

## Panel PC Fanless

Reliable low consumption panel PC systems without forced ventilation with ATOM, Pentium, Core 2 Duo processors, touch LCD display from 6.5" to 19" in plastic, aluminium or INOX frontal frame. Expansion slots and connections to main industrial fieldbuses to manage control and visualisation applications.

## Panel PC Performance

Performance panel PC systems that guarantee high calculating power and graphics processing capabilities due to Pentium and Core 2 Duo processors and available with touch LCD display from 12" to 19" in plastic, aluminium or INOX frontal frame. Expansion slots and connections to main industrial fieldbuses to manage control and visualisation applications.

## Panel PC Fanless

	LCD	FRONT PANEL	PROCESSORS		SLOT	POWER SUPPLY	O.S.	
<b>OT600</b>	6,5"   8,4"   12,1"	Alu	LX800		MiniPCI	12VDC   24VDC	CE5   CE6   WES   XP Pro	16
<b>OT1100</b>	12,1"   15"   17"   19"	Alu   Inox	ATOM		MiniPCI	24VDC	CE6   WES   XP Pro   W7	18
<b>OT1200</b>	8,4"   10,4"   12,1"   15"   17"   19"	Alu   Inox	CelM		PC/104Plus   PCI	24VDC   UPS	CE5   CE6   WES   XP Pro	20
<b>WS500   WS500-TE</b>	12,1"   15"   17"	Plastic	CelM		PCI   PCIe	24VDC   220VAC	WES   XP Pro	22
<b>WS550   WS550-TE</b>	12,1"   15"   17"	Plastic	C2D		PCI   PCIe	24VDC   220VAC	WES   XP Pro   W7	24
<b>FT500   FT500-TE</b>	12,1"   15"   17"	Alu	CelM		PCI   PCIe	24VDC   220VAC	WES   XP Pro	26
<b>FT550   FT550-TE</b>	12,1"   15"   17"   19"	Alu   Inox	C2D		PCI   PCIe	24VDC   220VAC	WES   XP Pro   W7	28

## Panel PC Performance

	LCD	FRONT PANEL	PROCESSORS		SLOT	POWER SUPPLY	O.S.	PAGE
<b>OT1300</b>	8,4"   10,4"   12,1"   15"   17"   19"	Alu   Inox	CelM   PM		PC/104Plus   PCI	24VDC	CE5   CE6   WES   XP Pro	30
<b>WS600   WS600-TE</b>	12,1"   15"   17"	Plastic	CelM   PM		PCI   PCIe	24VDC   220VAC	WES   XP Pro	32
<b>WS650   WS650-TE</b>	12,1"   15"   17"	Plastic	Cel   C2D		PCI   PCIe	24VDC   220VAC	WES   XP Pro   W7	34
<b>FT600   FT600-TE</b>	12,1"   15"   17"	Alu	CelM   PM		PCI   PCIe	24VDC   220VAC	WES   XP Pro	36
<b>FT650   FT650-TE</b>	12,1"   15"   17"   19"	Alu   Inox	Cel   C2D		PCI   PCIe	24VDC   220VAC	WES   XP Pro   W7	38

Alu: aluminium | Inox: stainless steel | CelM: Celeron M | C2D: Core 2 Duo | PM: Pentium M | PCIe: PCI Express bus | RID: redundant  
 WES: Windows Embedded Standard | W7: Windows Seven | Res 4: resistive 4 wires | Res 5: resistive 5 wires | GFG: Glass Film Glass

## Performance

# OT1300

OT1300 is the cost effective solution for who is looking for performances. Equipped with Intel® Celeron® M and Pentium® M up to 2 GHz processors is offered from 8,4" to 17" LCD touchscreen display. OT1300 can be equipped with Premium HMI supervisory system softwares and with ASEM NETcore® X fieldbus interfaces to match all the supervisor and communication requests from applications.

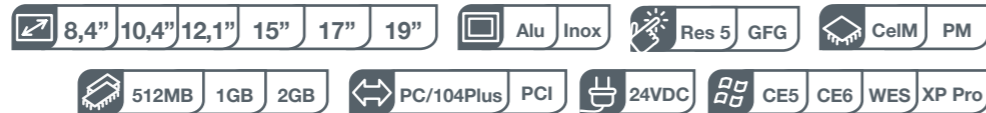


Image 1: INOX Trueflat version  
Image 2: PCI expansion bus  
Image 3: Intel Celeron M and Pentium M up to 2GHz

### FEATURES PLUS

- 1 PCI SLOT FOR EXPANSION CARD
- INOX TRUEFLAT FRONT PANEL OPTIONAL
- 4 FRONTAL KEYS CUSTOMIZABLE OPTIONAL
- DATA STORAGE ON SSD/CF/HDD

