Keep a closer eye on automation
HMIs and industrial PCs
PHOENIX CONTACT – in dialog with customers and partners worldwide

Phoenix Contact is a global market leader in the field of electrical engineering, electronics, and automation. Founded in 1923, the family-owned company now employs around 12,800 people worldwide. A sales network with over 50 sales subsidiaries and more than 30 additional sales partners guarantees customer proximity directly on site, anywhere in the world.

Our range of services consists of products surrounding various different electrotechnical applications. This includes numerous connection technologies for device manufacturers and machine building, components for modern control cabinets, and tailor-made solutions for many applications and industries, such as automobile production, wind energy, photovoltaics, the process industry or applications in the field of water supply, power distribution, and traffic infrastructure.

Global player with personal customer contact

Company independence is an integral part of our corporate policy. Phoenix Contact therefore relies on in-house competence and expertise in a range of contexts: the design and development departments constantly come up with innovative product ideas, developing special solutions to meet customer requirements. Numerous patents emphasize the fact that many of Phoenix Contact’s products have been developed in-house.
Keep a closer eye on automation

Today’s operating and monitoring concepts involve much more than just interfaces for interacting with machines and systems. Intelligent, networked, high-performance, and robust systems ensure that even complex control and visualization tasks can increasingly be processed in the control cabinet or on the machine directly in the field.

To this end, Phoenix Contact offers an extensive portfolio of innovative technology:

• HMI devices that come in many sizes and degrees of protection – and are just as versatile as your systems
• High-performance industrial PCs in compact, hard-wearing housings with the latest processors
• Intuitively operated software for control, visualization, and networking tasks

Whether you’re looking for an inexpensive HMI for accessing your photovoltaic system or want to network and control multiple robot cells in a production line directly on site, Phoenix Contact solutions help you keep a closer eye on automation.

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The right platform for your human/machine interaction

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Visualization as a basis for selecting an HMI

Whether in the central control room, in the production area or directly on the machine – efficient automation requires the right visualization. And visualization requirements determine which HMI device is the right one to choose. The significance of each of the various aspects (system coupling, user interface, and functionality) guides which features the visualization system should have and which HMI type should be selected.

Three aspects of a visualization system:
- The user interface aspect refers to the graphical options that should shape a user interface
- The functionality aspect refers to the operation and monitoring functions the software should offer
- The system coupling aspect refers to communication and integration in control systems
Selecting the ideal HMI for your application:

### Criteria for selecting the visualization system:

<table>
<thead>
<tr>
<th></th>
<th>PC WORX EXPRESS</th>
<th>WebVisit</th>
<th>Visu+</th>
</tr>
</thead>
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<tr>
<td><strong>Order No.</strong></td>
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<td>2700948</td>
<td>2988544</td>
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<td><strong>User interface</strong></td>
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<td>Can be edited</td>
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<td><strong>Color spectrum</strong></td>
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<td>Limited to 8 bpp (256 colors)</td>
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<td>BMP, GIF, JPG, PNG, SVG, TIF</td>
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<tr>
<td><strong>Object animation</strong></td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Functionality</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Multi-user operation</strong></td>
<td>✓ (server/client structure)</td>
<td>✓ (server/client structure)</td>
<td>✓ (web access or VGA/DVI interface)</td>
</tr>
<tr>
<td><strong>Setpoint assignment</strong></td>
<td>✓ (numerical)</td>
<td>✓ (alphanumerical)</td>
<td>✓ (alphanumerical)</td>
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<tr>
<td><strong>Alarm notification</strong></td>
<td>✓ (optical)</td>
<td>✓ (optical, audible)</td>
<td>✓ (optical, audible, SMS, e-mail)</td>
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<tr>
<td><strong>Alarm management</strong></td>
<td>–</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Online language selection</strong></td>
<td>–</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>User management</strong></td>
<td>–</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Curves</strong></td>
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<td>✓</td>
</tr>
<tr>
<td><strong>Logging/archiving</strong></td>
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<td>✓ (local)</td>
<td>✓ (local, external via SQL)</td>
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<tr>
<td><strong>Time switch</strong></td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Report generation and printing</strong></td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Recipe management</strong></td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td><strong>VBA scripts and IL logic</strong></td>
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<td>–</td>
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<tr>
<td><strong>System coupling</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connection to Phoenix Contact PLC</strong></td>
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<td><strong>Connection to third-party systems</strong></td>
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<td>–</td>
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<tr>
<td><strong>Compatible operator panels with appropriate runtime</strong></td>
<td>Minitouch</td>
<td>Web panel</td>
<td>Touch panel/industrial PC</td>
</tr>
</tbody>
</table>

### Select the visualization concept

Selection based on the following aspects:
- User interface
- Functionality
- System coupling

### Assess the scope of functions to be covered

- Basic application
- Standard application
- High-end application

### Select the right HMI

- Minitouch
- Web panel
- Touch panel
- Touch panel
- Industrial PC

### Selection based on the following aspects:

- User interface
- Functionality
- System coupling

### Basic application

- Multi-user operation
- Setpoint assignment
- Alarm notification
- Alarm management
- Online language selection
- User management
- Curves
- Logging/archiving
- Time switch
- Report generation and printing
- Recipe management
- VBA scripts and IL logic

