

# ProfiLab Overview

The ProfiLab software is a powerful development tool for PC-based measurement and control applications. It combines features like front panel design and hardware control to one powerful tool, and can be used for circuit simulation, visualisation and presentation in many cases as well. ProfiLab comes along in three different versions and can be upgraded any time.

A useful tool for quick and reliable solutions. ProfiLab Expert is delivered with an integrated compiler, to create executable files for stand-alone applications that run on systems without having ProfiLab installed. Distribution of executable files that have been created, using the ProfiLab compiler is unlimited, so ProfiLab is a complete and professional developers system.

No matter which ProfiLab version you use, simply design your application with your PC and your project becomes alive with a single click. Incoming data is processed and controls whatever you want. There are hardly any limits in complexity of a project. The multitude of components offers unlimited possibilities. Clearly arranged controls on a perfectly styled [front panel](#) allow all necessary operations.

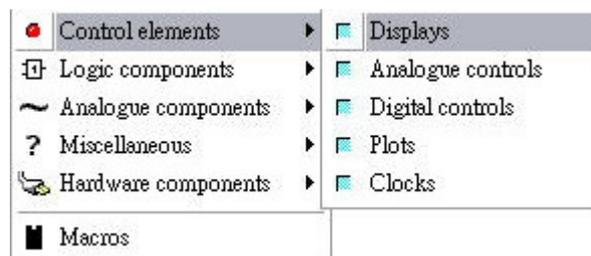
Enjoy controlling model railways, machines, home installations or other professional equipment or simply learn about the basics of logic control.

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# The Component Library

The library offers a huge number of components that can be combined to complex applications. The library is organized in groups. This chapter will give you information for each group and component.

## 1. Control Elements



Control elements appear in the circuit as well as on the front panel. Front panel elements can be seen as interface between the circuit and the user. Switches and lamps belong to this category, but also more complex elements like plotters, etc. The symbols of front panel elements have a blue-gray color in the circuit. Each circuit symbol corresponds with exactly one control element of the front panel.

Most of all front panel elements on the front panel offer a property dialog, which can be opened from the components popup menu in EDIT mode (right mouse button on the front panel), so you can influence the design, the color and other things.

Some of these elements even allow changing properties in RUN-mode. Therefore activate the option EDITABLE AT RUN-TIME in the property dialogue of the component.

Many control elements can be equipped with so called hotkeys. So it is easy to add keyboard control, or automate actions with hotkey components.

Each front panel element has a property HINT, so you can enter a short text to explain the components function. The hint is displayed when the mouse is moved over the component at run-time. Therefore the option SHOW HINTS has to enable in the property dialogue of the front panel.

## Displays

LED

Duo-LED

ROB-LED

Plastic lamp

LED bar

Luminous row

Counter

Meter

Table

Slide projector

Numeric display

Text display

HEX display

\$Display

LED display

ASCII display

7-Segment Display

Media player

## Analog Controls

Adjustor analogue (Potentiometer)

Adjustor analogue (Slider)

Numeric input

Switch 2 outputs

Push button 2 outputs

Switch 2 inputs

Push button 2 inputs

Joystick (virt.)

\$Edit

## Digital Controls

Switch

Push button

Adjustor digital (Potentiometer)

Slider (digital)