System characteristics		8,4"	10,4"	12,1"	12,1"	15"	17"	19"
<b>Display</b>	Size	8,4"	10,4"	12,1"	12,1"	15"	17"	19"
	Type	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT
	Resolution	800 x 600 (SVGA)	800 x 600 (SVGA)	800 x 600 (SVGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1280x1024 (SXGA)	1280 x 1024 (SXGA)
	Colors	256K	256K	256K	256K	16M	16M	16M
	Pixel pitch	0,213 x 0,213mm	0,264 x 0,264mm	0,307 x 0,307mm	0,24 x 0,24mm	0,297 x 0,297mm	0,264 x 0,264mm	0,294 x 0,294mm
	Backlight	CCFL 2 lamps	CCFL 2 lamps	CCFL 2 lamps	CCFL 2 lamps	CCFL 4 lamps	CCFL 2 lamps	CCFL 2 lamps
	Luminance	400cd/m2	400cd/m2	400cd/m2	400cd/m2	450cd/m2	300cd/m2	300cd/m2
	Contrast	250:1	450:1	500:1	500:1	400:1	1000:1	1000:1
	Viewing angle	120° H, 100° V	120° H, 100° V	120° H, 100° V	120° H, 100° V	120° H, 100° V	160° H, 140° V	160° H, 160° V
	MT F	-	-	60000h	60000h	60000h	50000h	50000h
<b>Touchscreen (note 2)</b>	Technology	5 wires – analog - resistive						
	Light transmission	80% ±2%						
<b>Motherboard</b>	Model	All-in-one, ASEM MB951						
	HW monitor	Temperature monitor						
	Watch-dog	Time programmable						
	Interface	Serial						
<b>CPU</b>	Processor	Intel® Celeron M 373 1,5GHz		Intel® Pentium M 740 1,73GHz		Intel® Pentium M 760 2GHz		
	FSB	400MHz		533MHz		533MHz		
	Cache	1MB L2		2MB L2		2MB L2		
	Socket	Socket 478 uFC-BGA		Socket 478 uFC-BGA		Socket 478 uFC-BGA		
<b>Graphic</b>	Controller	GMA900 integrated in Intel® 915GME						
	Memory	Shared - 64MB+128MB system selectable						
<b>System memory</b>	Type	DDR2 PC5300						
	Size	512 MB, 1 GB, 2 GB						
<b>Video interfaces</b>	Socket	1 x SODIMM module						
	Type	1 x VGA (DB15F)						
<b>Serial interfaces</b>	Type	1 x RS232 (DB9M)						
	UART	16550 compatible (FIFO 16 byte)						
	Transfer rate	115Kbps max						
	Optoisolation	No						
<b>Optional (note 1)</b>	Type	1 x RS232 (DB9M)						
	UART	16550 compatible (FIFO 16 byte)						
	Transfer rate	115Kbps max						
	Optoisolation	No						
<b>Parallel interfaces</b>	Type	1 x SPP, EPP, ECP bidirectional						
	Connection	DB25M						
<b>PS/2 interfaces</b>	Type	1 x PS/2 Keyboard / Mouse						
<b>Ethernet interfaces</b>	Type	2 x 10/100Mbps (RJ45)						
	Controller	Intel 8255QM - Intel 82562EZ						
<b>USB interfaces</b>	Type	4 x USB 2.0 (rear, TYPE-A, host port), 1 x USB 2.0 (front, TYPE-A, host port, protected)						
	Transfer rate	Up to 480Mbit (high speed)						
<b>Compact Flash slots</b>	Type	1 x Type I (internal access), 1 x Type II (external access)						
<b>Mass storage interfaces</b>	Serial	1 x SATA 1 1,5Gb/s						
	Parallel	1 x ATA/100 Master/Slave (dedicated for CF Slots)						
<b>Expansion slots</b>	Type	1 x PC/104 Plus or 1 x PCI half size)						
<b>Battery</b>	Type	AA Lithium (3.6V)						
	Removable	No						
	Lifetime	20 years						
<b>Buttons, leds and keys</b>	Reset button	System / Watch-dog						
	LEDs	Power						
	Function keys	4 programmable on front panel (optional)						
Electrical characteristics								
<b>Power supply</b>	Type	Integrated on board, auto ranging						
	Input voltage	18-36 VDC						
	Power consumption	39W basic configuration (OT1300 15" Celeron M 1,5GHz T/S 512MB RAM)						
Mechanical characteristics								
<b>Case</b>	Type	Panel mount						
	Material	Steel, nickel treatment						
<b>Front panel</b>	Protection	IP65				IP66K		
	Construction	Aluminum alloy with polycarbonate foil				Stainless Steel True Flat with polyester foil		
	Color	PANTONE 429C				RAL 7035		
<b>Measurements mm</b>	8,4"	Dimensions (W x H x D)		Stainless Steel (W x H x D)		Cutout (W x H)		Weight (Kg)
	10,4"	250 x 210 x 103		-		230 x 190		3,1
	12,1"	300 x 245 x 103		-		280 x 225		4,0
	15"	335 x 270 x 103		335 x 270 x 103		315 x 250		4,6
	17"	390 x 315 x 103		398 x 315 x 103		370 x 295		5,3
	19"	455 x 355 x 103		455 x 355 x 103		435 x 335		6,7
		480 x 388 x 113		-		470 x 368		7,3
Enviromental characteristics								
<b>Temperature</b>	Operation	0° ± +50°C without HDD, 0° ± +45°C with 17", 0° ± +45°C with HDD						
	Storage	-20° ± +60°C						
<b>Humidity</b>	Operation/Storage	80% (non-condensing)						
Warranty & Approvals								
<b>CE</b>	Emission	Conforms to EN 55022 Information technology equipment – Radio disturbance characteristics Conforms to EN 61000-3-2 – Limits for harmonic current emissions Conforms to EN 61000-3-3 – Limits of voltage fluctuation and flicker						
	Immunity	Conforms to EN 55024 Information technology equipment – Immunity characteristics Conforms to EN 60950-1 – Information technology equipment – Safety						
<b>UL</b>	Marks	UL, cUL						
	Safety Certificate N°	Conforms to UL-60950-1 – Information technology Equipment - Safety 2090306-E315863						
<b>Warranty</b>	Management	By ASEM headquarters						
	Standard Extended	12 months 18 / 24 / 36 months (optional)						
Notes								
1		RS-232/422/485 standard and optoisolated can be installed one alternative to the other						
2		Touchscreen is mandatory for Stainless Steel True Flat front panel with Stainless steel front panel touchscreen is mandatory and no USB port on the front						

