



Welcome

Computadoras Industriales

IPC's

Panorama y guía de
selección

Industrial PCs - Overview



Box PCs



Panel PCs

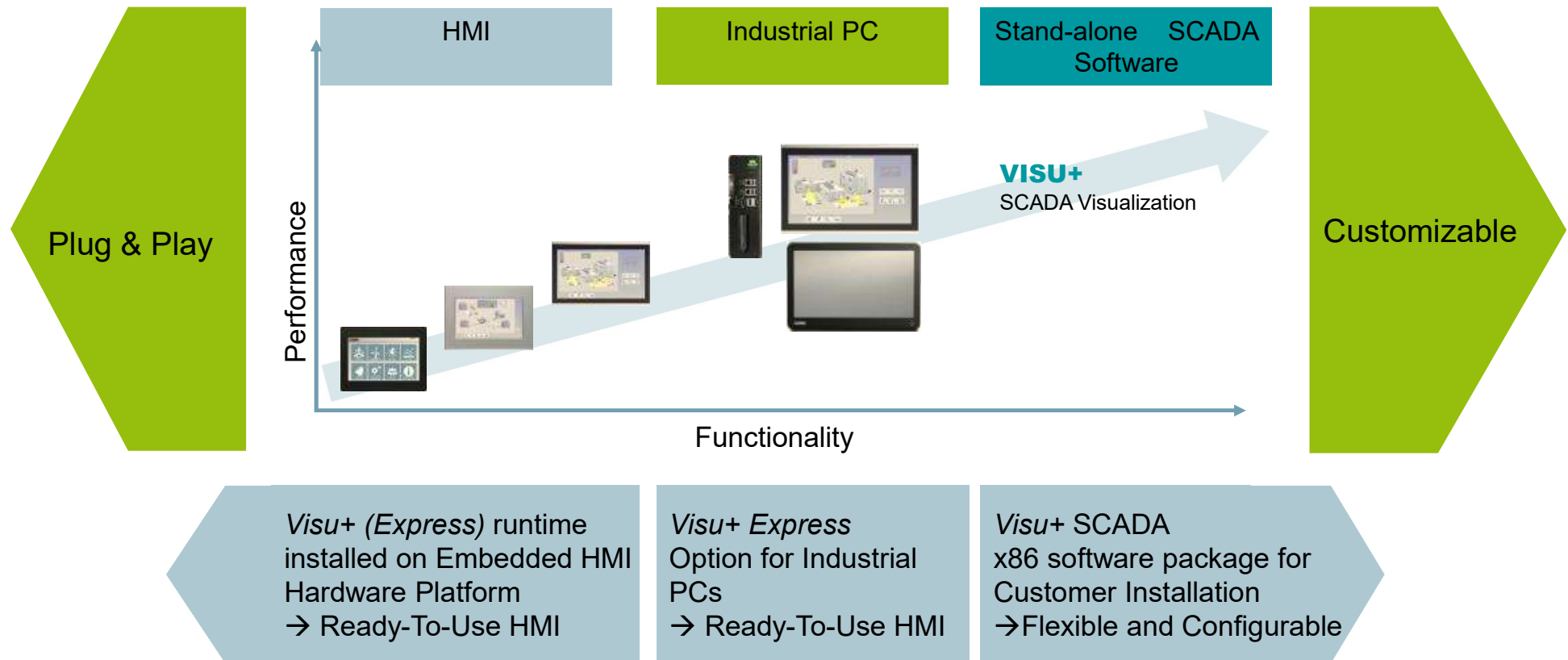


Stand-alone Panel PCs

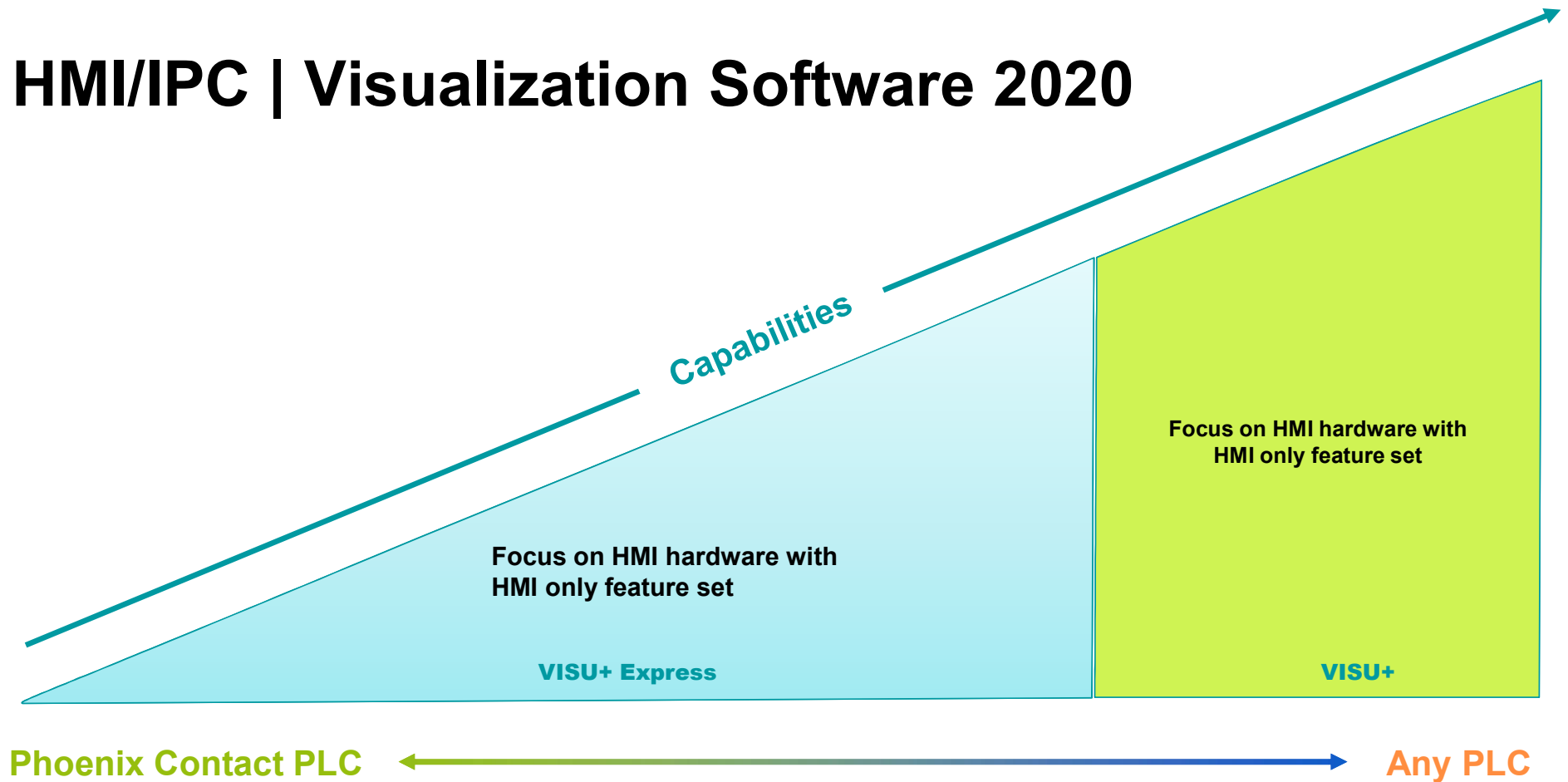


Industrial PC

Operation and Monitoring with runtime based HMIs



HMI/IPC | Visualization Software 2020



HMI and Industrial PCs – Overview

HMI

Runtime based HMI 

HTML5 Web HMI 



Basic Box PCs 



Standard Box PCs 



Rack Mount PCs 

Box PC



Basic Panel PCs 



Standard Panel PCs 



Standalone Panel PCs 



Specialty & Industry ready IPC 

Panel PC

Quiz

What makes an industrial PC *industrial*?

- ✓ Passive cooling
- ✓ 24V DC powered
- ✓ Metal construction
- ✓ Single board computer
- ✓ Embedded system
- ✓ High shock & vibration
- ✓ Wide temperature range
- ✓ Industry relevant approvals / certifications
- ✓ Maintenance friendliness
- ✓ Long product life cycle
- ✓ Mounting options



Best Practice Industrial PC Design



Best Practice Industrial PC Design

Flush display front
(easy to keep clean)

10 finger multi touch
interface for gesture
operation

LED backlight for long
product life



Glass front surface to
reduce scratches

Rugged metal design
increases EMC
immunity

PCAP touch
technology

Best Practice Industrial PC Design



All interfaces one side
Easy installation

24 VDC Power
No internal power supply

Best Practice Industrial PC Design

Single Form Factor
One size across
performance classes



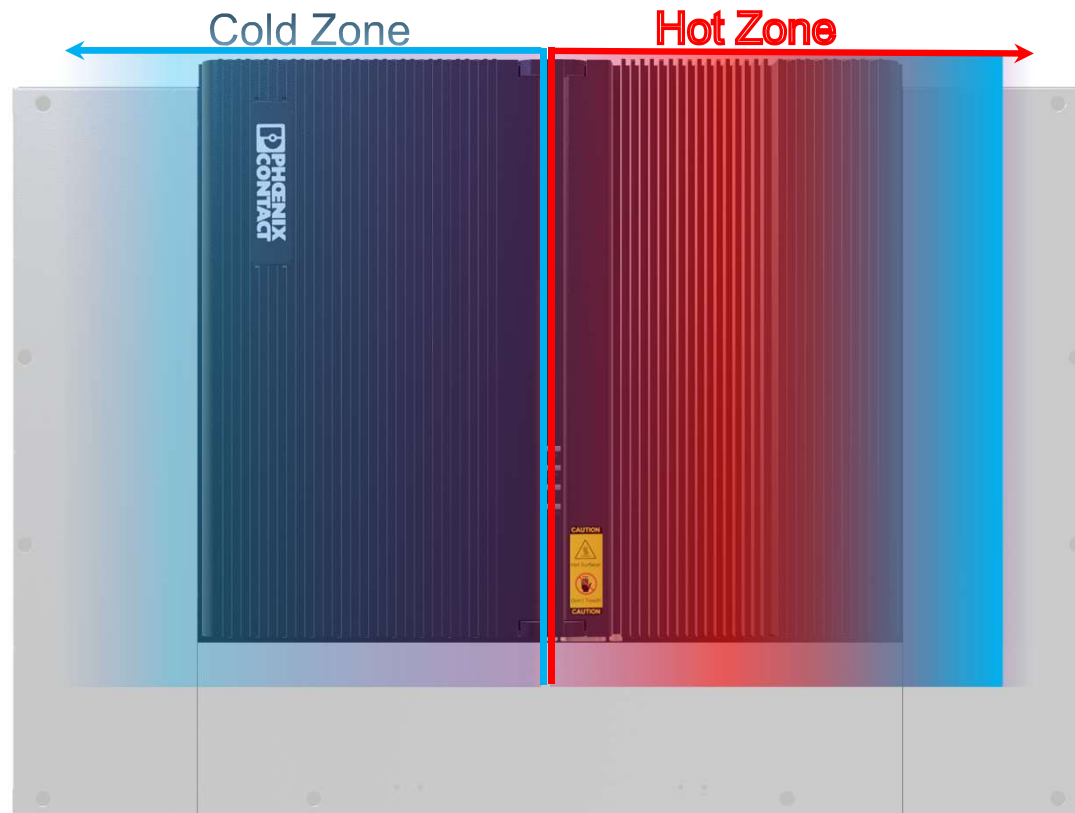
Rugged Aluminium
housing for mechanical
protection

