

The Drive & Control Company

Rexroth
Bosch Group

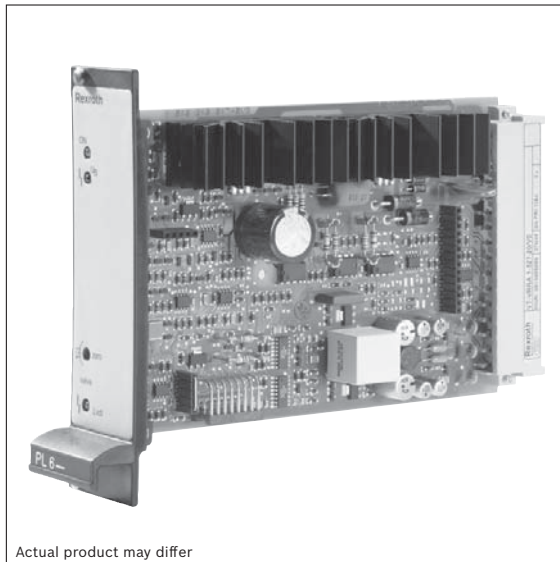
Valve amplifier for high-response valves

Type VT-VRRA1-527-2X/V0/2STV,
VT-VRRA1-527-2X/V0/PO-IS

RE 30045

Edition: 2013-04

Replaces: 02.12



Actual product may differ

- ▶ Component series 2X
- ▶ Analog, euro-card format
- ▶ Suitable for controlling pilot operated directional control valves, progressive with linear fine control
4WRL 10...35 V/V1...M-3X.,
4WRL 10...35 E/W...S-3X...,
4WRL 10...25 V/V1...M-3X...-750,
3WRCB 25...50...M-1X...

Features

- ▶ Controlled output stage
- ▶ Enable input
- ▶ Short-circuit proof outputs
- ▶ Adjustment possibilities – zero point of valve
- ▶ Cable break detection for actual value cable
- ▶ Position control with PID behavior

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RE 30045, edition: 2013-04, **Bosch Rexroth AG**

2/8 VT-VRRA1-527-2X/V0/2STV, .../PO-IS | Valve amplifier

Ordering code

| | | | | | | | | | | | | | |
|----|---|----|----|----|---|---|----|-----|----|----|----|----|----|
| | | 01 | 02 | 03 | | | 04 | | 05 | | 06 | | 07 |
| VT | - | V | R | R | A | 1 | - | 527 | - | 2X | / | V0 | / |

| | | |
|----|--|-------|
| 01 | Hydraulic component for valves with electrical feedback | R |
| 02 | Valve type: Directional control valve | R |
| 03 | Control: Analog | A |
| 04 | Serial number for types: Pilot control valve, size 6 | 527 |
| 05 | Component series 20 to 29 (20 to 29: Unchanged technical data and pin assignment) | 2X |
| 06 | Catalog version | V0 |
| 07 | Option: Pilot operated directional control valve, progressive with linear fine control | 2STV |
| | Option: Block installation valve control A → X | PO-IS |

