

EBS852 (Contrac) Power Electronic Unit



For continuous control of Contrac actuators
RHD(E) ... and RSD(E) ...

Microprocessor-controlled power electronic unit with
integrated frequency converter

Voltage supply 115 V AC or 230 V AC

Conventional signal interface (0 / 4 ... 20 mA / 24 V)

Digital communication via RS232 and HART

Additional functions such as process controller,
maintenance computer, programmable characteristics

Rack installation, protection class IP 20

Torque and speed variation

Continuous positioning

Simple installation and commissioning

Simple configuration and parameter setting via graphical
user interface

High response sensitivity

Reliable for short positioning times

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1 Concept

Compact actuator for the operation of final control elements with preferably 90° rotary movement such as flaps, cocks, etc.

The torque is transferred via a lever / linkage bar assembly or the actuator is directly coupled to the cock flange.

A special 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.



Important

The ANSI information appears in parentheses after the SI-information.

2 Technical data

Supply voltage (standard actuators)	115 V AC (94 ... 130 V) or 230 V AC (190 ... 260 V); 47.5 ... 63 Hz; 1 Ph			
Supply voltage (Ex actuators)	115 V AC (94 ... 127 V) or 230 V AC (190 ... 253 V); 47.5 ... 63 Hz; 1 Ph			
Current at electronic unit [A] (115 V AC / 230 V AC)		$I_{\max.}$ at 115 V	$I_{\max.}$ at 230 V	$I_{\text{pos.}}$ (115 V + 230 V) approx. 40 ... 50 % of $I_{\max.}$
	RHD(E)250-10	1.8 A	0.9 A	
	RHD(E)500-10	2.2 A	1.1 A	
	RHD(E)800-10	5.0 A	2.5 A	
	RHD(E)1250-12	5.0 A	2.5 A	
	RHD(E)2500-25	5.0 A	2.5 A	
	RHD(E)4000-40	5.8 A	2.7 A	
	RHD(E)8000-80	5.0 A	2.5 A	
	RSD(E)10-5.0	2.2 A	1.1 A	
	RSD(E)10-10.0	3.6 A	1.8 A	
	RSD(E)20-5.0	3.6 A	1.8 A	
	RSD(E)20-7.5	4.8 A	2.4 A	
	RSD(E)50-3.0	5.0 A	2.5 A	
	RSD100-1.5	5.0 A	2.5 A	
	RSD200-0.7	5.0 A	2.5 A	
External fuse for power electronic unit	16 A; time-lag			
External fuse anti-condensation heater	2 ... 6 A; medium time-lag			
Analog input	0 / 4 ... 20 mA			
Analog output	0 / 4 ... 20 mA, galvanically isolated			
3 binary inputs BE 1 ... BE 3 (DI 1 ... DI 3)	Binary 0: -3 ... 5 V or open, galvanically separated Binary 1: 12 ... 35 V, galvanically separated			
3 binary outputs BA 1 ... BA 3 (DO 1 ... DO 3)	Potential free relay contact, max. 60 V, 150 mA			
Digital communication	RS232 for commissioning and service, optionally FSK / HART®			
Default settings	Behavior in 0 / 100 % end position: Hold with rated torque / end positions set point function: linear, set point = position value set point input: 4 ... 20 mA function selection: positioner, parameter: setpoint actual value: 4 ... 20 mA digital input: BE 1 (DI 1) M / A selection; BE 2 / 3 (DI 2 / 3) manual intervention +/- digital output: BA 1 (DO 1) ready for operation; BA 2 / 3 (DO 2 / 3) end position signal 0 / 100 % positioning time-out: not activated for standard actuators always activated for actuators in explosion proof design			
Voltage output U_V	24 V, 15 mA, galvanically isolated; e.g., for scanning external contacts			
Transmitter (optional)	Supply for 2-wire transmitter with activated process controller in Contrac			
Individual settings	See data sheet 10/68-2.40 or upon request			

2.1 General information

Power Electronic Unit EBS852 (Contrac)	
Protection Class	IP 20
Humidity	≤ 75 % annual average (condensation not permitted)
Rack inlet temperature	0 ... 45 °C (32 ... 110 °F)
Mounting position	vertically; electrical connection left hand
Coating	2-layer component epoxy (RAL 9005, black)
Cable between actuator and electronic unit	max. cable length: 270 m for 1.5 mm ² (885 ft for 16 AWG) 460 m for 2.5 mm ² (1510 ft for 14 AWG)
Electrical connection	mains supply via terminals; others via pluggable terminals
Weight; approx.	11 kg (24 lb)