### Standard application

- Multi-user operation
- Setpoint assignment
- Alarm notification
- Alarm management
- Online language selection
- User management
- Curves
- Logging/archiving
- Time switch
- Report generation and printing
- Recipe management
- VBA scripts and IL logic

### High-end application

- Multi-user operation
- Setpoint assignment
- Alarm notification
- Alarm management
- Online language selection
- User management
- Curves
- Logging/archiving
- Time switch
- Report generation and printing
- Recipe management
- VBA scripts and IL logic
Do you want to expand your automation solution by adding a remote operation and monitoring unit? Our comprehensive portfolio provides HMI devices for simple operating data displays right up to high-end visualizations. And in every performance class, you will benefit from our many years of automation expertise and our hallmark of quality: Made by Phoenix Contact.

**Overview of human-machine interfaces**

- **Minitouch**
  Touch display for displaying operating data in alphanumeric form.

- **Web panel**
  Touch panel capable of handling graphics; provides an entry into process visualization.

- **3000 series touch panels**
  High-quality touch panels for enhanced ease of use and more complex applications.
5000 series touch panels
High-performance touch panels with integrated SCADA runtime for graphics-intensive applications.
HMI for basic applications: inexpensive and practical

Keep an eye on your application at all times and intervene in processes if required. Using HMI devices from Phoenix Contact, you can design cost-effective solutions for operation and monitoring.

For example, the Minitouch is extremely compact and ideal for cost-sensitive applications where information needs to be displayed in alphanumeric format.

Web panels from Phoenix Contact can also perform graphical visualization tasks. Using the WebVisit software, you can create customized user interfaces for this purpose. With display sizes ranging from 4 to 15 inches, you will find the right solution for every system.

Your advantages with the Minitouch:
- Fast startup, thanks to several predefined user interfaces
- No additional software or licenses required, as the visualization is parameterized via PC WORX EXPRESS
- Easy integration into existing systems, thanks to the Ethernet interface
- Inexpensive visualization unit: compact, communicative, tailor-made for small to medium-sized applications

PC WORX EXPRESS
Compact Controller Programming

WEBVISIT
Web Visualization
WebVisit enables you to easily create user interfaces for your visualization. It also allows quick and user-friendly representation of your control variables. Monitor your system or machine via a PC using a standard browser or via a web panel using the micro browser. Remote control also poses no problem with WebVisit. The visualization is created directly via the controller's integrated web server. No additional software or runtime licenses are required.

**WebVisit – platform-independent visualization**

![WebVisit diagram](image)

**Minitouch**

**TD 1030T**  
Order No. 2701257  
- 7.1 cm (2.8") TFT touch display  
- 2-bit color depth, 4 colors can be displayed  
- 320 x 240 pixel resolution  
- LED backlighting  
- 120 MHz CPU, 512 kB Flash, 96 kB SRAM  
- 1 x Ethernet  
- RTOS and nano browser included  
- IP54 (front), IP20 (back)  
- Temperature range: 0°C to 50°C

**Web panel**

**WP 04T**  
Order No. 2913632  
**WP 06T**  
Order No. 2913645  
**WP 10T**  
Order No. 2700934  
**WP 15T**  
Order No. 2700935  
- 8.9 cm (3.5") - 37.8 cm (15")  
- TFT display, 65,535 colors  
- 320 x 240 / 800 x 600 / 1024 x 768 pixel resolution  
- LED backlighting  
- 32 MB Flash mass storage  
- RAM: 64 MB SDRAM  
- 1 x Ethernet, 2 x USB  
- Windows CE and micro browser included  
- Temperature range: 0°C to 50°C

**Widescreen web panel**

**WP 07T/WS**  
Order No. 2700307  
**WP 09T/WS**  
Order No. 2700309  
- 17.8 cm (7") - 22.9 cm (9")  
- TFT display, 65,535 colors  
- 800 x 480 pixel resolution  
- 32 MB Flash mass storage  
- RAM: 64 MB SDRAM  
- 1 x Ethernet, 2 x USB  
- Windows CE and micro browser included  
- Temperature range: 0°C to 50°C
HMI solutions for standard applications: multi-talented HMI solutions

Flexibility and a wide range of functions – an intelligent combination for the visualization of standard tasks. HMI solutions from Phoenix Contact can be optimally adapted to your requirements – thanks to the numerous interfaces, drivers, and display sizes, touch panels from Phoenix Contact can be perfectly integrated into your system.

In addition to their user-friendly handling and installation, the touch panels impress with their price/performance ratio: licenses are already included for the Visu+ and OPC server software.

Your advantages:
- Visu+ and AX OPC server software products for Windows CE are included in the price
- Numerous setting options for energy-efficient operation
- Robust and durable, thanks to the high-quality aluminum front
- Easy to maintain, thanks to LED backlighting
The 3000 series touch panels offer a particularly high level of flexibility: whether you want to address Phoenix Contact controllers or other PLCs, all the necessary drivers are installed. This means that you can connect your HMI to up to five controllers.

