

Electronic Units **EAS822, EBS852, EBS862 (Contrac)**

For the Control of Contrac Actuators of the
PME, LME, RHD or RSD Series



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Legend

Danger



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury

Warning



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury or serious property damage.

Caution



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

Important



Indicates useful hints or other special information which, if not observed, could lead to a decline in operating convenience or affect the functionality.

1. Device Identification

1.1 ID Labels for Electronics EAS 822 + EBS 852

The ID labels of the power electronics are located on top of the units.

ID label



1.1.1 ID Label for Hardware Description

1	Elektronik / Electronics Type:		Made in Germany
2	B-Nr./No.	NL	
3	U = 190...260 V ...	Jahr/Year	
4	f = 50/60 Hz ± 5%	P = max. W	
5	t =°C	IP 66	
6	Ext. Sicherung / Fuse		
Automation D-32425 Minden			CE

1. Electronic unit type
2. Device no./ No. of non-standard version
3. Permissible supply voltage range / Year of manufacture
4. Permissible frequency range / Max. power input
5. Permissible ambient temperature / Protection class
6. Information on external fuse

1.1.2 ID Label for Software Description

1	Für / For Antrieb / Actuator Typ / Type.
2	Nennwerte / Rated values M=..... °/s
3	F-Nr. / No.:
4	NL.
5	SW Version
6	

1. Associated actuator type
2. Rated values for torque / force / speed
3. Fabrication No.
4. No. of non-standard version
5. Actuator firmware release

1.2 ID Label on Electronics EBS 862

The electronics unit EBS862 is made up of a base carrying the ID label for the hardware description, and a cover carrying two ID labels for hardware and software description on its front.

1.2.1 ID Label on the Base (for Hardware Description of the Base)

1	Elektronik / Electronics Type:		Made in Germany
2	B-Nr./No.	NL	
3	U = 190...260 V ...	Jahr/Year	
4	f = 50/60 Hz ± 5%	P = max. W	
5	t =°C	IP 66	
6	Ext. Sicherung / Fuse		
Automation D-32425 Minden			CE

1. Electronic unit type
2. Device no./ No. of non-standard version
3. Permissible supply voltage range / Year of manufacture
4. Permissible frequency range / Max. power input
5. Permissible ambient temperature / Protection class
6. Information on external fuse

1.2.2 ID Label on the Cover (for Hardware Description of the Cover)

1	Elektronik / Electronics Type:		Made in Germany
2	B-Nr./No.	NL	
3		Jahr/Year	
4			
5	t =°C	IP 66	
6			
Automation D-32425 Minden			CE

1. Electronics type
2. Device no. / No. of non-standard version
3. / Year of manufacture
4. Not used
5. Permissible ambient temperature / Protection class
6. Not used

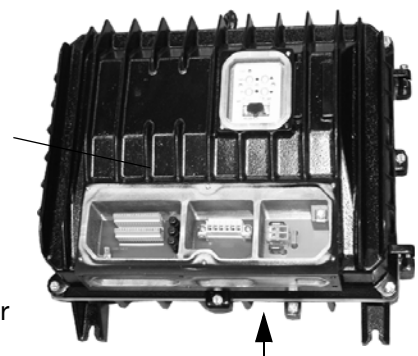
1.2.3 ID Label on the Cover for the Software Description

1	Für / For Antrieb / Actuator Typ / Type.
2	Nennwerte / Rated values M=..... °/s
3	F-Nr. / No.:
4	NL.
5	SW Version
6	

1. Associated actuator type
2. Rated values for torque / force / speed
3. Fabrication No.
4. No. of non-standard version
5. Actuator firmware release

ID labels in the front on the cover

Assembly no. for transformer (interior)



2. Safety and Precautions



- Use Contrac power electronics EAS 822, EBS 852, and EBS 862 for driving the Contrac actuators specified on the electronics ID label, only.
- Prior to maintenance or repair works always disconnect the electronics from mains and secure the respective control actuator against reactive process forces.
- All installation and maintenance works must only be performed by qualified specialists who have been trained for these tasks.
- Observe the locally valid accident prevention regulations and the regulations concerning works on electrical equipment.

2.1 Software Update



Attention! Consider Hard-and Software compatibility!

Read carefully the current manual of „Save & Restore“ or „ECOM688“. Consider the relevant hints concerning the assignment of firmware (UAPM) and hardware or contact the manufacturer.

3. Transport and Storage

Contrac electronics may be stored under moist and aggressive condition for a short time. The equipment is protected against external corrosive influences. However, direct exposure to rain, snow, etc. must be avoided.

Interior areas of the actuator with risk of condensation are protected by desiccant.

Desiccant in electronics: terminal box

Transport temperature: -30° C ... + 80° C

Storage temperature: preferably 0° C ... + 40° C

The desiccant guarantees sufficient protection for approximately 150 days. It can be regenerated at a temperature of 90° C within 4 h.

The desiccant must be removed prior to commissioning the actuator or the electronics.

The mounting rack must only be transported empty and by no means with installed electronic units.

4. Delivery status

Unless otherwise specifies the electronic units are supplied with the following standard configuration:

end pos. behaviour for 0/100%:	keep tight with rated torque / force
setpoint settings:	linear; setpoint = position value
setpoint input:	4... 20 mA
function selection:	positioner, parameter: setpoint
actual value:	4... 20 mA
digital inputs:	DI 1 M/A selection; DI 2 / DI 3 manual interaction +/-
digital output:	DO 1 ready for operation, DI 2/3 end position signal
operating range:	not adjusted

The individual actuator / electronic unit configuration may deviate from the standard settings. Use the graphical user interface to view the settings.

5. General

Electronic units of three different sizes are available for the Contrac actuator series. They can be adapted to the respective actuator type using special parameters. They are the interfaces between process control systems and actuators/ valves.

The actuators / valves are continuously positioned, independent of the input signal type (analog or digital).

During positioning the motor torque is continuously changed without steps, until the forces between control actuator and valve are balanced.

High positioning accuracy combined with excellent control performance and long lifetime are achieved even for changing load situations and short actuation times.

5.1 Mounting

The electronic unit is designed for rail-mounting in a special rack providing four mounting levels. Either four units (EAS822 and / or EBS852) or one unit (EBS862) can be installed on each level. It is also possible to mix the units, as seen in figure 5. Do not transport the rack with the units installed; the total weight is too high.

Mains supply and location of the fuse units and junction boxes are as shown in figure 20. From there the cable connections are routed to the electronic units.

5.1.1 EAS822 / EBS852

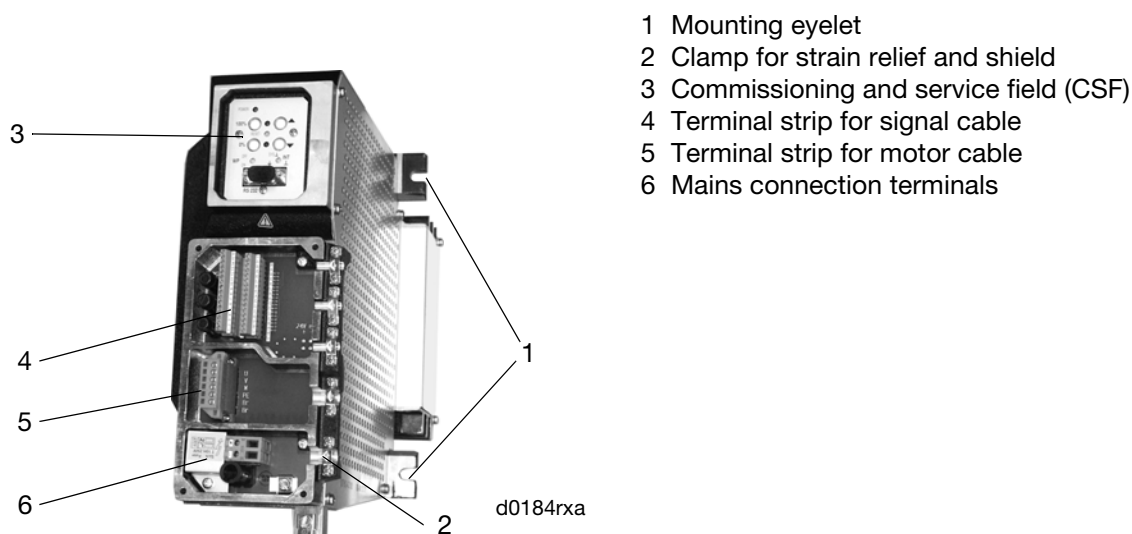
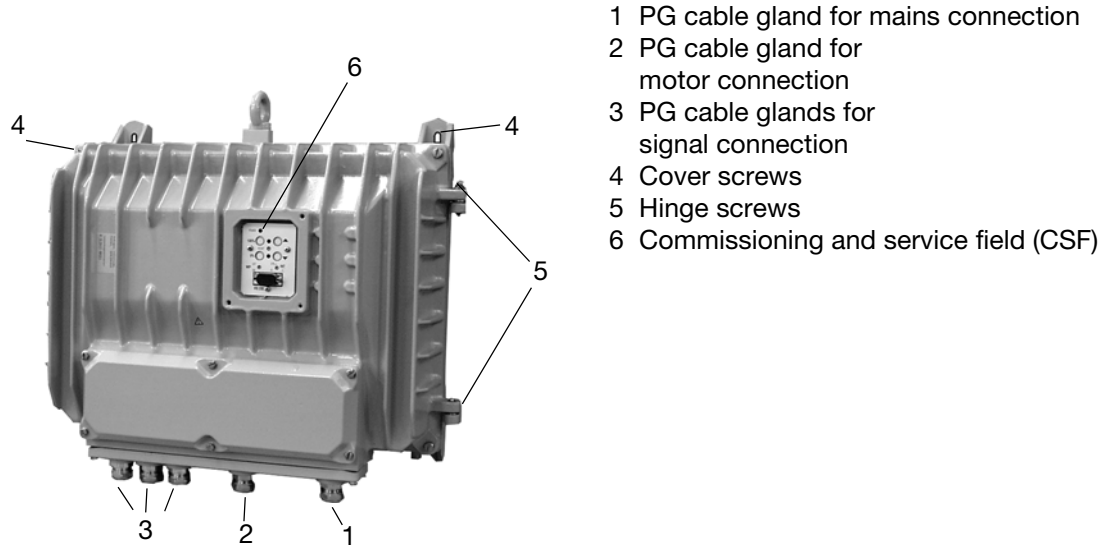


Fig. 1:

5.1.2 EBS 862



d0112rxa

Fig. 2:

On the electronics side, the power supply and the motor cable are connected via screw terminals, and the signal cables are connected via an internal plug and socket connection.

The overall weight of the electronics EBS 862 is approx. 42 kg. For safety reasons it may be necessary to install the two housing halves separately.



The electronics unit is provided with 5 PG cable glands:

Item 1: 1 x PG 16 for mains connection

Item 2: 1 x PG 16 for motor connection cable

Item 3: 3 x PG 16 for signal cable

- Undo and remove cover screws (4).
- Fold down front part and disconnect internal plug connection between housing halves.
- Undo hinge screw (5).
- Lift off front part from hinge bolts towards top.
- First, mount rear housing half.
- Attach front housing half to hinge bolts, insert screw into top bolt and fasten.
- Connect internal plug connection.
- Close housing and fasten with cover screws (4).

Connect cable according to figure 10 (when applying the shield refer to figure 2 for details).

