

Electric amplifiers

RE 30040/02.12
Replaces: 11.02

1/6

Type VT-VRRA1-5...-2X/V0/K...-AGC

Component series 2X

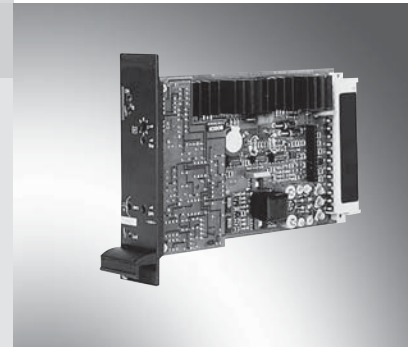


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Features

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Notice:

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

Ordering code, accessories

VT-	V	R	R	A	1	-	-2X/V0/
Hydraulic component							
For valves with electrical feedback = R							
Valve type							
High-response valve = R							
Control							
Analog = A							
Option							
K40-AGC = High-response valve with 40% inflection							
K60-AGC = High-response valve with 60% inflection							
V0 = Customer version							
V0 = Catalog version							
2X = Component series 20 to 29 (20 to 29: Unchanged technical data and pin assignment)							
Serial number for types							
527 = Size 6							
537 = Size 10							

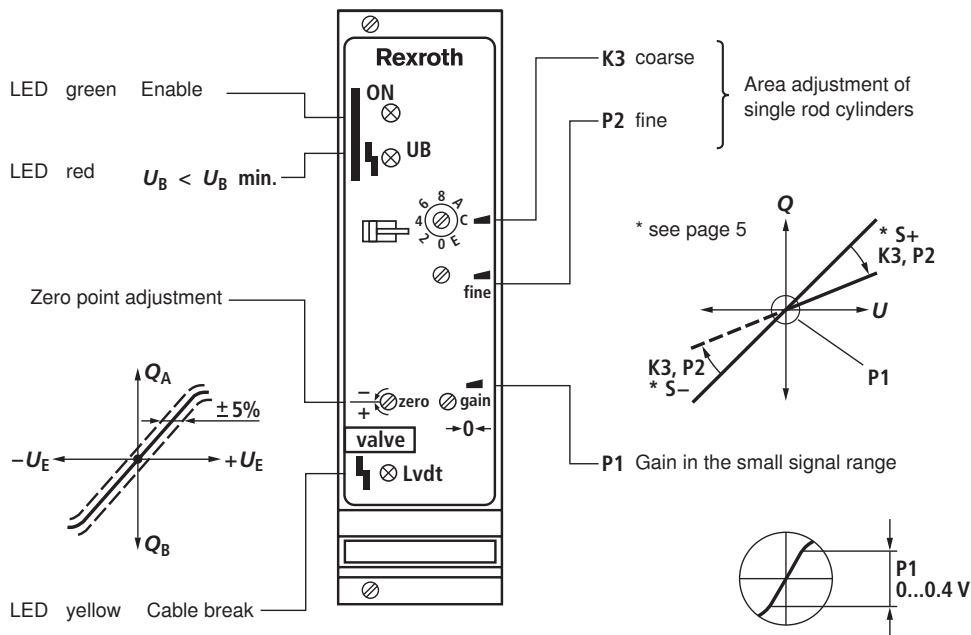
Preferred types

Amplifier type	Material number	For high-response valves with electrical position feedback and inflected characteristic curve
VT-VRRRA1-527-20/V0/K40-AGC	0811405065	4WRPH 6...P-2X...
VT-VRRRA1-527-20/V0/K60-AGC	0811405066	4WRPH 6...P-2X...
VT-VRRRA1-537-20/V0/K40-AGC	0811405067	4WRPH 10...P-2X...