HEX selector

HEX selection

ASCII Input

Thumbwheel

Set list

## Plots

Y(t)-plotter

X/Y plotter

2-Channel-Scope

Logic analyser

Logic analyser

Pen plotter

## Clocks

Stop watch

Alarm clock

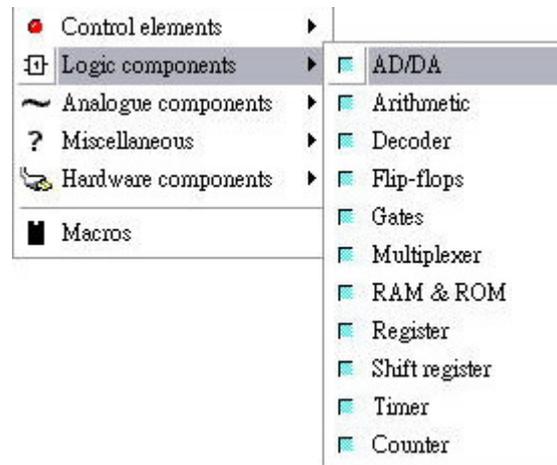
Week timer

Day timer

System time

System date

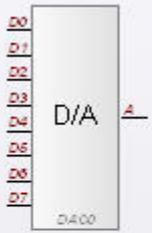
## 2. Logic Components



### AD/DA

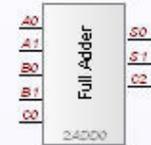


ADC



DAC

### Arithmetic



Full adder (2 bit)



Full adder (4 bit)



Full adder (8 bit)



Comparator (4 bit)



Comparator (8 bit)

### Decoder



BCD Decoder



7-Segment Decoder



Digital bus driver



Address decoder

### Flip-flops



RS-FF



RS-FF with clock



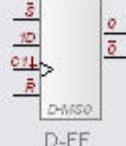
RS-FF (master-slave)



JK-FF (master-slave)



D-FF (transparent latch)



D-FF (master-slave)