Aluminium housing for
excellent EMC
protection

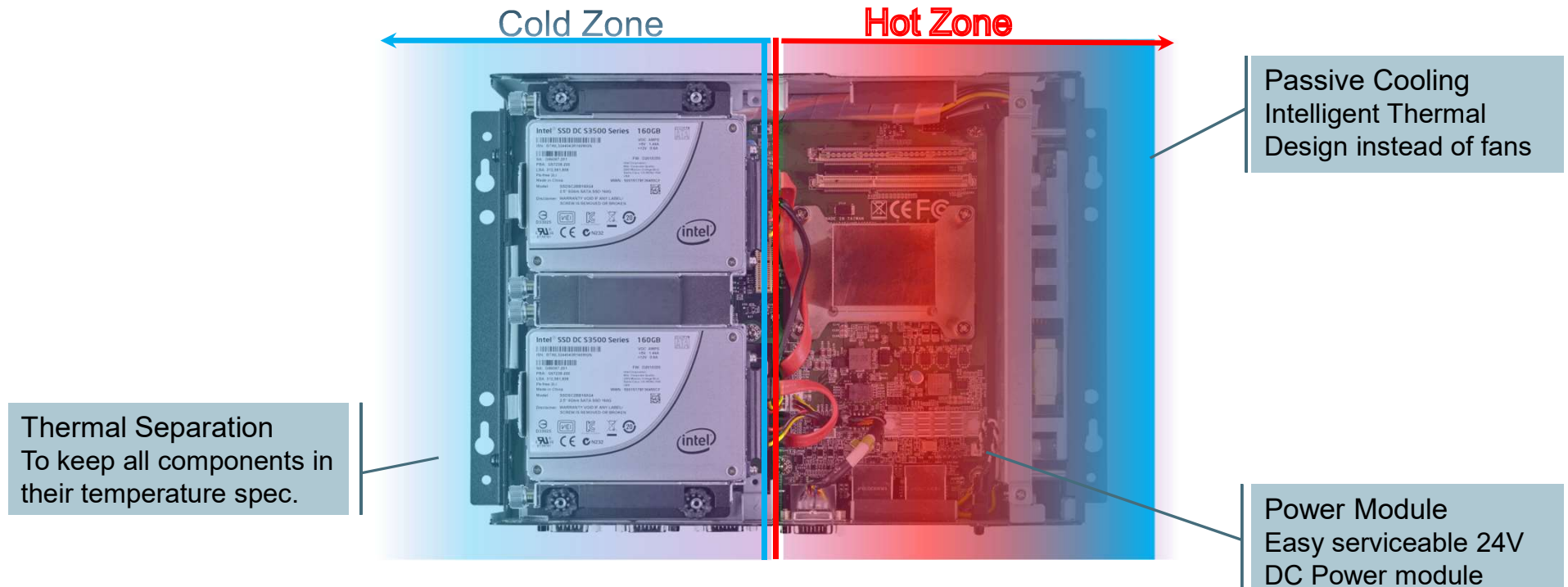
Best Practice Industrial PC Design



Best Practice Industrial PC Design



Best Practice Thermal Design



Best Practice Industrial PC Design

Robust SATA Carrier
RAID capability built in



Service Door
Fast & Easy access to
change drives and RTC
battery for maximum up-time



RAID Explained

RAID 0 - Striping

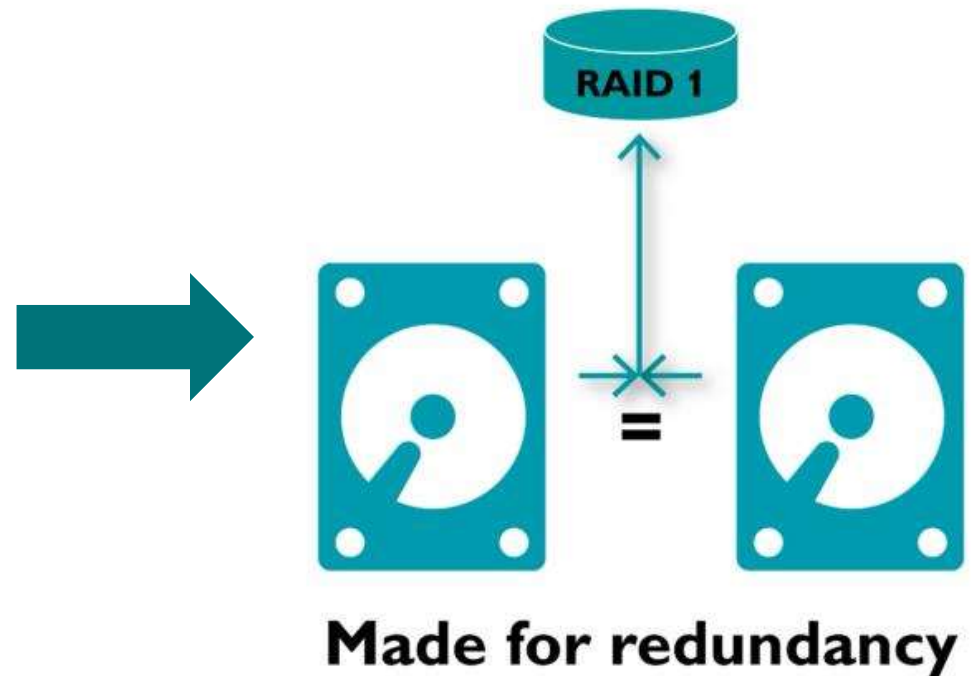
Made for speed/performance improvement
Not recommended in industrial environment
Reliability is more important than speed

RAID 1 - Mirroring

Made for reliability with 2 or more drives
BIOS selectable
Configuration option

RAID 5 – Parity

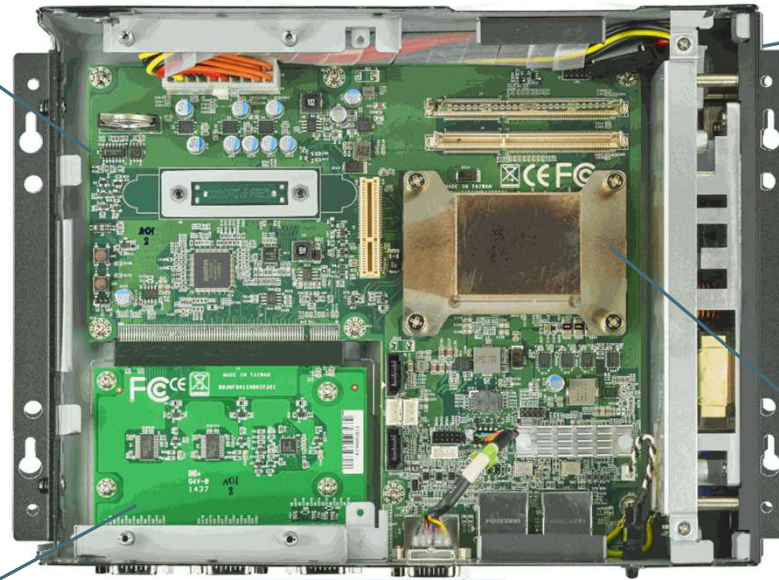
Made for speed and reliability
Minimum 3 drives needed



Best Practice Industrial PC Design

Maintenance friendly
Easy access to CMOS battery

Accessory Cards
Easy installation of PCI /
PCIe card to meet application
needs

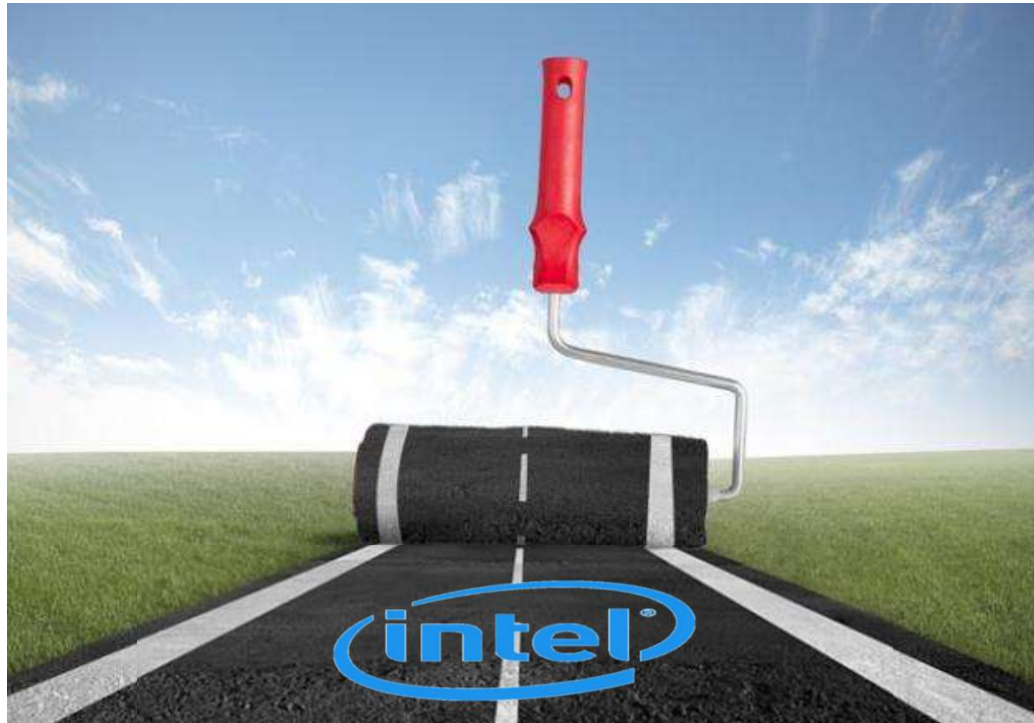


Wiring
• Minimized wiring
• Intelligent routed

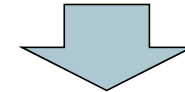
Latest Technology
• Powerful
• Energy efficient CPUs



Phoenix Contact Life Cycle Excellence



Intel Embedded Long-term Roadmap



- Longer availability of parts
- Longer support
- Continuity of form factor
- Easier change management
- Reduced cost of ownership

Vibration shaker and transducer structure with shaker and amplifier by 10 KHZ

Shaker power test structure

Random control cabinet or controlling 10 test stations

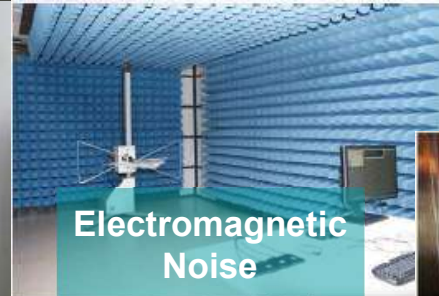
High intensity Magnetron alloy controller

Simple control

Microcontroller

To solve the problem of the shaker slip

Vibration



Manufacturing Excellence



IPC Production network



Industrial PC Products



Box PC, Panel PC and Monitor



Box PC

- Intelligent component in Automation without a display to run any application like control system, MES, data acquisition tasks, etc.



Flat Panel Monitor

- Display unit to connect to
 - Box PC
 - Panel PC as additional (secondary) display



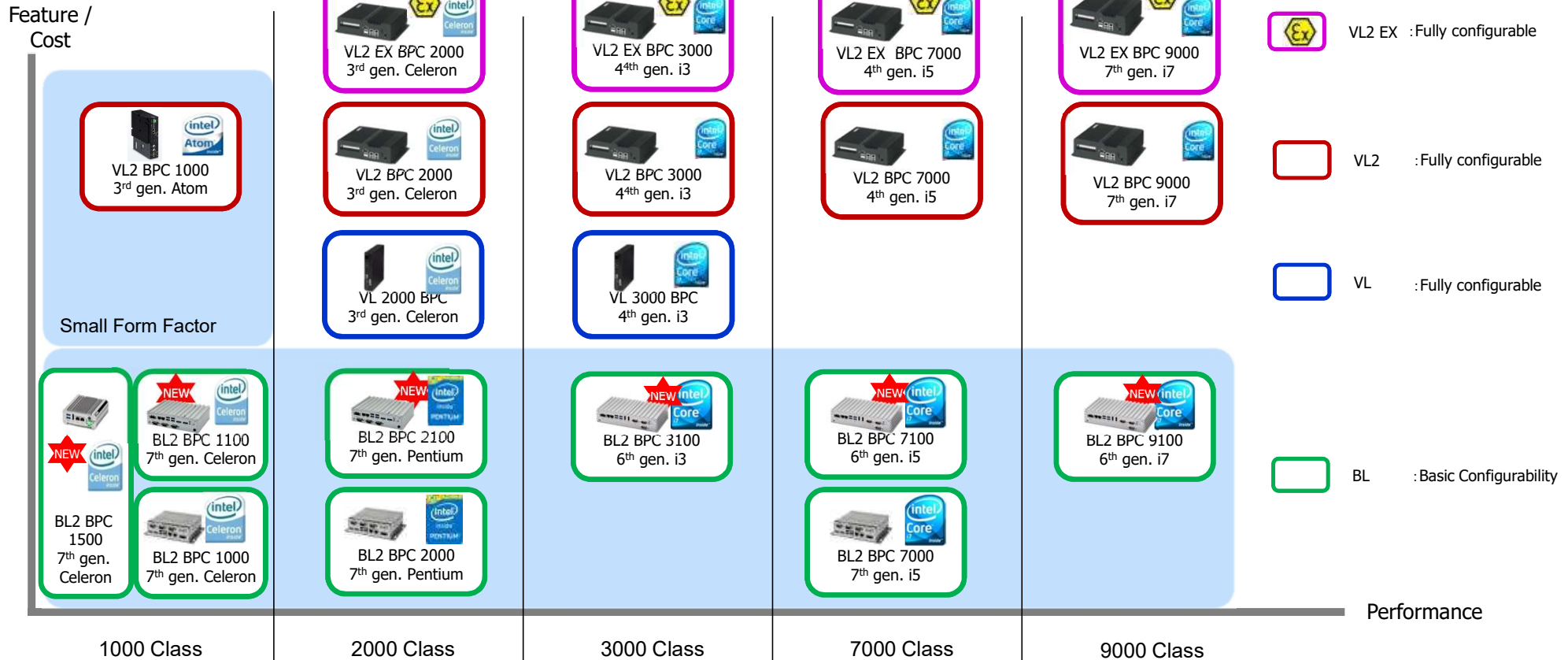
Panel PC

- Intelligent component in Automation with a display to run any application like control system, MES, data acquisition tasks, etc.
- Allows connection to additional displays (FPM)

