

Analogue amplifier modules

RE 29865/12.12    1/4  
Replaces: 10.12

Types VT 11131 and VT 11132

Series 1X



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Features

- Suitable for controlling proportional pressure control valves without electrical position feedback
- Differential input
- One clocked output stage
- Function generator
- Ramp generator with adjustable ramp time (up and down ramp can be adjusted separately)
- Adjustable current regulator
- Reverse voltage protection for voltage supply
- Indication of solenoid energisation by LED (brightness of LED proportional to solenoid current)

## Ordering code

VT 1113 -1X/ \*

Amplifier modules for controlling proportional pressure control valves:

- Types (Z)DBE 6-1X, DBE(M) 10-3X, DBE(M) 10-5X, DBE(M) 20-3X, DBE(M) 20-5X and ZDRE 10-1X

= 1

- Type (Z)DRE 6-1X

= 2

Series 10 to 19

= 1X

(10 to 19: unchanged technical data and pin allocation)

Further details in clear text

## Functional description

These amplifier modules are suitable for controlling a proportional solenoid. The amplifier modules are to be snapped onto carrier rails according to EN 60715. The electrical connections are made by means of screw terminals. The modules are operated using 24 V DC.

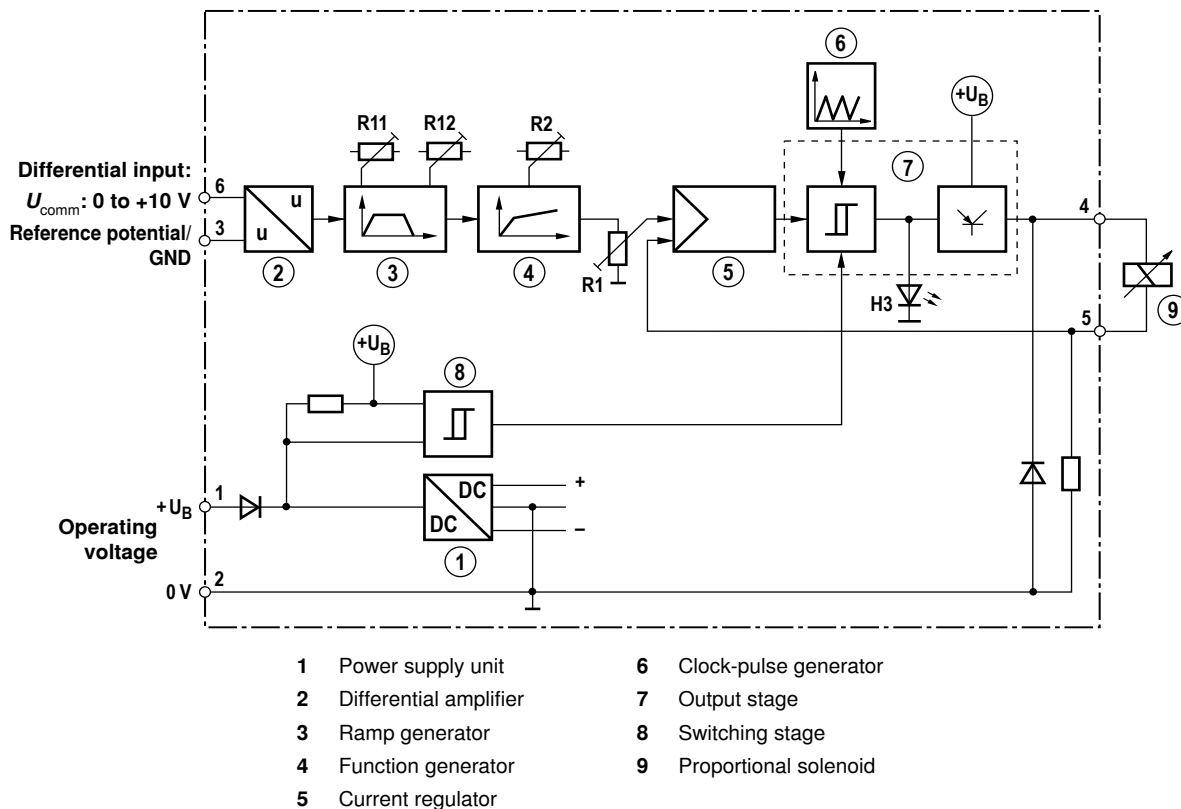
The solenoid current (actual value) is measured and compared with the externally provided command value. Any differences occurring between actual and command value, caused e.g. by changes in the solenoid temperature or operating voltage, are balanced.

The activation of solenoid control is indicated by LED "H3", the brightness of which is proportional to the solenoid current.

