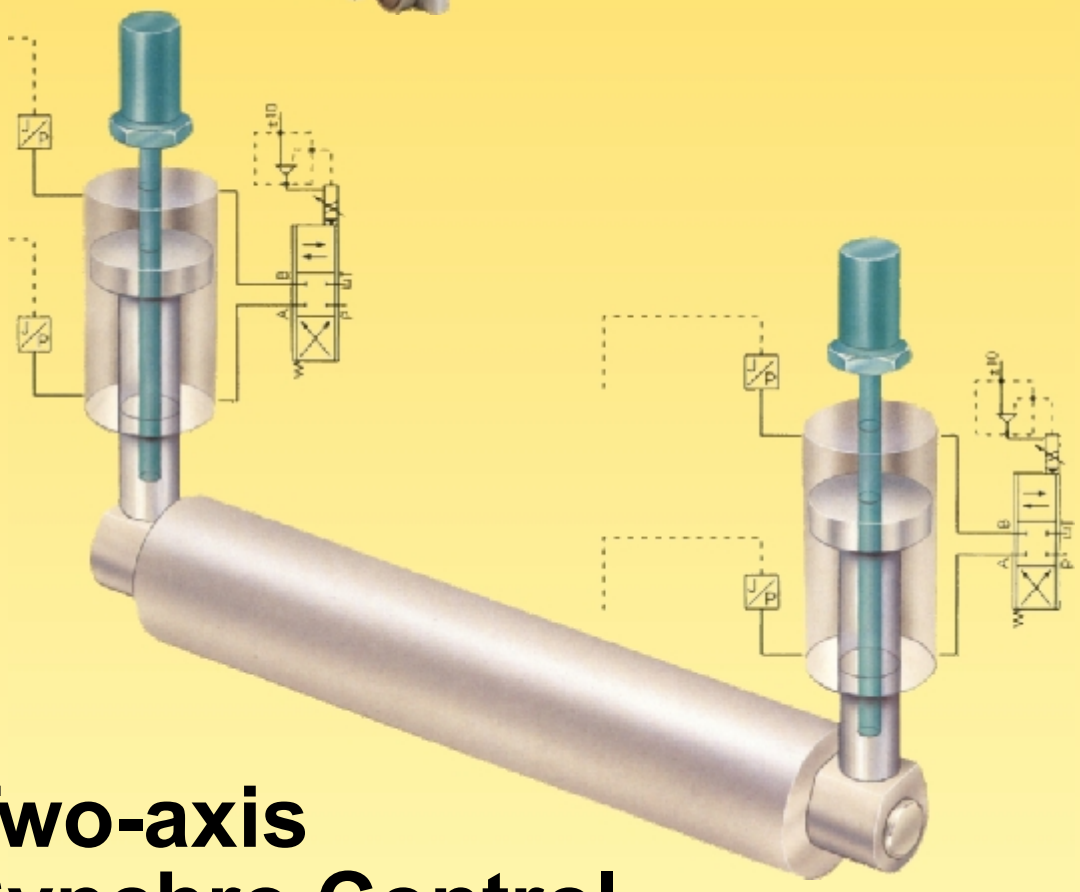
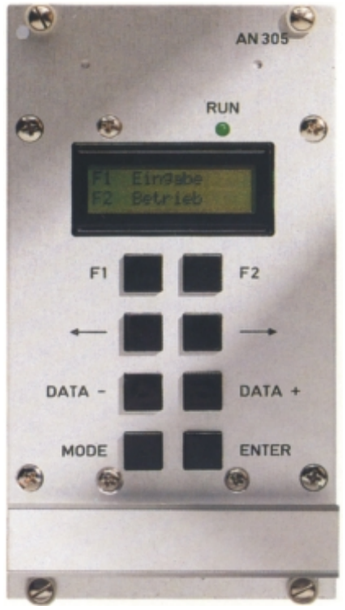
Rhytron GmbH

