



# HMIs and industrial PCs

Product overview

# Selection guide for HMIs

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.

Follow these three steps to find the optimum solution for your application.

1

## Select visualization by means of

- User interface
- Functionality
- System coupling

2

## Assess the scope of functions needed

- Basic
- Standard
- High-end

3

## Select devices

- HMIs for WebVisit
- HMIs for Microbrowser
- HMIs for Visu+
- Panel PC

## Step 1: Visualization as a basis for selecting an HMI

The requirements for user interface, functionality, and system coupling determine which visualization system is appropriate and which particular HMI type should be selected.

- The user interface aspect refers to the graphical options for designing an interface

- The functionality aspect indicates the software's operation and monitoring functions
- The system coupling aspect refers to communication and integration in control systems

Software	PC Worx	WebVisit	SpiderControl™	Visu+ Express	Visu+
<b>User interface</b>					
<b>Display of operating data</b>					
• Alphanumeric	Yes		Yes	Yes	Yes
• Simple graphic display	–		Yes	Yes	Yes
• Graphic-intensive display	–		–	Yes	Yes
• Dundas Gauges	–		–	–	Yes
Color spectrum	2 bpp (4 colors)		8 bpp (256 colors)	16 bpp (65K colors)	Unlimited (depending on hardware)
<b>Supported image formats</b>					
• GIF/JPG/PNG/SVG	–/–/–/–		Yes/yes/yes/yes	Yes/yes/yes/–	Yes/yes/yes/–
• BMP/TIF/WMF/WPF	–/–/–/–		–/–/–/–	Yes/yes/–/–	Yes/yes/yes/–
<b>Animation</b>					
• Simple object animation	–		Yes	Yes	Yes
• Polygon filling/rotation	–/–		–/–	–/–	Yes/yes
<b>Functionality</b>					
<b>Target value input</b>					
• Numeric/alphanumeric	Yes/–		Yes/yes	Yes/yes	Yes/yes
<b>Alarm management</b>					
• Visual notification	Yes		Yes	Yes	Yes
• Audible notification	–		–	Yes	Yes
• Notification via e-mail	–		–	Yes	Yes
• Notification via text message	–		–	–	Yes
User management	–		Yes	Yes	Yes
<b>Trend display</b>					
• Online (dynamic)	–		Yes	Yes	Yes
• Offline (plus historical data)	–		Yes	Yes	Yes
Online language selection	–		Yes	Yes	Yes
<b>Archiving (data logger)</b>					
• Local	–		–	Yes	Yes
• External	–		–	–	Yes
Report generation and printing	–		–	Yes	Yes
Recipe management	–		–	Yes	Yes
VBA scripts and IL logic	–		–	Yes	Yes
Time switch	–		–	Yes	Yes
Access via standard browser	–		Yes (PLC-dependent)	Max. 2	Max. 100 (license-d.)
<b>System coupling</b>					
Connection to Phoenix Contact PLC	Yes (http)	Yes (http)	Yes (http)	Yes (OPC, Modbus)	
Connection to third-party systems	–	–	Yes (http)	Yes (all established manufacturers)	
<b>Compatible devices</b>					
HMI (including a suitable runtime)	TD1030T	HMI for WebVisit	HMI for Microbrowser	HMI for Visu+	
Industrial PC	–	Panel PC with browser		–	Panel PC (plus runtime)

## Step 2: Assess the resource requirements based on the scope of the application

The user-friendliness of a device depends on the application programming. By contrast, the response and display refresh time (operating efficiency) is primarily based on the complexity of the visualization application. The operating efficiency is influenced by various factors. For example, a poor CPU performance or a low memory capacity have a negative influence on the response and display refresh time.

The following factors significantly influence the operating efficiency of an HMI. Please take these factors into consideration when selecting the HMI performance class.

Software	Recommendation			Max. HMI incl. RT	Max. PC plus RT
	Basic	Standard	High-end		
<b>Resolution of the display</b>					
Standard format (4:3)	With VGA (640 x 480 pixels)	With SVGA (800 x 600 pixels)	With XGA (1024 x 768 pixels)	Unlimited	Unlimited
Widescreen format (16:9)	With WVGA (800 x 480 pixels)	With WSVGA (1024 x 600 pixels)	With WXGA (1366 x 768 pixels)	Unlimited	Unlimited
<b>Memory required for visualization</b>					
Maximum number of pages	16	64	256	2048	8192
Maximum number of graphic elements	32	128	512	1024	8192
Maximum number of objects per page	–	32	64	64	256
Maximum number of animated objects per page	1 per page	5 per page	5 per page	Unlimited	Unlimited
<b>Variables</b>					
Maximum number of variables (tags)	256	1024	2048	4096	128000
Polling rate	1000 ms	500 ms	250 ms	Unlimited	Unlimited
<b>System coupling and communication</b>					
Maximum number of controllers	1	5	10	Unlimited	Unlimited
Max. number of drivers in parallel	1	1 plus OPC	2 plus OPC	2 plus OPC	2 plus OPC
Maximum number of controllers for each driver	1	2	5	128	128
<b>VBA scripts and IL logic (instruction list)</b>					
Maximum number of scripts	4	8	16	64	4096
Can be executed simultaneously	1	2	4	4	128
<b>Number and frequency of logs (data logging)</b>					
Maximum number of pins	4	8	16	16	64
Maximum number of data loggers	0	16	32	32	512
Scanning time	1000 ms	1000 ms	1000 ms	1000 ms	100 ms
Retention period	Dependent on memory space			365 days	9999 days
<b>Alarm management</b>					
Maximum number of alarms	128	512	1024	4096	32000
<b>User management</b>					
Maximum number of users	16	512	1024	1024	8192
Maximum number of user groups	4	16	64	64	512
<b>Report generation and printing</b>					
Textual reporting	–	Yes	Yes	Yes	Yes
Graphical reporting	–	–	Yes	Yes	Yes
<b>Events</b>					
Maximum number of event objects	16	64	128	128	512
<b>Recipe management</b>					
Max. number of recipes per project	4	8	16	16	512
Max. number of columns per recipe	8	32	128 (90 with IMDB)	128 (90 with IMDB)	1024 (127 with IMDB)
<b>Language selection</b>					
Maximum number of languages	4	16	32	32	128
<b>Access via the web browser</b>					
Max. number of concurrent accesses	–	1	2	2	64

### Step 3: Select the right device

Based on their features (CPU capacity, display resolution, and memory capacity) as well as their suitability for different applications, the individual device families can be divided into three classes: basic,

standard, and high-end applications. Select the right operator panel according to your requirements.

	Basic	Standard	High-end
Visu+		HMI for Visu+	Panel PC with appropriate runtime
SpiderControl™		HMI for Microbrowser	Panel PC with standard browser
WebVisit		HMI for WebVisit	
PC Worx	TD 1030T		

Product range			HMI for PC Worx	HMI for WebVisit	HMI for Microbrowser	HMI for Visu+
<b>Display size (4:3)</b>						
2.8"	320 x 240	QVGA	✓	✓	-	-
3.5"	320 x 240	QVGA	-	✓	(✓)	✓
5.7"	320 x 240	QVGA	-	✓	(✓)	✓
5.7"	640 x 480	VGA	-	-	✓	✓
10.5"	800 x 600	SVGA	-	✓	✓	✓
12.1"	800 x 600	SVGA	-	-	✓	✓
15.1"	1024 x 769	XGA	-	✓	✓	✓
17"	1280 x 1024	SXGA	-	-	(✓)	✓
<b>Display size (16:9)</b>						
4.3"	480 x 272	WQVGA	-	-	✓	✓
7"	800 x 480	WVGA	-	✓	✓	✓
9"	800 x 480	WVGA	-	✓	✓	✓
12"	1280 x 800	WXGA	-	-	✓	✓
15.4"	1280 x 800	WXGA	-	-	✓	✓
15.6"	1366 x 768	WXGA	-	-	(✓)	✓
18.5"	1366 x 768	WXGA	-	-	(✓)	✓
<b>Touch technology</b>						
Analog resistive polyester touchscreen			✓	✓	✓	✓
Analog resistive glass-film-glass touchscreen			-	✓	(✓)	✓
Projective capacitive touchscreen (PCAP)			-	-	(✓)	✓
<b>Interfaces</b>						
Ethernet			✓	✓	✓	✓
Dual CAN			-	-	-	(✓)
RS-232			-	-	-	✓
RS-485			-	-	-	(✓)

(✓) = project-specific possibility






## HMIs for basic applications



### Touch panels with polyester touch technology

Web panels are inexpensive operator panels for basic operation and monitoring tasks. Your advantages:

- Tailor-made for class 100 and class 1000 modular small-scale controllers
- Fast startup, thanks to Plug and Play
- TD1030T: Alphanumeric four-color display
- Web panel: full graphic color display for clear presentation

- Quick and user-friendly presentation of your control variables using the PC Worx EXPRESS and WebVisit (EXPRESS) software tools
- Easy device replacement, as the project is saved on the PLC
- Display formats in 4:3 or 16:9

Model view					
Designation	WP04T	WP06T	WP07T/WS	WP09T/WS	WP10T
Display	8.89 cm (3.5")	14.48 cm (5.7")	17.78 cm (7")	22.86 cm (9")	26.42 cm (10.4")
Colors	65,536	65,536	65,536	65,536	65,536
Resolution (W x H in pixels)	320 x 240 QVGA	320 x 240 QVGA	800 x 480 WVGA	800 x 480 WVGA	800 x 600 SVGA
Brightness (in cd/m <sup>2</sup> )	350	400	350	400	330
Reading angle (vertical/horizontal)	150°/130°	135°/150°	130°/140°	170°/170°	110°/340°
Backlight (MTTF in h)	40000	40000	40000	70000	50000
Touch technology	Polyester, analog resistive				
Processor	ARM9 CPU, 200 MHz				
Temperature range	Operation: -0°C ... +50°C, storage: -25°C ... +70°C				
Degree of protection (front/back)	IP65/IP20				
Front panel dimensions (W x H x D in mm)	120 x 90 x 5	168 x 126 x 5	203 x 147 x 5	260 x 172 x 5	295 x 220 x 5
Installation depth (in mm) including fieldbus interface	35	42	54	54	55
Mounting cutout (W x H in mm)	112 x 82	160 x 118	195 x 139	252 x 164	287 x 212
Weight (in kg)	0.43	0.69	1	1.3	1.8
Typical power consumption	7.2 W at 24 V	9.6 W at 24 V	12 W at 24 V	14.4 W at 24 V	14.4 W at 24 V
Approvals	UL/cUL				
<b>General technical data</b>					
Display type	TFT/LED (white)				
Memory	32 MB Flash, 64 MB SDRAM, 512 KB SRAM with battery backup				
Interfaces	1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0				
Operating system	MS Windows® CE 5.0				
Relative humidity	For operation and storage: 20 % to 85 %, non-condensing				
Installation type	Portrait/landscape				
Mounting type	Installation in front panel				
Power supply	24 V DC ±20 %				

<b>WP15T</b>		<b>TD1030T</b>	
			
38.10 cm (15")	7.1 cm (2.8")	65,536	4
1024 x 768 XGA	320 x 240 QVGA	480	280
135°/160°	150°/130°	50000	40000
Polyester, analog resistive			
ARM9 CPU, 200 MHz		Cortex™-M3 120 MHz	
Operation: 0°C ... +50°C, storage: -25°C ... +70°C			
IP65/IP20	IP54/IP20	400 x 329 x 5	96 x 72 x 60
60	53.5	373 x 302	92.8 x 68.7
2.3	0.165	24 W at 24 V	2.4 W at 24 V
UL, cUL			
<b>General technical data</b>			
TFT/LED (white)			
32 MB Flash, 64 MB SDRAM, 512 KB SRAM battery backup		512 kB Flash, 96 kB SRAM	
1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0		-	
MS Windows® CE 5.0		Keil RTX (RTOS)	
For operation and storage: 20 % to 85 %, non-condensing		20 % to 85 %, non-condensing	
Portrait/landscape			
Installation in front panel			
24 V DC ±20 %		24 V DC	

## Touch panels with polyester touch technology

Designation	Resolution	WebVisit	Basic model
WP04T	320 x 240	<a href="#">2913632</a>	TP35AT
WP06T	320 x 240	<a href="#">2913645</a>	TP57AT
WP07T/WS	800 x 480	<a href="#">2700307</a>	TP070ATW
WP09T/WS	800 x 480	<a href="#">2700309</a>	TP090ATW
WP10T	800 x 600	<a href="#">2700934</a>	TP105AT
WP15T	1024 x 768	<a href="#">2700935</a>	TP151AT
TD1030T	320 x 240	<a href="#">2701257</a>	-






## HMI's for standard applications

### Web panels with open browser for HTML5 applications

These touch panels are operator panels with a WebKit-based browser as the user software. This means that all web-based visualizations that support the current HTML5 web standard can be displayed. Your advantages:

- Used exclusively for operation, the browser is the only interactive interface
- Flexible, thanks to open web standard and free choice of web server and visualization software

- Independent visualization with self-programmed JavaScript applications
- Secure communication, thanks to SSL-encrypted data transmission
- No security updates for JAVA or Flash plug-ins, thanks to HTML5
- Display formats in 4:3 or 16:9

