

**RE 30050/03.04**

Replaces: 11.02

**Analog position controller  
Type VT-MACAS**

Series 1X



Type VT-MACAS

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**Features**

- Design: Module for snapping onto DIN rails
- Actuation of valves with on-board electronics
- Enabling input
- Open-circuit detection for feedback signal cable
- Short-circuit-proof interfaces
- Measurement taps on front panel
- Deadband compensation can be deactivated
- Position: PT1 control
- Velocity control possible in conjunction with a speedometer: PI control
- Cylinder area ratio adjustment



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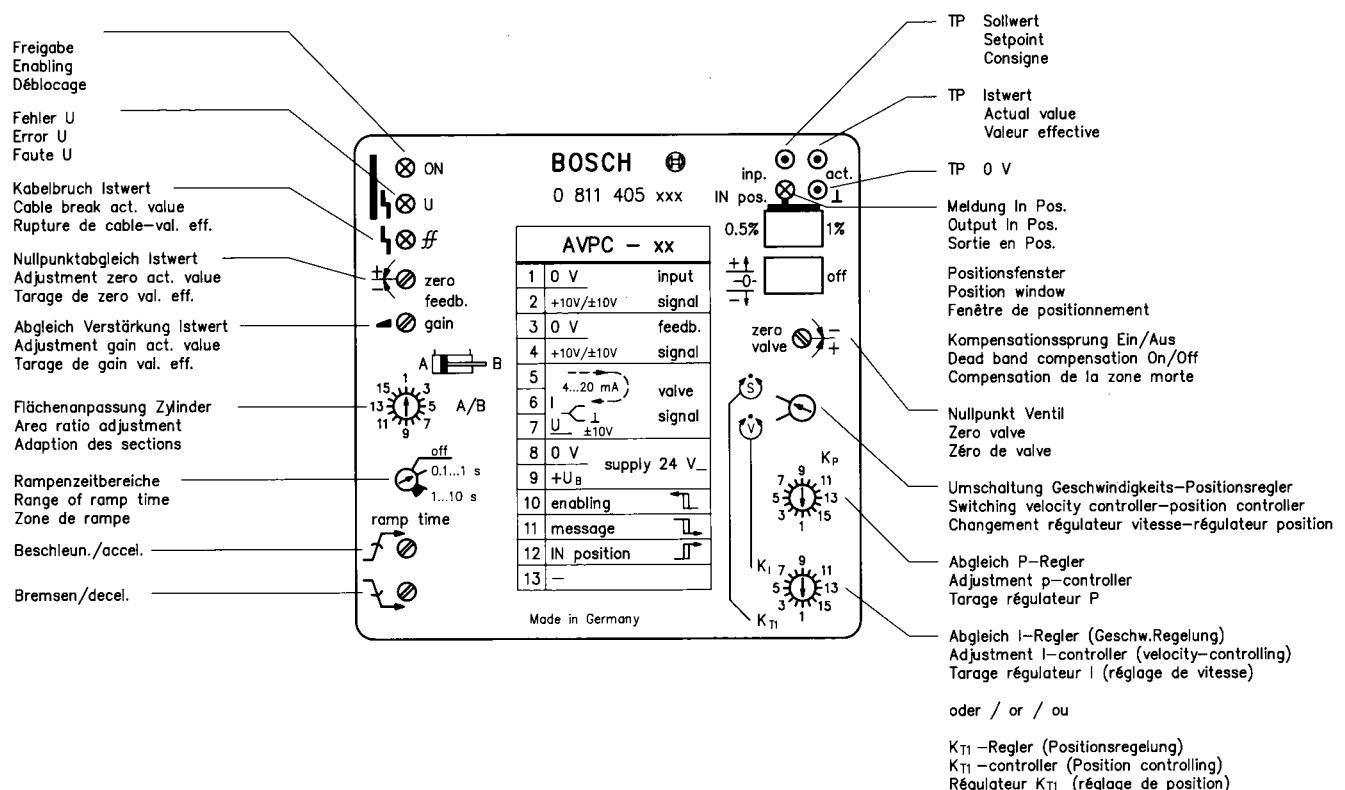
## Ordering data

