

## IP Series: Full IP65 Multi Touch Panel PC

*360° protection against  
intrusion of dust, water,  
oil, or corrosive materials*



### Features

- IP65 compliant 6-sided stainless steel chassis
- IP65 waterproof stainless steel connectors
- IP65 rated external power adapter (alternative)

*Specially suitable for dusty / humid / oily / corrosive industrial environments*



# IP Series Full IP65 Multi Touch Panel PC

## Challenges

For a PC-based automation system installed in some industrial environments such as food processing factories, car washing stations, petroleum plants or pharmaceutical facilities, moisture, grease and dust resistance is an important criterion to ensure high reliability against harsh conditions. IP65 rating is the most commonly used index when an industrialist purchases waterproof industrial PCs.



**Waterproof**



**Dustproof**



**Anti-oil**



**Corrosion-proof**

## Solutions

Kingdy's IP Series is the very full IP65 multi touch panel PC featuring the following protection designs and designed for sophisticated human-machine interaction in the most intuitive way.

- **Dustproof / Waterproof full IP65 chassis, connector and power adaptor** not only to prevent dust and water from invading the inner sensitive components but also to allow the device to be washed down
- **Corrosion-proof and anti-oil stainless steel chassis** not only to prevent corrosion generated by acid and alkali but also to facilitate cleaning and maintenance

## Collections

Series Number	CPU	Performance		Structure		Panel Size									
		CPU	Power Efficiency	Fan	External Heat Sink	4:3			16:9						
						8.4"	10.4"	12.1"	15"	17"	19"	15.6"	17.3"	18.5"	21.5"
IP-2L	Intel D2550	★★	🍃🍃🍃	Fanless	No				V	V	V				V
IP-7L	Intel N2800	★★	🍃🍃🍃	Fanless	No				V	V	V				V
IP-8L	Intel N2600	★★	🍃🍃🍃	Fanless	No				V	V	V				V
IP-9L	AMD T40N	★★	🍃🍃🍃	Fanless	No				V	V	V				V
IP-AN	Intel i5/Celeron + HM76	★★★	🍃🍃🍃	Fanless	Yes / No				V	V	V				V
IP-BL	AMD T56N	★★	🍃🍃🍃	Fanless	No				V	V	V				V
IP-EN	Intel J1900	★★★	🍃🍃🍃	Fanless	No				V	V	V				V
IP-FN	Intel E3845	★★★	🍃🍃🍃	Fanless	No				V	V	V				V
IP-GN	Intel i7/i3/Celeron	★★★	🍃🍃🍃	Fanless	Yes				V	V	V				V



Foodstuff, Pharmaceuticals



Military



Petroleum, Chemistry, Petrochemistry



Industrial automation

## Applications

# IP Series Full IP65 Multi Touch Panel PC



- IP65 compliant 6-sided sealed stainless steel chassis  
*to prevent liquid / dust from getting into the housing and to resist acid- / alkali-based cleaning agents from corroding the device*
- Seamless flat-bezel design between chassis and panel  
*to decrease water / dust accumulation and to facilitate cleaning / maintenance*



- IP65 waterproof stainless steel connectors  
*to prevent liquid from getting into the housing via the cable entry points*



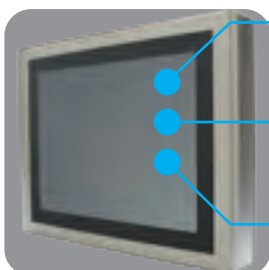
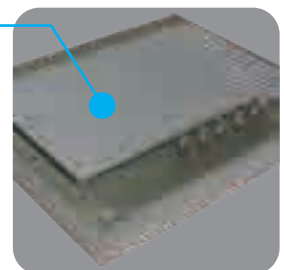
- IP65 rated external power adapter (alternative)  
*to prevent liquid from getting into the interior of the adapter from the junction of the shell*



External heat sink (on the rear for IP-AN Series with Core i5 Turbo up to 2.7GHz CPU & IP-GN Series only)