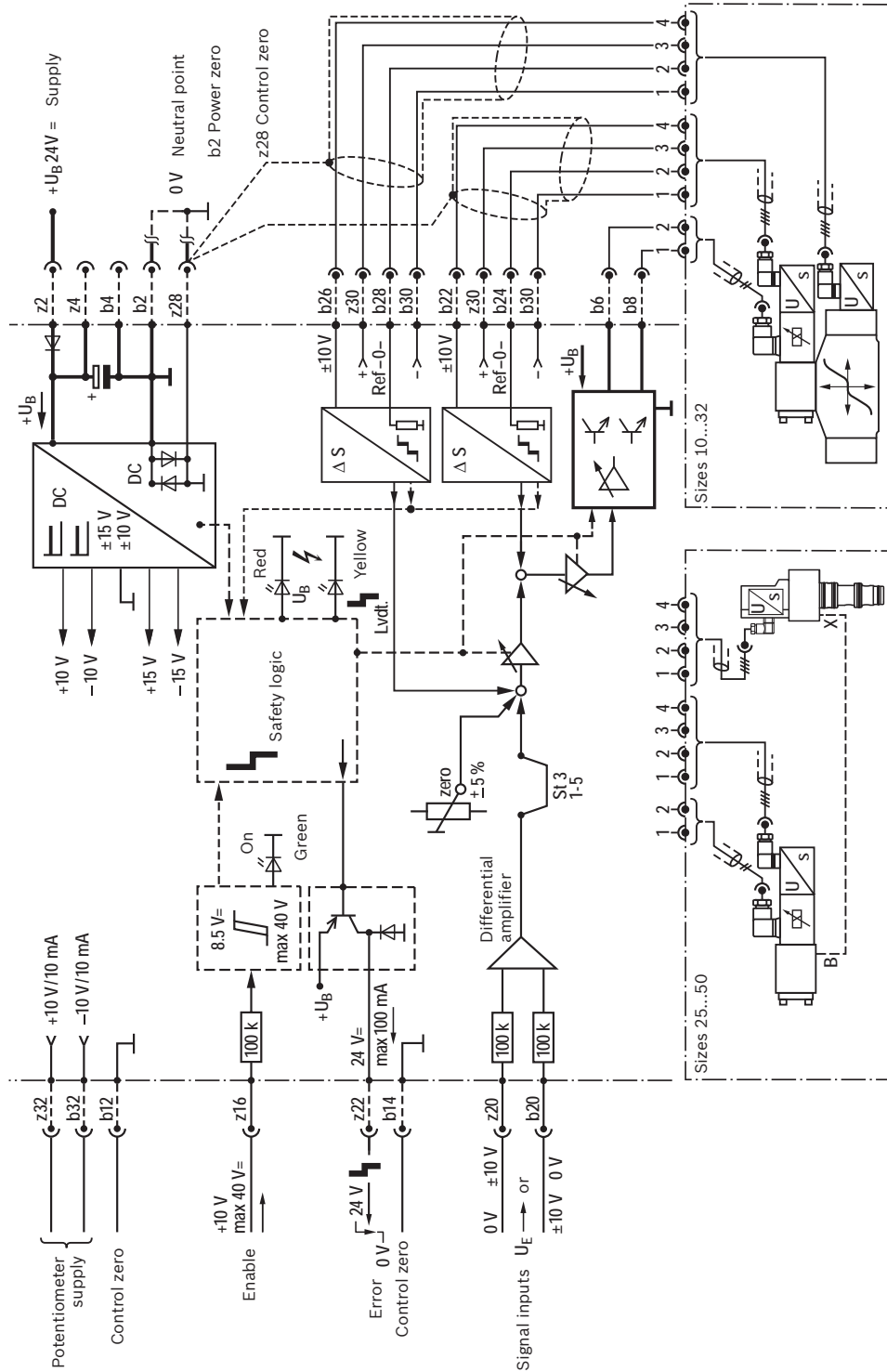
Preferred types

| Amplifier type | Material number | For directional control valves, pilot operated, with electrical position feedback |
|--------------------------|-----------------|---|
| VT-VRRA1-527-20/V0/2STV | 0811405063 | 4WRL 10...35 V/V1...M-3X... |
| | | 4WRL 10...35 E/W...S-3X... |
| | | 4WRL 10...25 V/V1...M-3X...-750 |
| | | 3WRCB 25...50...M-1X... |
| VT-VRRA1-527-20/V0/PO-IS | 0811405064 | 3WRCB 25...50...M-1X... |

Suitable card holder:

- ▶ Open card holder T 3002-1-2X/32F (see data sheet 29928)

