



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 and microbrowsers
- HMIs for HTML5
- 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	Spider Control™	Visu+ Express	Visu+
User interface					
Display of operating data					
• 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)
Supported image formats					
• GIF / JPG / PNG / SVG	– / – / – / –		Yes/Yes/Yes/Yes	Yes/Yes/Yes/–	Yes/Yes/Yes/–
• BMP / TIF / WMF / WPF	– / – / – / –		– / – / – / –	Yes/Yes/–/–	Yes/Yes/Yes/–
Animation					
• Simple object animation	–		Yes	Yes	Yes
• Polygon filling / rotation	– / –		– / –	– / –	Yes/Yes
Functionality					
Target value input					
• Numeric/alphanumeric	Yes/–		Yes/Yes	Yes/Yes	Yes/Yes
Alarm management					
• 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
Trend display					
• Online (dynamic)	–		Yes	Yes	Yes
• Offline (plus historical data)	–		Yes	Yes	Yes
Online language selection	–		Yes	Yes	Yes
Archiving (data logger)					
• 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 (depends on the license)
System coupling					
Connection to Phoenix Contact PLC	Yes (http)		Yes (http)	Yes (OPC, Modbus)	
Connection to third-party systems	–	–	Yes (http)	Yes (all established manufacturers)	
Compatible devices					
HMI (including a suitable runtime)	TD1030T	HMI for WebVisit and microbrowsers		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		
Resolution of the display					
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
Memory required for visualization					
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
Variables					
Maximum number of variables (tags)	256	1024	2048	4096	128000
Polling rate	1000 ms	500 ms	250 ms	Unlimited	Unlimited
System coupling and communication					
Maximum number of controllers	1	5	10	Unlimited	Unlimited
Max. number of parallel-used drivers	1	1 plus OPC	2 plus OPC	2 plus OPC	2 plus OPC
Max. number of controllers for each driver	1	2	5	128	128
VBA scripts and IL logic (instruction list)					
Maximum number of scripts	4	8	16	64	4096
Can be executed simultaneously	1	2	4	4	128
Number and frequency of logs (data logging)					
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
Alarm management					
Maximum number of alarms	128	512	1024	4096	32000
User management					
Maximum number of users	16	512	1024	1024	8192
Maximum number of user groups	4	16	64	64	512
Report generation and printing					
Textual reporting	–	Yes	Yes	Yes	Yes
Graphical reporting	–	–	Yes	Yes	Yes
Events					
Maximum number of event objects	16	64	128	128	512
Recipe management					
Maximum number of recipes per project	4	8	16	16	512
Maximum number of columns per recipe	8	32	128 (90 with IMDB)	128 (90 with IMDB)	1024 (127 with IMDB)
Language selection					
Maximum number of languages	4	16	32	32	128
Access via the web browser					
Max. simultaneous instances of access	–	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
HTML5	HMI for HTML5		Panel PC with standard browser
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+
Display size (4:3)						
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	-	-	(✓)	✓
Display size (16:9)						
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	-	-	(✓)	✓
Touch technology						
Analog resistive polyester touchscreen			✓	✓	✓	✓
Analog resistive glass-film-glass touchscreen			-	✓	(✓)	✓
Projective capacitive touch (PCAP)			-	-	(✓)	✓
Interfaces						
Ethernet			✓	✓	✓	✓
Dual CAN			-	-	-	(✓)
RS-232			-	-	-	✓
RS-485			-	-	-	(✓)

(✓) = project-specific possibility




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

Model view			
Designation	TD1030T	WP04T	WP06T
Order number	2701257	2913632	2913645
Display (in cm)	7.1 (2.8")	8.89 (3.5")	14.48 (5.7")
Colors	4	65,536	
Resolution (W x H in pixels)	320 x 240 (QVGA)		
Brightness (in cd/m ²)	280	350	400
Reading angle (left/right / top/bottom) in ° (degrees)	70 / 75 / 75 / 55	75 / 75 / 55 / 75	75 / 75 / 60 / 75
Backlight (MTTF in h)	40,000		
Touch technology	Polyester, analog resistive		
Processor	Cortex [®] -M3 120 MHz	ARM [®] 9 CPU, 200 MHz	
Temperature range	Operation: -0°C ... +50°C, storage: -25°C ... +70°C		
Degree of protection (front/back)	IP54 / IP20	IP65 / IP20	
Front panel dimensions (W x H x D in mm)	96.6 x 72.8 x 7	120 x 90 x 5	168 x 126 x 5
Installation depth (in mm) including fieldbus interface	55	35	42
Mounting cutout (W x H in mm)	92 x 68	112 x 82	160 x 118
Weight (in kg)	0.165	0.43	0.69
Type of power consumption	2.4 W at 24 V	7.2 W at 24 V	9.6 W at 24 V
Approvals	UL / cUL	UL / cUL, NEMA 4 x	
General technical data			
Display type	TFT / LED (white)		
Memory	512 kB Flash, 96 kB SRAM	32 MB Flash, 64 MB SDRAM, 512 KB SRAM with battery backup	
Interfaces	–	1x Ethernet 10/100 Mbps, 2x USB Host 2.0	
Operating system	Keil RTX (RTOS)	MS Windows [®] CE 5.0	
Relative humidity	20 % to 85 %, non-condensing	For operation and storage: 20% to 85%, non-condensing	
Installation type	Portrait/landscape		
Mounting type	Front installation		
Power supply	24 V DC	24 V DC ±20%	

- Quick and user-friendly display 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



WP07T/WS	WP09T/WS	WP10T	WP15T
2700307	2700309	2700934	2700935
17.78 (7")	22.86 (9")	26.42 (10.4")	38.10 (15")
65,536			
800 x 480 (WVGA)		800 x 600 (VGA)	
350		400	
70 / 70 / 65 / 65		70 / 70 / 50 / 60	
40,000		50,000	
Polyester, analog resistive			
ARM®9 CPU, 200 MHz			
Operation: -0°C ... +50°C, storage: -25°C ... +70°C			
IP65 / IP20			
203 x 147 x 5		260 x 172 x 5	
54		54	
195 x 139		252 x 164	
1		1.3	
12 W at 24 V		14.4 W at 24 V	
54		55	
195 x 139		287 x 212	
1		1.8	
12 W at 24 V		14.4 W at 24 V	
54		60	
195 x 139		373 x 302	
1		2.3	
12 W at 24 V		24 W at 24 V	

UL / cUL, NEMA 4x

General technical data

TFT / LED (white)