BOX IPCs



Box PC Lineup



Small Frame Box PCs

- ✓ Fit into small junction boxes
- ✓ Passive cooled
- ✓ Robust metal construction
- ✓ No moving parts
- ✓ Connectivity to serial interfaces



VL2 BPC 1000

- Small form factor, Box PC

- ✓ Passive cooled
- ✓ Expansion option (CAN, COM)
- ✓ Easy serviceable

- ✓ Robust
- ✓ Bookshelf and Wall mount
- ✓ M.2 and 2.5" SATA mass storage

- 3rd gen. Intel E3845 CPU, 1.91 GHz (4 core)

- ✓ Passive cooled
- ✓ Easy serviceable
- ✓ Windows 7 & Windows 10 IoT



BL2 BPC x100

- Small form factor, Box PC family

- ✓ Passive cooled
- ✓ Compact
- ✓ Windows 7 & Windows 10 IoT
- ✓ Robust
- ✓ DIN rail and wall mount
- ✓ M.2 and 2.5" SATA mass storage

- 6th gen. Intel (Apollo Lake) CPU technology

- ✓ BL2 BPC 1100 – Intel Celeron N3350 1.1/2.4 GHz (2 core)
- ✓ BL2 BPC 2100 – Intel Pentium N4200 1.1/2.5 GHz (4 core)
- ✓ BL2 BPC 3100 – Intel Core i3-6100U 2.3 GHz (2 core)
- ✓ BL2 BPC 7100 – Intel Core i5-6300U 2.4 GHz (2 core)
- ✓ BL2 BPC 9100 – Intel Core i7-6600U 2.6 GHz (2 core)



BL2 BPC x000

- Small form factor, Box PC family
 - ✓ Passive cooled
 - ✓ Expansion option (WIFI)
 - ✓ Windows 10 IoT
 - ✓ Robust
 - ✓ DIN rail and wall mount
 - ✓ M.2 SATA mass storage
- 7th gen. Intel (Apollo Lake) CPU technology
 - ✓ BL2 BPC 1000 – Intel Celeron N3350 1.1/2.4 GHz (2 core)
 - ✓ BL2 BPC 2000 – Intel Pentium N4200 1.1/2.5 GHz (4 core)
 - ✓ BL2 BPC 7000 – Intel Core i5-7442EQ 2.1/2.9 GHz (4 core)



BL2 BPC 1500 – Compact Box IPC

Overview

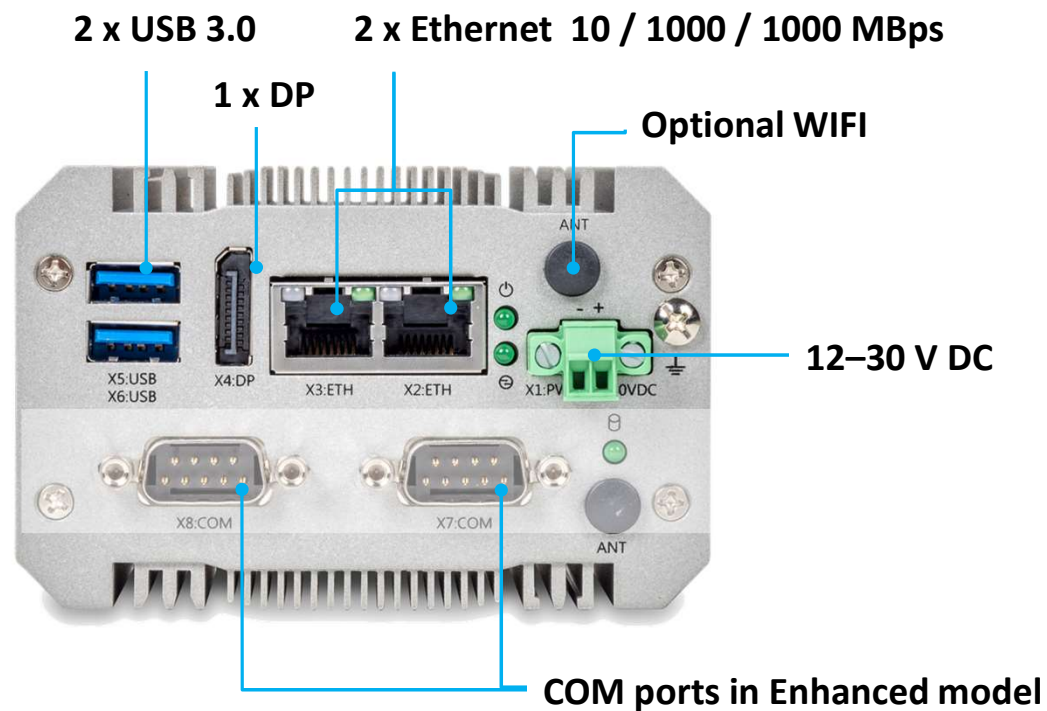
- Compact design to fit into small cabinet boxes
- Efficient performance with Intel Celeron N3350 CPU
- High reliability with passive cooling and solid-state mass storage media
- Available as Secure Hardware, equipped with TPM 2.0 module
- Flexible mounting options to compliment your application



BL2 BPC 1500 – Compact Box IPC

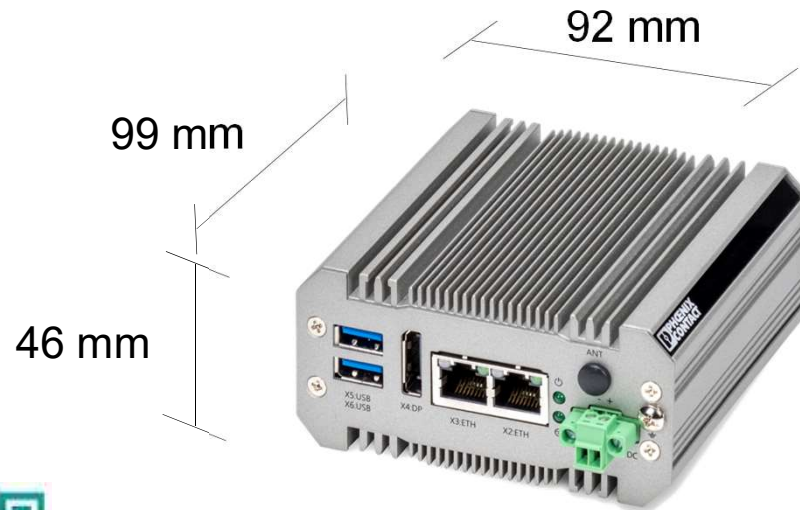
General technical data

- Intel Celeron N3350 CPU
- 32 GB on-board eMMC storage
- m.2 SSD mass storage options
- Windows 10 IoT and Linux support
- Serial port options
- WLAN 802.11 options
- Din-rail and wall mounting options



BL2 BPC 1500 – Compact Box IPC

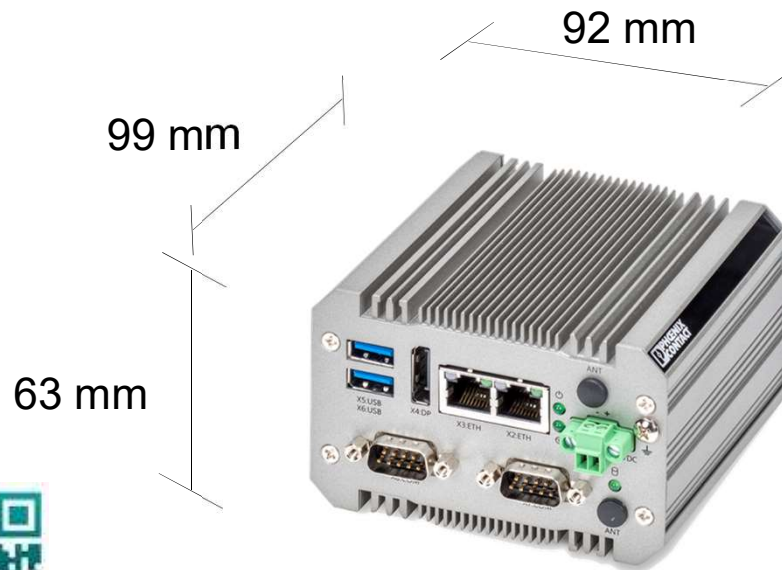
Standard model – BL2 BPC 1501S



Volume 0.4 liter

BL2 BPC 1500 – Compact Box IPC

Extended model BL2 BPC 1501E



Volume 0.6 liter

BL2 BPC 1500 – Compact Box IPC

Target applications

- EDGE / FOG computing
- Industrial IIoT network and cloud computing
- IoT Gateway
- Distributed data collector & processing
- Cyber security EDGE device
- Intelligent machinery controller
- Kiosks



BL2 BPC 1501S



BL2 BPC 1501E

2020 EPMM IMA –HMI & IPC

BL2 BPC 1500 – Compact Box IPC

Types

Article#	Article Name	M.2 SSD	WLAN	OS	TPM
1130682	BL2 BPC 1501S	N	N	N	N
1130669	BL2 BPC 1501E	N	N	N	N
1141904	BL2 BPC 1501S-W	N	Y	N	N
1141843	BL2 BPC 1501E-W	N	Y	N	N
1158241	BL2 BPC 1501E-64-W10	64 GB	N	W10	N
1158252	BL2 BPC 1501E-W-64-W10	64 GB	Y	W10	N
1158235	BL2 BPC 1501E-128-W10	128 GB	N	W10	N
1158245	BL2 BPC 1501E-W-128-W10	128 GB	Y	W10	N
1158247	BL2 BPC 1501E-64-W10-T	64 GB	N	W10	Y
1158244	BL2 BPC 1501E-W-64-W10-T	64 GB	Y	W10	Y
1158243	BL2 BPC 1501E-128-W10-T	128 GB	N	W10	Y
1158231	BL2 BPC 1501E-W-128-W10-T	128 GB	Y	W10	Y

Other Model Information

All 1501S models include 2 GB RAM and 32 GB eMMC

All 1501E models include 4 GB RAM and 32 GB eMMC, 2x COM ports, 1x M.2 SSD slot



BL2 BPC 1501S



BL2 BPC 1501E

BL2 BPC 1500 – Compact Box IPC

Key Take Aways

- Ultra compact form factor to fit into small junction boxes
- New embedded CPU technology
- Available in different configurations
- Available as secure system with TPM
- Available with serial ports to connect to legacy hardware
- Robust full metal housing for impact protection and EMI
- Competitively priced!



