MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

BOSCH REXROTH

VT5013-37/R5E

HYDRAULIC VALVE AMPLIFIER BOARD

Used with the applicable VT 5000 analog amplifier electronics configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

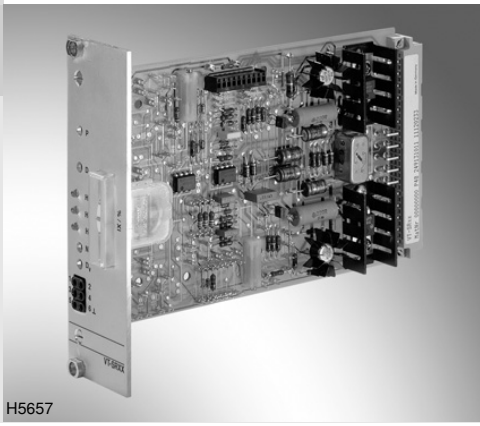
Selected official manufacturer pages follow this cover.

Source: Official Bosch Rexroth document: VT5013-37-R5E.pdf

Electrical amplifiers for controlling high-response valves with servo-valve pilot control

RE 29931/12.10 1/6
Replaces: 05.10

Types VT-SR31 to VT-SR38


H5657

Component series 1X

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Features

Amplifiers VT-SR31 to VT-SR38 are suitable for controlling high-response valves (flow control valves) with servo-valve pilot control and electrical position feedback (cartridge valves, type .WRC…1X).

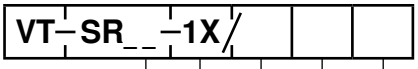
- Regulator for valve current
- Controller for main spool position
- Dither signal generator
- Push-pull output stage
- Oscillator/demodulator
- Enable circuit with relay
- Measuring instrument for indicating the servo-valve current
- Reverse polarity protection for voltage supply

Optional extensions:

- PID-controller [1] with controller changeover feature
- Relay with isolated changeover contact (28 V / 0.5 A)
- Voltage regulator ±15 V for supplying the controller and position transducer electronics

[1] The D-component acts only on the actual value (velocity feedback).

Ordering code



Amplifier for high-response valves (flow control valves) with servo-valve pilot control

Type .WRC 32…1X	**= 31**
Type .WRC 40…1X	**= 32**
Type .WRC 50…1X	**= 33**
Type .WRC 63…1X	**= 34**
Type .WRC 80…1X	**= 35**
Type .WRC 100…1X	**= 36**
Type .WRC 125…1X	**= 37**
Type .WRC 160…1X	**= 38**

F = With fail-safe function [1]
No code = Further details in clear text [2]

2 = For valves with 2/2 directional function
3 = For valves with 3/2 directional function

0 = Without ±15 V voltage regulator
1 = With ±15 V voltage regulator

1X = Component series 10 to 19 (10 to 19: unchanged technical data and pinout)

Accessories (separate order)

Card holder

– Type VT 3002-1-2X/32F, see data sheet 29928
Single card holder without power supply unit

Power supply unit

– Type VT-NE31-1X, see data sheet 29929
Compact power supply unit 115/230 VAC → ±24 VDC, 6 W

[1] only with 2WRC...1X SO56/ SO60, size 63 to 160 and 3WRC...1X SO56/ SO60, size 63 to 160

[2] E.g. with/without PID-controller, with/without backup relais K3

The controller data for the additional PID controller. must be specified

Function

Amplifiers VT-SR31 to VT-SR38 operate with a push-pull output stage with bipolar transistors. The output of this output stage can be cut in or out using an enable circuit (relay K2). The enable is indicated by illuminated LED “H2“ on the front panel. The switching voltage of all relays is set to 0 V or $+U_B$ with jumpers J12 and J13 (factory setting: $+U_B$).

The output stage consists of an I-controller with connected dither signal generator. The amplitude of the dither signal is adjusted by means of R7. The pilot stage (current command value) is controlled using a PD-controller. The actual current value fed back is also signaled by the instrument on the front panel.

The oscillator/demodulator serves to acquire the spool position. It is designed as a plug-on printed-circuit board, the parameters of which are matched to the relevant valve type.

The position command value and the actual position value are fed to the PD-controller, with the D-component acting **exclusively** on the actual value (velocity feedback).

The zero point can be adjusted by means of R3 (“NP“) on the front panel.

The required symmetrical operating voltage $\pm U_B$ is protected against polarity reversal. If the printed-circuit board does not contain a voltage regulator for the supply of controller and position transducer electronics, an additional, stabilized auxiliary voltage $\pm U_M$ must be provided. The auxiliary voltage connection is protected against polarity reversal up to a maximum current of 1 A.

Optionally, the amplifier can be fitted with a PID-controller (D-component acts **only** on the actual value) with changeover PI-component and a back-up relay with isolated changeover contact. This controller can also be used to superimpose a further closed control loop (e.g. for the closed-loop control of a drive). The P- and D-component can be adjusted on the front panel. The state of the controller is signaled by LED “H1“, that of the relay by LED “H3“ (LEDs are ON when the relays have picked up). The component placement of the PID-controller is customer-specific and must therefore be specified in clear text in the order. These amplifiers are assigned special type designations before being shipped. The back-up relay can be loaded up to 28 V and 0.5 A.