3 Electrical connection

3.1 Standard actuators



Important

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

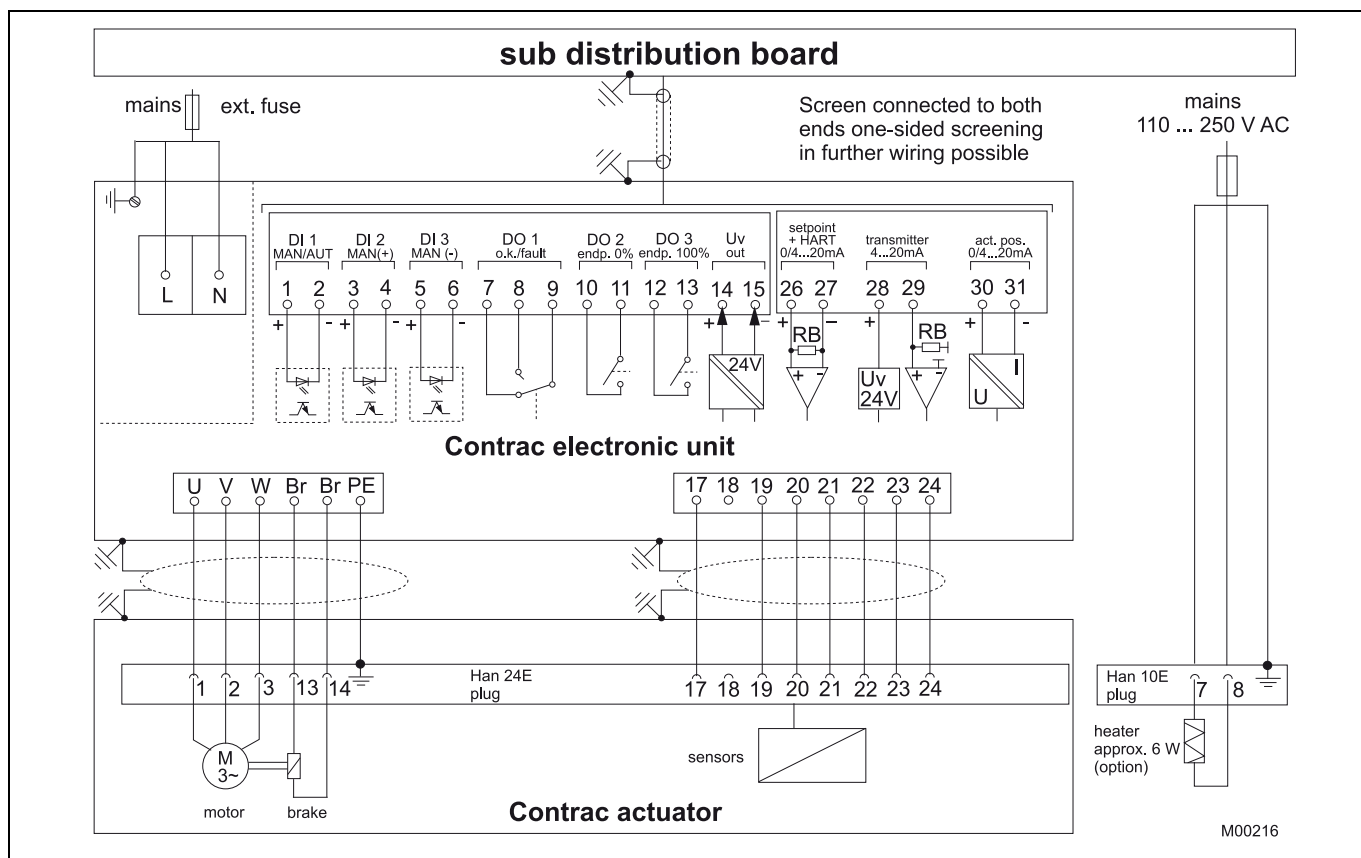


Fig. 1

3.2 Ex actuators



Important

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

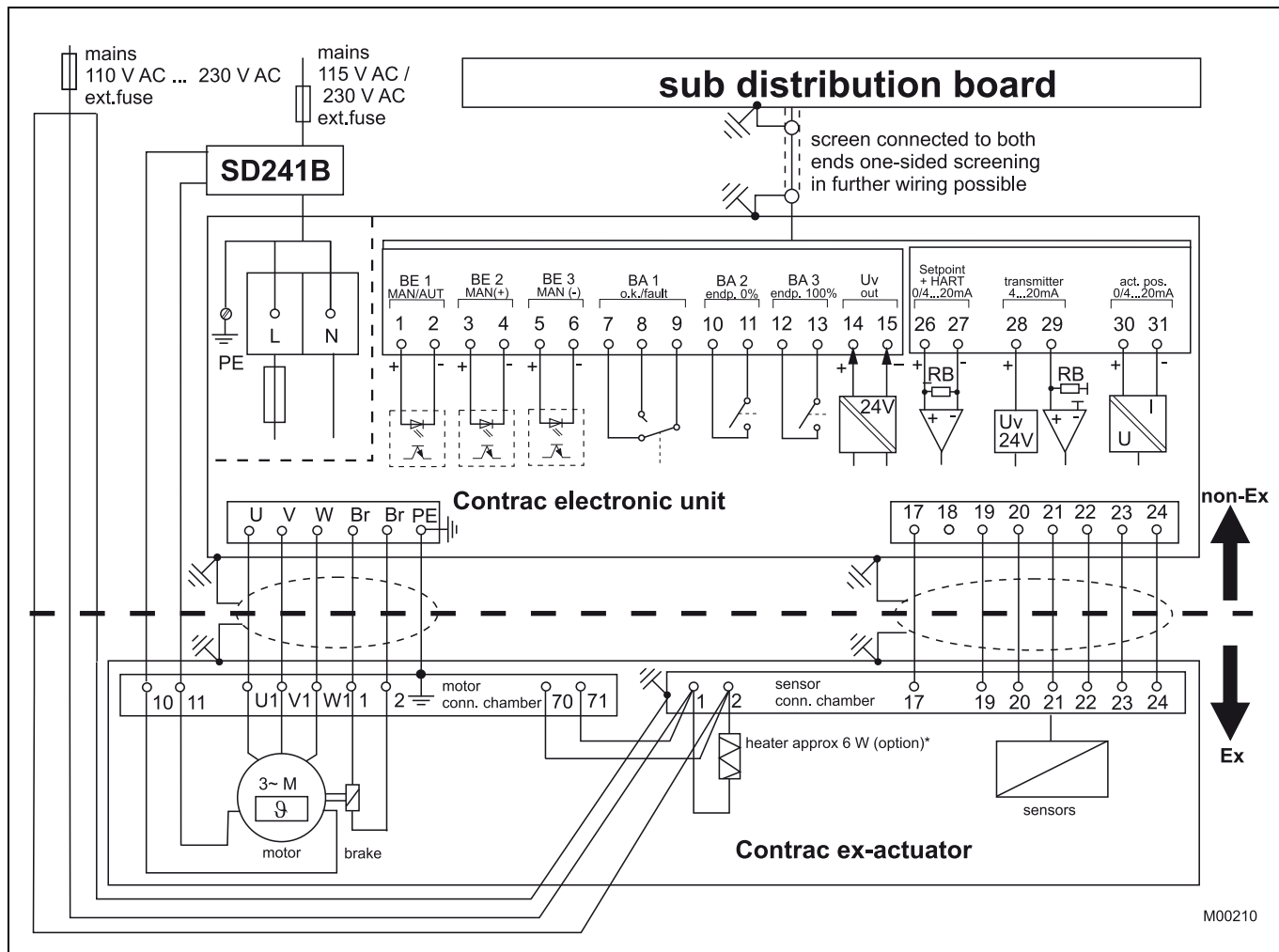


Fig. 2: Electrical connection: Ex actuator analog / binary



Important

* For separate heat supply, protect the heater with 2 ... max. 6 A medium time-lag fuses (e.g., Neozed D01CE14).



Installation information on the cable harness for actuators in Ex design

The electrical connection between the Contrac electronic unit and the Contrac actuator can be established using the cable harness (order code 695). The cable harness is not part of the Ex prototype test certificate and must therefore be tested for safety-relevant functionality within the complete installation by the installer or operator.