BL2 BPC 1501S



BL2 BPC 1501E

Standard Box PCs

- ✓ Passive cooled
- ✓ Robust metal construction
- ✓ Easy Service concept
- ✓ Wide environmental ratings



VL BPC x000

- Slim form factor Box PCs

- ✓ Passive cooled
- ✓ Expansion option (2 x PCI)
- ✓ Windows 7 & Windows 10 IoT
- ✓ Robust
- ✓ Bookshelf and wall mount
- ✓ SSD and HDD SATA mass storage options

- Intel CPU technology

- ✓ VL BPC 2000 – 3rd gen. (Bay Trail) N2930 1.6 GHz (4 core)
- ✓ VL BPC 3000 – 4th gen. (Haswell) Core i3-4010U 1.7 GHz (2 core)



VL2 BPC x000

- Complete range of fully configurable Box PCs

- ✓ Passive cooled
- ✓ Thermal isolation barrier
- ✓ Windows 7 & Windows 10 IoT
- ✓ Bookshelf and wall mount
- ✓ Expansion option (PCI & option cards)
- ✓ SSD and HDD SATA mass storage options

- Intel CPU technology

- ✓ VL2 BPC 1000 – 3rd gen. (Bay Trail) E3845 1.91 GHz (4 core)
- ✓ VL2 BPC 2000 – 3rd gen. (Bay Trail) N2930 1.6 GHz (4 core)
- ✓ VL2 BPC 3000 – 4th gen. (Haswell) Core i3-4010U 1.7 GHz (2 core)
- ✓ VL2 BPC 7000 – 4th gen. (Haswell) Core i5-4300U 1.9 GHz (2 core)
- ✓ VL2 BPC 9000 – 6th gen. (Sky Lake) Core i7-6822 EQ 2 GHz (4 core)



Quiz

What determines the performance of a PC system?



- ✓ CPU
 - ✓ Age / generation of CPU
 - ✓ Amount of CPU cores
 - ✓ Clock speed
 - ✓ CPU Performance is good overall system performance indicator
- ✓ Memory
- ✓ Mass storage
- ✓ System architecture



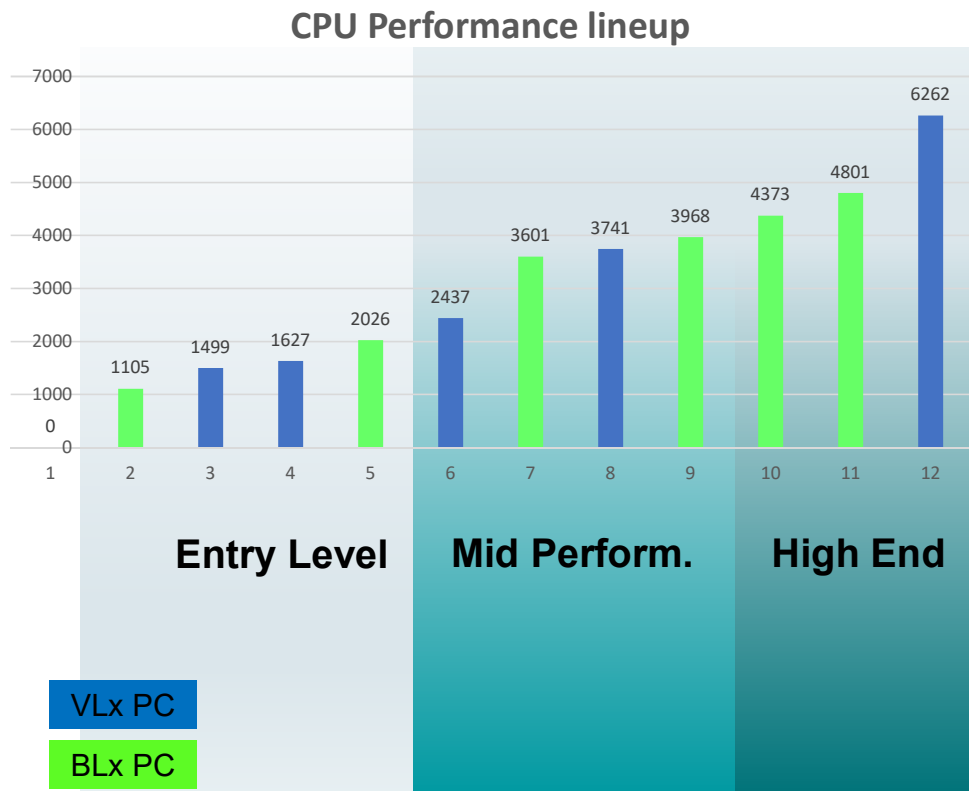
Cost – Per – Performance

	CPU Performance	System Performance	Performance Delta	Cost Delta compared to equivalent Core i7-610E system
Performance CPU / PC	2297 // 944		2525 // 1031 +10% // +9%	
	Intel Core i7 610E 2.53 GHz		Intel Core i3 4010U 1.7 GHz	
Cost compared to Intel VL 7000 (Core i7-610E)	--		-31%	
Cooling	Convection Booster		Passive	
Temp. Range	0...45°C		-20...50°C	

7000 Class

3000 Class

CPU Performance classification



Product(s)	Name	#of Cores	Passmark
BL2 1x00	N3350	2	1105
VL2 1000	E3845	4	1499
VLx 2000	N2930	4	1627
BL2 2x00	N4200	4	2026
VLx 3000	i3-4010U	2	2437
BL2 3000	i3-6100U	2	3601
VL2 7000	i5-4300U	2	3741
DL 7000	i7-4650U	2	3968
BL2 7100	i5-6300U	2	4373
BL2 9100	i7-6600U	2	4801
BL2 7000	i5-7442EQ	4	6262
VL2 9000	i7-6822EQ	4	6427

CPU Performance classification

Entry Level

✓ Visualization	✓ Data collection	✓ IoT Gateway	✓ Simple control
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Mid Performance

✓ SCADA	✓ MES	✓ Realtime tasks	✓ Demanding control
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High End

✓ SCADA	✓ MES	✓ Complex tasks	✓ Demanding control
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Quiz

What are the differences between HDD and SSD?



✓ HDD

- ✓ Rotating disk storage media
- ✓ Very large storage volumes possible
- ✓ „Unlimited“ write cycles
- ✓ Inexpensive media

✓ SSD

- ✓ Solid state media
- ✓ High shock / vibration tolerance
- ✓ Fast storage media
- ✓ Limited write cycles
- ✓ More expensive media



Hard Disk Drive vs. Solid State Drive

■ If...

- ✓ You need lots of storage capacity, up to 2 TB
- ✓ Don't want to spend much money
- ✓ Don't care too much about how fast a computer boots up or opens programs
- ✓ You do a lot of writing to disk (i.e. Data Logging)



■ If...

- ✓ You need to install it in a vibration or shock environment
- ✓ You are willing to pay for faster performance
- ✓ Don't mind limited storage capacity or can work around that



M.2 Storage

Another solid-state mass storage media

- ✓ Solid state solution with no moving parts
- ✓ Shock\ vibration 2000G\20G (per MIL-STD810)
- ✓ SATA III 6 Gbit/s compliant
- ✓ High performance, high durability
- ✓ MTBF > 2M hours
- ✓ Cost per GB on par with 2.5" SSD



Software options

- Full range of Microsoft operating systems



- Phoenix Contact Software



Control



Visualization



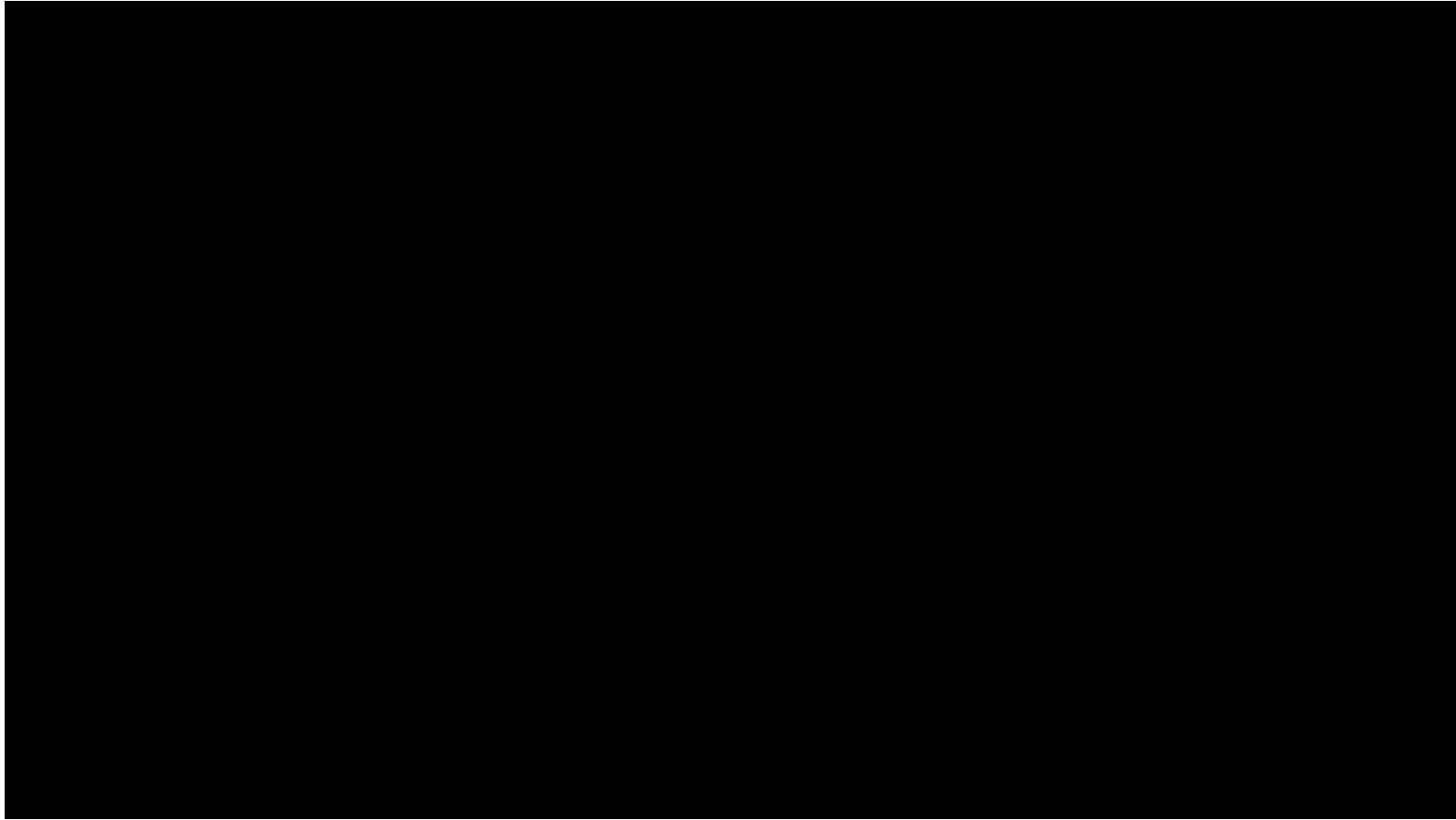
Networking

19" Rack Mount Systems – BL RM Series

- ✓ 19" rack mount Box PCs
- ✓ Available in 2 height units and 4U
- ✓ 4th Generation Intel processors
- ✓ Easily customer expandable with PCI/PCIe slots
- ✓ High system availability and data security with RAID support (0/1/5)
- ✓ Easily maintenance with hot swappable drives
- ✓ Increased security with lockable front door



19" Rack Mount Systems – BL RM Series



19" Rack Mount Systems – BL RM Series

- 19" Rack Mount Box PCs

- ✓ Two chassis sizes – 2U and 4U
- ✓ PCI & PCIe Expansion Slots
- ✓ High performance CPUs
- ✓ Hot swappable 3.5" SATA drives
- ✓ RAID support
- ✓ Active cooling with filter cartridges

- Intel CPU technology

- ✓ 4th gen. (Haswell) Core i3-4330T 3.0 GHz (2 core)
- ✓ 4th gen. (Haswell) Core i7-4770T 2.5 GHz (4 core)

