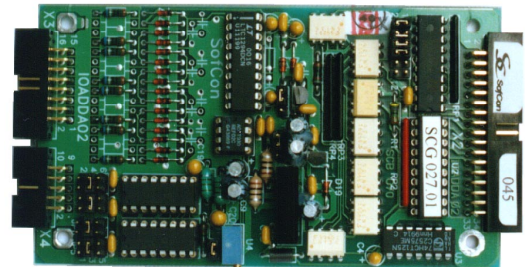


Extension Input/Output Cards
IOADDA02
Card with 8 A/D inputs (12-bit) and 4
D/A outputs (12-bit)



3.10

- 8 voltage/current analog inputs with 12-bit resolution
- 4 analog voltage outputs with 12-bit resolution
- card control and supply through IOBUS



Basic Characteristics

The IOADDA02 card contains a 12-bit approximate A/D converter, which allows the connection of 8 unipolar or 4 differential analog inputs. It also includes two double 12-bit D/A converters. The control side is galvanically separated from the analog side. The card is connected to a control unit over IOBUS.

An address decoder is implemented by a 74HC688 circuit and a GAL circuit. Analog inputs are implemented using an LTC1294 A/D converter by LINEAR TECHNOLOGY. The converter is serial with an analog MUX and controlled through IOBUS from a GAL circuit with the DOUT, DIN, CLK and SELAD signals. The sizing of 5V/10V referential voltage is selected by inserting the appropriate circuit into the socket. Each analog input is protected with an RC filter and a diode voltage limiter. The capacitor of the RC filter is not fitted. The selection of a referential voltage circuit and the settings of the JP2 and JP3 jumpers allow setting voltage ranges of 0 to 5V, -5V to +5V, 0 to 10V. When the card is complemented with additional resistors, its inputs can be used as current inputs with an input current of 0 to 20 mA.

The card also includes four analog outputs implemented with two double converters AD7249 from ANALOG DEVICES. The converters are serial and controlled with the DIN, CLK, RESET, SELDA1, SELDA2 signals. Jumpers JP4 and JP5 through JP8 are used to select the output voltage range of the converters. It can be set to 0 through 5V or 0 through 10V for each channel, or to -5V through +5V for all channels.

The JP1 jumpers are used to set one of the 64 available card address spaces. Without jumpers, the base address is 3F0, with all jumpers 000.

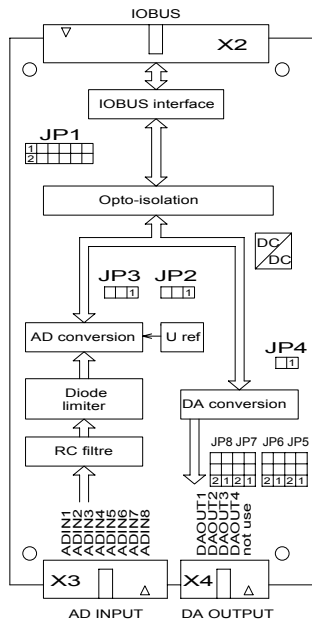
Technical Data

Analog inputs		Base address	000 to 3F0
Number	8 unipolar	Data writing/reading to	base + 0
Resolution	12-bit	converters	
Voltage range	0to5V,0to10V,-5to+5V	Selection of AD converter	base + 1
Current range	0 to 20 mA	Selection of AD converter 1	base + 2
Connector	16-pin	Selection of AD converter 2	base + 3
Analog outputs		Location	KITV40 set
Number	4	Power supply	through IOBUS
Resolution	12-bit	Working temperature	0 to +70 °C
Voltage range	0to5V,0to10V,-5to+5V	Storage temperature	-10 to +80 °C
Connector	10-pin	Card dimensions	122 x 68 x 10 mm
Connection to processor board	through IOBUS		
Electric strength of separation	500 VAC		
between control and analog part			

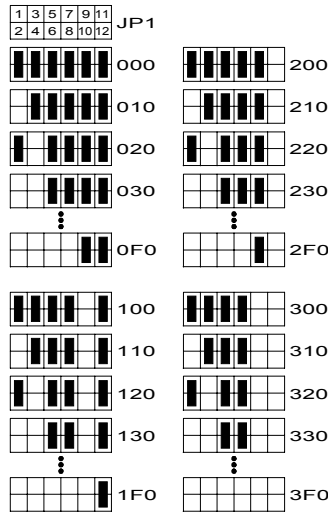
Ordering Information

The order must specify the input voltage, or the input current on inputs and the voltage on outputs. The cards are delivered with an input and output range of 0 to 5V as standard. Self-stripping PFL10, PFL16 connectors and AWG2810, AWG2816 flat cables for the connection of inputs and outputs are available upon special order.

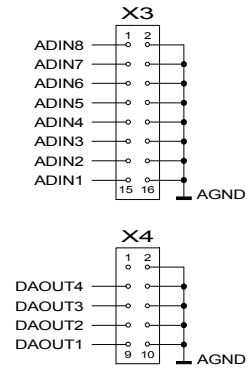
Location of connectors and wiring



Addressing by using jumpers JP1



Signals on X3 and X4 connectors



DA converters range setting

DA conversion	JP8 (DA1)	JP7 (DA2)	JP6 (DA3)	JP5 (DA4)	JP4
0 to 5V					
0 to 10V					
-5 to +5V*					

*) range -5 to +5V have to be set for all channels at the same time

AD converters range setting

AD conversion	JP3	JP2	Uref.
0 to 5V			+5V
0 to 10V			+10V
-5 to +5V			+5V

Connection of Analog Inputs and Outputs using a PX04 Adapter Board

The illustration shows a typical connection of analog inputs and analog outputs to the IOADDA02 card using a PX04 adapter board. Because the even pins of connectors X3, X4 are interconnected on the IOADDA02 card, while the odd pins of connectors X1, X3 are interconnected on the PX04 board, those connectors must be cut-in in reverse order (with crossed wires). Connector Terminal COM1/PX4 will provide ground for analog outputs and connector terminal COM2/PX4 will provide ground for analog inputs. To prevent an earth loop, the DAGND and ADGND wires leading to those connector terminals must not be interconnected further.