If the specified cable harness does not meet all safety-relevant requirements, the proper installation material must be used.

For the specified motor connecting cable, the screen must be connected at both ends and grounded.

4 Dimensions

4.1 Power Electronic Unit

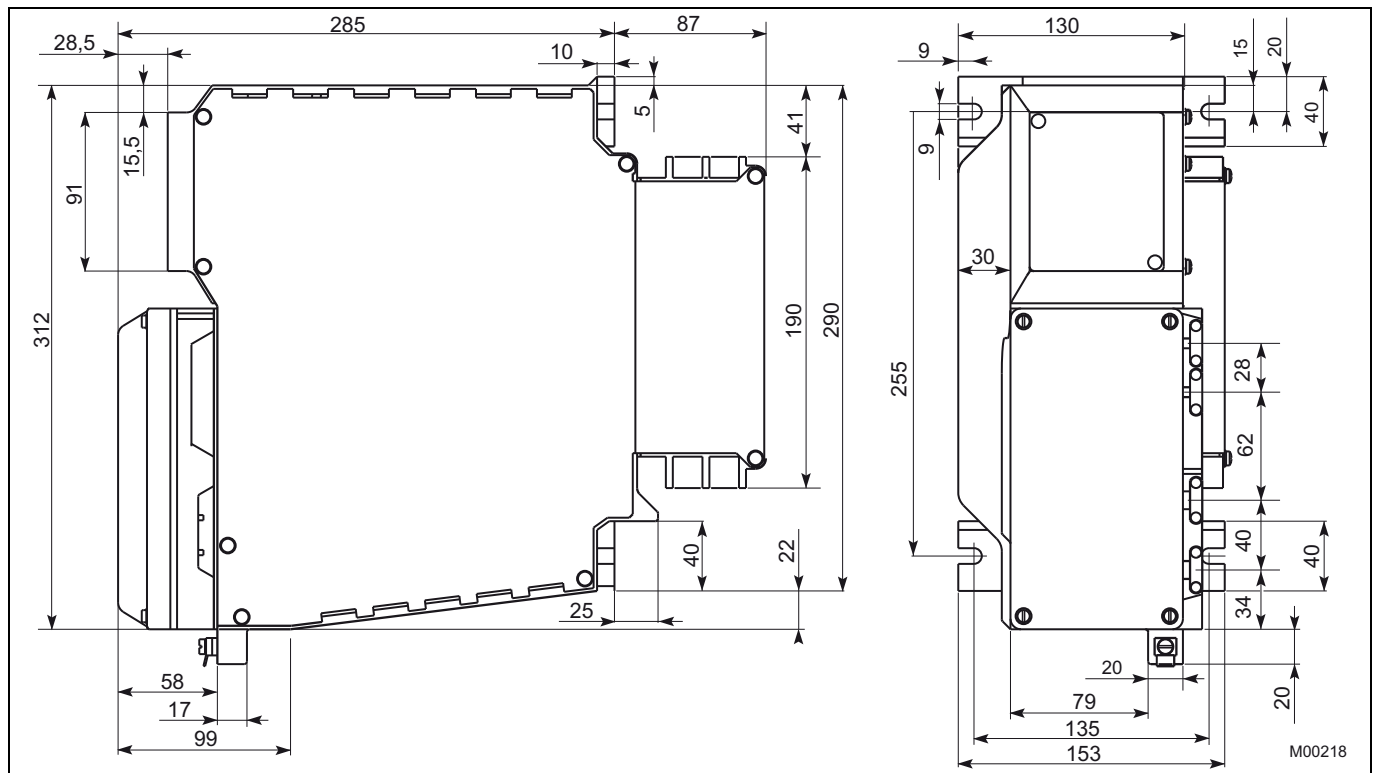


Fig. 3: Dimensions in mm

EBS852		
	Terminals	
	For cable Ø	Terminals for wire gauge
Mains cable	13 mm	max. 4 mm ²
Signal cable (DCS)	8 mm	max. 1.5 mm ²
Transmitter (option)	8 mm	max. 1.5 mm ²
Motor cable	13 mm	max. 4 mm ²
Sensor cable	8 mm	max. 1.5 mm ²