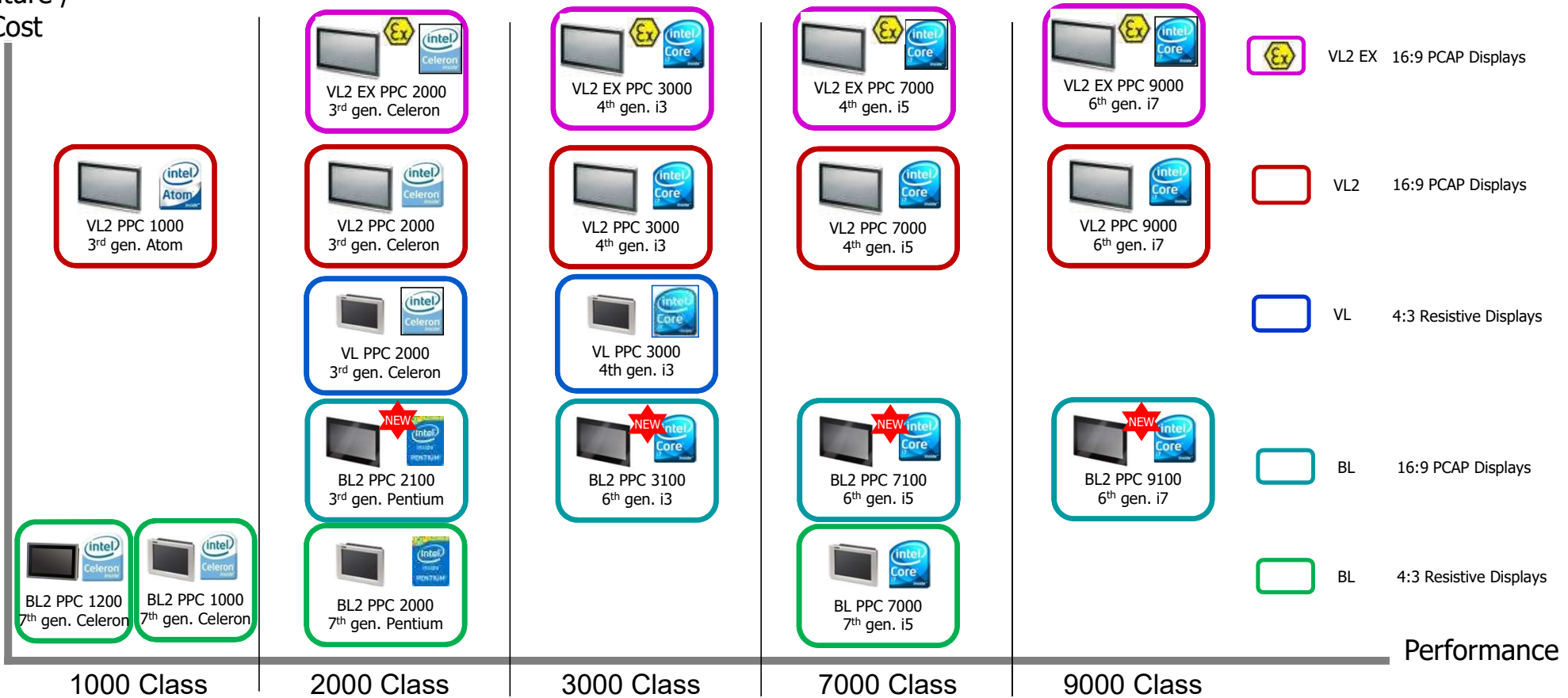


Panel IPCs & Monitor Solutions



Panel PC Lineup

Feature /
Cost



Performance

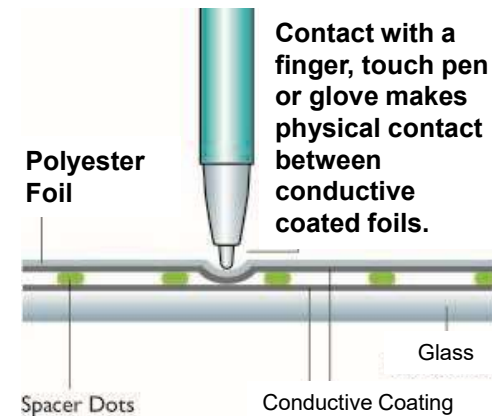
Touch Technologies – (analog) Resistive Touch

Advantages

- ✓ Inexpensive
- ✓ Pressure point sensor (operation with finger, touch pen, glove, etc.)
- ✓ High resolution
- ✓ Energy efficient

Limitations

- ✓ Reduced image transparency (Polyester type)
- ✓ Polyester touch foil is prone to physical damage



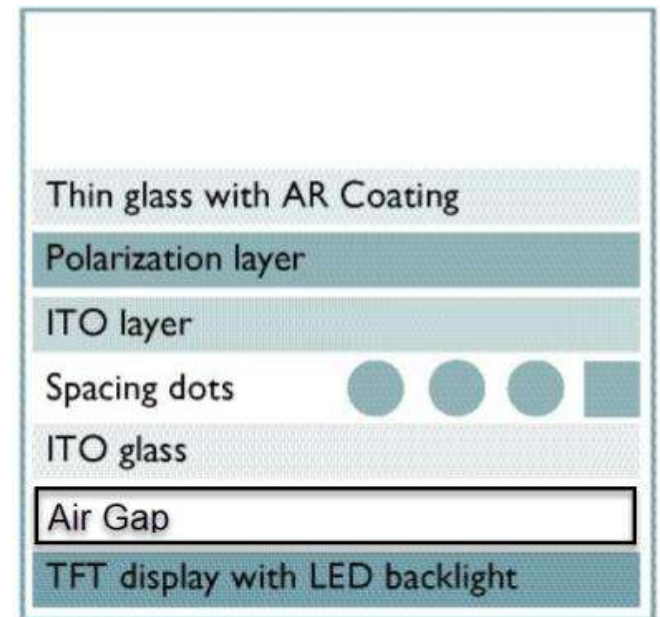
GFG (Glass Film Glass) Touch

Advantages

- ✓ Proven resistive touch technology
- ✓ Pressure point sensor (operation with finger, stencil, glove, etc.)
- ✓ High resolution
- ✓ High chemical resistance
- ✓ Scratch resistant Glass Front Surface
- ✓ Daylight readability

Limitations

- ✓ Higher cost
- ✓ Single-Touch interface
- ✓ Calibration necessary



Touch Technologies – (Projected) Capacitive Touch

Advantages

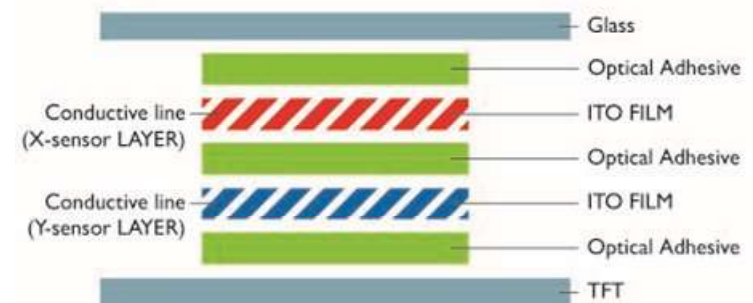
- ✓ High chemical resistance
- ✓ Scratch resistance (sharp objects)
- ✓ Multiple Touch points at the same time possible
- ✓ Modern All Glass Front designs
- ✓ Cleaner design with less pollution surfaces
- ✓ No calibration necessary

Limitations

- ✓ Works only when touched with conductive materials
- ✓ Possible false operation in wet applications
- ✓ Application software needs to be developed for this technology
- ✓ Higher cost



PCAP design



Touch Monitors & Display Solutions

- ✓ Industrial design
- ✓ True flat glass front
- ✓ Robust metal base construction
- ✓ Multiple display connectivity options
- ✓ 10 pt. PCAP Multi-Touch



BL FPM - Flat Panel Monitors

BL FPM 15.6

- 16:9 aspect ratio with 1366 x 768 resolution
- 1x VGA, 1x DVI-I, 1x DP++, 1x USB 1.1\2.0 Type A

BL FPM 18.5

- 16:9 aspect ratio with 1366 x 768 resolution
- 1x VGA, 1x DVI-I, 1x DP++, 1x USB 1.1\2.0 Type A

BL FPM 21.5

- 16:9 aspect ratio with 1920 x 1080 resolution
- 1x VGA, 1x DVI-I, 1x DP++, 1x USB 1.1\2.0 Type A



Box & Panel PC

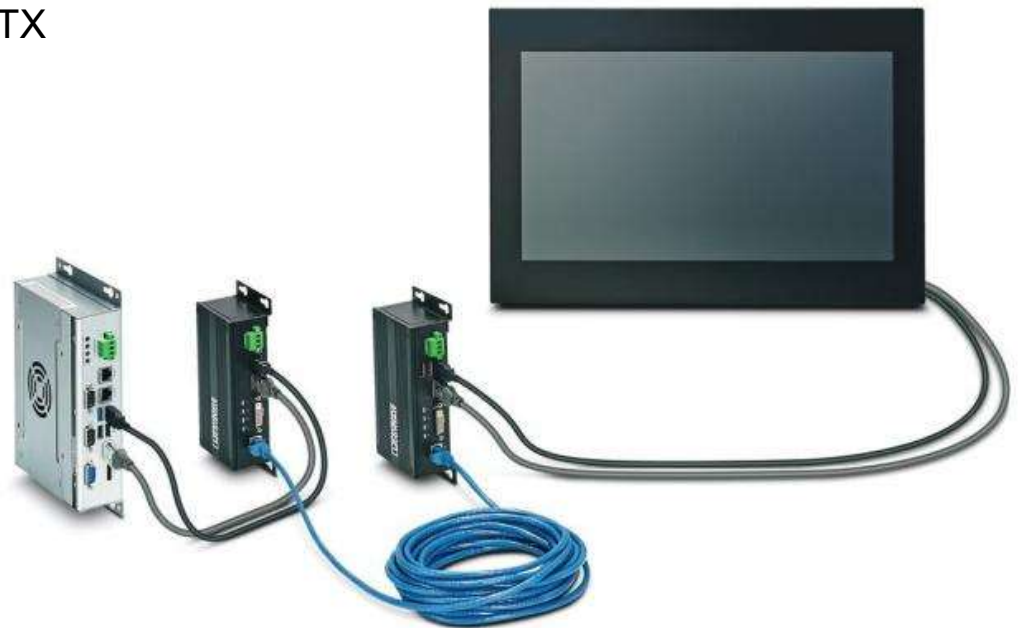


LIMITATIONS (max. cable length standards):

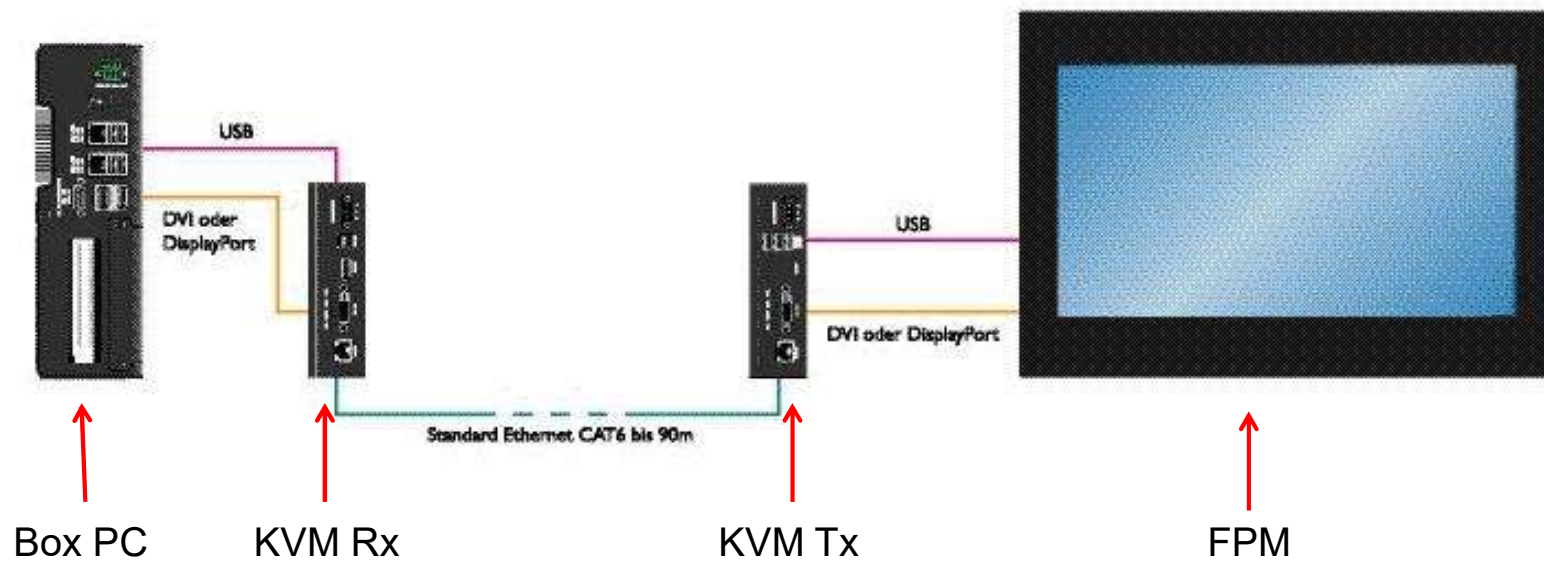
- USB cable: 5m
- VGA cable: 5m - 10m, resolution dependent
- DVI cable: 5m - 15m, resolution dependent
- Display Port cable: 5m