*to faster dissipate the heat to keep excellent CPU performance*

- No external heat sink (for IP-AN Series with Core i5 1.8GHz / Celeron CPU & IP-2L / -7L / -8L / -9L / -BL / -EN / -FN Series)



- 7H hardness anti-scratch panel surface  
*to avoid touch function failure due to scratch*
- Oil- & water-stain-proof panel surface  
*to ensure touch sensitivity*
- Enhanced PCT touch panel  
*to enable input with glove which is necessary in some applications*



- RFID sensor (optional)  
*to enable RFID technology application, such as logistics, warehousing, distribution or industrial automation (identification of workpiece carriers on assembly lines, material flow control, identification of containers and other receptacles)*

# IP-2L Series (Intel D2550)



-  CPU Performance 
-  Energy Efficiency 
-  Touch Function 
-  Dissipation Design **Fanless, No external heat sink**
-  Waterproof Design **IP65 chassis, IP65 connectors, IP65 power adapter (alternative)**
-  Housing Design **Stainless steel**

<b>CPU</b>	Intel Dual Core Atom D2550 1.86GHz	
<b>Chipset</b>	Intel NM10	
<b>Memory</b>	1 x DDR III SODIMM up to 4 GB	
<b>Power Supply</b>	Std. / IP65-rated DC in 12V ext. power adapter	Std. / IP65-rated DC in 9V ~ 36V ext. power adapter
<b>I/O Ports (Default)</b>	2 x RS232, 2 x GLAN, 2 x USB, 2 x SATA socket	
<b>I/O Ports (Optional)</b>	Any combination of up to 4 x RS232, 1 x RS232/422/485, 4 x GLAN, 4 x USB but totally no more than 6	Any combination of up to 3 x RS232, 1 x RS232/422/485, 4 x GLAN, 4 x USB but totally no more than 6
<b>Expansion</b>	1 x CF card socket, 1 x Mini PCIe slot	1 x CFast CF card socket, 1 x Mini PCIe slot
<b>Operation Temperature</b>	0°C ~ 45°C	
<b>Storage Temperature</b>	-10°C ~ 70°C	
<b>Relative Humidity</b>	0% ~ 95% non-condensing	
<b>OS</b>	Win 7 Pro, Embedded 7	
<b>Installation</b>	VESA mount 100 x 100 mm	
<b>Optional Items</b>	RFID sensor, Memory, Storage devices, WiFi, OS	

Model Name	12V	IP-2LL15QF <sup>(4pt PCT)</sup>	IP-2LR17QF <sup>(4pt PCT)</sup>	IP-2LL17QF <sup>(4pt PCT)</sup>	IP-2LL19QF <sup>(4pt PCT)</sup>	IP-2LD21QF <sup>(4pt PCT)</sup>
		IP-2LL15RF <sup>(resistive)</sup>	IP-2LR17RF <sup>(resistive)</sup>	IP-2LL17RF <sup>(resistive)</sup>	IP-2LL19RF <sup>(resistive)</sup>	IP-2LD21ZF <sup>(10pt PCT)</sup>
	9~36V	IP-2LL15QW <sup>(4pt PCT)</sup>	IP-2LR17QW <sup>(4pt PCT)</sup>	IP-2LL17QW <sup>(4pt PCT)</sup>	IP-2LL19QW <sup>(4pt PCT)</sup>	IP-2LD21QW <sup>(4pt PCT)</sup>
		IP-2LL15RW <sup>(resistive)</sup>	IP-2LR17RW <sup>(resistive)</sup>	IP-2LL17RW <sup>(resistive)</sup>	IP-2LL19RW <sup>(resistive)</sup>	IP-2LD21ZW <sup>(10pt PCT)</sup>
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	CCFL	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )	400	300	350	250	300
	Contrast Ratio	700:1	800:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/125	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4/10pt PCT	
Dimension (W x H x D, mm)	438.2 x 335 x 63	470 x 390 x 67.1	470 x 390 x 67.1	521.4 x 434.4 x 67.1	607 x 401 x 67.1	
Weight (kg)	11	15	15	16	18	
I/O Port's Location	Rear	Rear	Rear	Rear	Rear	