5.2 Design

5.2.1 Electronic units

The aluminum cases of the units are mounted to four stay bolts on the mounting rails. The units are installed, electrically connected and operated from the front.

5.2.2 Mounting Rack

The rack is an open steel profile rack. Regarding construction and dimensions it is similar to commercially available cabinets (e. g. Contronic cabinet).

5.3 Labeling

The mounting racks can be labeled in a headline with approximately 20 characters.

Vertically the four levels are designated with letters A, B, C, and D, resulting in a matrix of max. 4 x 4 mounting locations..

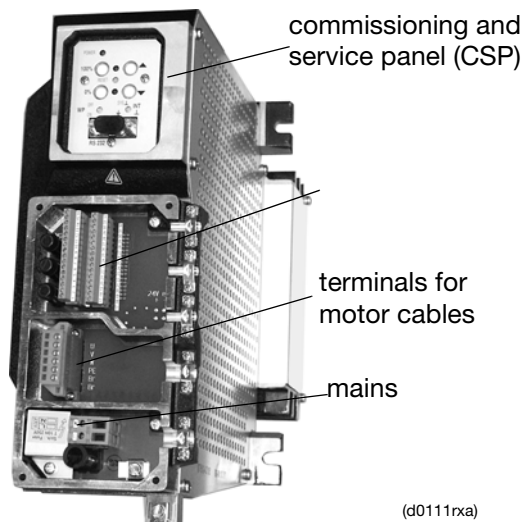


Fig. 3: EBS852

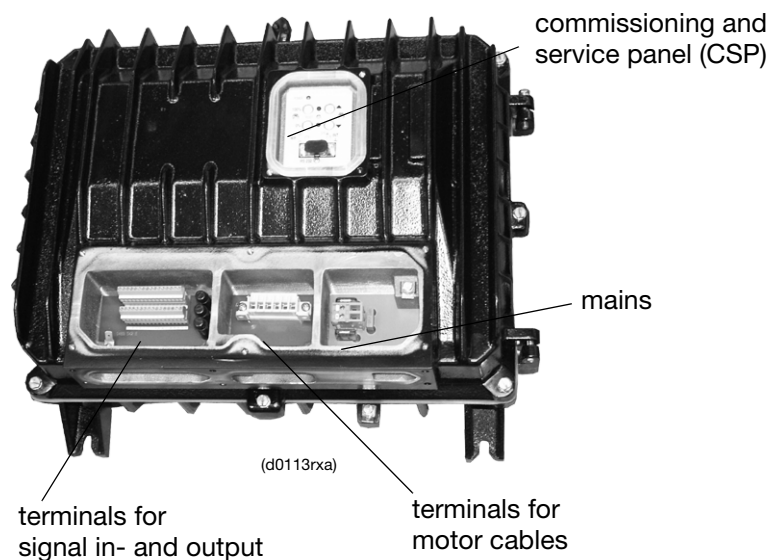


Fig. 4: EBS862

6. Possible Arrangement in the Mounting Rack

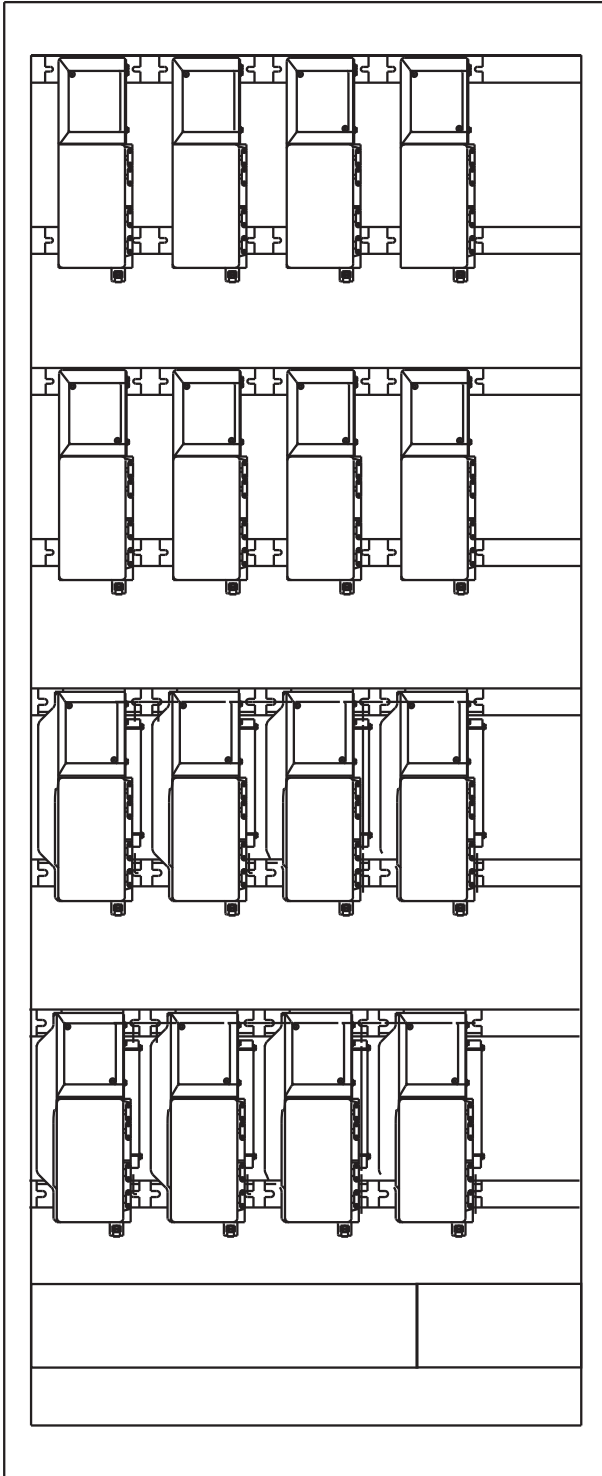


Fig. 5: Mounting rack with EAS 822 / EBS 852, possible arrangement

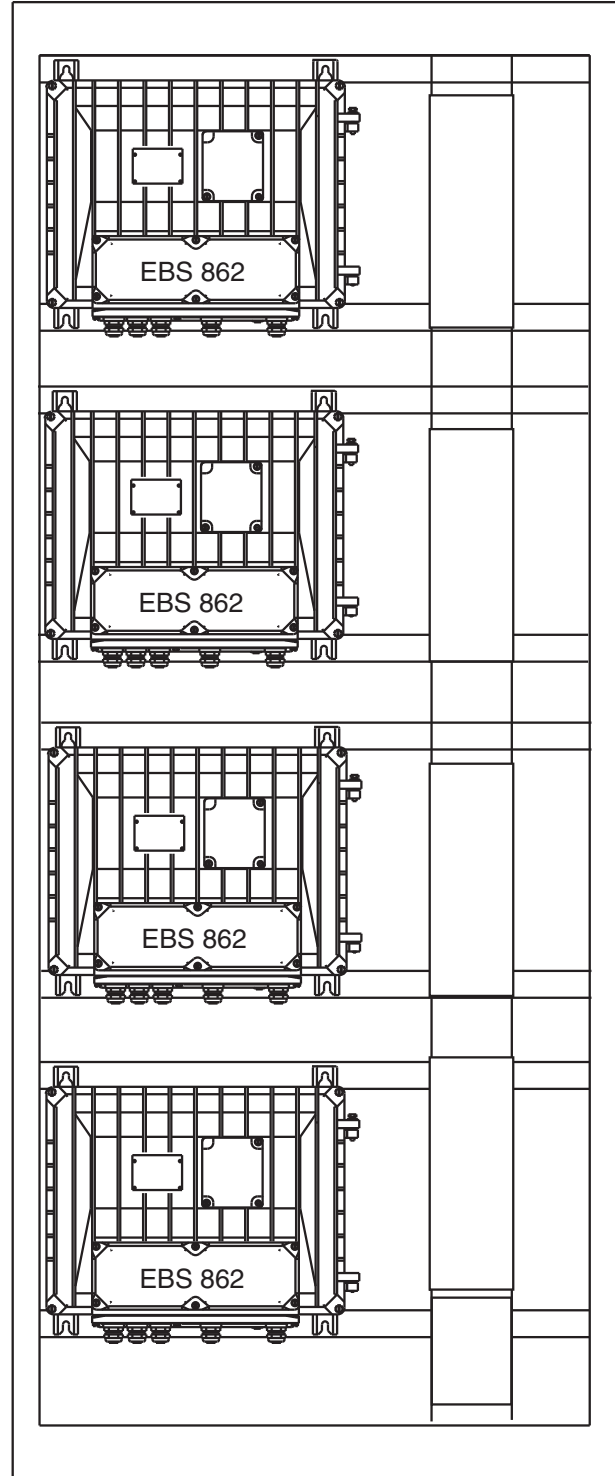


Fig. 6: Mounting rack with EBS 862, possible arrangement

7. Technical Data

7.1 Electronics

Electronics	EAS822	EBS852	EBS862
Protection class	IP 20		
Humidity	≤ 75% annual average, no condensation permitted		
Intake air temperature at mounting rack	0 ... 45° C		
Mounting orientation	Vertical, connections from bottom or right		
Varnish	2-component epoxy resin (RAL 9005, black)		
Vibration	2 ... 9 Hz: max. excursion: 3 mm 9 ... 200 Hz: acceleration: 1 g		
Weight	approx. 9 kg	approx. 11 kg	approx. 40 kg
Electrical connection	Power supply via screw terminals, all other connections via plug-in connection		
Cable connection (solid or stranded)	Signal: min 0.5 ² ; max. 1.5 ² Motor: min 0.5 ² ; max. 2.5 ² Mains: min 0.5 ² ; max. 4.0 ²		Signal: min 0.5 ² ; max. 1.5 ² Motor: min 0.5 ² ; max. 4.0 ² Mains: min 0.5 ² ; max. 4.0 ²
External series fuse ¹⁾	16 A (slow-blow)		35 A fuse 16 A thermal safety cutout
Supply voltage	230 V AC (190 V ... 260 V) or 115 V AC (94 V ... 130 V); 50/60 Hz ± 5%; 1 Ph		230 V AC (190 V ... 260 V) 50/60 Hz ± 5%; single-phase
Analog input, set value	0 / 4 ... 20 mA		
Analog output, actual value	0 / 4 ... 20 mA; electrically isolated		
Output; U _y	24 VDC; 15 mA for supply of digital inputs		
Digital inputs, DI 1 ... 3	Electrically isolated via opto-couplers Logical 0: -3V ... + 5 V or open; Logical 1: +12 V ... + 35 V		
Digital outputs, DO 1 ...	Potential-free relay contact, max. 60 V DC / 25 V AC; 150 mA		
Analog input, transmitter	Supply and signal input for 2-wire transmitter		
Digital communication	RS 232 for commissioning and service; optionally HART®/FSK		
Default settings	Function: positioner Set value function: linear, (set value = positioning value) Set value input: 4 ... 20 mA Actual value output: 4 ... 20 mA Behavior in 0/100% end position: shut-off with rated force / rated torque Digital inputs: DI 1 M/A selection; DI2 / DI3 manual interact. +/- Digital outputs: DO 1 ready; DO 2/3 end position signalling 0/100%		

Table 1:

¹⁾The 35 A fuse and the thermal safety cutout are included in the scope of delivery. They ensure safe operation for the special switching conditions of power electronics EBS862. Note that the cable cross-sectional area between the fuse and the electronics must be at least 2.5 mm².