Keyboard Video Mouse Extender

- ✓ Flexible use of displays, up to 90 m away from PC
- ✓ Cost efficient wiring with single cable between TX and RX
- ✓ Increased application reliability with PC in safe location
- ✓ Industrial wide temperature design
- ✓ Fast setup with plug and play technology



BL KVM Extender 90 m solution



Remote Monitoring using Portico



- ✓ Software based solution using standard ethernet cable
- ✓ Unlimited distance, bandwidth dependent
- ✓ Up to 16 simultaneously connected clients
- ✓ Client control arbitration, USB redirection features
- ✓ Portico can be used with all PxC IPC products



Basic Panel PCs

BL2 PPC



BL2 PPC xx00 Series

- ✓ Suitable for every system with display sizes from 12" to 17" (4:3) and 15.6" to 21.5" (16:9)
- ✓ Analog Resistive Single-Touch and Projective-Capacitive Multi-Touch available – the right technology for every application
- ✓ The right processor performance for each application
- ✓ Latest generation long-term available and energy-efficient Intel® Atom™, Celeron®, Pentium® or Core™ i processors
- ✓ Passive cooling for long product life



Basic Panel PC – BL2 PPC x000

Robust Touch Display
Resistive Touch Technology

Display Choices
12", 15" or 17" display size

Performance to meet application needs
1000 Class – Intel Celeron N3350 1.1 GHz
2000 Class – Intel Pentium N4200 1.1 GHz
7000 Class – 7th Gen. Intel Core i5-7442EQ

Interfaces
2 x Ethernet 10/100/1000
3 x COM, 4 x USB
WIFI option

High System Availability
Fanless or convection booster
Single Board Design
Solid State m.2 SSD
No internal wiring
24V DC power



Basic Panel PC – BL2 PPC x000

- Analog resistive (Single-Touch) Panel PCs in 4:3 display aspect ratio

- ✓ Display sizes 12", 15" and 17"
- ✓ Expansion option (WIFI)
- ✓ Windows 10 IoT
- ✓ Passive cooled
- ✓ VESA or panel mount
- ✓ M.2 SATA mass storage

- 7th gen. Intel (Apollo Lake) CPU technology

- ✓ BL2 PPC 1000 – Intel Celeron N3350 1.1/2.4 GHz (2 core)
- ✓ BL2 PPC 2000 – Intel Pentium N4200 1.1/2.5 GHz (4 core)
- ✓ BL2 PPC 7000 – Intel Core i5-7442EQ 2.1/2.9 GHz (4 core)



Compact Basic Panel PC – BL2 PPC 1200

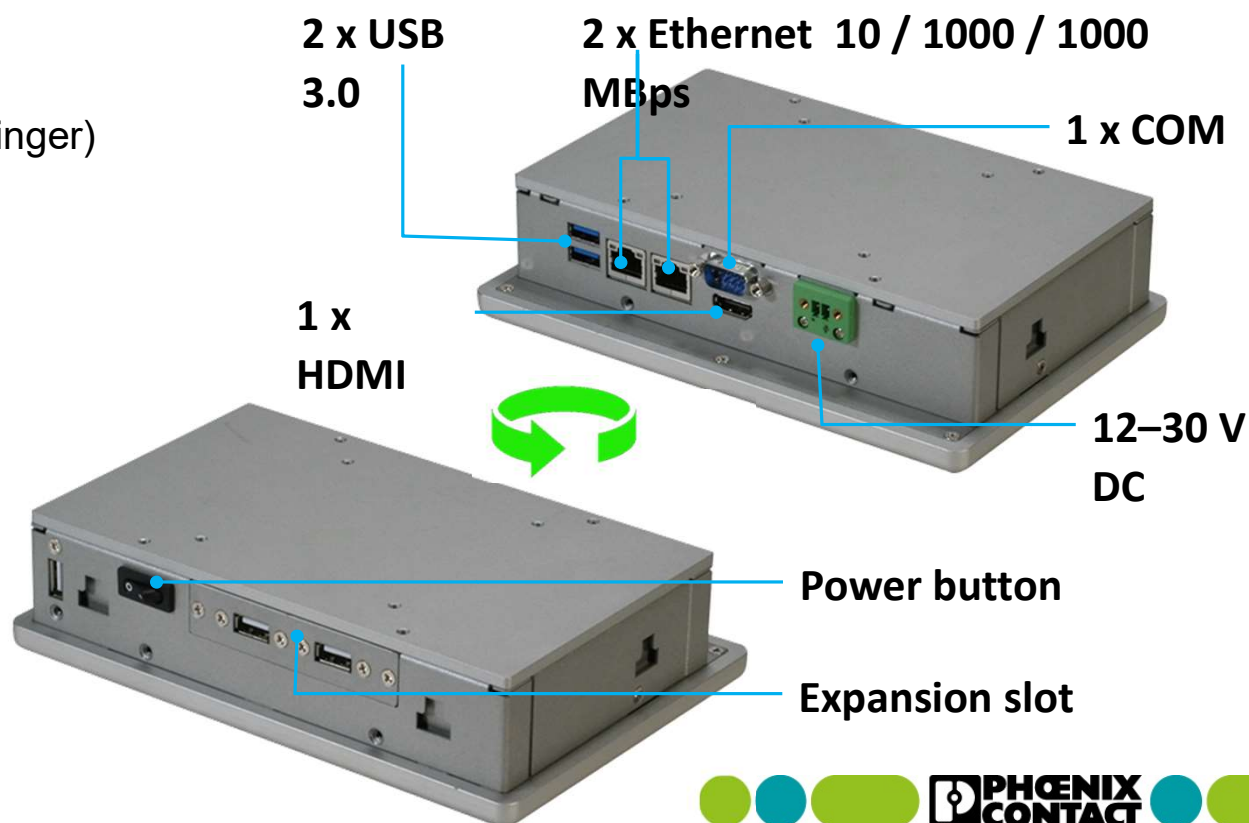
- 2 pt. PCAP (Multi-Touch) Panel PCs in 16:9 display aspect ratio
 - ✓ Display sizes 7" and 10"
 - ✓ Expansion option (USB / COM)
 - ✓ Windows 10 IoT
 - ✓ Passive cooled
 - ✓ VESA or panel mount
 - ✓ mSATA mass storage
- 7th gen. Intel (Apollo Lake) CPU technology
 - ✓ BL2 PPC 1000 – Intel Celeron N3350 1.1/2.4 GHz (2 core)



Compact Basic Panel PC - BL2 PPC 1200

General technical data

- 7" and 10" PCAP multi touch (2 finger)
- VESA 75 mount
- Intel Pentium N3350 CPU
- 4 GB RAM
- mSATA storage options
- Windows 10 IoT & Linux support
- Expansion options



Basic Panel PC – BL2 PPC x100

- Projected Capacitive (PCAP Multi-Touch) Panel PCs in 16:9 display aspect ratio

- ✓ Display sizes 15.6", 18.5" and 21.5"
- ✓ Expansion option
- ✓ Windows 7 & Windows 10 IoT
- ✓ Passive cooled
- ✓ VESA or panel mount
- ✓ M.2 and 2.5" SATA mass storage

- 6th gen. Intel (Apollo Lake) CPU technology

- ✓ BL2 PPC 2100 – Intel Pentium N4200 1.1/2.5 GHz (4 core)
- ✓ BL2 PPC 3100 – Intel Core i3-6100U 2.3 GHz (2 core)
- ✓ BL2 PPC 7100 – Intel Core i5-6300U 2.4 GHz (2 core)
- ✓ BL2 PPC 9100 – Intel Core i7-6600U 2.6 GHz (2 core)



Standard Panel PCs

VL2 PPC

VL PPC



Standard resistive panel PCs – VL PPC Series

- ✓ Suitable for every application with display sizes from 12" to 18.5" in 4:3 (non-widescreen) and 16:9 (widescreen) format
- ✓ Analog Resistive Single-Touch, Projective-Capacitive Multi-Touch and Glass-Film-Glass Touch (GFG Resistive Single-Touch) options available – the right technology for every application
- ✓ The right processor performance for each application
- ✓ Passive cooling for long product life
- ✓ Easy serviceability with easily accessible components



Standard Capacitive Touch Panel PCs – VL2 PPC Series

Display variety
7" to 21.5" screen sizes

Modern Design

- Small bezel frame
- No logo
- Anti-glare

User-Interface

- PCAP Multi-Touch interface
- Glass front

Installation
Simple one-man installation

Higher Protection Class
IP66

Wide Operating Temperature
-20°C ... up to 65°C (SSD media)



reddot award
product design



Standard Capacitive Touch Panel PCs – VL2 PPC Series

- Projected Capacitive (PCAP Multi-Touch) Panel PCs in 16:9 display aspect ratio

- ✓ Display sizes 7" to 21.5"
- ✓ Expansion options (PCI & Option card)
- ✓ Windows 7 & Windows 10 IoT
- ✓ Passive cooled & Thermal barrier
- ✓ VESA or panel mount
- ✓ 2.5" HDD & SSD SATA mass storage

- Intel CPU technology

- ✓ VL2 BPC 1000 – 3rd gen. (Bay Trail) E3845 1.91 GHz (4 core)
- ✓ VL2 BPC 2000 – 3rd gen. (Bay Trail) N2930 1.6 GHz (4 core)
- ✓ VL2 BPC 3000 – 4th gen. (Haswell) Core i3-4010U 1.7 GHz (2 core)
- ✓ VL2 BPC 7000 – 4th gen. (Haswell) Core i5-4300U 2.4 GHz (2 core)
- ✓ VL2 BPC 9000 – 6th gen. (Sky Lake) Core i7-6822 EQ 2 GHz (4 core)



Standard Capacitive Touch Panel PCs – VL2 PPC Series

7" Wide Screen 10 pt. PCAP Touch, 800 x 480

9" Wide Screen 10 pt. PCAP Touch, 800 x 480

12.1" Wide Screen 10 pt. PCAP Touch, 1366 x 768

15.6" Wide Screen 10 pt. PCAP Touch, 1366 x 768

18.5" Wide Screen 10 pt. PCAP Touch, 1366 x 768

21.5" Wide Screen 10 pt. PCAP Touch, 1920 x 1080



All-in-one and all-round IP65 protected Panel PCs

DL PPC

BL2 PPC AIO65



All-in-one and all-round IP65 protected Panel PCs

Feature

Performance

1000 Class

2000 Class

3000 Class

7000 Class

9000 Class



DL PPC 2000
Celeron



DL PPC 7000
4th gen. i7



BL2 PPC AIO65 2000

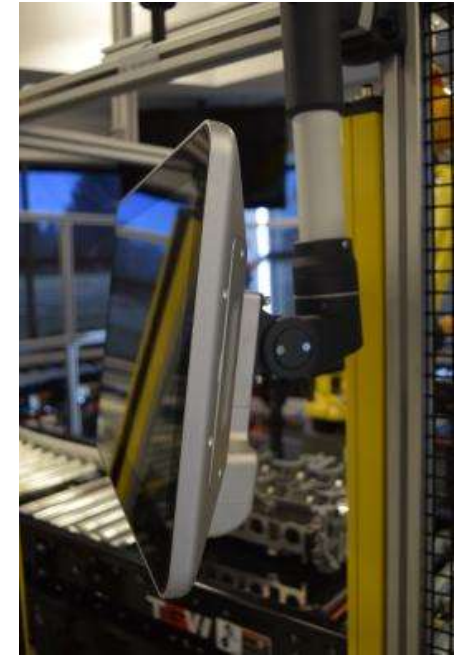
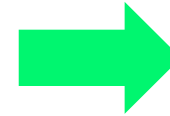
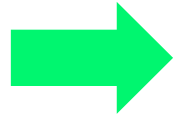