# IP-7L Series (Intel N2800)



CPU Performance



Energy Efficiency



Touch Function



Dissipation Design

Fanless, No external heat sink



Waterproof Design

IP65 chassis, IP65 connectors, IP65 power adapter (alternative)



Housing Design

Stainless steel

**CPU** Intel Dual Core Atom N2800 1.86Ghz

**Chipset** Intel NM10

**Memory** 1 x DDR III SODIMM up to 4 GB

**Power Supply** Standard / IP65-rated DC in 12V external power adapter

**I/O Ports (Default)** 2 x RS232, 2 x GLAN, 2 x USB, 2 x SATA socket

**I/O Ports (Optional)** Any combination of up to 4 x RS232, 1 x RS232/422/485, 4 x GLAN, 4 x USB but totally no more than 6

**Expansion** 1 x CF card socket, 1 x Mini PCIe slot

**Operation Temperature** 0°C ~ 45°C

**Storage Temperature** -10°C ~ 70°C

**Relative Humidity** 0% ~ 95% non-condensing

**OS** Win 7 Pro, Embedded 7

**Installation** VESA mount 100 x 100 mm

**Optional Items** RFID sensor, Memory, Storage devices, WiFi, OS

Model Name		IP-7LL15QF (4pt PCT)	IP-7LR17QF (4pt PCT)	IP-7LL17QF (4pt PCT)	IP-7LL19QF (4pt PCT)	IP-7LD21QF (4pt PCT)
		IP-7LL15RF (resistive)	IP-7LR17RF (resistive)	IP-7LL17RF (resistive)	IP-7LL19RF (resistive)	IP-7LD21ZF (10pt PCT)
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	CCFL	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )	400	300	350	250	300
	Contrast Ratio	700:1	800:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/125	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4/10pt PCT	
Dimension (W x H x D, mm)		438.2 x 335 x 63	470 x 390 x 67.1	470 x 390 x 67.1	521.4 x 434.4 x 67.1	607 x 401 x 67.1
Weight (kg)		11	15	15	16	18
I/O Port's Location		Rear	Rear	Rear	Rear	Rear

# IP-8L Series (Intel N2600)



CPU Performance



Energy Efficiency



Touch Function



Dissipation Design

Fanless, No external heat sink



Waterproof Design

IP65 chassis, IP65 connectors, IP65 power adapter (alternative)



Housing Design

Stainless steel

**CPU** Intel Dual Core Atom N2600 1.6GHz  
**Chipset** Intel NM10

**Memory** 1 x DDR III SODIMM up to 2 GB

**Power Supply** Std. / IP65-rated DC in 12V ext. power adapter      Std. / IP65-rated DC in 9V ~ 36V ext. power adapter

**I/O Ports (Default)** 2 x RS232, 2 x GLAN, 2 x USB, 2 x SATA socket      2 x RS232, 2 x GLAN, 2 x USB, 1 x SATA socket

**I/O Ports (Optional)** Any combination of up to 4 x RS232, 1 x RS232/422/485, 4 x GLAN, 4 x USB but totally no more than 6      Any combination of up to 3 x RS232, 1 x RS232/422/485, 4 x GLAN, 4 x USB but totally no more than 6

