Application

Via the analog output board 2AOM10, analog control outputs for sequential or closed loop control, display instruments, measured recorders etc. can be connected to the RTU513. The 2AOM10 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...20mA), 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)

Characteristic

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 2AOM10 module are isolated between the channels and from the RTU513 power supply.

The micro-controller on the board carries out the interactive communication with the RTU513 system bus.

All configuration data and processing parameters are loaded from the communication unit (CMU) via the RTU513 system bus. The 2AOM10 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.

Signaling

The board monitors and checks its functionality as well as the dialog via the peripheral bus. Detected errors are indicated and/or transmitted by the board:

- by the red LED"ST" on the front plate
- by diagnostic messages

The "ST" LED indicates board errors or peripheral bus errors. The "ST"-LED indicates:

- board runs initialization procedure
- board is doing a cold- or warm start
- board has detected a memory error (RAM or EPROM)
- micro controller faulty
- No dialog via the peripheral bus for at least 2minutes. The board is not polled by the PBP of CMU...

Settings

The jumper settings for channel 1 and channel 2 are described in table 1 and table 2.

Jumper	2.5 mA	5 mA	10 mA	20 mA
X50/X51				
X52/X53				
X54/X55				
X10				

Table.1: jumper configuration channel 1

Setting

Jumper	2.5 mA	5 mA	10 mA	20 mA
X60/X61				
X62/X63				
X64/X65				
X11				

Table.2: jumper configuration channel 2

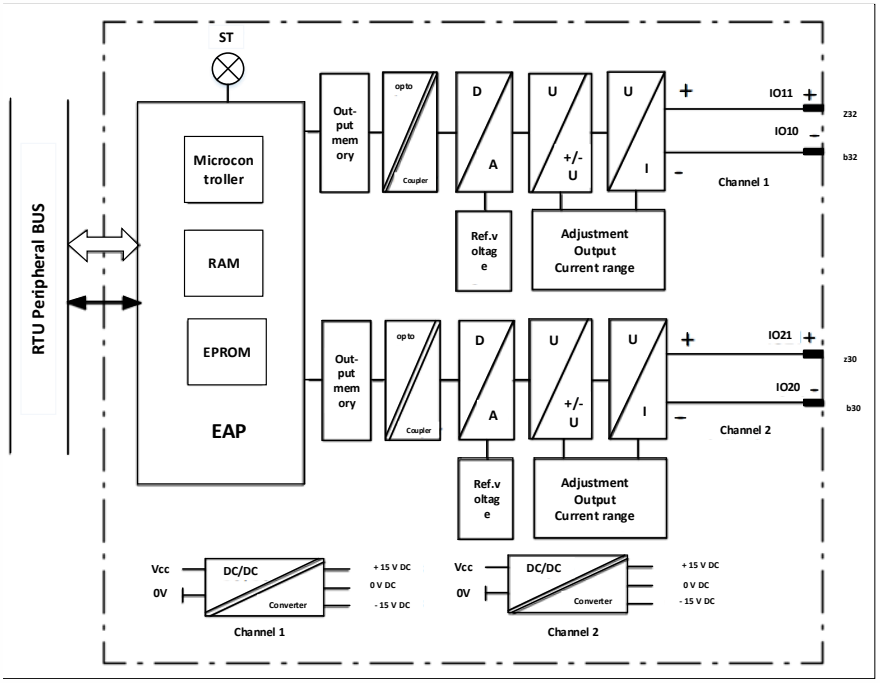

Fig.1: Function block diagram analog output 2AOM10

Setting

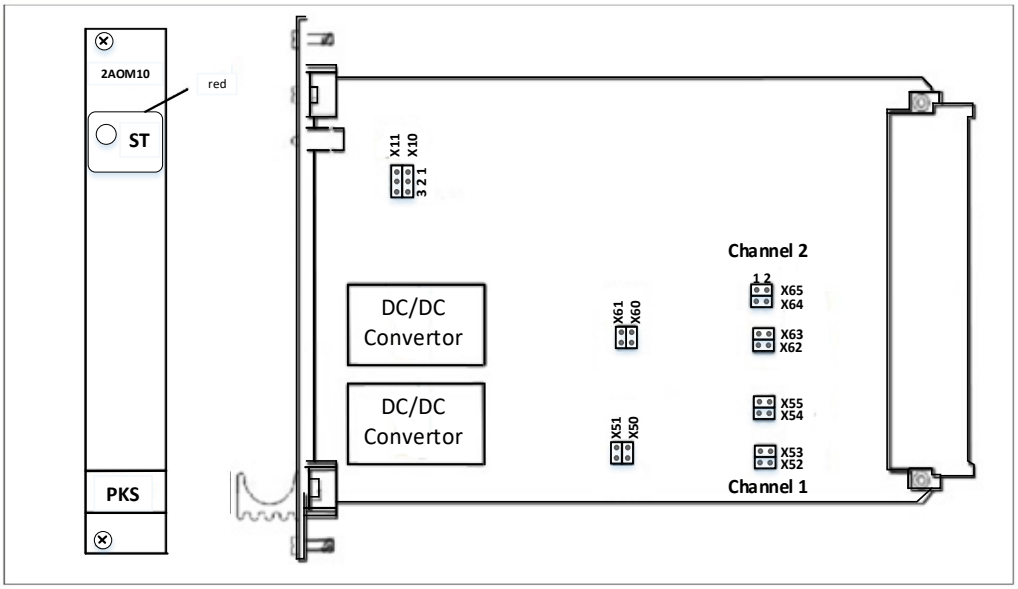

Fig.2: Board layout with setting positions

WMS10	SMS10 Sub-connector			Signal Identification	
				Identification	Meaning
1			z32	IO11 +	Output channel 1 +
2		b32		IO10 -	Output channel 1 -
3	d32				
4			z30	IO21 +	Output channel 2 +
5		b30		IO20 -	Output channel 2 -
6	d30				
7			z28		
8		b28			
9	d28				
10			z26		
11		b26			
12	d26				
13			z24		
14		b24			
15	d24				
16			z22		
17					
18		b22			
19	d22				