7.2 Mounting Rack

Weight of empty rack: approx. 40 kg
 Weight of rack with units: approx. 210 kg

8. Actuator Assignment and Cable Cross-Sections

8.1 Part-Turn Actuators

Electronic unit	Average power dissipation of electronic unit	Max. current consumption ¹⁾		Actuator	Cross-sectional area of motor cable / permissible length in [m] ²⁾				
		115 V	230 V		1.5 mm ²	2.5 mm ²	4 mm ²	6 mm ²	10 mm ²
EAS822	60 W	1.0 A	0.55 A	PME120	180	300	480	-	-
EBS852	60 W	1.8 A	0.90 A	RHD250-10	270	460	-	-	-
	75 W	2.2 A	1.1 A	RHD500-10					
	60 W	3.4 A	1.7 A	RHD800-10					
	80 W	6.0 A	3.0 A	RHD1250-12					
	80 W	4.8 A	2.4 A	RHD2500-25					
	80 W	4.0 A	2.0 A	RHD4000-40					
	80 W	4.0 A	2.0 A	RHD8000-80					
EBS862	80 W	--	5.3 A	RHD2500-10	160	270	430	-	-
	100 W	--	10.0 A	RHD4000-10					
	115 W	--	9.0 A	RHD8000-12	70	120	190	280	460
	on request	--	10.2	RHD16000-30					

Table 2:

8.2 Linear Actuators

Electronic unit	Average power dissipation of electronics	Max. current input ¹⁾		Actuator	Cross-sectional area of motor cable / permissible length in [m] ²⁾				
		115 V	230 V		1.5 mm ²	2.5 mm ²	4 mm ²	6 mm ²	10 mm ²
EAS 822	60 W	1.0 A	0.55 A	LME 620	180	300	480	-	-
EBS 852	55 W	3.4 A	1.	RSD10-5.0	270	460	-	-	-
	60 W	3.8 A	1.9 A	RSD10-10.0					
	60 W	4.8 A	2.4 A	RSD20-5.0					
	75 W	3.8 A	1.9 A	RSD20-7.5					
	75 W	4.0 A	2.0 A	RSD50-3.0					
	80 W	4.4 A	2.2 A	RSD100-1.5					
	80 W	5.0 A	2.5 A	RSD200-0.7					
EBS 862	100 W	--	6.4 A	RSD50-10.0	160	270	430	-	-
	115 W	--	12.5 A	RSD100-10.0	70	120	190	280	460
	115 W	--	13.5 A	RSD200-5.0					

Table 3:

¹⁾ At rated actuator power; current consumption in positioning mode around 40 ... 50% of $I_{\max}$.

²⁾ Cable length between electronics and actuator. Cross-sectional area of signal cable 0.5mm².

9. Electrical Connection

The electronic units are installed in a mounting rack. Each actuator requires a Contrac electronic unit. Proper actuator operation requires an actuator specific software loaded in the associated electronic unit. Compare the data labels on both, electronic unit and actuator, in order to ensure a correct hardware and software assignment.



The electrical connection is done with a plug at the actuator and with screw terminals at the electronic unit.

9.1 General

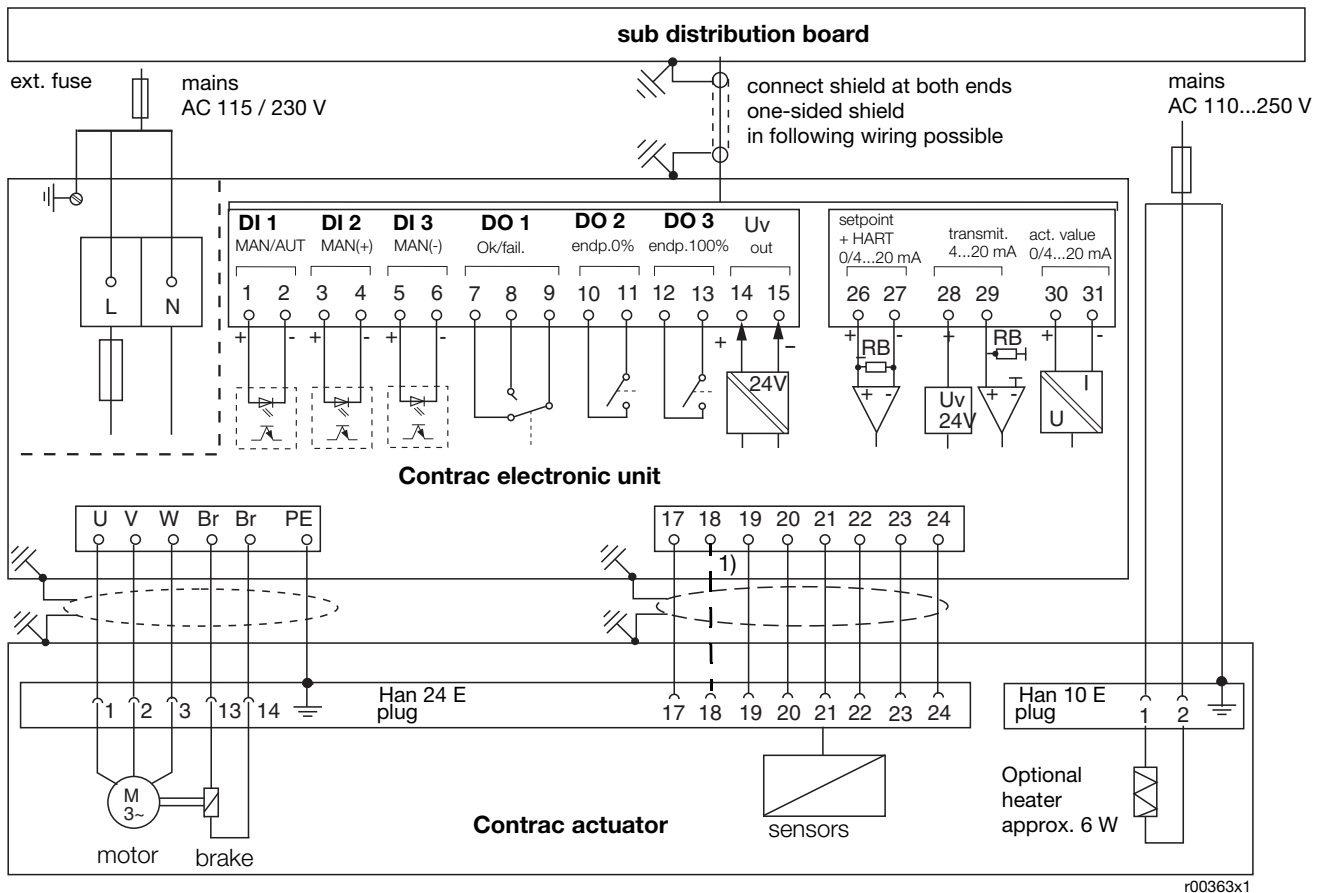
Disconnect the electronics and the actuator prior to all installation and service works and secure against unintended switch-on.



9.1.1 Pre-condition

- Disconnection must be possible on mounting site.
- All signal cables and the motor cable between actuator and electronics must be shielded at both ends.

9.2 EAS822 / EBS852



r00363x1

Fig. 7: Electrical connection ⁽¹⁾ only for EAS822)

9.3 EBS862

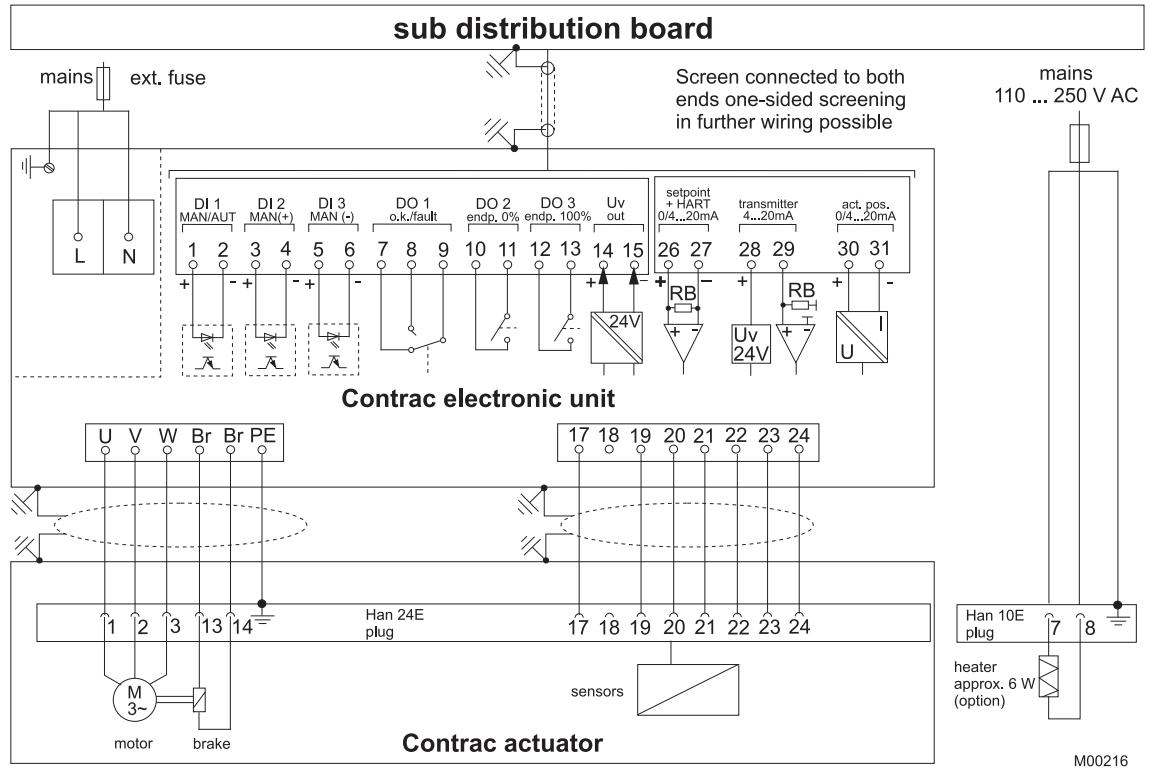


Fig. 8: Electrical connection of EBS862

9.4 Connecting the shield

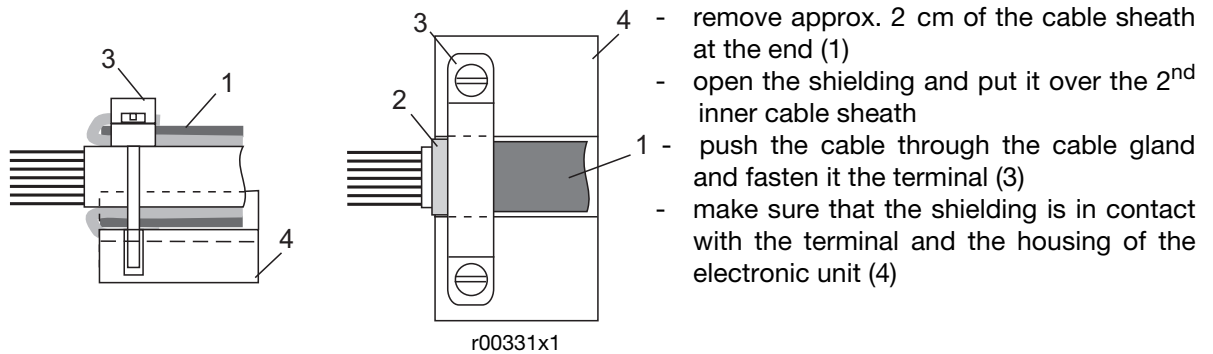


Fig. 9: Shield connection

Connect the shield at the actuator accordingly.