**Expansion** 1 x CF card socket, 1 x Mini PCIe slot      1 x CFast CF card socket, 1 x Mini PCIe slot

**Operation Temperature** 0°C ~ 45°C

**Storage Temperature** -10°C ~ 70°C

**Relative Humidity** 0% ~ 95% non-condensing

**OS** Win 7 Pro, Embedded 7

**Installation** VESA mount 100 x 100 mm

**Optional Items** RFID sensor, Memory, Storage devices, WiFi, OS

Model Name		12V	IP-8LL15QF <sup>(4pt PCT)</sup>	IP-8LR17QF <sup>(4pt PCT)</sup>	IP-8LL17QF <sup>(4pt PCT)</sup>	IP-8LL19QF <sup>(4pt PCT)</sup>
			IP-8LL15RF <sup>(resistive)</sup>	IP-8LR17RF <sup>(resistive)</sup>	IP-8LL17RF <sup>(resistive)</sup>	IP-8LL19RF <sup>(resistive)</sup>
		9~36V	IP-8LL15QW <sup>(4pt PCT)</sup>	IP-8LR17QW <sup>(4pt PCT)</sup>	IP-8LL17QW <sup>(4pt PCT)</sup>	IP-8LL19QW <sup>(4pt PCT)</sup>
			IP-8LL15RW <sup>(resistive)</sup>	IP-8LR17RW <sup>(resistive)</sup>	IP-8LL17RW <sup>(resistive)</sup>	IP-8LL19RW <sup>(resistive)</sup>
Display	Size / Aspect Ratio		15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)
	Backlight		LED	CCFL	LED	LED
	Resolution		1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024
	Colors		16.2 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )		400	300	350	250
	Contrast Ratio		700:1	800:1	1000:1	1000:1
	Viewing Angle (H/V°)		160/160	140/125	140/170	170/160
	MTBF (hrs)		50,000	50,000	50,000	50,000
	Touch Screen		4pt PCT / 5-wire resistive	4pt PCT / 5-wire resistive	4pt PCT / 5-wire resistive	4pt PCT / 5-wire resistive
Dimension (W x H x D, mm)			438.2 x 335 x 63	470 x 390 x 67.1	470 x 390 x 67.1	521.4 x 434.4 x 67.1
Weight (kg)			11	15	15	16
I/O Port's Location			Rear	Rear	Rear	Rear

# IP-9L Series (AMD T40N)



CPU Performance



Energy Efficiency



Touch Function



Dissipation Design

Fanless, No external heat sink



Waterproof Design

IP65 chassis, IP65 connectors, IP65 power adapter (alternative)



Housing Design

Stainless steel

CPU AMD T40N 1.0Ghz

Chipset AMD A50M

Memory 1 x DDR III SODIMM up to 8 GB

Power Supply Standard / IP65-rated DC in 12V external power adapter

I/O Ports (Default) 2 x RS232/422/485, 2 x GLAN, 2 x USB, 1 x SATA socket

I/O Ports (Optional) Any combination of up to 2 x RS232/422/485, 4 x GLAN, 4 x USB but totally no more than 6

Expansion 1 x CF card socket, 1 x Mini PCIe slot

Operation Temperature 0°C ~ 45°C

Storage Temperature -10°C ~ 70°C

Relative Humidity 0% ~ 95% non-condensing

OS Win 7 Pro, Embedded 7, Embedded XP, Win XP Pro

Installation VESA mount 100 x 100 mm

Optional Items RFID sensor, Memory, Storage devices, WiFi, OS

Model Name		IP-9LL15QF (4pt PCT)	IP-9LR17QF (4pt PCT)	IP-9LL17QF (4pt PCT)	IP-9LL19QF (4pt PCT)	IP-9LD21QF (4pt PCT)
		IP-9LL15RF (resistive)	IP-9LR17RF (resistive)	IP-9LL17RF (resistive)	IP-9LL19RF (resistive)	IP-9LD21ZF (10pt PCT)
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	CCFL	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )	400	300	350	250	300
	Contrast Ratio	700:1	800:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/125	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4/10pt PCT	
Dimension (W x H x D, mm)		438.2 x 335 x 63	470 x 390 x 67.1	470 x 390 x 67.1	521.4 x 434.4 x 67.1	607 x 401 x 67.1
Weight (kg)		11	15	15	16	18
I/O Port's Location		Rear	Rear	Rear	Rear	Rear

# IP-AN Series (Intel i5/Celeron, HM76)



-  CPU Performance 
-  Energy Efficiency 
-  Touch Function 
-  Dissipation Design **Fanless, (No) external heat sink**
-  Waterproof Design **IP65 chassis, IP65 connectors, IP65 power adapter (alternative)**
-  Housing Design **Stainless steel**

