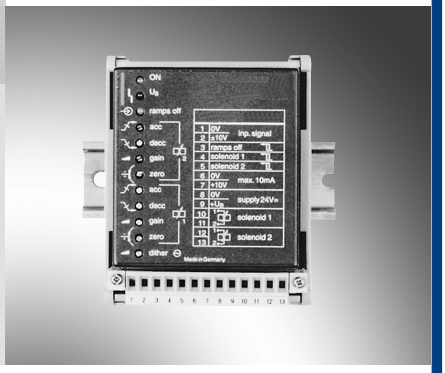
# Electric amplifier module

**RE 30229/07.12** 1/6
Replaces: 09.05

**Type VT-MSPA2-525...**

Component series 1X



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## Features

- Suitable for controlling
  two 1-solenoid proportional directional valves
  or
  one 2-solenoid proportional directional valve
- Design: Module for snapping onto carrier rails
- Differential input for command value voltage 0...+10 V
- Ramp generator up and down can be set separately
- Zero point potentiometer
- Clocked output stage
- LED display:
  - Supply voltage
  - Ready for operation
  - Ramp "Off"
- Removable connector strip

**Notice:**

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

## Ordering code

| VT– | M | S | P | A | 2 – | 525 – | 1X/ | V0 |
|---|---|---|---|---|---|---|---|---|

Hydraulic component
For valves without electrical feedback = **S**

Valve type
Proportional directional valve = **P**

Control
Analog = **A**

Output stages
2 output stages = **2**

**525 =** Serial number for types 2.5 A solenoid

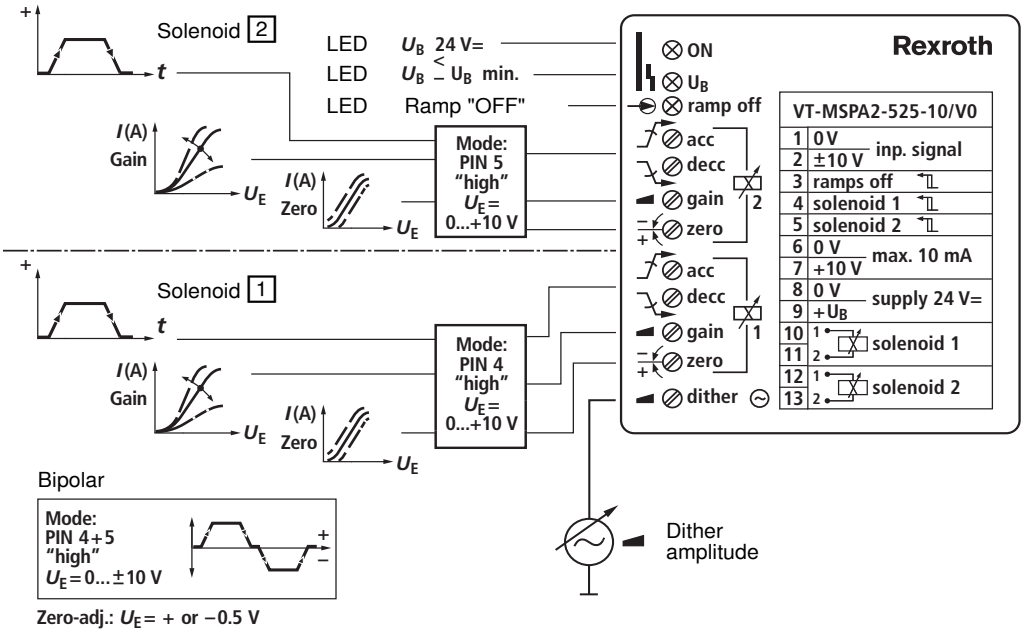
**1X =** Component series 10 to 19 (10 to 19: Unchanged technical data and pin assignment)