**Numerous connection options**

**TP 3000 series**

**TP 3xxx**  
Order No. 27009xx (01 - 25)

- 14.5 cm (5.7") - 30.8 cm (12")
- TFT color display, 256-step grayscale/65,535 colors
- 320 x 240 / 800 x 480 / 800 x 600 pixel resolution
- RAM: 128 MB SDRAM
- Slot for 1 CF card
- 1 x Ethernet, 2 x USB
- With MPI, PROFIBUS DP, CANopen® or RS-232 interface as an option
- Windows CE and Visu+ runtime included
- Temperature range: 0°C to 50°C

**Combine the right display sizes and interfaces for your application**

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<th>Interfaces</th>
<th>5.7” mono</th>
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<td>TP 3057T</td>
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</table>

**VISU+**  
SCADA Visualization

VISU+ RT

OPC Server

VISU+ RT

PHOENIX CONTACT 11
HMIs for high-end applications: the visualization experts

Benefit from all the possibilities offered by high-performance SCADA visualization – with the 5000 series high-performance touch panels, you can also visualize graphics-intensive user interfaces. Together with the Visu+ software, the HMIs form a strong package that enables you to implement intelligent operating concepts even in complex and networked systems.

Your advantages:
• High performance, thanks to PC platform
• Excellent price/performance ratio: unlimited runtime license for Visu+ included in the price
• High system availability, thanks to OPC with redundancy support
• PROFINET IO device according to CCB: e.g., easy IP address assignment and active connection monitoring
Discover more possibilities for operation and monitoring: multi-user operation for avoiding unnecessary paths, external data backup using SQL databases, and SMS/ e-mail notification for quick servicing are just some of the options available.

More options for tailor-made operating concepts

**TP 5000 series**

Combine the right display sizes and processors for your application

<table>
<thead>
<tr>
<th>Processors</th>
<th>12&quot;</th>
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<th>17&quot;</th>
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<td>TP 5150T 2700622</td>
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<td><strong>Intel® Celeron® M 1.01 GHz</strong></td>
<td>TP 5120C 2701719</td>
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<td>TP 5170C 2701721</td>
<td>TP 5190C On request</td>
<td>TP 520C On request</td>
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</tbody>
</table>

- 30.5 cm (12") - 43.0 cm (17")
- TFT color display, 65,535 colors
- 800 x 600 / 1024 x 768 / 1280 x 1024 pixel resolution
- RAM: 2 GB Flash and 1 GB DDR
- 2 x Ethernet, 4 x USB, 1 x RS-232
- 1 x VGA, 1 x DVI (Intel® Celeron® version)
- 2 slots for CF cards
- Windows CE and Visu+ runtime included
- 12" - 17" displays: -20°C to +55°C and 5% to 95% humidity
- 19" - 24" displays: 0°C to 50°C and 5% to 95% humidity

Central archiving in an external SQL database

Alarm generation via SMS or e-mail

Second operating station via the DVI interface

PHOENIX CONTACT 13
Today, modern industrial PCs are indispensable in industrial environments. Together with the right software, they form the heart of many automation systems. Make use of high-performance computer technology for your system and benefit from the numerous advantages offered by a robust, configurable solution for control, operation, and monitoring.

Choose devices for installation in or on the control cabinet. You can also use IPCs with all-round IP65 protection directly in your system.

**Box PCs**
Compact, highly robust industrial PCs with versatile configuration options, for installation in the control cabinet.
**Panel PCs**
Flat panel PCs for front panel installation. With a range of display sizes and touch display for entering information conveniently.

**Panel PCs in IP65**
Attractive terminal solutions with multi-touch operation, powerful processors, and all-round protection against dust and water. For use directly on the system.

**High-performance software for your industrial PCs**
- Transform your industrial PC into a controller. PC WORX RT BASIC helps you make use of your computer’s available resources and make savings in the area of hardware PLCs at the same time.
- With Portico, you can tailor your operation and monitoring solutions precisely to your needs. It enables you to distribute user interfaces to other devices or mirror them on these, and assign access rights.
Box PCs: 
the compact solution for DIN rails

1000 and 2000 series box PCs are compact, reliable, and robust. Developed for use in harsh environments, they operate reliably even in the case of extreme temperatures or vibrations. The devices can be mounted quickly on the DIN rail or also in control cabinets and machines thanks to a wall bracket. If additional visualizations are required, it is possible to connect remote monitors. For easy-maintenance and energy-saving use, all compact box PCs are based on a fanless cooling concept.