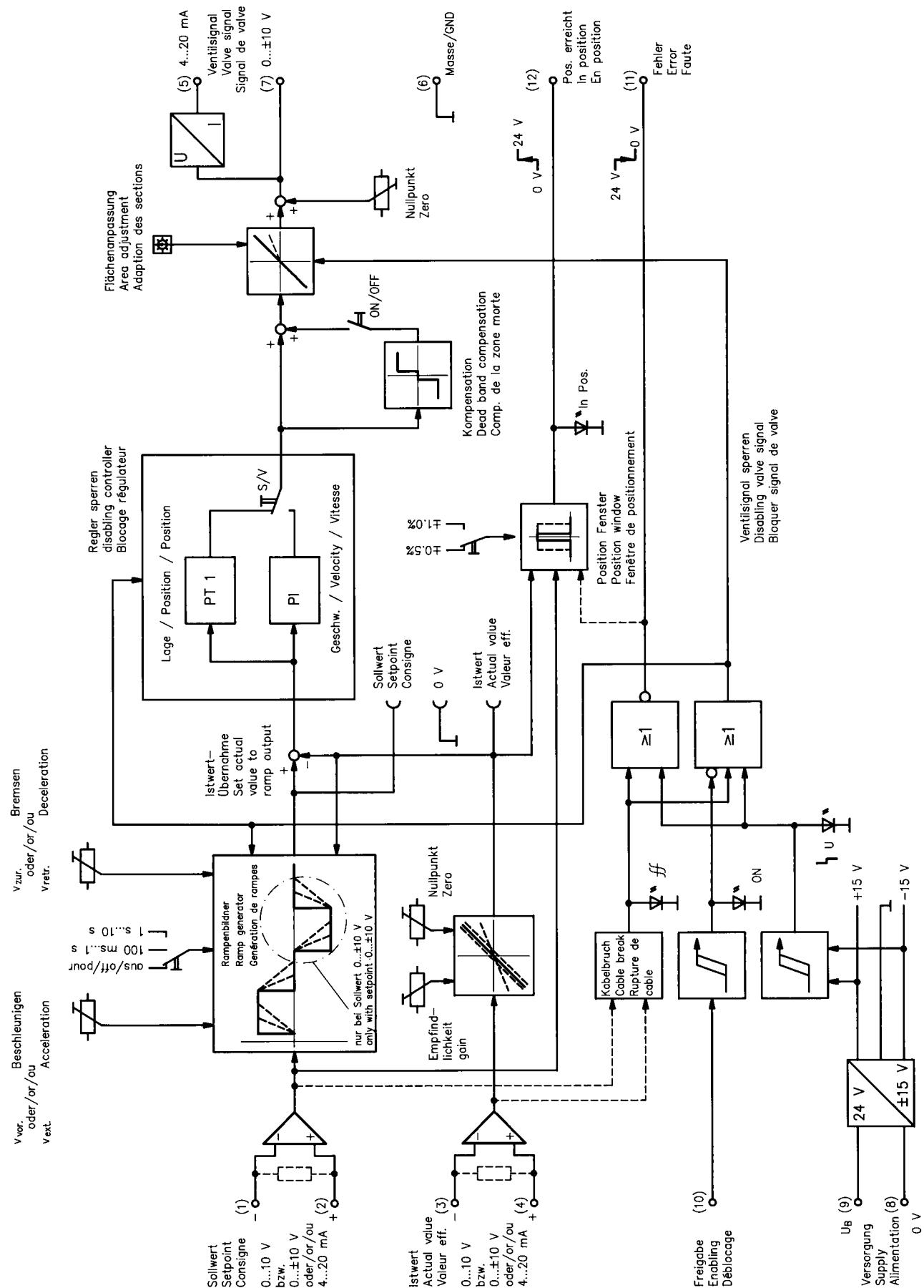
	VT-	M	A	C	A	S	-	-	?	?	?	
Hydraulic component												Option
Axis control			= A									No code
Type											I =	Version with supply input
Controller				= C								Version with current input
Actuation									V0 =			Customer version
Analog				= A								Catalogue version
Function										1X =		Series
Position control					= S							Series 10 to 19
									500 =			Serial numbers for types
												Standard version without valve amplifier function

### **Preferred types** (available at short notice)

Material no.	Type VT-MACAS	For valve types
0 811 405 139	VT-MACAS-500-10/V0	Valves with on-board electronics
0 811 405 140	VT-MACAS-500-10/V0/I	Valves with on-board electronics

