

Electric amplifiers

RE 30041/02.12
Replaces: 01.11

1/6

Type VT-VRRA1-5...-2X/V0
Type VT-VRPA1-5...-2X/V0

Component series 2X

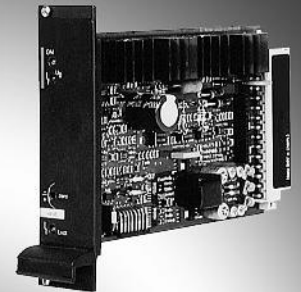


Table of contents

Contents	
Features	
Ordering code, accessories	
Front plate	
Block diagram with pin assignment	
Technical data	
Unit dimensions	
Project planning / maintenance instructions / additional information	

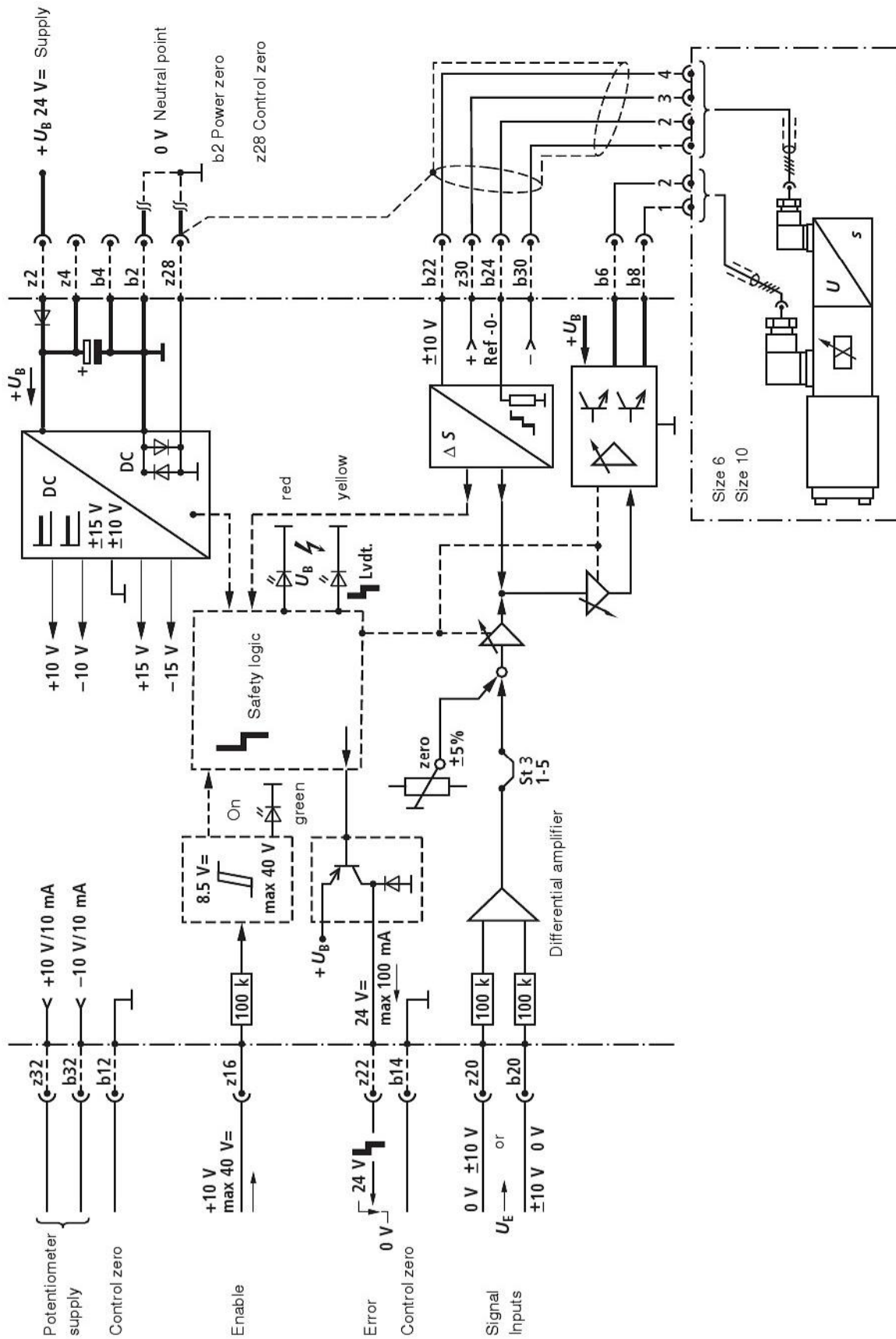
Features

Page	
1	– Suitable for controlling direct operated high-response valves with linear characteristic curve and position feedback (LvdT-DC/DC)
2	– Analog amplifiers in Europe format for installation in 19" racks
2	– Controlled output stage
3	– Enable input
4	– Outputs short-circuit-proof
5	– Adjustment possibilities – Zero point valve
5	– Cable break detection for actual value cable
5	– Position control with PID behavior

Notice:

The photo shows an example configuration.
The delivered product differs from the figure.