### Gates



Inverter



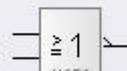
AND



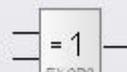
NAND



OR

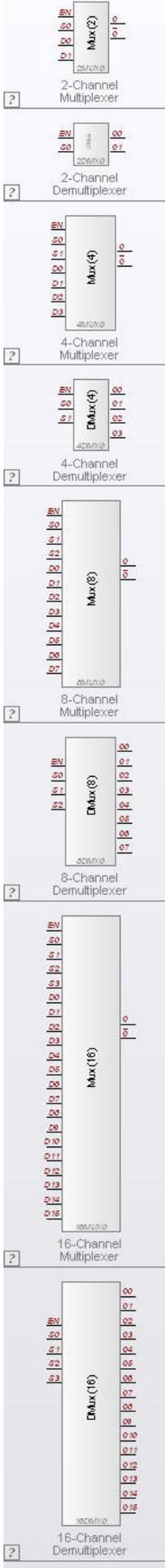


NOR

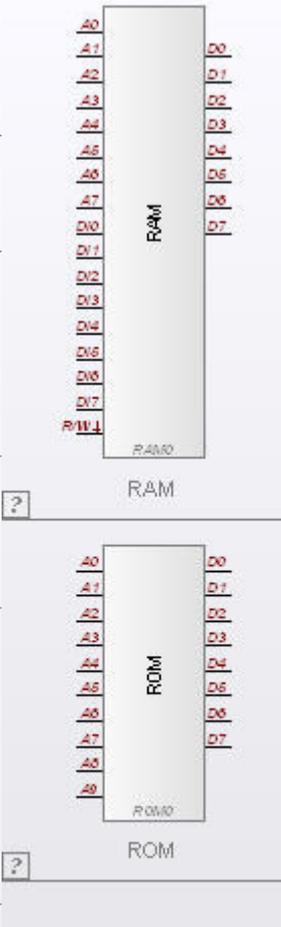


EXOR

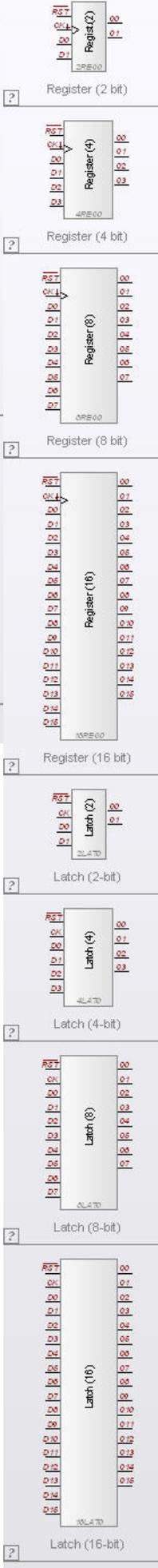
### Multiplexer



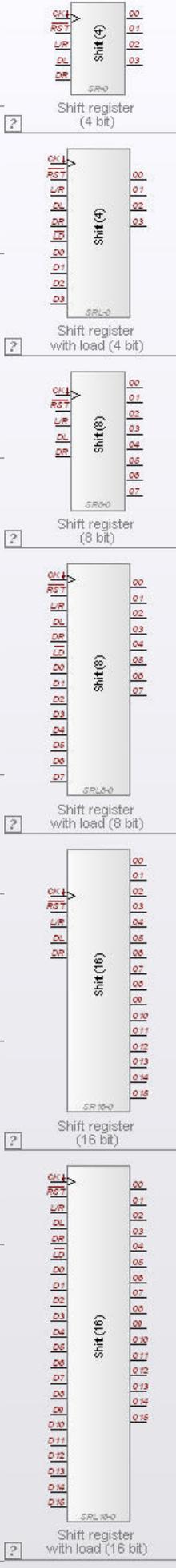
### RAM&ROM



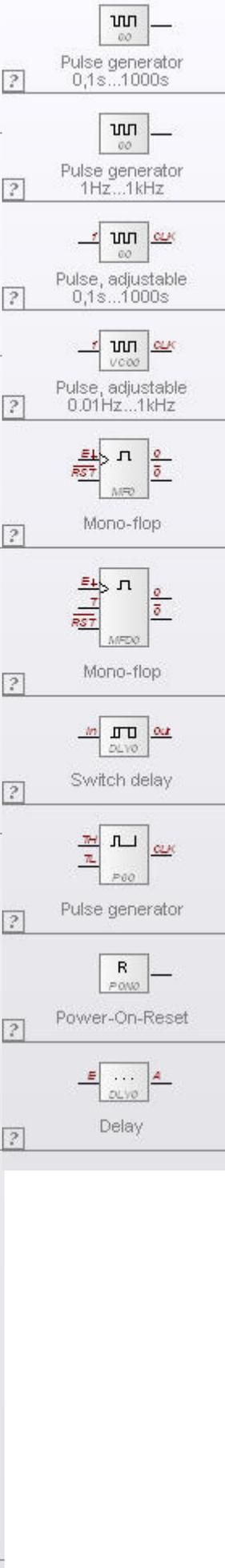
### Register



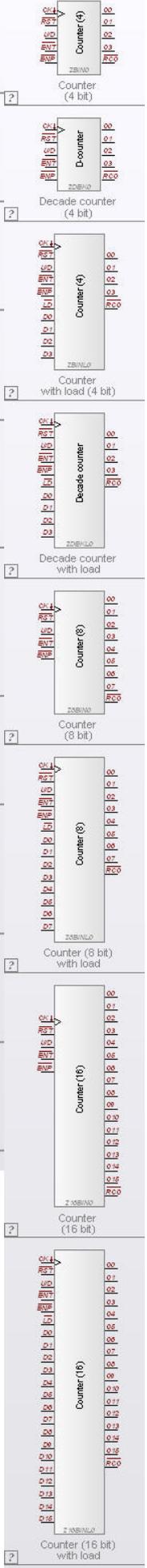
### Shift Register



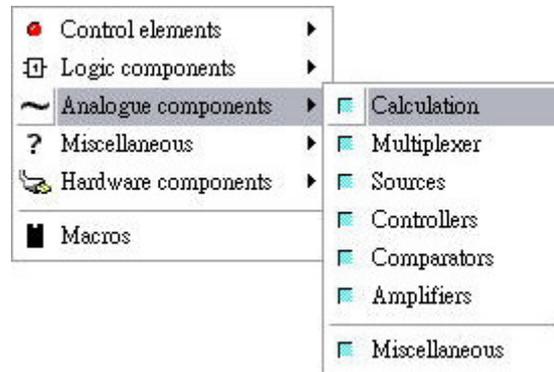
### Timer



### Counter



### 3. Analog Components



### Calculation

### Multiplexer

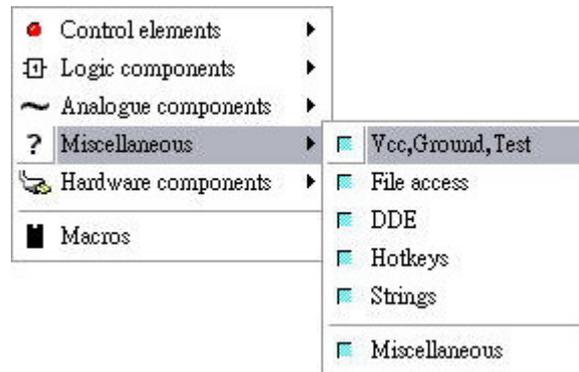
### Sources

### Controllers

### Comparators

### Miscellaneous


#### 4. Miscellaneous



Vcc, Ground, Test

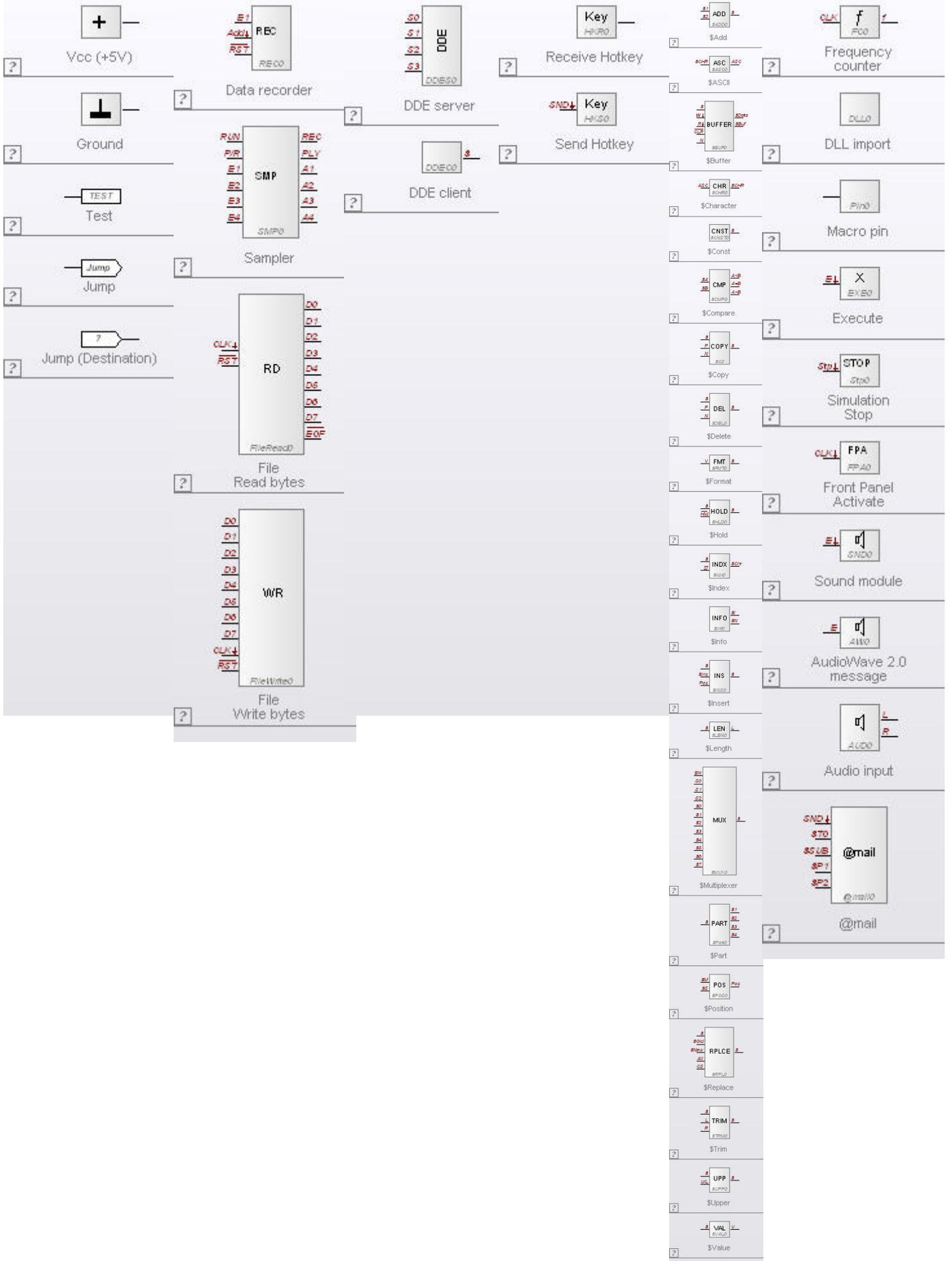
File Access

DDE

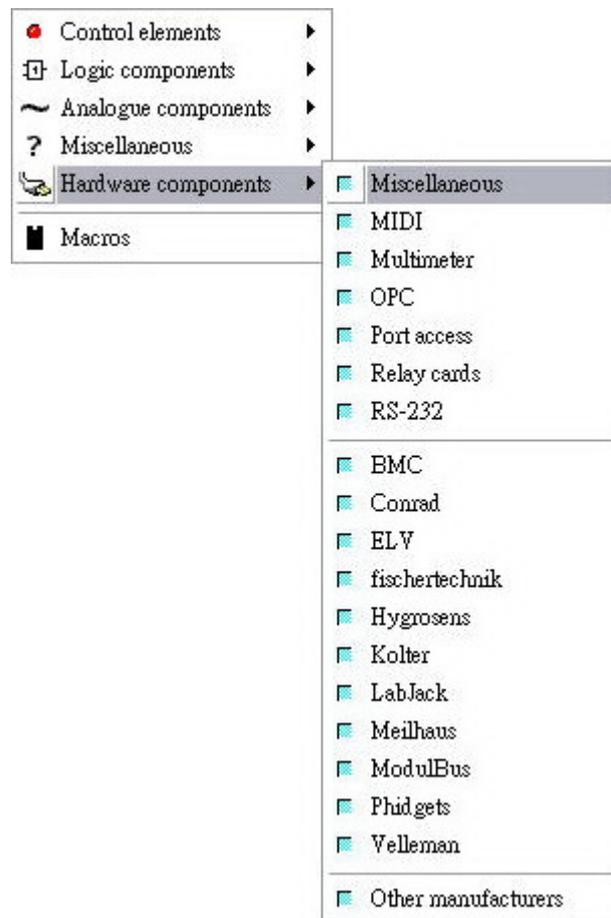
Hotkeys

Strings

Miscellaneous