9.5 Signal input / output (Examples)

(conventional analogue / binary control)

Premises to switch the actuator into automatic mode (AUT):

- digital inputs D1, D2, and D3 may not be activated via the configuration software (standard configuration with default factory settings).
- activate the AUT mode using the configuration software (standard configuration with default factory settings).



9.5.1 Standard wiring (analogue setpoint)

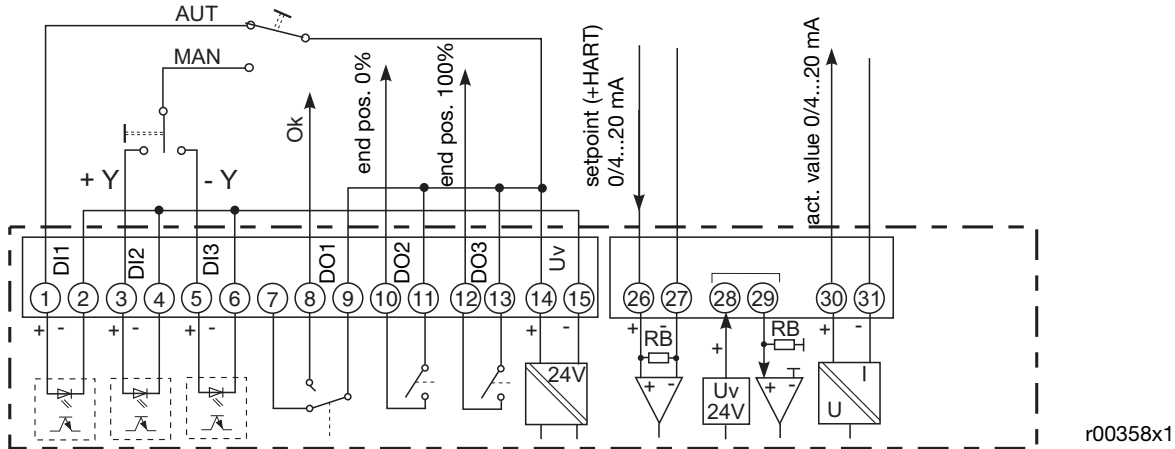


Fig. 10: Possible wiring for standard terminal assignment

9.5.2 Behind a step controller

(binary control without an analogue setpoint)

Contrac actuators feature smooth and continuous operation even if the electronic unit receives binary commands from a step controller. Use the configuration software for the appropriate settings. The electronic unit will then integrate the step commands and internally generate an analogue setpoint signal.

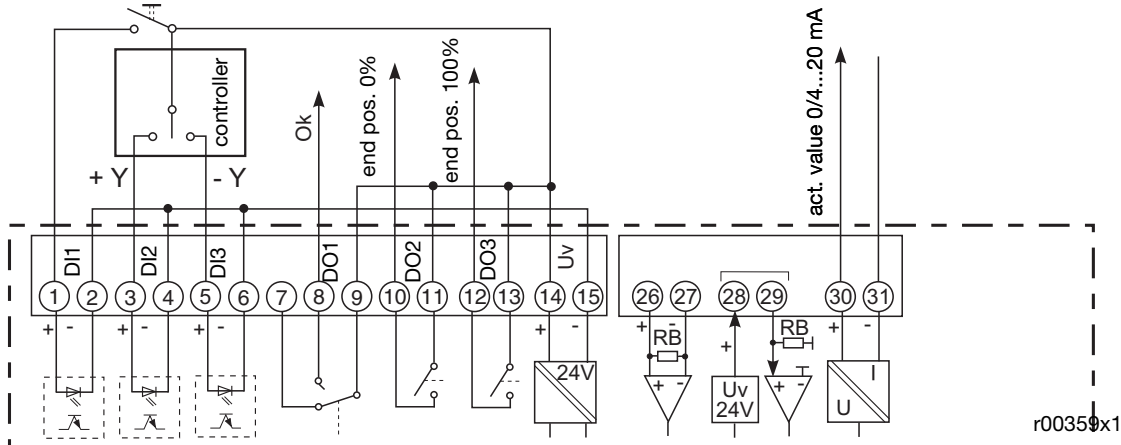


Fig. 11: Possible wiring for „operation behind step controller“

This operating mode requires the switch for the reference potential SYS $\perp$ to be set to $\perp$.

9.6 Cable guidance at the plug

Pass and connect both the signal and the power cable separately within the plug housing in order to avoid electro magnetic interferences. A metal plate separates both cable areas from each other. Connect the screen acc. to fig. 12.

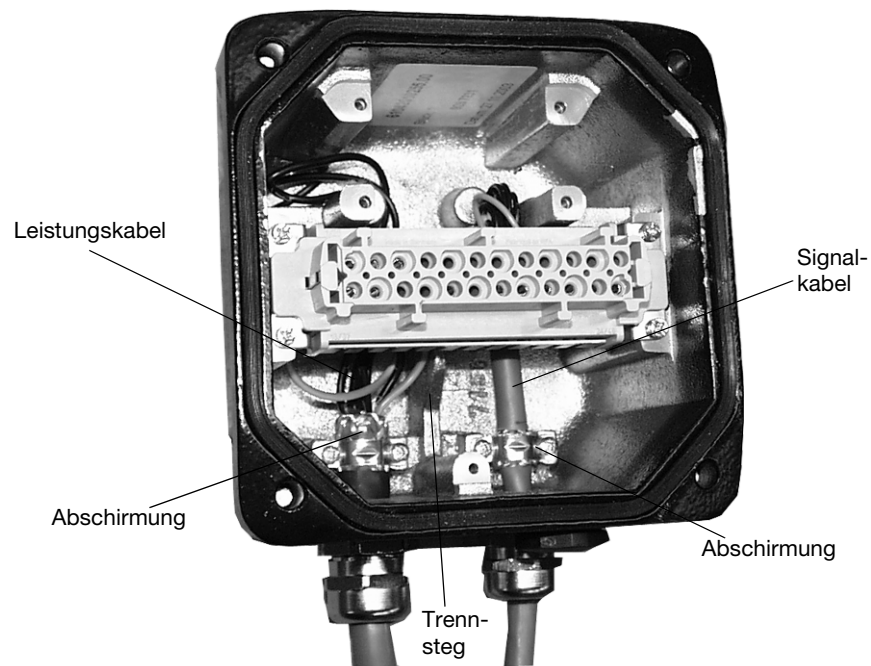


Fig. 12: Cable guidance within the plug

9.7 Fuses

9.7.1 EAS822

Type	Location	U _V = 115 V	U _V = 230 V
Series fuse	external	16 A; slow-blow	
Mains fuse	F1, in terminal box	6.3 A; slow-blow	3.15 A; slow-blow
Relay fuse for DO1, DO2, DO3	F2 ... F4; in terminal box	3 x 0.2 A; medium time-lag	

Table 4:

9.7.2 EBS852

Type	Location	U _V = 115 V	U _V = 230 V
Series fuse	external	16 A; slow-blow	
Mains fuse	F1, in terminal box	12.5 A; slow-blow	10 A; slow-blow
Relay fuse for DO1, DO2, DO3	F2 ... F4; in terminal box	3 x 0,2 A; medium time-lag	
Brake fuse	on board (power section)	0,315 A; medium time-lag	
Intermediate circuit fuse	Power board	10 A; super-quick	

Table 5:

9.7.3 EBS862

Type	Location	$U_V = 230\text{ V}$
Series fuse	external	35 A fuse ^{a)} 16 A thermal safety cutout
Relay fuse for DO1, DO2, DO3	F2 ... F4; in terminal box	3 x 0.2 A; medium time-lag
Brake fuse	on board (power section)	0.315 A medium time-lag
Intermediate circuit fuse	power board	15 A; medium time-lag

Table 6:

^{a)}The 35 A fuse and the thermal safety cutout (16 A) are included in the scope of delivery. They ensure safe operation for the special switching conditions of power electronics EBN 861. Note that the cable cross-sectional area between the fuse and the electronics must be at least 2.5 mm^2

9.7.3.1 External fuses

The electronic unit EBS862 requires two additional fuses (1 fuse; 1 circuit breaker), which are supplied together with the unit. .

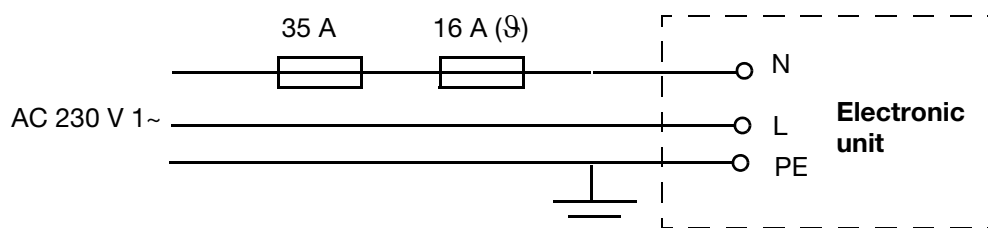


Fig. 13: External fuses



Fig. 14: external fuse; 35 A

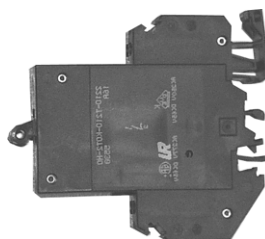
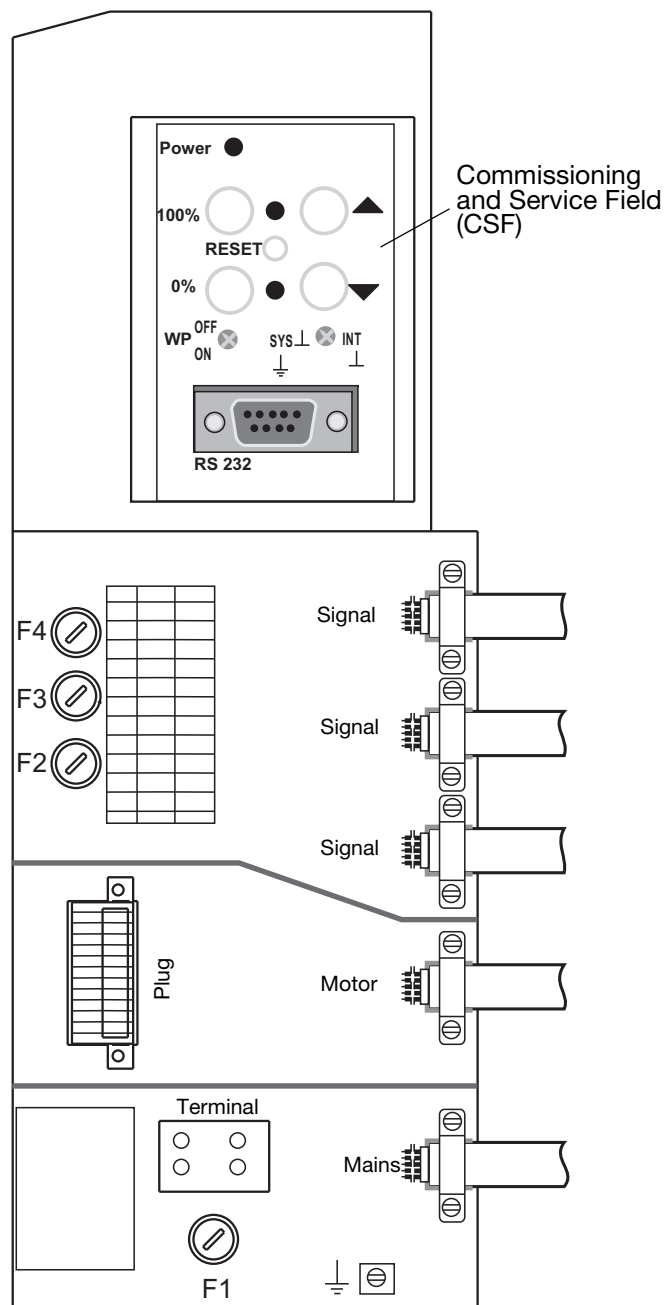