Model view					
Designation	WP 3057V	WP 3070W	WP 3090W	WP 3105S	WP 3121S
Display	14.48 (5.7")	17.78 (7")	22.9 cm (9")	26.42 (10.4")	30.73 (12.1")
Colors	262,144	262,144	262,144	262,144	262,144
Resolution (W x H in pixels)	640 x 480 VGA	800 x 480 WVGA	800 x 480 WVGA	800 x 600 SVGA	800 x 600 SVGA
Brightness (in cd/m <sup>2</sup> )	400	350	800	340	360
Reading angle (vertical/horizontal)	107°/130°	130°/140°	130°/140°	110°/140°	140°/160°
Backlight (MTTF in h)	40000	40000	40000	50000	50000
Touch technology	Polyester, analog resistive				
Processor	ARM® Cortex® -A8, 800 MHz, real-time clock (with battery backup)				
Temperature range	Operation: -0°C ... +50°C, storage: -25°C ... +70°C				
Degree of protection (front/back)	IP65/IP20				
Front panel dimensions (W x H x D in mm)	168 x 126 x 5	203 x 147 x 5	260 x 172 x 5	295 x 220 x 5	340 x 270 x 5
Installation depth (in mm) including fieldbus interface	42	42	54	54	55
Mounting cutout (W x H in mm)	160 x 118	195 x 139	164 x 252	287 x 212	313 x 243
Weight (in kg)	0.8	0.8	1.3	1.9	2.2
Typical power consumption	7.2 W at 24 V	7.2 W at 24 V	14.4 W at 24 V	12 W at 24 V	12 W at 24 V
Approvals	UL/cUL, Class1 Div2				
<b>General technical data</b>					
Display type	TFT/LED (white)				
Memory	1 GB Flash, 512 SDRAM				
Interfaces	1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot				
Operating system	Debian GNU/Linux and browser				
Relative humidity	For operation and storage: 20 % to 85 %, non-condensing				
Installation type	Portrait/landscape				
Mounting type	Installation in front panel				
Power supply	24 V DC ±20 %				



<b>WP 3120W</b>		<b>WP 3150S</b>	
30.73 (12.1")		38.1 (15")	
262,144		262,144	
1280 x 800 WXGA		1024 x 768 XGA	
320		480	
176°/176°		145°/160°	
50000		50000	
Polyester, analog resistive			
ARM® Cortex® -A8, 800 MHz, real-time clock (with battery backup)			
Operation: -0°C ... +50°C, storage: -25°C ... +70°C			
IP65/IP20			
330 x 225 x 5		400 x 329 x 5	
48		55	
322 x 217		372 x 301	
1.7		3	
16.8 W at 24 V		16.8 W at 24 V	
UL/cUL, Class1 Div2			
<b>General technical data</b>			
TFT/LED (white)			
1 GB Flash, 512 SDRAM			
1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot			
Debian GNU/Linux and browser			
For operation and storage: 20 % to 85 %, non-condensing			
Portrait/landscape			
Installation in front panel			
24 V DC ±20 %			

## Touch panels with polyester touch technology

Model	Resolution	Order number	Basic model
WP 3057V	640 x 480	2400251	TP057STV
WP 3070W	800 x 480	2400253	TP070STW
WP 3090W	800 x 480	2402634	TP090STW
WP 3105S	800 x 600	2400254	TP105STS
WP 3121S	800 x 600	2402635	TP121STS
WP 3120W	1280 x 800	2400255	TP121STM
WP 3150S	1024 x 768	2400285	TP150STX







## HMI's for standard applications

### Touch panels with polyester touch technology

Powerful touch panels for visualizing demanding applications. With the integrated Visu+ software, you can design complex operating and monitoring interfaces and benefit from flexible connection to a wide range of third-party systems. Your advantages:

- High-performance and versatile, thanks to new processor generation and integrated Visu+ visualization software

- Flexible connection by means of various drivers, including third-party systems
- Mobile system access optionally available with Visu+ mobile app
- Robust and durable, thanks to the aluminum front
- Various display sizes and image formats

Model view						
Designation	TP 3043W	TP 3057Q	TP 3057V	TP 3070W	TP 3090W	TP 3105S
Display	10.92 cm (4.3")	14.48 (5.7")	14.48 (5.7")	17.78 (7")	22.68 (9")	26.42 (10.4")
Colors	262,144	65,536	262,144	262,144	16,7 Mio.	262,144
Resolution (W x H in pixels)	480 x 272 WQVGA	320 x 240 QVGA	640 x 480 VGA	800 x 480 WVGA	800 x 480 WVGA	800 x 600 SVGA
Brightness (in cd/m <sup>2</sup> )	385	400	400	350	800	340
Reading angle (vertical/horizontal)	138°/150°	135°/150°	107°/130°	130°/140°	170°/170°	110°/140°
Backlight (MTTF in h)	40000	40000	40000	40000	70000	50000
Touch technology	Polyester, analog resistive					
Processor	ARM® Cortex® -A8, 800 MHz, real-time clock (with battery backup)					
Temperature range	Operation: -0°C ... +50°C, storage: -25°C ... +70°C					
Degree of protection (front/back)	IP65/IP20					
Front panel dimensions (W x H x D in mm)	140 x 100 x 5	203 x 147 x 5	168 x 126 x 5	203 x 147 x 5	260 x 172 x 5	295 x 220 x 5
Installation depth (in mm) including fieldbus interface	42 71	42 71	42 71	42 71	54 59	54 54
Mounting cutout (W x H in mm)	132 x 92	195 x 139	160 x 118	195 x 139	252 x 164	287 x 212
Weight (in kg)	0.55	0.9	0.9	0.8	1.3	1.9
Typical power consumption	7.2 W at 24 V	7.2 W at 24 V	9.6 W at 24 V	7.2 W at 24 V	19.2 W at 24 V	12 W at 24 V
Approvals	UL/cUL, Class1 Div2					
<b>General technical data</b>						
Display type	TFT/LED (white)					
Memory	1 GB Flash, 512 SDRAM (optional 1 MB SRAM)					
Interfaces	1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot					
Serial interfaces (optional)	1x RS-232, 1x RS422/RS-485 (electrically isolated)					
Fieldbus interfaces (optional)	2 x CAN (electrically isolated)					
Operating system	MS Windows® Embedded Compact 7					
Relative humidity	For operation and storage: 20 % to 85 %, non-condensing					
Installation type	Portrait/landscape					
Mounting type	Installation in front panel					
Power supply	24 V DC ±20 %					

TP 3121S	TP 3120W	TP 3150S	TP 3154W
30.73 (12.1")	30.73 (12.1")	38.1 (15")	39.1 (15.4")
262,144	65,535	65,535	65,535
800 x 600 SVGA	1280 x 800 WXGA	1024 x 768 XGA	1280 x 800 WXGA
360	320	480	360
140°/160°	176°/176°	145°/160°	140°/160°
50000	50000	50000	50000
Polyester, analog resistive			
ARM® Cortex® -A8, 800 MHz, real-time clock (with battery backup)			
Operation: -0°C ... +50°C, storage: -25°C ... +70°C			
IP65/IP20			
340 x 270 x 5	330 x 225 x 5	400 x 329 x 5	420 x 297 x 5
55 55	48 48	55 55	64 64
313 x 243	322 x 217	372 x 301	396 x 273
2.2	2.2	3	3.3
16.8 W at 24 V	19.2 W at 24 V	19.2 W at 24 V	21.6 W at 24 V
UL/cUL, Class1 Div2			
<b>General technical data</b>			
TFT/LED (white)			
1 GB Flash, 512 SDRAM (optional 1 MB SRAM)			
1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot			
1x RS-232, 1x RS422/RS-485 (electrically isolated)			
2 x CAN (electrically isolated)			
MS Windows® Embedded Compact 7			
For operation and storage: 20 % to 85 %, non-condensing			
Portrait/landscape			
Installation in front panel			
24 V DC ±20 %			



## Variants without additional interface

Designation	Resolution	Visu+	Basic model
TP 3043W	480 x 272	2402629	TP043STB
TP 3057Q	320 x 240	2400452	TP057STQ
TP 3057V	640 x 480	2400453	TP057STV
TP 3070W	800 x 480	2400454	TP070STW
TP 3090W	800 x 480	2402630	TP090STW
TP 3105S	800 x 600	2400455	TP105STS
TP 3120W	1280 x 800	2400456	TP121STS
TP 3121S	800 x 600	2400457	TP121STM
TP 3150S	1024 x 768	2400458	TP150STX
TP 3154W	1280 x 800	2402631	TP154STM






## HMI for standard applications

### Touch panels with PCAP touch technology

The HMIs for the visualization software Visu+ enable optimal mapping of your systems and processes. The devices have a new design and projected capacitive (PCAP) touchscreen displays with multi-touch function. Thanks to a robust surface and a diverse range of display sizes, you can plan your systems with even more flexibility. Your advantages:

- Robust and sturdy, thanks to glass front suitable for industrial use

- Integrated Visu+ visualization software
- Flexible connection by means of various drivers, including third-party systems
- Fast response and display refresh time, thanks to powerful processor
- Mobile system access optionally available with Visu+ mobile app

Model view					
Designation	TP 3070W/P	TP 3090W/P	TP 3120W/P	TP 3156W/P	TP 3185W/P
Display	17.78 cm (7")	22.86 cm (9")	30.73 cm (12.1")	39.62 cm (15.6")	47.00 cm (18.5")
Colors	16,77 Mio.	16,77 Mio.	65.535	65.536	65.536
Resolution (W x H in pixels)	800 x 480 WVGA	800 x 480 WVGA	1280 x 800 WXGA	1366 x 768 WXGA	1366 x 768 WXGA
Brightness (in cd/m <sup>2</sup> )	400	800	320	320	240
Reading angle (vertical/horizontal)	130°/140°	170°/170°	176°/176°	160°/160°	160°/170°
Backlight (MTTF in h)	40000	70000	50000	70000	50000
Touch technology	Projected capacitive (PCAP)				
Processor	ARM® Cortex® -A8, 1 GHz, real-time clock (with battery backup)				
Temperature range	Operation: -0°C ... +50°C, storage: -25°C ... +70°C				
Degree of protection (front/back)	IP65/IP20				
Front panel dimensions (W x H x D in mm)	208 x 149 x 6	271 x 179 x 6	336 x 234 x 6	436 x 278 x 6	485 x 329 x 8
Installation depth (in mm) including fieldbus interface	53 82	53 82	53 82	53 82	53 82
Mounting cutout (W x H in mm)	198 x 138	261 x 169	326 x 224	425 x 260	475 x 311
Weight (in kg)	1.3	1.8	2.7	4	5.6
Typical power consumption	9.6 W at 24 V	19.2 W at 24 V	19.2 W at 24 V	24 W at 24 V	28.8 W at 24 V
Approvals	UL/cUL, Class1 Div2				
<b>General technical data</b>					
Display type	TFT/LED (white)				
Memory	1 GB Flash, 512 SDRAM (optional 1 MB SRAM)				
Interfaces	1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot				
Serial interfaces (optional)	1x RS-232, 1x RS422/RS-485 (electrically isolated)				
Fieldbus interfaces (optional)	2 x CAN (electrically isolated)				
Operating system	MS Windows® Embedded Compact 7				
Relative humidity	For operation and storage: 20 % to 85 %, non-condensing				
Installation type	Portrait/landscape				
Mounting type	Installation in front panel				
Power supply	24 V DC ±20 %				

## Touch panels with PCAP touch technology (variants without additional interface)

Designation	Resolution	Visu+	Basic model
TP 3070W/P	800 x 480	<a href="#">2403459</a>	TP070SKW
TP 3090W/P	800 x 480	<a href="#">2403460</a>	TP090SKW
TP 3120W/P	1280 x 800	<a href="#">2403461</a>	TP121SKM
TP 3156W/P	1366 x 768	<a href="#">2403462</a>	TP156SKG
TP 3185W/P	1366 x 768	<a href="#">2403862</a>	TP185SKG

Variants with serial and fieldbus interfaces upon request.




