

Electric amplifiers

RE 30054/03.12
Replaces: 01.09

1/6

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

Component series 1X

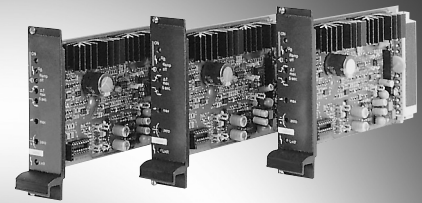


Table of contents

Contents	
Features	
Ordering code, accessories	
Front plate	
Block diagram with pin assignment	
Technical data	
Setting information	
Unit dimensions	
Project planning / maintenance instructions / additional information	

Features

Page	
1	– Suitable for controlling proportional valves
2	– Analog amplifiers in Europe format for installation in 19" racks
2	– Controlled output stage
3	– Position control with PID behavior
4	– Fast energization and fast de-energization for short actuating times
5	– Enable input
5	– Adjustable ramp that can be switched off
	– Cable break detection for actual value cable
5	– 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
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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)
527 =	Serial number for types 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

Q=100% graphs showing flow/pressure vs. $U_E = 10\text{ V}$ for various valve types and sensitivities.

LED green Enable

LED red $U_B < U_B \text{ min.}$

LED yellow Ramp off

Sensitivity (100...50%)

Zero point adjustment ($\pm 10\%$)

LED yellow Cable break

Rexroth

ON

\otimes UB

Ramp off

\otimes ΔT max. 5 sec

max.