Fig. 15: external circuit breaker; 16 A

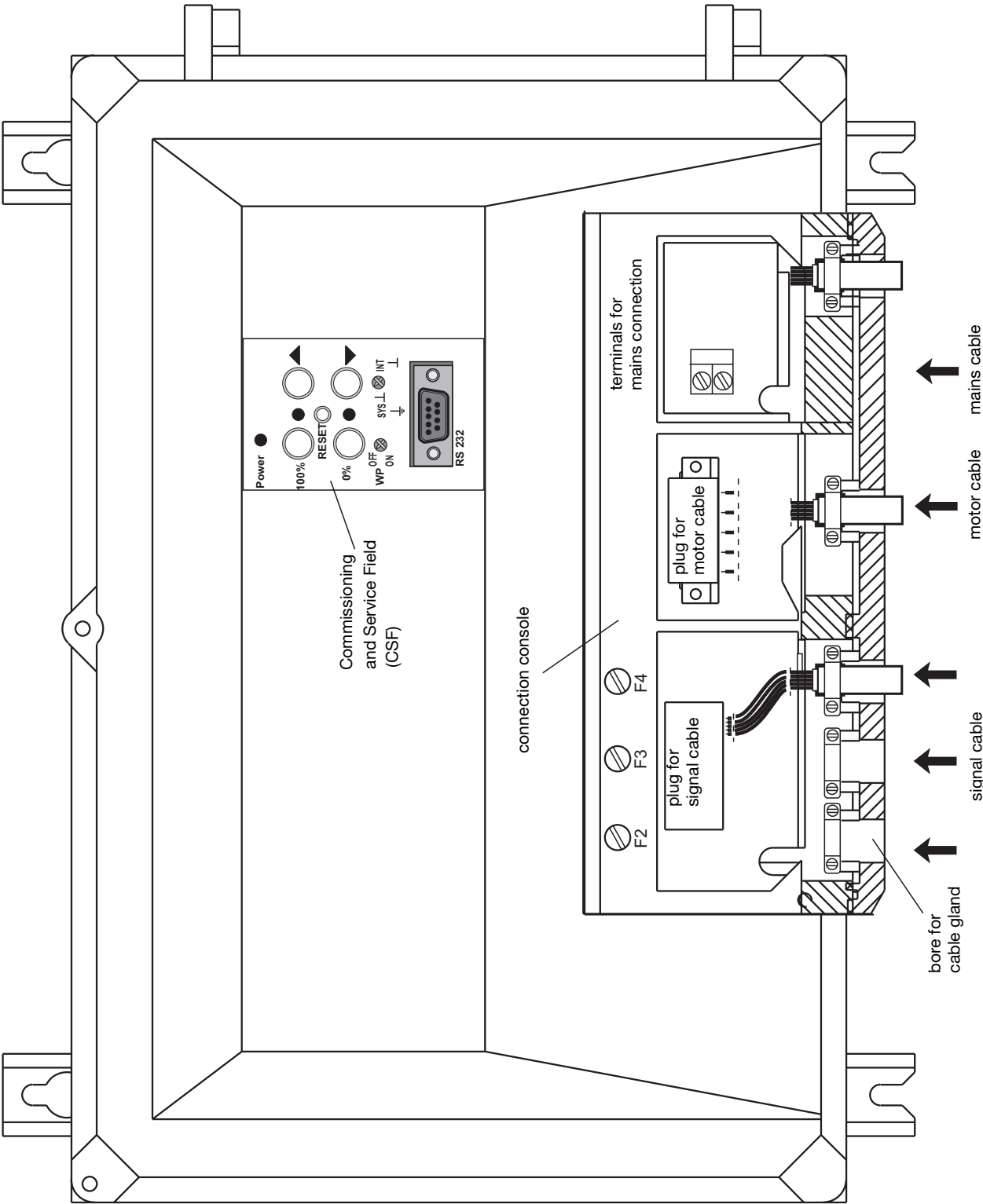
10. Operating and Connecting Elements

10.1 EAS822 / EBS852



(r00345x1)

Fig. 16: Position of operating and connecting elements on EAS822 / EBS852



(r00346x1)

Fig. 17: Position of operating and connecting elements on EBS862

11. Layout of the Mounting Rack

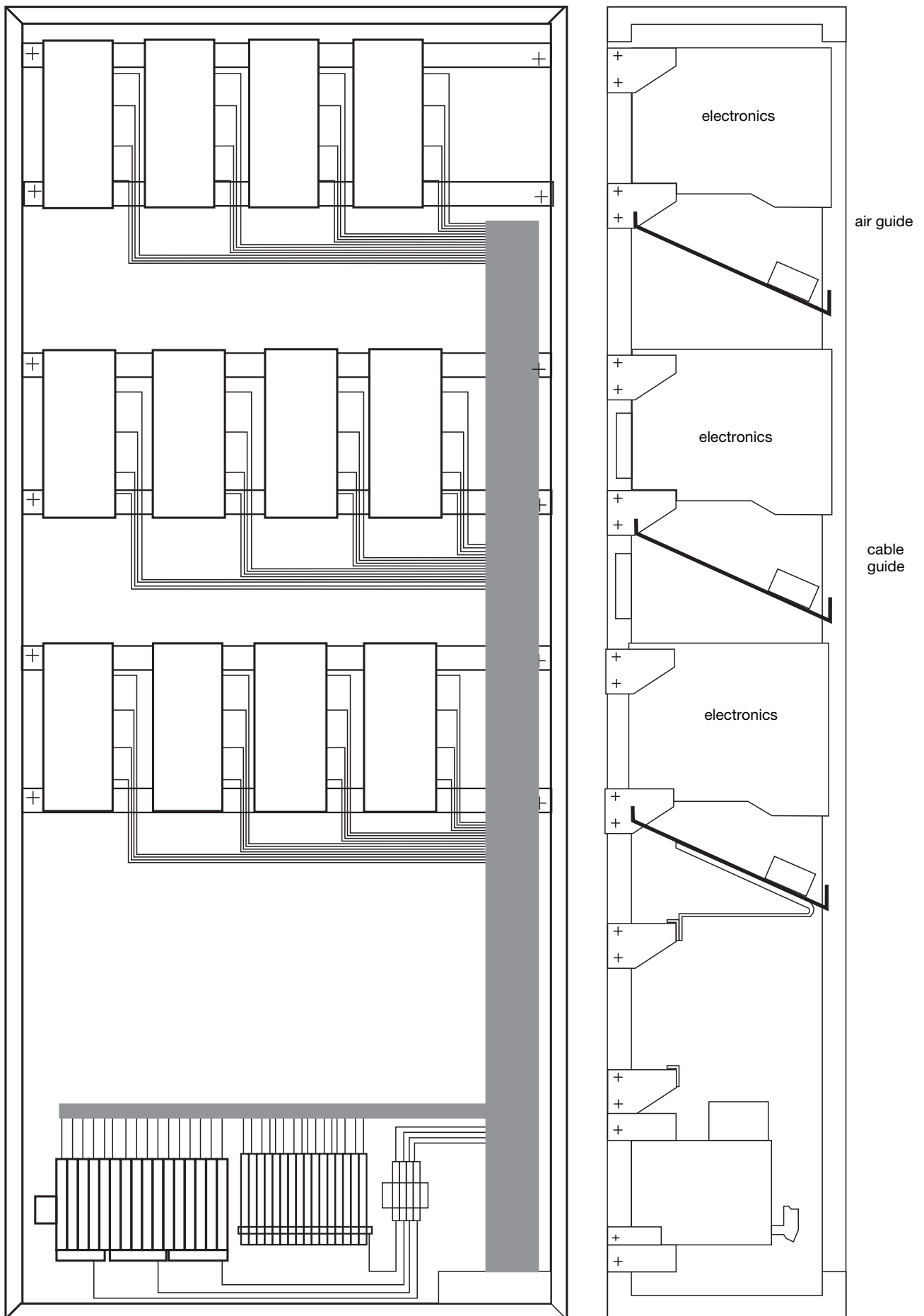


Fig. 18: Cable routing in mounting rack

(r00347x1)

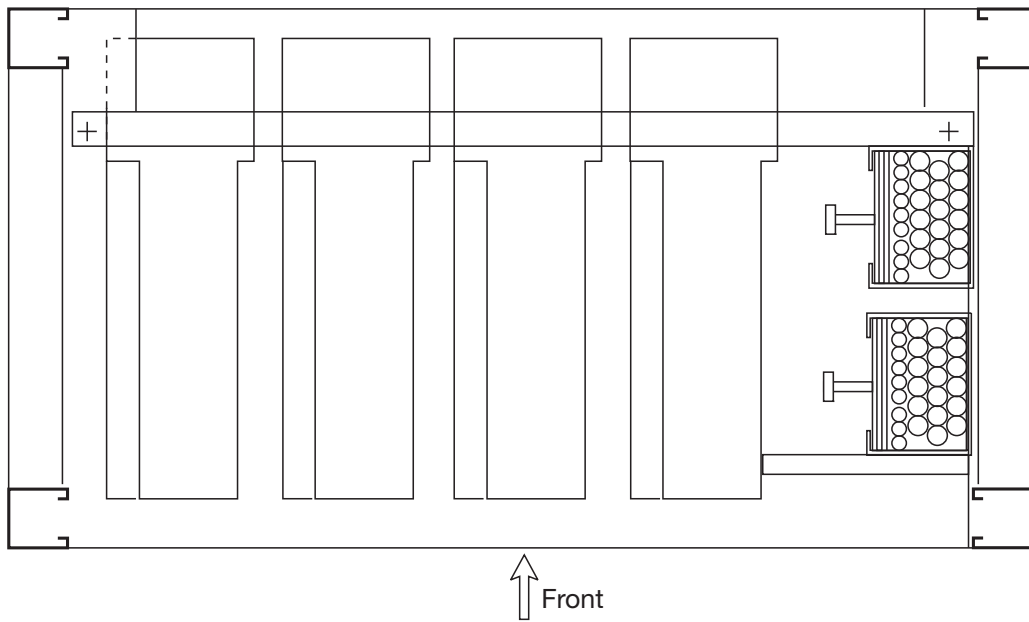


Fig. 19: Cable arrangement and electronic unit installation in a mounting rack (top view)