CPU	Intel Core i5 1.8GHz (17" ~ 21.5") / Core i5 Turbo up to 2.7GHz (15" ~ 21.5") / Celeron 827E (17" ~ 21.5")
Chipset	Intel HM76 Express
Memory	1 x DDR III SODIMM up to 8 GB
Power Supply	Standard / IP65-rated DC in 12V / 19V external power adapter
I/O Ports (Default)	2 x RS232, 2 x GLAN, 2 x USB, 2 x SATA socket
I/O Ports (Optional)	Any combination of up to 4 x RS232, 2 x RS232/422/485, 4 x GLAN, 6 x USB but totally no more than 6
Expansion	2 x Mini PCIe slot (1 with mSATA function), 1 x SIM socket
Operation Temperature	0°C ~ 40°C
Storage Temperature	-10°C ~ 70°C
Relative Humidity	0% ~ 95% non-condensing
OS	Win 7 Pro, Embedded 7, Win XP Pro, Embedded XP, Win 8 Pro, Embedded 8
Installation	VESA mount 100 x 100 mm
External Heat Sink	Yes for Core i5 Turbo up to 2.7GHz on the rear side / No for Core i5 1.8GHz & Celeron 827E
Optional Items	RFID sensor, Memory, Storage devices, WiFi, OS

Model Name		IP-ANL15QS (4pt PCT)	IP-ANR17QS (4pt PCT)	IP-ANL17QS (4pt PCT)	IP-ANL19QS (4pt PCT)	IP-AND21QS (4pt PCT)
		IP-ANL15RS (resistive)	IP-ANR17RS (resistive)	IP-ANL17RS (resistive)	IP-ANL19RS (resistive)	IP-AND21ZS (10pt PCT)
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	CCFL	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )	400	300	350	250	300
	Contrast Ratio	700:1	800:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/125	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4/10pt PCT	
Dimension (W x H x D+heatsink, mm)	438.2 x 335 x 63+10	470 x 390 x 67.1(+10)	470 x 390 x 67.1(+10)	521.4 x 434.4 x 67.1(+10)	607 x 401 x 67.1(+10)	
Weight (main unit + heatsink, kg)	11.5+1	15.5(+1)	15.5(+1)	16.5(+1)	18.5(+1)	
I/O Port's Location	Rear	Rear	Rear	Rear	Rear	



# IP-BL Series (AMD T56N)



CPU Performance



Energy Efficiency



Touch Function



Dissipation Design

Fanless, No external heat sink



Waterproof Design

IP65 chassis, IP65 connectors,  
IP65 power adapter (alternative)



Housing Design

Stainless steel

CPU AMD T56N 1.65GHz

Chipset AMD A50M

Memory 1 x DDR III SODIMM up to 8 GB

Power Supply Standard / full IP65 DC in 12V external power adapter

I/O Ports (Default) 2 x RS232/422/485, 2 x GLAN, 2 x USB, 1 x SATA socket

I/O Ports (Optional) Any combination of up to 2 x RS232/422/485, 4 x GLAN, 4 x USB but totally no more than 6

Expansion 1 x CF card socket, 1 x Mini PCIe slot

Operation Temperature 0°C ~ 45°C

Storage Temperature -10°C ~ 70°C

Relative Humidity 0% ~ 95% non-condensing

OS Win 7 Pro, Embedded 7, Win XP Pro, Embedded XP

Installation VESA mount 100 x 100 mm

Optional Items RFID sensor, Memory, Storage devices, WiFi, OS

Model Name		IP-BLL15QF (4pt PCT)	IP-BLR17QF (4pt PCT)	IP-BLL17QF (4pt PCT)	IP-BLL19QF (4pt PCT)	IP-BLD21QF (4pt PCT)
		IP-BLL15RF (resistive)	IP-BLR17RF (resistive)	IP-BLL17RF (resistive)		IP-BLD21ZF (10pt PCT)
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	CCFL	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m2)	400	300	350	250	300
	Contrast Ratio	700:1	800:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/125	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT	4/10pt PCT	
Dimension (W x H x D, mm)		438.2 x 335 x 63	470 x 390 x 67.1	470 x 390 x 67.1	521.4 x 434.4 x 67.1	607 x 401 x 67.1
Weight (kg)		11	15	15	16	18
I/O Port's Location		Rear	Rear	Rear	Rear	Rear