The following values can be adjusted from outside by means of assigned trimming potentiometers:

- Ramp time, separately for up and down ramp (by means of R11, R12 →  $t_{\max}$  approx. 5 s)
- Gradient of the output characteristic curve (by means of R1, R2)

## Block circuit diagram / pin assignment



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

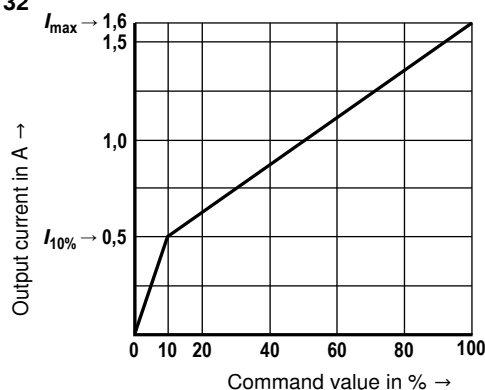
|                                         |                   |                                                     |
|-----------------------------------------|-------------------|-----------------------------------------------------|
| Operating voltage                       | $U_O$             | 24 VDC +40 % -10 %                                  |
| Operating range:                        |                   |                                                     |
| – Upper limit value                     | $u_B(t)_{\max}$   | 35 V                                                |
| – Lower limit value                     | $u_B(t)_{\min}$   | 21 V                                                |
| Power consumption                       | $P_{S \max}$      | 28 VA                                               |
| Current consumption                     | $I_{\max}$        | 1.3 A                                               |
| Fuse                                    |                   | Electronic short-circuit protection of the solenoid |
| Inputs:                                 |                   |                                                     |
| – Command value (differential input)    | $U_{\text{comm}}$ | 0 to +10 V; $R_i$ approx. 10 k $\Omega$             |
| Adjustment ranges:                      |                   |                                                     |
| – Output current                        | $I$               | $I_{10\%}$ to $I_{\max}$                            |
| – Ramp time                             | $t$               | approx. 50 ms to approx. 5 s                        |
| Outputs:                                |                   |                                                     |
| – Solenoid current / resistance         |                   |                                                     |
| • with VT 11131                         | $I_{\max}$        | 1.6 A; $R_{(20)} = 5.4 \Omega$                      |
| • with VT 11132                         | $I_{\max}$        | 1.6 A; $R_{(20)} = 5.4 \Omega$                      |
| – Clock-pulse frequency of output stage |                   |                                                     |
| • with VT 11131                         | $f$               | 300 Hz $\pm 15$ %                                   |
| • with VT 11132                         | $f$               | 360 Hz $\pm 15$ %                                   |
| Type of connection                      |                   | 6 screw terminals                                   |
| Type of mounting                        |                   | Carrier rail TH 35/7.5 to EN 60715                  |
| Type of protection                      |                   | IP 20 to EN 60529                                   |
| Dimensions (W x H x D)                  |                   | 25 x 79 x 85.5 mm                                   |
| Permissible operating temperature range | $\vartheta$       | 0 to +50 °C                                         |
| Storage temperature range               | $\vartheta$       | –25 to +85 °C                                       |
| Weight                                  | $m$               | 0.13 kg                                             |

### Note:

For details regarding **environment simulation tests** in the field of climate, see data sheet 30309-U (declaration on environmental compatibility).

## Output characteristic curve

VT 11131 and VT 11132



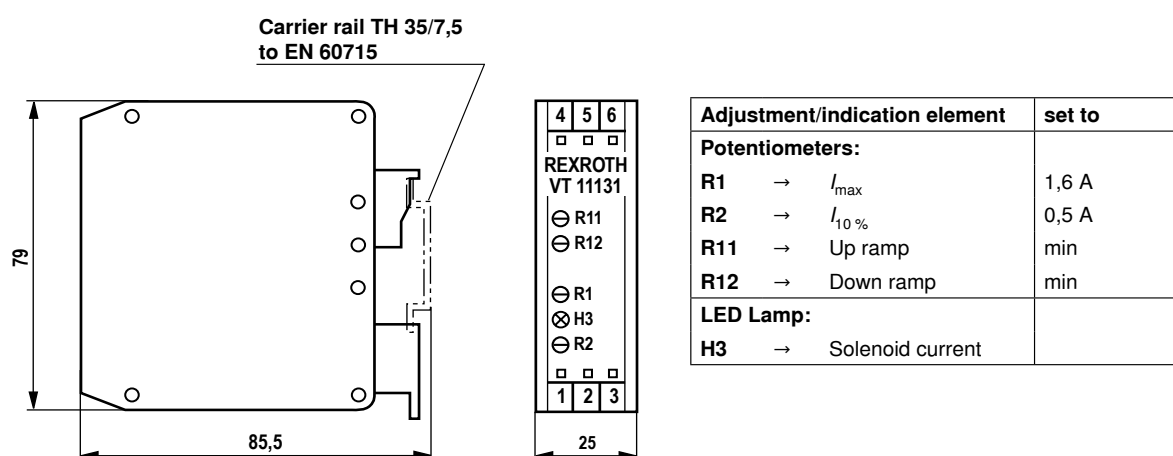
## Terminal assignment

|                     |        |   |   |             |
|---------------------|--------|---|---|-------------|
| Operating voltage   | $+U_O$ | 1 | 4 |             |
|                     | 0 V    | 2 | 5 |             |
| Reference potential |        | 3 | 6 | $+U_{comm}$ |

Proportional solenoid

Terminals 3 and 6: Differential input

## Unit dimensions (Dimensions in mm)



## Engineering / maintenance notes / supplementary information

- The amplifier module may only be wired when disconnected from the power supply.
- The distance to radio equipment must be sufficiently large ( $\gg 1$  m).
- Command value cables must always be shielded and **not** laid near power cables; shield solenoid cables.
- Do not use free-wheeling diodes in the solenoid cables.
- In the case of heavy fluctuations in the operating voltage, it may become necessary to install an external smoothing capacitor having a capacitance of at least 2200  $\mu$ F.  
Recommendation: Capacitor module type VT 11110 (see data sheet 30750); sufficient for up to 3 amplifier modules.