## Performance

# WS600 WS600-TE



Family WS600 systems offer Celeron M / Pentium M CPU together with different mechanical solutions: plastic front frame with or without extended keyboard, side modules for buttons and leds or pointing systems, or frameless version for back-panel mount.

Touch screen LCD can be 12.1", 15" and 17". WS600 systems' front panel, IP65 rated, hosts two USB ports protected by a rubber cap.



Image 1: Keyboardless version  
Image 2: 4 PCI/PCIe slots on H4 version  
Image 3: Side modules with trackball/touchpad

### FEATURES PLUS

- EXTENDED KEYBOARD VERSION (WS600-TE)
- H3 AND H4 VERSIONS FOR PCI/PCIe EXPANSION
- REAR AND FRONTAL DVD/FDD OPTIONAL

System characteristics					
Display	Size	12.1"	15"	17"	
	Type	Color LCD TFT	Color LCD TFT	Color LCD TFT	
Touchscreen	Resolution	800 x 600 (SVGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)	
	Colors	256K	16M	16M	
	Pixel pitch	0,307 x 0,307mm	0,297 x 0,297mm	0,264 x 0,264mm	
	Backlight	CCFL 2 lamps	CCFL 4 lamps	CCFL 2 lamps	
	Luminance	400cd/m2	450cd/m2	300cd/m2	
	Contrast	500:1	400:1	1000:1	
	Viewing angle	120° H, 100° V	160° H, 140° V	160° H, 160° V	
	MT F	60000h	50000h	50000h	
	Motherboard	Technology	5 wires - analog - resistive		
		Light transmission	80% ±2%		
Lifetime		35min activations			
Linearity deviation		< 1 %			
CPU	Model	All-in-one, ASEM MB921			
	HW monitor	Temperature monitor			
Processor	Processor	Intel® Celeron M 370 1,5GHz	Intel® Pentium M 740 1,73GHz	Intel® Pentium M 760 2GHz	
	FSB	400MHz	533MHz	533MHz	
Cache	Cache	1MB L2	2MB L2	2MB L2	
	Socket	Socket 478 uFC-BGA	Socket 478 uFC-BGA	Socket 478 uFC-BGA	
Graphic	Controller	Intel® 915GME + ICH6M			
	Memory	GMA900 integrated in Intel® 915GME			
System memory	Type	Shared - 64MB+128MB system selectable			
	Size	DDR2 PC5300			
Video interfaces	Socket	512 MB, 1 GB, 2 GB			
	Type	2 x SODIMM module			
Serial interfaces	Type	1 x VGA (DB15F)			
	UART	2 x RS232 (DB9M)			
Optional (note 1)	Transfer rate	16550 compatible (FIFO 16 byte)			
	Optoisolation	115Kbps max			
Parallel interfaces	Type	No			
	Connection	1 x RS-232/422/485 (DB15M)			
PS/2 interfaces	Type	16550 compatible (FIFO 16 byte)			
	Transfer rate	115Kbps max			
Ethernet interfaces	Type	No / Yes			
	Controller	1 x SPP, EPP, ECP bidirectional			
USB interfaces	Type	DB25M			
	Transfer rate	1 x PS/2 Keyboard, 1 x PS/2 Mouse			
Compact Flash slots	Type	2 x 10/100Mbps (RJ45)			
	Transfer rate	Intel 82559ER			
Mass storage interfaces	Type	4 x USB 2.0 (rear, TYPE-A, host port), 2 x USB 2.0 (front, TYPE-A, host port, protected)			
	Serial	Up to 480Mbit (high speed)			
Optical device interfaces	Parallel	1 x Type II (external access)			
	Type	2 x SATA 1.5Gb/s			
Expansion slots	Type	1 x ATA/100 Master/Slave (dedicated for CF Slots)			
	Alternative	H1			
Battery	Type	H3 / H4 / H1-TE / H3-TE / H4-TE			
	Removable	1 x FDD, 1 x DVD-RW			
