

# Operating and monitoring systems

Panel PC SERIES 400

Device platform MANTA

PM MT-487-LX

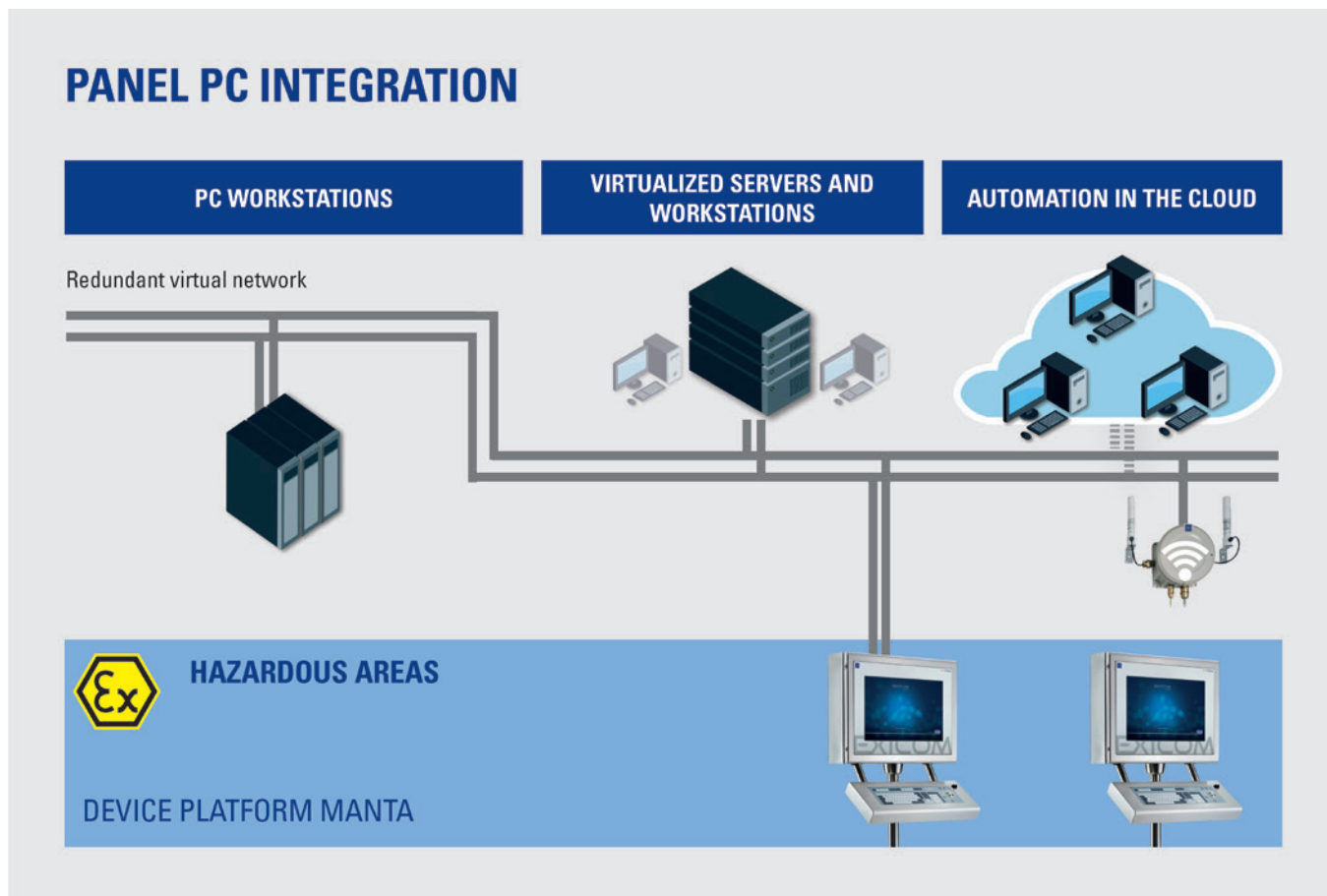


- Panel PC for panel mounting, quad core ATOM E3845, 24"WU display, 1920 x 1200
- Zone 2, 22, can be installed in hazardous areas without additional enclosure
- Optional resistive glass or foil touch screen
- Data is transmitted via Ethernet as 1000Base-LX via single mode fibre optic up to 10 km