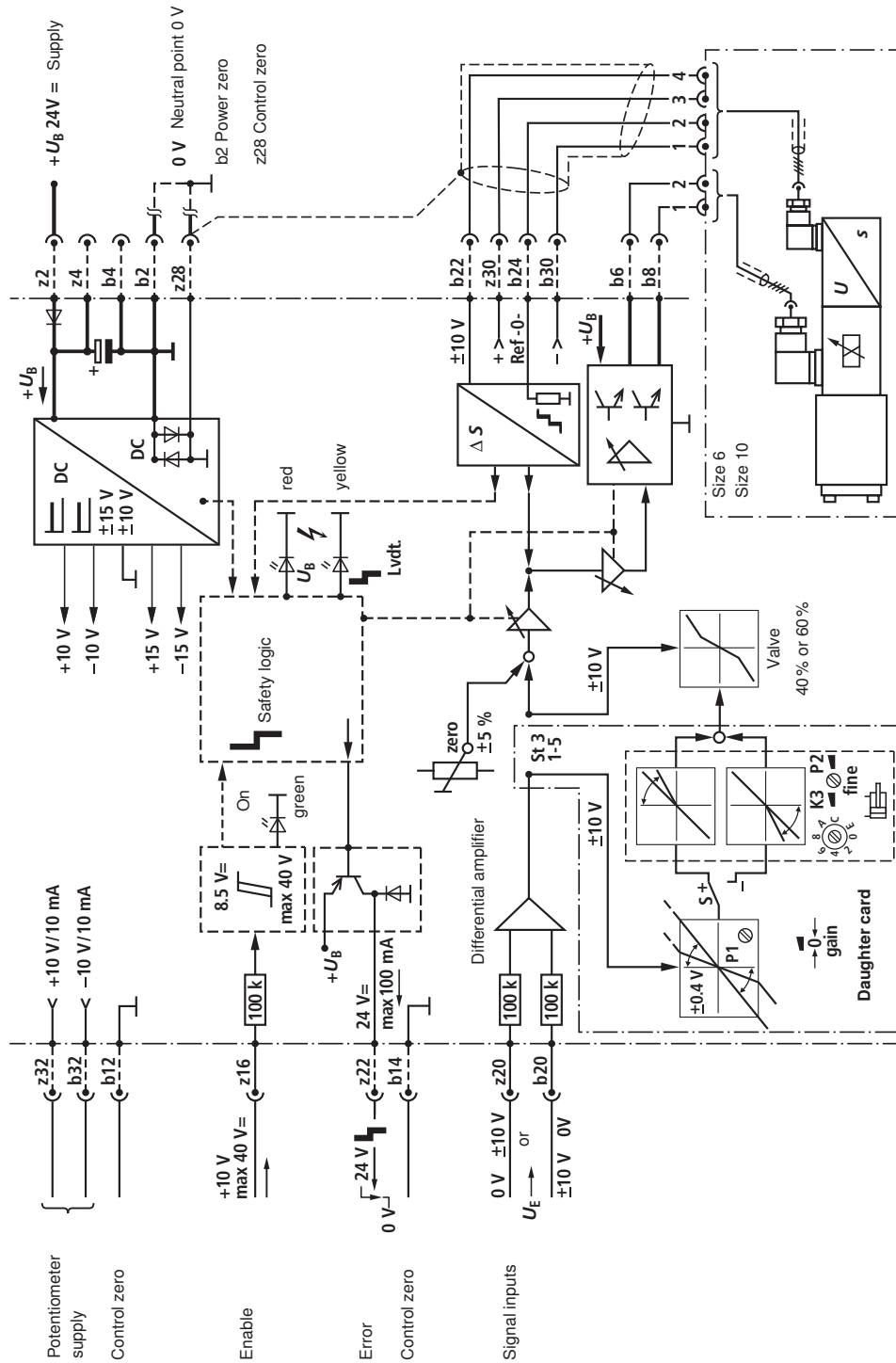
Suitable card holder:

- 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 $U_{eff} = 21...28$ 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 ($R_i = 100$ 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 plate lights up	
Position transducer Supply		b30: -15 V z30: +15 V	
	Actual value signal	b22: 0...±10 V, $R_i = 20$ kΩ	
	Actual value reference	b24	
Solenoid output b6 – b8	I_{max}	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, 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	

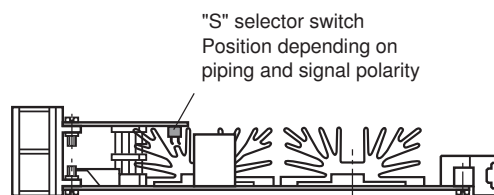
Notice:

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

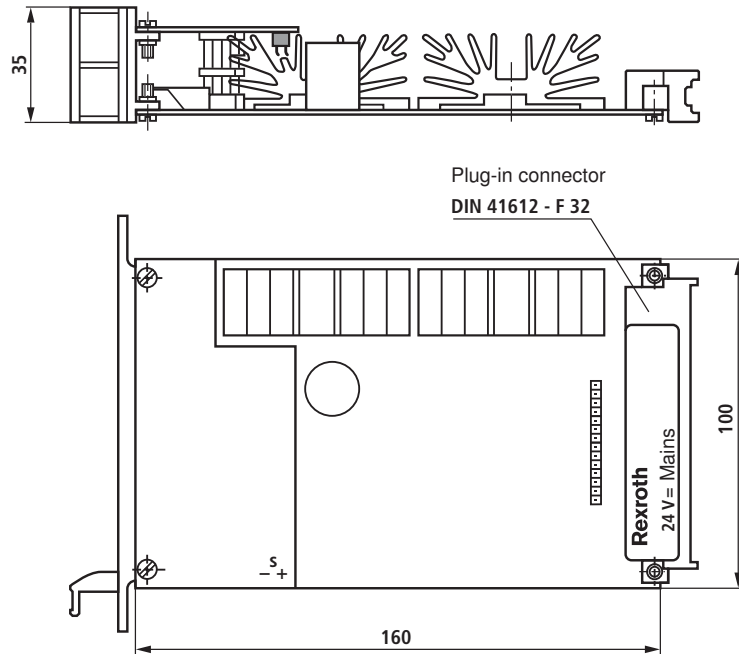
Commissioning

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 ← → Cylinder	Selector switch
	"S" -
	"S" +



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.

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