32 MB Flash, 64 MB SDRAM, 512 KB SRAM with battery backup

1x Ethernet 10/100 Mbps, 2x USB Host 2.0

MS Windows® CE 5.0

For operation and storage: 20% to 85%, non-condensing

Portrait/landscape

Front installation

24 V DC ±20%








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

Model view							
Designation	BWP 2043W	BWP 2070W	BWP 2102W	WP 3057V	WP 3070W	WP 3090W	WP 3105S
Order number	1060549	1060632	1060630	2400251	2400253	2402634	2400254
Display (in cm)	10.92 (4.3")	17.8 (7")	26.4 (10.2")	14.48 (5.7")	17.78 (7")	22.9 (9")	26.42 (10.4")
Colors	262,144						
Resolution (W x H in pixels)	480 x 272 (WQVGA)	800 x 480 (WVGA)		640 x 480 (VGA)	800 x 480 (WVGA)		800 x 600 (SVGA)
Brightness (in cd/m ²)	300			400	350	800	340
Reading angle (left/right / top/bottom) in ° (degrees)	70 / 70 / 50 / 70		65 / 65 / 45 / 65	65 / 65 / 55 / 52	70 / 70 / 65 / 65	85 / 85 / 85 / 85	70 / 70 / 50 / 60
Backlight (MTTF in h)	20,000			40,000			50,000
Touch technology	Polyester, analog resistive						
Processor	Cortex®-A9 (i.MX6 Solo)			ARM® Cortex®-A8, 1 GHz, real-time clock (with battery backup)			
Temperature range	Operation: 0°C ... +50°C Storage: -20°C ... +85°C			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 89 x 5	186 x 138 x 5	268 x 190 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	31.5	31	33	42		54	
Mounting cutout (W x H in mm)	111 x 80	175 x 127	256 x 178	160 x 118	195 x 139	164 x 252	287 x 212
Weight (in kg)	0.2	0.4	0.9	0.8		1.3	1.9
Type of power consumption	4.08 W at 24 V	9.6 W at 24 V		7.2 W at 24 V		14.4 W at 24 V	12 W at 24 V
Approvals	UL / cUL			UL / cUL, Class1 Div2, NEMA 4X			
General technical data							
Display type	TFT / LED (white)						
Memory	1GB RAM, 4GB eMMC Flash			1 GB Flash, 512 SDRAM			
Interfaces	1 x µSD, 1 x Ethernet 1/100 Mbps, 1 x USB Host 2.0, 1 x µUSB device			1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot			
Operating system	Linux Yocto			Debian GNU/Linux and browser			
Relative humidity	For operation and storage: 10% to 95%, non-condensing			For operation and storage: 20% to 85%, non-condensing			
Installation type	Portrait/landscape						
Mounting type	Front installation						
Power supply	24 V DC ±15%			24 V DC ±20%			

- 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



WP 3121S	WP 3120W	WP 3150S	WP 4070W	WP 4070W/P	WP 4101W/P	WP 4120W/P
2402635	2400255	2400285	1065546 (configurable product)			
30.73 (12.1")		38.1 (15")	17.78 (7")		25.65 (10.1")	30.73 (12.1")
262,144			16.7 million			
800 x 600 (SVGA)	1280 x 800 (WXGA)	1024 x 768 (XGA)	800 x 480 (WVGA)		1280 x 800 (WXGA)	
360	320	480	350	400	850	320
80 / 80 / 60 / 80	88 / 88 / 88 / 88	80 / 80 / 65 / 80	70 / 70 / 60 / 60	88 / 88 / 88 / 88		
50,000			40,000	50,000		
Polyester, analog resistive			Polyester, analog resistive	Projective-capacitive (PCAP)		
ARM® Cortex®-A8, 1 GHz, real-time clock (with battery backup)	ARM® Cortex®-A8, 800 MHz, real-time clock (with battery backup)		ARM® Cortex®-A53, 4x 1.2 GHz			
Operation: 0°C ... +50°C Storage: -25°C ... +70°C			Operation: 0°C ... +50°C Storage: -20°C ... +85°C			
IP65/IP20			IP65/IP20			
340 x 270 x 5	330 x 225 x 5	400 x 329 x 5	203 x 147 x 5	208 x 149 x 6	253 x 190 x 6	336 x 234 x 6
55	48	55	42	53	43	54
313 x 243	322 x 217	372 x 301	195 x 139	198 x 138	243 x 180	326 x 224
2.2	1.7	3	0.8	1.3	1.8	2.7
12 W at 24 V	16.8 W at 24 V		9.6 W at 24 V		21.6 W at 24 V	
UL / cUL, Class1 Div2, NEMA 4X			UL / cUL, Class1 Div2, NEMA 4X			

General technical data

TFT / LED (white)	TFT / LED (white)
1 GB Flash, 512 SDRAM	1GB RAM, 8GB eMMC Flash
1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot	1 x Ethernet 1/100 Mbps, 2 x USB Host 2.0, 1 x µSD card slot
Debian GNU / Linux and browser	Linux Yocto
For operation and storage: 20% to 85%, non-condensing	For operation and storage: 20% to 85%, non-condensing
Portrait/landscape	Portrait/landscape
Front installation	Front installation
24 V DC ±20%	24 V DC ±15%







HMI 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 a new generation of processors and integrated Visu+ visualization software

Model view						
Designation	BTP 2043W	BTP 2070W	BTP 2102W	TP 3043W	TP 3057Q	TP 3057V
Order number	1050387	1046666	1046667	2402629	2400452	2400453
Display (in cm)	10.92 (4.3")	17.8 (7")	26.4 (10.2")	10.92 (4.3")	14.48 (5.7")	
Colors	262,144			65,536		262,144
Resolution (W x H in pixels)	480 x 272 (WQVGA)	800 x 480 (WVGA)		480 x 272 (WQVGA)	320 x 240 (QVGA)	640 x 480 (VGA)
Brightness (in cd/m ²)	300			385	400	
Reading angle (left/right / top/bottom) in ° (degrees)	70 / 70 / 50 / 70		65 / 65 / 45 / 65	75 / 75 / 63 / 75	75 / 75 / 60 / 75	65 / 65 / 55 / 52
Backlight (MTTF in h)	20,000			40,000		
Touch technology	Polyester, analog resistive					
Processor	ARM®9 i.MX28, 454 MHz			ARM® Cortex®-A8, 800 MHz, real-time clock (with battery backup)		
Temperature range	Operation: 0°C ... +50°C, storage: -20°C ... +85°C			Operation: -0°C ... +50°C, storage: -25°C ... +70°C		
Degree of protection (front/back)	IP66 / IP20			IP65 / IP20		
Front panel dimensions (W x H x D in mm)	120x89x5	186x138x5	168x190x5	140 x 100 x 5	203 x 147 x 5	168 x 126 x 5
Installation depth (in mm) including fieldbus interface	31.5	31	33	42 71		
Mounting cutout (W x H in mm)	111 x 80	175 x 127	256 x 178	132 x 92	195 x 139	160 x 118
Weight (in kg)	0.2	0.4	0.9	0.55	0.9	
Type of power consumption	4.08 W at 24 V	9.6 W at 24 V		7.2 W at 24 V		9.6 W at 24 V
Approvals	UL / cUL			UL / cUL, Class1 Div2, NEMA 4X		
General technical data						
Display type	TFT / LED (white)					
Memory	128 MB RAM, 512 MB Flash			1 GB Flash, 512 SDRAM (optional 1 MB SRAM)		
Interfaces	1 x SD, 1 x Ethernet 1/100 Mbps, 1 x USB Host 2.0, 1 x USB Device, 2 x COM (RS-232/422/485)			1 x Ethernet 10/100 Mbps, 2 x USB Host 2.0, 1 x SD card slot		
Serial interfaces (optional)	Integrated as standard			1x RS-232, 1x RS422/RS-485 (electrically isolated)		
Fieldbus interfaces (optional)	-			2 x CAN (electrically isolated)		
Operating system	Windows CE 6.0			MS Windows® Embedded Compact 7		
Relative humidity	For operation and storage: 10% to 95%, non-condensing			For operation and storage: 20% to 85%, non-condensing		
Installation type	Portrait/landscape					
Mounting type	Front installation					
Power supply	24 V DC ± 15%			24 V DC ±20 %		

- 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



TP 3070W	TP 3090W	TP 3105S	TP 3121S	TP 3120W	TP 3150S	TP 3154W
2400454	2402630	2400455	2400457	2400456	2400458	2402631
17.78 (7")	22.68 (9")	26.42 (10.4")	30.73 (12.1")		38.1 (15")	39.1 (15.4")
262,144	16.7 million	262,144		65,535		
800 x 480 (WVGA)		800 x 600 (SVGA)		1280 x 800 (WXGA)	1024 x 768 (XGA)	1280 x 800 (WXGA)
350	800	340	360	320	480	360
70 / 70 / 65 / 65	85 / 85 / 85 / 85	70 / 70 / 50 / 60	80 / 80 / 60 / 80	88 / 88 / 88 / 88	80 / 80 / 65 / 80	
40,000	70,000	50,000				

