Electric amplifiers

RE 30054/03.12 1/6
Replaces: 01.09

Type VT-VRPA1-5...-1X/...-RTP

Component series 1X

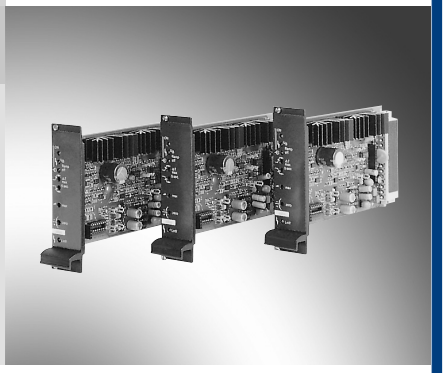


Table of contents

Features

- Suitable for controlling proportional valves
- Analog amplifiers in Europe format for installation in 19" racks
- Controlled output stage
- Position control with PID behavior
- Fast energization and fast deletion for short actuating times
- Enable input
- Adjustable ramp that can be switched off
- Cable break detection for actual value cable
- Inputs and outputs short-circuit-proof
- Adjustment possibilities for zero point and sensitivity, acceleration and braking ramp

Notice:

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

Ordering code, accessories

VT-	V	R	P	A	1 –	–1X/V0/	–RTP

Hydraulic component
For valves with electric feedback = **R**

Valve type
4/2 high-response valve with positive overlap = **P**

Control
Analog = **A**

Output stages
1 output stage = **1**

RTP = Option
Adjustable ramp that can be switched off (potentiometer)

PV = Option
Pressure valves
QV = Throttle/flow control valve

V0 = Customer version
Catalog version

1X = Component series 10 to 19
(10 to 19: Unchanged technical data and pin assignment)

Serial number for types
527 = 2.7 A solenoid
537 = 3.7 A solenoid

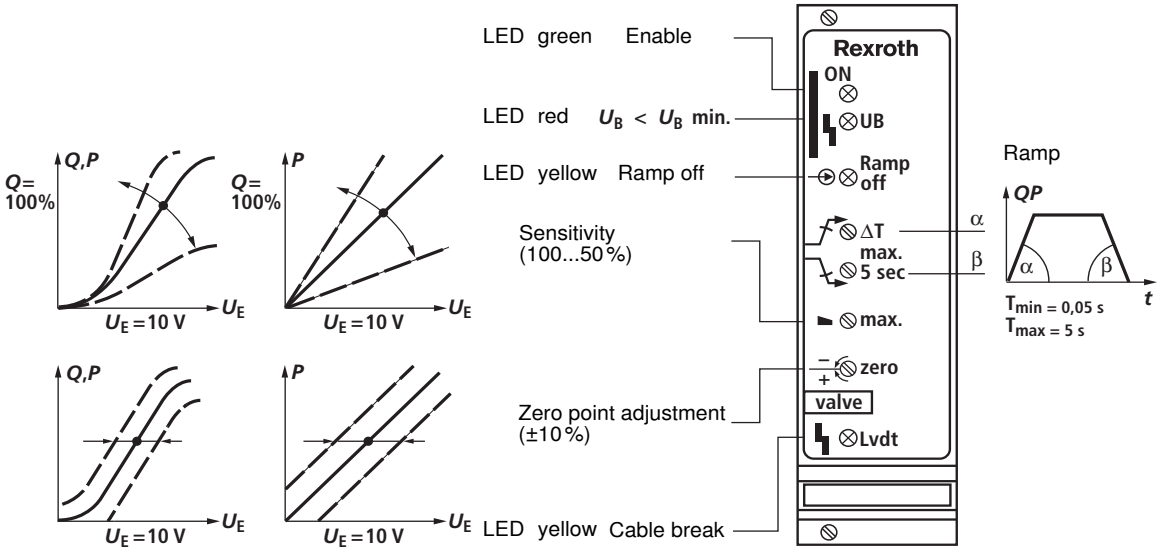
Preferred types

Type	Material number	For proportional valves
VT-VRPA1-527-10/V0/RTP	0811405100	DBETFX
VT-VRPA1-527-10/V0/PV-RTP	0811405101	DREB6X
VT-VRPA1-537-10/V0/PV-RTP	0811405102	DBEB10Z / DREB10Z / DBETBX
VT-VRPA1-527-10/V0/QV-RTP	0811405103	4WRP6EA / 3FREZ
VT-VRPA1-537-10/V0/QV-RTP	0811405104	4WRP10EA