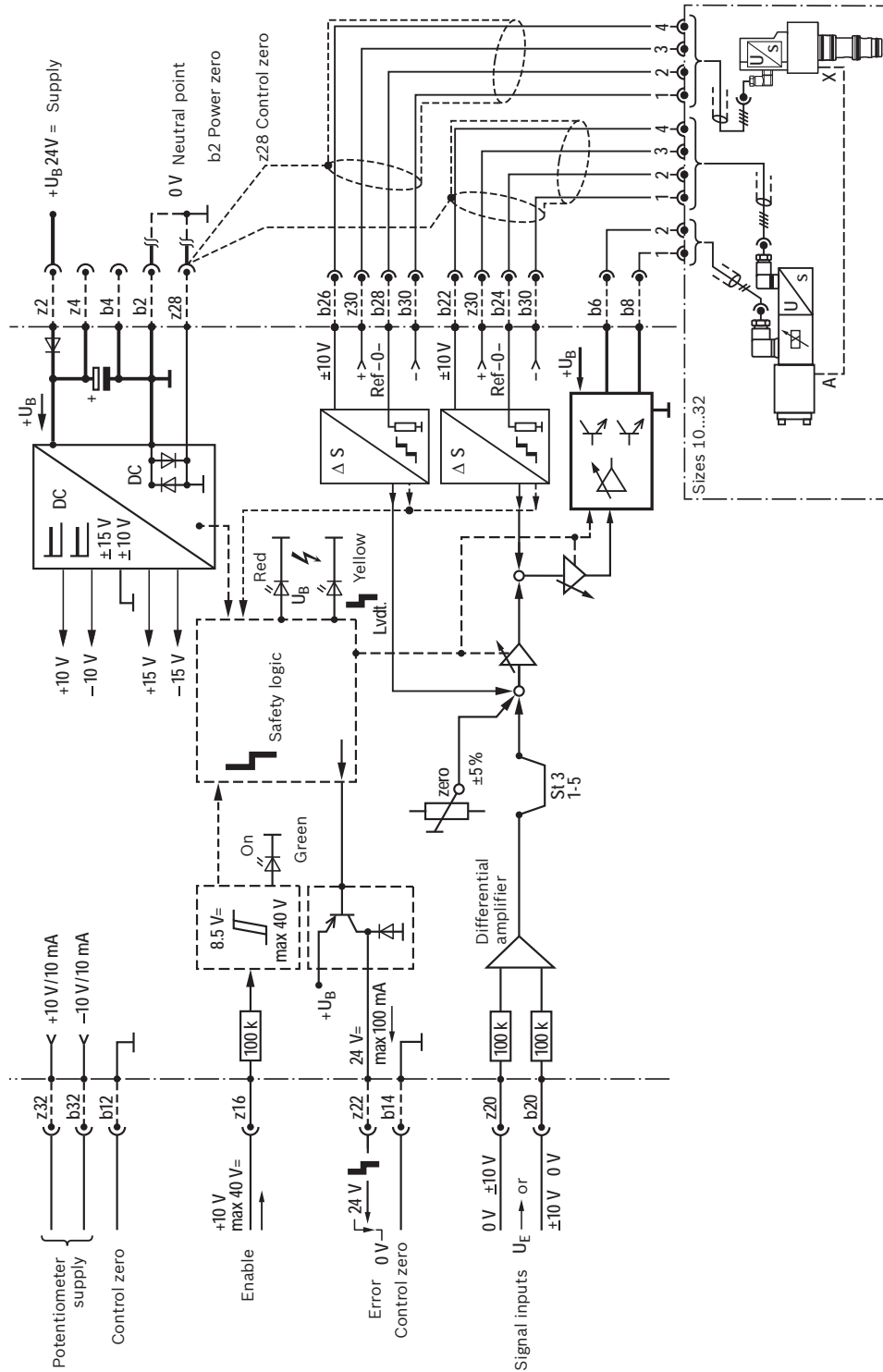
Block diagram with pin assignment, option 2STV



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4/8 VT-VRRA1-527-2X/V0/2STV, .../PO-IS | Valve amplifier

Block diagram with pin assignment, option PO-IS



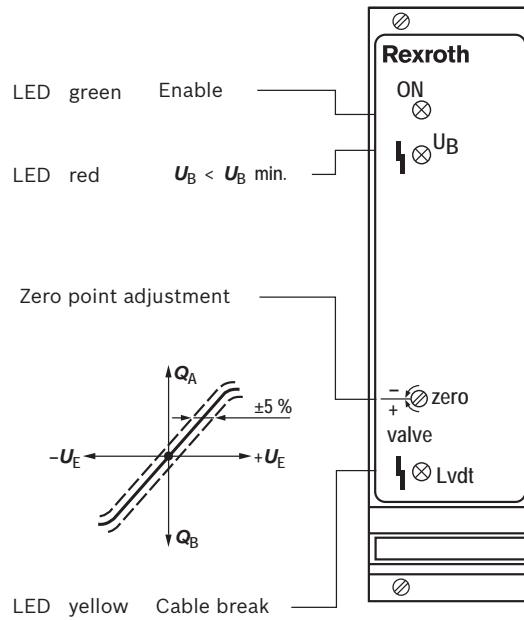
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Technical data (For applications outside these parameters, please consult us)

