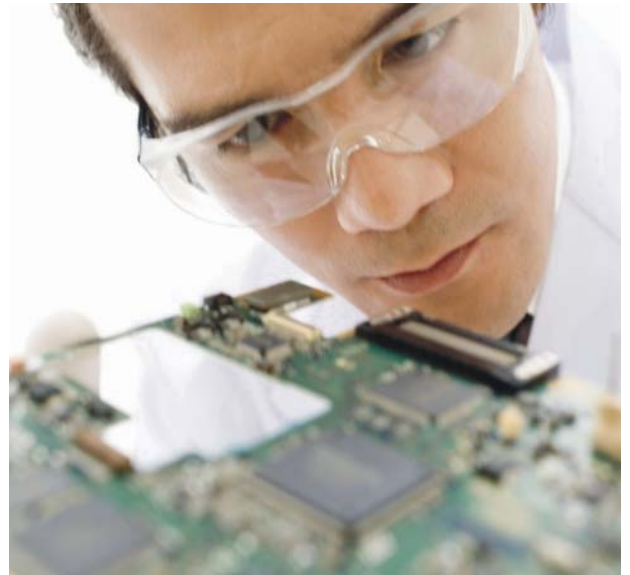


Control technology / Dialog Controller

Berghof controller solders printed circuit boards (PCB)

When processes have to be controlled electronically, as a rule a PCB is also involved. But who makes sure that the components adhere to the carrier material of the PCB? For example the CM 800 vapour phase soldering machine from IBL Löttechnik GmbH: the “steam hammer” for large throughputs, controlled by a Berghof DC1012TT Dialog Controller with a large colour display and touch screen.



The specification

IBL Löttechnik GmbH manufactures standard soldering systems and machines for its customers; these are frequently modified and customised a bit to meet customers' wishes. Therefore IBL was looking for a standard control solution, which can easily be adapted without any loss of quality and throughput of work pieces inserted for single-sided and double-sided applications. Of course, price also played a part. Ultimately IBL found what it needed at Berghof Automationstechnik GmbH with the DC1000-series Dialog Controller.

The challenge

The CM 800 is one of several IBL soldering machines. IBL Löttechnik GmbH was looking for control platform for the premium segment with cycles lasting less than 20 seconds and for average applications; it needed to be as open as possible so that it can be adapted to a variety of application options. Furthermore, the control system also had to be

able to integrate drives from a specific manufacturer, which is absolutely no trouble with the Berghof Dialog Controllers. Since all IBL machines to date have been equipped with a touch screen, it goes without saying that this should also be feasible with the new Dialog Controller. This conformed to the IBL philosophy of eliminating all additional devices besides the machine.

The solution: DC1012TT

In order to be able to display all operating states optimally, the IBL “steam hammer” was equipped with a Berghof DC1012TT (CoDeSys-SPS with touch screen and large colour display). The core of the IBL process know-how is the option for “Configuring any type of soldering profile in the vapour phase”, which had to be realised with DC1012TT; irrespective of whether it is with the heating performance mode with virtually linear temperature profiles, or with the patented Soft Vapour Phase mode with which temperature profiles can be extremely variably and reproducibly configured for a variety of re-

quirements. To this end automatic soldering was programmed into the DC1012TT, which optimised the length of time the pieces to be soldered remain in the vapour phase or rather thermal load. The production data can be saved at any time with the help of the software; the data can be migrated as required. Berghof Dialog Controllers have realtime-capable control modules and provide access to all process and machine parameters at all times; they may be remotely accessed or integrated in an overall line control system.

Christian Esterbauer, IBL Löttechnik GmbH:

Berghof was awarded the contract because of the open character of the system. Regarding the control system our priority was the ability to adapt it individually ourselves. It was also important to us to have appropriate support available for realising applications, which do not conform to the standard – or when integrating devices from different manufacturers into the system. Berghof offers us all these options.

The customer

IBL Löttechnik was founded in 1985 and for over 25 years it has focussed on the development of the vapour phase technology, production and distribution of vapour phase soldering machines and peripheral devices. IBL Löttechnik takes the lead in the development of state-of-the-art vapour phase technology and the patented Soft Vapour Phase (SVP) method it sets the standard as a reference in terms of adaptability, quality and process reliability in vapour phase technology. With numerous patents IBL emphasises its claim to be both market and technology leader in the field of vapour phase technology. IBL has its headquarters in Königsbrunn, near Augsburg. The Web address is: www.ibl-loettechnik.de.



The extensions: USB, CAN, SD-Card, Ethernet

As a standard feature the DC1012TT offers the complete selection of CANopen libraries; in this way it was no problem to integrate the CAN "plant bus" in the case of IBL. The data on the

machine can be exchanged or migrated by the maintenance personnel as fast as possible via a USB interface.

A Script file turns the USB stick into a maintenance instrument and ensures that all data can be updated with minimal effort and cost.

Furthermore, maintenance via Ethernet is also available. The SD-Card, on which all of the parameters can be kept securely, provides a lot of space for the extensive data for the process documentation.

Programming

A significant advantage for IBL Löttechnik GmbH was the fact that with Berghof it obtains every programming liberty and can access a broad range of applications without additional software.

With the aid of object-oriented programming via CoDeSys, users can develop their applications on their own, without having to commit themselves to any one manufacturer.

Here, too, the customer benefits from the adaptability of the controller to the respective application, while being fully integrated into a continuous and scalable product range. Dialog Controllers of the DC1000 series are therefore to be used in many other IBL soldering machines.

Visualisation

The DC1012TT has a 12.1" SVGA colour display (800 x 600), large enough to display complex information optimally for the service technician to read.

The normal machine operator should not be aware of the complexity of the application. He should be able to simply select the product and start the process. One convenient touch on the screen and off it goes!

The advantages at a glance

- ▶ If control, operation and visualisation are in one device > costs are kept down
- ▶ Straightforward customised enhancement to CAN, Ethernet, USB, SD-Card
- ▶ A broad range of programming options without additional software
- ▶ Simple programming of temperature profiles for defined products
- ▶ Easy for personnel to operate via the touch screen
- ▶ Large colour display with optimal visualisation of complex matters
- ▶ Maintenance made easy for service personnel using a USB stick



Illustration of the IBL Löttechnik: the C11800 vapour phase soldering machine with a Berghof DC1012TT Diaog Controller