Buttons, leds and keys	Reset button	H4 / H4-TE			
	LEDs	4 x PCI half size			
Electrical characteristics	Type	3 x PCI, 1 x PCI-e x1 half size on riser card			
	Input voltage	AA Lithium (3.6V)			
Mechanical characteristics	Type	No			
	Material	20 years			
Case	Protection	System / Watch-dog			
	Construction	Power, HDD activity, LAN, Alarm fans/temperature			
Front panel	Color	-			
	Frameless	H3 / H3-TE			
Keyboard module	Type	2 x PCI half size			
	Layout	H4 / H4-TE			
Side modules	Type	4 x PCI half size			
	Function keys	3 x PCI, 1 x PCI-e x1 half size on riser card			
Measurements	Type	-			
	Dimensions (W x H x D)	normal			
mm	H1	TE			
	H3	normal			
H4	TE			Weight (Kg)	
	normal			TE	
Temperature	Operation	6,0			
	Storage	10,1			
Humidity	Operation/Storage	7,9			
		12,0			
Warranty & Approvals	CE	8,9			
	Immunity	7,6			
Warranty	Safety	10,5			
	Standard	9,2			
Notes	Extended	11,1			
		14,9			
Environmental characteristics	Operation	0° ÷ +50°C without HDD, 0° ÷ +45°C with HDD			
	Storage	-20° ÷ +60°C			
Warranty & Approvals	Humidity	80% (non-condensing)			
	CE	Conforms to EN 55022 Information technology equipment - Radio disturbance characteristics			
Warranty	Immunity	Conforms to EN 61000-3-2 - Limits for harmonic current emissions			
	Safety	Conforms to EN 61000-3-3 - Limits of voltage fluctuation and flicker			
Warranty	Management	Conforms to EN 55024 Information technology equipment - Immunity characteristics			
	Standard	Conforms to EN 55024 Information technology equipment - Immunity characteristics			
Notes	Extended	Conforms to EN 60950-1 - Information technology equipment - Safety			
		By ASEM headquarters			
Notes	Standard	12 months			
	Extended	18 / 24 / 36 months (optional)			
Notes	1	RS-232/422/485 standard and optoisolated and parallel port can be installed one alternative to the others			

## Performance

# WS650 WS650-TE

WS650 is the new performance panel PC with plastic frame and different configurations based on the new ASEM 1021 motherboard that supports Celeron dual core and Intel® Core® 2 Duo microprocessors with the 45 nanometer technology. The new systems are the state-of-the-art in industrial automation panel PC due to their high calculating power and graphic functionality.



12,1" 15" 17"
Plastic
Res 5 GFG
Cel C2D
1GB 2GB 4GB
  
PCI PCle
24VDC 220VAC
WES XP Pro W7



Image 1: Keyboardless version

Image 2: 4 PCI/PCle slots on H4 version

Image 3: Intel Core 2 Duo and 965GME chipset

### FEATURES PLUS

- ✕ INTEL CORE 2 DUO MICROPROCESSORS UP TO 2,4GHZ
- ✕ INTEL 965GME CHIPSET AND INTEL GMA X3100 GRAPHIC ACCELERATOR
- ✕ EXTENDED KEYBOARD VERSION (WS550-TE)
- ✕ SIDE MODULES WITH BUTTONS PREDISPOSITION, TRACKBALL, TOUCHPAD OR NEUTRAL AVAILABLE
- ✕ H3 AND H4 VERSIONS FOR PCI/PCIE EXPANSION
- ✕ REAR AND FRONTAL DVD/FDD OPTIONAL
- ✕ FRAMELESS VERSION AVAILABLE (WS650-FL)