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

203 x 147 x 5	260 x 172 x 5	295 x 220 x 5	340 x 270 x 5	330 x 225 x 5	400 x 329 x 5	420 x 297 x 5
42 71	54 59	54 54	55 55	48 48	55 55	64 64
195 x 139	252 x 164	287 x 212	313 x 243	322 x 217	372 x 301	396 x 273
0.8	1.3	1.9	2.2		3	3.3
7.2 W at 24 V	19.2 W at 24 V	12 W at 24 V	16.8 W at 24 V	19.2 W at 24 V		21.6 W at 24 V

UL / cUL, Class1 Div2, NEMA 4X

General technical data

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

Front installation

24 V DC ±20 %






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 the Visu+ mobile app

Model view					
Designation	TP 3070W/P	TP 3090W/P	TP 3120W/P	TP 3156W/P	TP 3185W/P
Order number	2403459	2403460	2403461	2403462	2403862
Display (in cm)	17.78 (7")	22.86 (9")	30.73 (12.1")	39.62 (15.6")	47.00 (18.5")
Colors	16.77 million			65,535	
Resolution (W x H in pixels)	800 x 480 (WVGA)		1280 x 800 (WXGA)	1366 x 768 (WXGA)	
Brightness (in cd/m ²)	400	800	320		240
Reading angle (left/right / top/bottom) in ° (degrees)	70 / 70 / 60 / 60	85 / 85 / 85 / 85	88 / 88 / 88 / 88	80 / 80 / 80 / 80	85 / 85 / 80 / 80
Backlight (MTTF in h)	40,000	70,000	50,000	70,000	50,000
Touch technology	Projective-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				
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
Type of power consumption	9.6 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, NEMA 4X				
General technical data					
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)	1 x RS-232, 1 x 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	Front installation				
Power supply	24 V DC ±20%				

Touch technologies

Technology	Analog-resistive touch technology		Capacitive touch technology	
Design	Polyester touch	Glass-film-glass	Surface-capacitive	Projective-capacitive
Abbreviation	AR touch	GFG	S-CAP	P-CAP
Method of operation	Upon touching the surface, two conductive ITO layers meet, causing a voltage drop (voltage divider).	Polyester film laminated in between two sheets of glass. Same functional principle, but with robust and scratch-proof surface.	Touching causes changes in an electric field.	A sensor grid is used with P-CAP. Changes in the electric field are evaluated individually in each part of the grid.
Operating mode • Finger • Glove • Stylus operation	Yes Yes Yes	Yes Yes Yes	Yes No No	Yes Yes (with restrictions) No
Surface material	Polyester	Glass	Glass	Glass
Touch operation mode	Single-point operation	Single-point operation	Single-point operation	Multi-point operation
Typing frequency	+	+	+	+++
Positioning accuracy	++	++	0	+++
Light permeability	0	0	+	+++
Surface hardness (mechanical sensitivity)	-	+	---	+++
Vibration resistance (mechanical sensitivity)	+++	+++	+	+++
Chemical resistance	-	+++	--	+++
EMC sensitivity	+++	+++	---	---
Sunlight resistance (UV sensitivity)	---	+++	-	+++
Outdoor suitability (temperature sensitivity)	0	+++	0	+++
Dust/water tightness	+++	+++	0	+++
Gas tightness	+++	+++	-	+++
Cost efficiency	+++	0	0	++

+++ Outstanding | ++ Excellent | + Good | 0 Average | - Moderate | -- Bad | --- Unsuitable

Device accessories (may be product-specific)

Type	Order number	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)
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	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)
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 number	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
Adapter	2401505	DEVELOPMENTKIT USB-2CAN-SERIAL	Interface environment that supports development, (RS-232, RS-485 and 2x CAN) for connection to the development PC

() = 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 ranges of 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 19" racks
- For use in the field

2

Assess the performance required

- Low
- Medium
- High

3

Select the right industrial PC




- EL xxx
- BL xxx
- VL xxx
- DL xxx

Product range	EL xxx	BL xxx	VL xxx	DL xxx
Application				
For the control cabinet (box PCs)	–			–
For front installation (panel PCs)				–
For 19" racks (rack PCs)	–		–	–
For use in the field (panel PCs in IP65)	–	–	–	
Performance required				
Low				
Medium	–			–
High	–			
Functionality				
Display formats	4:3 and 16:9	4:3	4:3 and 16:9	4:3 and 16:9
Touch operation mode	Single-touch	Single-touch	Single-touch/multi-touch	Single-touch/multi-touch
5.7" to 10" displays		–		–
12" to 18.5" displays				
> 18.5" displays	–	–		
Cooling	Passive	Passive/active	Passive/active	Passive
Expanded temperature range	–	–		
Can be expanded 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, NEMA 4	UL / cUL	UL / cUL, Class 1 Div 2, NEMA	UL / cUL




	EL xxx	BL xxx	VL xxx	DL xxx
Performance Level	<p>Passmark CPU Mark (in accordance with PassMark Performance Test™)</p> <p>1: EL 1000 - AMD G-T40R 1.0 GHz 2: EL 1000 - AMD G- T40E 1.0 GHz 3: EL 1000 - Intel® Atom™ E3845 1.91 GHz</p>	<p>1: BL2 1000 - Intel® Celeron® N3350 1.10GHz 2: BL 2000 - Intel Celeron N2930 1.83GHz 3: BL 3000 - Intel Celeron 1020E 2.20GHz 4: BL2 2000 - Intel Pentium N4200 1.10GHz 5: BL 7000 - Intel Core i7-3555LE 2.50GHz 6: BL2 7000 - Intel Core i5-7442EQ 2.10GHz</p>	<p>1: VL2 1000 - Intel® Atom™ E3845 1.91 GHz 2: VL2 2000 - Intel® Celeron® N2930 1.83 GHz 3: VL2 3000 - Intel® Core™ i3-4010U 1.70 GHz 4: VL2 7000 - Intel® Core™ i5-4300U 1.9 GHz 5: VL2 9000 - Intel® Core™ i7-6822EQ 2.0 GHz</p>	<p>1: DL 1000 - Intel® Atom™ E680 1.60GHz 2: DL 7000 - Intel® Core™ i7-4650U 1.70GHz</p>

All technical data is continuously supplemented and expanded on our website




Box PCs for low to medium performance requirements

Model view			
Designation	VL2 BPC 1000	BL2 BPC 1000	BL BPC 2000
Order number	2403046	2404777	2701712
Processor	Intel® Atom™ E3845 1.91 GHz (quad-core)	Intel® Celeron® N3350 1.10/2.40 GHz (dual-core)	Intel® Celeron® N2930 1.83 GHz (quad-core)
RAM (configurable)	Max. 4 GB DDR3		Max. 8 GB DDR3
Data memory (configurable)	SD, HDD or SSD	M.2 SSD	CFast, HDD or SSD
Number of drives	1		
RAID support (configurable)	–		
USB	2 x USB 2.0, 1 x USB 3.0	2 x USB 2.0, 2 x USB 3.0	3 x USB 2.0, 1 x USB 3.0
Serial interfaces	1 x COM (RS-232 / 422 / 485) Optional: 1 x COM (RS-232), 1 x COM (RS-485), 2 x CAN	1 x COM (RS-232 / 422 / 485) 2 x COM (RS-232)	1 x COM (RS-232 / 422 / 485) 2 x COM (RS-232)
Video output	1 x DisplayPort	2 x DisplayPort	
Graphics processor	Intel® HD Graphics	Intel® HD Graphics 500	Intel® HD Graphics
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Intel® I210	Intel® I210-AT	Realtek® 8111F PCI-E
PCI/PCIe slots (configurable)	–	1 x Mini-PCIe 802.11 a / b / g / n WLAN	–
Maximum card size (PCI/PCIe)	–		
Operating systems (configurable)	Windows® Embedded Standard 7 Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise	Windows® 10 IoT Enterprise	Windows® Embedded Standard 7 Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise
Cooling	Passive		
Mounting type	Wall or bookshelf mounting	Wall or DIN rail mounting	
Dimensions (W x H x D in mm)	271 x 211 x 65	162 x 146 x 49	162 x 146 x 49 (without SSD/HDD) 162 x 146 x 64 (with SSD/HDD)
Weight (in kg)	2.4	1.6	
Power supply	24 V DC ±20 %		
Maximum power consumption	21.3 W at 30 V	25.7 W at 24 V	21.3 W at 19.2 V
Temperature range	Operation with HDD: 0°C ... +45°C With SSD: 0°C ... +50°C Storage: -25°C ... +70°C	Operation: 0°C ... +50°C Storage: -40°C ... +70°C	
Relative humidity	20% ... 85% (non-condensing)	5% ... 95% (non-condensing)	
Degree of protection (front side/rear side)	IP30	IP20	
Approvals	UL / cUL, Class 1 Div 2	UL / cUL	