## HMI for high-end applications

### PC-based touch panels with polyester touch technology

Powerful touch panels for visualizing demanding applications. With the integrated Visu+ software, you can design complex operating and monitoring interfaces and benefit from flexible connection to a wide range of third-party systems. Your advantages:

- Robust and sturdy, thanks to glass front suitable for industrial use
- Integrated Visu+ visualization software

- Flexible connection by means of various drivers, including third-party systems
- Fast response and display refresh time, thanks to powerful processor
- Mobile system access optionally available with Visu+ mobile app

Model view			
Designation	TP 5120S	TP 5150S	TP 5170S
Display	30.7 cm (12")	37.8 cm (15")	43.0 cm (17")
Colors	16.2 million	16.2 million	16.7 million
Resolution (W x H in pixels)	800 x 600 SVGA	1024 x 768 XGA	1280 x 1024 SXGA
Brightness (in cd/m <sup>2</sup> )	450	350	350
Reading angle (vertical/horizontal)	130°/160°	130°/140°	160°/170°
Backlight (MTTF in h)	50000		
Touch technology	Polyester, analog resistive		
Processor	Intel® Atom™ N455, 1.66 GHz, real-time clock (with battery backup)		
Temperature range	Operation: -0°C ... +50°C, storage: -40°C ... +70°C		
Degree of protection (front/back)	IP65/IP20		
Front panel dimensions (W x H x D in mm)	365 x 282 x 10	410 x 309 x 10	453 x 357 x 10
Installation depth (in mm) including fieldbus interface	45 –	48 –	56 –
Mounting cutout (W x H in mm)	334 x 253	387 x 285	424 x 330
Weight (in kg)	4.8	6.45	8.1
Typical power consumption	20.4 W at 24 V	24 W at 24 V	40.3 W at 24 V
Approvals	UL/cUL		
<b>General technical data</b>			
Display type	TFT/LED (white)		
Memory	2 GB Compact Flash, 2 GB DDR3 RAM		
Interfaces	2 x Ethernet 10/100/1000 Mbps, 4 x USB Host 2.0, 1 x VGA		
Serial interfaces (optional)	2 x COM (RS-232), 1 x COM (RS-485)		
Fieldbus interfaces (optional)	None		
Operating system	MS Windows® Embedded Compact 7		
Relative humidity	For operation and storage: 5 % to 95 %, non-condensing		
Installation type	Portrait/landscape		
Mounting type	Installation in front panel		
Power supply	24 V DC ±20 %		

## PC-based touchscreen panels

Designation	Resolution	Visu+
TP 5120S	800 x 600	2403105
TP 5150S	1024 x 768	2403106
TP 5170S	1280 x 1024	2403107

## Device accessories (may be product-specific)

Type	Order No.	Designation	Description
Connector	1847068	MC 1,5/3-STF-3,5	3-pos. MSTB 1,5/3-STF connector plug (TPxxxSTx, TPxxxSKx, TPxxxSGx)
Connector	1786844	MSTB 2,5/3-STF	3-pos. MSTB 2,5/3-STF connector plug (TPxxxXiT)
Connector	1786857	MSTB 2,5/4-STF	4-pos. MSTB 2,5/4-STF connector plug (TP 5xxxS)
Battery	2701383	HMI BATTERY	Spare battery for maintaining the real-time clock with battery backup
Mounting kit	2701384	HMI SCB MOUNTING KIT 4	4 mounting clips for fastening TP xxx devices (up to 6 mm)
Mounting kit	2701385	HMI SCB MOUNTING KIT 6	6 mounting clips for fastening TP xxx devices (up to 6 mm)
Mounting kit	2701387	HMI SCB MOUNTING KIT 8	8 mounting clips for fastening TP xxx devices (up to 6 mm)
Mounting kit	2701380	HMI WALL MOUNTING KIT	2 spring steel clips for fastening TP xxx devices (up to 6 mm)
Mounting kit	2701381	HMI WALL BOX	Mounting frame for drywall for TP070xxx devices
Protective foil set	2401516	4.3" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 4.3" touchscreen (TP043STB)
Protective foil set	2701371	5.7" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 5.7" touchscreen (TP57XIT, TP057STQ)
Protective foil set	2701371	5.7" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 5.7" touchscreen (TP057STV)
Protective foil set	2701374	7.0" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 7" touchscreen (TP70XIT, TP070STW)
Protective foil set	2701375	9.0" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 9" touchscreen (TP90XIT, TP090STW)
Protective foil set	2701376	10.0" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 10" touchscreen (TP105XIT, TP105STS)
Protective foil set	2701377	12.0" DISPLAY PROTECTIVE FOIL	10 protective films for protecting a 12" touchscreen (TP121XIT, TP121STS)
Protective foil set	(✓)	On request	10 protective foils for protecting a 12" touchscreen (TP121STM)
Protective foil set	(✓)	On request	10 protective foils for protecting a 12" touchscreen (TP 5120S)
Protective foil set	2701378	15.0" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 15" touchscreen (TP151XIT, TP150STX)
Protective foil set	(✓)	On request	10 protective foils for protecting a 15" touchscreen (TP154STM)
Protective foil set	2913165	15.0" DISPLAY PROTECTIVE FOIL	10 protective foils for protecting a 15" touchscreen (TP 5150S)
Protective foil set	(✓)	On request	10 protective foils for protecting a 17" touchscreen (TP 5170S)
Memory	2913154	VL 512 MB CF	512 MB CF card
Memory	2913155	VL 1 GB CF	1 GB CF card
Memory	2913156	VL 2 GB CF	2 GB CF card
Memory	2913157	VL 4 GB CF	4 GB CF card
Memory	2913158	VL 8 GB CF	8 GB CF card
Memory	241472	SD FLASH 512 MB	512 MB SD card
Memory	2988162	SD FLASH 2 GB	2 GB SD card
Memory	2401626	SD FLASH 4 GB	4 GB SD card
Memory	2402809	USB FLASH DRIVE	8 GB USB stick
Touch pen	2701379	TOUCH PEN	Operating stylus for devices based on polyester touch technology



## HMI services

Type	Order No.	Designation	Description
Development	2400325	HMI-IPC CUSTOMIZATION	Customer-specific delivery of the hardware and software (system as OEM product)
Development	9070583	HMI ENGINEERING SERVICE	Customer-specific development of hardware and software
Development	9070583	HMI ENGINEERING SERVICE	Customer-specific driver development
Configuration	(✓)	On request	Customer-specific project planning of HMI applications
Interface	(✓)	On request	Dual CAN interface for connection to the development environment
Software	(✓)	On request	TS.net Support Package including hardware access library
Training	9074026	TRAINING	Standard software training (location: Filderstadt, Germany)
Training	9074029	ON-SITE TRAINING	Standard software training (location: according to customer request)
Maintenance	9070515	HMI MAINTENANCE SERVICE	Service contracts for software
Webinar	9074028	ONLINE TRAINING	Online seminar with custom content
Workshop	(✓)	On request	Workshop with custom content (location: Filderstadt, Germany)
Workshop	(✓)	On request	Workshop with custom content (location: according to customer request)
Approvals	9070516	HMI CERTIFICATION SERVICE	Support for customer-specific certifications and approvals

(✓) = project-specific possibility

# Industrial PCs selection guide

Whether as a simple control station or a central processing unit in the server cabinet, industrial PCs from Phoenix Contact are available in numerous designs and with various different functions. High reliability and durability is something they all have in common. The application, performance requirements, and functionality determine which industrial PC is the right choice for you.

**1**

## **Select the application**

- For the control cabinet
- For front installation
- For the server cabinet
- For use in the field

**2**

## **Assess the performance required**

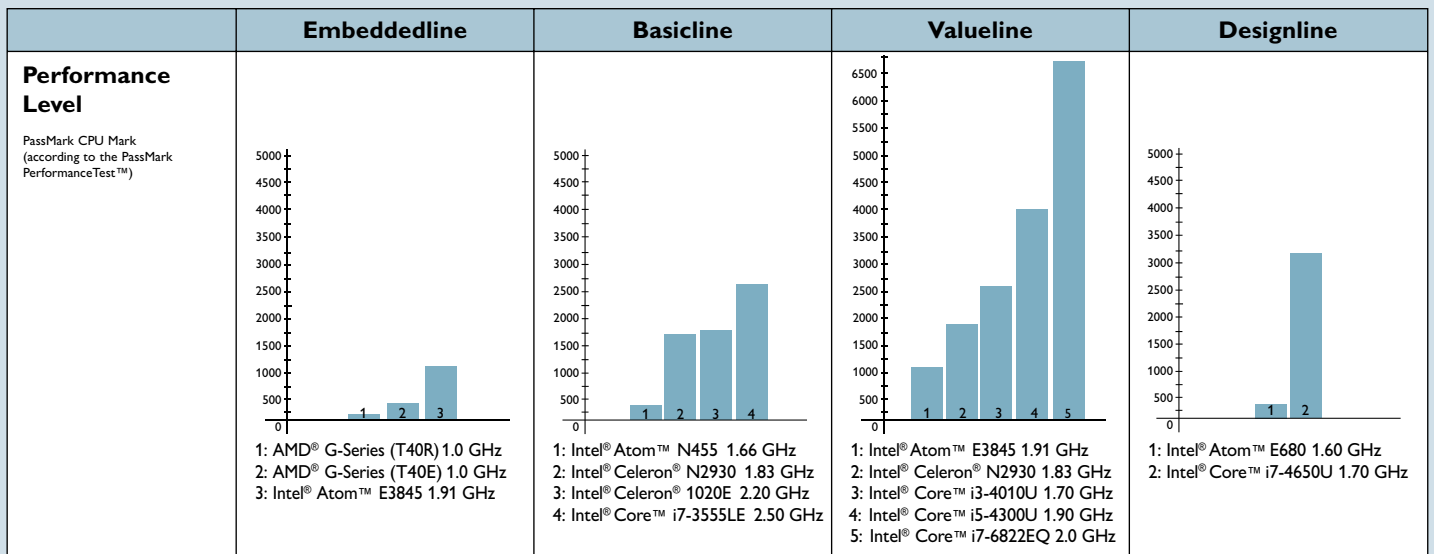
- Low
- Medium
- High

**3**

## **Select the right industrial PC**



- Embeddedline
- Basicline
- Valueline
- Designline

Product range	Embeddedline	Basicline	Valueline	Designline
<b>Application</b>				
For the control cabinet (box PCs)	–	✓	✓	–
For front installation (panel PCs)	✓	✓	✓	–
For the server cabinet (rack PCs)	–	✓	–	–
For use in the field (panel PCs in IP65)	–	–	–	✓
<b>Performance required</b>				
Low	✓	✓	✓	✓
Medium	–	✓	✓	–
High	–	✓	✓	✓
<b>Functionality</b>				
Display formats	4:3 and 16:9	4:3	4:3 and 16:9	4:3 and 16:9
Touch operation mode	Analog resistive	Analog resistive	Analog resistive/ projective capacitive	Analog resistive/ projective capacitive
5.7" to 10" displays	✓	–	✓	–
12" to 18.5" displays	✓	✓	✓	✓
> 18.5" displays	–	–	✓	✓
Cooling	Passive	Active/passive	Active/passive	Passive
Extended temperature range	–	–	✓	✓
Can be extended via slots	–	–	PCI/PCIe	–
Access to important components	Via housing cover	Via housing cover	Via service panel	Via housing cover
Approvals	UL, cUL, Class 1 Div 2	UL, cUL	UL, cUL, Class 1 Div 2, NEMA	UL, cUL






All technical data is continuously supplemented and expanded upon on our website.




## Box PCs for low performance requirements

			
Designation	<b>VL BPC 1000</b>	<b>VL2 BPC 1000</b>	
Order number	<b>2701291</b>	<b>2403046</b>	
Processor	Intel® Atom™ N455 1.66 GHz	Intel® Atom™ E3845 1.91 GHz (quad-core)	
RAM (configurable)	Max. 2 GB DDR3	Max. 4 GB DDR3	
Data memory (configurable)	CF	SD, HDD or SSD	
Number of drives	1	1	
RAID support (configurable)	–	–	
USB	4 x USB 2.0	2 x USB 2.0, 1 x USB 3.0	
Serial interfaces	1 x COM (RS-232/422/485) 2 x COM (RS-232)	1 x COM (RS-232/422/485) Options: 1 x COM (RS-232) + 1 x COM (RS-485) 2 x CAN	
Video out	1 x VGA	1 x DisplayPort	
Graphics processor	Integrated	Intel® HD Graphics	
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45	2 x (10/100/1000 Mbps), RJ45	
LAN chipset	Realtek® 8111D PCI-E	Intel® I210	
PCI/PCIe slots (configurable)	–	–	
Maximum card size (PCI/PCIe)	–	–	
Operating systems (configurable)	Windows® Embedded Standard 7 Windows® Embedded Standard 2009 Windows® 7 Professional Windows® 7 Ultimate	Windows® Embedded Standard 7 Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise	
Cooling	Passive	Passive	
Mounting type	Wall or DIN rail mounting	Wall or bookshelf mounting	
Dimensions (W x H x D in mm)	155 x 145 x 49	271 x 211 x 65	
Weight (in kg)	1.4	2.4	
Power supply	24 V DC ±20 %	24 V DC ±20 %	
Maximum power consumption	23.8 W at 19.2 V	21.3 W at 30 V	
Temperature range	Operation: 0°C ... +50°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: 0°C ... +50°C Storage: -25°C ... +70°C	
Relative humidity	5 % ... 95 % (non-condensing)	20 % ... 85 % (non-condensing)	
Degree of protection (front side/rear side)	IP20	IP30	
Approvals	UL, cUL	In preparation: UL, cUL, Class 1 Div 2	

## Box PCs for medium performance requirements

			
Designation	<b>BL BPC 2000</b>	<b>VL BPC 2000</b>	<b>VL2 BPC 2000</b>
Order number	<b>2701712</b>	<b>2402759</b>	<b>2400332</b>
Processor	Intel® Celeron® N2930 1.83 GHz (quad-core)	Intel® Celeron® N2930 1.83 GHz (quad-core)	Intel® Celeron® N2930 1.83 GHz (quad-core)
RAM (configurable)	Max. 8 GB DDR3	Max. 8 GB DDR3	Max. 8 GB DDR3
Data memory (configurable)	CFast, HDD or SSD	CFast, HDD or SSD	HDD or SSD
Number of drives	1	2	2
RAID support (configurable)	–		
USB	3 x USB 2.0, 1 x USB 3.0	3 x USB 2.0, 1 x USB 3.0	4 x USB 2.0
Serial interfaces	1 x COM (RS-232/422/485) 2 x COM (RS-232)	1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)
Video out	2 x DisplayPort	1 x VGA 1 x DisplayPort	2 x DisplayPort
Graphics processor	Intel® HD Graphics		
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Realtek® 8111F PCI-E	Intel® I210	Intel® I210
PCI/PCIe slots (configurable)	–	2 x PCI	1x PCI or 1 x PCIe
Maximum card size (PCI/PCIe)	–	180.9 mm x 107.9 mm	175 mm x 100 mm x 15 mm
Operating systems (configurable)	Windows® Embedded Standard 7 Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise		
Cooling	Passive		
Mounting type	Wall or DIN rail mounting	Wall or bookshelf mounting	Wall or bookshelf mounting
Dimensions (W x H x D in mm)	162 x 146 x 49 (without SSD/HDD) 162 x 146 x 64 (with SSD/HDD)	265 x 207x 49 265 x 207 x 87 (with PCI slots)	264 x 215 x 95
Weight (in kg)	1.6	3.4 5.35 (with PCI slots)	4.2
Power supply	24 V DC ±20 %		
Maximum power consumption	21.3 W at 19.2 V	63.2 W at 19.2 V	37.4 W at 19.2 V with PCI-PCIe 40.8 W
Temperature range	Operation: 0°C ... +50°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ...+50°C With SSD, CFast: -20°C ... +55°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ...+45°C With SSD: -20°C ... +50°C Storage: -40°C ... +70°C
Relative humidity	5 % ... 95 % (non-condensing)		
Degree of protection (front side/rear side)	IP20	IP20	IP30
Approvals	UL, cUL	UL, cUL, Class 1 Div 2	UL, cUL, Class 1 Div 2