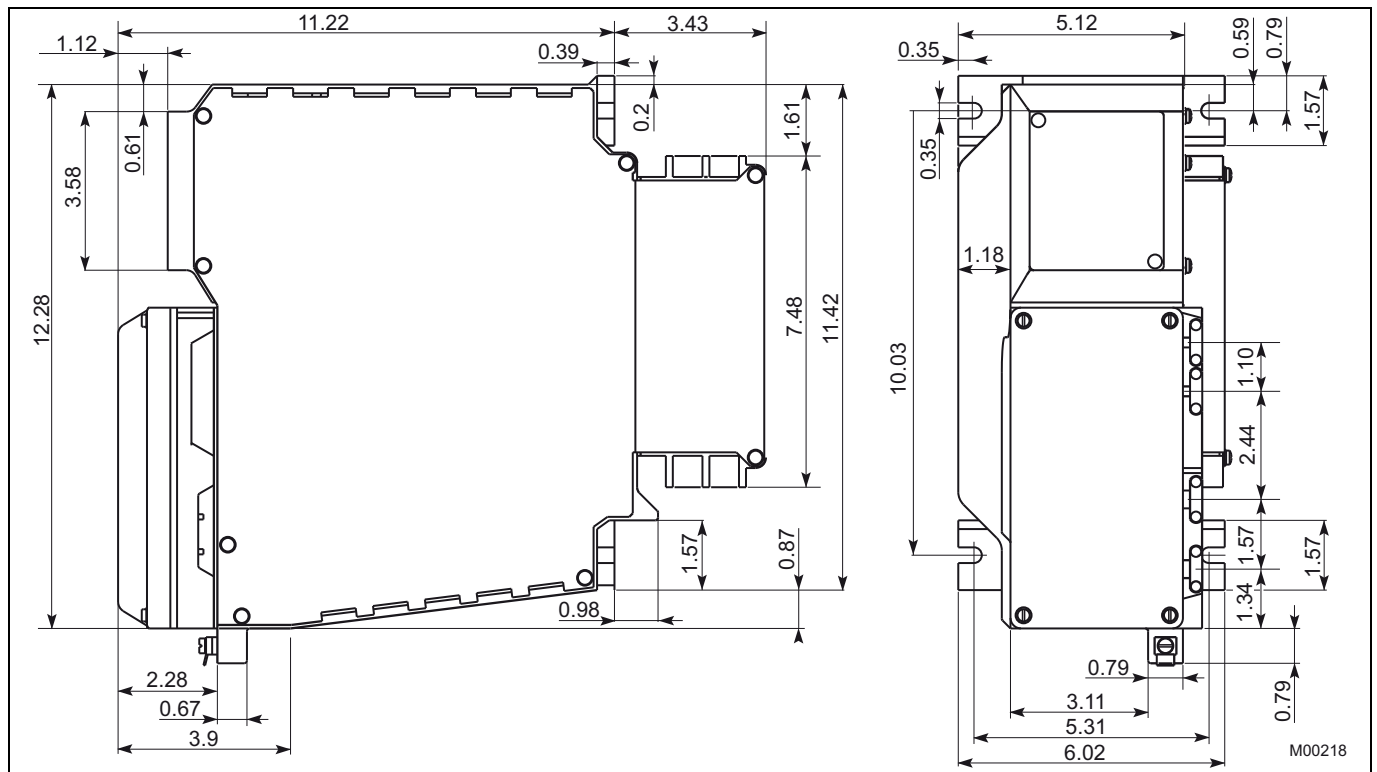


Fig. 4: Dimensions in inches

EBS852		
	Terminals	
	For cable Ø	Terminals for wire gauge
Mains cable	0.51 inch	max. 12 AWG
Signal cable (DCS)	0.31 inch	max. 16 AWG
Transmitter (option)	0.31 inch	max. 16 AWG
Motor cable	0.51 inch	max. 12 AWG
Sensor cable	0.31 inch	max. 16 AWG