**V0 =** Customer version Catalog version

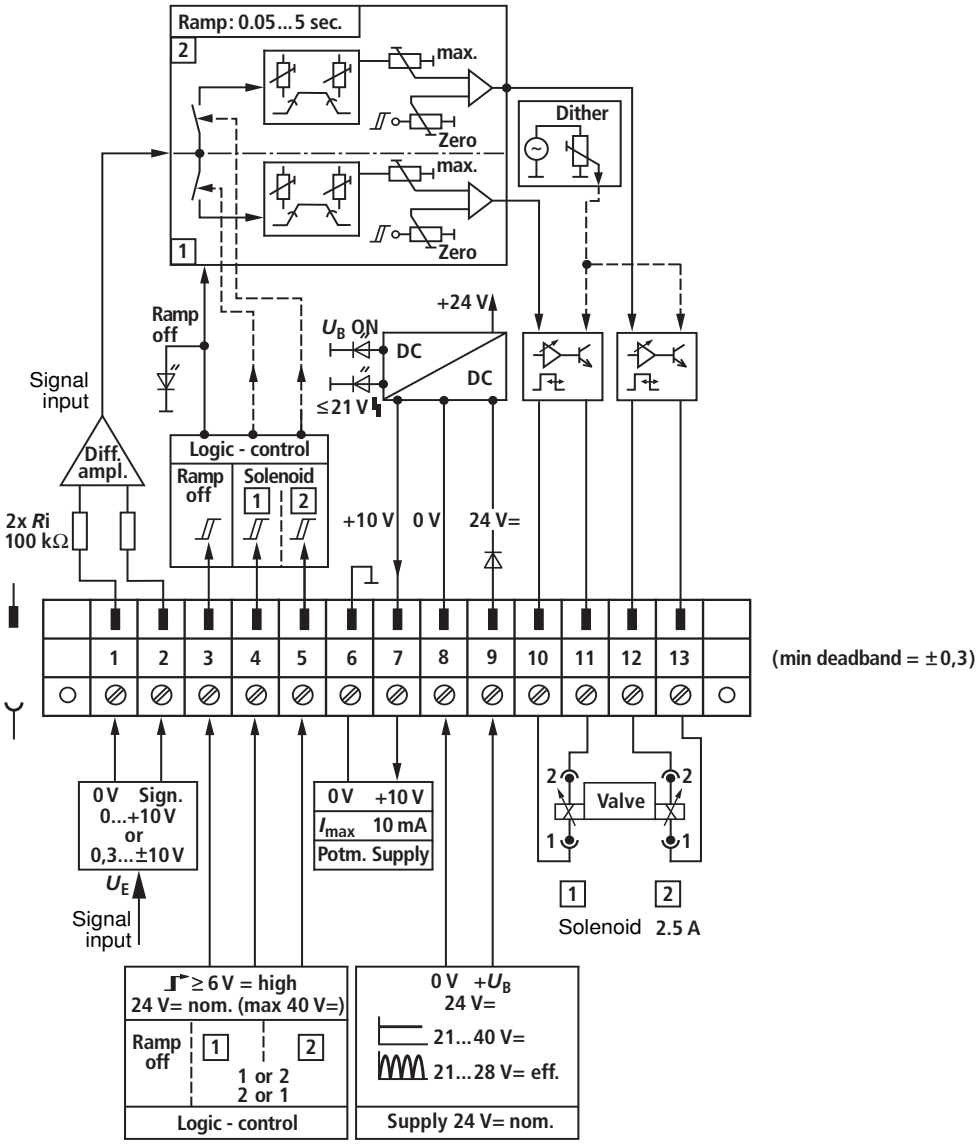
## Preferred types

| Amplifier type | Material number | For proportional directional valve, direct operated, with two solenoids |
|---|---|---|
| VT-MSPA2-525-10/V0 | 0811405106 | 4WRBA..E../..W..-2X... |

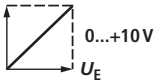
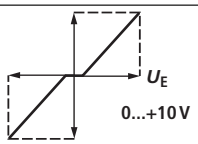
## Front plate



## Block diagram with pin assignment




**Notices on terminal 4 and 5**

| 4 | 5 | Solenoid | Command value | |
|---|---|---|---|---|
| Low | Low | – | – | — |
| High | Low | 1 | 0...+10 V | UNIPOLAR mode  Zero adjustment 0 V |
| Low | High | 2 | 0...+10 V | |
| High | High | 1 / 2 | ±10 V | BIPOLAR mode  Zero adjustment ±0.5 V |