## Box PCs for medium and high performance requirements





			
<b>Designation</b>	<b>VL BPC 3000</b>	<b>VL2 BPC 3000</b>	<b>VL2 BPC 7000</b>
<b>Order number</b>	<b>2400183</b>	<b>2400492</b>	<b>2400333</b>
Processor	Intel® Core™ i3-4010U 1.7 GHz (dual-core)	Intel® Core™ i3-4010U 1.7 GHz (dual-core)	Intel® Core™ i5-4300U 1.90 GHz (dual-core)
RAM (configurable)	Max. 16 GB DDR3		
Data memory (configurable)	CFast, HDD or SSD	HDD or SSD	HDD or SSD
Number of drives	2		
RAID support (configurable)	–	0/1	0/1
USB	3 x USB 2.0, 1 x USB 3.0	2 x USB 2.0, 2 x USB 3.0	2 x USB 2.0, 2 x USB 3.0
Serial interfaces	1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)
Video out	1 x DVI-D 1 x DisplayPort	2 x DisplayPort	2 x DisplayPort
Graphics processor	Intel® HD Graphics 4400		
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Intel® I210		
PCI/PCIe slots (configurable)	2x PCI	1x PCI or 1 x PCIe	1x PCI or 1 x PCIe
Maximum card size (PCI/PCIe)	180.9 mm x 107.9 mm	175 mm x 100 mm x 15 mm	175 mm x 100 mm x 15 mm
Operating systems (configurable)	Windows® Embedded Standard 7 Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise		
Cooling	Passive		
Mounting type	Wall or bookshelf mounting		
Dimensions (W x H x D in mm)	265 x 207x 49 265 x 207 x 87 (with PCI slots)	264 x 215 x 95	264 x 215 x 95
Weight (in kg)	3.4 5.35 (with PCI slots)	4.8	4.8
Power supply	24 V DC ±20 %	24 V DC ±20 %	24 V DC ±20 %
Maximum power consumption	67.4 W at 19.2 V	41.28 W at 19.2 V with PCI-PCIe 46.4 W	42.7 W at 19.2 V with PCI-PCIe 50.4 W
Temperature range	Operation with HDD: 0°C ...+55°C With SSD, CFast: -20°C ... +55°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ...+45°C With SSD: -10°C ... +50°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ...+45°C With SSD: -20°C ... +50°C Storage: -40°C ... +70°C
Relative humidity	5 % ... 95 % (non-condensing)		
Degree of protection	IP20	IP30	IP30
Approvals	UL, cUL, Class 1 Div 2		

## Rack PCs







VL2 BPC 9000	BL RACKMOUNT 2U	BL RACKMOUNT 4U
2400499	2400063	2400064
Intel® Core™ i7-6822EQ 2 GHz (quad-core)	Intel® Core™ i3-4330T 3,0 GHz, Intel® Core™ i7-4770S 3.1 GHz/ 3.9 GHz	
Max. 16 GB DDR4	With i3: max. 8 GB RAM, With i7: max. 16 GB RAM	
HDD or SSD	HDD or SSD	
2	2	3
0/1	0/1	0/1/5
2 x USB 2.0, 2 x USB 3.0	2 x USB 2.0, 2 x USB 3.0	4 x USB 2.0, 2 x USB 3.0
1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)	1 x COM (RS-232) 1 x COM (RS-232/422/485)	
2 x DisplayPort	VGA, DVI-I	
Intel® HD Graphics 530	Intel® HD Graphics 4600	
2 x (10/100/1000 Mbps), RJ45	2 x (10/100/1000 Mbps), RJ45	
Intel® I210	1 x Intel® I210 1 x Intel® I217	
1 x PCI or 1 x PCIe	3 x PCI, 1 x PCIe x8, 1 x PCIe x16	8x PCI, 3 x PCIe x1, 1 x PCIe x16
175 mm x 100 mm x 15 mm	-	
Windows® Embedded Standard 7 Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise	Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise Windows® Server 2012	
Active	Active	
Wall or bookshelf mounting	Rack mounting 2U	Rack mounting 4U
264 x 215 x 95	482 x 89 x 429	482 x 177 x 461
4.8	13.5	14.5
24 V DC ±20 %	350 W power supply unit (230 V power cable)	500 W power supply unit (230 V power cable)
-	-	
Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +50°C Storage: -40°C ... +70°C	Operation: 0°C ... +55°C Storage: -40°C ... +70°C	
5 % ... 95 % (non-condensing)	5 % ... 95 % (non-condensing)	
IP30	IP20	
In preparation: UL, cUL, Class 1 Div 2	UL, cUL	




## Panel PCs with analog resistive touchscreens for low performance requirements



				
<b>Designation</b>	<b>EL PPC5.7 1000</b>	<b>EL PPC7 1000</b>	<b>EL PPC9 1000</b>	<b>EL PPC10S 1000</b>
<b>Order number</b>	<b>2404318</b>	<b>2701481</b>	<b>2701482</b>	<b>2400232</b>
Touch technology	Analog resistive			
Display size	14.5 cm / 5.7"	17.78 cm/7"	22.9 cm/9"	26.4 cm/10.4"
Display type	TFT/LED (white)			
Colors	262144	262144	16.7 million	65536
Resolution (W x H in pixels)	640 x 480 pixels (VGA)	800 x 480 (WVGA)	800 x 480 (WVGA)	800 x 600 (SVGA)
Brightness (in cd/m <sup>2</sup> )	400	350	400	340
Reading angle (vertical/horizontal)	107°/130°	130°/140°	170°/170°	110°/140°
Backlight (MTTF in h)	> 40,000	> 40,000	> 70,000	> 50,000
Processor	AMD® Embedded G-Series (T40R) 1.0 GHz/AMD® Embedded G-Series (T40E) 1.0 GHz (dual-core) Intel® Atom™ E3845, 4 x 1.91 GHz (quad-core)			
RAM (configurable)	Max. 4 GB DDR3			
Data memory (configurable)	SATA DOM-SSD	SATA DOM-SSD	SATA DOM-SSD	SATA DOM-SSD or SSD
Number of drives	1			
RAID support (configurable)	–			
USB	4 x USB Host 2.0			
Serial interfaces	Optional: 1 x COM (RS-232) 1 x COM (RS-485)			
Fieldbus interfaces	Optional: 2 x CAN			
Video out	None			
Graphics processor	AMD® Radeon™ HD 6250/Intel® HD Graphics			
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45			
LAN chipset	Realtek® 8111C PCI-E +/Intel® 82574 (AMD® CPU)/Intel® I210 (Intel® CPU)			
PCI/PCIe slots (configurable)	–			
Maximum card size (PCI/PCIe)	–			
Operating systems (configurable)	Windows® Embedded Standard 7/Windows® 7 Professional/Windows® 10 IoT Enterprise			
Cooling	Passive			
Mounting type	Front installation			
Dimensions (W x H x D in mm)	168 x 126 x 69	203 x 147 x 81	260 x 172 x 81	295 x 220 x 92
Weight (in kg)	Approx. 0.9	Approx. 1.1	Approx. 1.4	Approx. 1.7
Power supply	24 V DC ±20 %	24 V DC ±20 %	24 V DC ±20 %	24 V DC ±20 %
Type of power consumption	14.4 W at 24 V	19.2 W at 24 V	26.4 W at 24 V	26.4 W at 24 V
Temperature range	Operation: -0°C ... +50°C/storage: -25°C ... +70°C			
Relative humidity	20 % ... 85 % (non-condensing)			
Degree of protection (front side/rear side)	IP65/IP20			
Approvals	–	UL, cUL, Class 1 Div 2 (at Intel® Atom™ E3845)	UL, cUL, Class 1 Div 2 (at Intel® Atom™ E3845)	UL, cUL, Class 1 Div 2 (at Intel® Atom™ E3845)






				
Designation	<b>EL PPC12S 1000</b>	<b>EL PPC12 1000</b>	<b>EL PPC15S 1000</b>	<b>EL PPC15 1000</b>
Order number	<b>2400233</b>	<b>2701484</b>	<b>2400234</b>	<b>2701485</b>
Touch technology	Analog resistive			
Display size	30.73 cm/12.1"	30.73 cm/12.1"	38.1 cm/15"	39.12 cm/15.4"
Display type	TFT/LED (white)	TFT/LED (white)	TFT/LED (white)	TFT/LED (white)
Colors	262144	262144	262144	262144
Resolution (W x H in pixels)	800 x 600 (SVGA)	1280 x 800 (WXGA)	1024 x 768 (XGA)	1280 x 800 (WXGA)
Brightness (in cd/m <sup>2</sup> )	350	320	480	360
Reading angle (vertical/horizontal)	140°/160°	176°/176°	145°/160°	140°/160°
Backlight (MTTF in h)	> 50,000	> 50,000	> 50,000	> 50,000
Processor	AMD® Embedded G-Series (T40R) 1.0 GHz/AMD® Embedded G-Series (T40E) 1.0 GHz (dual-core) Intel® Atom™ E3845, 4 x 1.91 GHz (quad-core)			
RAM (configurable)	Max. 4 GB DDR3			
Data memory (configurable)	SATA DOM-SSD or SSD			
Number of drives	1			
RAID support (configurable)	–			
USB	4 x USB Host 2.0			
Serial interfaces	Optional: 1 x COM (RS-232), 1 x COM (RS-485)			
Fieldbus interfaces	Optional: 2 x CAN			
Video out	None			
Graphics processor	AMD® Radeon™ HD 6250/Intel® HD Graphics			
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45			
LAN chipset	Realtek® 8111C PCI-E +/Intel® 82574 (AMD® CPU)/Intel® I210 (Intel® CPU)			
PCI/PCIe slots (configurable)	–			
Maximum card size (PCI/PCIe)	–			
Operating systems (configurable)	Windows® Embedded Standard 7/Windows® 7 Professional/Windows® 10 IoT Enterprise			
Cooling	Passive			
Mounting type	Front installation			
Dimensions (W x H x D in mm)	340 x 270 x 81	330 x 225 x 81	400 x 329 x 92	410 x 290 x 87
Weight (in kg)	Approx. 2.4	Approx. 2.05	Approx. 3.9	4.0
Power supply	24 V DC ±20 %			
Type of power consumption	26.4 W at 24 V	24 W at 24 V	31.2 W at 24 V	31.2 W at 24 V
Temperature range	Operation: -0°C ... +50°C/storage: -25°C ... +70°C			
Relative humidity	20 % ... 85 % (non-condensing)			
Degree of protection (front side/rear side)	IP65/IP20			
Approvals	UL, cUL, Class 1 Div 2 (at Intel® Atom™ E3845)			

## Panel PCs with analog resistive touchscreens for low, medium and high performance requirements






			
Designation	BL PPC 1000	VL PPC 2000	BL PPC 3000
Order number	2701401	2402760	2701397
Touch technology	Analog resistive		
Display size	30.7 cm/12.1"/38.1 cm/15" 43.2 cm/17"	30.7 cm/12.1" to 60.9 cm/24" (optional: Front-USB)	38.1 cm/15" 43.2 cm/17"
Display type	TFT/LED (white)		
Colors	Depends on the configuration		
Resolution (W x H in pixels)	800 x 600 (SVGA) 1024 x 768 (XGA) 1280 x 1024 (SXGA)	800 x 600 (SVGA) up to 1920 x 1080 (Full HD)	1024 x 768 (XGA) 1280 x 1024 (SXGA)
Brightness (in cd/m <sup>2</sup> )	Depends on the configuration		
Reading angle (vertical/horizontal)	Depends on the configuration		
Backlight (MTTF in h)	> 50,000		
Processor	Intel® Atom™ N455 1.66 GHz	Intel® Celeron® N2930 1.83 GHz (quad-core)	Intel® Celeron® 1020E 2.2 GHz
RAM (configurable)	Max. 2 GB DDR3	Max. 8 GB DDR3	Max. 16 GB DDR3
Data memory (configurable)	CFast	CFast, HDD or SSD	CFast
Number of drives	1	2	1
RAID support (configurable)	–		
USB	4 x USB 2.0	3 x USB 2.0, 1 x USB 3.0	4 x USB 2.0
Serial interfaces	1 x COM (RS-232/422/485) 2 x (RS-232)	1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) 2 x (RS-232)
Video out	VGA	1 x VGA 1 x DisplayPort	VGA
Graphics processor	Integrated	Intel® HD Graphics	Intel® HD Graphics 4000
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Realtek® 8111D	Intel® I210	Realtek® 8111F
PCI/PCIe slots (configurable)	–	2 x PCI	–
Maximum card size (PCI/PCIe)	–	180.9 x 107.9 mm	–
Operating systems (configurable)	Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® XP Professional Windows® 7 Professional Windows® 7 Ultimate	Windows® Embedded Standard 7 Windows® Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise	Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® XP Professional Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise
Cooling	Passive	Passive	Active
Mounting type	Front installation		
Dimensions (W x H x D in mm)	Depends on the configuration		
Weight (in kg)	Depends on the configuration		
Power supply	24 V DC ±20 %		
Type of power consumption	Depends on the configuration		
Temperature range	Operation: 0°C ... +50°C Storage: -40°C ... +70°C	Operation: -20°C ... +55°C Storage: -40°C ... +70°C	Operation: 0°C ... +45°C Storage: -40°C ... +70°C
Relative humidity	5 % ... 95 % (non-condensing)		
Degree of protection (front side/rear side)	IP65/IP20		
Approvals	UL, cUL	UL, cUL, Class 1 Div 2	UL, cUL