WebCode **MT487A**



The PM MT-487 HMI series includes Panel PCs for panel mounting in hazardous zones 2 and 22. Their brilliant 24"WU widescreen displays with a resolution of 1920 x 1200 pixels (format 16:10), are available with or without touch screen. Accessories such as country-specific keyboards, pointer instruments and RFID and barcode scanners make work easier and extend functionality. The state-of-the-art quad core processors can be complemented with various memory sizes and SSDs. Data is transmitted via Ethernet as 1000Base-LX via single mode fibre optic up to 10 km.



## Technical Data

### General

Series | Panel mount device PM MT-487 (discontinued)

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#### General

Product description	24" Panel PC
Technology	Panel PC
HMI type	Panel mount device
WebCode	MT487A

#### Explosion Protection

Application range (zones)	2 22
Certifications	ATEX, IECEx, EAC, CNEX
IECEx certification	IECEx BVS 14.0034X
ATEX certification	BVS 12 ATEX E 033 X
CNEX certification	CNEX14.2205X
IECEx gas explosion protection	Ex nA nR [ja op is Ga] IIC T4 Gc
IECEx dust explosion protection	Ex tc IIIC [ja op is Da] IP66 T110°C Dc
ATEX gas explosion protection	II 3(1) G Ex nA nR [ja op is Ga] IIC T4 Gc
ATEX dust explosion protection	II 3(1) D Ex tc IIIC [ja op is Da] IP66 T110°C Dc
CNEX gas explosion protection	Ex nA nR [ja op is Ga] IIC T4 Gc
CNEX dust explosion protection	Ex tc IIIC [ja op is Da] IP66 T110°C Dc

#### Electrical Data

Rated operational voltage DC	24 V
Voltage range DC	20 – 30 V
Rated operational voltage AC	230 V
Voltage range AC	100 – 240 V
Power consumption DC	3 A
Power consumption AC 1	1 A
Protection fuse DC	5 AT
Protection fuse AC	5 AT
Rated operational power	typ. 50 W / 100 W at O30 / max. 150 W (typ. 170 BTU / 341 BTU at O30 / max. 510 BTU)
Processor type	ATOM E3845
Processor details	Intel Bay Trail (BT); 1.91 GHz; quad core
RAM	4 GB
Data memory	64 GB SLC 128 GB MLC
Graphics controller	integrated Intel Gen. 7 HD Graphics
Memory technology	SSD solid state flash drive
Operating system	Windows Embedded Standard 7 (64-Bit) Windows 7 Ultimate (64-Bit) Windows 10 IoT Enterprise 2016 LTSB (64 bit) (included in standard delivery) Windows 10 IoT Enterprise 2016 LTSB (32 bit) (optional on USB stick)
Language support	via Windows operating system
Ethernet / Data	1000Base-LX (Ex op is)
Data cable	9/125 µm FO cable
Data cable length	max. 10 km
Interface medium	Single mode optical fibre cable
Frequency range	50 – 60 Hz

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#### Electrical Data

Interface USB	2 x USB (Ex ia) 1 x USB (Ex nA) 2 x USB (Ex ia) (keyboard, pointing device)
Interface serial	1 x RS-232 (Ex nA)
Interface audio	1 x Audio line out (Ex nA)
WLAN	optional via USB
Connection compartment	Power supply direct in integrated connection box
Connections	via spring clamp terminals, green
Voltage output	12 V DC, max. 500 mA
Wiring	flexible cable up to 2.5 mm <sup>2</sup> (AWG14) fixed cable up to 4 mm <sup>2</sup> (AWG12)
Plug version FO	LC duplex connector
Max. input voltage U <sub>m</sub>	250 VAC
Audio sound	optional: Audio amplifier (mono amplifier) 3.5 W, for 2x loudspeaker connection (Ex nA)
Real-time clock	Yes
Real-time clock data buffer	Lithium battery and capacitor buffered, maintenance-free
Battery buffered	> 5 years
Capacitor buffered	at least 4 days