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

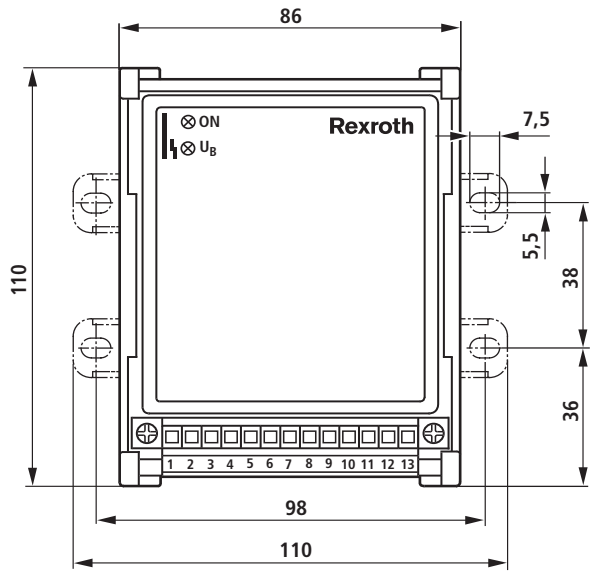
| | | |
|---|---|---|
| Supply voltage $U_B$ at (9) | | Nominal 24 V =<br>Battery voltage 21...40 V,<br>Rectified alternating voltage $U_{eff}$ = 21...28 V<br>(one-phase, full-wave rectifier) |
| Valve solenoid | A/VA | 2.5/60 |
| Current consumption max. | A | 2.5 |
| | | The current consumption may increase with min. $U_B$<br>and an extreme cable length to the control solenoid |
| Max. power consumption | VA | 60 |
| Command value: Signal (2)<br>0 V (1) | | 0...+10 V or ±0.3...±10 V (see mode)<br>Differential amplifier ($R_i$ = 100 kΩ) |
| Command values and logic Mode ±10 V | | (4) and (5) +24 V (>6 V...max. 40 V)<br>Command value ±0.3...±10 V |
| Mode +10 V | | (4) +24 V → Command value 0...+10 V [1]<br>(5) +24 V → Command value 0...+10 V [2] |
| Command value source | | Potentiometer 10 kΩ<br>Supply +10 V from (7)<br>Max. (10 mA) or external signal source |
| Output solenoids 1 and 2 | | Clocked current controller |
| | A | $I_{max}$ = 2.5 |
| Cable lengths between amplifier and valve | | Solenoid cable: up to 20 m 1.5 mm²<br>20 to 50 m 2.5 mm² |
| LED displays | | green: $U_B$ Enable<br>yellow: Ramp off<br>red: Undervoltage ($U_B$ too low) |
| External ramp switch-off | | (3): 6...40 V = (24 $V_{nom}$) |
| Ramp times | s | 0.05...5 |
| Adjustment possibilities for solenoids 1 and 2 | | Zero point valve,<br>Ramp times,<br>Sensitivity,<br>Dither amplitude |
| Special features | | Inputs and outputs short-circuit-proof,<br>Clocked output stage,<br>Fast energization for short actuating time |
| Format (W x L x H) | mm | (86 x 110 x 95.5) |
| Design | | Module |
| Mounting | | Top hat rail TH35-7,5 or<br>G rail G32 according to EN 60715 |
| Plug-in connection | | Connector, 13-pole (screw terminal) |
| Ambient temperature | °C | 0...+70 |
| Storage temperature range | °C | –20...+70 |
| Weight | *m* | 0.43 kg |

## Setting information

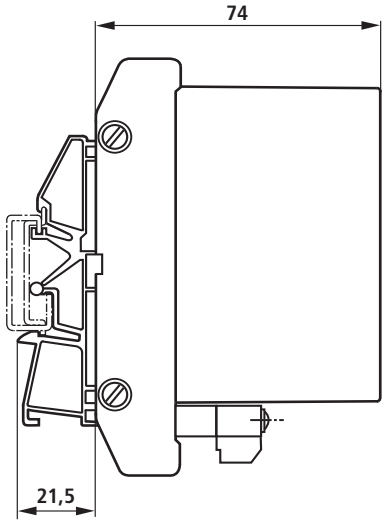
**Information for the use of ramps**
Setting of ramp UP (acceleration) and ramp DOWN (braking) via 1 trimming potentiometer each.
Ramp ON, if (3) is open.
Ramp OFF, if at (3) $U$>6 V e.g. 10 V from (7) or 24 V = $_{nom}$
With ramp OFF, any ramp started before will be canceled.
Transition to the signal end value is effected by means of a step.

**Setting zero/max. gain**
1. With mode (4) and (5) = high (24 V =)
   Command value $U_E$ (1) (2) ±10 V
   Zero: From 0.3 V, usually 0.5 V
   + adjustment = solenoid 1
   – adjustment = solenoid 2
   Gain: Set in case of +10 V
   + = solenoid 1
   – = solenoid 2
2. With mode (4) or (5) = high
   Command value $U_E$ (1) (2) 0...+10 V
   Zero: With 0 V command value
   Gain: With +10 V command value.
   The logic signal determines:
   4 = solenoid 1
   5 = solenoid 2.

## Device dimensions (dimensions in mm)




Wall mounting (86 x 110 x 74) mm




Carrier rail assembly (snap-in)

## Project planning / maintenance instructions / additional information

- 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 protection circuits.
- The cable lengths and cross-sections specified on page 4 must be complied with.