		
Designation	<b>VL PPC 3000</b>	<b>BL PPC 7000</b>
Order number	<b>2400184</b>	<b>2701398</b>
Touch technology	Analog resistive	
Display size	30.7 cm/12.1" to 60.9 cm/24" (optional: Front-USB)	38.1 cm/15" 43.2 cm/17"
Display type	TFT/LED (white)	
Colors	Depends on the configuration	
Resolution (W x H in pixels)	800 x 600 (SVGA) to 1920 x 1080 (Full HD)	1024 x 768 (XGA) 1280 x 1024 (SXGA)
Brightness (in cd/m <sup>2</sup> )	Depends on the configuration	
Reading angle (vertical/horizontal)	Depends on the configuration	
Backlight (MTTF in h)	> 50,000	
Processor	Intel® Core™ i3-4010U 1.70 GHz (dual-core)	Intel® Core™ i7-3555LE 25/32 GHz
RAM (configurable)	Max. 16 GB DDR3	
Data memory (configurable)	CFast, HDD or SSD	CFast
Number of drives	2	1
RAID support (configurable)	–	
USB	3 x USB 2.0, 1 x USB 3.0	4 x USB 2.0
Serial interfaces	1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) 2 x (RS-232)
Video out	1 x DVI-D 1 x DisplayPort	VGA
Graphics processor	Intel® HD Graphics 4000	
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45	
LAN chipset	Intel® I210	Realtek® 8111F
PCI/PCIe slots (configurable)	2 x PCI	–
Maximum card size (PCI/PCIe)	180.9 x 107.9 mm	–
Operating systems (configurable)	Windows® Embedded Standard 7 Windows® Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise	Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® XP Professional Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise
Cooling	Passive	Active
Mounting type	Front installation	
Dimensions (W x H x D in mm)	Depends on the configuration	
Weight (in kg)	Depends on the configuration	
Power supply	24 V DC ±20 %	
Type of power consumption	Depends on the configuration	
Temperature range	Operation: -20°C ... +45°C Storage: -40°C ... +70°C	Operation: 0°C ... +45°C Storage: -40°C ... +70°C
Relative humidity	5 % ... 95 % (non-condensing)	
Degree of protection (front side/rear side)	IP65/IP20	
Approvals	UL, cUL, Class 1 Div 2	UL, cUL




## Panel PCs with projective capacitive touchscreens for low performance applications

			
Designation	<b>VL2 PPC7 1000</b>	<b>VL2 PPC 9 1000</b>	<b>VL2 PPC12 1000</b>
Order number	<b>2403708</b>	<b>2403709</b>	<b>2403710</b>
Touch technology	Projective capacitive, four-touch control		
Display size	17.8 cm/7"	22.9 cm/9"	30.7 cm/12.1"
Display type	TFT/LED (white)		
Colors	16.7 million	16.7 million	16.7 million
Resolution (W x H in pixels)	800 x 480 (WVGA)	800 x 480 (WVGA)	1280 x 800 (WXGA)
Brightness (in cd/m <sup>2</sup> )	350	400	320
Reading angle (vertical/horizontal)	130°/140°	170°/170°	176°/176°
Backlight (MTTF in h)	> 40,000	> 70,000	> 50,000
Processor	Intel® Atom™ E3845 4 x 1.91 GHz (quad-core)		
RAM (configurable)	Max. 4 GB DDR3L	Max. 4 GB DDR3L	Max. 4 GB DDR3L
Data memory (configurable)	SATA DOM-SSD		
Number of drives	1		
RAID support (configurable)	–		
USB	2 x USB 2.0, 1 x USB 3.0		
Serial interfaces	1x COM (RS-232/422/485) options: 1x RS-232 + 1x RS-485 2x CAN		
Video out	1 x DisplayPort		
Graphics processor	Intel® HD Graphics		
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Intel® I210		
PCI/PCIe slots (configurable)	–		
Maximum card size (PCI/PCIe)	–		
Operating systems (configurable)	Windows® Embedded Standard 7/Windows® 7 Professional/Windows® 7 Ultimate/Windows® 10 IoT Enterprise		
Cooling	Passive		
Mounting type	Front installation		
Dimensions (W x H x D in mm)	208 x 149 x 88, with optional interfaces: 208 x 149 x 111	271 x 179 x 88, with optional interfaces: 271 x 179 x 111	336 x 234 x 88, with optional interfaces: 336 x 234 x 111
Weight (in kg)	2.3	2.6	3.3
Power supply	24 V DC ±20 %		
Maximum power consumption	25.56 W at 18 V	33 W at 30 V	34.5 W at 30 V
Temperature range	Operation with SSD: 0°C ...+50°C Storage: -25°C ... +70°C		
Relative humidity	20 % ... 85 % (non-condensing)		
Degree of protection (front side/rear side)	IP65/IP30		
Approvals	In preparation: UL, cUL, NEMA 4, Class 1 Div 2		




## Panel PCs with projective capacitive touchscreens for low, medium and high performance applications

				
VL2 PPC 1000	VL2 PPC 2000	VL2 PPC 3000	VL2 PPC 7000	VL2 PPC 9000
2403047	2400334	2400498	2400346	2400500
Projective capacitive, ten-touch control				
39.6 cm/15.6"/47 cm/18.5"/54.6 cm/21.5"				
TFT/LED (white)				
16.7 million	16.7 million	16.7 million	16.7 million	16.7 million
1366 x 768 (HD)/1366 x 768 (HD)/1920 x 1080 (Full HD)				
400/300/300				
170°/170°/170°/170°/178°/178°				
> 50,000				
Intel® Atom™ E3845 4 x 1.91 GHz (quad-core) Max. 4 GB DDR3L	Intel® Celeron® N2930 1.83 GHz/2.16 GHz Max. 8 GB DDR3 SODIMM	Intel® Core™ i3-4010U 1.7 GHz (dual-core) Max. 16 GB DDR3	Intel® Core™ i5-4300U 1.90 GHz (dual-core) Max. 16 GB DDR3	Intel® Core™ i7-6822EQ 2 GHz (quad-core) Max. 16 GB DDR4
HDD or SSD	HDD or SSD	HDD or SSD	HDD or SSD	HDD or SSD
1	2	2	2	2
–	–	0/1	0/1	0/1
2 x USB 2.0, 1 x USB 3.0	4 x USB 2.0	2 x USB 2.0, 2 x USB 3.0	2 x USB 2.0, 2 x USB 3.0	2 x USB 2.0, 2 x USB 3.0
1 x COM (RS-232/422/485) Optional: 1 x RS232 + 1 x RS485 2 x CAN	1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)	1 x COM (RS-232/422/485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232/422/485)
1 x DisplayPort	2 x DisplayPort	2 x DisplayPort	2 x DisplayPort	2 x DisplayPort
Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics 4400	Intel® HD Graphics 4400	Intel® HD Graphics 530
2 x (10/100/1000 Mbps), RJ45				
Intel® I210				
–	1 x PCI or 1 x PCIe	1 x PCI or 1 x PCIe	1 x PCI or 1 x PCIe	1 x PCI or 1 x PCIe
–	175 mm x 100 mm x 15 mm	175 mm x 100 mm x 15 mm	175 mm x 100 mm x 15 mm	175 mm x 100 mm x 15 mm
Windows® Embedded Standard 7/Windows® 7 Professional/Windows® 7 Ultimate/Windows® 10 IoT Enterprise				
Passive	Passive	Passive	Passive	Active
Front installation				
408 x 275 x 100/ 465 x 313 x 102/532 x 354 x 99		408 x 275 x 121/465 x 313 x 123/532 x 354 x 119		
6.3/8.1/10.4		8.6/10.4/12.7		
24 V DC ±20 %				
Depends on the configuration				
Operation with HDD: 0°C ... +45°C With SSD: 0°C ... +50°C Storage: -25°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +50°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -10°C ... +50°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +50°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +50°C Storage: -40°C ... +70°C
20 % ... 85 % (non-condensing)	5 % ... 95 % (non-condensing)	5 % ... 95 % (non-condensing)	5 % ... 95 % (non-condensing)	5 % ... 95 % (non-condensing)
IP65/IP30				
UL, cUL, Class 1 Div 2, NEMA 4	UL, cUL, Class 1 Div 2, NEMA 4	UL, cUL, Class 1 Div 2, NEMA 4	UL, cUL, Class 1 Div 2, NEMA 4	In preparation: UL, cUL, Class 1 Div 2




## Panel PCs in IP65 for low and high performance requirements

			
Designation	<b>DL PPC15 1000</b>	<b>DL PPC15M 1000</b>	<b>DL PPC15M 7000</b>
Order number	<b>2701665</b>	<b>2701666</b>	<b>2400017</b>
Touch technology	Analog resistive, single-touch control	Projective capacitive, two-touch control	Projective capacitive, two-touch control
Display size	38.1 cm/15"		
Display type	TFT/LED (white)		
Colors	16.2 million		
Resolution (W x H in pixels)	1024 x 768 (XGA)		
Brightness (in cd/m <sup>2</sup> )	400		
Reading angle (vertical/horizontal)	160°/160°		
Backlight (MTTF in h)	> 50,000		
Processor	Intel® Atom™ E680T 1.6 GHz	Intel® Atom™ E680T 1.6 GHz	Intel® Core™ i7-4650U 3.30 GHz
RAM (configurable)	Max. 2 GB DDR2	Max. 2 GB DDR2	Max. 12 GB DDR3
Data memory (configurable)	HDD or SSD		
Number of drives	1		
RAID support (configurable)	–		
USB	5 x USB 2.0	5 x USB 2.0	4 x USB 2.0, 1 x USB 3.0
Serial interfaces	1 x COM (RS-232/422/485)		
Video out	–		
Graphics processor	Integrated	Integrated	Intel® HD Graphics 5000
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Intel® 82574IT	Intel® 82574IT	Intel® I210
PCI/PCIe slots (configurable)	–		
Maximum card size (PCI/PCIe)	–		
Operating systems (configurable)	Windows® Embedded Standard 7/Windows® 7 Professional/Windows® 7 Ultimate/Windows® 10 IoT Enterprise		
Cooling	Passive		
Mounting type	VESA MIS-D, 100		
Dimensions (W x H x D in mm)	375 x 315 x 60		
Weight (in kg)	4.4		
Power supply	24 V DC (9 V DC ... 32 V DC)		
Maximum power consumption	31.44 W at 24 V	31.44 W at 24 V	46.3 W at 19.2 V
Temperature range	Operation with HDD: 0°C ... +45°C / With SSD: -20°C ... +55°C Storage: -40°C ... +70°C		SSD -20°C ... +45°C Storage: -40°C ... +70°C
Relative humidity	5 % ... 95 % (non-condensing)		
Degree of protection (front side/rear side)	IP65		
Approvals	UL, cUL		

## Tablet PCs





			
<b>Designation</b>	<b>DL PPC18.5M 7000</b>	<b>DL PP21.5M 7000</b>	<b>ITC 8113</b>
<b>Order number</b>	<b>2400015</b>	<b>2400016</b>	<b>2403738</b>
Touch technology	Projective capacitive, ten-touch control		Projective capacitive, ten-touch control
Display size	47 cm/18.5"	54.6 cm / 21.5"	33.8 cm / 13.3"
Display type	TFT/LED (white)		TFT/LED (white)
Colors	16.2 million		16.2 million
Resolution (W x H in pixels)	1366 x 768 (WXGA)	1920 x 1080 (FHD)	1920 x 1080 (FHD)
Brightness (in cd/m <sup>2</sup> )	400		400
Reading angle (vertical/horizontal)	160°/160°		160°/160°
Backlight (MTTF in h)	> 50,000		> 50,000
Processor	Intel® Core™ i7-4650U 3.30 GHz		Intel® Celeron™ 2980U 1.6 GHz Intel® Core™ i5-4300U 1.9 GHz
RAM (configurable)	Max.12 GB DDR3		Max. 8 GB DDR3
Data memory (configurable)	HDD or SSD		SSD
Number of drives	1		1
RAID support (configurable)	–		–
USB	4 x USB 2.0, 1 x USB 3.0		2 x USB 3.0, 1 x USB 3.0 insert
Serial interfaces	1 x COM (RS-232/422/485)		–
Video out	–		–
Graphics processor	Intel® HD Graphics 5000		Intel® HD Graphics
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		1 x (10/100/1000 Mbps), RJ45
LAN chipset	Intel® I210		Intel® I218
PCI/PCIe slots (configurable)	–		–
Maximum card size (PCI/PCIe)	–		–
Operating systems (configurable)	Windows® Embedded Standard 7/Windows® 7 Professional/ Windows® 7 Ultimate/Windows® 10 IoT Enterprise		Windows® Embedded Standard 7 Windows® 7 Ultimate Windows® 10 IoT Enterprise
Cooling	Passive		Active
Mounting type	VESA MIS-D, 100		–
Dimensions (W x H x D in mm)	534 x 355 x 60		356 x 262 x 42
Weight (in kg)	5.7	7.6	1.8
Power supply	24 V DC (9 V DC ... 32 V DC)		20 V/3,5 A extern
Maximum power consumption	49.9 W at 19.2 V	51.8 W at 19.2 V	–
Temperature range	Operation with HDD: 0°C ... +45°C / With SSD: -20°C ... +45°C Storage: -40°C ... +70°C		0°C ... +40°C
Relative humidity	5 % ... 95 % (non-condensing)		10 % ... 85 % (non-condensing)
Degree of protection (front side/rear side)	IP65		IP65/IP53
Approvals	UL, cUL		UL, cUL