#### Display

Display version	TFT Colour display
Display version 2	16.7 million colours
Display size inch	24
Display size centimetres	61
Display resolution	WUXGA
Total pixels	1920 x 1200
Display dimensions	16:10
Display brightness	300 cd/m <sup>2</sup>
Display contrast	1000:1
Display viewing angle horizontal	178° at CR ≥5
Display viewing angle vertical	170° at CR ≥5
Display	Glass
Touchscreen	Optional resistive
Touchscreen technology	5-wire glass or membrane touch
Touchscreen activation	Foil touch: low activation pressure (0.1 up to max. 1 N) Glass touch: medium activation pressure (1.8 up to max. 2.5 N)
Touchscreen input method	Finger, gloved finger or stylus
Touchscreen durability	Foil touch: Polyester foil is easily scratched, with high pressure force the spacer dots could be damaged. Glass touch: Quite good, but with high pressure force the spacer dots could be damaged.
Touch screen scratch hardness MoHS	Foil touch: - Glass touch: >5
Touchscreen scratch hardness pencil test ISO15184	Foil touch: 3H Glass touch: 9H
Touchscreen transmissivity / optic	Foil touch: small milky effect due to the foil Glass touch: very good
Touchscreen surface contaminants	unaffected
Touchscreen abrasive resistance	36 million times with a silicone rubber of R8 finger, hitting rate 250 g at 2 times per second

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#### Display

Backlight	LED Technology
Backlight service life	50 000 h at +20 °C
Front plate (display)	Aluminium

#### Ambient Conditions

Ambient temperature operation	-20 °C ... +60 °C
Ambient temperature operation 1	-30 °C ... +60 °C with heater version O30
Storage temperature	-30 °C ... +70 °C
Cold start temperature	-10 °C
Temperature note 1	The O30 option is only available for the AC version devices !
Temperature note 2	Operating temperature +60 °C for a maximum of 5 h, for constant operation (24/7) +50 °C.
Temperature note 3	Cold start temperature: If the HMI device is switched on at a temperature below -10 °C the display will need a certain amount of time to warm up until everything is clearly visible. Depending on how low the temperature is, this process may take up to 3 hours.
Heat dissipation	about 40 % via the front plate and 60 % via the enclosure
Relative humidity	10 to 90 % at +40 °C, non-condensing
Damp heat cyclic	+55 °C (±2 °C) ≥95 % (only device with glass touch (TG))
Dry heat	+65 °C
Vibration sinus	5 to 13.2 Hz: ±1 mm 13.2 to 100 Hz: ±0.7 g Change cycle 1 oct/min Axis X, Y, Z
Vibration sinus 1	71.7 to 79.2 Hz: ±0.7 g 120 min. Change cycle 1 oct/min Axis X
Vibration sinus 2	30 Hz: ±0.7 g 90 min. Change cycle 1 oct/min Axis Y, Z

#### Mechanical Data

Dimensions (WxHxD)	660 mm x 475 mm x 110 mm
Cut-out (WxH)	615 mm x 435 mm (+/- 0.5 mm)
Wall thickness	≤ 5 mm
Depth of cut-out	110 mm
Mounting position	vertical or horizontal
Weight	16 kg
Material front	Aluminium
Material back	Steel
Ingress protection	IP66
IP enclosure front	IP66
IP enclosure back	IP66
Cable gland type	HSK-M-Ex
Cable gland number	2 x M16, 1 x M20, 3 x M25
Cable gland thread size	M16 x 1.5 / M20 x 1.5 / M25 x 1.5
Cable gland cable diameter range	M16 = 4 ... 8 mm / M20 = 6 ... 12 mm / M25 = 14 ... 18 mm
Cable gland wrench size	M16 = SW 19 / M20 = SW 22 / M25 = SW 30

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## Mounting / Installation

Mounting option	Panel mount
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## Components

Keyboard	optional, 107 keys with trackball / joystick / mouse / touchpad (Ex ia)
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