# IP-EN Series (Intel J1900)



CPU Performance



Energy Efficiency



Touch Function



Dissipation Design

Fanless, No external heat sink



Waterproof Design

IP65 chassis, IP65 connectors,  
IP65 power adaptor (alternative)



Housing Design

Stainless steel

CPU	Intel® Bay Trail D-J1900 2.0GHz Quad Core Processor (CPU OnBoard)
Memory	2 x 204-pin SODIMM Dual-channel DDR3L 1333 / 1066MHz up to 8 GB
Power Supply	Standard / full IP65 DC in 12V external power adaptor
I/O Ports (Default)	2 x RS232, 2 x GLAN, 2 x USB, 1 x SATA socket
I/O Ports (Optional)	Any combination of up to 3 x RS232, 3 x GLAN, 6 x USB but totally no more than 6
Expansion	1 x Mini PCIe slot (with mSATA function)
Operation Temperature	0°C ~ 45°C
Storage Temperature	-10°C ~ 70°C
Relative Humidity	10% ~ 90% non-condensing
OS	Win 7 Pro, Embedded 7, Win 8 Pro, Embedded 8
Installation	VESA mount 100 x 100 mm
Optional Items	RFID sensor, Memory, Storage devices, WiFi, OS

Model Name		IP-ENL15QF <sup>(4pt PCT)</sup>	IP-ENR17QF <sup>(4pt PCT)</sup>	IP-ENL17QF <sup>(4pt PCT)</sup>	IP-ENL19QF <sup>(4pt PCT)</sup>	IP-END21QF <sup>(4pt PCT)</sup>
		IP-ENL15RF <sup>(resistive)</sup>	IP-ENR17RF <sup>(resistive)</sup>	IP-ENL17RF <sup>(resistive)</sup>		IP-END21ZF <sup>(10pt PCT)</sup>
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	CCFL	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m2)	400	300	350	250	300
	Contrast Ratio	700:1	800:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/125	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT	4/10pt PCT	
Dimension (W x H x D, mm)		438.2 x 335 x 63	470 x 390 x 67.1	470 x 390 x 67.1	521.4 x 434.4 x 67.1	607 x 401 x 67.1
Weight (kg)		11.5	15.5	15.5	16.5	18.5
I/O Port's Location		Rear	Rear	Rear	Rear	Rear

# IP-FN Series (Intel E3845)



	CPU Performance	
	Energy Efficiency	
	Touch Function	
	Dissipation Design	Fanless, No external heat sink
	Waterproof Design	IP65 chassis, IP65 connectors, IP65 power adaptor (alternative)
	Housing Design	Stainless steel

CPU	Intel® Atom™ E3845 1.91GHz Quad Core CPU
Memory	2 x DDR3L SODIMM up to 8 GB
Power Supply	Standard / full IP65 DC in 12V external power adaptor
I/O Ports (Default)	2 x RS232, 2 x GLAN, 2 x USB, 2 x SATA socket
I/O Ports (Optional)	Any combination of up to 3 x RS232, 1 x RS232/422/485, 2 x GLAN, 4 x USB but totally no more than 6
Expansion	1 x Mini PCIe slot
Operation Temperature	0°C ~ 45°C
Storage Temperature	-10°C ~ 70°C
Relative Humidity	0% ~ 95% non-condensing
OS	Win 7 Pro, Embedded 7, Win 8 Pro, Embedded 8
Installation	VESA mount 100 x 100 mm
Optional Items	RFID sensor, Memory, Storage devices, WiFi, OS