BL2 PPC AIO65 7000

DL PPC

BL2 PPC AIO65

Evolution in Cabinet Design



Standard All-in-one panel PC - DL PPC Series

- ✓ Attractive, modern industrial design
- ✓ PCAP Multi-Touch allows intuitive gesture control
- ✓ Wide operating temperature range
- ✓ High Performance, passive cooled Intel® Core™ i7 processor
- ✓ Space saving on factory floor without need for cabinet and just 60 mm system depth
- ✓ Easy maintenance with easily accessible parts



Standard All-in-one panel PC - DL PPC Series

- All-round IP65 protected Projected Capacitive (PCAP Multi-Touch) Panel PCs in

- ✓ Display sizes 15", 18.5" and 21.5"
- ✓ Expansion options (mPCIe)
- ✓ Windows 7 & Windows 10 IoT
- ✓ Passive cooled
- ✓ VESA mount or arm adapter
- ✓ 2.5" HDD & SSD SATA mass storage

- Intel CPU technology

- ✓ DL PPC 2000 – 3rd gen. Celeron 2980U (2 core)
- ✓ DL PPC 7000 – 4th gen. Core i7-4650 1.71 GHz (4 core)



Standard All-in-one panel PC - DL PPC Series



Easy maintenance
Service door (HDD/CMOS)



Easily accessible
IP65 protected interfaces

Intuitive gesture control
Projected Capacitive Touch



Attractive design
60 mm panel depth



Easy setup and service
External IP65-rated USB port



Convenient operation
integrated function key

Basic all-in-one and all-round IP65 protected panel PC BL2 PPC



Basic all-in-one and all-round IP65 protected panel PC BL2 PPC

Benefits

- ✓ All-around IP65 protection without the need for a cabinet
- ✓ Attractive, modern industrial design
- ✓ Scalable processor performance
- ✓ Easy installation and various mounting options



Basic all-in-one panel PC – BL2 PPC AIO65 Series

- Two performance level options
 - 2000 class (Pentium N4200)
 - 7000 class (Core i5-7442EQ)
- Three display size options
 - 15.6", 18.5" or 21.5" (Full HD)
 - 10-point PCAP touch
 - Glove operation
- Windows 10 IoT support

Configuration options

- AIO65 – VESA
- AIO65 – Pole mount



Basic all-in-one panel PC – BL2 PPC AIO65 Series

VESA configuration

- Metal housing construction
- VESA 100 mounting pattern
- 3 dual cable entry rubber grommets
- External cable routing



Basic all-in-one panel PC – BL2 PPC AIO65 Series

Pole or swing arm mount configuration

- Metal housing construction
- Arm / pole mount
- Cable entry through pole
- Internal cable routing



Basic all-in-one panel PC – BL2 PPC AIO65 Series

Pole or swing arm mount configuration

- Metal housing construction
- Arm / pole mount
- Cable entry through pole
- Internal cable routing



Basic all-in-one panel PC – BL2 PPC AIO65 Series

Pole or swing arm mount with stack light (accessory)

- Metal housing construction
- Arm / pole mount
- Cable entry through pole
- Internal cable routing, also for stack light



Basic all-in-one panel PC – BL2 PPC AIO65 Series

Pole or swing arm mount with push button box (accessory)

- Metal housing construction
- Arm / pole mount
- Cable entry through pole
- Internal cable routing, also for push button box



Comparison DL PPC & BL2 PPC AIO65

DL PPC	BL2 PPC AIO65
3 screen sizes 15", 18.5", 21.5" PCAP 2 performance classes - Intel Celeron 2980U (Passmark 1593) - Intel Core i7 4650U (Passmark 3963) 2.5" SSD / HDD mass storage - Configuration up to 12 GB DDR3 RAM - mPCIe slot - Windows 7 & Windows 10 - Monolithic design - Configurable front button - External USB - VESA and Arm mount - Temp range 0...45°C - Approvals CE, UL	3 screen sizes 15.6", 18.5", 21.5" PCAP 2 performance classes - Intel Pentium N4200 (Passmark 2026) - Intel Core i5 7442EQ (Passmark 6262) - M.2 SSD mass storage - AIO65 2000 class: 8 GB DDR3 RAM AIO65 7000 class: 8 to 16 GB DDR4 RAM - Windows 10 - Modular design - Push button box accessory (pole mount version) - Stack light accessory (pole mount version) - VESA and pole /swing arm mount - Temp range 0...45°C - Approvals CE, UL

Modular Operator Station – Simplest operation & maximum performance for Smart Factories

Agenda

- Review – Old Operator Stations
 - Market Requirements
 - Modular Operator Station – Introduction of a new system
 - Proof of Market Requirements
 - How to configure & order your Modular Operator Station
 - Contacts & more information
-





Review – Old Operator Stations



Modular Operator Station – Simplest operation & maximum performance for Smart Factories

Review – Old Operator Stations

Problems in the past:

- Only exclusive articles
 - Not in e-shop (no Google search result, complicated order process)
 - Marketing not possible
- No configurable articles
 - Many articles had to be developed (high maintenance effort, no multiplier effect)
 - Many individual documentations necessary
 - Discussions with customers / subsidiary complicated
- Technically
 - Space-consuming design
 - No extensive tests possible because of too many Main and side panel (Picture, Name)



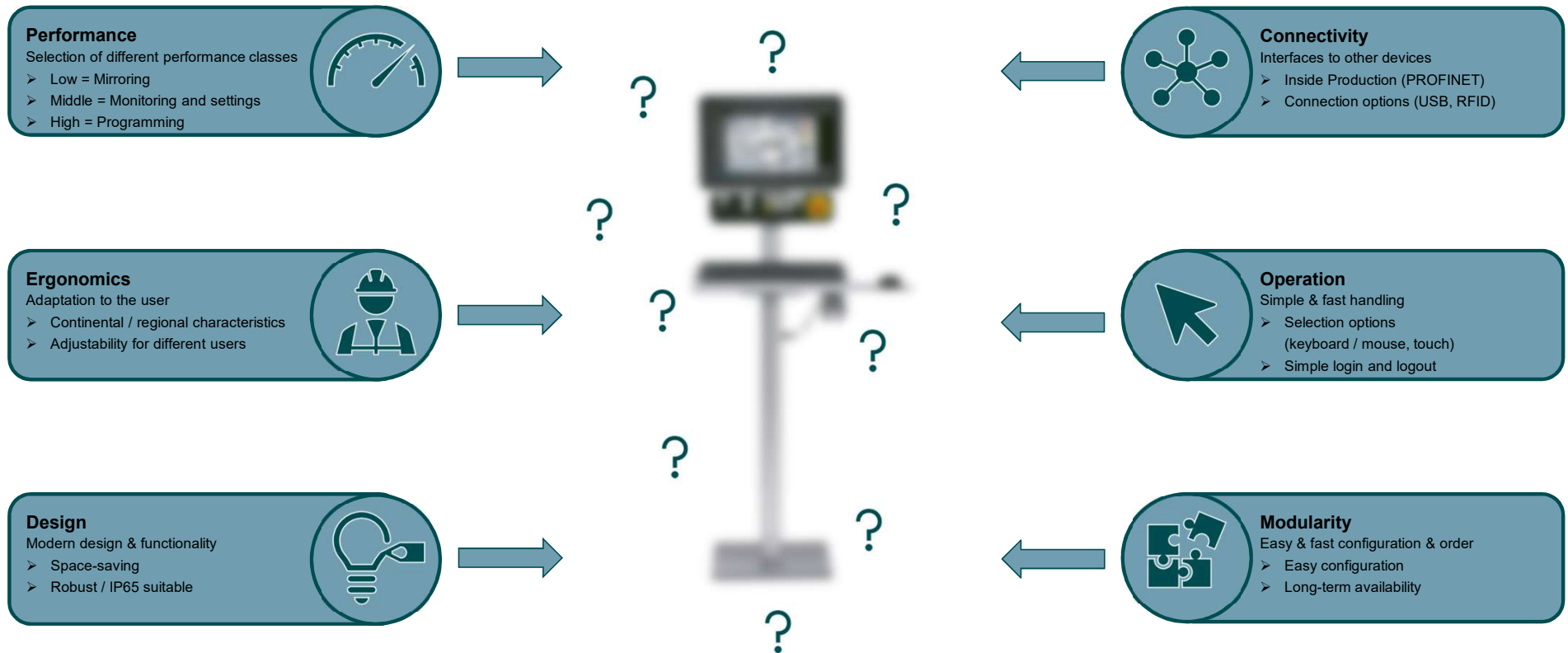


Market Requirements



Modular Operator Station – Simplest operation & maximum performance for Smart Factories

Market Requirements





Modular Operator Station – Introduction of a new system



Modular Operator Station – Introduction of a new system

Overview

Name: Modular Operator Station (Abbr. MOS)

Article number: 1168430

What kind of article is this and and what can you do with it?

- Configurable Operator Station
- Can be used for monitoring, operating and programming plants and machines
- Consists of: Signal Tower, IPC, Push-Button Box, Keyboard / Mouse, Mounting device and Software



Configured Modular Operator Station

Your advantages

- ✓ Modern, space-saving & robust IP65 design
- ✓ Very easy & fastest configuration
- ✓ Reliable & robust technology
- ✓ Easy & fast maintenance
- ✓ Best ergonomics & operating
- ✓ Newest & most innovative technologies
- ✓ Use of PROFINET & PROFISAFE
- ✓ Fastest data communication thanks to Gigabit

Modular Operator Station – Introduction of a new system

IPC – BL2 PPC AIO65

- By selecting the IPC, you determine the performance and application possibilities of your operator station
- Available IPCs

Name	Size	Resolution	CPU	RAM	Storage	Supported mounting types
BL2 PPC AIO65 2000	15,6"	1920x1080	Pentium N4200 Quadcore 1,1 GHz	8 GB DDR3	240 GB MSATA (3D TLC)	- Pedestal (Fixed, height-adjustable, vertical rotatable) - Mounting arm adapter (CS 3000, 48 mm)
BL2 PPC AIO65 2000	15,6"	1920x1080	Pentium N4200 Quadcore 1,1 GHz	8 GB DDR3	240 GB MSATA (3D TLC)	Wall mounting VESA (Connection to Bosch-Profile, only without keyboard)
BL2 PPC AIO65 2000	18,5"	1920x1080	Pentium N4200 Quadcore 1,1 GHz	8 GB DDR3	240 GB MSATA (3D TLC)	- Pedestal (Fixed, height-adjustable, vertical rotatable) - Mounting arm adapter (CS 3000, 48 mm)
BL2 PPC AIO65 2000	18,5"	1920x1080	Pentium N4200 Quadcore 1,1 GHz	8 GB DDR3	240 GB MSATA (3D TLC)	Wall mounting VESA (Connection to Bosch-Profile, only without keyboard)
BL2 PPC AIO65 7000	15,6"	1920x1080	i5-7442EQ 2,10 GHz	16 GB DDR4	480 GB MSATA (3D TLC)	- Pedestal (Fixed, height-adjustable, vertical rotatable) - Mounting arm adapter (CS 3000, 48 mm)
BL2 PPC AIO65 7000	18,5"	1920x1080	i5-7442EQ 2,10 GHz	16 GB DDR4	480 GB MSATA (3D TLC)	- Pedestal (Fixed, height-adjustable, vertical rotatable) - Mounting arm adapter (CS 3000, 48 mm)
BL2 PPC AIO65 9000	18,5"	1920x1080	i7-7820EQ 3,00 GHz	16 GB DDR4	480 GB MSATA (3D TLC)	- Pedestal (Fixed, height-adjustable, vertical rotatable) - Mounting arm adapter (CS 3000, 48 mm)



Configured Modular Operator Station

Your advantages

- ✓ Attractive & modern industrial design
- ✓ Intuitive gesture control – thanks to multi-touch capability
- ✓ Processor performance suited to the application
- ✓ Ergonomic use directly on the machine – thanks to all-round IP65 protection and VESA 100 mounting

Modular Operator Station – Introduction of a new system

Push-Button Box

- Ideal extension for the IPC
- It enables you to use more functions & more operating possibilities
- Available versions
 - Empty box (15,6" & 18,5")
 - Parallel wired box (15,6" + 8 slots + E-STOP or 18,5" + 10 slots + E-STOP, individual configuration)
 - PROFINET box (18,5" + 10 slots + E-STOP, individual configuration)

Slots can be filled with functions like USB 3.0 Ports, buttons for various functions, key switches, ...



