

Electrical amplifier modules for controlling two proportional solenoids

RE 29762/06.10
 Replaces: 06.05

1/8

Types VT 11008 and VT 11017

Series 1X



F89050_d

Table of contents

Contents	Page
Features	1
Ordering code	2
Function description	2
Terminal assignment	2
Terminal assignment and block circuit diagram	3
Control characteristic curves and technical data of the amplifier modules	4 and 5
Unit dimensions	6

Features

- Electrical amplifier modules types VT 11008 and VT 11017 (series 1X) are used for controlling two proportional solenoids.
- Step function generator
 - Differential amplifier input
 - 2 clocked output stages
 - 2 signal switching outputs for controlling a switching amplifier module
 - Direction detection by LED (current intensity can be checked via LED brightness)
 - Reverse polarity protection
 - Short-circuit-protection by overcurrent detection and shutdown

Ordering code

VT 110 _ _ -1X/ *

For valve type FTDRE 2 K/24 V, control characteristic SK 2 = 08
 For valve type FTDRE 2 K/24 V, control characteristic SK 3 = 17

Further details in clear text

1X = Series 10 to 19
 (10 to 19: unchanged installation and connection dimensions)

Function description

These electrical amplifier modules are compact amplifiers for controlling a proportional spool axis. The amplifiers are to be snapped onto top hat rail. The electrical connection is made via a terminal strip.

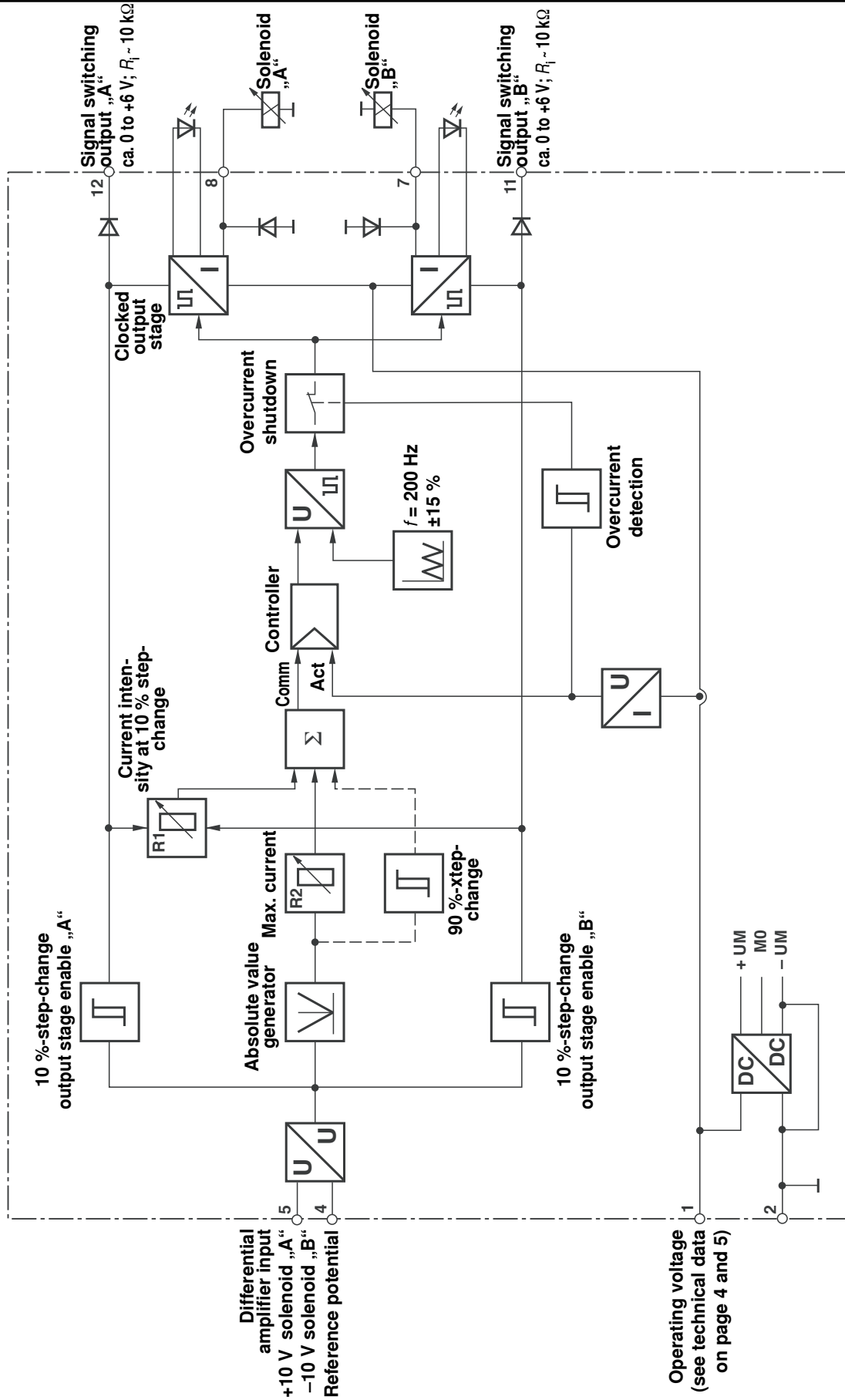
The amplifier modules include the electronics for controlling two proportional solenoids. Depending on the command value polarity, solenoid A or B is controlled. The solenoid current (solenoid A - solenoid B) is measured and compared with the command value provided externally. Any differences between the actual and the command value, caused e.g. by changes in the solenoid temperature or supply voltage, are to some extent compensated for.