## Front panel





## Technical data (For device applications beyond the stated values, please consult us!)

Format/design	(86 x 110 x 95) mm/module
Fastening/connection	DIN rail/connector + terminals
Temperature range	0 ... 70 °C; storage: -20 ... +70 °C
Power supply (8), (9)	$U_B = 24 \text{ V}_{\text{nom}}$ /batt.: 21 ... 40 V DC Single-phase full wave: 21 ... 28 V DC <sub>eff</sub>
Current rating	Max. 200 mA
Signal input (1), (2)	VT-MACAS-500-10/V0 $U_{\text{set}}: \pm 10 \text{ V}$ , difference amplifier $R_i = 100 \text{ k}\Omega$
	VT-MACAS-500-10/V0/I $I_{\text{set}}: 4 \dots 20 \text{ mA}$ $R_{\text{sh}} = 200 \Omega$
Feedback signal (3), (4)	VT-MACAS-500-10/V0 $U_{\text{feed}}: \pm 10 \text{ V}$ , difference amplifier $R_i = 100 \text{ k}\Omega$
	VT-MACAS-500-10/V0/I $I_{\text{feed}}: 4 \dots 20 \text{ mA}$ $R_{\text{sh}} = 200 \Omega$
Valve signal (5), (6), (7)	$U_V = \pm 10 \text{ V}$ (max. 10 mA) or $I_V = 4 \dots 20 \text{ mA}$ (average 12 mA)
Deadband compensation	Can be deactivated, effective in a range of $\pm 4 \%$
Enable signal (10)	8.5 ... 40 V DC
Fault signal (11)	No fault: 24 V <sub>nom</sub> ( $U_B$ ) max. 50 mA Fault: < 2 V
IN POS signal (12)	IN POS: 24 V <sub>nom</sub> ( $U_B$ ) max. 50 mA Not IN POS: < 2 V
Ramp ranges	I: 0.1 ... 1 s II: 1 ... 10 s
Area ratio adjustment $A_K:A_R$	Min. 1:1; max. 1:4
Feedback signal adjustment	Zero: -5 ... 10 % Gain: 50 ... 110 %
Type of controller	Position: PT <sub>1</sub> Velocity: PI
Valve zero	$\pm 5 \%$
Special features	<ul style="list-style-type: none"> <li>– Module can be switched from position to velocity control</li> <li>– Position window can be switched over</li> <li>– Measurement taps on front panel</li> <li>– Short-circuit-proof interfaces</li> </ul>

### Applications

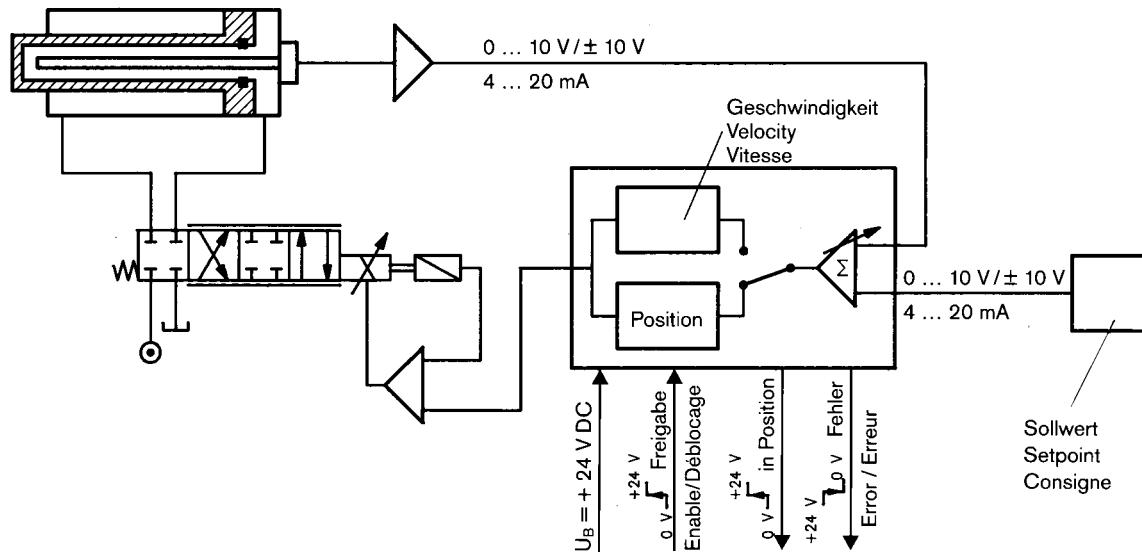
This controller module enables simple position or velocity control actions to be effected, in combination with Bosch Rexroth servo cylinders with analog position measurement systems (potentiometers). Since the signals are processed in an analog manner and the module is only equipped with the most essential features required for performing a control action,

we were able to keep the cost of the drive low. A further speciality of this module is that it can be switched over internally (front panel) to velocity control, and there is a version for voltage interface and a version for current interface, related to the setpoints and feedback signals.

### Position control

The setpoint and feedback signals of the position are compared and the difference transmitted to the valve amplifier. In the event of an abrupt change in the input signal, the system reacts with maximum dynamics. The times for accelerating or braking a load

are limited either by the available power or the system gain. When a ramp function acts as an input value, the load is moved at a constant speed.

