

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

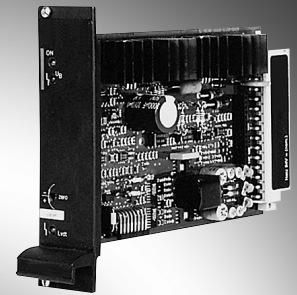


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Features

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|-------------|---|
| 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.

Ordering code, accessories

| VT- | V | R | | A | 1 | - | -2X/V0 |
|--|---|------------|-----|---|---|---|---|
| Hydraulic component For valves with electrical feedback | | = R | | | | | |
| Valve type p/Q high-response valve High-response valve | | = P = R | | | | | |
| Control Analog | | | = A | | | | |
| | | | | | | | Customer version Catalog version |
| | | | | | | | V0 = |
| | | | | | | | 2X = |
| | | | | | | | Component series 20 to 29 (20 to 29: Unchanged technical data and pin assignment) |
| | | | | | | | 527 = |
| | | | | | | | 537 = |
| | | | | | | | Serial number for types Size 6 Size 10 |

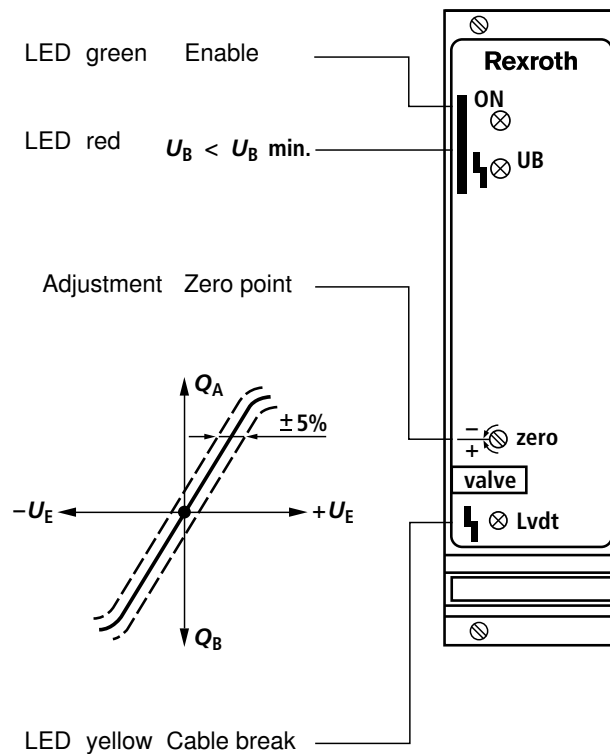
Preferred types

| Amplifier type | Material number | For high-response valves with electrical position feedback |
|--------------------|-----------------|--|
| VT-VRRA1-527-20/V0 | 0811405060 | 4WRPH6...L-2X |
| VT-VRRA1-537-20/V0 | 0811405061 | 4WRPH10...L-2X |
| VT-VRPA1-537-20/V0 | 0811405062 | 5WRP10...L-2X |

