

# PEES

## COMPONENTS

## Digital Module ADN 406



### Outline description: ADN 406

The **ADN 406** has been developed as a digital servo-amplifier for proportional valves with one magnet. The valve output stages function with fast de-excitation, signifying that the magnet current can be set to 0 in approx. 3–4 ms.

Thanks to its high-speed output stage, the **ADN 406** is extremely suitable for control tasks in the 0–30 Hz frequency range. The module has therefore been equipped with a triple-controller cascade.

The input sensor system is equipped with interchangeable sensor modules, signifying that the module can be operated using the widely-used input signals, such as 4–20 mA or  $\pm 10$  V, or other similar signals. The sensor input modules are equipped with a second-order low-pass filter. Phase shift at 30 Hz is approx.  $3^\circ$ , damping at 10 kHz approx. 45 dB.

The line of action (sign) of the individual sensor modules can be set using the **ADN configurator**. This permits rapid start-up of the entire system at rational cost.

The external sensors can be supplied with 24 V/0.5 A DC from the device. A PTC thermistor assures full thermistor-type protection against external short-circuit. Alarms are issued via a separate output, which can be loaded to 24 V/100 mA.

The **ADN 406** is equipped with six opto-decoupled inputs. In standard configuration, these are one Enable input, one Ramp OFF input and four setpoint inputs. Other input configurations are also possible in special cases. The ramps are assigned to the four internal setpoints and can be set from 0.01 s to 30 s in increments of 10 ms. The module can, in addition, also be actuated externally via an analog input. The three controllers are P, I and DT1 controllers with a sample time of approx. 0.1 ms. An internal function generator, the frequency of which can be selected from 0.1 to 50 Hz, is available for controller optimization. The generator supplies sinusoidal, triangular and square waves. Amplitude and offset can be entered at  $\pm 10$  V.

All settings on the **ADN 406** are effected using the **ADN configurator** via an **RS232** interface linked to a PC or laptop computer.

The input software **ADN configurator** is available on the Internet.

Further information:

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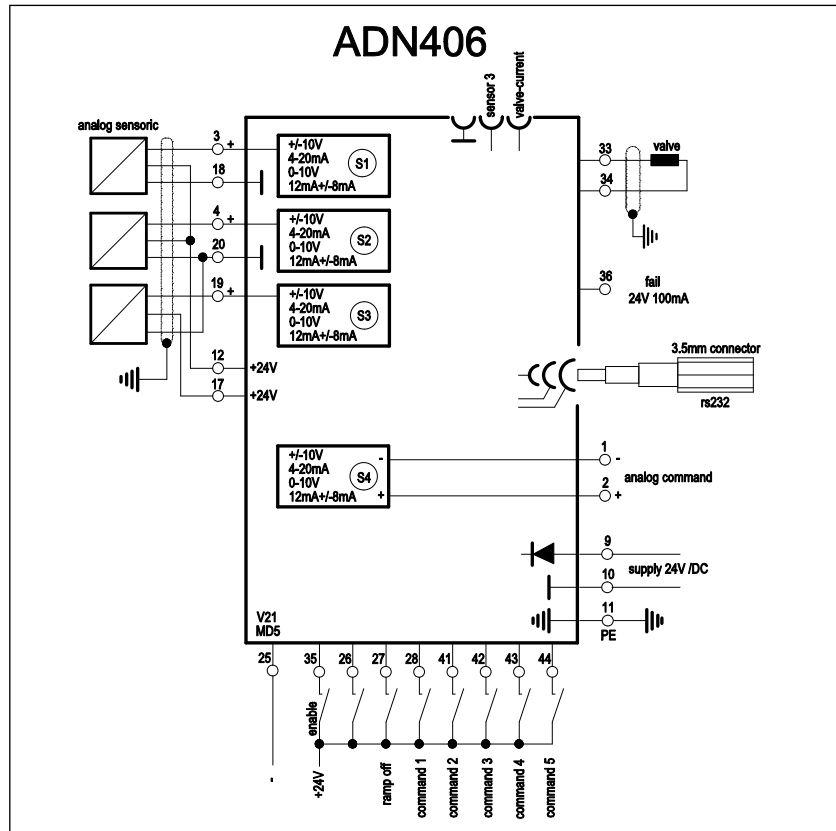
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#### Technical data:

Supply voltage	24V DC, nominal (22 to 28V) DC
Bias current (idling)	approx. 70 mA
Valve current	selectable in six ranges, 0.85A to 3A
PWM (valve current)	9.7 kHz with fast de-excitation and short-circuit monitoring
Inputs	5 opto-decoupled, of which 1 x Enable, 1 x Ramp OFF and 4 x setpoint (internal)
Alarm output	1 x 24V/100 mA
Dither generator	selectable 50 to 150Hz, amplitude 0 to 10%, referred to the selected current
Imin	Imin can be selected as a jump or constant
Ambient temperature	-20 to +60°C
Microprocessor	16 bit signal processor with a processing speed of 40 MIPS
Program cycle time	9.7 kHz for the entire computer program, approx. 0.1 ms
Fault signalization	Wire breakage at 12 mA +/- 8 mA 4-20 mA in case of short-circuit in the valve end stage. Signalization via the 24V/100 mA alarm output, flashing LED and display on the <b>ADN configurator</b>
Parametering	Parameters are entered on the <b>ADN configurator</b> . This input software is available via the Internet.

An USB-to-RS232 adapter is required for use with laptops with a USB interface.