In addition, the modules issue a direction-dependent voltage signal (solenoid A - solenoid B), as soon as the solenoid current jumps to the $I_{10\%}$ value. The currents, $I_{10\%}$ and $I_{90\%}$ or $I_{10\%}$ and $I_{100\%}$, can be adjusted for both solenoids together, A and B, from outside using two potentiometers.

Terminal assignment

Operating voltage	+ U _B	1	7	Output solenoid „B“	
	0 V	2	8	Output solenoid „A“	
	n. c.	3	9	n. c.	
Differential amplifier input	Reference potential	GND	4	10	n. c.
	+10 V Solenoid „A“		5	11	To signal switching output „B“
	-10 V Solenoid „B“				
	n. c.	6	12	To signal switching output „A“	

Terminal assignment and block circuit diagram



Note:

- Reset of the overcurrent trip caused by command value = zero!
- With 12V version **no** reverse polarity protection!

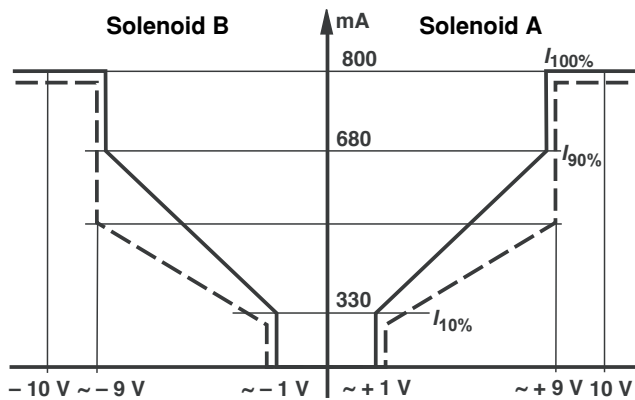
Control characteristic curves and technical data of the amplifier modules

VT 11008

Control characteristic curve SK 2:

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

$$\begin{aligned} I_{10\% \text{ min}} &\sim 10 \text{ mA} & I_{10\% \text{ max}} &\sim 400 \text{ mA} \\ I_{90\% \text{ min}} &= I_{10\%} + 50 \text{ mA} & I_{90\% \text{ max}} &= I_{\text{max}} \end{aligned}$$



Technical data

For applications outside these parameters, please consult us!

Operating voltage	$U_{0 \text{ eff}}$	21.5 V to 35 V
– Three-phase current bridge (winding)	U	21.5 V to 35 V
– Full bridge (winding)	U	20 V to 24 V

Note:

In both cases, full bridge or three-phase current bridge, each module must be provided with an external smoothing capacitor of 2200 μF .