## Monitors with analog resistive touchscreen

			
Designation	<b>VL FPM 12</b>	<b>VL FPM 15</b>	<b>VL FPM 17</b>
Order number	<b>2913015</b>	<b>2913017</b>	<b>2913019</b>
Touch technology	Analog resistive		
Display size	30.7 cm/12.1"	38.1 cm/15"	43.2 cm/17"
Display type	TFT/LED (white)		
Colors	16.7 million		
Resolution (W x H in pixels)	800 x 600 (SVGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)
Brightness (in cd/m <sup>2</sup> )	400	350	350
Reading angle (vertical/horizontal)	140°/120°	170°/160°	170°/160°
Backlight (MTTF in h)	> 50,000		
USB	1 x USB 1.1, 1 x USB 2.0		
With front-USB	VL FPM 12U 2913016	VL FPM 15U 2913018	VL FPM 17U 2913020
Video out	1 x VGA 1 x DVI-D		
Mounting type	Front installation		
Dimensions (W x H x D in mm)	365 x 282 x 92	452 x 356,5 x 97	452 x 356,5 x 97
Weight (in kg)	4.47	6.43	6.43
Power supply	24 V DC ±20 %		
Maximum power consumption	25.12 W at 19.2 V	25.12 W at 19.2 V	37.25 W at 19.2 V
Temperature range	Operation 0°C ... +50°C Transport -40°C ... +70°C		
Relative humidity	5 % ... 95 % (non-condensing)		
Degree of protection (front side/rear side)	IP65/IP20		
Approvals	-		



## Monitors with projective capacitive touchscreen

			
<b>VL FPM 19U</b>	<b>BL FPM 15.6</b>	<b>BL FPM 18.5</b>	<b>BL FPM 21.5</b>
<b>2913021</b>	<b>2402980</b>	<b>2402981</b>	<b>2400515</b>
Analog resistive	Projective capacitive, ten-touch control		
48.3 cm/19"	39.6 cm / 15.6"	46.9 cm / 18.5"	54.6 cm / 21.5"
TFT/LED (white)	TFT/LED (white)		
16.7 million	16.7 million		
1280 x 1024 (SXGA)	1366 x 768 (WXGA)	1366 x 768 (WXGA)	1920 x 1080 (Full HD)
300	300		
178°/178°	170°/160°		
> 50,000	> 50,000		
1 x USB 1.1, 1 x USB 2.0 1x USB on the front	-		
-	-		
1 x VGA 1 x DVI-D	1 x DisplayPort 1 x DVI-D 1 x VGA		
Front installation	Front installation / VESA MIS-D, 100		
489 x 406 x 95	417 x 312 x 52	491 x 321 x 51	562 x 382 x 51
9.51	5.48	6.24	7.87
24 V DC ±20 %	24 V DC (12 V DC ... 24 V DC)		
41.28 W at 19.2 V	14.2 W at 24 V	17.8 W at 24 V	21.6 W at 24 V
Operation: 0°C ... +50°C Transport: -40°C ... +70°C	Operation: -10°C ... +60°C Storage: -20°C ... +75°C		
5 % ... 95 % (non-condensing)	10 % ... 90 % (non-condensing)		
IP65/IP20	IP65/IP20		
-	UL, cUL		







## HMI for outdoor applications

### Outdoor touch panels with GFG touch technology

The outdoor touch panels with new processor generation and Glass-Film-Glass touchscreens offer power and robustness for demanding applications. Operate and monitor your system in any environment, thanks to the C1D2 certification for extreme application conditions.

Web panels are inexpensive operator panels for basic operation and monitoring tasks. Your advantages:

- Display can be read in direct sunlight
- Resistant to UV and IR radiation
- Expanded temperature range
- Resistant to environmental influences, such as salt spray, termites and chemicals, due to IP67 degree of protection
- Can be operated when wearing work gloves

Model view						
Designation	WP 06T/WT	WP07T/WT	TP 3043W/WT	TP 3057V/WT	TP 3070W/WT	TP 3121S/WT
Display	14.48 cm (5.7")	17.78 cm (7")	10.92 cm (4.3")	14.48 (5.7")	17.78 cm (7")	30.73 (12.1")
Colors	65,536	65,536	262,144	262,144	16,77 Mio.	262,144
Resolution (W x H in pixels)	320 x 240 QVGA	800 x 480 WVGA	480 x 272 WQVGA	640 x 480 VGA	800 x 480 WVGA	800x600 SVGA
Brightness (in cd/m <sup>2</sup> )	400	350	385	400	350	360
Reading angle (vertical/horizontal)	135°/150°	130°/140°	138°/150°	107°/130°	120°/140°	140°/160°
Backlight (MTTF in h)	40000	40000	40000	40000	50000	50000
Touch technology	GFG, analog resistive, anti-reflective coating			GFG, analog resistive, anti-reflective coating		
Processor	ARM9 CPU, 184 MHz			ARM® Cortex®-A8, 1000 MHz		
Temperature range	Operation: -20°C ... +70°C Storage: -30°C ... +80°C			Operation: -20°C ... +70°C Storage: -30°C ... +80°C		
Degree of protection (front/back)	IP67/IP20			IP67/IP20		
Front panel dimensions (W x H x D in mm)	195 x 153 x 5	234 x 174 x 5	131 x 171 x 5	153 x 195 x 5	174 x 234 x 5	280 x 359 x 5
Installation depth (in mm) including fieldbus interface	42 –	42 –	42 68	42 68	48 77	58 58
Mounting cutout (W x H in mm)	161 x 119	200 x 140	95 x 135	119 x 161	140 x 200	244 x 323
Weight (in kg)	0.75	1	0.55	0.8	1.1	2.7
Typical power consumption	4.8 W at 24 V	7.2 W at 24 V	4.8 W at 24 V	12 W at 24 V	9.6 W at 24 V	12 W at 24 V
Approvals	UL/cUL			UL/cUL, Class1 Div2		
	<b>General technical data</b>			<b>General technical data</b>		
Display type	TFT/LED (white)			TFT/LED (white)		
Memory	32 MB Flash, 64 MB SDRAM, 512 KB SRAM with battery-backup			1 GB NAND flash, 512 MB LPDDR SDRAM, 1 MB SRAM		
Interfaces	1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0			1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0		
Serial interfaces (optional)	–			1x RS-232, 1x RS422/RS-485 (electrically isolated)		
Fieldbus interfaces (optional)	–			2 x CAN (electrically isolated)		
Operating system	MS Windows® CE 5.0			MS Windows® Embedded Compact 7		
Relative humidity	For operation and storage: 20 % to 85 %, non-condensing			For operation and storage: 20 % to 85 %, non-condensing		
Installation type	Portrait/landscape			Portrait/landscape		
Mounting type	Installation in front panel			Installation in front panel		
Power supply	24 V DC ±20 %			24 V DC ±20 %		




## Touch panels with GFG touch technology

Designation	Resolution	Visu+	Basic model
TP 3043W/WT	800 x 480	<a href="#">2404286</a>	TPE043SGB
TP 3057V/WT	800 x 480	<a href="#">2403464</a>	TPE057SGV
TP 3070W/WT	800 x 600	<a href="#">2403465</a>	TPG070SGW
TP 3121S/WT	800 x 600	<a href="#">2403466</a>	TPG121SGS

## Touch panels with GFG touch technology

Designation	Resolution	WebVisit	Basic model
WP06t/WT	320 x 240	<a href="#">2400163</a>	TPE057AGQ
WP07T/WT	800 x 480	<a href="#">2400164</a>	TPE070AGW

## Panel PCs for outdoor applications

			
Designation	EL PPC5.7 1000/WT	EL PPC7 1000/WT	EL PPC12 1000/WT
Order number	2401696	2400065	2400066
Touch technology	Analog resistive (GFG)		
Display size	14.5 cm/5.7"	17.8 cm/7"	30.73 cm/12.1"
Display type	TFT/LED (white)		
Colors	262144		
Resolution (W x H in pixels)	640 x 480 (VGA)	800 x 400 (WVGA)	800 x 600 (SVGA)
Brightness (in cd/m <sup>2</sup> )	400	350	360
Reading angle (vertical/horizontal)	130°/130°/110°/110°	140°/140°/130°/130°	160°/160°/130°/150°
Backlight (MTTF in h)	> 40,000	> 50,000	> 50,000
Processor	Intel® Atom™ E680T 1.6 GHz		
RAM (configurable)	2 GB DDR2 800		
Data memory (configurable)	64 GB SATA DOM-SSD (MLC)	SATA DOM-SSD	SATA DOM-SSD
Number of drives	–		
RAID support (configurable)	–		
USB	4 x USB 2.0		
Serial interfaces	–	Optional: 1 x COM (RS-232), 1 x COM (RS-485)	Optional: 1 x COM (RS-232), 1 x COM (RS-485)
Video out	–		
Graphics processor	–		
Ethernet interfaces	1 x (10/100/1000 MBit/s), RJ45		
LAN chipset	Mikrel® KSZ9021RN		
PCI/PCIe slots (configurable)	–		
Maximum card size (PCI/PCIe)	–		
Operating systems (configurable)	Windows® Embedded Standard 7		
Cooling	Passive		
Mounting type	Front installation		
Dimensions (W x H x D in mm)	195 x 153 x 64	234 x 174 x 81	359 x 180 x 92
Weight (in kg)	0.8	1.1	2.4
Power supply	24 V DC ±20 %		
Type of power consumption	14.4 W at 24 V	12 W at 24 V	24 W at 24 V
Temperature range	Operation: -20°C ... +60°C Storage: -30°C ... +80°C		
Relative humidity	20 % ... 85 % (non-condensing)		
Degree of protection (front side/rear side)	IP67/IP20		
Approvals	–	UL, cUL, NEMA 4X	UL, cUL, NEMA 4X



<b>Designation</b>	<b>EL PPC15 1000/WT</b>
<b>Order number</b>	<b>2400067</b>
Touch technology	Analog resistive (GFG)
Display size	38.1 cm/15"
Display type	TFT/LED (white)
Colors	262144
Resolution (W x H in pixels)	1024 x 768 (XGA)
Brightness (in cd/m <sup>2</sup> )	480
Reading angle (vertical/horizontal)	160°/160°/120°/160°
Backlight (MTTF in h)	> 50,000
Processor	Intel® Atom™ E680T 1.6 GHz
RAM (configurable)	2 GB DDR2 800
Data memory (configurable)	SATA DOM-SSD
Number of drives	–
RAID support (configurable)	–
USB	4 x USB 2.0
Serial interfaces	Optional: 1 x COM (RS-232), 1 x COM (RS-485)
Video out	–
Graphics processor	–
Ethernet interfaces	1 x (10/100/1000 Mbps), RJ45
LAN chipset	Mikrel® KSZ9021RN
PCI/PCIe slots (configurable)	–
Maximum card size (PCI/PCIe)	–
Operating systems (configurable)	Windows® Embedded Standard 7
Cooling	Passive
Mounting type	Front installation
Dimensions (W x H x D in mm)	416 x 325 x 92
Weight (in kg)	3.7
Power supply	24 V DC ±20 %
Type of power consumption	19.2 W at 24 V
Temperature range	Operation: -20°C ... +60°C Storage: -30°C ... +80°C
Relative humidity	20 % ... 85 % (non-condensing)
Degree of protection (front side/rear side)	IP67/IP20
Approvals	UL, cUL, NEMA 4X





## HMI's for maritime applications






### Maritime touch panels with black front, dimming and polyester touch technology

The powerful HMI's from the TPM 3000 series are designed for demanding applications onboard ships. New display sizes and a wide range of functions provide you with user-friendly and reliable operation, monitoring and alerting while at sea. Your advantages:




- Light-absorbing front panels
- Dimmable backlight

- Certifications in accordance with ABS, BV, DNV-GL, LR, RINA
- Certified compass safe distance in accordance with DIN EN 60945
- Acoustic warning from integrated horn
- All common communication standards supported
- Floating output
- Display formats in 4:3 or 16:9