Box PCs for medium performance requirements

		
VL BPC 2000	VL2 BPC 2000	BL2 BPC 2000
2402759	2400332	2404844
Intel® Celeron® N2930 1.83 GHz (quad-core)	Intel® Celeron® N2930 1.83 GHz (quad-core)	Intel® Pentium® N4200 1.10/2.50 GHz (quad-core)
Max. 8 GB DDR3		
CFast, HDD or SSD	HDD or SSD	M.2 SSD
2		1
-		
3 x USB 2.0, 1 x USB 3.0	4 x USB 2.0	2 x USB 2.0, 2 x USB 3.0
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) 2 x COM (RS-232)
1 x VGA 1 x DisplayPort	2 x DisplayPort	
Intel® HD Graphics		Intel® HD Graphics 505
2 x (10/100/1000 Mbps), RJ45		
Intel® I210	Intel® I210	Intel® I210-AT
2x PCI	1x PCI or 1 x PCIe	1 x Mini-PCIe 802.11 a / b / g / n WLAN
180.9 x 107.9 mm	175 mm x 100 mm x 15 mm	-
Windows® Embedded Standard 7 Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise		Windows® 10 IoT Enterprise
Passive		
Wall or bookshelf mounting		Wall or DIN rail mounting
265 x 207x 49 265 x 207 x 87 (with PCI slots)	264 x 215 x 95	162 x 146 x 49
3.4 5.35 (with PCI slots)	4.2	1.6
24 V DC ±20%		
63.2 W at 19.2 V	37.4 W at 19.2 V With PCI-PCIe 40.8 W	34.6 W at 24 V
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 ... +65°C Storage: -40°C ... +70°C	Operation: 0°C ...+50°C Storage: -40°C ... +70°C
5% ... 95% (non-condensing)		
IP20	IP30	IP20
UL / cUL, Class 1 Div 2		UL / cUL





Box PCs for medium and high performance requirements





Model view			
Designation	VL BPC 3000	VL2 BPC 3000	VL2 BPC 7000
Order number	2400183	2400492	2400333
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	
Number of drives	2		
RAID support (configurable)	–	0/1	
USB	3 x USB 2.0, 1 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)	
Video output	1 x DVI-D 1 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	
Maximum card size (PCI/PCIe)	180.9 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 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	
Weight (in kg)	3.4 5.35 (with PCI slots)	4.8	
Power supply	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: -20°C ... +65°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ...+45°C With SSD: -10°C ... +65°C Storage: -40°C ... +70°C
Relative humidity	5% ... 95% (non-condensing)		
Degree of protection	IP20	IP30	
Approvals	UL / cUL, Class 1 Div 2		

Rack PCs




			
BL2 BPC 7000	VL2 BPC 9000	BL RACKMOUNT 2U	BL RACKMOUNT 4U
1016240	2400499	2400063	2400064
Intel® Core™ i5-7442EQ 2.10/2.90 GHz (quad-core)	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. 8 GB DDR4	Max. 16 GB DDR4	With i3: max. 8 GB RAM, With i7: max. 16 GB RAM	
M.2 SSD	HDD or SSD	HDD or SSD	
1	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) 2 x COM (RS-232)	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 630	Intel® HD Graphics 530	Intel® HD Graphics 4600	
2 x (10/100/1000 Mbps), RJ45		2 x (10/100/1000 Mbps), RJ45	
Intel® I210-AT	Intel® I210	1 x Intel® I210 1 x Intel® I217	
1 x Mini-PCIe 802.11 a / b / g / n WLAN	1x 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® 10 IoT Enterprise	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 DIN rail mounting	Wall or bookshelf mounting	2U rack mounting	4U rack mounting
162 x 146 x 49	264 x 215 x 95	482 x 89 x 429	482 x 177 x 461
1.6	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)
43.9 W at 24 V	–	–	
Operation: 0°C ... +50°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +60°C Storage: -40°C ... +70°C	Operation: 0°C ... +55°C Storage: -40°C ... +70°C	
5% ... 95% (non-condensing)		5% ... 95% (non-condensing)	
IP20	IP30	IP20	
UL / cUL	UL / cUL, Class 1 Div 2	UL / cUL	





Panel PCs with analog resistive touchscreens for low performance requirements

Model view				
Designation	EL PPC5.7 1000	EL PPC7 1000	EL PPC9 1000	EL PPC10S 1000
Order number	2404318	2701481	2701482	2400232
Touch technology	Analog resistive			
Display size (in cm)	14.5 (5.7")	17.78 (7")	22.9 (9")	26.4 (10.4")
Display type	TFT / LED (white)			
Colors	262,144		16.7 million	65,536
Resolution (W x H in pixels)	640 x 480 (VGA)	800 x 480 (WVGA)		800 x 600 (SVGA)
Brightness (in cd/m ²)	400	350	400	340
Reading angle (left/right / top/bottom) in ° (degrees)	65 / 65 / 55 / 52	70 / 70 / 65 / 65	85 / 85 / 85 / 85	70 / 70 / 50 / 60
Backlight (MTTF in h)	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 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 output	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 %			
Type of power consumption	14.4 W at 24 V	19.2 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 (with Intel® Atom™ E3845)		




				
Designation	EL PPC12S 1000	EL PPC12 1000	EL PPC15S 1000	EL PPC15 1000
Order number	2400233	2701484	2400234	2701485
Touch technology	Analog resistive			
Display size (in cm)	30.73 (12.1")	30.73 (12.1")	38.1 (15")	39.12 (15.4")
Display type	TFT / LED (white)			
Colors	262,144			
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 ²)	350	320	480	360
Reading angle (left/right / top/bottom) in ° (degrees)	80 / 80 / 65 / 75	88 / 88 / 88 / 88	80 / 80 / 60 / 80	80 / 80 / 65 / 80
Backlight (MTTF in h)	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 output	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 (with Intel® Atom™ E3845)			

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






Model view			
Designation	BL2 PPC 1000	VL PPC 2000	BL2 PPC 2000
Order number	2404845	2402760	2404846
Touch technology	Analog resistive		
Display size (in cm)	30.7 (12.1") 38.1 (15") 43.2 (17")	30.7 (12.1") to 60.9 (24") (optional: front USB)	30.7 (12.1") 38.1 (15") 43.2 (17")
Display type	TFT / LED (white)		
Colors	16.2 million	Depends on the configuration	16.2 million
Resolution (W x H in pixels)	1024 x 768 (XGA) 1280 x 1024 (SXGA)	800 x 600 (SVGA) to 1920 x 1080 (Full HD)	1024 x 768 (XGA) 1280 x 1024 (SXGA)
Brightness (in cd/m ²)	Depends on the configuration		
Reading angle (left/right / top/bottom) in ° (degrees)	Depends on the configuration		
Backlight (MTTF in h)	50,000		
Processor	Intel® Celeron® N3350 1.10/2.40 GHz (dual-core)	Intel® Celeron® N2930 1.83 GHz (quad-core)	Intel® Pentium® N4200 1.10/2.50 GHz (quad-core)
RAM (configurable)	Max. 4 GB DDR3	Max. 8 GB DDR3	
Data memory (configurable)	M.2 SSD	CFAST, HDD or SSD	M.2 SSD
Number of drives	1	2	1
RAID support (configurable)	–		
USB	2 x USB 2.0, 2 x USB 3.0	3 x USB 2.0, 1 x USB 3.0	2 x USB 2.0, 2 x USB 3.0
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 output	2 x DisplayPort	1 x VGA 1 x DisplayPort	2 x DisplayPort
Graphics processor	Intel® HD Graphics 500	Intel® HD Graphics	Intel® HD Graphics 505
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	Intel® I210-AT	Intel® I210	Intel® I210-AT
PCI/PCIe slots (configurable)	1 x Mini-PCIe 802.11 a / b / g / n WLAN	2x PCI	1 x Mini-PCIe 802.11 a / b / g / n WLAN
Maximum card size (PCI/PCIe)	–	180.9 x 107.9 mm	–
Operating systems (configurable)	Windows® 10 IoT Enterprise	Windows® Embedded Standard 7 Windows® Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise	Windows® 10 IoT Enterprise
Cooling	Passive		
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 ... +50°C Storage: -40°C ... +70°C
Relative humidity	5% ... 95% (non-condensing)		
Degree of protection (front/back)	IP65 / IP20		
Approvals	UL / cUL	UL / cUL, Class 1 Div 2	UL / cUL

