Analog Output 23AO60

Application

Analogue control outputs for sequential or closed-loop control, display instruments, measurement recorders etc. can be connected by the analogue output board 23AO60. The board 23AO60 has two output channels, which can be configured to different output voltage/current ranges. The output format unipolar, bipolar or live zero (4 … 20 mA) will be configured by software parameter.

The following output ranges can be configured by onboard switches:

- ± 2.5 mA ± 1.25 V DC
- ± 5.0 mA ± 2.50 V DC
- ± 10 mA ± 5.0 V DC
- ± 20 mA ± 10 V DC
- 4 … 20 mA

Characteristics

Each output has a digital to analogue converter (DAC), which converts the digital value into an analogue 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 up or reset of the board.

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

The micro-controller on the board processes all time-critical tasks of the parameterized processing functions. Moreover it carries out the interactive communication with the system bus. All configuration data and processing parameters are loaded from the communication unit (CMU) via the system bus.

During initialization and operation the board 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 board are displayed as common fault signal with a red light emitting diode (LED). A failure of the board is detected by the communication unit.

Fig. 1: Block diagram
Analogue output board 23AO60

The board is equipped with a serial interface to the RTU system bus (Wired OR-Bus). While using the analogue output board in an RTU560 rack configuration, it is necessary to connect one I/O adaptor board 23AD64 to the first analogue output board 23AO60.
Technical Data

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

Output Channels

| Outputs | 2 analogue channels  
2 binary channels (strobe) |
| Output Ranges (analogue) | ± 2.5 mA ± 1.25 V DC  
± 5.0 mA ± 2.50 V DC  
± 10 mA ± 5.0 V DC  
± 20 mA ± 10 V DC |
| Strobe Output | max. 110 V DC  
max. 150 mA |

Resolution

| D/A Converter | 11 bit plus sign |
| Accuracy | ± 20mA (0.25 %) |

Current Consumption

| 5 Volt | 25 mA |
| 15 Volt | - |
| 18 Volt (internal) | 100 mA |
| 18 Volt (external) | 1.8 W |
| 9 … 36 V DC | - |
| 24 Volt | - |

Mechanical Layout

| Length | 105.0 mm |
| Width | 107.5 mm |
| Height | 20.0 mm |

Connection Type

| Process Connector | Removable Screw Terminals |

Immunity Test

| Electrostatic Discharge Immunity Test  
IEC 61000-4-2 (level 3) | 4 kV Contact  
8 kV Air |
| Radiated Radio-Frequency Electromagnetic Field Immunity Test  
IEC 61000-4-3 (level 3) | 10 V/m |
| Immunity to Electrical Fast Transient / Burst  
IEC 61000-4-4 (level 3) | 1 kV |
| Immunity to Conducted Disturbances, induced by Radio-Frequency Fields  
IEC 61000-4-6 (level 3) | 10 V |

Environmental conditions

| Temperature | -20 ... +70 °C |
| Relative Humidity | 5 ... 95 %  
(non condensing) |

Ordering Information

| 23AO60 R0001 | 1KGT 014800 R0001 |
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