

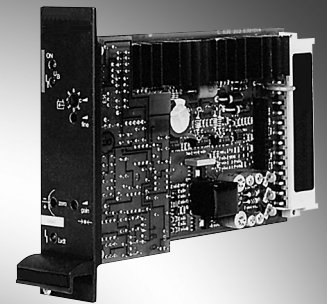
# Electric amplifiers

**RE 30043/02.12**  
Replaces: 11.02

1/6

**Type VT-VRRA1-527-2X/V0/K40-AGC-2STV**

Component series 2X



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## Features

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1	– Suitable for controlling pilot operated directional control valves with inflected characteristic curve
2	– Linearization of inflected valve characteristic curves
2	– Area adjustment of single rod cylinders
3	– Analog amplifiers in Europe format for installation in 19" racks
4	– Controlled output stage
5	– Enable input
6	– Outputs short-circuit-proof
6	– Adjustment possibilities – Zero point valve
6	– Cable break detection for actual value cable
	– Position control with PID behavior
	– Gain in the small signal range

### Notice:

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

### Ordering code, accessories

**VT- V R R A 1 - 527 - 2X / V0 / K40-AGC-2STV**

Hydraulic component For valves with electrical feedback	= R	Option <b>K40-AGC-2STV</b> = Directional control valve, pilot operated, with 40 % inflection Customer version Catalog version
Valve type Directional control valve	= R	
Control Analog	= A	
		<b>2X</b> = Component series 20 to 29 (20 to 29: Unchanged technical data and pin assignment)
		<b>527</b> = Serial number for types Pilot control valve size 6

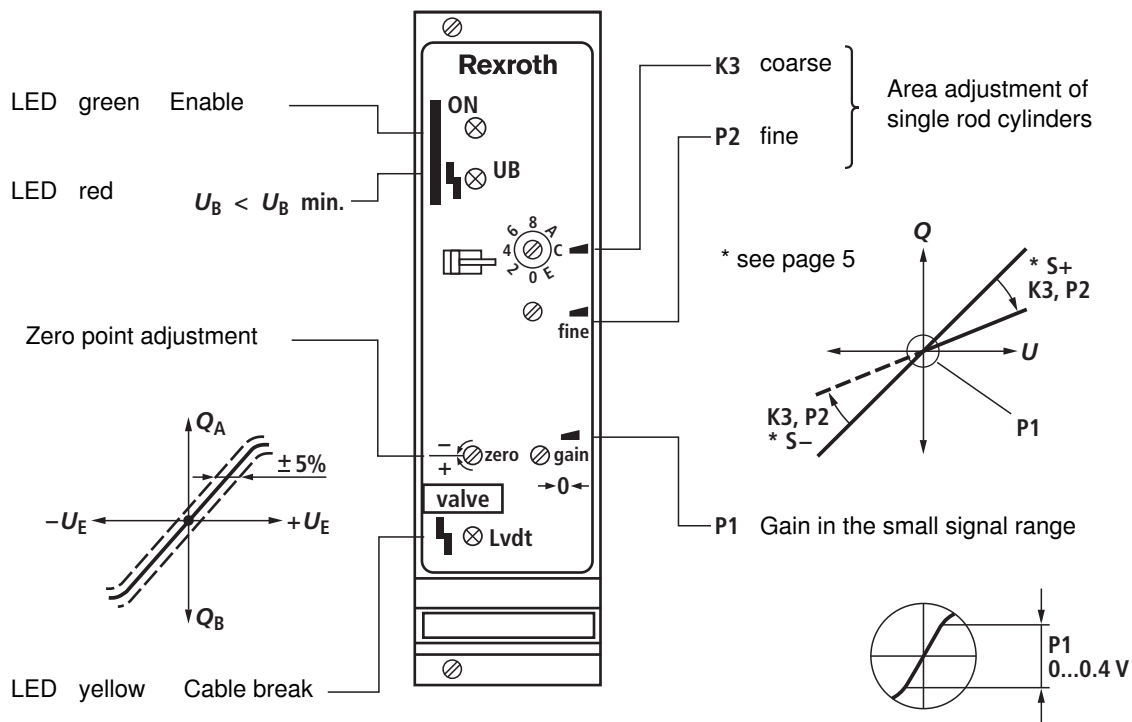
### Preferred types

Amplifier type	Material number	For directional control valves, pilot operated, with electrical position feedback and inflected characteristic curve
VT-VRRA1-527-20/V0/K40-AGC-2STV	0811405068	4WRL 10...35 V/V1...P-3X... 4WRL 10...25 V/V1...P-3X...-750