Model view				
<b>Designation</b>	<b>TPM 3043</b>	<b>TPM 3057</b>	<b>TPM 3070</b>	<b>TPM 3090</b>
<b>Order number</b>	<b>2404516</b>	<b>2404517</b>	<b>2404518</b>	<b>2404519</b>
Display	10.92 cm (4.3")	14.48 (5.7")	17.78 (7")	22.68 (9")
Colors	262,144			
Resolution (W x H in pixels)	480 x 272 WQVGA	640 x 480 VGA	800 x 480 WVGA	800 x 480 WVGA
Brightness (in cd/m <sup>2</sup> )	385	400	350	800
Reading angle (vertical/horizontal)	138°/150°	107°/130°	130°/140°	170°/170°
Backlight (MTTF in h)	40000	40000	40000	70000
Touch technology	Polyester, analog resistive			
Processor	ARM® Cortex® -A8, 1000 MHz, real-time clock (with battery backup)			
Temperature range	Operation: silver: 0°C ... +55°C; storage: black: -20°C ... +60°C Operation: silver: -25°C ... +70°C; storage: black: -30°C ... +80°C			
Degree of protection (front/back)	IP65/IP20			
Front panel dimensions (W x H x D in mm)	sil: 140 x 100 x 5 bl: 140 x 118 x 5	sil: 168 x 126 x 5 bl: 168 x 147 x 5	sil: 203 x 147 x 5 bl: 203 x 165 x 5	260 x 172 x 5
Installation depth (in mm) including fieldbus interface	sil: 42; bl: 53 sil: 71; bl: 79	sil: 42; bl: 49 sil: 71; bl: 75	sil: 42; bl: 42 sil: 71; bl: 71	54 59
Mounting cutout (W x H in mm)	sil: 132 x 92 bl: 132 x 110	sil: 160 x 118 bl: 160 x 139	sil: 195 x 139 bl: 195 x 157	252 x 164
Weight (in kg)	0.55	0.8	0.8	1.3
Typical power consumption	7.2 W at 24 V	9.6 W at 24 V	7.2 W at 24 V	19.2 W at 24 V
Approvals	UL/cUL, Class1 Div2, ABS, BV, DNV-GL, LR, RINA, EN60945			
<b>General technical data</b>				
Display type	TFT/LED (white)			
Memory	1 GB Flash, 512 SDRAM, 1 MB SRAM			
Interfaces (configurable)	1 x RS232, 1 x RS485 / 1 x RS232, 1 x RS485, 2 x CAN / 2 x CAN			
Operating system	MS Windows® Embedded Compact 7			
Software (configurable)	Microbrowser, Visu+, Movicon			
Relative humidity	For operation and storage: 20 % to 85 %, non-condensing			
Installation type	Portrait/landscape			
Mounting type	Installation in front panel			
Power supply	24 V DC ±20 %			

				
<b>TPM 3105</b>	<b>TPM 3121</b>	<b>TPM 3120</b>	<b>TPM 3150</b>	<b>TPM 3154</b>
<b>2404520</b>	<b>2404521</b>	<b>2404522</b>	<b>2404524</b>	<b>2404525</b>
26.42 (10.4")	30.73 (12.1")	30.73 (12.1")	38.1 (15")	39.1 (15.4")
262,144				
800 x 600 SVGA	800 x 600 SVGA	1280 x 800 WXGA	1024 x 768 XGA	1280 x 800 WXGA
340	360	320	480	360
110°/140°	140°/160°	176°/176°	145°/160°	140°/160°
50000				
Polyester, analog resistive				
ARM® Cortex®-A8, 1000 MHz, real-time clock (with battery backup)				
Operation: silver: 0°C ... +55°C; storage: black: -20°C ... +60°C Operation: silver: -25°C ... +70°C; storage: black: -30°C ... +80°C				
IP65/IP20				
sil: 295 x 220 x 5 bl: 328 x 265 x 5	sil: 340 x 270 x 5 bl: 340 x 285 x 5	sil: 330 x 225 x 5 bl: 336 x 252 x 5	sil: 400 x 329 x 5 bl: 400 x 338 x 5	420 x 297 x 5
sil: 54; bl: 58 sil: 54; bl: 58	sil: 55; bl: 52 sil: 55; bl: 52	sil: 48; bl: 54 sil: 48; bl: 54	sil: 55; bl: 63 sil: 55; bl: 63	64 64
sil: 287 x 212 bl: 302 x 237	sil: 313 x 243 bl: 315 x 259	sil: 48; bl: 54	sil: 372 x 301 bl: 373 x 312	396 x 273
1.9	2.2	1.7	3	3.3
14.4 W at 24 V	14.4 W at 24 V	19.2 W at 24 V	19.2 W at 24 V	21.6 W at 24 V
UL/cUL, Class1 Div2, ABS, BV, DNV-GL, LR, RINA, EN60945				
<b>General technical data</b>				
TFT/LED (white)				
1 GB Flash, 512 SDRAM, 1 MB SRAM				
1 x RS232, 1 x RS485 / 1 x RS232, 1 x RS485, 2 x CAN / 2 x CAN				
MS Windows® Embedded Compact 7				
Microbrowser, Visu+, Movicon				
For operation and storage: 20 % to 85 %, non-condensing				
Portrait/landscape				
Installation in front panel				
24 V DC ±20 %				

## Panel PCs for maritime applications

			
<b>Designation</b>	<b>EL PPC7 1000/M</b>	<b>EL PPC7G 1000/M</b>	<b>EL PPC12 1000/M</b>
<b>Order number</b>	<b>2400068</b>	<b>2400282</b>	<b>2400069</b>
Touch technology	Analog resistive	Analog resistive (GFG)	Analog resistive
Display size	17.8 cm/7"	17.8 cm/7"	30.7 cm/12.1"
Display type	TFT/LED (white)		
Colors	262144		
Resolution (W x H in pixels)	800 x 480 (WVGA)	800 x 480 (WVGA)	1280 x 800 (SVGA)
Brightness (in cd/m <sup>2</sup> )	350	350	320
Reading angle (vertical/horizontal)	140°/140°/130°/130°	140°/140°/130°/130°	176°/176°/176°/176°
Backlight (MTTF in h)	> 40,000	> 40,000	> 50,000
Processor	Intel® Atom™ E680T 1.6 GHz		
RAM (configurable)	2 GB DDR2 800		
Data memory (configurable)	SATA DOM-SSD		
Number of drives	–		
RAID support (configurable)	–		
USB	4 x USB 2.0		
Serial interfaces	Optional: 1 x COM (RS-232), 1 x COM (RS-485)		
Video out	–		
Graphics processor	–		
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Realtek® 8111C PCI-E		
PCI/PCIe slots (configurable)	–		
Maximum card size (PCI/PCIe)	–		
Operating systems (configurable)	Windows® Embedded Standard 7		
Cooling	Passive		
Mounting type	Front installation		
Dimensions (W x H x D in mm)	203 x 165 x 87	234 x 189 x 72	336 x 252 x 87
Weight (in kg)	1.1	1.1	2.3
Power supply	24 V DC (18 ... 30 V DC)		
Type of power consumption	16.8 W at 24 V	16.8 W at 24 V	21.6 W at 24 V
Temperature range	Operation: 0°C ... +55°C Storage: -25°C ... +70°C		
Relative humidity	20 % ... 85 % (non-condensing)		
Degree of protection (front side/rear side)	IP65/IP20		
Approvals	ABS, BV, GL/DNV LR, RINA, UL, cUL		



			
<b>Designation</b>	<b>EL PPC12G 1000/M</b>	<b>EL PPC15 1000/M</b>	<b>EL PPC15G 1000/M</b>
<b>Order number</b>	<b>2400283</b>	<b>2400070</b>	<b>2400284</b>
Touch technology	Analog resistive (GFG)	Analog resistive	Analog resistive (GFG)
Display size	30.7 cm/12.1"	38.1 cm/15"	38.1 cm/15"
Display type	TFT/LED (white)		
Colors	262144		
Resolution (W x H in pixels)	1280 x 800 (SVGA)	1024 x 768 (XGA)	1024 x 768 (XGA)
Brightness (in cd/m <sup>2</sup> )	320	480	480
Reading angle (vertical/horizontal)	176°/176°/176°/176°	160°/160°/130°/160°	160°/160°/130°/160°
Backlight (MTTF in h)	> 50,000		
Processor	Intel® Atom™ E680T 1.6 GHz		
RAM (configurable)	2 GB DDR2 800		
Data memory (configurable)	SATA DOM-SSD		
Number of drives	–		
RAID support (configurable)	–		
USB	4 x USB 2.0		
Serial interfaces	Optional: 1 x COM (RS-232), 1 x COM (RS-485)		
Video out	–		
Graphics processor	–		
Ethernet interfaces	2 x (10/100/1000 MBit/s), RJ45		
LAN chipset	Realtek® 8111C PCI-E		
PCI/PCIe slots (configurable)	–		
Maximum card size (PCI/PCIe)	–		
Operating systems (configurable)	Windows® Embedded Standard 7		
Cooling	Passive		
Mounting type	Front installation		
Dimensions (W x H x D in mm)	344 x 260 x 84	400 x 338 x 92	338 x 400 x 82
Weight (in kg)	2.3	3.7	3.7
Power supply	24 V DC (18 ... 30 V DC)		
Type of power consumption	24 W at 24 V		
Temperature range	Operation: 0°C ... +55°C Storage: -25°C ... +70°C		
Relative humidity	20 % ... 85 % (non-condensing)		
Degree of protection (front side/rear side)	IP65/IP20		
Approvals	ABS, BV, GL/DNV LR, RINA, UL, cUL		

## Device accessories (may be product-specific)

General	Order No.	Designation	Description
Adapter	2400174	DP TO DVI ADPTR	DisplayPort to DVI-i video adapter
Adapter	2400173	DP TO VGA ADPTR	DisplayPort to VGA video adapter
Data cable	2403720	DisplayPort Cable 1.8m	1.8 meter DisplayPort cable
Data cable	2403719	DVI Cable 1.8m	1.8 meter DVI cable
Data cable	2320500	IFS-USB-DATACABLE	Used for communicating between industrial PCs and Phoenix Contact devices with the 12-pos. IFS data port, such as QUINT UPS-IQ or TRIO UPS.
Data cable	1404514	SI-SES-U1A/0,6	Service socket with USB (socket/plug), type A with 0.6 m cable
Energy storage	2320351	UPS-BAT/LI-ION/24D-C/120WH	Energy storage device, LI-ION technology, 24 V DC, 120 Wh, for ambient temperatures of -20°C ... +58°C, automatic detection and communication with QUINT UPS-IQ.
Energy storage	2320296	UPS-BAT/VRLA/24DC/1.3AH	Energy storage device, lead AGM, VRLA technology, 24 V DC, 1.3 Ah, tool-free battery replacement, automatic detection and communication with QUINT UPS-IQ.
Energy storage	2320306	UPS-BAT/VRLA/24DC/3.4AH	Energy storage device, lead AGM, VRLA technology, 24 V DC, 3.4 Ah, tool-free battery replacement, automatic detection and communication with QUINT UPS-IQ.
Assembly adapter	2320089	UTA 107/30	Universal DIN rail adapter for Basicline 1000/2000
Buffer module	2402832	PC-PWR-FLTR-1	The PC-PWR-FLTR-1 buffers incoming power until operating voltage is reached. For use with 24 V DC power sources with rise times above 100 ms.
Buffer module	2402941	PC-PWR-FLTR-2	The PC-PWR-FLTR-2 buffers incoming power until operating voltage is reached. For use with 24 V DC power sources with rise times above 100 ms.
Software	2701453	VL PORTICO SERVER 1 CLIENT	Remote network portal software for remote controlling one PC from another.
Software	2701456	VL PORTICO SERVER 16 CLIENT	Remote network portal software for remote controlling up to 16 client PCs from one single server.
Software	2701455	VL PORTICO SERVER 4 CLIENT	Remote network portal software for remote controlling up to four client PCs from one single server.
Software package	2402618	UPGRADE WIN 7 PRO SP1 X64-DE	Kit for upgrading a Windows® XP operating system to Windows® 7 Professional SP1 (64-bit German-language operating system). Kit includes a USB drive and Microsoft® Certificate of Authority (CoA) sticker.
Software package	2400574	UPGRADE WIN 7 PRO SP1 X64-EN	Kit for upgrading a Windows® XP operating system to Windows® 7 Professional SP1 (64-bit English-language operating system). Kit includes a USB drive and Microsoft® Certificate of Authority (CoA) sticker.
Software package	2402617	UPGRADE WIN 7 PRO SP1 X86-DE	Kit for upgrading a Windows® XP operating system to Windows® 7 Professional SP1 (32-bit German-language operating system). Kit includes a USB drive and Microsoft® Certificate of Authority (CoA) sticker.
Software package	2400573	UPGRADE WIN 7 PRO SP1 X86-EN	Kit for upgrading a Windows® XP operating system to Windows® 7 Professional SP1 (32-bit English-language operating system). Kit includes a USB drive and Microsoft® Certificate of Authority (CoA) sticker.
Software package	2402620	UPGRADE WIN 7 ULT SP1 X64	Kit for upgrading a Windows® XP operating system to Windows® 7 Ultimate SP1 (64-bit multi-language operating system). Kit includes a USB drive and Microsoft® Certificate of Authority (CoA) sticker.

