

Analog output 520AOD01

Data sheet



Application

Analog control outputs for sequential or closed-loop control, display instruments, measurement recorders etc. can be connected by the analog output board 520AOD01. The board 520AOD01 has 2 output channels, which can be configured to different output voltage or current ranges.

The module 520AOD01 is able to process the following types of signals:

- analog setpoint commands
- floating point setpoint commands

The following output ranges can be configured independent per channel by on-board switches:

- | | |
|----------------------------|-------------------|
| – ± 2.5 mA | – ± 1.25 V DC |
| – ± 5 mA | – ± 2.5 V DC |
| – ± 10 mA | – ± 5 V DC |
| – ± 20 mA (4... 20 mA) | – ± 10 V DC |

The output format unipolar, bipolar or live zero (4 ... 20 mA) can be configured by software parameters.

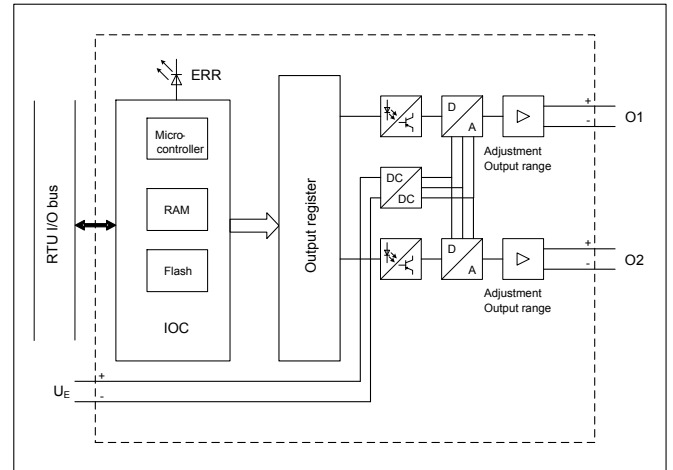


Figure 1: Block diagram 520AOD01

Characteristics

Analog outputs

Each output has a digital to analog converter (DAC), which converts the digital value into an analog signal. The DAC has a resolution of 11 bit plus sign.

A received output value keeps stored until a new value is received. The output channels are set to 0 % after power on or restart of the communication module.

The output channels are potential isolated from the power supply, but not between the two channels.

Power supply input

The required power for the module is supplied via the RTU520 I/O bus connector. In addition 24 V DC (U_E) is required (e. g. from 560PSU40/41). This voltage U_E has to be supplied from external and wired to the U_E connector.

I/O controller (IOC)

The micro-controller on the module processes all time critical tasks of the parameterized processing functions. Moreover it carries out the interactive communication with the RTU I/O bus. All configuration data and processing parameters are loaded by the communication unit via the RTU I/O bus.

In connection with an I/O adapter (e. g. 520ADD01) or the RTU520 communication unit the module is interfaced to the RTU520 I/O bus.

During initialization and operation the module carries out a number of tests. If a fault occurs it is reported to the communication unit. All fault conditions impairing the function of the module are displayed as common fault signal by a red LED. A failure of the module is detected by the communication unit.

Technical data

In addition to the RTU500 series general technical data, the following applies:

Output channels 520AOD01	
Outputs	2 analog outputs, potential isolated against power supply
Configurable output range	<ul style="list-style-type: none">± 2.5 mA± 5 mA± 10 mA± 20 mA (4... 20 mA) <ul style="list-style-type: none">± 1.25 V DC± 2.5 V DC± 5 V DC± 10 V DC
load impedance	max. 500 Ω (current output) min. 500 Ω (voltage output)
Resolution	11 bit + sign 2000 digit = 100% factory adjusted
Accuracy at 25 °C	< 0.25 % (± 20 mA)
Linearity error at 25 °C	< 0.02 % (± 20 mA)
Temperature drift (0... 70 °C)	< 200 ppm/K

Supply voltage input 24 V DC (U _E)	
Input voltage range	24 V DC (+/- 20%)
Current consumption	60 mA

Current consumption for power supplied via WRB bus	
5 V DC	25 mA
15 V DC	--
18 V DC	--
24 V DC	--

Signaling by LEDs	
ERR (red)	Common fault information for the module

Mechanical layout	
Dimensions	35 mm x 98 mm x 117 mm (Width x Height x Depth)
Housing type	Plastic housing (V-0), IP20, RAL 7035 light gray
Mounting	DIN rail mounting EN 50022 TS35: 35 mm x 15 mm or 35 mm x 7.5 mm

Mechanical layout	
Weight	0.13 kg

Connection type	
Process connector	2 x 2 pole 5.08 mm pluggable screw terminals (included in delivery) 0.2... 2.5 mm ² / AWG 24 - AWG 12
Power supply input	1 x 2 pole 5.08 mm pluggable screw terminals (included in delivery) 0.2... 2.5 mm ² / AWG 24 - AWG 12

Insulation tests	
AC test voltage IEC 61000-4-16 IEC 60870-2-1 (class VW3)	2.5 kV, 50 Hz Test duration: 1 min
Impulse voltage withstand test IEC 60255-5 IEC 60870-2-1 (class VW 3)	5 kV (1.2 / 50 µs)
Insulation resistance IEC 60255-5	> 100 MΩ at 500 V DC

Immunity test	
Electrostatic discharge IEC 61000-4-2	8 kV air (level 3) / 4 kV contact (level 2) Performance criteria A
Radiated Radio-Frequency Electromagnetic Field IEC 61000-4-3	10 V/m (level 3) Performance criteria A
Electrical Fast Transient / Burst IEC 61000-4-4	4 kV (level X) Performance criteria A
Surge IEC 61000-4-5	2 kV (level 3) Performance criteria A
Conducted Disturbances, induced by Radio-Frequency Fields IEC 61000-4-6	10 V (level 3) Performance criteria A
Damped oscillatory wave IEC 61000-4-18	2.5 / 1 kV (level 3) Performance criteria A

Environmental conditions	
Nominal operating temperature range:	-25 ... +70 °C
Start up:	-40 °C
Max. operating temperature, max. 96h: EN 60068-2-1, -2-2, -2-14	+85 °C
Relative humidity EN 60068-2-30	5 ... 95 % (non condensing)

Ordering information	
520AOD01 R0001	1KGT024500R0001



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