fischertechnik

NEWSLETTER

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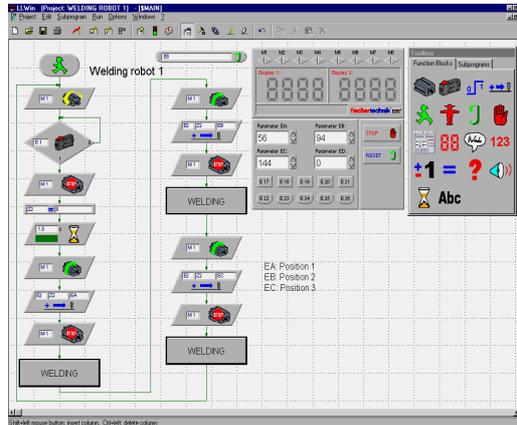- Plotter
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What's New?

Available soon will be the Computing Starter Kit (p/n 16553). This kit provides low-cost entry into the fascinating world of computerised fischertechnik models. The simple models in this kit allows super-fast construction to allow you to spend more time programming - the exercises could be easily completed in a 45 minute lesson! The eight models include; traffic light, sliding door, stamping machine, car park barrier, hand drier, heater control and welding robot.

The kit contains 1 motor and gearbox, 4 lamps, 3 micro-switches, 1 photo-transistor for building a light-barrier and a temperature sensor. It also comes with an activity booklet designed to encourage experimentation and learning. The kit may be purchased with or without the fischertechnik interface and Windows software.

Also available soon will be the Profi Cartech (p/n 30492). This revised kit will feature a new activity booklet that educates and helps kids to understand mechanical concepts such as; power transmission and vehicle drive, gear changing including reverse gears and vehicle steering arrangements. The kit is motorised requiring a 9V battery and contains over 300 parts.

Fischertechnik will also release, later in the year, the new 'Computing Bionic Robots' kit (p/n 57486) which will include a number of different walking robots. And a kit called 'Profi Eco Power' (p/n 57485) featuring re-generative power models including; solar, wind and water power!

Software

Fischertechnik has released a major upgrade of LLWin software - a flowchart style of programming language shown above. Version 3 now runs on 32 bit operating systems such as Windows 95, 98, 2000 and Windows NT.

LLWin provides the capability of Stored Function Charts (SFC) - as used in machine control applications - in a simpler flow-chart format. Of course, flow-charts are used extensively in computer programming which makes LLWin easy to understand and program. Various flow-chart blocks are available in LLWin such as; decision blocks for analogue or switch inputs (micro-switch, PE switch or magnetic switch), action blocks for control of each output (which may be a motor, lamp or electromagnet). Other blocks that are available include; reset and emergency stop blocks, numerical display and message blocks, tone generation blocks (through the PC speaker), time-delay blocks, switch transition and counter blocks and assignment, compare and increment blocks for up to 115 variables.

Other features available include; a terminal block and check-interface program that aids testing and debugging, sub-program blocks and aids such as; automatic routing of connections between blocks and the ability to add comments and graphics to the program page. Version 3 also provides the added features of; better and more colourful graphics, a 'Toolbar' for commonly used functions and 'Toolbox' for easy insertion of blocks. Templates for projects involving the 'Mobile Robots Kit' or the 'Industry Robots Kit' and the use of formulas in variable manipulation. e.g. Var1 = (Var2 + 3)/5.

LLWin version 3 is available on CD-ROM with 150 page manual in German and English. Procon Technology has also developed software that allows LLWin to be used with it's range of ABC microcontroller boards and industrial I/O boards. A full working version of LLWin (with limited i/o capability) may be downloaded free-of-charge from Procon's website at: www.procontechnology.com.au

Half-price upgrades are available to customers returning their copy of version 2.10 CD-ROM.

ABC Pneumatic...