Regelsysteme für hydraulische und elektrische Antriebe

AN305



Two-axis Synchro Control

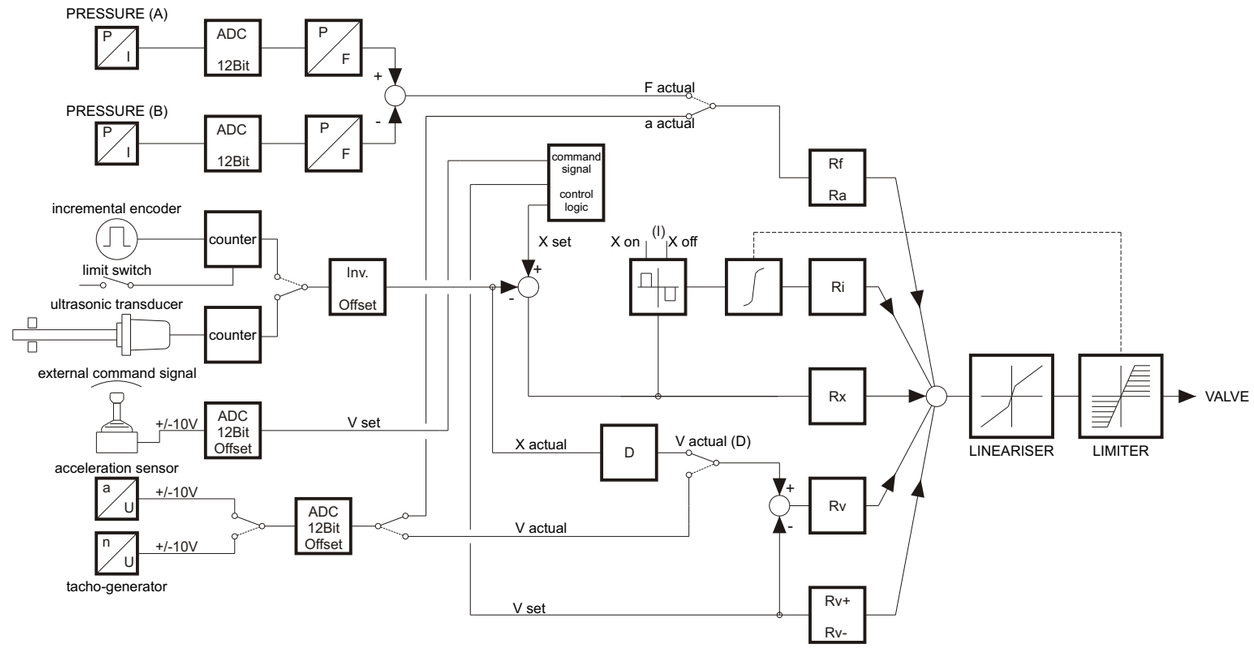


Front view of AN 305
with input keyboard and
2x16-character-display

Module AN 305 is a universal CNC-control which is basically suitable for all applications in drive engineering.
Due to the special software features of the controller, the system is particularly interesting for hydraulic drives.
The AN 305 module is equipped with a fast 32 bit-computer providing a high computing speed. This compact high-capacity computer system is equipped with standard software in order to ensure a wide range of application. This standard software supports the operation of two synchronized drives. The number of drives to be controlled can be increased by using several modules in parallel via a field bus.
A higher-level input terminal can manage the operation of several modules.

AN305

Structure of the digital position controller



Data input is menu-driven an carried out via a keyboard and an LC-display. The programme is built with modules for each part of the system. Individual blocks or the full system can be accessed by external control. A suitable field bus or RS 232 input can also be used.

Control Features

- Position controller as state controller of reduced order with feed forward.
- Combined position control/force limitation and pressure control.
- Pressure/force control with PI-controller.
- Optional speed feedback either by means of position differentiation or tacho.
- Optional feedback of acceleration either via acceleration sensor or differential pressure.
- Improved guidance due to feed forward depending on the direction of movement.
- Adjustable enable and disable function of the integrator.
- Nonlinear valve flow characteristic can be compensated by adjustable linearization.

Position Transducer Systems

The AN 305 module permits the application of incremental position encoders and absolute shaft-angle encoders as well as of ultrasonic transducers.
A combination of these transducers is also possible.

Incremental Position Encoders

Displacement and angle measurements can be made using incremental rotary transducers or linear measuring systems.
The AN 305 module is equipped with the required counting device, sign logic and pulse quadruplication circuitry for the operation of incremental position encoder systems. The position encoder must be provided with two pulse tracks offset by 90°. An additional reference pulse is required to provide a datum for the module.

Shaft Encoders

As an option, displacement and angle measurements with absolute angular shaft encoders is possible via 2 SSI-interfaces. If serial interfaces are used, the wiring of the position encoders can be simplified.