Your advantages:
• Robust: extended temperature range and shock resistance
• High system availability: fanless design suitable for industrial applications and no moving parts
• Performance suited to every application: processors up to powerful quad-core CPUs
• Versatile use: various mounting options, e.g., on the DIN rail
• Compatible: open IT standards, various interfaces and operating systems
**Box PC for extreme temperatures**

**VL BPC Mini**  
(order No. 2700773)  
(configurable)  
- Processor: Intel® Atom™  
- RAM: 1 GB DDR2 RAM  
- Mass storage: max. 32 GB CF  
- Interfaces: 1 x VGA, 6 x USB, 1 x COM (RS-232/RS-422/RS-485)  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: -40°C to +65°C

**VL BPC 1000**  
(order No. 2701290)  
(configurable)  
- Processor: Intel® Celeron® Quad-Core N2920 2.0 GHz  
- RAM: max. 4 GB DDR3 RAM  
- Mass storage: 2.5" HDD, 2.5" SSD or CFAST  
- Interfaces: 2 x COM (RS-232), 1 x COM (RS-232/RS-422/RS-485), 2 x display port, 3 x USB 2.0, 1 x USB 3.0  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**VL BPC 1001**  
(order No. 2701290)  
(configurable)  
- Processor: Intel® Atom™ N455 1.66 GHz  
- RAM: 2 GB DDR2 RAM  
- Interfaces: 1 x VGA, 4 x USB, 1 x COM (RS-232/RS-422/RS-485), 2 x COM (RS-232)  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**Box PC for the DIN rail**

**VL FPM 12**  
(order No. 2913015)  
- 30.7 cm/12” TFT display (800 x 600 pixels)  
- Interfaces: 1 x VGA, 1 x DVI, USB 2.0  
- All U versions with front USB

**VL FPM 12U**  
(order No. 2913016)  
- 30.7 cm/12” TFT display (800 x 600 pixels)  
- Interfaces: 1 x VGA, 1 x DVI, USB 2.0

**VL FPM 15**  
(order No. 2913017)  
- 37.8 cm/15” TFT display (1024 x 768 pixels)  
- Interfaces: 1 x VGA, 4 x USB, 1 x COM (RS-232/RS-422/RS-485), 2 x COM (RS-232)  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**VL FPM 15U**  
(order No. 2913018)  
- 37.8 cm/15” TFT display (1024 x 768 pixels)  
- Interfaces: 1 x VGA, 4 x USB, 1 x COM (RS-232/RS-422/RS-485), 2 x COM (RS-232)  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**VL FPM 17**  
(order No. 2913019)  
- 43.0 cm/17” TFT display (1280 x 1024 pixels)  
- Interfaces: 1 x VGA, 4 x USB, 1 x COM (RS-232/RS-422/RS-485), 2 x COM (RS-232)  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**VL FPM 17U**  
(order No. 2913020)  
- 43.0 cm/17” TFT display (1280 x 1024 pixels)  
- Interfaces: 1 x VGA, 4 x USB, 1 x COM (RS-232/RS-422/RS-485), 2 x COM (RS-232)  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**VL FPM 19U**  
(order No. 2913021)  
- 48.3 cm/19” TFT display (1280 x 1024 pixels)  
- Interfaces: 1 x VGA, 4 x USB, 1 x COM (RS-232/RS-422/RS-485), 2 x COM (RS-232)  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**Box PC with quad-core CPU**

**BL BPC 2000**  
(order No. 2701712)  
(configurable)  
- Processor: Intel® Celeron® Quad-Core N2920 2.0 GHz  
- RAM: max. 4 GB DDR3 RAM  
- Mass storage: 2.5" HDD, 2.5" SSD or CFAST  
- Interfaces: 2 x COM (RS-232), 1 x COM (RS-232/RS-422/RS-485), 2 x display port, 3 x USB 2.0, 1 x USB 3.0  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C

**BL BPC 2001**  
(order No. 2701711)  
(configurable)  
- Processor: Intel® Celeron® Quad-Core N2920 2.0 GHz  
- RAM: max. 4 GB DDR3 RAM  
- Mass storage: 2.5" HDD, 2.5" SSD or CFAST  
- Interfaces: 2 x COM (RS-232), 1 x COM (RS-232/RS-422/RS-485), 2 x display port, 3 x USB 2.0, 1 x USB 3.0  
- Slots: none  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP20  
- Temperature range: 0°C to 50°C
Box PCs: the powerful solution for the control cabinet

3000 and 7000 series box PCs are particularly impressive when it comes to sophisticated applications. They prove their worth especially in the measurement, control, and testing of process data or in distributed visualizations. This includes scalable performance thanks to various processors and versatile mounting options. You can also benefit from the user-friendly design and install the optimum platform for your machine building and systems manufacturing with these box PCs.

Your advantages:
- High system availability: fanless design suitable for industrial applications or convector fan and no moving parts
- Performance suited to every application: 3rd generation Intel® Celeron or and Core™ i processors
- Compatible: open IT standards, various interfaces and operating systems
- Easy connection of existing I/O devices, thanks to three serial interfaces

The Valueline IPCs stand out, thanks to their easy-maintenance design. Their generally fanless structure and quick access to important components, such as the replaceable hard disk, CF cards or CMOS battery, makes servicing easy for all.
**Box PC for “book” and wall mounting**