Block diagram with pin assignment



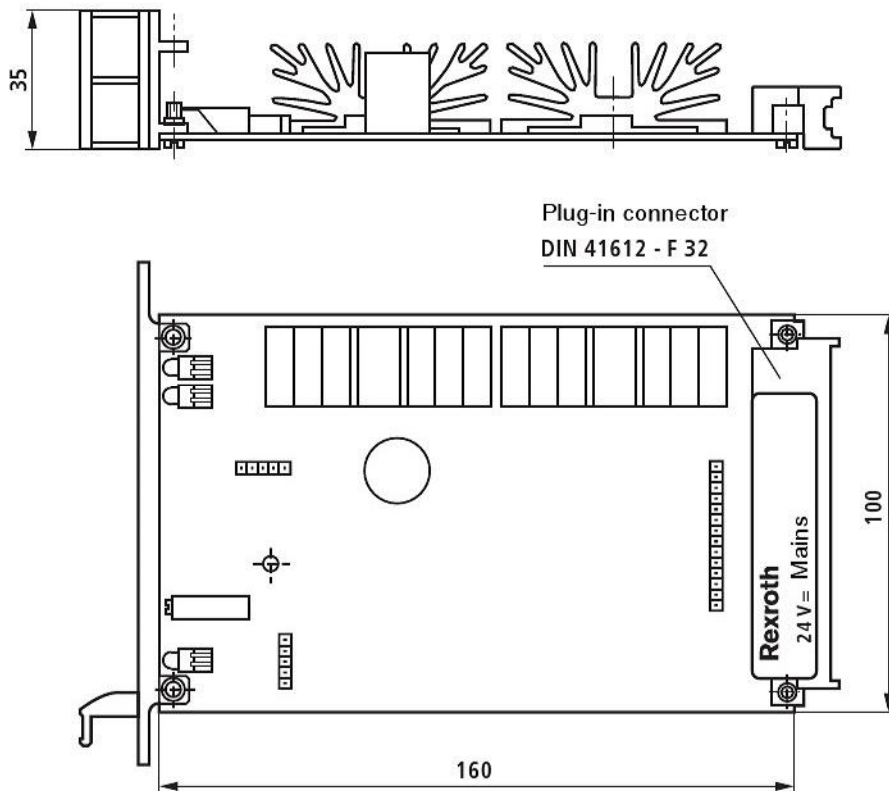
Technical data (For applications outside these parameters, please consult us!)

Supply voltage U_B at z2 – b2		Nominal 24 V =, Battery voltage 21...40 V, Rectified alternating voltage $U_{\text{eff}} = 21...28$ V (one-phase, full-wave rectifier)	
Smoothing capacitor, separately at z2 – b2		Recommendation: Capacitor module VT 11110 (see data sheet 30750) (only necessary if the ripple of $U_B > 10\%$)	
Valve solenoid, max.	A/VA	2.7/40 (size 6)	3.7/60 (size 10)
Current consumption, max.	A	1.7	2.7
		The current consumption may increase with min. U_B and extreme cable length to the control solenoid	
Power consumption (typical)	W	37	55
Input signal (command value)		b20: 0...±10 V } z20: 0...±10 V } Differential amplifier ($R_i = 100$ k Ω)	
Signal source		Potentiometer 10 k Ω , Supply ±10 V from b32, z32 (10 mA) or external signal source	
Enable output stage		At z16, $U = 8.5...40$ V, $R_i = 100$ k Ω , LED (green) on front plate lights up	
Position transducer	Supply	b30: –15 V z30: +15 V	
	Actual value signal	b22: 0...±10 V, $R_i = 20$ k Ω	
	Actual value reference	b24	
Solenoid output b6 – b8	I_{max}	Clocked current controller	
		2.7 A	3.7 A
Cable lengths between amplifier and valve		Solenoid cable: to 20 m 1.5 mm ² 20 to 60 m 2.5 mm ² Position transducer: 4 x 0.5 mm ² (shielded)	
Special features		Cable break protection for actual value cable, Position control with PID behavior, Pulsed output stage, Fast energization and fast deletion for short actuating times, Short-circuit-proof outputs	
Adjustment		Zero point via trimming potentiometer ±5 %	
LED displays		green: Enable yellow: Cable break actual value red: Undervoltage (U_B too low)	
Error message – Cable break actual value – U_B too low – ±15 V stabilization		z22: Open collector output to + U_B max. 100 mA; no error: + U_B	
Circuit board format	mm	(100 x 160 x approx. 35) (W x L x H) Europe format with front plate 7 TE	
Plug-in connection		Connector DIN 41612 – F 32	
Ambient temperature range	°C	0...+70	
Storage temperature range	°C	–20...+70	
Weight	m	0.37 kg	

Notice

Power zero b2 and control zero b12 or b14 or z28 must be separately led to the central ground (neutral point).

Unit dimensions (dimensions in mm)



Project planning / maintenance instructions / additional information

- The amplifier card may only be unplugged and plugged when de-energized.
- The distance to aerial lines, radios and radar systems must be sufficient (> 1 m).
- Do not lay solenoid and signal lines near power cables.
- For signal lines and solenoid conductors, we recommend using shielded cables.
The cable shield must be connected to the control cabinet extensively and as short as possible.
- The valve solenoid must not be connected to free-wheeling diodes or other protective circuits.
- The cable lengths and cross-sections specified on page 4 must be complied with.