Operating and Monitoring Systems
Panel PC SERIES 400
Device platform MANTA
PM MT-477-TX Art. No. -

- Panel PC for panel mounting, 24" display, Full HD 1920 x 1080
- 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 10/100Base-TX via CAT7 up to 100 m

MY R. STAHL **EAGLEMAN-TAPMA**

The PM MT-477-2TX operating devices are explosion-protected Panel PCs for panel-mounting in Zones 2, 22. Their brilliant 24" widescreen displays have a resolution of 1920 x 1080 pixels (format 16:9). Configuration options include touchscreen, memory sizes and SSDs. Data is transmitted via Ethernet as 2x 10/100Base-TX via CAT7 cable up to 100 m.

Technical Data

General	
Series	EAGLE and MANTA Panel PCs / Thin Clients panel-mount devices
Product description	24" Panel PC
Technology	Panel PC
HMI type	Panel-mount device
Explosion Protection	
Application range (zones)	2 22
Scope	EU (CE / ATEX) International (IECEx) China (CCC / CNEx) Australia (RCM)
IECEx certification	IECEx BVS 14.0034X
ATEX certification	BVS 12 ATEX E 033 X
CCC certification	2020312309000270
CNEX certification	CNEx14.2205X
IECEx gas explosion protection	Ex nA nR [ia op is Ga] IIC T4 Gc
IECEx dust explosion protection	Ex tc IIIC [ia op is Da] IP66 T110°C Dc
ATEX gas explosion protection	II 3(1) G Ex nA nR [ia op is Ga] IIC T4 Gc
ATEX dust explosion protection	II 3(1) D Ex tc IIIC [ia op is Da] IP66 T110°C Dc
CNEX gas explosion protection	Ex nA nR [ia op is Ga] IIC T4 Gc
CNEX dust explosion protection	Ex tc IIIC [ia op is Da] IP66 T110°C Dc
Electrical Data	
Power supply	24 VDC or 230 VAC
Rated operational voltage DC	24 V
Voltage range DC	20 – 30 V
Rated operational voltage AC	230 V
Voltage range AC	100 – 240 V

Electrical Data	
Frequency range	50 – 60 Hz
Power consumption DC	3 A
Power consumption AC 1	1 A
Protection fuse DC	5 AT
Protection fuse AC	5 AT
Rated operational power	typically 50 W / max. 150 W (typically 170 BTU / max. 510 BTU)
Processor type	AMD GX-222GC
Processor details	2.2 GHz, Dual Core, 10W TDP
RAM	4 GB
Data memory	64 GB MLC 128 GB MLC
Graphics controller	integrated AMD Radeon R5E graphics
Memory technology	SSD solid state flash drive
Operating system	Windows 10 IoT Enterprise (64 bit) (included in standard delivery) Windows 10 IoT Enterprise (32 bit) (optional on USB stick)
Language support	via Windows operating system
Ethernet / Data	2x 10/100Base-TX (Ex nA)
Data cable	CAT7 installation cable AWG23
Data cable length	max. 100 m
Data cable notice	Minimum requirement CAT5e, recommended CAT7
Interface medium	CAT7 Data transmission
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 reader	via USB or RS-232
Interface reader note	RFID reader, support of the following standards: MIFARE Classic, DESFire, DESFire EV1, LEGIC prime and advant, NFC, INSIDE Secure, Sony FeliCa, ISO 14443A & 15693 1D/2D Barcode scanner: support of all common 1D/2D codes, wired or Bluetooth
Interface audio	1 x Audio line out (Ex nA)
WLAN	optional via USB
Connection compartment	Power supply direct in integrated terminal box
Connections	via spring clamp terminals, green
Voltage output	12 V DC, max. 500 mA
Wiring	flexible cable up to 2.5 mm² (AWG14) fixed cable up to 4 mm² (AWG12)
Max. input voltage U_m	250 VAC
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 Color display
Display version 2	16.7 million colours
Display size inch	24
Display size centimetres	61

Display	
Display resolution	1920 x 1080, 1680 x 1080, 1280 x 1024
Total pixels	1920 x 1080
Display dimensions	16:9
Display brightness	300 cd/m²
Display contrast	1000:1
Display viewing angle horizontal	178°
Display viewing angle vertical	170°
Touchscreen	optional, resistive glass or foil touchscreen
Touchscreen technology	5-wire glass or foil touch
Touchscreen activation	Foil touch: low activation pressure (0.1 to max. 1 N) Glass touch: medium activation pressure (1.8 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 the spacer dots could be damaged Glass touch: Satisfactory, but glass is not hardened, with high pressure 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: slightly milky effect due to foil Glass touch: very good
Touchscreen surface contaminants	unaffected
Touchscreen abrasive resistance	36 million activations with a silicone rubber finger R8, 250 g for 2 activations per second
Backlight	LED Technology
Backlight service life	50000 h at +20 °C
Front plate (display)	Aluminium and no touchscreen: glass foil touchscreen: polyester glass touchscreen: thin glass
Ambient Conditions	
Ambient temperature operation	-20 °C … +60 °C
Storage temperature	-30 °C … +70 °C
Cold start temperature	-10 °C
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 last 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 [+104 °F], non-condensing
Damp heat cyclic	+55 °C (±2 °C) ≥95 % (only devices 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

Ambient Conditions	
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 (35.2 lbs)
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	1x M16 = 4 … 8 mm / 1x M16 = 5 ... 10 mm / M20 = 7 … 13 mm / M25 = 14 … 18 mm
Cable gland wrench size	M16 = SW 20 / M20 = SW 24 / M25 = SW 30
Breather	yes, part of the enclosure and device approval
Cable gland note	Similar certified cable glands may be used.
Cable gland note 1	Not used cable glands must be closed by certified screw plugs or stopping plugs !
Weight	-
Mounting / Installation	
Mounting option	Front installation