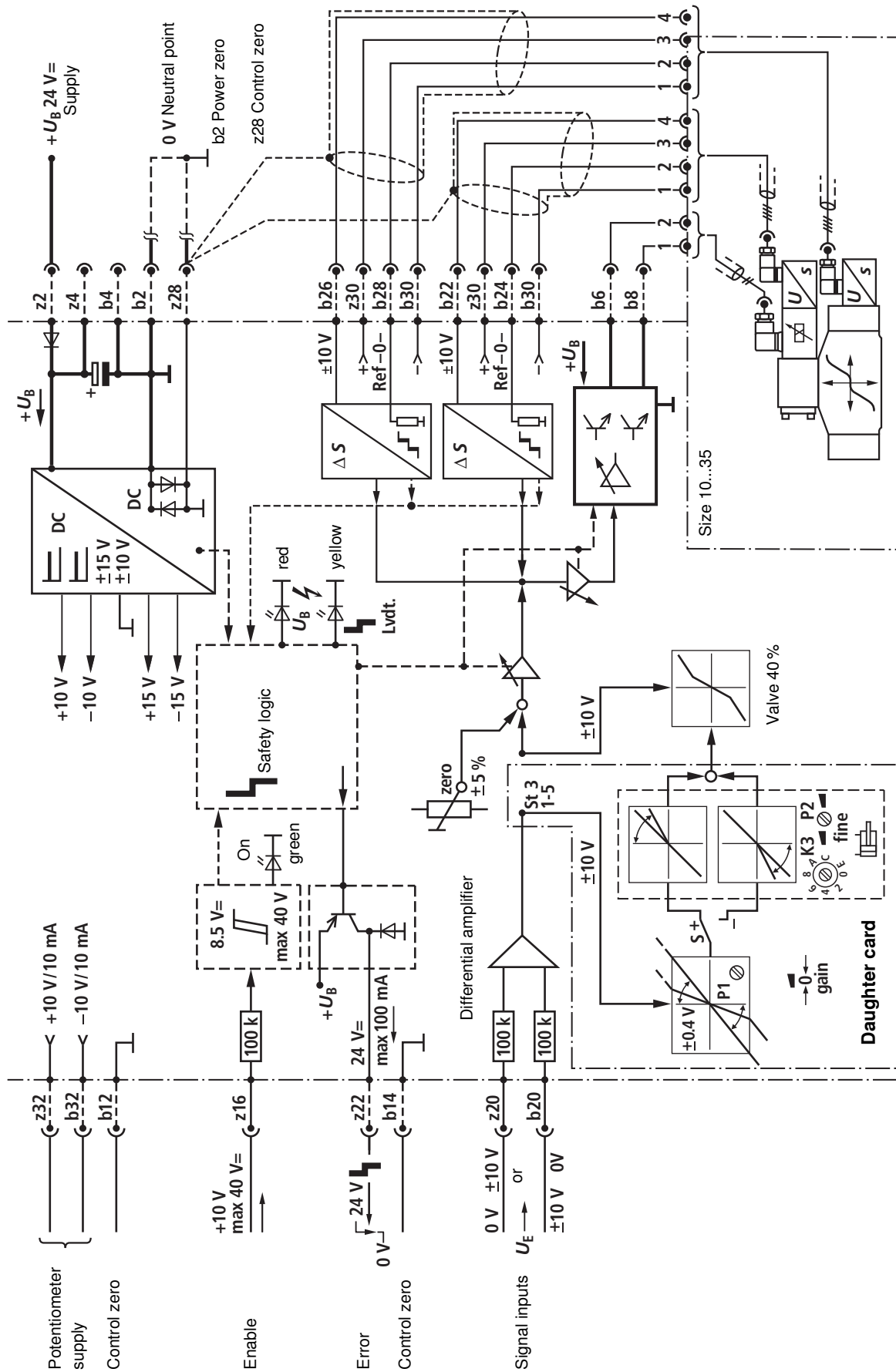
### Suitable card holder:

- 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!)