Table 3: Subrack terminal connection 2AOM10

Setting

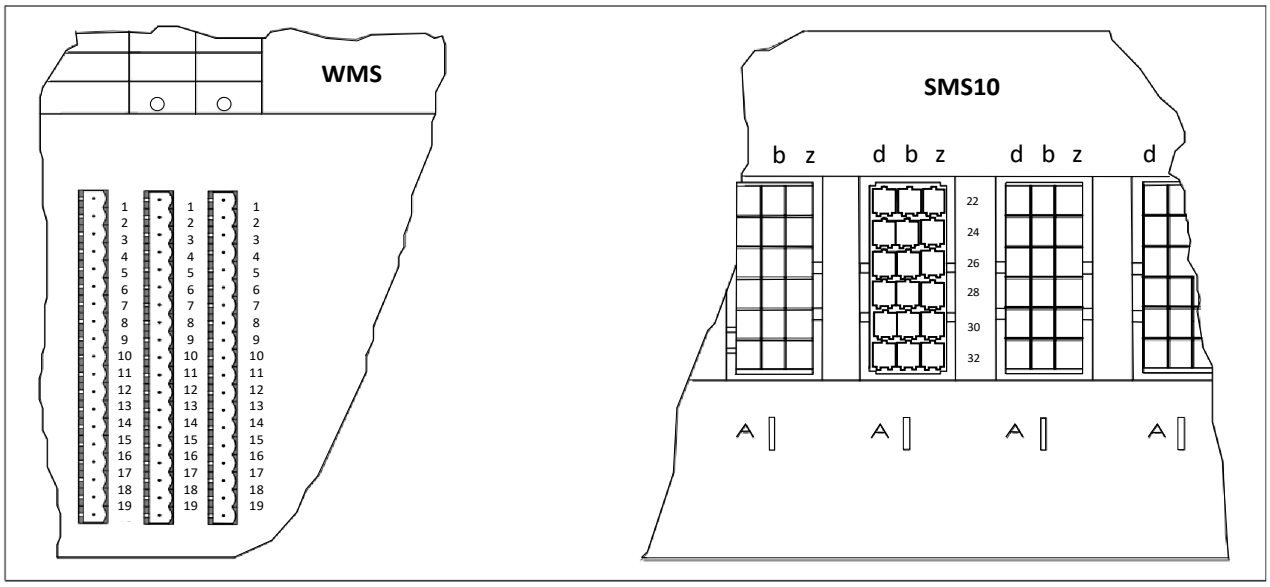

Fig. 3: Placement of signal terminal connectors on subracks

Setting

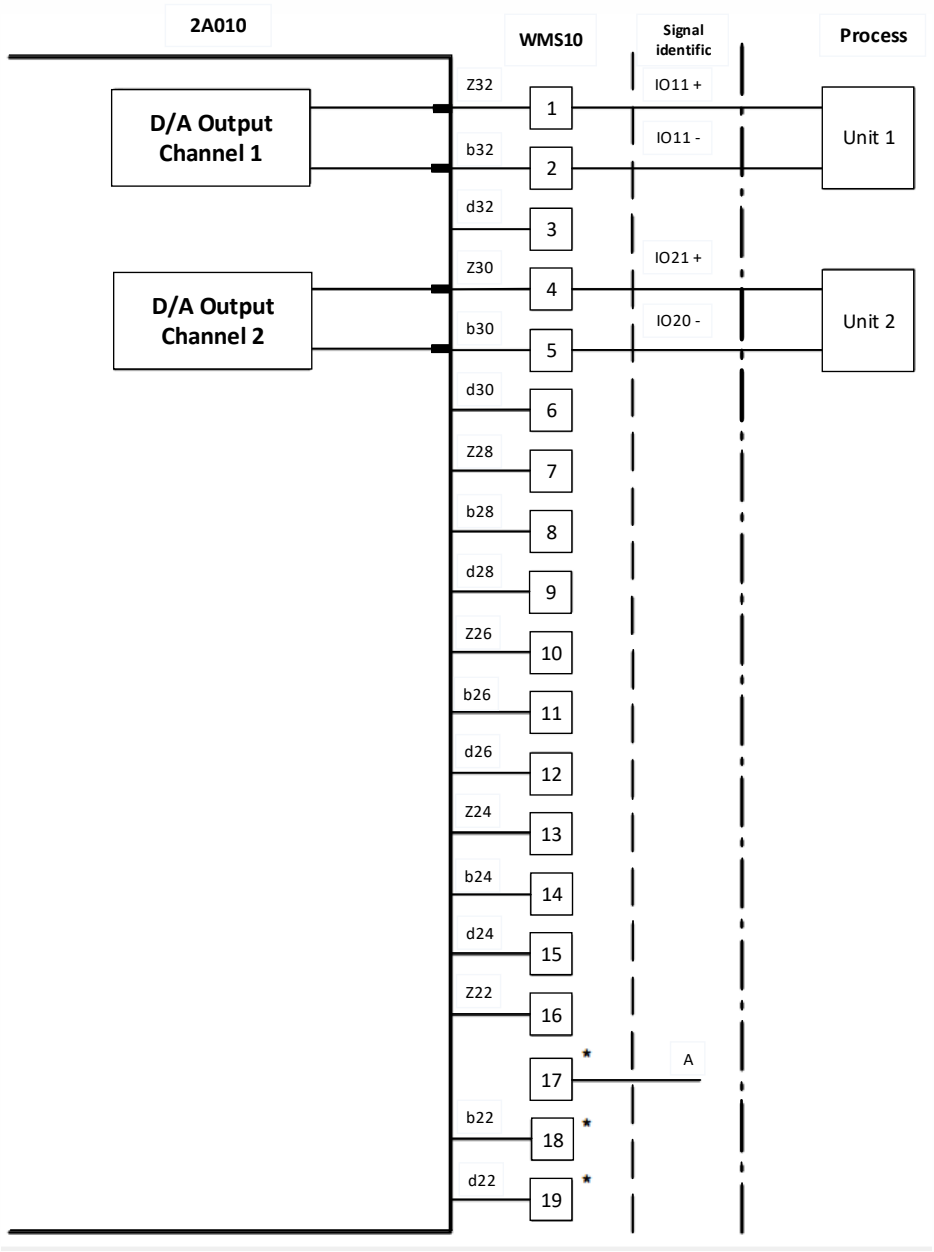

Fig. 4: Connection diagram WMS10 subrack

Technical Data

In addition to the PKS RTU 513 general technical data, the following applies:

Output Chanel

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 jumper
Load impedance	Max 1000Ω (±2.5 …±10mA) Max 500Ω (±20 mA)
Resolution adjustment	11bit + sign 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

Test voltages

Impulse voltage withstand test:	2 kV, unipolar impulses, waveform 1.2/50 µs IEC 60255-27

Electromagnetic Compatibility

Electrical fast transient test:	2 KV IEC 61000-4-4
High frequency disturbance test:	1/2.5 KV (1 MHz) IEC 61000-4-18

Connection types

Connector	Indirect, 48-pole Type F DIN 41612

Mechanical Layout

PCB	160 x 100 mm
Weight	App. 0.3 kg

Environmental conditions

Temperature	0 ... 70 ℃
Relative humidity	5 ... 95 % (non condensing)