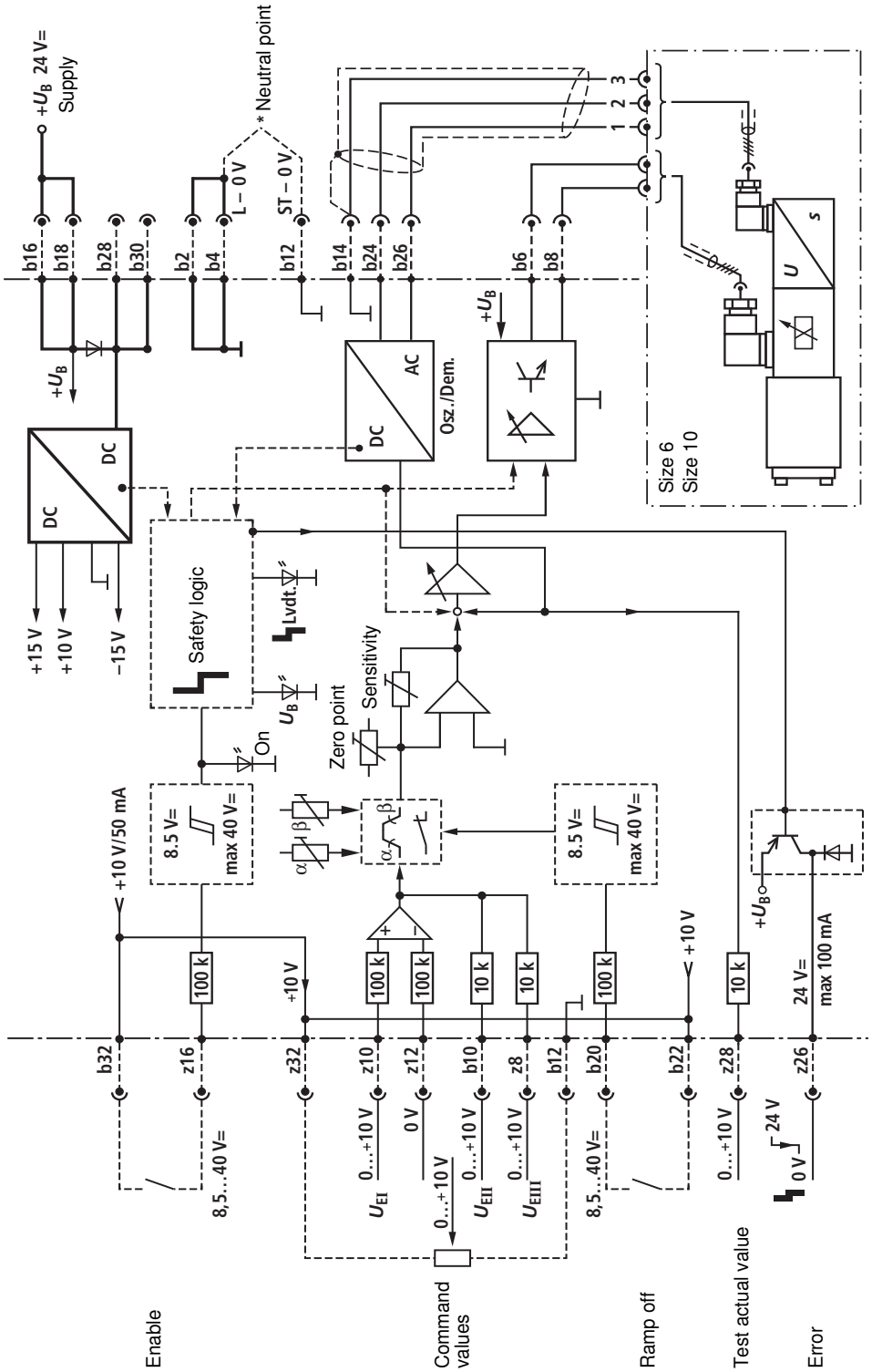
Suitable card holder:

– 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

Supply voltage U_B at b16/b18		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 b16 – b2		Recommendation: Capacitor module VT 11110 (see data sheet 30750) (only necessary if the ripple of U_B > 10 %	
Valve solenoid max.	A/W	**2.7/25 (size 6)**	**3.7/50 (size 10)**
Power consumption, max.	W	35	60
Current consumption, max.	A	1.5	2.5
Solenoid output b6 – b8		Rectangular voltage, pulse-modulated $I_{max.}$ = 2.7 A	$I_{max.}$ = 3.7 A
Command value		$U_{E\ I}$: 0...+10 V (z10) : 0 V (z12) } Difference input $U_{E\ II}$: 0...+10 V $U_{E\ III}$: 0...+10 V	
Signal source (command value)		Potentiometer R_i = 1 kΩ Supply with +10 V from b32 (10 mA) or external source	
Actual value feedback		Osci b26	Test point z28 [1]
	0811405100	10.2 V_{eff}/7.8 kHz	0...+10 V =
	0811405101	10.2 V_{eff}/7.8 kHz	0...+10 V =
	0811405102	10.8 V_{eff}/7.8 kHz	0...+10 V =
	0811405103	10.2 V_{eff}/7.8 kHz	0...+10 V =
	0811405104	10.8 V_{eff}/7.8 kHz	0...+10 V =
Enable output stage		At z16, U = 8.5...40 V; e. g. 10 V from z 32 LED (green) on front plate lights up	
Ramp OFF		At b20; U = 8.5...40 V	
Cable lengths between amplifier and valve		Solenoid cable: < 20 m 1.5 mm² 20...50 m 2.5 mm² Position transducer: Max. 50 m with 100 pF/m Supply and capacitor 1.5 mm²	
LED displays		green: Enable yellow: Cable break actual value / ramp OFF red: $U_B < U_{B\ min.}$ (approx. 21 V)	
Error message – Cable break actual value – U_B too low – ±15 V stabilization		z26: Switching output No error +24 V (max. 100 mA) Error 0 V	
Short-circuit-proof outputs		Output stage to the solenoid, Signal to the positional transducer Supply voltage for potentiometer	
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, Adjustable ramp that can be switched off	
Adjustment via trimming potentiometer		1. Zero point 3. Acceleration ramp 2. Sensitivity 4. Braking ramp	
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*	0.36 kg	

Notice:
Power zero b 2 and control zero b 12 must be bridged. If the distance to the power supply unit is < 1 m, directly onto the DIN connector. With larger distances, lead the control zero separately to the ground.

[1] 0 V with I_m = 0 V (enable OFF), +10 V with I_m = max. (U_E = 10 V, potentiometer = c_W)

Setting information

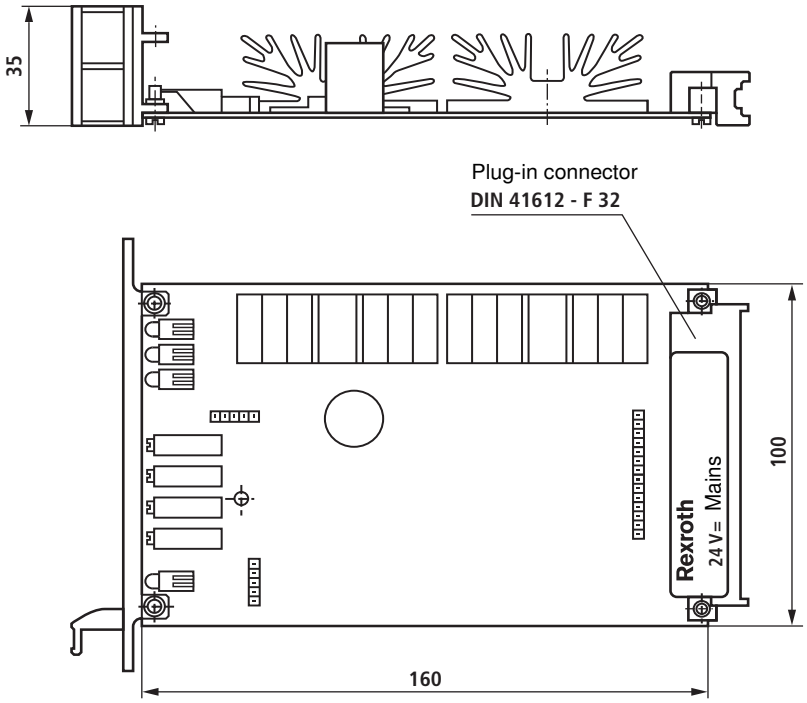
Information for the use of ramps

Ramp ON: No signal at b20.

Ramp OFF: 8.5...40 V at b20 or connection between b22 and b20.

In case of **Ramp OFF** or **Cable break,** any ramp started before will be canceled. Transition to the signal end value is effected by means of a step.

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.