



Industry-specific HMI

Keeping auto production in the fast lane

Automobiles have always counted among the most quality-intensive and technologically sophisticated products on the market – and the requirements of automobile production lines are equally demanding. All equipment must meld seamlessly into the production process for its entire service life.

Source: Audi



Automobile production lines have little tolerance for errors – after all, an outage of only a few minutes can be very expensive for the manufacturer. That makes it all the more astounding that the operator panels currently being used there are hardly fit to meet this requirement. Together with experts from the automotive industry, B&R has developed an innovative HMI device that offers significant improvements for day-to-day production operations.



The automobile has always been a highly technical product. Accordingly, the associated development and production processes are extremely resource-intensive. Considering the enormous cost impact of a single production outage, plant availability is a top priority. Particularly in terms of maintenance, technical systems must be efficient to service and recover quickly from any downtime.

Countless operator terminals in the field

In stark contrast to these exacting demands, what you find in the field is a continued reliance on operator stations with outdated designs. Typically, these consist



The innovative operator terminal from B&R is tailored to the demands of automobile production. It is divided into two independent units: a Panel PC and an operating element module. This allows the PC to be upgraded over the machine's service life without affecting the operating elements.

of a standard control cabinet with a built-in panel PC and below it an arrangement of buttons, lights, key switches and an E-stop. These electromechanical controls are hooked up to I/O assemblies mounted on a top-hat rail that communicate with the assigned PLC via a bus controller.

Rather than providing reliable support for the production process, these stations represent a weak link in the chain and are slow to recover from service and maintenance.

Fast startup, fast maintenance

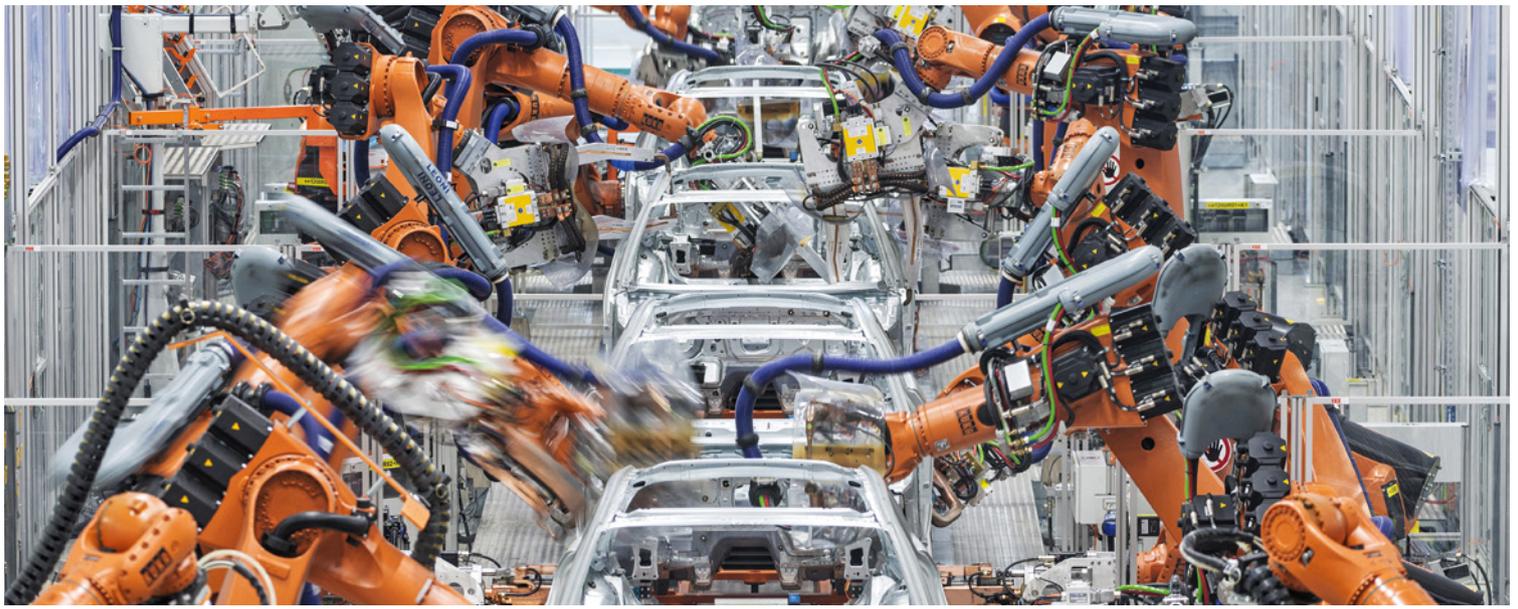
Having seen this situation time and again, B&R decided to develop an innovative new operator terminal tailored to the specific needs of automobile production. Development was aided by input from maintenance experts and the real-world experience of users. In automobile production lines, only a few minutes of down-time can rack up tens of thousands in costs, so the most important specification was that the new devices and their components be quick and easy to replace for service.

B&R took a modular approach, dividing the new operator panels into two independent units: a Panel PC and an operating element module. The Panel PC consists of a touch screen display with an industrial PC mounted on the back. The operating element module features an E-stop, key switch and B&R's illuminated ring keys. Safety functions are also integrated.

Replace devices independently

To access the display or the PC, the service technician simply opens four quick-release captive screw connectors on the front. The cables are easy to disconnect thanks to the generously dimensioned access panel on the back of the housing, the inside of which features an illustration of the wiring layout.

The strict separation of the supply voltage for the Panel PC and operating element module ensures that replacing the panel has no



The more costly the downtime, the more vital it is to ensure production availability.



Designed specifically for use under industrial production conditions, BSR's compact, fanless Panel PC 2100 is the perfect match for the HMI panel.

effect on the operating element module. Even the safety circuit from the E-stop to the safety controller remains intact. If it's the operating element module that needs to be replaced, the process is just as simple. It, too, is held in place by four quick-release connectors.

Integration of the Panel PC and operating element module into a sleek profile housing saves valuable space for the operator. With a display size of 15", for example, the outer dimensions of the entire assembly are only 442 x 511 x 86 millimeters. The swing arm flange can be installed on the top or bottom to allow for either pendant or pedestal mounting. This can easily be changed on-site at any time.

Localizable

Automobiles of a given brand are produced at various sites around

the world according to uniform standards. Production workers in each country must be able to easily understand and operate their equipment. That's why it is possible to label the BSR operator panel in the local language in addition to using customizable colors and symbols.

The user keys are identified with customizable slide-in labels protected by a transparent overlay that prevents wear.

Extended operating options

Some applications require additional functions, such as extra control elements or an RFID reader. BSR's operator panel features placeholders – hidden behind the overlay – that can be pressed out of the front panel to add two more electromechanical controls at any time. Wiring the new controls to open I/O terminals is easy thanks to the large access panel.

On the top of the device, a four-channel signal light can be mounted on either the left or right side. Room is left on the other side for the customer to add on equipment, such as a WLAN module or barcode scanner. The internal 24 VDC power supply can also be routed to the exterior.

Sustainable auto production

The service life of production equipment used in the automotive industry can vary greatly. Equipment used to construct the chassis and body has a much shorter lifecycle than the painting equipment, which can be up to ten years or longer. In this time, it is therefore not uncommon for the operator panel to require performance upgrades.

The computing power of the BSR device can be quickly boosted to meet future demands by simply switching out the industrial PC unit on the back of the display. In this way, the modular construction of BSR's solution helps automobile manufacturers operate with greater long-term sustainability. ←