3	A1	B1			
90	AD0R063-2-0,40	0.40	2,800	1.8	2.5	9.0	0.53	2.5	A1	B1				
4				120	VD0R071-4-0,06	0.06	1,400	0.5	0.6	2.0	0.40	0.6	A1	B1
5.6								0.5	0.6	2.0	0.40	0.6	A1	B1
8	1.0	1.1	3.0					0.40	1.1	A1	B1			
11	VD0R071-4-0,12	0.12	1,400		1.0	1.2	3.0	0.40	1.2	A1	B1			
16					1.3	1.5	4.5	0.52	1.5	A1	B1			
22					1.3	1.8	4.5	0.52	1.8	A1	B1			
32	VD0R071-2-0,25	0.25	2,800		2.5	2.6	8.5	0.42	2.6	A1	B1			
45					2.5	3.0	8.5	0.42	3.0	A1	B1			
63					3.0	4.0	16	0.54	4.0	A1	B1			
90	AD0R071-2-0,70	0.70	2,800	3.0	4.5	16	0.54	4.5	A1	B1				
4				250	VD0R090-4-0,12	0.12	1,400	0.5	0.8	2.8	0.60	0.8	A1	B1
5.6								0.5	1.0	2.8	0.60	1.0	A1	B1
8	1.0	1.6	5.2					0.60	1.6	A1	B1			
11	VD0R090-4-0,25	0.25	1,400		1.0	1.7	5.2	0.60	1.7	A1	B1			
16					1.5	3.0	9.0	0.64	3.0	A1	B1			
22					1.5	3.5	9.0	0.64	3.5	A1	B1			
32	VD0R090-2-0,45	0.45	2,800		2.6	4.3	16	0.62	4.3	A1	B1			
45					2.6	5.0	16	0.62	5.0	A1	B1			
63					4.7	7.6	38	0.60	7.6	A2	B2			
90	AD0R090-2-1,40	1.40	2,800	4.7	9.0	38	0.60	9.0	A2	B2				
4				500	VD0R090-4-0,20	0.20	1,400	0.9	1.5	5.2	0.54	1.5	A1	B1
5.6								0.9	1.7	5.2	0.54	1.7	A1	B1
8	1.8	3.0	9.3					0.56	3.0	A1	B1			
11	VD0R090-4-0,40	0.40	1,400		1.8	3.5	9.3	0.56	3.5	A1	B1			
16					3.6	5.0	18	0.51	5.0	A1	B1			
22					3.6	5.5	18	0.51	5.5	A1	B1			
32	VD0R090-2-0,80	0.80	2,800		5.3	7.5	38	0.57	7.5	A2	B2			
45					5.3	9.0	38	0.57	9.0	A2	B2			
63					9.0	14	68	0.60	14	A2	–			
90	AD0R090-2-3,00	3.00	2,800	9.0	16	68	0.60	16	A2	–				
4				1 000	VD0R112-4-0,40	0.40	1,400	1.4	2.7	10	0.65	2.7	A1	B1
5.6								1.4	2.9	10	0.65	2.9	A1	B1
8	3.0	5.2	22					0.57	5.2	A1	B2			
11	VD0R112-4-0,80	0.80	1,400		3.0	5.5	22	0.57	5.5	A1	B2			
16					5.6	9.0	40	0.60	9.0	A2	B2			
22					5.6	11	40	0.60	11	A2	B2			
32	VD0R112-2-1,50	1.50	2,800		8.5	15	60	0.71	15	A2	B3			
45					8.5	17	60	0.71	17	A2	B3			
63					12	25	114	0.80	25	A3	–			
90	AD0R112-2-5,00	5.00	2,800	12	30	114	0.80	25	A3	–				

