

Analogue amplifier modules

RE 30226/06.05
Replaces: 02.03

1/6

Types VT 11004, VT 11015 and VT 11026

Series 1X



F87160_d

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Features

- Suitable for controlling proportional pressure reducing valves without electrical position feedback
- Differential input
- 2 clocked output stages
- Step function generator
- 2 signal switching outputs for controlling the VT 11003-1X switching amplifier module
- Reverse polarity protection for voltage supply
- Short-circuit protection through overcurrent detection and shutdown
- Direction indication by LED (brightness of LED proportional to solenoid current)

Information on available spare parts:
www.boschrexroth.com/spc

Ordering code

VT 110 _ _ - 1X / *

Amplifier module for controlling proportional pressure reducing valves type DRE 4 K-3X/.G24-10...:

- With output characteristic curve 1 = 04
- With output characteristic curve 2 = 15
- With output characteristic curve 3 = 26

Series 10 to 19 = 1X
(10 to 19: unchanged technical data and pin assignment)

Further details in clear text

Functional description

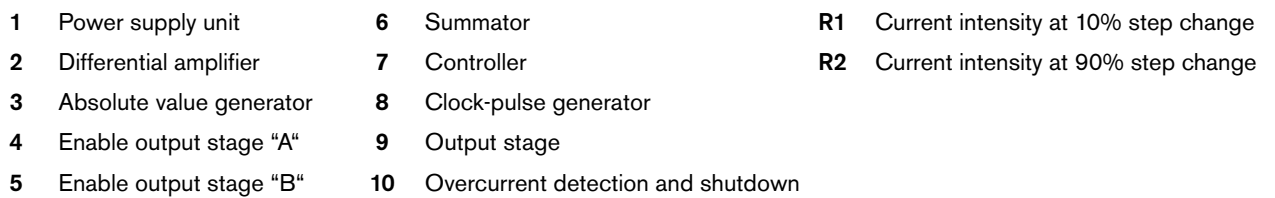
The amplifier modules are to be snapped onto carrier rails according to EN 60715. The electrical connection is made using screw terminals. The modules are operated with 24 V DC voltage.

The amplifier modules include the electronics for controlling two proportional solenoids. Depending on the command value polarity, solenoid "A" or solenoid "B" is activated. The solenoid current is measured and compared with the command value provided externally. Any differences between the actual value and the command value, caused, e.g. by changes in the solenoid temperature or the operating voltage, are corrected.

In addition, the module outputs a direction-dependent voltage signal (solenoid "A"; solenoid "B") as soon as the solenoid current jumps to the value of $I_{10\%}$.

The following parameters can be adjusted externally using a trimming potentiometer:

- Current $I_{10\%}$ and $I_{90\%}$; together for "A" and "B"

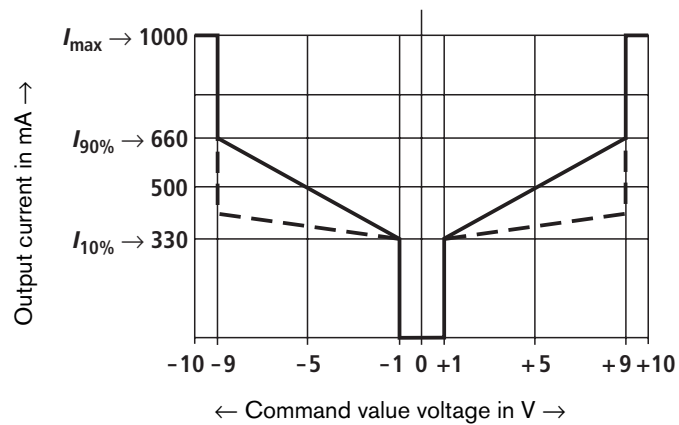


Technical data (for applications outside these parameters, please consult us!)

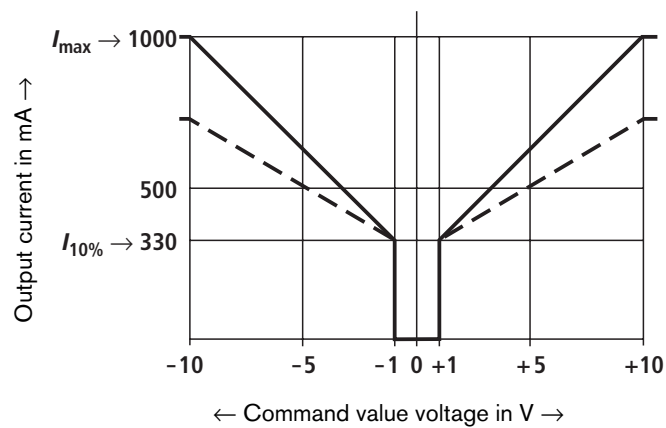
Operating voltage	U_O	24 VDC +40 % -10 %
Operating range:		
– Upper limit value	$u_O(t)_{\max}$	35 V
– Lower limit value	$u_O(t)_{\min}$	21 V
Power consumption	$P_{S \max}$	25 VA
Current consumption	$I_{\max}$	ca. 1.2 A
Fuse	I_S	Electronic short-circuit monitoring of the solenoid
Inputs:		
– Command value (differential input)	U_{comm}	0 to ± 10 V; R_i ca. 20 k Ω
Adjustment range:		
– Output current	I	$I_{10\%}$ to $I_{\max}$
Outputs:		
– Output stages		
• solenoid current / resistance VT11004; VT 11015	$I_{\max}$	1000 mA; $R_{(20)} = 12 \Omega$
VT11026	$I_{\max}$	800 mA; $R_{(20)} = 12 \Omega$
• clock-pulse frequency VT11004; VT 11015	f	230 Hz ± 15 %
VT11026	f	170 to 200 Hz ± 15 %
– Signal switching output	U	0 to +6 V; R_i ca. 10 k Ω
Type of connection		12 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)		40 x 79 x 85.5 mm
Permissible operating temperature range	ϑ	0 to +50 °C
Storage temperature range	ϑ	–25 to +70 °C
Weight	m	0.16 kg