System characteristics							
Display	Size	12,1"	12,1"	15"	17"		
	Type	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT	
Touchscreen	Resolution	800 x 600 (SVGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)		
	Colors	256K	256K	16M	16M		
	Pixel pitch	0,307 x 0,307mm	0,24 x 0,24mm	0,297 x 0,297mm	0,264 x 0,264mm		
	Backlight	CCFL 2 lamps	CCFL 2 lamps	CCFL 4 lamps	CCFL 2 lamps		
	Luminance	400cd/m2	400cd/m2	450cd/m2	300cd/m2		
	Contrast	500:1	500:1	400:1	1000:1		
	Viewing angle	120° H, 100° V	120° H, 100° V	160° H, 140° V	160° H, 160° V		
	MTT F	60000h	60000h	50000h	50000h		
	Technology	Light transmission	80% ±2%				
		Lifetime	35mln activations				
Motherboard	Model	All-in-one, ASEM MB1021					
	HW monitor	Temperature monitor					
CPU	Processor	Intel® Celeron single core 900 2,2GHz	Intel® Celeron dual core T3000 1,8GHz	Intel® Core 2 Duo T5870 2,2GHz	Intel® Core 2 Duo T7500 2,2GHz	Intel® Core 2 Duo T8300 2,4GHz	
	FSB	800MHz	800MHz	800MHz	800MHz	800MHz	
Cache	Cache	1MB L2	1MB L2	2MB L2	4MB L2	3MB L2	
	Socket	Socket P	Socket P	Socket P	Socket P	Socket P	
Chipset	Chipset	Intel® 965GME + ICH8M	Intel® 965GME + ICH8M	Intel® 965GME + ICH8M	Intel® 965GME + ICH8M	Intel® 965GME + ICH8M	
	Controller	GMA X3100 integrated in Intel® 965GME					
System memory	Memory	Shared – up to 256MB system selectable					
	Type	DDR2 PC5300					
Video interfaces	Size	1 GB, 2 GB, 4GB					
	Socket	2 x SODIMM module					
Serial interfaces	Type	1 x VGA (DB15F - max resolution 2048x1536@60Hz) , 1 x DVI-D (single link – max resolution 1600x1200 UXGA)					
	Transfer rate	2 x RS232 (DB9M)					
Optional (note 1)	UART	16550 compatible (FIFO 16 byte)					
	Optoisolation	115Kbps max					
Parallel interfaces	Type	1 x SPP, EPP, ECP bidirectional					
	Connection	DB25M					
PS/2 interfaces	Type	1 x PS/2 Keyboard, 1 x PS/2 Mouse					
	Controller	1 x 10/100Mbps (RJ45), 1 x 10/100/1000Mbps (RJ45)					
Ethernet interfaces	Type	Intel 82551QM, Intel 82566M					
	Transfer rate	4 x USB 2.0 (rear, TYPE-A, host port), 2 x USB 2.0 (front, TYPE-A, host port, protected)					
Compact Flash slots	Type	1 x Type II (external access)					
	Serial	3 x SATA 2 3Gb/s					
Mass storage interfaces	Parallel	1 x ATA/100 Master/Slave (dedicated for CF Slot)					
	Type	H1 / H1-TE					
Expansion slots	Type	H1 / H1-TE					
	alternative	-					
Battery	Type	AA Lithium (3.6V)					
	Removable	No					
Buttons, leds and keys	Lifetime	20 years					
	Reset button	System / Watch-dog					
Electrical characteristics	LEDs	Power, HDD activity, LAN, Alarm fans/temperature					
	Type	Integrated on board, auto ranging					
Mechanical characteristics	Input voltage	110±230VAC 140W					
		18±36 VDC 140W (optional)					
Case	Type	Panel mount					
	Material	Steel, nickel treatment					
Front panel	Protection	IP65					
	Construction	Plastic with polycarbonate foil					
Keyboard module	Color	Plastic: RAL 7040 (light grey) / Polycarbonate: Pantone 428C					
	Frameless	Optional only for H1, H3, H4					
TE version	Type	Membrane, alphanumeric					
	Layout	US-International					
Side modules	Function keys	F1-F12, directions and control keys					
	Optional	4 rows x 2 columns					
Measurements	Emergency	Yes					
	Touch pad	Yes					
mm	Track ball	No					
	empty	No					
Dimensions (W x H x D)	normal	TE					
	TE	normal					
Cutout (W x H)	normal	TE					
	TE	normal					
Weight (Kg)	normal	TE					
	TE	normal					
Environmental characteristics	Operation	0° ± +50°C without HDD, 0° ± +45°C with HDD					
	Storage	-20° ± +60°C					
Humidity	Operation/Storage	80% (non-condensing)					
Warranty & Approvals	CE	Conforms to EN 55022 Information technology equipment – Radio disturbance characteristics Conforms to EN 61000-3-2 – Limits for harmonic current emissions Conforms to EN 61000-3-3 – Limits of voltage fluctuation and flicker Conforms to EN 55024 Information technology equipment – Immunity characteristics Conforms to EN 60950-1 – Information technology equipment – Safety					
	Immunity						
Warranty	Safety						
	Management	By ASEM headquarters					
Notes	Standard	12 months					
	Extended	18 / 24 / 36 months (optional)					
1		RS-232/422/485 standard and optoisolated and parallel port can be installed one alternative to the others					

## Performance

# FT600 FT600-TE

Family FT600 fanless systems offer Celeron M / Pentium M CPU together with alluminium front frame with or without extended keyboard. Touch screen LCD can be 12.1", 15" and 17". Front panel, IP65 rated, hosts two USB ports protected by a rubber cap. FT600 systems fit performance customer need with an elegant design.