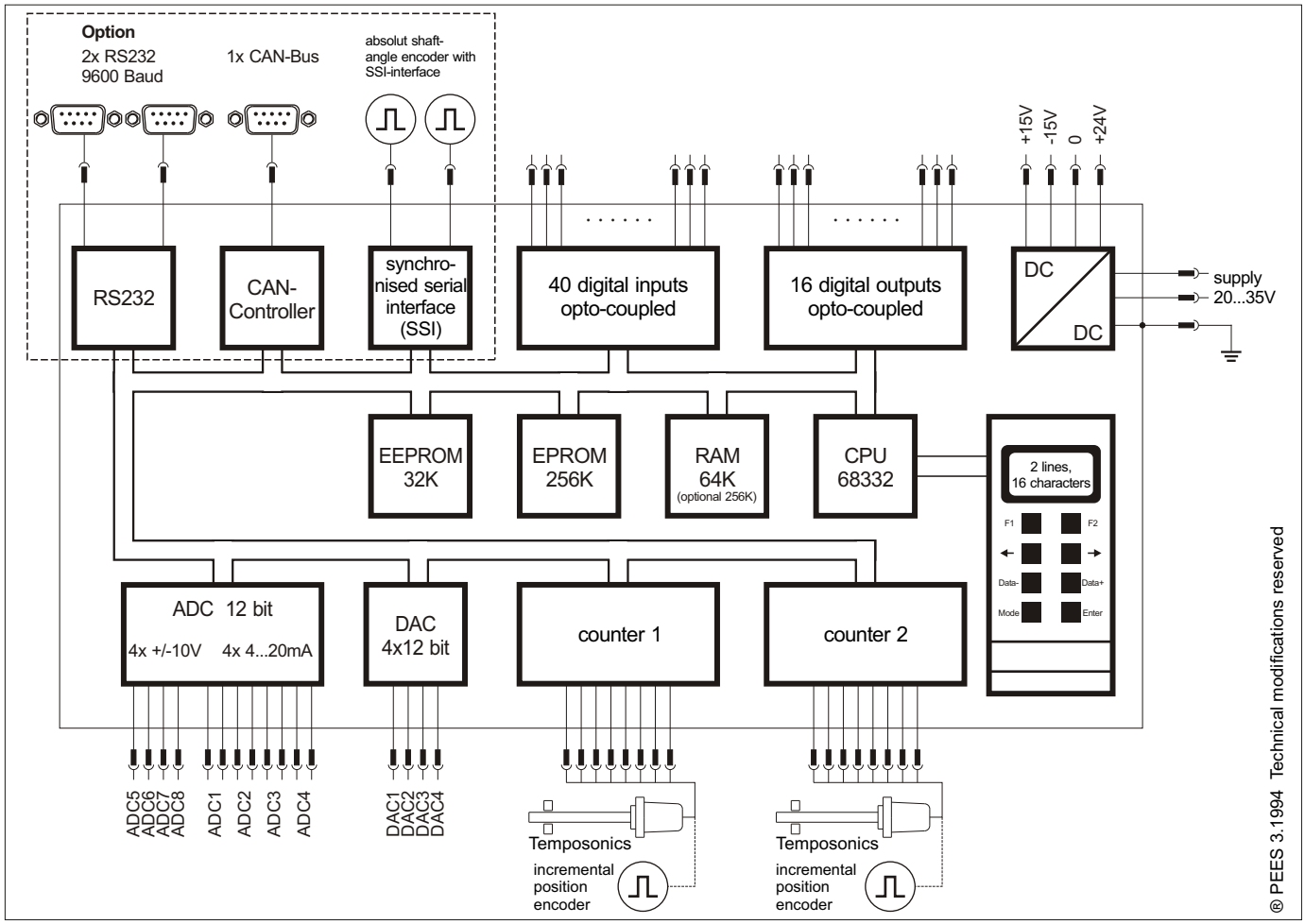
Ultrasonic Transducers

These absolute position transducer systems effect position measurements using the phase shift of a reflected sound pulse.
The de-coding electronics of module AN 305 enables a resolution of up to 2.5 µm to be achieved.
For two position transducer systems, the module provides the supply voltage of +/- 15V for two ultrasonic transducers.

Servo, proportional or control valves

Electrically modulated valves with high natural frequencies are the standard valves applied for high dynamic control loops. Characteristic features of these valves are zero lapped spools and spool position feedback.
The spool position feedback can be arranged at the main spool as well as at the pilot spool.

For this application, the module provides analog output signals within the range of +/- 10 V. This is done via A/D converters.
Valves of this type are controlled either by integrated electronics or with separate amplifier cards.
Combined with high-resolution position transducers, systems of this kind reach the highest positioning accuracy.



Technical Data AN 305

Type	AN 305
CPU	MC68332 32 bit
RAM	64 kB (extension to 256 kB possible)
EPROM	256 kB
EEPROM	32 kB
Format (dimensions)	71,12 x 128,7 x 187 mm (WxHxD)
Weight	680 g
Ambient temperature	0...40ºC
Plug connector	2 x 64 pins DIN 41 612 C 64 (Option 3 x 64 pins)
Supply voltage	28 V DC nominal, 20...35 V DC battery voltage
Auxiliary supplies	+/-15 V 0,7 A, 24 V 0,3 A
Inputs	40x opto-coupled 24 V
Outputs	16x opto-coupled 24 V 100 mA
Analog inputs	8x 12bit; i.e. 4x 4..20 mA and 4x +/-10 V
Analog outputs	4x +/-10 V 12bit

Incremental Position encoder	2 tracks with reference track Q and Qinv for all tracks
Ultrasonic Position transducer	Make MTS Lüdenscheid Typ TTS-RCxxxx-D-E-8 resolution up to 2,5 µm
Pressure sensor	4..20 mA supply voltage 24 V 2 wires with integrated electronics
Data input	For the standard type, data input is effected via the keyboard and a 2x16-character-LCD (menu-driven).

Additional option: AN305O

Interfaces	2x RS232, 9600 Baud, 1x field bus (acc. to CAN-specification) 2x SSI-interface (all interfaces led outside on 64 pin plug connector)
Position encoder	2x via SSI-interface
Absolute shaft-angle encoder	supply voltage 24 V

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