5 Ordering information

5.1 Standard actuators

Electronic Unit		Variant digit No.				Code				
EBS852		1 - 8	9	10	11	12				
		Catalog No. V68852A-								
Suitable for										
Linear Actuator	Force	Speed		Stroke						
RSD10-5,0/100	10 kN (2250 lbs)	5.0 mm/s (5.0 s/in)		100 mm		2	0	5	0	
RSD10-5,0/300	10 kN (2250 lbs)	5.0 mm/s (5.0 s/in)		300 mm		9	1	5	0	
RSD10-10,0/100	10 kN (2250 lbs)	10.0 mm/s (2.5 s/in)		100 mm		2	0	5	1	
RSD10-10,0/300	10 kN (2250 lbs)	10.0 mm/s (2.5 s/in)		300 mm		9	1	5	1	
RSD20-5,0/100	20 kN (4500 lbs)	5.0 mm/s (5.0 s/in)		100 mm		2	0	5	2	
RSD20-5,0/300	20 kN (4500 lbs)	5.0 mm/s (5.0 s/in)		300 mm		9	1	5	2	
RSD20-7,5/100	20 kN (4500 lbs)	7.5 mm/s (3.4 s/in)		100 mm		2	0	5	3	
RSD20-7,5/300	20 kN (4500 lbs)	7.5 mm/s (3.4 s/in)		300 mm		9	1	5	3	
RSD50-3,0/120	50 kN (11240 lbs)	5.0 mm/s (5.0 s/in)		120 mm		3	0	5	4	
RSD50-3,0/300	50 kN (11240 lbs)	5.0 mm/s (5.0 s/in)		300 mm		9	1	5	4	
RSD100-1,5/150	100 kN (22500 lbs)	1.5 mm/s (17.0 s/in)		150 mm		2	1	5	5	
RSD100-1,5/300	100 kN (22500 lbs)	1.5 mm/s (17.0 s/in)		300 mm		9	1	5	5	
RSD200-0,7/180	200 kN (45000 lbs)	0.7 mm/s (36.3 s/in)		180 mm		5	4	5	6	
RSD200-0,7/300	200 kN (45000 lbs)	0.7 mm/s (36.3 s/in)		300 mm		9	1	5	6	
Part-Turn Actuator	Torque	Speed								
RHD250-10	250 Nm (200 ft-lbs)	9.0 °/s				0	1	0	3	
RHD500-10	500 Nm (400 ft-lbs)	9.0 °/s				0	1	0	4	
RHD800-10	800 Nm (600 ft-lbs)	9.0 °/s				0	1	0	5	
RHD1250-12	1250 Nm (1000 ft-lbs)	7.5 °/s				0	1	0	6	
RHD2500-25	2500 Nm (1900 ft-lbs)	3.5 °/s				0	1	0	7	
RHD4000-40	4000 Nm (3000 ft-lbs)	2.25 °/s				0	1	0	8	
RHD8000-80	8000 Nm (6000 ft-lbs)	1.25 °/s				0	1	0	9	
Special features of Electronic Unit										
Select at least one feature per group										
Supply voltage	230 V AC 1 Ph					380				
	115 V AC 1 Ph					381				
Frequency	50 Hz					382				
	60 Hz					383				
Digital communication	RS 232					384				
	RS 232 + HART					385				
Ambient temperature range of actuator	-30 ... 50 °C (-20 ... 130 °F)					341				
	-10 ... 65 °C (15 ... 150 °F)					344				
	-1 ... 85 °C (30 ... 185 °F) (only f. RHD250/500/800 a. RSD10/20)					349				
Settings of electronic unit	Standard settings (see techn. data)					390				
	Customer specific settings (see data sheet 10/68-2.40 EN)					391				

Additional ordering information								
					Code			
Anti-condensation heater in actuator "ON"					359			
Identification on data label (alphanumeric, max. 32 characters)					295			
Data label with US units					253			
F. No. of associated actuator on data label of electronic unit					297			
Factory certificate 2.1 acc. to EN 10204					291			
Certificate B acc. to EN 10204					292			
Operating instruction	(specify total quantity required, 1 copy without extra charge)							
German	(no specification for 1 copy)				Z1D			
English	(always state Code-No.)				Z1E			

1) Not for: RSD20-7,5; RSD50-3,0; RSD100-1,5; RSD200-0,7;
RHD1250-12; RHD2500-25; RHD4000-40; RHD8000-80

For continuous control of Contract actuators RHD(E) ... and RSD(E) ...