Output characteristic curve

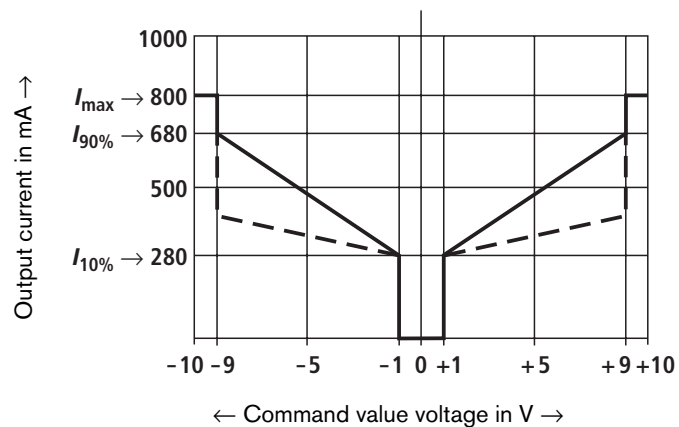
Characteristic curve 1 (VT 11004)



Characteristic curve 2 (VT 11015)



Characteristic curve 3 (VT 11026)



$I_{10\%}$ and $I_{90\%}$ can be adjusted from outside using trimming potentiometers:

$$I_{10\% \min} \sim 10 \text{ mA}$$

$$I_{10\% \max} \sim 500 \text{ mA}$$

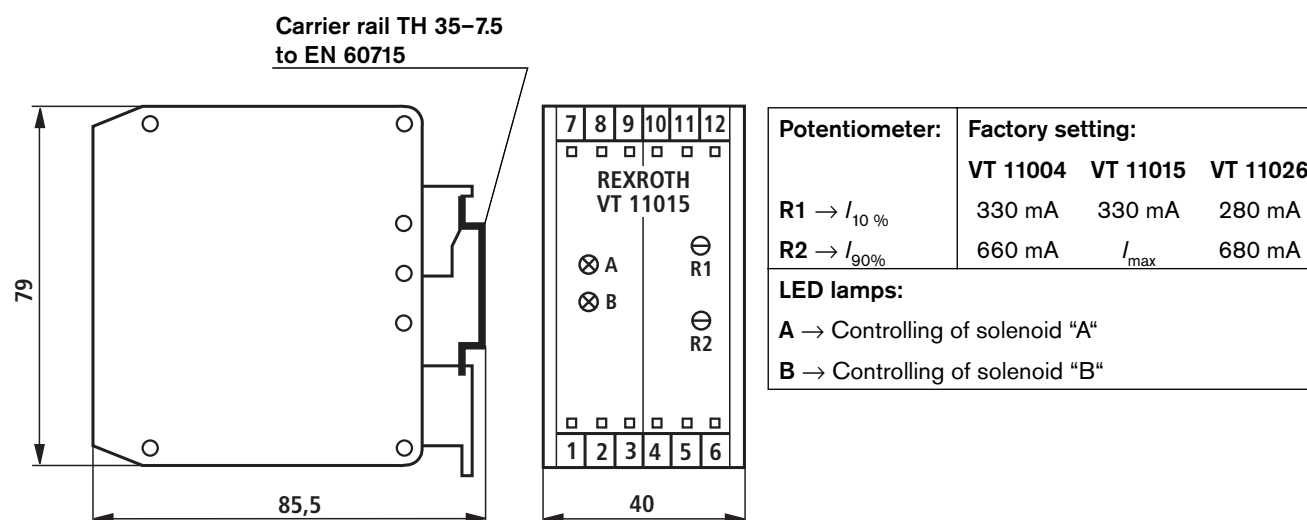
$$I_{90\% \min} = I_{10\%} + 50 \text{ mA}$$

$$I_{90\% \max} = I_{\max}$$

Terminal assignment

Operating voltage	$+U_O$	1	7	Solenoid „B“
	0 V	2	8	Solenoid „A“
	n.c.	3	9	n.c.
Differential input	Reference potential	4	10	n.c.
	$\pm U_{comm}$	5	11	Signal switching output solenoid „B“
	n.c.	6	12	Signal switching output solenoid „A“

Unit dimensions (dimensions in mm)



Engineering / maintenance notes / supplementary information

- The amplifier module may only be wired when disconnected from the power supply!
- Ensure a sufficient distance to radio equipment ($\gg 1$ m)!
- Shield command value cables; do **not** lay them near power cables; shield solenoid cable!
- Do not use free-wheeling diodes in solenoid cables!
- Reset of the overcurrent shutdown by providing a zero command value!
- In the case of heavy fluctuations in the operating voltage it may be required to install an external smoothing capacitor having a capacitance of at least 2200 μ F
 Recommendation: VT 11073 capacitor module (see RE 29750); sufficient for up to 3 amplifier modules

Notes

Notes