| | | |
|--|------------------------|--|
| Supply voltage U_B at z2 – b2 | | Nominal 24 V = battery voltage 21...40 V, rectified alternating voltage $U_{eff} = 21...28$ 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 (pilot control valve, size 6) |
| Current consumption, max. | A | 1.7 Current consumption may increase with min. U_B and extreme cable lengths to the control solenoid |
| Power consumption (typical) | W | 37 |
| Input signal (command value) | | b20: 0...±10 V } Differential amplifier z20: 0...±10 V } ($R_i = 100$ kΩ) |
| Signal source | | Potentiometer 10 kΩ Supply with ±10 V from b32, z32 (10 mA) or external signal source |
| Enable output stage | | At z16, $U = 8.5...40$ V, $R_i = 100$ kΩ, LED (green) on front panel |
| Position transducer | Supply | b30: -15 V z30: +15 V |
| Pilot control valve | Actual value signal | b22: 0...±10 V |
| | Actual value reference | b24 |
| Main stage | Actual value signal | b26: 0...±10 V |
| | Actual value reference | b28 |
| Solenoid output b6 – b8 | I_{max} | Clocked current controller 2.7 A |
| Cable lengths between amplifier and valve | | Solenoid cable: Up 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 indicators | | 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 panel 7 TE |
| Plug-in connection | | Connector DIN 41612 – F32 |
| Ambient temperature | °C | 0...+70 |
| Storage temperature range | °C | -20...+70 |
| Weight | m | 0.36 kg |
| Notice: Power zero b2 and control zero b12 or b14 or z28 must be separately led to the central ground (neutral point). | | |

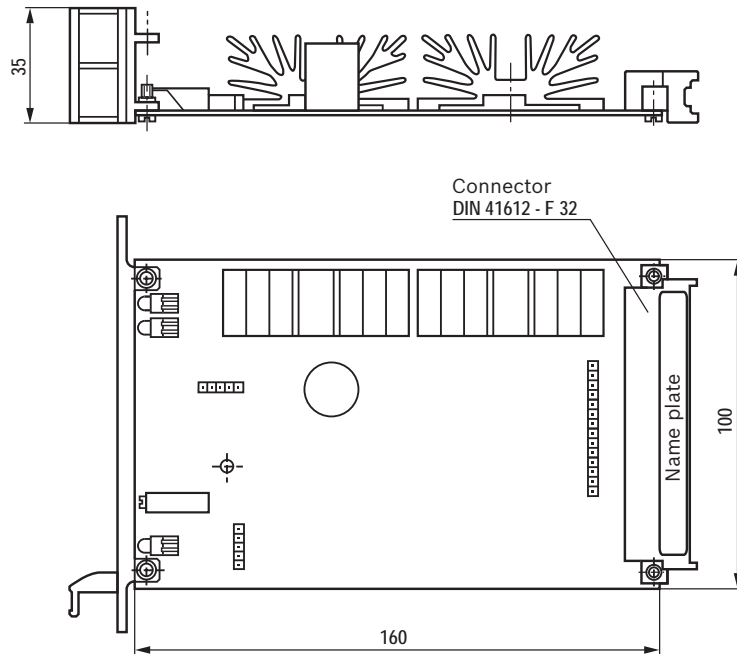
6/8 VT-VRRA1-527-2X/V0/2STV, .../PO-IS | Valve amplifier

Display/adjustment elements



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Dimensions (dimensions in mm)



Project planning information / 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 must be as short as possible.
- ▶ The valve solenoid must not be connected to free-wheeling diodes or other protection circuits.
- ▶ The cable lengths and cross-sections specified on page 5 must be complied with.

8/8 VT-VRRA1-527-2X/V0/2STV, .../PO-IS | Valve amplifier

Notes

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It must be remembered that our products are subject to a natural process of wear and aging.

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