5.2 Ex actuators

Electronic Unit		Variant digit No.		1 - 8 9 10 11 12				Code	
EBS852		Catalog No.		V68852A-					
Suitable for									
Linear Actuator		Force		Speed		Stroke			
RSDE10-5,0/100	10 kN (2250 lbs)	5.0 mm/s (5.0 s/in)	100 mm (4.0 in)	2 0 7 6					
RSDE10-5,0/300	10 kN (2250 lbs)	5.0 mm/s (5.0 s/in)	300 mm (11.8 in)	9 1 7 6					
RSDE10-10,0/100	10 kN (2250 lbs)	10.0 mm/s (2.5 s/in)	100 mm (4.0 in)	2 0 7 7					
RSDE10-10,0/300	10 kN (2250 lbs)	10.0 mm/s (2.5 s/in)	300 mm (11.8 in)	9 1 7 7					
RSDE20-5,0/100	20 kN (4500 lbs)	5.0 mm/s (5.0 s/in)	100 mm (4.0 in)	2 0 7 8					
RSDE20-5,0/300	20 kN (4500 lbs)	5.0 mm/s (5.0 s/in)	300 mm (11.8 in)	9 1 7 8					
RSDE20-7,5/100	20 kN (4500 lbs)	7.5 mm/s (3.4 s/in)	100 mm (4.0 in)	2 0 7 9					
RSDE20-7,5/300	20 kN (4500 lbs)	7.5 mm/s (3.4 s/in)	300 mm (11.8 in)	9 1 7 9					
RSDE50-3,0/120	50 kN (11240 lbs)	5.0 mm/s (5.0 s/in)	120 mm (4.7 in)	3 0 8 0					
RSDE50-3,0/300	50 kN (11240 lbs)	5.0 mm/s (5.0 s/in)	300 mm (11.8 in)	9 1 8 0					
RSDE100-1,5/150	100 kN (22500 lbs)	1.5 mm/s (17.0 s/in)	150 mm (5.9 in)	2 1 8 5					
RSDE100-1,5/300	100 kN (22500 lbs)	1.5 mm/s (17.0 s/in)	300 mm (11.8 in)	9 1 8 5					
Part-Turn Actuator		Torque		Speed					
RHDE250-10	250 Nm (185 ft-lbs)	9.0 °/s	0 1 1 0						
RHDE500-10	500 Nm (370 ft-lbs)	9.0 °/s	0 1 1 9						
RHDE800-10	800 Nm (600 ft-lbs)	9.0 °/s	0 1 2 0						
RHDE1250-12	1250 Nm (925 ft-lbs)	7.5 °/s	0 1 2 8						
RHDE2500-25	2500 Nm (1850 ft-lbs)	3.5 °/s	0 1 2 9						
RHDE4000-40	4000 Nm (2950 ft-lbs)	2.25 °/s	0 1 5 7						
RHDE8000-80	8000 Nm (5900 ft-lbs)	1.25 °/s	0 1 5 8						
Special features of Electronic Unit									
Select at least one feature per group									
Supply voltage		230 V AC 1 Ph		380					
		115 V AC 1 Ph		2) 381					
Frequency		50 Hz		382					
		60 Hz		383					
Digital communication		RS 232		384					
		RS 232 + HART		385					
Ambient temperature range of actuator		-25 ... 60 °C (-13 ... 140 °F)		(only for part turn actuators Ex)		346			
		-30 ... 40 °C (-22 ... 104 °F)		(only for part turn actuators Ex)		347			
		-20 ... 60 °C (-4 ... 140 °F)		(only for linear actuators Ex)		348			
Settings of electronic unit		Standard settings		(see techn. data)		390			
		Customer specific settings		(see data sheet 10/68-2.40 EN)		391			

Additional ordering information									
								Code	
Anti-condensation heater in actuator "ON"								359	
Identification on data label (alphanumeric, max. 32 characters)								295	
Data label with US units								253	
F. No. of associated actuator on data label of electronic unit								297	
Factory certificate 2.1 acc. to EN 10204								291	
Certificate B acc. to EN 10204								292	
Operating instruction		(specify total quantity required, 1 copy without extra charge)							
German		(no specification for 1 copy)						Z1D	
English		(always state Code-No.)						Z1E	

2) Not for: RSDE20-7,5; RSDE50-3,0; RSDE100-1,5;
RHDE1250-12; RHDE2500-25; RHDE4000-40; RHDE8000-80

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