**Valueline IPC**
- Processor: Intel® Atom™ N270 1.6 GHz, Intel® Celeron® M ULV 423 1.06 GHz, Intel® Core™ 2 Duo L7400 1.5 GHz
- RAM: max. 3 GB DDR RAM
- Mass storage: 2.5” HDD, 2.5” SSD, CF
- Interfaces: 1 x COM (RS-232), 1 x DVI-D, 1 x VGA, 4 x USB, 2 x CF
- Slots: none, 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP20
- Temperature range: -20°C to +55°C

**Box PC for wall mounting**

**BL BPC 3000**
- Processor: Intel® Celeron® 1020E 2.2 GHz
- RAM: max. 16 GB DDR3 RAM
- Mass storage: 2.5” HDD, 2.5” SSD, CF
- Interfaces: 2 x COM (RS-232), 1 x COM (RS-232/RS-422/RS-485), 1 x VGA, 4 x USB 2.0
- Slots: none
- 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP20
- Temperature range: 0°C to 45°C

**Box PC with i7 CPU for wall mounting**

**BL BPC 7001**
- Processor: Intel® Core™ i7 3555LE 3.2 GHz
- RAM: max. 16 GB DDR3 RAM
- Mass storage: 2.5” HDD, 2.5” SSD, CF
- Interfaces: 2 x COM (RS-232), 1 x COM (RS-232/RS-422/RS-485), 1 x VGA, 4 x USB 2.0
- Slots: none
- 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP20
- Temperature range: 0°C to 45°C
Embedded panel PCs: space-saving and elegant

The EL 1000 series consists of configurable embedded panel PCs with widescreen displays and appealing designs. When it comes to automating simple applications in restricted spaces, they are the ideal solution: narrow, fanless, and with comprehensive functions.

Depending on your requirements, you can use Intel® Atom™ processors or – for graphics-intensive applications – processors from the AMD G series.

Your advantages:
• Compact and cost-effective solution for easy operation and visualization
• Suitable for use close to machinery – thanks to the robust and fanless design
• Save space – thanks to minimum installation depth
• Easy startup – thanks to configuration cockpit
• High-performance 3D visualization with AMD G processors

<table>
<thead>
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<th>7” panel PC</th>
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</thead>
<tbody>
<tr>
<td><strong>EL PPC7 1000</strong></td>
</tr>
<tr>
<td>(configurable)</td>
</tr>
<tr>
<td>• Display: 17.8 cm / 7” TFT display (800 x 480 pixels)</td>
</tr>
<tr>
<td>• Processor: Intel® Atom™ to AMD G series</td>
</tr>
<tr>
<td>• RAM: max. 2 GB DDR2 RAM</td>
</tr>
<tr>
<td>• Mass storage: max. 32 GB Flash SSD</td>
</tr>
<tr>
<td>• Interfaces: 1 x SDHC, 4 x USB, optional 2 x COM (RS-232 and RS-485)</td>
</tr>
<tr>
<td>• Slots: none</td>
</tr>
<tr>
<td>• 2 x Ethernet (10/100/1000 Mbit) RJ45</td>
</tr>
<tr>
<td>• Degree of protection: IP65 (front), IP20</td>
</tr>
<tr>
<td>• Temperature range: 0°C to 50°C</td>
</tr>
</tbody>
</table>
9" panel PC

**EL PPC9 1000** (configurable) Order No. 2701482
- Display: 22.9 cm / 9" TFT display (800 x 480 pixels)
- Processor: Intel® Atom™ to AMD G series
- RAM: max. 2 GB DDR2 RAM
- Mass storage: max. 32 GB Flash SSD
- Interfaces: 1 x SDHC, 4 x USB, optional 2 x COM (RS-232 and RS-485)
- Slots: none
- 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP65 (front), IP20
- Temperature range: 0°C to 50°C

12" panel PC

**EL PPC12 1000** (configurable) Order No. 2701484
- Display: 30.5 cm / 12" TFT display (1280 x 800 pixels)
- Processor: Intel® Atom™ to AMD G series
- RAM: max. 2 GB DDR2 RAM
- Mass storage: max. 32 GB Flash SSD
- Interfaces: 1 x SDHC, 4 x USB, optional 2 x COM (RS-232 and RS-485)
- Slots: none
- 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP65 (front), IP20
- Temperature range: 0°C to 50°C

15.4" panel PC

**EL PPC15 1000** (configurable) Order No. 2701485
- Display: 39.1 cm / 15.4" TFT display (1280 x 800 pixels)
- Processor: Intel® Atom™ to AMD G series
- RAM: max. 2 GB DDR2 RAM
- Mass storage: max. 32 GB Flash SSD
- Interfaces: 1 x SDHC, 4 x USB, optional 2 x COM (RS-232 and RS-485)
- Slots: none
- 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP65 (front), IP20
- Temperature range: 0°C to 50°C

Particularly durable, thanks to high-quality solid metal housing and front panels made from anodized aluminum

**Free SD card slot for additional mass storage**

**2 x Ethernet 10/100/1000 Mbps**

**4 x USB Host 2.0 full speed**

**CE**

**UL**
Panel PCs: high performance, high endurance

The Basicline panel PCs are the ideal basis for creating modern operating solutions directly in the system. As the devices are scalable in terms of performance, display size, and memory capacity, they can be adapted to optimally meet your requirements. Whether in an entirely fanless design or one with an external convection fan, Basicline panel PCs are durable, which ultimately increases the availability of your automation system.