Image 1: Keyboardless version  
Image 2: 4 PCI/PCIe slots on H4 version  
Image 3: Rear optical drives

### FEATURES PLUS

- EXTENDED KEYBOARD VERSION (FT600-TE)
- H3 AND H4 VERSIONS FOR PCI/PCIe EXPANSION
- REAR DVD/FDD OPTIONAL

System characteristics								
Display	Size	12.1"	15"	17"				
	Type	Color LCD TFT	Color LCD TFT	Color LCD TFT				
Touchscreen	Resolution	800 x 600 (SVGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)				
	Colors	256K	16M	16M				
	Pixel pitch	0,307 x 0,307mm	0,297 x 0,297mm	0,264 x 0,264mm				
	Backlight	CCFL 2 lamps	CCFL 4 lamps	CCFL 4 lamps				
	Luminance	400cd/m2	450cd/m2	300cd/m2				
	Contrast	500:1	400:1	1000:1				
	Viewing angle	120° H, 100° V	160° H, 140° V	160° H, 160° V				
	MTT F	60000h	50000h	50000h				
	Technology	Light transmission	5 wires - analog - resistive					
		Lifetime	80% ±2%					
Motherboard	Model	All-in-one, ASEM MB921						
	HW monitor	Temperature monitor						
	Watch-dog	Time programmable						
	Interface							
CPU	Processor	Intel® Celeron M 370 1,5GHz	Intel® Pentium M 740 1,73GHz	Intel® Pentium M 760 2GHz				
	FSB	400MHz	533MHz	533MHz				
	Cache	1MB L2	2MB L2	2MB L2				
	Socket	Socket 478 uFC-BGA	Socket 478 uFC-BGA	Socket 478 uFC-BGA				
	Chipset	Intel® 915GME + ICH6M	Intel® 915GME + ICH6M	Intel® 915GME + ICH6M				
Graphic	Controller	GMA900 integrated in Intel® 915GME						
	Memory	Shared - 64MB+128MB system selectable						
System memory	Type	DDR2 PC5300						
	Size	512 MB, 1 GB, 2 GB						
	Socket	2 x SODIMM module						
Video interfaces	Type	1 x VGA (DB15F)						
Serial interfaces	Type	2 x RS232 (DB9M)						
	UART	16550 compatible (FIFO 16 byte)						
	Transfer rate	115Kbps max						
Optional (note 1)	Type	1 x RS-232/422/485 (DB15M)						
	UART	16550 compatible (FIFO 16 byte)						
	Transfer rate	115Kbps max						
Parallel interfaces	Type	1 x SPP, EPP, ECP bidirectional						
	Optional	DB25M						
PS/2 interfaces	Type	1 x PS/2 Keyboard, 1 x PS/2 Mouse						
Ethernet interfaces	Type	2 x 10/100Mbps (RJ45)						
	Controller	Intel 82559ER						
USB interfaces	Type	4 x USB 2.0 (rear, TYPE-A, host port), 2 x USB 2.0 (front, TYPE-A, host port, protected)						
	Transfer rate	Up to 480Mbit (high speed)						
Compact Flash slots	Type	1 x Type II (external access)						
Mass storage interfaces	Serial	2 x SATA 1.5Gb/s						
	Parallel	1 x ATA/100 Master/Slave (dedicated for CF Slots)						
Optical device interfaces	Type	H1	H3 / H3-TE	H3 / H4 / H1-TE / H3-TE / H4-TE				
				1 x FDD, 1 x DVD-RW				
Expansion slots	Type	H1 / H1-TE	H3 / H3-TE	H4 H4-TE				
	alternative	-	2 x PCI half size	4 x PCI half size				
			1 x PCI, 1 x PCI-e x1 half size on riser card	3 x PCI, 1 x PCI-e x1 half size on riser card				
Battery	Type	AA Lithium (3.6V)						
	Removable	No						
	Lifetime	20 years						
Buttons, leds and keys	Reset button	System / Watch-dog						
	LEDs	Power, HDD activity, LAN, Alarm fans/temperature						
Electrical characteristics								
Power supply	Type	Integrated on board, auto ranging						
	Input voltage	110±230VAC 140W 18±36 VDC 140W (optional)						
Mechanical characteristics								
Case	Type	Panel mount						
	Material	Steel, nickel treatment						
Front panel	Protection	IP65						
	Construction	Aluminum with polycarbonate foil						
	Color	Polycarbonate: Pantone 429C						
Keyboard module TE version	Type	Membrane, alphanumeric						
	Layout	US-International						
Measurements mm	H1	12.1"	Dimensions (W x H x D)		Cutout (W x H)		Weight (Kg)	
			normal	TE	normal	TE	normal	TE
	H3	12.1"	355 x 270 x 81	400 x 360 x 81	335 x 250	380 x 335	6,0	9,0
			425 x 305 x 81	440 x 425 x 81	405 x 285	420 x 405	7,9	11,0
			455 x 355 x 81	485 x 455 x 81	435 x 335	465 x 435	8,9	13,0
	H4	12.1"	355 x 270 x 137	400 x 360 x 137	335 x 250	380 x 335	7,6	10,5
			425 x 305 x 137	440 x 425 x 137	405 x 285	420 x 405	9,5	12,0
			455 x 355 x 137	485 x 455 x 137	435 x 335	465 x 435	10,5	14,0
	H4	15"	425 x 305 x 175	440 x 425 x 175	405 x 285	420 x 405	10,7	13,2
			455 x 355 x 175	485 x 455 x 175	435 x 335	465 x 435	11,5	15,2
Temperature	Operation	0° ± +50°C without HDD, 0° ± +45°C with HDD						
	Storage	-20° ± +60°C						
Humidity	Operation/Storage	80% (non-condensing)						
Warranty & Approvals								
CE	Emission	Conforms to EN 55022 Information technology equipment – Radio disturbance characteristics Conforms to EN 61000-3-2 – Limits for harmonic current emissions Conforms to EN 61000-3-3 – Limits of voltage fluctuation and flicker Conforms to EN 55024 Information technology equipment – Immunity characteristics Conforms to EN 60950-1 – Information technology equipment – Safety						
	Immunity							
	Safety							
Warranty	Management	By ASEM headquarters						
	Standard	12 months						
Notes	Extended	18 / 24 / 36 months (optional)						
1		RS-232/422/485 standard and optoisolated and parallel port can be installed one alternative to the others						