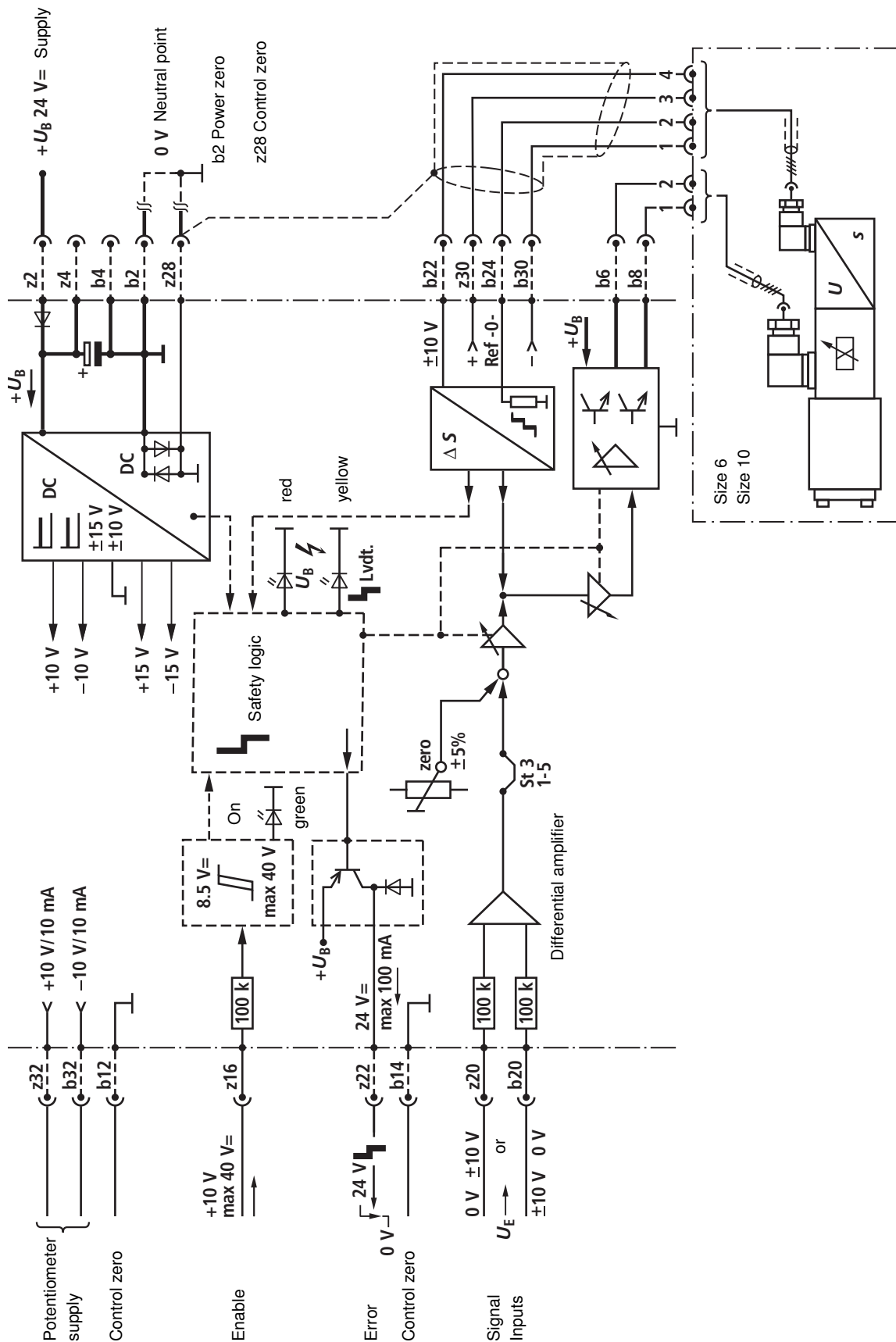
Suitable card holder:

- Open card holder VT 3002-1-2X/32F
(see data sheet 29928).
Only for control cabinet installation!

Front plate



Block diagram with pin assignment



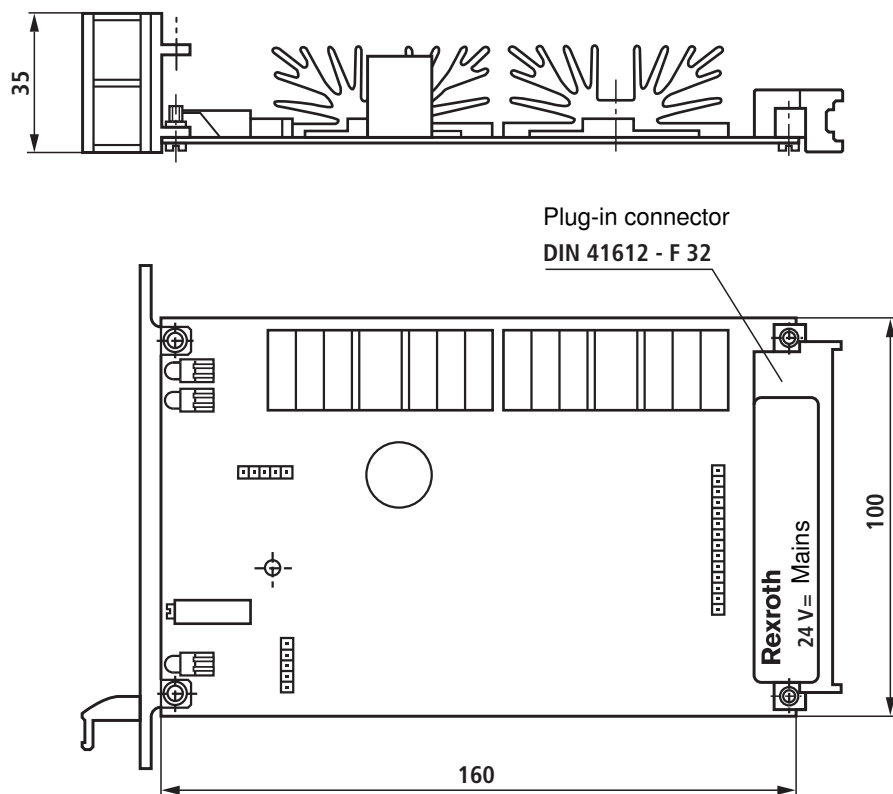
Technical data (For applications outside these parameters, please consult us!)

| | | | |
|---|------------------------|--|-------------------------|
| 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.

Notes

Notes

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Notes