Your advantages:
- Processor performance suited to the application: with energy-efficient Intel® Atom™, Intel® Celeron® or Intel® Core™ i7 processors (3rd generation)
- High system availability, thanks to a fanless design which is suitable for industrial applications and the absence of moving parts
- Large-scale compatibility, thanks to open IT standards
- Easy connection of existing I/O devices, thanks to three serial interfaces
• Display:
  – 30.7 cm/12” TFT display (800 x 600 pixels)
  – 37.8 cm/15” TFT display (1024 x 768 pixels)
  – 43.0 cm/17” TFT display (1280 x 1024 pixels)
• Processor: Intel® Atom™ N455 1.66 GHz (fanless)
• RAM: max. 2 GB DDR3 RAM
• Mass storage: none
• Interfaces: 2 x COM (RS-232), 1 x COM (RS-232/RS-422/RS-485), 1 x VGA, 4 x USB
• 2 x Ethernet (10/100/1000 Mbit) RJ45
• Temperature range: 0°C to 50°C
Panel PCs: multi-talented and future-oriented

Thanks to their wide range of configuration options, Valueline box PCs and panel PCs are the ideal solution for numerous fields of application. They also offer maximum availability and durability whether in a fanless format or equipped with an external convection fan. Thanks to their easy-maintenance design, all the key components can be accessed quickly and easily. This means, for example, that the hard disk or CMOS battery can be replaced without a great deal of expense if required.

Panel PC

Valueline IPC (configurable) Order No. 2913108

- Processor: Intel® Atom™ N270 1.60 GHz, Intel® Celeron® M ULV 423 1.06 GHz, Intel® Core™2 Duo L7400 1.50 GHz
- RAM: max. 3 GB DDR2 RAM
- Mass storage: 2.5” HDD, 2.5” SSD, CF
- Interfaces: 1 x COM (RS-232), 1 x DVI-D, 1 x VGA, 5 x USB, 2 x CF
- Slots: optional 2 x PCI
- 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP65 (front), IP20
- Temperature range: -20°C to 55°C

Your advantages:

- Processor performance suited to the application:
- With energy-efficient Intel® Core™ i7, Intel® Core™2 Duo or Intel® Atom™ CPU
- Different display sizes from 12 to 24 inches, in 4:3 or 16:9 format
- Can be extended, thanks to optional PCI slots
- Particularly easy to maintain, thanks to easily accessible components
- Wide field of application, thanks to numerous approvals
- Optional front USB makes startup and service easier
The basic unit of the Valueline panel PC is the narrow, fanless CPU unit. Depending on the visualization, this unit can be extended with a display in various sizes. If the panel PC also requires two free PCI slots, this can simply be specified in the configurator.
Panel PCs in IP65: your system's calling card

The panel PCs in the Designline series combine high-performance technology and an attractive design. They are narrow, feature IP65 protection and multi-touch capability, and are always close to the action as they can be installed quickly and easily directly on the machine. Thanks to their fanless and energy-efficient design, they are the ideal solution for future operating concepts in industrial systems: easy maintenance, custom configurable, and robust.

15" panel PC in IP65

<table>
<thead>
<tr>
<th>Model</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL PPC15M 1000</td>
<td>2701666</td>
</tr>
<tr>
<td>DL PPC15 1000</td>
<td>2701665</td>
</tr>
</tbody>
</table>

(configurable)

- Display: 37.9 cm/15" TFT display (1024 x 768 pixels)
- Processor: Intel® Atom™ E680T 1.6 GHz
- RAM: max. 2 GB DDR2 RAM
- Mass storage: 2.5" HDD, 2.5" SSD, CF
- 2 x Ethernet (10/100/1000 Mbit) RJ45
- Degree of protection: IP65
- Temperature range: -20°C to +55°C

Your advantages:

- Upgrade your machine or system with an attractive, modern industrial design
- Intuitive gesture control – thanks to multi-touch capability
- Save costs – no additional control cabinet required
- Ergonomic use directly on the machine – thanks to all-round IP65 protection
- Save space – just 60 mm deep
- Particularly easy to maintain, thanks to easily accessible components
**15” panel PC in IP65**  
**DL PPC15M 7000**  
Order No. 2400017  
(configurable)  
- Display: 37.9 cm/15” TFT display (1024 x 768 pixels)  
- Processor: Intel® Core™ i7 4650U 1.7 GHz  
- RAM: max. 12 GB DDR3 RAM  
- Mass storage: 2.5” HDD, 2.5” SSD, CF  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP65  
- Temperature range:  
  - 5°C to 45°C HDD  
  - 0°C to 45°C SSD

**18.5” panel PC in IP65**  
**DL PPC18.5M 7000**  
Order No. 2400015  
(configurable)  
- Display: 47.0 cm/18.5” TFT display (1366 x 768 pixels)  
- Processor: Intel® Core™ i7 4650U 1.7 GHz  
- RAM: max. 12 GB DDR3 RAM  
- Mass storage: 2.5” HDD, 2.5” SSD, CF  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP65  
- Temperature range:  
  - 5°C to 45°C HDD  
  - 0°C to 45°C SSD

