Analog Output 23AA21

Application

Via the analog output board 23AA21, analog control outputs for sequential or closed loop control, display instruments, measurand recorders etc. can be connected to the RTU560. The 23AA21 board has 2 isolated output channels which can be configured to different output current ranges. The output format, unipolar or bipolar resp. Live-Zero (4...20 mA), can be set by software parameters.

The following output current ranges can be configured independently per channel via plug-in jumpers:

- ± 2,5mA
- ± 5 mA
- ± 10 mA
- ± 20 mA (4...20 mA)

Characteristics

Each output has a digital to analog converter (DAC) which converts the digital value present in the output memory into an analog signal. The DAC has a resolution of 11 bit plus sign. A received output value is stored until a new value is received. The output channels are set to 0% after a power up or reset of the board.

The outputs of the 23AA21 module are isolated between the channels and from the RTU560 power supply.

The micro-controller on the board carries out the interactive communication with the RTU560 system bus. All configuration data and processing parameters are loaded from the communication unit (CMU) via the RTU560 system bus.

The 23AA21 module executes a number of tests during initialization and operation. If an error occurs, the central control unit is notified. All error statuses that could affect the function of the module are displayed by a light emitting diode (ST) as a common fault signal on the front panel. A failure of the board is detected by the communication unit.

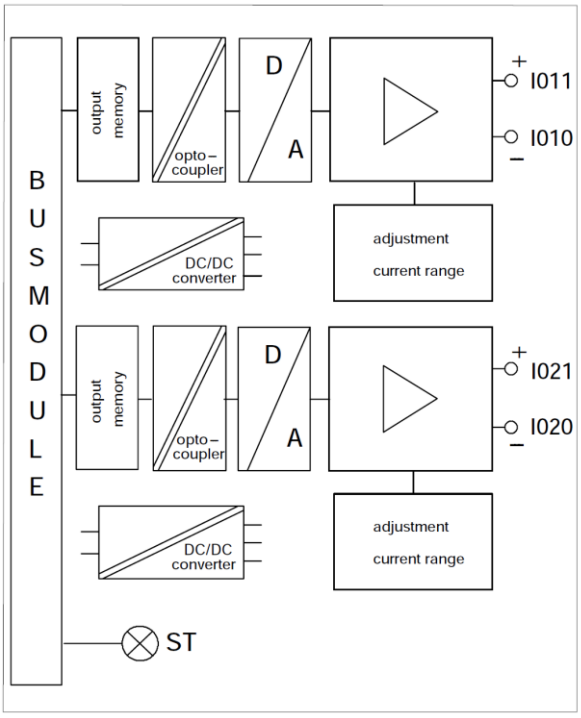

Fig. 1: Block diagram analog output board 23AA21

Technical Data

In addition to the RTU560 general technical data, the following applies:

Output Channels

Outputs:	2
Potential isolation:	from one another and against power supply
Output current:	± 2,5 mA ± 5 mA ± 10 mA ± 20 mA (4...20 mA)
Range selection:	per channel by plug-in jumpers
Load impedance:	max.1000 Ω (±2,5...±10 mA) max. 500 Ω (± 20 mA)
Resolution:	11 bit + sign
Adjustment:	2000 Digit = 100% factory-adjusted

Errors (Reference: 25 °C)

Gain error:	typ. (%)	max. (%)
± 20 mA	0,01	0,02
± 10 mA	0,01	0,01
± 5 mA / ± 2,5 mA	0,03	0,2

Offset error:	typ. (%)	max. (%)
± 20 mA / ± 5 mA	0,03	0,1
± 10 mA / ± 2,5 mA	0,06	0,2

Temperature drift: (Range: 0...70 °C)

Gain typ.	(ppm/°C)	max. (ppm/°C)
± 20 mA / ± 5 mA	100	200
± 10 mA / ± 2,5 mA	100	200
Offset		
± 20 mA / ± 5 mA	60	300
± 10 mA / ± 2,5 mA	120	600

Power Supply

Supply: 5 V / 650 mA

Mechanical Layout

Printed circuit board:	3HE, Euro-card format (160 x 100 mm)
Front panel:	4R, 1 slot (20mm)
Weight:	approx. 0.3 kg

Connection Type

Connector:	indirect, 48 pole Type F DIN 41612

Test Voltages

AC test voltage:	2,5 kV, 50 Hz / VDE 804 safety electrical isolation
Impulse voltage withstand test:	5 kV (1.2/50) IEC 255-4 (class III)

Electromagnetic Compatibility

Electrical fast transient test:	2 kV IEC 801-4 (class 4)
High frequency disturbance test:	1 / 2.5 kV (1MHz) IEC 255-4 (class III)

Environmental Conditions

Temperature:	-25 ... 70 °C
Relative humidity:	5 ... 95% (non condensing)

Ordering Information

23AA21	1KGT 020 700