Robot Kit (p/n 34948-3) is the latest addition to our micro-controller range of kits. The ABC maxi-board (shown here) is used as the controlling device. It provides 4 on/off outputs, 8 digital inputs and 2 analogue inputs. The maxi-board comes with an LCD display for monitoring the operation of control sequences and i/o conditions.
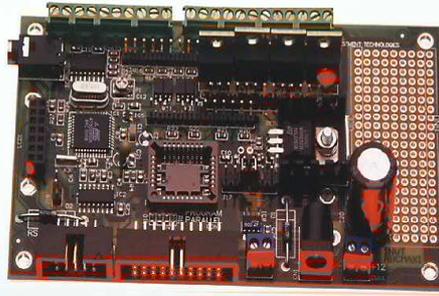
The ABC (AVR Basic Controller) maxi board uses the Atmel microcontroller AT90S8535 chip and is programmed using a compiled BASIC language. The complete software for editing, compiling and downloading ABC programs is provided with the 34948-3 kit.

The fischertechnik Pneumatic Robot Kit provides the ideal learning tool for understanding factory automation and control using programmable devices and pneumatically controlled actuators. Four simple projects can be constructed; an automatic door, sorting machine, processing centre and pneumatic gripper. Contained in the kit is an electrically operated mini-compressor and compressed air reservoir that provides the air supply to miniature cylinders activated by solenoid valves.

The ABC board may also be controlled through the serial port on the PC just like the 30402 interface allowing LLWin and numerous other languages to be used to control the models. The big advantage with the ABC board is that BASIC programs, once compiled and downloaded to the microcontroller chip, remain permanently in memory and run immediately the ABC is powered-up!

Plotter

The old fischertechnik plotter (p/n 30571) has found re-newed interest amongst schools and universities wishing to teach their students about stepper motors and use the kit for project or research work. Procon Technology is now offering to supply the plotter project made up and ready-to-run. The standard unit is capable of plottering onto A4 size paper, however larger plotting areas can be provided according to customer specifications.

The software is now available in QBASIC for the 30520 or 30402 interface units. However, this is currently being converted to VisualBASIC for Windows. Example programs are provided for plotting graphics, printing characters and generating isometric drawings. The plotter may also be converted to a scanner for illustrating the basic function of the desktop scanners commonly used with computers.

Hints & Tips

1. Using Proximity switches...

A proximity switch is one that activates without physical contact being made. For example, the reed contact (p/n 36120) operates when a magnet is brought within close 'proximity' to it! The most common type of proximity switch, used in factories, is activated by metal objects. This type of switch is often used in industrial model simulations where an object (a block of wood with a metal screw) is transported by conveyor. A 12mm diameter switch can be mounted by using a 37925 worm nut with it's internal thread drilled out with an 11mm drill. Smaller switches can be mounted using the 35973 worm nut or 35969 clamp. Our website provides connection details for various types of proximity switches to the 30402 interface. A limited number of switches are available at discount prices - see our specials webpage.

2. Pneumatic Robot tips:

a. Check that all pneumatic connections are tight and that no air leakage occurs otherwise the cylinders may not operate or will operate with reduced force.

b. Always run the compressor for 5 seconds or more before operating any cylinders. If it appears that the compressor is running out of air, check that there are no air leaks and, perhaps, operate the compressor directly from the power supply rather than controlling it from a motor output.

c. Always remove the rubber belt from the compressor if it is not going to be used for some time. Otherwise the belt may stretch and slip when the compressor is next used. Note, some slippage is normal when the compressor has built up maximum pressure in the air reservoir.

d. To ensure cylinders (especially the compressor cylinder) are able to move freely, when necessary lubricate the shaft with a small drop of acid-free oil (e.g. silicon oil).

e. To ensure that maximum pressure is available, do not operate more than one cylinder at a time and allow some recovery time between operations. i.e. increase time delays between operations.

3. Baud rates...

Did you know that it's possible to increase the baud rate used by LLWin and our Windows drivers? The baud rate is the speed at which the computer sends and receives data through the serial port (e.g. COM1 or COM2). Unfortunately the baud rate is fixed on the 30402 interface at 9600, however the ABC micro-controller boards (which can also be controlled through the serial port) can change it's baud rate - up to 56000. That's 6 times faster!

The reason for increasing the baud rate is simple - it allows you to update the outputs and scan the inputs much faster. Further details of this and other ABC tips can be found on our website.