**21.5” panel PC in IP65**  
**DL PPC21.5M 7000**  
Order No. 2400017  
(configurable)  
- Display: 54.6 cm/21.5” TFT display (1920 x 1080 pixels)  
- Processor: Intel® Core™ i7 4650U 1.7 GHz  
- RAM: max. 12 GB DDR3 RAM  
- Mass storage: 2.5” HDD, 2.5” SSD, CF  
- 2 x Ethernet (10/100/1000 Mbit) RJ45  
- Degree of protection: IP65  
- Temperature range:  
  - 5°C to 45°C HDD  
  - 0°C to 45°C SSD

### Mounting options

Designline IPCs can be mounted directly on the machine. This means you can use the devices as a hardware platform for a manufacturing execution system, for example. Separate housing is not required. Space can therefore be saved and the device can be installed at eye level in front of the machine. All important components can be accessed easily, which means that servicing can also be carried out later without problems.

**Convenient operation**  
The function button on the front of the device makes operation easier.

**All-round protection**  
Fast and secure cable connection, while still offering all-round IP65 protection.

**Easy to maintain**  
Protection against theft combined with easy accessibility: the removable HDD.
Software PLC: from industrial PC to controller

Industrial PCs for visualization and operation are often only utilized to a limited extent. Make use of these available resources and also transform your industrial PC into a fully-fledged PLC.

PC WORX SRT only makes low demands on the PC hardware profile and can therefore be installed on almost all Windows PCs – making it ideal for small applications.

PC WORX RT BASIC offers the high performance expected from a conventional PLC and is suitable for sophisticated tasks.

Your advantages with the RT BASIC software PLC:
- Crash-proof operating system
- Optimum connection, thanks to integrated web server and support for all common IT standards
- AX OPC server support
- Programming, visualization, and control can be performed on the same hardware
- Programming with PC Worx
- Easy communication via PROFINET or Modbus using the PC’s Ethernet interface

Machine building and systems manufacturing: the industrial PC as the central unit of the system

The industrial PC is transformed into the central control unit, operator interface, and visualization unit of your system. As the separate controller hardware is no longer required, wiring effort and control cabinet volumes are significantly reduced. PC WORX RT BASIC therefore offers a cost-optimized turn-key solution.
Installation transforms the IPC into a controller

The installation of the PC WORX RT BASIC software PLC transforms the industrial PC into a fully-fledged controller in just a few minutes. An INtime realtime extension is added to the standard operating system, such as Windows XP or Windows 7. The actual software PLC then operates in this realtime environment. The extension shields the control application from the Windows world in such a way that the integrity and the deterministic behavior of the software PLC are ensured.

With a multi-core processor, one processor core is used exclusively for the software PLC. This offers additional protection for the control application. Additional hardware, such as Ethernet controllers and part of the RAM, is also exclusively available to the PLC.

During the installation of PC WORX RT BASIC, an additional virtual Ethernet interface is created. This establishes an internal connection between Windows and the PLC that can be used to exchange data via TCP/IP and OPC.

The software PLC supports the tried-and-tested INTERBUS system and Ethernet-based PROFINET IO and Modbus/TCP. INTERBUS devices are connected by means of an INTERBUS PCI card installed in the industrial PC. PC WORX RT BASIC uses a standard Ethernet interface of the IPC to communicate with the installed I/O modules via PROFINET.
Portico: 
the software for multi-user operation

Optimally tailor your operating concept to the requirements of your system. With the Portico software, you can install up to 16 thin clients exactly where you need them. If multiple employees based in various locations need to access the machine, you can design individual solutions in this way.

Thanks to the unique assignment of access rights, your system is also protected against unauthorized access.

Your advantages:
- Individual operation and monitoring concepts with up to 16 clients
- Simultaneous display of IPC screen information at several operating stations without server operating system
- Inexpensive – thanks to the use of thin clients
- Configuration tool for convenient management of access rights
- Fast screen and input response, thanks to communication via TCP/IP network protocol
- Low memory usage by server and client
Flexible and inexpensive

Portico offers an inexpensive way of creating operating concepts featuring multi-user operation, no matter the distances that are involved.

Easy assignment of rights

A configuration tool enables you to easily manage access rights, thereby preventing simultaneous operation. The access right can be requested on each connected workstation. Just one station receives the access right. Input is blocked at all other stations and this is indicated accordingly.
HMIs and industrial PCs for outdoor applications

Outdoor HMIs and industrial PCs are designed for permanent exposure to weather influences. Thanks to the IP67-protected front and extended temperature range, these devices can be used in charging stations or other outdoor applications such as wastewater treatment plants, for example. In addition, you can benefit from displays that are easy to read even in direct sunlight. A high level of resistance to chemicals and UV increase the service life of the HMIs and industrial PCs.