11.1 Mains distribution

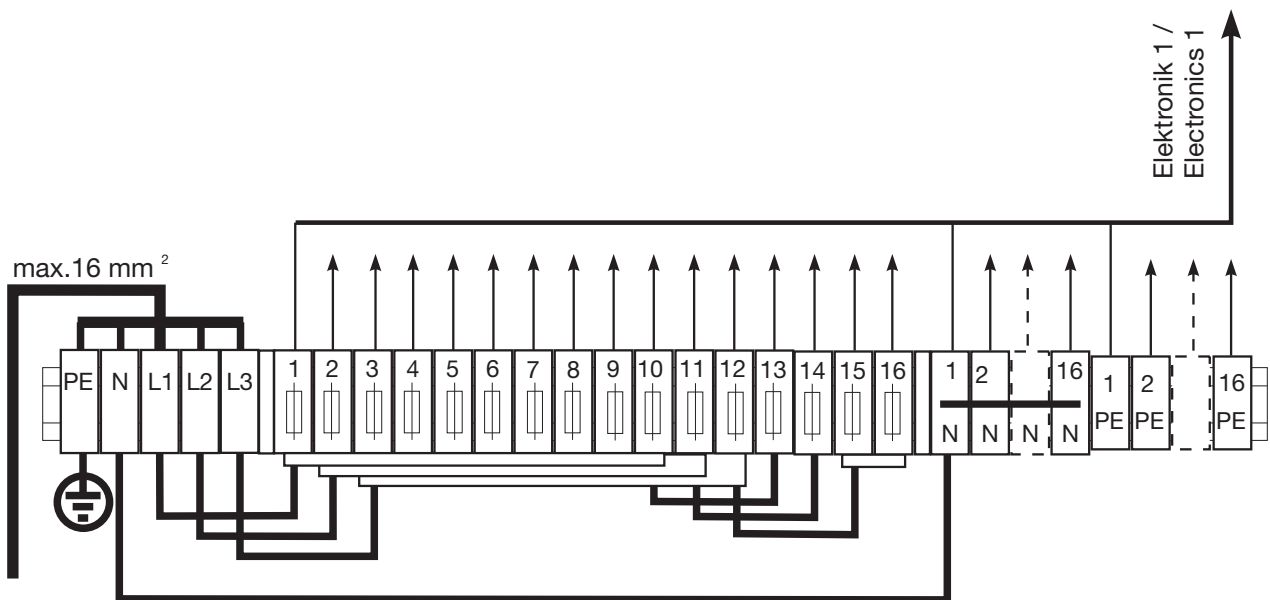


Fig. 20: Arrangement of mains cables

12. Dimensional Drawings

12.1 Mounting Rack

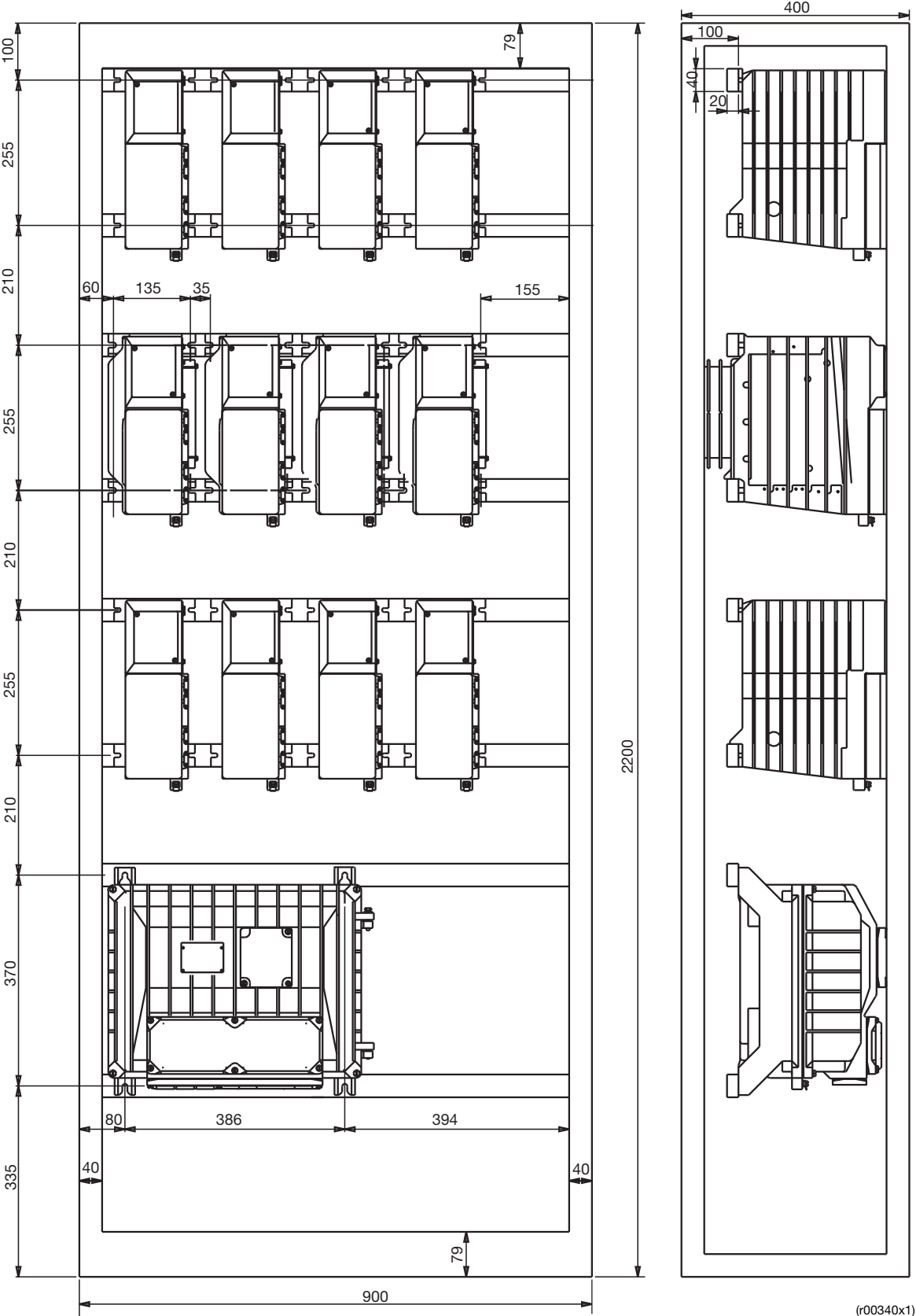


Fig. 21:

12.2 EAS822

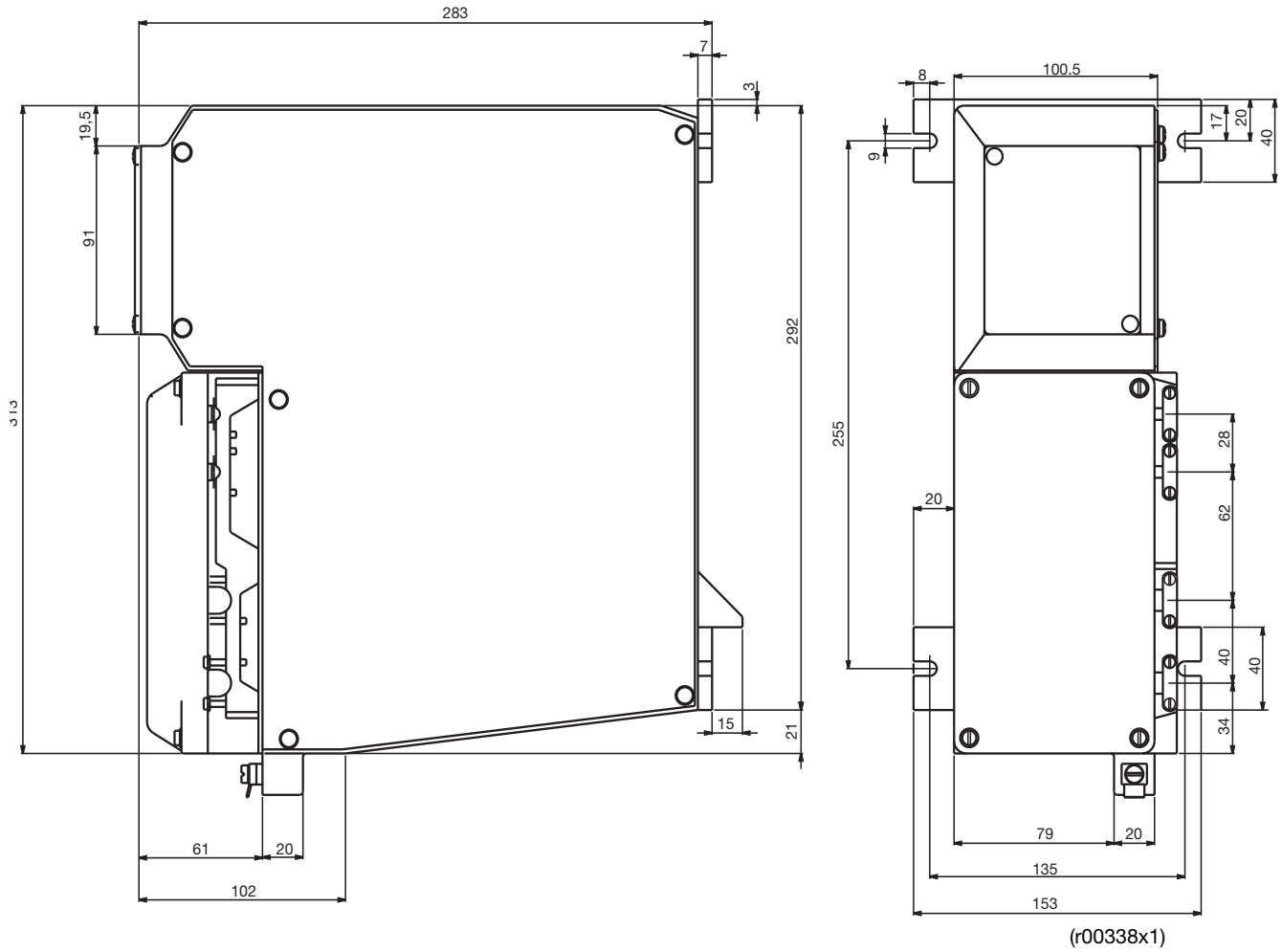


Fig. 22:

12.3 EBS852

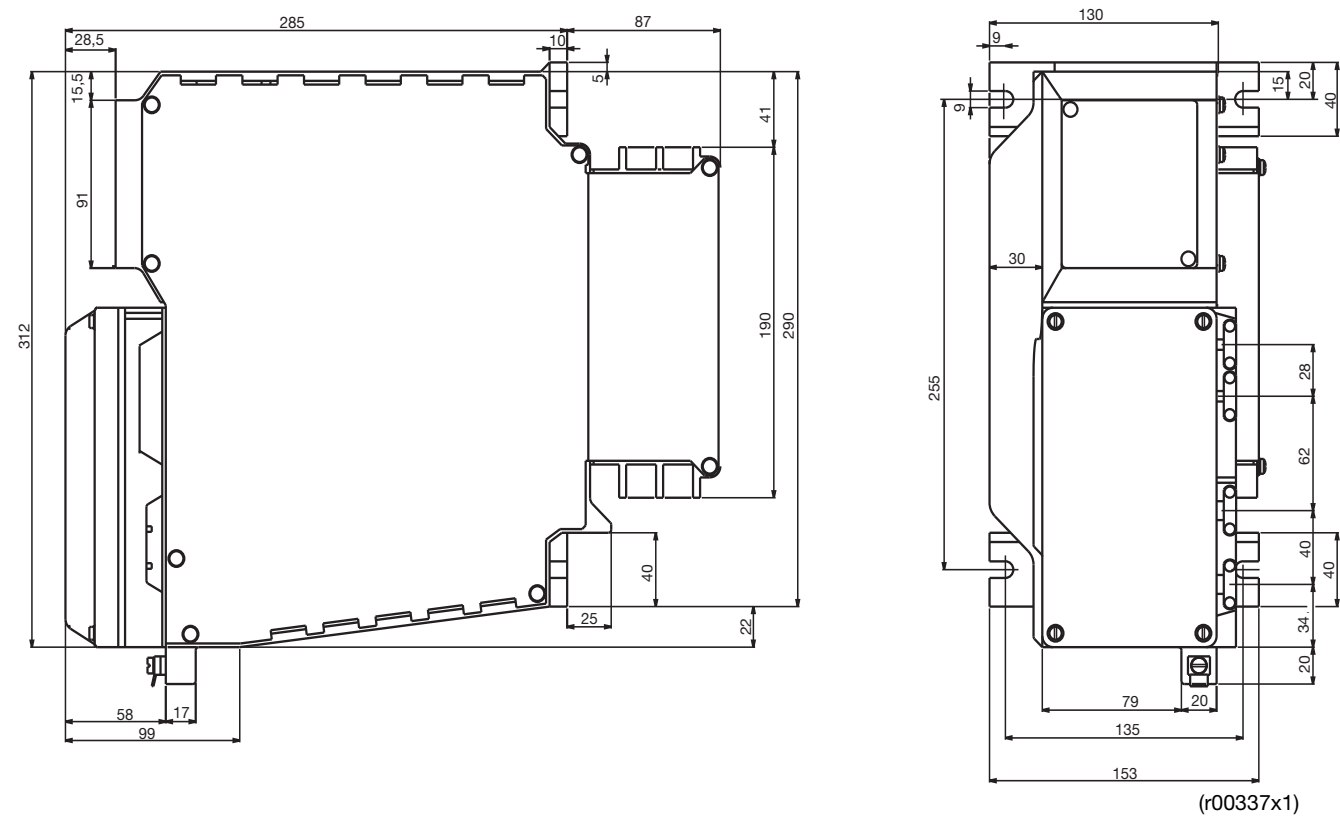


Fig. 23:

12.4 EBS862

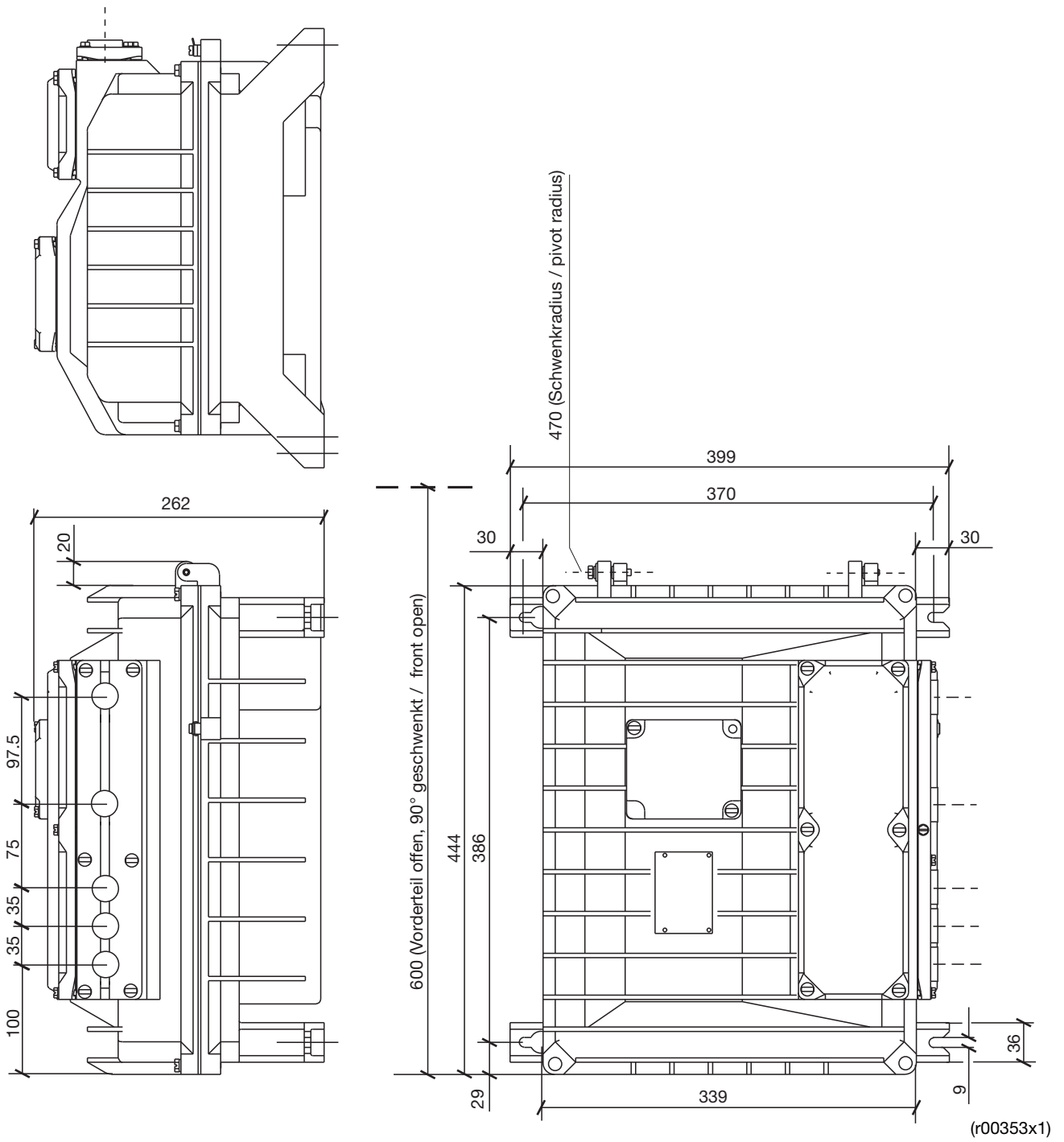


Fig. 24:

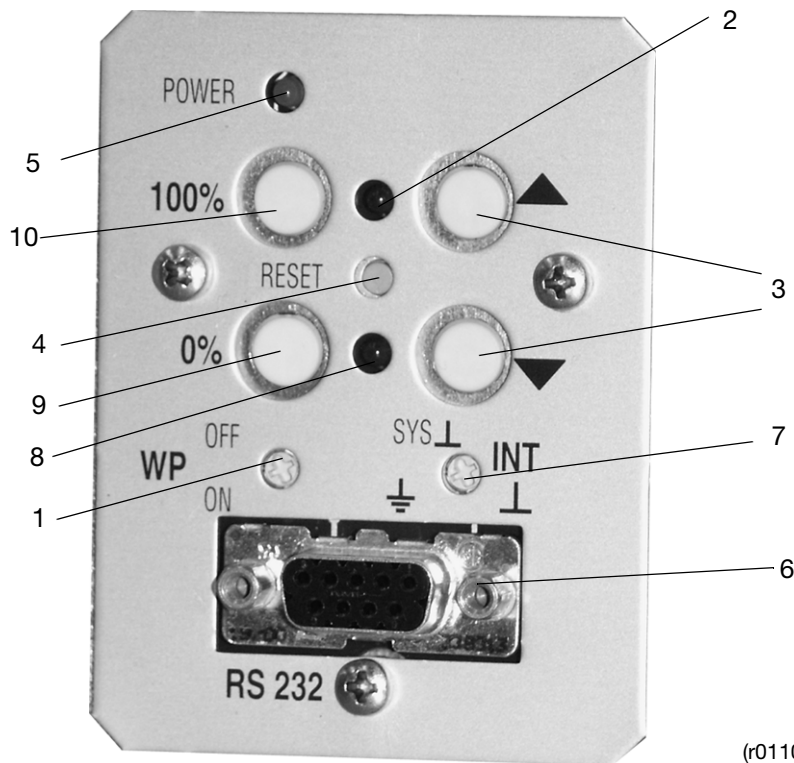
13.Setup

The actuator only requires the basic settings (adaptation to the operating range) in order to be operated with the standard or customer specific configuration. Use the **Local Control Panel (LCP)** for these settings. Use the appropriate configuration software for more detailed parameter changes or diagnosis functions.

13.1 Set-up via local control panel (LCP)

13.1.1 Operating elements

- | | | |
|----------------------------|--|---|
| 1. Write-protect switch | (Default setting: OFF) |  |
| 2. LED for 100% position | Indication if adjustment procedure, saved position, or fault by different flash frequencies. | |
| 3. Drive buttons | Press to cause drive motion | |
| 4. Reset button | Press to restart processor | |
| 5. Power LED | Indicates available mains supply | |
| 6. RS 232 socket | Connection socket to PC | |
| 7. Potential toggle switch | Connection of reference potential to the system or protective earth (by default set to system) of electronic unit | |
| 8. LED for 0% position | Indication if adjustment procedure, saved position, or fault by different flash frequencies.. | |
| 9. Accept button (0%) | Press to define current position as 0%; simultaneously press push button 9 + 10 to complete the adjustment procedure. | |
| 10. Accept button (100%) | Press to define current position as 100%; simultaneously press push button 9 + 10 to complete the adjustment procedure | |



(r0110rxa)

Figure 25: Local Control Panel (LCP)

The actuator range is not preset in factory!

13.1.2 Setup procedure

- Undo the screws of the LCP cover
- Swing the cover to the side

13.1.3 Initial situation

- Electronics connected to power supply and actuator
- Write-protect switch (1) set to "OFF" position
- Electronics in operating mode "MAN" (no signal on DI 1)
- No fault (if a fault occurs, both LEDs flash alternately at 4 Hz)



13.1.4 Setting

13.1.4.1 "Setting" mode

- Set electronics to "setting" mode by pressing both push buttons (3) simultaneously for approx. 5 seconds, until both LEDs (2 + 8) are flashing synchronously at approx. 4Hz. („setting mode“ is the standard electronic unit status after passing the final factory test)

13.1.4.2 Defining first position (0% or 100%)

(Higher precision in 2nd position)

- Move to desired position by pressing one of the push buttons (3).
- To accept the position for 0% or 100%, press push button (10) or (9); the associated LED flashes at approx. 2 Hz when value is correctly accepted, the other one continues to flash at approx. 4Hz

13.1.4.3 Defining second position (0% or 100%)

- Move to second position by pressing the other of the push buttons (3).
- To accept the position, press push button (10) or (9); both LEDs (2) and (8) are flashing at approx. 2 Hz when values are accepted correctly.

13.1.4.4 Saving the settings

- Save the settings by simultaneously and shortly pressing the push buttons (10 + 9); the LEDs (2 + 8) are „ON“ (without flashing) for approx. 5 sec before they extinguish and the setting procedure is completed.
- If the selected range is too small for the actuator, both LEDs will flash again at 4Hz. Repeat the adjustment procedure with a wider range (min. positioning travel).
(See positioning travel specification on actuator ID label)

13.1.4.5 Correction after setup

- If the setting is to be corrected after accepting the first value, first press the Reset button (4) and then repeat the setting.
- If the correction is to be re-done after saving the settings, the entire adjustment procedure must be repeated.