			
BL PPC 3000	VL PPC 3000	BL PPC 7000	BL2 PPC 7000
2701397	2400184	2701398	1016236
Analog resistive			
38.1 (15") 43.2 (17")	30.7 (12.1") to 60.9 (24") (optional: front USB)	38.1 (15") 43.2 (17")	30.7 (12.1") 38.1 (15") 43.2 (17")
TFT / LED (white)			
Depends on the configuration			16.2 million
1024 x 768 (XGA) 1280 x 1024 (SXGA)	800 x 600 (SVGA) to 1920 x 1080 (Full HD)	1024 x 768 (XGA) 1280 x 1024 (SXGA)	
Depends on the configuration			
Depends on the configuration			
50,000			
Intel® Celeron® 1020E 2.2 GHz	Intel® Core™ i3-4010U 1.70 GHz (dual-core)	Intel® Core™ i7-3555LE 2.5 / 3.2 GHz	Intel® Core™ i5-7442EQ 2.1 / 2.9 GHz (quad-core)
	Max. 16 GB DDR3		Max. 8 GB DDR4
CFast	CFast, HDD or SSD	CFast	M.2 SSD
1	2		1
-			
4 x USB 2.0	3 x USB 2.0, 1 x USB 3.0	4 x USB 2.0	2 x USB 2.0, 2 x USB 3.0
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)	
VGA	1 x DVI-D 1 x DisplayPort	VGA	2 x DisplayPort
	Intel® HD Graphics 4000		Intel® HD Graphics 630
2 x (10/100/1000 Mbps), RJ45			
Realtek® 8111F	Intel® I210	Realtek® 8111F	Intel® I210-AT
-	2x PCI	-	1 x Mini-PCIe 802.11 a / b / g / n WLAN
-	180.9 x 107.9 mm	-	-
Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® XP Professional Windows® 7 Professional Windows® 7 Ultimate Windows® 10 IoT Enterprise	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	Windows® 10 IoT Enterprise
Active	Passive	Active	
Front installation			
Depends on the configuration			
Depends on the configuration			
24 V DC ±20 %			
Depends on the configuration			
Operation: 0°C ... +45°C Storage: -40°C ... +70°C	Operation: -20°C ... +45°C Storage: -40°C ... +70°C	Operation: 0°C ... +45°C Storage: -40°C ... +70°C	Operation: 0°C ... +50°C Storage: -40°C ... +70°C
5% ... 95% (non-condensing)			
IP65 / IP20			
UL / cUL	UL / cUL, Class 1 Div 2	UL / cUL	




Panel PCs with projective capacitive touchscreens for low performance applications

Model view			
Designation	VL2 PPC7 1000	VL2 PPC 9 1000	VL2 PPC12 1000
Order number	2403708	2403709	2403710
Touch technology	Projective capacitive, four-touch control		
Display size (in cm)	17.8 (7")	22.9 (9")	30.7 (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 ²)	350	400	320
Reading angle (left/right / top/bottom) in ° (degrees)	70 / 70 / 60 / 60	85 / 85 / 85 / 85	88 / 88 / 88 / 88
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		
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	1 x COM (RS-232 / 422 / 485) Optional: 1 x RS-232 + 1 x RS-485 2 x CAN		
Video output	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	UL / cUL, Class 1 Div 2, NEMA 4		

... for low, medium and high performance requirements

				
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 (15.6") / 47 (18.5") / 54.6 (21.5")				
TFT / LED (white)				
16.7 million				
1366 x 768 (HD)/1366 x 768 (HD)/1920 x 1080 (Full HD)				
400 / 300 / 300				
Depends on the configuration				
50,000				
Intel® Atom™ E3845 4 x 1.91 GHz (quad-core)	Intel® Celeron® N2930 1.83 GHz/2.16 GHz	Intel® Core™ i3-4010U 1.7 GHz (dual-core)	Intel® Core™ i5-4300U 1.90 GHz (dual-core)	Intel® Core™ i7-6822EQ 2 GHz (quad-core)
Max. 4 GB DDR3L	Max. 8 GB DDR3 SODIMM	Max. 16 GB DDR3		Max. 16 GB DDR4
HDD or SSD				
1		2		
		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		
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 DisplayPort	2 x DisplayPort			
Intel® HD Graphics	Intel® HD Graphics 4400	Intel® HD Graphics 4400	Intel® HD Graphics 530	
2 x (10/100/1000 Mbps), RJ45				
Intel® I210				
	1x PCI or 1 x PCIe			
	175 mm x 100 mm x 15 mm			
Windows® Embedded Standard 7 / Windows® 7 Professional / Windows® 7 Ultimate / Windows® 10 IoT Enterprise				
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 ... +60 °C Storage: -40 °C ... +70 °C		Operation with HDD: 0 °C ... +45 °C With SSD: -10 °C ... +60 °C Storage: -40 °C ... +70 °C	Operation with HDD: 0 °C ... +45 °C With SSD: -20 °C ... +60 °C Storage: -40 °C ... +70 °C
20% ... 85% (non-condensing)	5% ... 95% (non-condensing)			
IP65 / IP30				
UL / cUL, Class 1 Div 2, NEMA 4				

Panel PCs in IP65 for low and high performance requirements




Model view			
Designation	DL PPC15 1000	DL PPC15M 1000	DL PPC15M 7000
Order number	2701665	2701666	2400017
Touch technology	Analog resistive, single-touch control	Projective capacitive, two-touch control	Projective capacitive, two-touch control
Display size (in cm)	38.1 (15")		
Display type	TFT / LED (white)		
Colors	16.2 million		
Resolution (W x H in pixels)	1024 x 768 (XGA)		
Brightness (in cd/m ²)	400		
Reading angle (left/right / top/bottom) in ° (degrees)	80 / 80 / 80 / 80		
Backlight (MTTF in h)	50,000		
Processor	Intel® Atom™ E680T 1.6 GHz		Intel® Core™ i7-4650U 3.30 GHz
RAM (configurable)	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		4 x USB 2.0, 1 x USB 3.0
Serial interfaces	1 x COM (RS-232 / 422 / 485)		
Video output	–		
Graphics processor	Integrated		Intel® HD Graphics 5000
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45		
LAN chipset	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		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		With 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







Designation	DL PPC18.5M 7000	DL PP21.5M 7000	ITC 8113
Order number	2400015	2400016	2403738
Touch technology	Projective capacitive, ten-touch control		Projective capacitive, ten-touch control
Display size	47 (18.5")	54.6 (21.5")	33.8 (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 ²)	400		400
Reading angle (left/right / top/bottom) in ° (degrees)	80 / 80 / 80 / 80		80 / 80 / 80 / 80
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 output	-		-
Graphics processor	Intel® HD Graphics 5000		Intel® HD Graphics
Ethernet interfaces	2 x (10 / 100 / 1000 MBit/s), RJ45		1 x (10 / 100 / 1000 MBit/s), 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 external
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