Your advantages:
• Ideal for outdoor applications: display readable in sunlight and weatherproof materials
• Resistant to UV and IR radiation as well as environmental influences such as salt spray or termites
• Resistant to chemicals, e.g., aggressive cleaning agents, deicer for airplanes
• Easy to use: even when wearing work gloves
• Use in extreme environments: extended temperature range of -20°C to 70°C
Outdoor web panel

WP 06T/WT  Order No. 2400163
WP 07T/WT  Order No. 2400164
• 14.5 cm (5.7") - 17.8 cm (7")
• TFT display, 65,535 colors
• 320 x 240/800 x 480 pixel resolution
• Mass storage: 64 MB Flash
• RAM: 128 MB SDRAM
• 1 x Ethernet RJ45, 2 x USB
• Windows CE and micro browser included
• Degree of protection: IP67/IP20
• Temperature range: -20°C to 70°C

WP 07T/WT
Order No. 2400164

Outdoor panel PC

EL PPC7 1000/WT  Order No. 2400065
EL PPC12 1000/WT  Order No. 2400066
EL PPC15 1000/WT  Order No. 2400067
• 17.8 cm (7") - 38.10 cm (15")
• TFT display, 65,535 colors
• 800 x 480/1024 x 768 pixel resolution
• Processor: Intel® Atom™ E680T 1.6 GHz
• RAM: 2 GB DDR2
• Mass storage: max. 32 GB Flash SSD
• 1 x Ethernet (10/100/1000 Mbit) RJ45
• Interfaces: 1 x RS-232 and 1 x RS-485 optional, 4 x USB 2.0
• Degree of protection: IP67/IP20
• Temperature range: -20°C to 65°C

Developed for outdoor use

In practical applications, HMI and industrial PCs impress thanks to their user-friendly operation and maintenance, as well as their long runtime. This is due to the device properties which have been specifically tailored to outdoor requirements.

Whatever the environmental conditions governing your system, the IP67 front offers reliable protection at all times.

You can even use your devices in direct sunlight. The displays of the outdoor HMI and industrial PCs can be easily read at all times.

You can now perform operation and monitoring more quickly and more easily. All outdoor devices can even be operated when wearing gloves.
Service and support: we provide support over the phone and on site

Whatever the task at hand, the technological solution you are looking for to meet your objective or the products you would like to use: our specialists are always on hand no matter where you are. Our flexible service concept enables an approach on every imaginable level. What's more, our experts have extensive knowledge of the industry and technology in question. This, in combination with Phoenix Contact's wide range of products, means we always have the right solution for you.

Consultation and presentation

Our safety specialists will advise you on the entire safety lifecycle of your machine. Following a safety consultation, you will know which steps you need to take why, how, and in which sequence in order to ensure compliance with legislation.

We use on-site presentations to directly demonstrate the conformance process to your experts.

Your personal contact person will provide telephone support and, in the event of a fault, will organize immediate delivery of replacement parts or on-site service.

Special services for machine safety

**Detailed Consulting** Order No. 2700502
Consultation to clarify your specific requirements with regard to the measures required for machinery safety

**Moderation** Order No. 2700504
- Process assistance for practical on-site implementation
- Templates for verification documentation
Service

Our service teams excel thanks to their focused expertise, years of practical experience, and high degree of flexibility. Our service network is on hand to assist you during installation, startup, and operation, even in the most remote corners of the world.

Training and workshops

Thanks to intensive contact with our customers and years of on-site experience, we have developed a qualification concept whereby we can specify employee qualifications so as to meet your individual requirements. We will offer you the appropriate service depending on the project phase, target group, and prior knowledge.

Project Engineering  Order No.2850863
- Technical system concept using Visu+/
  Genesis hardware and software-based visualization software
- Support with configuring and programming your application
- Creation of function blocks

Free system hotline with 24-hour product support
In the event of an emergency, we can provide you with replacement parts outside of office hours.
+ 49 5281 9-462888

Hotline Specialist  Order No. 2733427
Personal hotline specialist for situations that need to be dealt with very quickly.

Local Service  Order No. 2710123
On-site service for:
- Installation
- Startup
- Operation

Safety Engineering  Order No. 2692089
- Assessing safety integrity
- Safety specifications for machinery
- Programming the safety controller
- Creating safe function blocks
- Verifying verification documentation
- Validating safety functions

Free safety technology hotline with 24-hour product support
In the event of an emergency, we can provide you with replacement parts outside of office hours.
+ 49 5281 9-462777

Safety Service  Order No. 2851202
On-site service for:
- Installation
- Startup
- Operation

We provide support for the following:
- PROFINET
- Industrial Ethernet
- Ethernet security
- Wireless LAN
- Bluetooth
- PC Worx
- SQL database communication
- Config+, Diag+, Visu+
- WebVisit
- INTERBUS installation and startup
- INTERBUS maintenance and diagnostics
- Individual seminars and workshops

Do you need a customized solution? We can offer you the necessary technological expertise, combined with vast experience in many industries. Our expert project management team will guide you through all the important phases of your project. Together with you, we will arrange the necessary services and handle the subtasks during the implementation phase.
Always up-to-date, always available to you. Here you'll find everything on our products, solutions and service:

phoenixcontact.net

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