zero

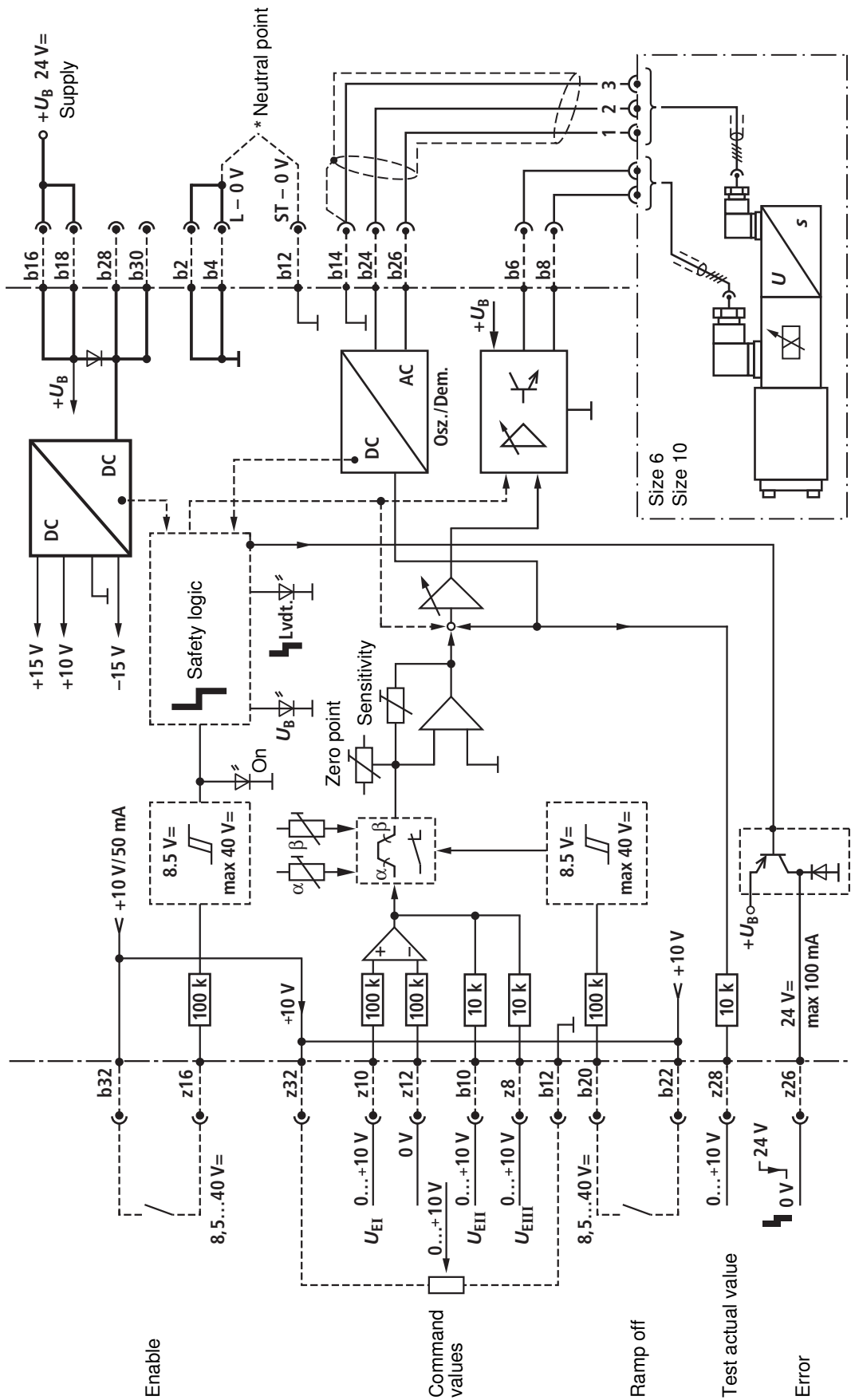
valve

\otimes LvdT

Ramp

$T_{\min} = 0,05\text{ s}$
 $T_{\max} = 5\text{ s}$

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) } Difference : 0 V (z12) } input $U_{E II} : 0...+10$ V $U_{E III} : 0...+10$ V	
Signal source (command value)	Potentiometer $R_i = 1$ k Ω 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 mm ² 20...50 m 2.5 mm ² Position transducer: Max. 50 m with 100 pF/m Supply and capacitor 1.5 mm ²	
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

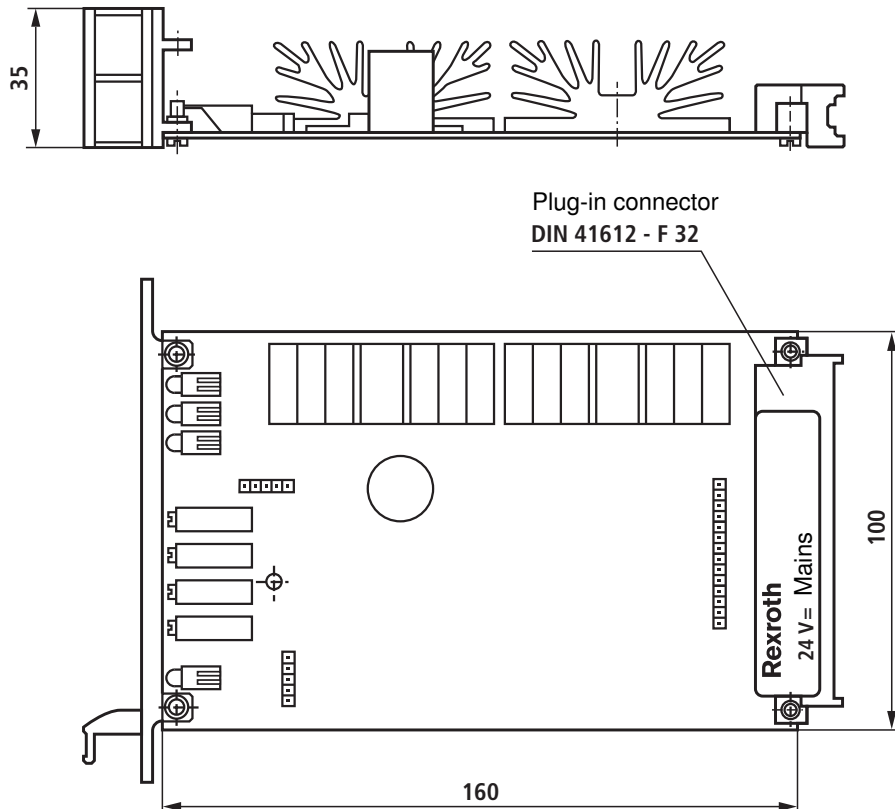
Information for the use of ramps

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.

Notes

Notes

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Notes