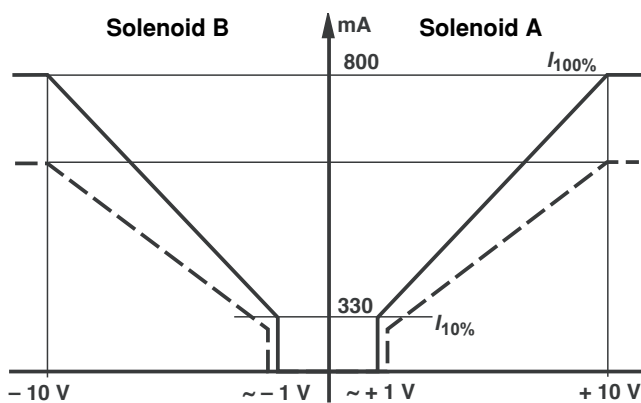
Valve type		FTDRE 2 K/24 V (solenoid 12 Ω ; 0.8 A)
Clock-pulse frequency	f	200 Hz $\pm 15\%$
Power consumption	P	< 25 VA
Max. output current	I_{max}	800 mA
Input resistance	R_i	ca. 20 k Ω
Perm. ambient temperature	t	-25 to +70 $^{\circ}\text{C}$
Weight	m	ca. 0.16 kg

VT 11017

Control characteristic SK 3:

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

$$\begin{aligned} I_{10\% \text{ min}} &\sim 10 \text{ mA} & I_{10\% \text{ max}} &\sim 400 \text{ mA} \\ I_{100\% \text{ min}} &= I_{10\%} + 50 \text{ mA} & I_{100\% \text{ max}} &= I_{\text{max}} \end{aligned}$$



Technical data

For applications outside these parameters, please consult us!

Operating voltage	$U_{0 \text{ eff}}$	21.5 V to 35 V
– Three-phase current bridge (winding)	U	21.5 V to 16 V
– Full bridge (winding)	U	20 V to 24 V

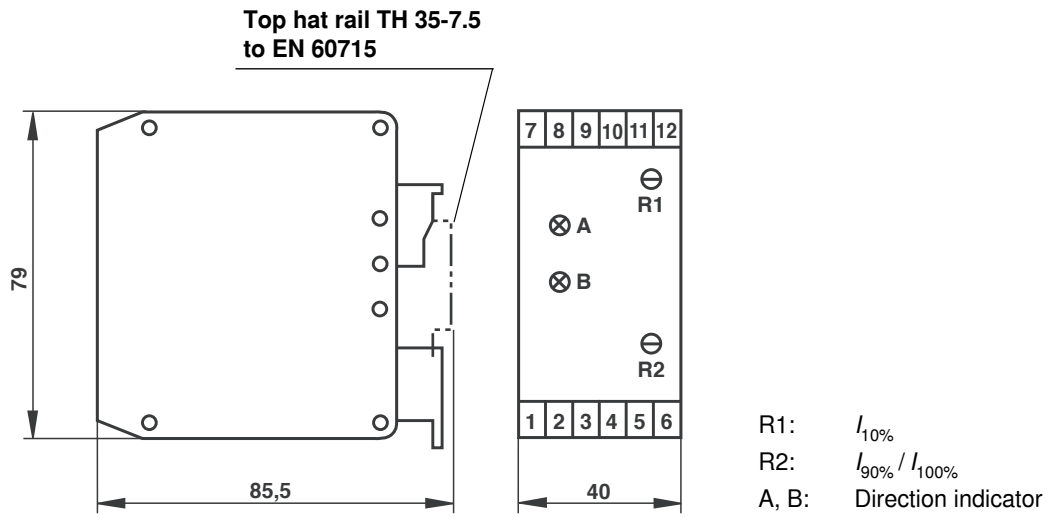
Note:

In both cases, full bridge or three-phase current bridge, each module must be provided with an external smoothing capacitor of 2200 μF .

Valve type		FTDRE 2 K/24 V (solenoid 12 Ω ; 0.8 A)
Clock-pulse frequency	f	200 Hz $\pm 15\%$
Power consumption	P	< 25 VA
Max. output current	I_{max}	800 mA
Input resistance	R_i	ca. 20 k Ω
Perm. ambient temperature	t	-25 to +70 $^{\circ}\text{C}$
Weight	m	ca. 0.16 kg

In the case of continuous operation of several adjacent modules and temperatures higher than 40 $^{\circ}\text{C}$, a minimum space of ≥ 20 mm must be maintained between the modules!

Unit dimensions (Dimensions in mm)



Notes

Notes

Notes