Model Name		IP-FNL15QF <small>(4pt PCT)</small>	IP-FNR17QF <small>(4pt PCT)</small>	IP-FNL17QF <small>(4pt PCT)</small>	IP-FNL19QF <small>(4pt PCT)</small>	IP-FND21QF <small>(4pt PCT)</small>
		IP-FNL15RF <small>(resistive)</small>	IP-FNR17RF <small>(resistive)</small>	IP-FNL17RF <small>(resistive)</small>		IP-FND21ZF <small>(10pt PCT)</small>
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	CCFL	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m2)	400	300	350	250	300
	Contrast Ratio	700:1	800:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/125	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT / 5-w resist.	4pt PCT	4/10pt PCT	
Dimension (W x H x D, mm)		438.2 x 335 x 63	470 x 390 x 67.1	470 x 390 x 67.1	521.4 x 434.4 x 67.1	607 x 401 x 67.1
Weight (kg)		11.5	15.5	15.5	16.5	18.5
I/O Port's Location		Rear	Rear	Rear	Rear	Rear

# IP-GN Series (Intel i7/i3/Celeron)



	CPU Performance	
	Energy Efficiency	
	Touch Function	
	Dissipation Design	Fanless, External heat sink
	Waterproof Design	IP65 chassis, IP65 connectors, IP65 power adaptor (alternative)
	Housing Design	Stainless steel

CPU	4th Gen Intel® Core™ i7-4650U / i5-4300U / i3-4010U / Celeron® 2980U CPU
Memory	2 x 204-pin SODIMM Dual-channel DDR3L 1333/1066MHz up to 16GB
Power Supply	Standard / IP65-rated DC in 12V or 19V ~ 24V external power adaptor
I/O Ports (Default)	2 x RS232, 2 x GLAN, 2 x USB, 3 x SATA socket
I/O Ports (Optional)	Any combination of up to 2 x RS232, 2 x RS232/422/485, 2 x GLAN, 6 x USB but totally no more than 6
Expansion	1 x Mini PCIe slot
Operation Temperature	0°C ~ 45°C
Storage Temperature	-10°C ~ 70°C
Relative Humidity	5% ~ 90% non-condensing
OS	Win 7 Pro, Embedded 7, Win 8 Pro, Embedded 8
Installation	VESA mount 100 x 100 mm
External Heat Sink	Yes (rear)
Optional Items	RFID sensor, Memory, Storage devices, WiFi, OS

Model Name	12V	IP-GNL15QF <sup>(4pt PCT)</sup>	IP-GNL17QF <sup>(4pt PCT)</sup>	IP-GNL19QF <sup>(4pt PCT)</sup>	IP-GND21QF <sup>(4pt PCT)</sup>
		IP-GNL15RF <sup>(resistive)</sup>	IP-GNL17RF <sup>(resistive)</sup>	IP-GNL19RF <sup>(resistive)</sup>	IP-GND21ZF <sup>(10pt PCT)</sup>
	19~24V	IP-GNL15QW <sup>(4pt PCT)</sup>	IP-GNL17QW <sup>(4pt PCT)</sup>	IP-GNL19QW <sup>(4pt PCT)</sup>	IP-GND21QW <sup>(4pt PCT)</sup>
		IP-GNL15RW <sup>(resistive)</sup>	IP-GNL17RW <sup>(resistive)</sup>	IP-GNL19RW <sup>(resistive)</sup>	IP-GND21ZW <sup>(10pt PCT)</sup>
Display	Size / Aspect Ratio	15" TFT (4:3)	17" TFT (4:3)	19" TFT (4:3)	21.5" TFT (16:9)
	Backlight	LED	LED	LED	LED
	Resolution	1024 x 768	1280 x 1024	1280 x 1024	1920 x 1080
	Colors	16.2 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )	400	350	250	300
	Contrast Ratio	700:1	1000:1	1000:1	5000:1
	Viewing Angle (H/V°)	160/160	140/170	170/160	178/178
	MTBF (hrs)	50,000	50,000	50,000	50,000
Touch Screen	4pt PCT / 5-wire resistive	4pt PCT / 5-wire resistive	4pt PCT / 5-wire resistive	4/10pt PCT	
Dimension (W x H x D+heatsink, mm)		438.2 x 335 x 63+10	470 x 390 x 67.1+10	521.4 x 434.4 x 67.1+10	607 x 401 x 67.1+10
Weight (main unit + heatsink, kg)		11.5+1	15.5+1	16.5+1	18.5+1
I/O Port's Location		Rear	Rear	Rear	Rear