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 400 V/50 Hz

Installation and sizing																																												
Motor data	Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.																																											
Motor protection	<p>To protect against overheating, thermostats or PTC thermistors are embedded in the motor windings.</p> <p>Actuators without integral actuator controls (AUMA NORM): Thermostats or PTC thermistors have to be considered within the external controls (refer to terminal plan).</p> <p>Note: Failure to connect thermostats or PTC thermistors shall void the warranty for the motor.</p> <p>Rating of the thermostats</p> <table border="1"> <thead> <tr> <th colspan="2">AC current</th> <th colspan="2">DC current</th> </tr> </thead> <tbody> <tr> <td colspan="2">250 V, 50 – 60 Hz</td> <td>60 V</td> <td>1.0 A</td> </tr> <tr> <td>cos φ = 1</td> <td>2.5 A</td> <td>42 V</td> <td>1.2 A</td> </tr> <tr> <td>cos φ = 0.6</td> <td>1.6 A</td> <td>24 V</td> <td>1.5 A</td> </tr> </tbody> </table> <p>Actuators with AM or AC integral actuator controls: Thermal motor protection is already integrated.</p>	AC current		DC current		250 V, 50 – 60 Hz		60 V	1.0 A	cos φ = 1	2.5 A	42 V	1.2 A	cos φ = 0.6	1.6 A	24 V	1.5 A																											
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Mains voltage, mains frequency	<p>Permissible variation of mains voltage: ±10 %</p> <p>Permissible variation of mains frequency: ±5 %</p>																																											
Switchgear sizing	<p>For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used.</p> <p>Actuators without integral actuator controls (AUMA NORM): Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating power/motor power in compliance with the assigned AUMA power class.</p> <p>Switchgear assignment to AUMA power classes:</p> <table border="1"> <thead> <tr> <th rowspan="2">AUMA power class</th> <th rowspan="2">Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3</th> <th colspan="2">Reversing contactor Motor power according to UL/CSA at</th> </tr> <tr> <th>480 V AC</th> <th>600 V AC</th> </tr> </thead> <tbody> <tr> <td></td> <td>400 V AC</td> <td></td> <td></td> </tr> <tr> <td>A1</td> <td>4.0 kW</td> <td>5.0 hp</td> <td>5.0 hp</td> </tr> <tr> <td>A2</td> <td>7.5 kW</td> <td>10 hp</td> <td>10 hp</td> </tr> <tr> <td>A3</td> <td>15 kW</td> <td>20 hp</td> <td>25 hp</td> </tr> <tr> <td>A4</td> <td>30 kW</td> <td>60 hp</td> <td>60 hp</td> </tr> <tr> <td>A5</td> <td>55 kW</td> <td>75 hp</td> <td>100 hp</td> </tr> <tr> <td>A6</td> <td>75 kW</td> <td>100 hp</td> <td>125 hp</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">AUMA power class</th> <th rowspan="2">Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a</th> </tr> <tr> <th>400 V AC</th> </tr> </thead> <tbody> <tr> <td>B1</td> <td>6 A</td> </tr> <tr> <td>B2</td> <td>8.5 A</td> </tr> <tr> <td>B3</td> <td>16 A</td> </tr> </tbody> </table> <p>Actuators with AM or AC integral actuator controls: Required switchgear in power classes A1 – A3 or B1 – B3 are already integrated in AM or AC actuator controls. For switchgear of power classes A4 – A6, a control box is additionally required.</p> <p>For actuators with AM integral actuator controls and installed switchgear in AUMA power class A3, an optional thermal overcurrent protection device cannot be directly integrated within the AM. A control box is additionally required. However, AC actuator controls can be used instead of AM actuator controls. When opting for AC actuator controls, the additional control box can be omitted.</p>	AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at		480 V AC	600 V AC		400 V AC			A1	4.0 kW	5.0 hp	5.0 hp	A2	7.5 kW	10 hp	10 hp	A3	15 kW	20 hp	25 hp	A4	30 kW	60 hp	60 hp	A5	55 kW	75 hp	100 hp	A6	75 kW	100 hp	125 hp	AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a	400 V AC	B1	6 A	B2	8.5 A	B3	16 A
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Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

1) Nominal power P_N	<p>Mechanical power output at motor shaft at run torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque).</p> <p>The consumed electrical power can be calculated using the following formula: $P = U \times I \times \cos \varphi \times \sqrt{3}$ </p>
2) Nominal current I_N	Current at run torque at approx. 35 % of maximum torque
3) Max. current I_{max}	Current at maximum torque