## Device accessories (may be product-specific)

General	Order No.	Designation	Description
Software package	2402619	UPGRADE WIN 7 ULT SP1 X86	Kit for upgrading a Windows® XP operating system to Windows® 7 Ultimate SP1 (64-bit multi-language operating system). Kit includes a USB drive and Microsoft® Certificate of Authority (CoA) sticker.
Software package	2400303	WES2009/WES7 RECOVERY USB	Operating system recovery kit for Windows® Embedded 2009 and Windows® Embedded 7 operating systems. The kit includes a USB drive.
Memory	2701668	16 GB CF	CompactFlash® card, pluggable, 16 GB
Memory	2701669	32 GB CF	CompactFlash® card, pluggable, 32 GB
Memory	2400170	IPC 16 GB CFAST KIT	CFast® card with 16 GB
Memory	2402978	IPC 32 GB CFAST KIT	CFast® card with 32 GB
Memory	2400168	IPC 4 GB CFAST KIT	CFast® card with 4 GB
Memory	2400169	IPC 8 GB CFAST KIT	CFast® card with 8 GB
Memory	2913155	VL 1 GB CF	CompactFlash® card, pluggable, 1 GB
Memory	2913156	VL 2 GB CF	CompactFlash® card, pluggable, 2GB
Memory	2913157	VL 4 GB CF	CompactFlash® card, pluggable, 4 GB
Memory	2913158	VL 8 GB CF	CompactFlash® card, pluggable, 8 GB
Power supply	2866750	QUINT-PS/1AC/24DC/ 5	Primary-switched QUINT POWER supply for DIN rail mounting with SFB (selective fuse breaking) Technology, input: 1-phase, output: 24 V DC / 5 A
Power supply, uninterruptible	2320212	QUINT-UPS/24DC/24DC/5	Uninterruptible power supply with IQ Technology for DIN rail mounting, input: 24 V DC, output: 24 V DC / 5 A, including mounted universal DIN rail adapter UTA 107/30
Touch pen	2701379	TOUCH PEN	Touch pen for HMIs, silver-coated, delivery includes self-adhesive pen holder
Embeddedline	Order No.	Designation	Description
PCB connector	1751312	MC 1,5/ 3-STF-3,5 BD:1-3	Plug for Embeddedline industrial PCs, nominal current: 8 A, number of positions: 3, pitch: 3.5 mm, connection method: screw connection with tension sleeve, color: green, contact surface: tin
Basicline	Order No.	Designation	Description
Hard drive mounting frame	2400026	BL 3000/7000 SATA TRAY	2.5" SATA tray kit for Basicline 3000 and 7000 industrial PCs.
Hard drive mounting frame	2403331	BL BPC 2000 2.5" SATA BAY	2.5" HDD/SSD mounting frame. Compatible with Basicline BPC 2000.
Hard drive mounting frame	2400423	BL PPC 1000 SATA TR	Installation hardware and empty drive tray ready for installation of SSD/HDD. For use with the Basicline PPC 1000.
PCB connector	1777992	MSTB 2,5/ 3-STF-5,08	Plug for Designline, Basicline and Valueline industrial PCs, nominal current: 12 A, rated voltage (III/2): 320 V, number of positions: 3, pitch: 5.08 mm, connection method: screw connection with tension sleeve, color: green, contact surface: tin
PCB connector	1786844	MSTB 2,5/3-STF	Plug for industrial monitors (FPM), nominal current: 12 A, rated voltage (III/2): 320 V, number of positions: 3, pitch: 5 mm, connection method: screw connection with tension sleeve, color: green, contact surface: tin

## Device accessories (may be product-specific)

Basicline	Order No.	Designation	Description
Memory	2400022	BL 3000/7000 16 GB SSD KIT	16 GB, 2.5" SATA SSD kit with tray for Basicline 3000 and 7000 industrial PCs
Memory	2400023	BL 3000/7000 32 GB SSD KIT	32 GB, 2.5" SATA SSD kit with tray for Basicline 3000 and 7000 industrial PCs
Memory	2400021	BL 3000/7000 320 GB HDD KIT	320 GB, 2.5" SATA HDD kit with tray for Basicline 3000 and 7000 industrial PCs
Memory	2403280	BL BPC 2000 16 GB SSD KIT	16 GB, 2.5" SATA SSD kit with tray for Basicline BPC 2000
Memory	2403281	BL BPC 2000 32 GB SSD KIT	32 GB, 2.5" SATA SSD kit with tray for Basicline BPC 2000
Memory	2403284	BL BPC 2000 320 GB SSD KIT	320 GB, 2.5" SATA SSD kit with tray for Basicline BPC 2000
Memory	2400073	BL PPC 1000 16 GB SSD KIT	16 GB, 2.5" SATA solid-state drive kit for Basicline PPC 1000, with mounting frame
Memory	2400074	BL PPC 1000 32 GB SSD KIT	32 GB, 2.5" SATA solid-state drive kit for Basicline PPC 1000, with mounting frame
Memory	2400078	BL PPC 1000 320 GB HDD KIT	320 GB, 2.5" SATA hard drive kit for Basicline PPC 1000, with mounting frame
Memory	2403286	BL PPC 1000 THERMAL PAD KIT	Thermal transfer pad replacement, compatible with Basicline PPC 1000

Valueline	Order No.	Designation	Description
Cover	2400277	SILICONE USB COVER KIT	USB end cover replacement for Valueline industrial PCs
Cover	2403293	VL2 PCI COVER	PCI slot cover
Hard drive mounting frame	2913185	HDD TRAY KIT	Hard drive mounting frame for Valueline industrial PCs
PCB connector	1777992	MSTB 2,5/ 3-STF-5,08	Plug for Designline, Basicline and Valueline industrial PCs, nominal current: 12 A, rated voltage (III/2): 320 V, number of positions: 3, pitch: 5.08 mm, connection method: screw connection with tension sleeve, color: green, contact surface: tin
PCB connector	1786844	MSTB 2,5/3-STF	Plug for industrial monitors (FPM), nominal current: 12 A, rated voltage (III/2): 320 V, number of positions: 3, pitch: 5 mm, connection method: screw connection with tension sleeve, color: green, contact surface: tin
Mounting kit	2913160	VL BOOKSHELF MOUNTING KIT	Mounting kit, Valueline industrial PC, without PCI expansion slots, for bookshelf mounting
Mounting kit	2913164	VL BOOKSHELF MOUNTING KIT/EXPANSION	Mounting kit, Valueline industrial PC, with PCI expansion slots for bookshelf mounting
Mounting kit	2913159	VL PANEL MOUNTING KIT	Mounting kit, Valueline industrial PC, for installation on a front panel
Mounting kit	2701177	VL PANEL+ MOUNTING KIT	Mounting kit, Valueline industrial PC. For use with 15- and 17-inch displays to accommodate thicker panels, including the required hardware.
Mounting kit	2913161	VL WALL MOUNTING KIT	Mounting kit, Valueline industrial PC, for wall mounting
Mounting panel	2701716	VL PPC12 19" RACKMOUNT PLATE	Mounting panel for the installation of Basicline and Valueline 12" PPC products and 12" FPM products through standard PPC mounting in a 19" rack
Mounting panel	2701715	VL PPC15 19" RACKMOUNT PLATE	Mounting panel for the installation of Basicline and Valueline 15" PPC products and 15" FPM products through standard PPC mounting in a 19" rack
Mounting panel	2701714	VL PPC17 19" RACKMOUNT PLATE	Mounting panel for the installation of Basicline and Valueline 17" PPC products and 17" FPM products through standard PPC mounting in a 19" rack

## Device accessories (may be product-specific)

Valueline	Order No.	Designation	Description
Protective foil	2913165	VL 15" DISPLAY PROTECTIVE FOIL	Protective foils for 15" touchscreen (10-pack)
Memory	2913199	VL 16 GB SSD (SLC) KIT	16 GB, 2.5" SATA solid-state drive (SLC) kit for Valueline industrial PC, with mounting frame
Memory	2913200	VL 32 GB SSD (SLC) KIT	32 GB, 2.5" SATA solid-state drive (SLC) kit for Valueline industrial PC, with mounting frame
Memory	2701111	VL 320 GB HDD KIT	320 GB, 2.5" SATA HDD kit (SLC) for Valueline industrial PC, with mounting frame
Memory	2400337	VL2 16 GB SLC SSD SATA KIT	16 GB, 2.5" SATA SSD kit with tray for VL2... industrial PPC and BPC products
Memory	2400338	VL2 32 GB SLC SSD SATA KIT	32 GB, 2.5" SATA SSD kit with tray for VL2... industrial PPC and BPC products
Memory	2400341	VL2 320 GB HDD SATA KIT	320 GB, 2.5" SATA SSD kit with tray for VL2... industrial PPC and BPC products
Memory	2400335	VL2 4 GB SLC SSD SATA KIT	4 GB, 2.5" SATA SSD kit with tray for VL2... industrial PPC and BPC products
Memory	2400336	VL2 8 GB SLC SSD SATA KIT	8 GB, 2.5" SATA SSD kit with tray for VL2... industrial PPC and BPC products
Designline	Order No.	Designation	Description
Hard drive mounting frame	2400033	DL HDD/SSD TRAY KIT	2.5" SATA kit for Designline industrial PC
Bracket	2400014	DL ADAPTER PLATE VESA75-100	Mounting panel for Designline for conversion from VESA 75 to VESA 100. VESA 100 hole size includes keyholes for easy mounting. Color: RAL 7035 (light gray).
Bracket	2400013	DL WALL MOUNT	Wall bracket for Designline. Hole size: VESA 100 with keyholes for easy mounting. Color: RAL 7035 (light gray). Length: 218 mm
PCB connector	1777992	MSTB 2,5/ 3-STF-5,08	Plug for Designline, Basicline and Valueline industrial PCs, nominal current: 12 A, rated voltage (III/2): 320 V, number of positions: 3, pitch: 5.08 mm, connection method: screw connection with tension sleeve, color: green, contact surface: tin
Assembly adapter	2402681	DL 15 RITTAL ADAPTER	The DL...RITTAL ADAPTER attaches to a Designline industrial PC and enables seamless integration with a Rittal CP40 or CP60 series support arm.
Assembly adapter	2402682	DL 18.5 RITTAL ADAPTER	The DL...RITTAL ADAPTER attaches to a Designline industrial PC and enables seamless integration with a Rittal CP40 or CP60 series support arm.
Assembly adapter	2402683	DL 21.5 RITTAL ADAPTER	The DL...RITTAL ADAPTER attaches to a Designline industrial PC and enables seamless integration with a Rittal CP40 or CP60 series support arm.
Mounting kit	2403285	DL CABLE ENTRY GASKET KIT	Cable gasket set for Designline industrial PC
Mounting kit	2403344	DL PPC15 USB door top	Replacement USB cover including screws for Designline PPC15 1000
Memory	2400029	DL 16 GB SSD KIT	16 GB, 2.5" SATA SSD kit with tray for Designline industrial PC
Memory	2400030	DL 32 GB SSD KIT	32 GB, 2.5" SATA SSD kit with tray for Designline industrial PC
Memory	2400028	DL 320 GB HDD KIT	320 GB, 2.5" SATA HDD kit with tray for Designline industrial PC

## Device accessories (may be product-specific)

Tablet PCs	Order No.	Designation	Description
Energy storage	2403082	ITC 8113 RECHARGEABLE BATTERY	Battery for ITC 8113 xxx with 4 cells and charge level indicator
Bracket	2403313	ITC 8113 PORTREPLICATOR	Rotatable/tiltable port replicator (without lock) for ITC 8113 xxx with 1x Ethernet (10/100/1000 Mbps), RJ45 and 4x USB 2.0.
Charger	2403081	ITC 8113 CHARGING STATION	Charging station for simultaneous charging of two batteries. LEDs indicate the charging state of each charging unit; insertion/removal of a battery is indicated by an acoustic signal.
Power supply	2403083	ITC 8113 POWER SUPPLY	Power supply unit for ITC 8113 xxx, charging station, and port replicator
Handle	2403314	ITC 8113 HANDLE	Handle for the ITC 8113, incl. 2 screws
Strap	2404751	ITC 8113 CARRYING STRAP	
Transport box	2404752	ITC 8113 TRANSPORT CASE	

## Excellent products



### Controllers

Phoenix Contact offers controllers in all performance classes for efficient automation of your system.



### Industrial Ethernet

With the products from Phoenix Contact, you can make the most of all the options offered by Ethernet network to ensure consistency, speed and extreme flexibility.



### I/O systems

Collect and transmit signals and data quickly and reliably to your systems.



### Wireless data communication

Modern wireless technology offers efficient and consistent communication for all industrial applications.



### Software

Benefit from innovative software solutions – optimally tailored to hardware from Phoenix Contact.



### Power supplies and UPS

Maximum availability for your systems – our solutions for your power supply are technologically groundbreaking.



### Fieldbus components and systems

Save time during planning and installation. With this versatile product range you can create a fieldbus network for every application.



### Surge protection and interference suppression filters

Do you want system operation to be unaffected by interference? Then surge protection from Phoenix Contact will help you fulfill an essential requirement.



### Functional safety

Innovative safety solutions for all requirements. Play it safe, make the right choice.



### Lighting and signaling

Whether you are dealing with the system state, product quality or hard-to-inspect dark areas — with more intelligent lighting and signaling technology, you always have everything within view.

## In dialog with customers and partners worldwide

Phoenix Contact is a globally present, Germany-based market leader. Our group is synonym for future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries, and 14,500 employees ensure a close proximity to our customers, which we believe is particularly important.

The wide variety of our innovative products makes it easy for our customers to find future-oriented solutions for different applications and industries. We especially focus on the fields of energy, infrastructure, process and factory automation.



You will find our complete product range at:  
[phoenixcontact.com](http://phoenixcontact.com)

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