Reduced downtime: IPC can be replaced quickly



More operating possibilities by physical buttons



Easy box maintenance by removable front & IPC replacement without downtime*



Front



Side



Back

* IPC replacement without downtime only with PROFINET box

Modular Operator Station – Introduction of a new system

Shelf, Keyboard & Mouse

- Choose the best shelf, keyboard & mouse combination for your application
- Available versions
 - Without shelf, keyboard & mouse
 - Shelf (Aluminium, height-adjustable) with Cherry keyboard (NUM-Block) & mouse
 - Shelf (Steel, not height-adjustable) with Active Key (Dust cover, without NUM-Block) & mouse
 - Shelf (Steel, not height-adjustable) with Gett keyboard (Stainless steel, touchpad, IP65)
- Available keyboard layouts:
 - German, US-English, Spanish, French, Chinese, Dutch, Portuguese



Aluminium shelf with Cherry keyboard & mouse



Use our innovative glove compatible multitouch or our Push-Button Box instead of keyboard & mouse

Modular Operator Station – Introduction of a new system

Signals

- Extend your operator station with clear and distinct colour signals that can be seen everywhere
- Available versions
 - Without signal tower
 - Multicolour
 - Red-Yellow – Green
 - Red – Green
 - Red



A signal tower can be mounted on top of the operator station

Your advantages

- ✓ Any signaling task can be performed, thanks to considerable signal diversity
- ✓ The optical elements can be arranged in any order, thanks to the modular design
- ✓ Long service life guaranteed, thanks to LED elements with low current consumption
- ✓ IP 65

Modular Operator Station – Introduction of a new system

Mounting

- A wide range of mounting methods always provide the best ergonomics, best operation and most space-saving solution
- Available version
 - Pedestal (Fixed, height-adjustable, vertical rotatable)
 - Mounting arm adapter (CS 3000, 48 mm)
 - Wall mounting VESA (Connection to Bosch-Profile, only without keyboard)



No matter whether it is a pedestal, support arm or wall mount.
We offer the best solution

Modular Operator Station – Introduction of a new system

Software

- To ensure that the operator station is immediately ready to use, we offer you, in addition to the pre-installed Windows 10, numerous other software
- Available bundles
 - Without software
 - PLCnext bundle 1 (PLCnext ENG Safety, PLCnext ENG SFC)
 - PLCnext bundle 2 (PLCnext ENG Safety, PLCnext ENG SFC, HMI Generator, Portico)
 - Individual software bundle



PLCnext Software – Intuitive & fast

Your advantages

- ✓ Easy handling, thanks to intuitive programming interfaces and clear structures
- ✓ Fast startup and programming, thanks to comprehensive standard libraries
- ✓ Application-specific extension with corresponding function blocks and function add-ins
- ✓ Uniform operation worldwide, thanks to programming in accordance with IEC 61131

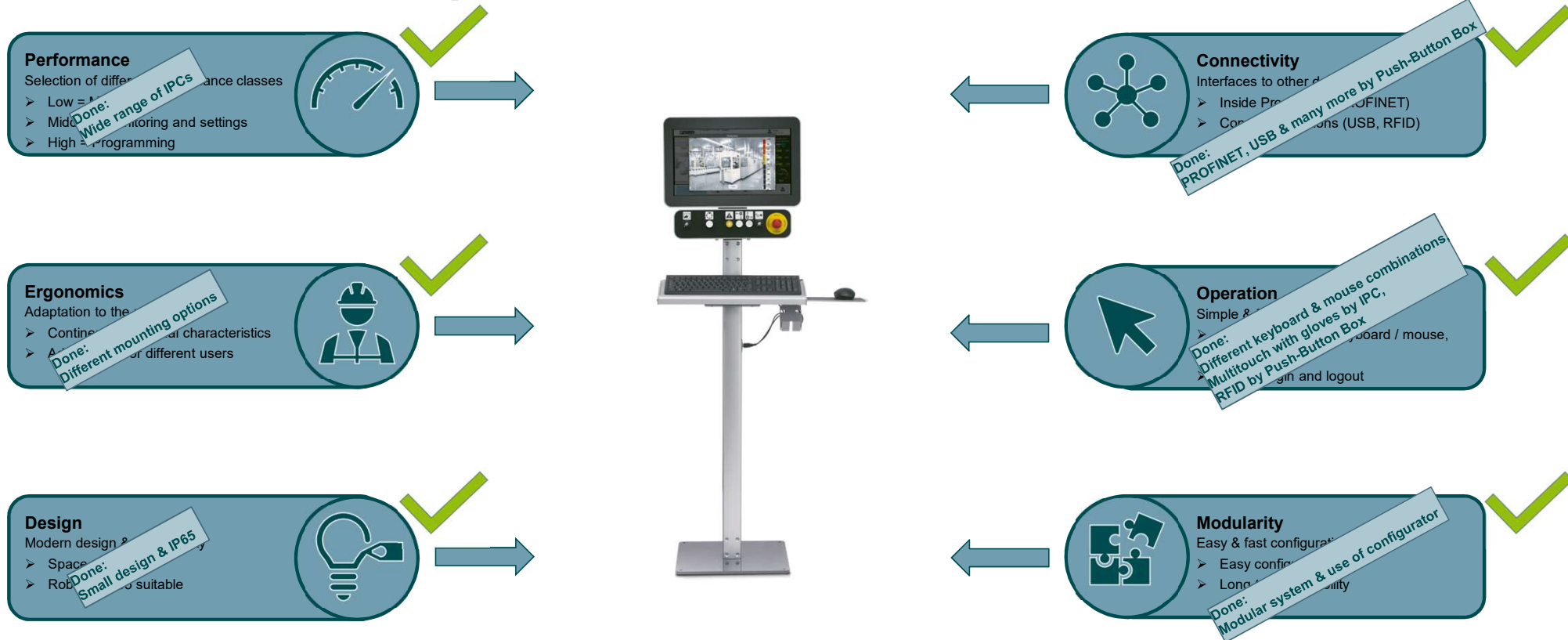


Proof of Market Requirements



Modular Operator Station – Introduction of a new system

Proof of Market Requirements





How to configure & order your Modular Operator Station



Modular Operator Station – Simplest operation & maximum performance for Smart Factories

How to configure & order your Modular Operator Station

- Our brand-new configurator assists you in configuring your favorite solution quickly and easily
- Only 6 steps are necessary
 - [Download](#) & open the configurator
 - Select your favorite components
 - Check your configuration
 - Copy the order key & press "Send request"
 - Wait for your personal offer
 - Order your desired article

The screenshot shows the 'Modular Operator Station - Configurator' web interface. At the top, it says 'Welcome to the Modular Operator Station Configurator'. Below this is a list of components to be configured: Industry PC, Push-Button Box, Keyboard / Mouse, Keyboard language, Mounting device, Signal tower, and Software. Each component has a dropdown menu to select a specific option. Below the configuration list, the 'Orderkey' is displayed as 'AML-MOS-*****'. A section titled 'Currently selected configuration of the Modular Operator Station:' shows the selected options for each component. At the bottom, there are two buttons: 'Send request (Phoenix Contact Employees)' and 'Send request (Customer)'. Below these buttons, there are contact information sections for technical questions (Frank Brockhagen) and commercial/marketing questions (Andreas Stanislawski), each with a 'Contact' button. At the very bottom, there are links to 'PC World', 'Salesnet', and 'E-Shop'.

Welcome page at the Modular Operator Station – Configurator



Contacts & more information



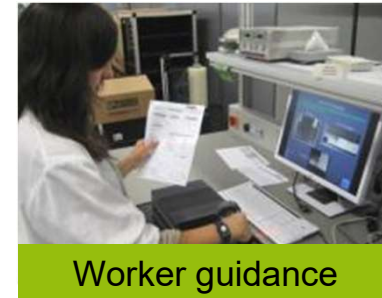
All-in-one panel PC applications



Machine control



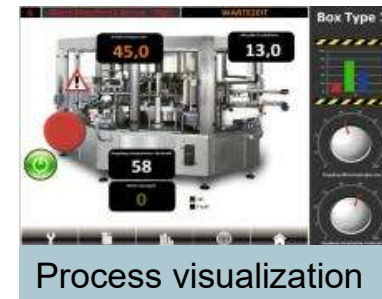
Quality assurance



Worker guidance



Data collection



Process visualization

Specialty and Industry Ready Panel PCs

- ✓ Suitable for outdoor applications with sunlight readable display option
- ✓ UV and IR resistance
- ✓ Corrosion resistant materials (i.e. salt spray test)
- ✓ Rugged, passive cooled design with wide operating temperature components
- ✓ Usable with work gloves



Box and panel PCs for hazardous locations - VL2 EX Series

■ Complete range of fully configurable Box PCs

- ✓ Passive cooled
- ✓ Designed for O&G
- ✓ Windows 7 & Windows 10 IoT
- ✓ Unique part numbers
- ✓ Expansion options
- ✓ Thicker front glass
- ✓ Box PC and PCAP panel PCs
- ✓ Triple HAZLOC

■ Performance Classes

- ✓ VL2 BPC 1000 – Intel Atom E3845 1.91 GHz (4 core)
- ✓ VL2 BPC 2000 – Intel Celeron N2930 1.6 GHz (4 core)
- ✓ VL2 BPC 3000 – Intel Core i3-4010U 1.7 GHz (2 core)
- ✓ VL2 BPC 7000 – Intel Core i5-4300U 1.9 GHz (2 core)
- ✓ VL2 BPC 9000 – Intel Core i7-6822 EQ 2 GHz (4 core)



Box and panel PCs for hazardous locations - VL2 EX Series

- Enhanced approvals
 - ✓ BPC: Class I Div 2, ATEX Zone 2 and IECex Zone 2
 - ✓ PPC: Class I Div 2, ATEX Zone2/22 and IECex Zone2/22
 - ✓ NOTE: Not approved for C2D2 combustible dust!
- Changes from standard “VL2”
 - ✓ Unique “EX” part numbers
 - ✓ Component based system enhancements
 - ✓ Thicker front glass with higher impact resistance
 - ✓ Does not replace the “standard” VL2



Panel PCs for harsh environments – VL2 PPC 1000

Rugged design

- Corrosion resistant parts
- IP65 protection class

Outdoor installation

- Wide operating temperature (-20°C to +70°C)
- Sunlight readable screen
- UV and IR protection



- Approvals
- UL ord. loc

- Scratch resistant glass front
- GFG resistive (Single-Touch) and PCAP LR (Multi-Touch) options

Built for the EXTREME

Panel PCs for harsh environments – VL2 PPC 1000

- Sunlight readable Panel PCs with 16:9 display
 - ✓ Display sizes 7" to 12.1"
 - ✓ PCAP-LR and GFG-LR
 - ✓ Passive cooled, wide temp -20°C to +70°C
 - ✓ Low reflective technology



Panel PCs for mobile applications – VMT 9000

- Fully enclosed, fanless IP66 outdoor rated Panel PCs

- ✓ 4:3 Display sizes 10", 12" and 15"
- ✓ 16:9 Display size 12.1"
- ✓ Sunlight readable
- ✓ 4 configurable front buttons
- ✓ Optional WIFI and LTE/GPS
- ✓ Passive cooled
- ✓ Impact resistant screen
- ✓ -30°C to +60°C
- ✓ 9V to 30VDC operation
- ✓ UL ord. loc.

- Performance class

- ✓ VMT 9000 – Atom x7-E3950 2.0 GHz



Rugged HMI & IPC – Applications



Tethered robot & machine teach-panels – HTP10 1000

- ✓ Hand-held operator panel with software for on-site visualization, or multi-user operation
- ✓ Rugged design for high shock resistance
- ✓ All-round protection (IP65)
- ✓ Ergonomic design
- ✓ Simple and intuitive operation
- ✓ Integrated safety function



Tethered robot & machine teach-panels – HTP10 1000

- Hand-held operator panel with software for on-site visualization or multi-user operation
- 16:9 display aspect ratio
 - ✓ 10.1" Wide Screen Display
 - ✓ Mobile (tethered) panel operation
 - ✓ Ergonomic design
 - ✓ Windows 10 IoT
 - ✓ Passive cooled
 - ✓ Multiple accessories available
 - ✓ Integrated safety
 - ✓ Software flexibility
- Intel CPU technology
 - ✓ HTP10-1000 – 3rd gen. (Bay Trail) E3815 1.46 GHz (1 core)



IPC Applications



Basic industrial panel PC application

Printing / cutting machinery

IPC Model

- ✓ BL BPC 2000
- ✓ BL FPM





Thank you