Model view			
Designation	VL FPM 12	VL FPM 15	VL FPM 17
Order number	2913015	2913017	2913019
Touch technology	Analog resistive		
Display size (in cm)	30.7 (12.1")	38.1 (15")	43.2 (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 ²)	400	350	
Reading angle (left/right / top/bottom) in ° (degrees)	70 / 70 / 60 / 60	70 / 70 / 65 / 65	85 / 85 / 80 / 80
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	410 x 309 x 94	452 x 356.5 x 97
Weight (in kg)	4.47	6.43	
Power supply	24 V DC ±20 %		
Maximum power consumption	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

			
VL FPM 19U	BL FPM 15.6	BL FPM 18.5	BL FPM 21.5
2913021	2402980	2402981	2400515
Analog resistive	Projective capacitive, ten-touch control		
48.3 (19")	39.6 (15.6")	46.9 (18.5")	54.6 (21.5")
TFT / LED (white)	TFT / LED (white)		
16.7 million	16.7 million		
1280 x 1024 (SXGA)	1366 x 768 (WXGA)		1920 x 1080 (Full HD)
300	300		
89 / 89 / 89 / 89	85 / 85 / 80 / 80		
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 VGA, 1 x DVI-D		
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 \pm 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 applications in harsh ambient conditions

Robust touch panels with GFG touch technology and protection class IP67

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

Model view



Designation	TP 3043W/WT	TP 3057V/WT	TP 3070W/WT	TP 3121S/WT	TP 3120W/WT	TP 3150S/WT
Order number	2404286	2403464	2403465	2403466	1029308	1029281
Display (in cm)	10.92 (4.3")	14.48 (5.7")	17.78 (7")	30.73 (12.1")		38.1 (15")
Colors	262,144		16.77 million	262,144	65,536	
Resolution (W x H in pixels)	480 x 272 (WQVGA)	640 x 480 (VGA)	800 x 480 (WVGA)	800 x 600 (SVGA)	1280 x 800 (WXGA)	1024 x 768 (XGA)
Brightness (in cd/m ²)	385	400	350	320		480
Reading angle (left/right / top/bottom) in ° (degrees)	75 / 75 / 63 / 75	65 / 65 / 55 / 52	70 / 70 / 60 / 60	80 / 80 / 65 / 75	88 / 88 / 88 / 88	80 / 80 / 65 / 80
Backlight (MTTF in h)	40,000				50,000	
Touch technology	GFG, analog resistive, anti-reflective coating					
Processor	ARM® Cortex®-A8, 1000 MHz					
Temperature range	Operation: -30 (-20)°C ... +70°C, storage: -30°C ... +80°C					
Degree of protection (front/back)	IP67 / IP20					
Front panel dimensions (W x H x D in mm)	171 x 131 x 5	195 x 153 x 5	234 x 174 x 5	359 x 280 x 5	344 x 248 x 5	416.2 x 325.2 x 5
Installation depth (in mm) including fieldbus interface	42 68	42 68	48 77	58 58	59 59	64 64
Mounting cutout (W x H in mm)	135 x 95	161 x 119	200 x 140	323 x 244	309 x 214	381 x 290
Weight (in kg)	0.55	0.8	1.1	2.7	2.3	3.0
Type of power consumption	4.8 W at 24 V	12 W at 24 V	9.6 W at 24 V	12 W at 24 V	16.8 W at 24 V	
Approvals	UL / cUL, Class1 Div2, NEMA 4X					
General technical data						
Display type	TFT / LED (white)					
Memory	1 GB NAND flash, 512 MB LPDDR SDRAM, 1 MB SRAM					
Interfaces	1x Ethernet 10/100 Mbps, 2x 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® Embedded Compact 7					
Relative humidity	For operation and storage: 20% to 85%, non-condensing					
Installation type	Portrait/landscape					
Mounting type	Front installation					
Power supply	24 V DC ±20%					





... and protection class IP65

- Expanded temperature range
- Resistant to environmental influences, such as salt spray, termites and chemicals
- Can be operated when wearing work gloves



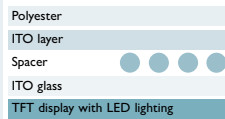
TP 3057V/WT-65	TP 3070W/WT-65	TP 3121S/WT-65	TP 3120W/WT-65	TP 3150S/WT-65
1044278	1044266	1029343	1029352	1029309
14.48 (5.7")	17.78 (7")	30.73 (12.1")		38.1 (15")
	262,144			65,536
640 x 480 (VGA)		800 x 480 (WVGA)	1280 x 800 (WXGA)	1024 x 768 (XGA)
400	350		320	480
65 / 65 / 55 / 52	70 / 70 / 60 / 60	80 / 80 / 65 / 75	88 / 88 / 88 / 88	80 / 80 / 65 / 80
	40,000			50,000
GFG, analog resistive, anti-reflective coating				
ARM® Cortex®-A8, 1000 MHz				
Operation: -30 (-20)°C ... +70°C, storage: -30°C ... +80°C				
IP65/IP20				
195 x 153 x 5		234 x 174 x 5	347 x 241 x 5	406 x 329 x 5
42 68		48 77	59 59	64 64
161 x 119		200 x 140	322 x 217	379 x 302
0.8	1.1	2.2	2.3	3.0
12 W at 24 V		9.6 W at 24 V		16.8 W at 24 V
UL / cUL, Class1 Div2, NEMA 4X				
General technical data				
TFT / LED (white)				
1 GB NAND flash, 512 MB LPDDR SDRAM, 1 MB SRAM				
1x Ethernet 10/100 Mbps, 2x USB Host 2.0				
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				
Front installation				
24 V DC ±20%				

Panel PCs for applications in harsh ambient conditions

Model view				
Designation	EL PPC5.7 1000/WT	EL PPC7 1000/WT	EL PPC12 1000/WT	EL PPC15 1000/WT
Order number	2401696	2400065	2400066	2400067
Touch technology	Analog resistive (GFG)			
Display size (in cm)	14.5 (5.7")	17.8 (7")	30.73 (12.1")	38.1 (15")
Display type	TFT / LED (white)			
Colors	262,144			
Resolution (W x H in pixels)	640 x 480 (VGA)	800 x 400 (WVGA)	800 x 600 (SVGA)	1024 x 768 (XGA)
Brightness (in cd/m ²)	400	350	360	480
Reading angle (left/right / top/bottom) in ° (degrees)	65 / 65 / 55 / 52	70 / 70 / 65 / 65	80 / 80 / 65 / 75	80 / 80 / 60 / 80
Backlight (MTTF in h)	40,000	50,000		
Processor	Intel® Atom™ E680T 1.6 GHz			
RAM (configurable)	2 GB DDR2 800			2 GB DDR2 800
Data memory (configurable)	64 GB SATA DOM-SSD (MLC)	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 output	–			
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)	195 x 153 x 64	234 x 174 x 81	359 x 180 x 92	416 x 325 x 92
Weight (in kg)	0.8	1.1	2.4	3.7
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	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/back)	IP67 / IP20			
Approvals	–	UL / cUL, NEMA 4X		

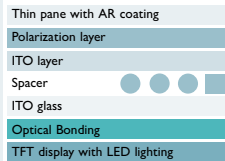
Touch technologies

Polyester touchscreen



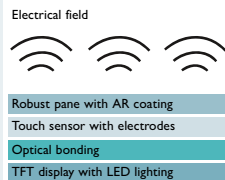
A resistive touchscreen consists of two polyester plates that lie on top of each other, which are coated with the semiconductor indium tin oxide (ITO). Spacers are used to create a gap between the plates that is filled with air. The contact is triggered with a finger or any other object.