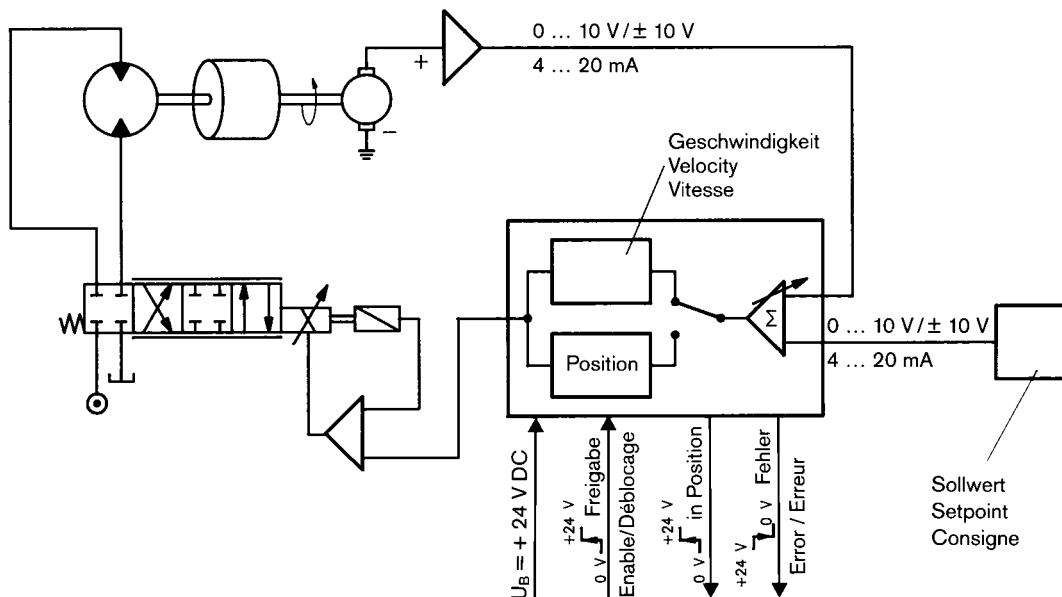


### Velocity control\*

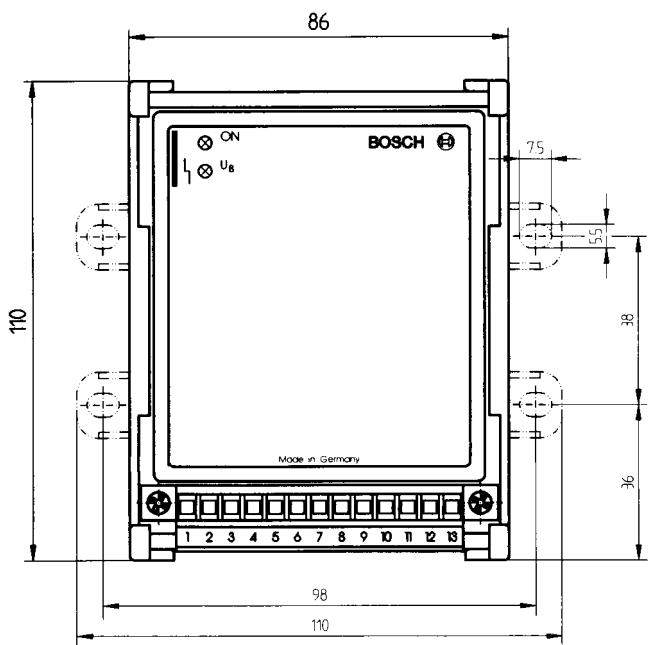
The setpoint and feedback signal of velocity are compared and the difference transmitted to the valve amplifier. Through the process of integration, the signal is amplified to such an extent that even the smallest error is eliminated.

When a ramp function acts as an input signal, progressive acceleration or deceleration with a constant value takes place.

\* Only possible with a speedometer.

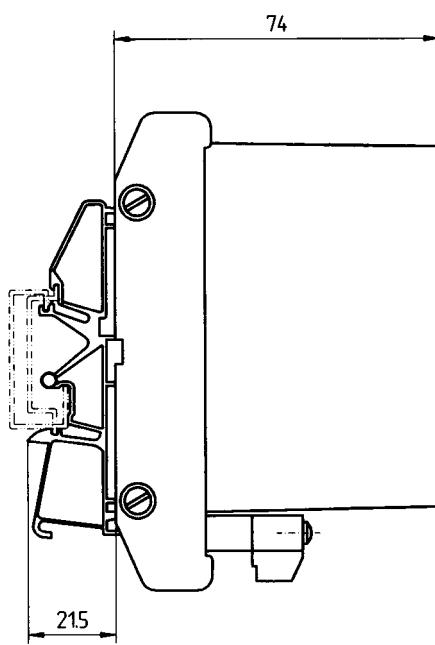


## Device dimensions (in mm)



Wall mounting

86 x 110 x 95



DIN rail mounting

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