13.2 Adjustment using the configuration program

Context-sensitive help information is available in the configuration program at all times. For basic handling and installation instructions refer to the associated manual, number 41/68-001.

A conductive ground connection is established between the PC and the CONTRAC electronics with the RS 232 communication cable. If the PC is grounded, this may cause a ground loop in the installation.

13.3 Functions and signals at the LCP

Function	Indication
Adjustment	
Change-over to adjustment mode: Press and hold both drive buttons for approx. 5 seconds	Both LEDs flash synchronously at approx 4Hz after time has expired.
Moving to an end position Use associated drive button on LCP	Both LEDs continue to flash at 4Hz while driving.
Saving the first end position Press button 0% or 100%	The associated LED flashes at approx. 2Hz, the other continues at 4Hz.
Saving the second end position Press button 0% or 100%	The associated LED flashes at approx. 2Hz synchronously to the first one.
Confirm settings Press 0% and 100% buttons simultaneously	Both LEDs are briefly „ON“ together and then extinguish.
Operation	
Normal operation: MAN / AUT	LED off
Driving with button on CSF Priority over control system	LED off
Bootstrap mode	
Electronic is in bootstrap mode during the data transfer of e. g. firmware, objects or motor characteristics; use ECOM688 software for this procedure.	Both LED are „ON“; actuator is not available
Fault (both LEDs flash alternately at 4Hz)	
Reset: Resets fault indications	If no „Failure“ conditions exist, both LEDs extinguish (if the actuator had been moved out of its operating range, drive it back prior to the reset).

Table 7:

14. Alarms / Failures

14.1 Definition

14.1.1 Alarms

The actuator / electronic unit is exposed to critical conditions (e. g. high temperature) which currently do not affect the actuator, the electronic unit, the process or persons. The actuator functions are still available. Previous alarms are saved in the „Saved Alarms“ memory of the electronic unit. Use the configuration software to display the current and saved alarms.

14.1.2 Failures

The actuator / electronic unit is exposed to critical conditions (e. g. setpoint monitoring signal) which instantly might affect the actuator, the electronic unit, the process or persons. The actuator will be switched off and the actuator functions are no longer available. Previous failures are saved in the „Saved Failures“ memory of the electronic unit. Use the configuration software to display the current and saved failures. Failure messages can not be reset as long as the reason for the failure exists.

14.2 Alarm scheme

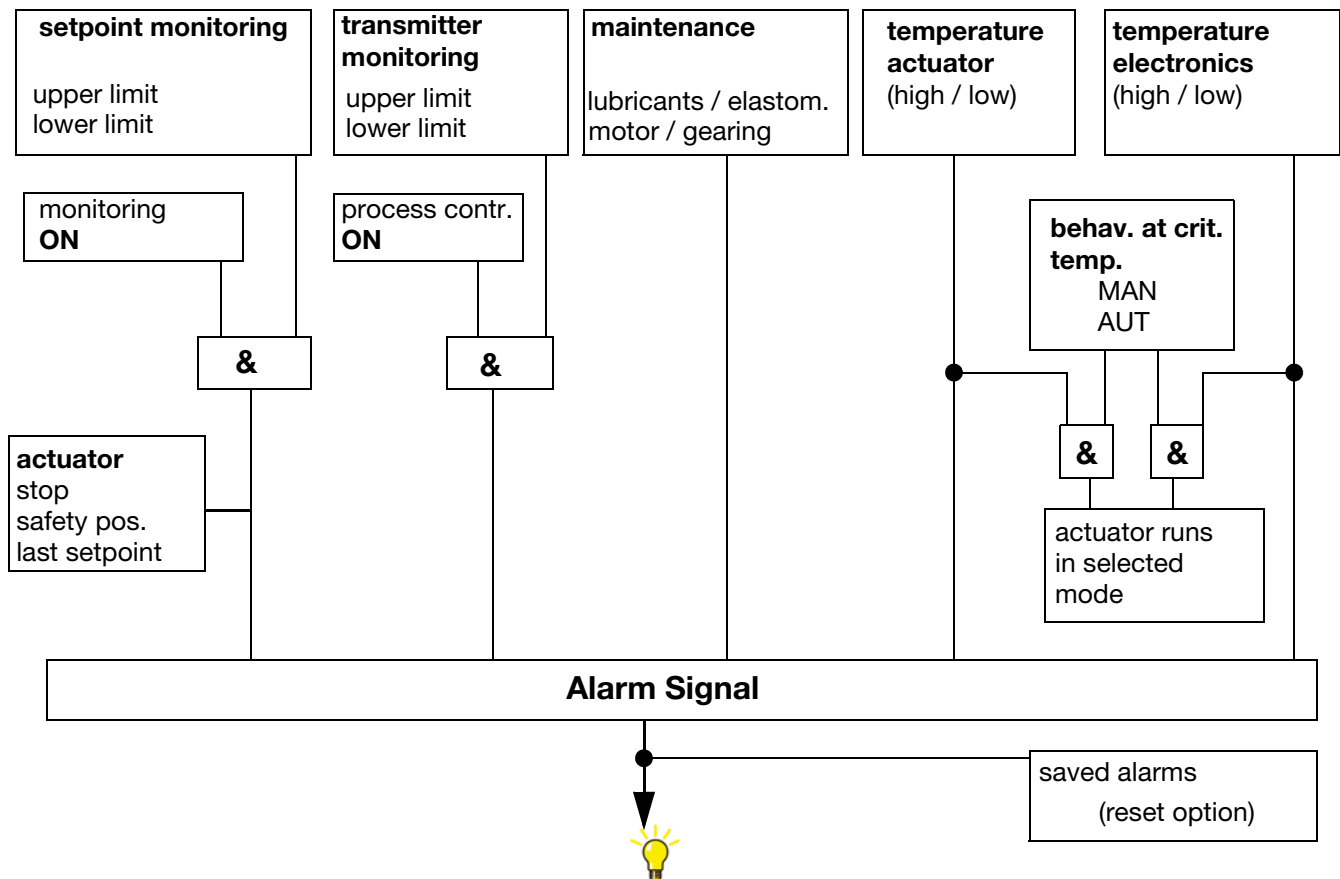


Fig. 26:

14.3 Failure scheme

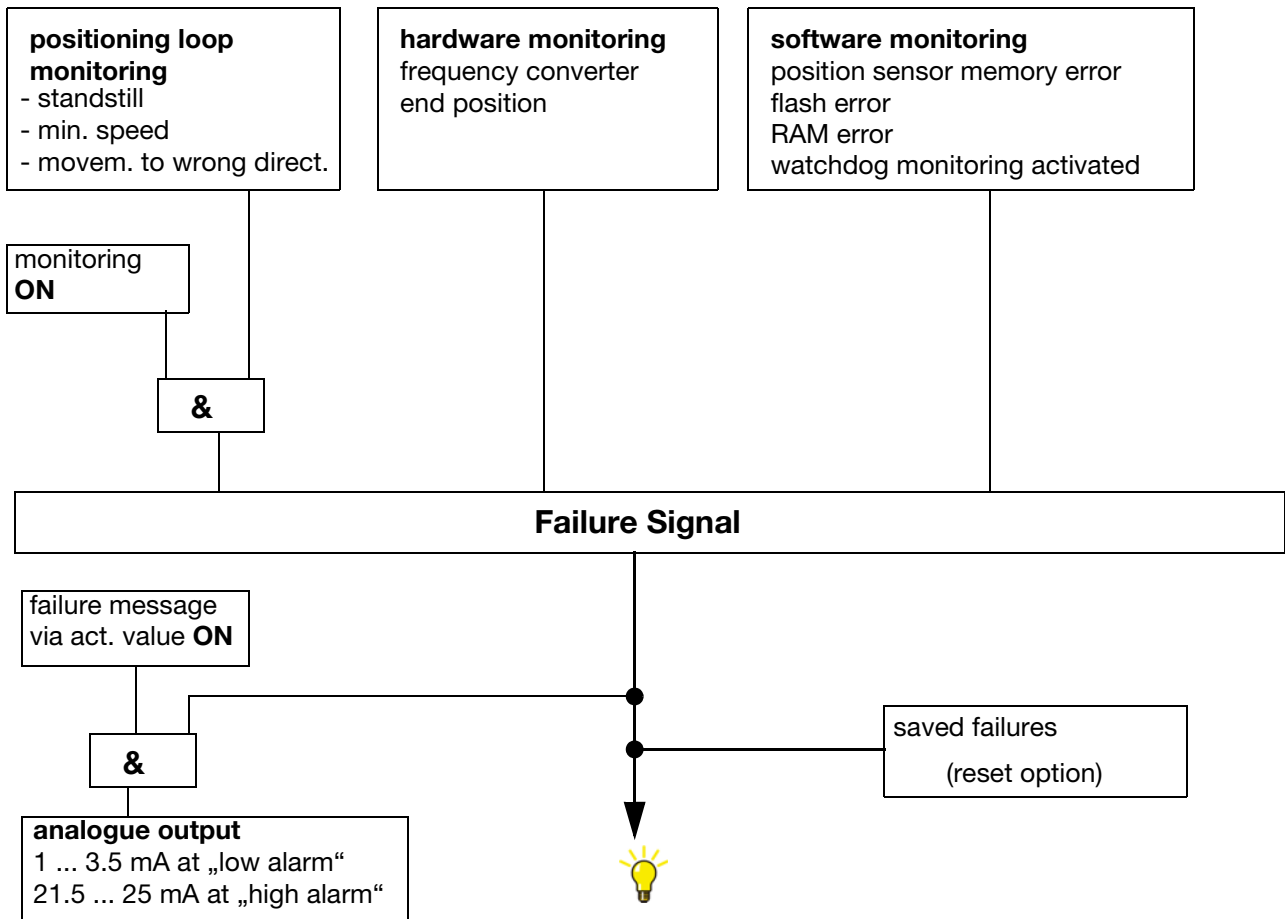


Fig. 27:

15. Troubleshooting

This section mainly describes how to handle hardware errors. Refer to the configuration program's on-line help for errors related to the software.

Error	Possible reason	Measures to be taken
Valve cannot be moved by actuator	Malfunction of actuator or valve (e.g. stuffing box tightened too much)	Disconnect the actuator from the valve. If the actuator is working properly then, the valve is likely to be defective. Otherwise, the actuator seems to be the error source.
Actuator does not react	Wrong electronic unit or wrong data	Compare data labels of actuator and electronic unit
	Faulty electronic unit settings	Check / modify settings using the configuration software
	Faulty communication to DCS	Check wiring
	Faulty wiring between the electronic unit and the actuator	Check wiring
	Motor / brake is defective	Check the winding resistances of the motor and brake. Check the brake fuse.
	Digital inputs of electronic unit are not connected	Connect
Actuator does not work in automatic mode, although "AUT" has been selected in the configuration program	Digital input 1 (DI 1) has not been connected.	- Connect DI 1 - Check software settings for digital inputs
LEDs on the commissioning and service field are flashing simultaneously	Actuator operating range has not been adjusted properly	Adjust the actuator operating range (see instruction for electronic unit).
Fault when approaching an end position	Actuator is working in the limit range of the position sensor	- Move the actuator either manually or with the LCP buttons to a position beyond the end position (disconnect from valve if required). - Move actuator back. If required, reconnect to the valve (if applicable) - Adapt actuator to new operating range

Table 8:

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ABB Ltd.
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