Glass-film-glass touchscreen (GFG)



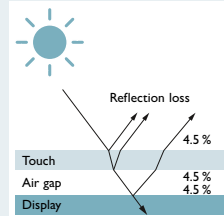
The GFG touch combines the proven, pressure-based analog resistive touch technology with a high-quality glass design. As a result, it is best suited for harsh ambient conditions. The device can be operated with fingers, gloves, stylus pens or any other object, without causing damage.

Projective capacitive touchscreen (PCAP)

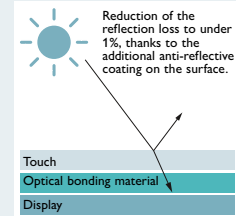


A transparent ITO layer underneath the glass cover, consisting of touch sensors, projects a uniform electrical field that extends through the glass to the user. The operator panels with PCAP touch technology support multi-touch functions and gesture control.

Readability in sunlight



Without optical bonding



With optical bonding and AR coating






Optical bonding

In this special adhesive procedure, optical components such as the display, touch or glass are connected to one another with a transparent adhesive over their entire surface in a highly technical procedure. The removal of the air gap minimizes the internal reflections and leads to an improvement of the optical properties.






Anti-reflective coating (AR coating)

Anti-reflective coatings are used to reduce disruptive light reflections on glass surfaces. This ensures displays are rich in contrast and can be read easily by the viewer if there is incoming ambient light or glistening sunlight.

Industrial PCs for Ex areas – Panel PCs

Model view					
Designation	VL2 PPC 1000 EX	VL2 PPC 2000 EX	VL2 PPC 3000 EX	VL2 PPC 7000 EX	VL2 PPC 9000 EX
Order number	1050366	1050367	1050368	1050365	1050364
Touch technology	Projective capacitive, ten-touch control				
Display size (in cm)	54.6 (21.5")				
Display type	TFT / LED (white)				
Colors	16.7 million				
Resolution (W x H in pixels)	1920 x 1080 (Full HD)				
Brightness (in cd/m ²)	300				
Reading angle (left/right / top/bottom) in ° (degrees)	89 / 89 / 89 / 89				
Backlight (MTTF in h)	50,000				
Processor	Intel® Atom™ E3845 4 x 1.91 GHz (quad-core)	Intel® Celeron® N2930 1.83 GHz/2.16 GHz	Intel® Core™ i3-4010U 1.7 GHz (dual-core)	Intel® Core™ i5-4300U 1.90 GHz (dual-core)	Intel® Core™ i7-6822EQ 2 GHz (quad-core)
RAM (configurable)	Max. 4 GB DDR3L	Max. 8 GB DDR3 SODIMM	Max. 16 GB DDR3		Max. 16 GB DDR4
Data memory (configurable)	HDD or SSD				
Number of drives	1				2
RAID support (configurable)	–		0/1		
USB	2 x USB 2.0, 1 x USB 3.0		4 x USB 2.0		
Serial interfaces	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)		
Video output	1 x DisplayPort		2 x DisplayPort		
Graphics processor	Intel® HD Graphics		Intel® HD Graphics 4400		Intel® HD Graphics 530
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45				
LAN chipset	Intel® I210				
PCI/PCIe slots (configurable)	–		1x PCI or 1 x PCIe		
Maximum card size (PCI/PCIe)	–		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				Active
Mounting type	Front installation				
Dimensions (W x H x D in mm)	532 x 354 x 99		532 x 354 x 119		
Weight (in kg)	10.4		12.7		
Power supply	24 V DC ±20%				
Maximum power consumption	Depends on the configuration				
Temperature range	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 ... +60°C Storage: -40°C ... +70°C		Operation with HDD: 0°C ... +45°C With SSD: -10°C ... +60°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +60°C Storage: -40°C ... +70°C
Relative humidity	20% ... 85% (non-condensing)		5% ... 95% (non-condensing)		
Degree of protection (front side/rear side)	IP65 / IP30				
Approvals	UL / cUL, Class 1 Div 2, NEMA 4, IECEx, ATEX-Zone 2/22				

Industrial PCs for Ex areas – Box PCs

					
	VL2 BPC 1000 EX	VL2 BPC 2000 EX	VL2 BPC 3000 EX	VL2 BPC 7000 EX	VL2 BPC 9000 EX
	1054028	1054027	1054025	1054024	1054023
Processor	Intel® Atom™ E3845 1.91 GHz (quad-core)	Intel® Celeron® N2930 1.83 GHz (quad-core)	Intel® Core™ i3-4010U 1.7 GHz (dual-core)	Intel® Core™ i5-4300U 1.90 GHz (dual-core)	Intel® Core™ i7-6822EQ 2 GHz (quad-core)
RAM (configurable)	Max. 4 GB DDR3	Max. 8 GB DDR3	Max. 16 GB DDR3		Max. 16 GB DDR4
Data memory (configurable)	SD, HDD or SSD	HDD or SSD			
Number of drives	1	2			
RAID support (configurable)	–		0/1		
USB	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		
Serial interfaces	1 x COM (RS-232 / 422 / 485) Optional: 1 x COM (RS-232) + 1 x COM (RS-485) 2 x CAN	1 x COM (RS-232 / 422 / 485) Optional: 2 x COM (RS-232) + 1 x COM (RS-232 / 422 / 485)			
Video output	1 x DisplayPort	2 x DisplayPort			
Graphics processor	Intel® HD Graphics		Intel® HD Graphics 4400		Intel® HD Graphics 530
Ethernet interfaces	2 x (10/100/1000 Mbps), RJ45				
LAN chipset	Intel® I210				
PCI/PCIe slots (configurable)	–	1x PCI or 1 x PCIe			
Maximum card size (PCI/PCIe)	–	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				Active
Mounting type	Wall or bookshelf mounting				
Dimensions (W x H x D in mm)	271 x 211 x 65	264 x 215 x 95			
Weight (in kg)	2.4	4.2	4.8		
Power supply	24 V DC ±20%				
Maximum power consumption	21.3 W at 30 V	37.4 W at 19.2 V With PCI-PCIe 40.8 W	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 ... +45°C With SSD: 0°C ... +50°C Storage: -25°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +65°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +65°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -10°C ... +65°C Storage: -40°C ... +70°C	Operation with HDD: 0°C ... +45°C With SSD: -20°C ... +60°C Storage: -40°C ... +70°C
Relative humidity	20% ... 85% (non-condensing)	5% ... 95% (non-condensing)			
Degree of protection (front side/rear side)	IP30				
Approvals	UL / cUL, Class 1 Div 2, IECEx, ATEX-Zone 2				





HMIs for maritime applications

Maritime touch panels with polyester touch technology

The powerful HMIs from the TPM 3000 series are designed for demanding applications onboard ships. New display sizes and a wide range of functions ensure user-friendly and reliable operation, monitoring, and alerts while at sea.

Your advantages:

- Light-absorbing front panels
- Dimmable backlight
- Certification in accordance with ABS, BV, DNV-GL, KR, LR, KR, RINA
- Certified compass safe distance in accordance with DIN EN 60945

Model view				
Designation	TPM 3043	TPM 3057	TPM 3070	TPM 3090
Order number	2404516	2404517	2404518	2404519
Display (in cm)	10.92 (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)	
Brightness (in cd/m ²)	385	400	350	800
Reading angle (left/right / top/bottom) in ° (degrees)	75 / 75 / 63 / 65	65 / 65 / 55 / 52	70 / 70 / 65 / 65	85 / 85 / 85 / 85
Backlight (MTTF in h)	40,000			70,000
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, silver: -20°C ... +60°C Operation, black: -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)	Silver: 140 x 100 x 5 Black: 140 x 118 x 5	Silver: 168 x 126 x 5 Black: 168 x 147 x 5	Silver: 203 x 147 x 5 Black: 203 x 165 x 5	260 x 172 x 5
Installation depth (in mm) including fieldbus interface	Silver: 42; black: 53 Silver: 71; black: 79	Silver: 42; black: 49 Silver: 71; black: 75	Silver: 42; black: 42 Silver: 71; black: 71	54 59
Mounting cutout (W x H in mm)	Silver: 132 x 92 Black: 132 x 110	Silver: 160 x 118 Black: 160 x 139	Silver: 195 x 139 Black: 195 x 157	252 x 164
Weight (in kg)	0.55	0.8		1.3
Type of 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, KR, RINA, EN60945			
General technical data				
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	Front installation			
Power supply	24 V DC ±20%			