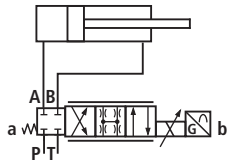
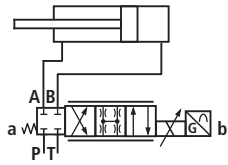
Supply voltage $U_B$ at z2 – b2		Nominal 24 V =, Battery voltage 21...40 V, Rectified alternating voltage $U_{\text{eff}} = 21...28$ V (one-phase, full-wave rectifier)
Smoothing capacitor, separately at z2 – b2		Recommendation: Capacitor module VT 11110 (see data sheet 30750) (only necessary if the ripple of $U_B > 10\%$ )
Valve solenoid, max.	A/VA	<b>2.7/40 (pilot control valve size 6)</b>
Current consumption, max.	A	1.7 The current consumption may increase with min. $U_B$ and extreme cable length to the control solenoid
Power consumption (typical)	W	37
Input signal (command value)		b20: 0...±10 V } Differential amplifier z20: 0...±10 V } ( $R_i = 100$ k $\Omega$ )
Signal source		Potentiometer 10 k $\Omega$ Supply with ±10 V from b32, z32 (10 mA) or external signal source
Enable output stage		At z16, $U = 8.5...40$ V, $R_i = 100$ k $\Omega$ , LED (green) on front plate lights up
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	$I_{\text{max}}$	Clocked current controller 2.7 A
Cable lengths between amplifier and valve		Solenoid cable: to 20 m 1.5 mm <sup>2</sup> 20 to 60 m 2.5 mm <sup>2</sup> Position transducer: 4 x 0.5 mm <sup>2</sup> (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, Linearization of the inflected flow characteristic curve
Adjustment		Zero point via trimming potentiometer ±5 % Area adjustment of single rod cylinders, Gain in the small signal range
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 – F32
Ambient temperature	°C	0...+70
Storage temperature range	°C	–20...+70
Weight	m	0.39 kg

**Notice:**

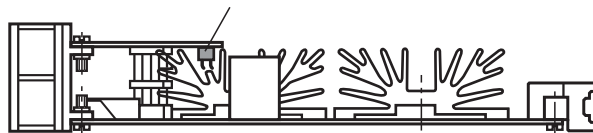
Power zero b2 and control zero b12 or b14 or z28 must be separately led to the central ground (neutral point).

## Commissioning

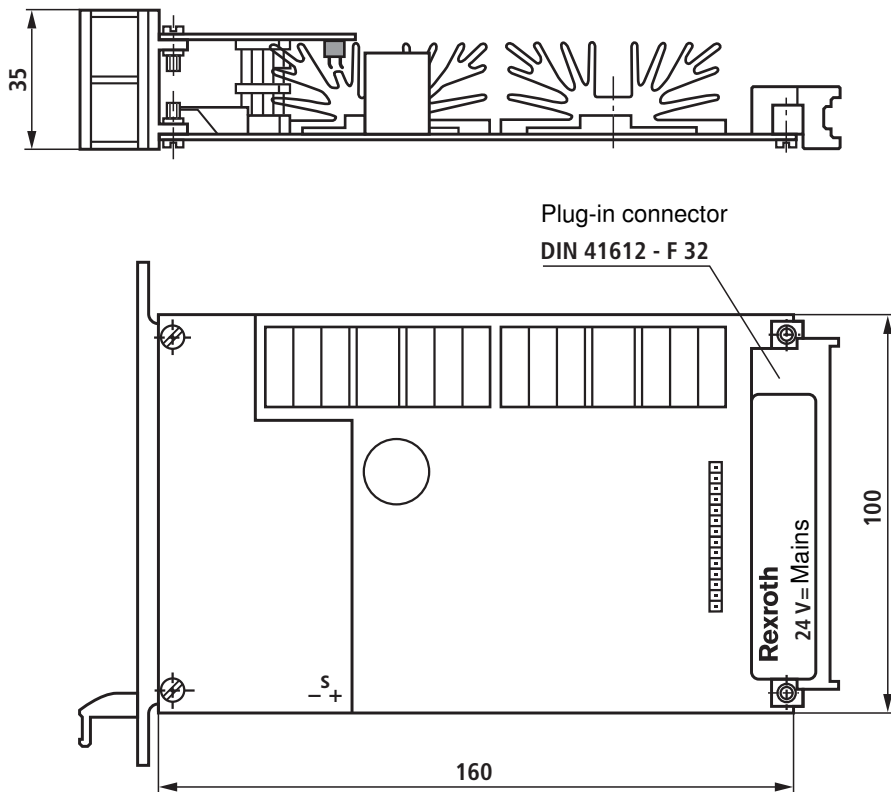
1. Setting the electric and hydraulic zero point using the "zero" potentiometer.  
With closed control loop, the following error displayed by the CNC is then controlled to 0.
2. Adjustment single rod cylinder
  - "S" selector switch setting on daughter card
  - Comparison with direction-dependant command value attenuator with step switch K3 (coarse), with potentiometer P2 (fine).
3. Optimization of the gain in the small signal range with potentiometer P1.

Valve $\leftrightarrow$ Cylinder	Selector switch
	"S" –
	"S" +

"S" selector switch  
Position depending on  
piping and signal polarity



## 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

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## Notes

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