## Performance

# FT650 FT650-TE

FT650 is the new performance panel PC with aluminium frame and different configurations based on the new ASEM 1021 motherboard that supports the Intel® Celeron dual core and Core® 2 Duo microprocessors with the 45 nanometer technology. The new systems are the state-of-the-art in industrial automation panel PC due to their high calculating power, graphic functionality and elegant design.



Image 1: Keyboardless version  
Image 2: 4 PCI/PCIe slots on H4 version  
Image 3: Intel Core 2 Duo microprocessors and 965GME chipset

### FEATURES PLUS

- ✕ INTEL CORE 2 DUO MICROPROCESSORS UP TO 2,4GHZ
- ✕ INTEL 965GME CHIPSET WITH INTEL GMA X3100 GRAPHIC ACCELERATOR
- ✕ H3 AND H4 VERSIONS FOR PCI/PCIE EXPANSION
- ✕ REAR DVD/FDD OPTIONAL
- ✕ INOX TRUEFLAT FRONT PANEL OPTIONAL
- ✕ FT650 ALSO WITH ALUMINIUM FRONT PANEL 19"

System characteristics						
Display	Size	12,1"	12,1"	15"	17"	19"
	Type	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT	Color LCD TFT
Touchscreen	Resolution	800 x 600 (SVGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)	1280 x 1024 (SXGA)
	Colors	256K	256K	16M	16M	16M
	Pixel pitch	0,307 x 0,307mm	0,24 x 0,24mm	0,297 x 0,297mm	0,264 x 0,264mm	0,294 x 0,294mm
	Backlight	CCFL 2 lamps	CCFL 2 lamps	CCFL 4 lamps	CCFL 2 lamps	CCFL 2 lamps
	Luminance	400cd/m2	400cd/m2	450cd/m2	300cd/m2	300cd/m2
	Contrast	500:1	500:1	400:1	1000:1	1000:1
	Viewing angle	120° H, 100° V	120° H, 100° V	160° H, 140° V	160° H, 160° V	160° H, 160° V
	MTTF	60000h	60000h	50000h	50000h	-
	Technology	5 wires - analog - resistive	5 wires - analog - resistive	5 wires - analog - resistive	5 wires - analog - resistive	5 wires - analog - resistive
	Light transmission	80% ±2%	80% ±2%	80% ±2%	80% ±2%	80% ±2%
Lifetime	35mln activations	35mln activations	35mln activations	35mln activations	35mln activations	
Linearity deviation	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	
Interface	Serial	Serial	Serial	Serial	Serial	
Glass Film Glass	Optional	Optional	Optional	Optional	Optional	
Motherboard	Model	All-in-one, ASEM MB1021				
	HW monitor	Temperature monitor				
CPU	Processor	Intel® Celeron single core	Intel® Celeron dual core	Intel® Core 2 Duo T5870	Intel® Core 2 Duo T7500	Intel® Core 2 Duo T8300
	FSB	900 2,2GHz	T3100 1,9GHz	2GHz	2,2GHz	2,4GHz
	Cache	800MHz	800MHz	800MHz	800MHz	800MHz
	Socket	1MB L2	1MB L2	2MB L2	4MB L2	3MB L2
	Chipset	Socket P	Socket P	Socket P	Socket P	Socket P
Graphic	Controller	Intel® 965GME + ICH8M				
	Memory	Shared - up to 256MB system selectable				
System memory	Type	DDR2 PC5300				
	Size	1 GB, 2 GB, 4GB				
Video interfaces	Socket	2 x SODIMM module				
	Type	1 x VGA (DB15F - max resolution 2048x1536@60Hz) , 1 x DVI-D (single link - max resolution 1600x1200 UXGA)				
Serial interfaces	Type	2 x RS232 (DB9M)				
	UART	16550 compatible (FIFO 16 byte)				
Optional (note 1)	Transfer rate	115Kbps max				
	Optoisolation	No / Yes				
Parallel interfaces	Type	1 x RS-232/422/485 (DB15M)				
	Connection	16550 compatible (FIFO 16 byte)				
PS/2 interfaces	Type	1 x PS/2 Keyboard, 1 x PS/2 Mouse				