- Acoustic warning from integrated horn
- All common communication standards supported
- Floating output
- Display formats in 4:3 or 16:9



TPM 3105	TPM 3121	TPM 3120	TPM 3150	TPM 3154
2404520	2404521	2404522	2404524	2404525
26.42 (10.4")	30.73 (12.1")		38.1 (15")	39.1 (15.4")
262,144				
800 x 600 (SVGA)		1280 x 800 (WXGA)	1024 x 768 (XGA)	1280 x 800 (WXGA)
340	360	320	480	360
70 / 70 / 50 / 60	80 / 80 / 60 / 80	88 / 88 / 88 / 88	80 / 80 / 65 / 80	80 / 80 / 60 / 80
50,000				
Polyester, analog resistive				
ARM® Cortex® A8, 1000 MHz, real-time clock (with battery backup)				
Operation, silver: 0°C ... +55°C, storage, silver: -20°C ... +60°C Operation, black: -25°C ... +70°C, storage, black: -30°C ... +80°C				
IP65/IP20				
Silver: 295 x 220 x 5 Black: 328 x 265 x 5	Silver: 340 x 270 x 5 Black: 340 x 285 x 5	Silver: 330 x 225 x 5 Black: 336 x 252 x 5	Silver: 400 x 329 x 5 Black: 400 x 338 x 5	420 x 297 x 5
Silver: 54; black: 58 Silver: 54; black: 58	Silver: 55; black: 52 Silver: 55; black: 52	Silver: 48; black: 54 Silver: 48; black: 54	Silver: 55; black: 63 Silver: 55; black: 63	64 64
Silver: 287 x 212 Black: 302 x 237	Silver: 313 x 243 Black: 315 x 259	Silver: 48; black: 54	Silver: 372 x 301 Black: 373 x 312	396 x 273
1.9	2.2	1.7	3	3.3
14.4 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, KR, RINA, EN60945				

General technical data

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

Front installation

24 V DC ±20 %

Panel PCs for maritime applications

Model view			
Designation	EL PPC7 1000/M	EL PPC7G 1000/M	EL PPC12 1000/M
Order number	2400068	2400282	2400069
Touch technology	Analog resistive	Analog resistive (GFG)	Analog resistive
Display size (in cm)	17.8 (7")		30.7 (12.1")
Display type	TFT / LED (white)		
Colors	262,144		
Resolution (W x H in pixels)	800 x 480 (WVGA)		1280 x 800 (SVGA)
Brightness (in cd/m ²)	350		320
Reading angle (left/right / top/bottom) in ° (degrees)	70 / 70 / 65 / 65		88 / 88 / 88 / 88
Backlight (MTTF in h)	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 output	–		
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		

			
Designation	EL PPC12G 1000/M	EL PPC15 1000/M	EL PPC15G 1000/M
Order number	2400283	2400070	2400284
Touch technology	Analog resistive (GFG)	Analog resistive	Analog resistive (GFG)
Display size	30.7 (12.1")	38.1 (15")	
Display type	TFT / LED (white)		
Colors	262,144		
Resolution (W x H in pixels)	1280 x 800 (SVGA)	1024 x 768 (XGA)	
Brightness (in cd/m ²)	320	480	
Reading angle (left/right / top/bottom) in ° (degrees)	88 / 88 / 88 / 88	80 / 80 / 65 / 80	
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 output	–		
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)	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	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 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/24DC/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
Extender	2404770	VL KVM EXTENDER	Extender for the transmission of keyboard, video and mouse signals over distances of up to 90 m from the IPC to the monitor
Assembly adapter	2404776	VL KVM EXTENDER BOOKSHELF MNT	Bookshelf-style mounting kit for use with the VL KVM EXTENDER (2404770)
Assembly adapter	2320089	UTA 107/30	Universal DIN rail adapter for BL BPC 2000 and BL2 BPC
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 to 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	WIN 7 PRO SP1 X86-DE UPGRADE	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
EL xxx	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
Adapter	2401505	DEVELOPMENTKIT USB-2CAN-SERIAL	Interface environment that supports development, (RS-232, RS-485 and 2x CAN) for connection to the development PC
BL xxx / BL2 xxx	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	2403838	IPC 3.5/2.5 TRAY	Tray for BL RACKMOUNT... 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

Device accessories (may be product-specific)

BL xxx / BL2 xxx	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 HDD KIT	320 GB, 2.5" SATA HDD 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	2403835	IPC 3.5 1TB HDD	1 TB, 3.5" HDD for BL RACKMOUNT 2U and BL RACKMOUNT 4U industrial PC (tray is not included)
Memory	2403836	IPC 3.5 2TB HDD	2 TB, 3.5" HDD for BL RACKMOUNT 2U and BL RACKMOUNT 4U industrial PC (tray is not included)
Memory	2403837	IPC 3.5 4TB HDD	4 TB, 3.5" HDD for BL RACKMOUNT 2U and BL RACKMOUNT 4U industrial PC (tray is not included).
Memory	2404642	IPC 3.5 1TB HDD kit	1 TB, 3.5" HDD kit, with tray, for BL Rackmount 2U and BL Rackmount 4U industrial PC
Memory	2404643	IPC 3.5 2TB HDD kit	2 TB, 3.5" HDD kit, with tray, for BL Rackmount 2U and BL Rackmount 4U industrial PC
Memory	2404644	IPC 3.5 4TB HDD kit	4 TB, 3.5" HDD kit, with tray, for BL Rackmount 2U and BL Rackmount 4U industrial PC
Memory	2404866	30 GB M.2 MLC SSD kit	30 GB M.2 mass storage for industrial PPC and BPC products
Memory	2404867	60 GB M.2 MLC SSD kit	60 GB M.2 mass storage for industrial PPC and BPC products
Memory	2404868	120 GB M.2 MLC SSD kit	1200 GB M.2 mass storage for industrial PPC and BPC products
Memory	2404869	240 GB M.2 MLC SSD kit	240 GB M.2 mass storage for industrial PPC and BPC products
Memory	2404870	480 GB M.2 MLC SSD kit	480 GB M.2 mass storage for industrial PPC and BPC products

Device accessories (may be product-specific)

VL xxx / VL2 xxx	Order No.	Designation	Description
Cover	2400277	SILICONE USB COVER KIT	Replacement USB end cover for VL PPC xxx
Adapter	2401505	DEVELOPMENTKIT USB-2CAN-SERIAL	Interface environment that supports development, (RS-232, RS-485 and 2x CAN) for connection to the development PC
Data cable	2404774	VL 2.0M DP CABLE	DisplayPort (DP) cable (2m) for use associated with with industrial computers
Hard drive mounting frame	2913185	HDD TRAY KIT	Hard drive mounting frame for VL xxx
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, VL BPC, without PCI expansion slots, for bookshelf mounting
Mounting kit	2913164	VL BOOKSHELF MOUNTING KIT/EXPANSION	Mounting kit, VL BPC, 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
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
Memory	2403833	VL2 240 GB SSD kit	240 GB, 2.5" SATA SSD kit, with tray, for VL2... industrial PPC and BPC products
Memory	2403834	VL2 480 GB SSD kit	480 GB, 2.5" SATA SSD kit, with tray, for VL2... industrial PPC and BPC products

Device accessories (may be product-specific)

DL xxx	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 with 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
Bracket	1048820	DL PPC 21.5 ARM ADAPTER	Bracket incl. cable cover
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
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
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 charging two batteries simultaneously. 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	3 point belt for tablet PC ITC 8113
Transport box	2404752	ITC 8113 TRANSPORT CASE	Transport case for ITC 8113 tablet PC

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