## 5. Hardware Component



ProfiLab offers a large number of hardware components, and that can be used to control internal and external hardware devices.

- Analogue interfaces with AD/DA converters. Handheld meters with several ranges for voltage, current, etc., power supplies and specialized devices like weather sensors or scales are members of that family.
- Digital I/O interfaces for digital controls like indicators, switches, etc. Relay cards also belong to this group.
- Many devices offer combinations of analogue and digital functions.

Hardware components are used to interface your project with a supported hardware device. The inputs and outputs of these components depend directly on the functions of the used hardware device. Numeric values at the component inputs control the outputs of the hardware device. Values that are read from the hardware inputs are supplied via the outputs of the software component. Some components offer additional pins that control specialized internal functions of the hardware device.

## 6. Micro

Macros are circuits that are used in other circuits, where they appear as a single component. Macros often contain sub-circuits that are used more than once in the main circuit or functions which are useful for different project. Even macros may contain sub-macros (multistage), so that complex macros can be built from small sub-macros. Macros that are included in a circuit can still be modified.

Macros may contain control elements that appear on the front panel, but these control elements are not editable, while the main circuit is being edited. If front panel elements of a macro have to be modified, the macro has to be edited.

Macros appear like IC-components, so that even TTL-IC functions could be integrated to macros.