	Controller	Intel 82551QM, Intel 82566M				
Ethernet interfaces	Type	1 x 10/100Mbps (RJ45), 1 x 10/100/1000Mbps (RJ45)				
	Transfer rate	Up to 480Mbit (high speed)				
USB interfaces	Type	4 x USB 2.0 (rear, TYPE-A, host port), 2 x USB 2.0 (front, TYPE-A, host port, protected)				
	Transfer rate	Up to 480Mbit (high speed)				
Compact Flash slots	Type	1 x Type II (external access)				
	Serial	3 x SATA 2 3Gb/s				
Mass storage interfaces	Parallel	1 x ATA/100 Master/Slave (dedicated for CF Slot)				
	Type	H1				
Expansion slots	Type	H1 / H1-TE				
	alternative	-				
Battery	Type	AA Lithium (3.6V)				
	Removable	No				
Buttons, leds and keys	Lifetime	20 years				
	Reset button	System / Watch-dog				
Electrical characteristics	LEDs	Power, HDD activity, LAN, Alarm fans/temperature				
	Type	No				
Power supply	Type	Integrated on board, auto ranging				
	Input voltage	110±230VAC 140W 18±36 VDC 140W (optional)				
Mechanical characteristics	Type	Panel mount				
	Material	Steel, nickel treatment				
Front panel (note 2)	Protection	IP65				
	Construction	Aluminum with polycarbonate foil				
Keyboard module TE version	Color	PANTONE 429C				
	Type	Membrane, alphanumeric				
Side modules	Layout	US-International				
	Function keys	F1-F12, directions and control keys				
Optional	Emergency	Normal				
	Touch pad	Yes				
Measurements mm	Track ball	Yes				
	empty	No				
Dimensions (W x H x D)	normal	normal				
	TE	TE				
Cutout (W x H)	normal	normal				
	TE	TE				
Weight (Kg)	normal	normal				
	TE	TE				
Temperature	Operation	0° ± +50°C without HDD, 0° ± +45°C with HDD				
	Storage	-20° ± +60°C				
Humidity	Operation/Storage	80% (non-condensing)				
	Operation/Storage	80% (non-condensing)				
Warranty & Approvals	CE	Conforms to EN 55022 Information technology equipment - Radio disturbance characteristics Conforms to EN 61000-3-2 - Limits for harmonic current emissions Conforms to EN 61000-3-3 - Limits of voltage fluctuation and flicker Conforms to EN 55024 Information technology equipment - Immunity characteristics Conforms to EN 60950-1 - Information technology equipment - Safety				
	Warranty	By ASEM headquarters 12 months Standard Extended				
Notes	1	RS-232/422/485 standard and optoisolated and parallel port can be installed one alternative to the others				
	2	With stainless steel front panel, touchscreen in mandatory and have no USB port on the front				

## Inox true flat front panel

Through a special mechanical construction process it is possible realize completely flat front panels with touch screen and IP66K protection. A thin film made in polyester is glued on touch screen and on steel frame, getting a protection for the touch sensor that let the cleaning without particular attentions due to touch screen presence. In particular Panel PCs with INOX steel TRUE FLAT front panels satisfy specifications requested by norms in pharma and food markets. We underline that, in respect of these norms, there are no USB ports on the front panels. Power-on led is visible only on turned on PC.



Image 1: True flat detail  
Image 2: Power-on led

