



- Panel PC Operator Station, 24" display, full HD 1920 x 1080
- Zone 1, 2, 21, 22, stainless steel enclosure IP66, optional acc. to GMP
- Optional resistive glass or foil touch screen
- Data transmission as 1000Base-SX via multi-mode fibre optic up to 550 m and as 10/100Base-TX via CAT7 up to 100 m

### MY R. STAHL MANTAPCT-COSA



The OS-ET-477-SX operator stations with MANTA device platform are explosion -protected Panel PCs for Zones 1, 2, 21, 22 and Division 2. Their brilliant 24" widescreen displays with a resolution of 1920 x 1080 pixels (format 16:9) are available with or without touch screen. The stainless steel enclosures (SS304 or SS316L) are available with a front opening in cleanroom-compliant design and with different mounting options. Configuration options include country-specific keyboards, pointer instruments, RFID readers and barcode readers, different memory sizes and SSDs. Data is transmitted via Ethernet as 1000Base-SX via multi-mode fibre optic up to 550 m and as 10/100Base-TX via CAT7 up to 100 m.

## Technical Data

### General

|                     |  |
|---------------------|--|
| Series              | MANTA Panel PCs / Thin Clients Operator Stations |
| Product description | 24" Panel PC                                     |
| Technology          | Panel PC   |
| HMI type            | Operator Station                                 |

### Explosion Protection

|                               |  |
|-------------------------------|--|
| Application range (zones)     | 1<br>2<br>21<br>22   |
| Application range (divisions) | Class I, Division 2  |
| Scope                         | EU (CE / ATEX)<br>International (IECEX)<br>USA (NEC)<br>Canada (CEC)<br>China (CCC / CNEx)<br>Korea (KCS)<br>India (PESO)<br>Australia (RCM) |
| IECEX certification           | IECEX BVS 11.0075X   |
| ATEX certification            | BVS 11 ATEX E 102 X  |
| NEC certification             | 70011698   |
| CEC certification             | 70011698   |
| PESO certification            | A/P/HQ/TN/104/5768 (P438244)   |
| KCC certification             | only devices with foil touchscreen<br>depending on installed components  |
| KCS certification             | 12-GA4BO-0617X   |

# Operating and Monitoring Systems

## Panel PC SERIES 400

### Device platform MANTA

### OS ET-477-SX



#### Explosion Protection

|                                 |   |
|---------------------------------|---|
| CNEX certification              | CNEx21.1938X  |
| Notice certification            | The certificates and explosion protection markings apply to a standard device combination with display, keyboard and enclosure. These may vary with further installations and extensions. |
| IECEx gas explosion protection  | Ex eb q [ia op is Ga] IIC T4 Gb   |
| IECEx dust explosion protection | Ex tb IIIC [ia op is Da] IP65 T110°C Db   |
| ATEX gas explosion protection   | II 2(1) G Ex eb q [ia op is Ga] IIC T4 Gb   |
| ATEX dust explosion protection  | II 2(1) D Ex tb IIIC [ia op is Da] IP65 T110°C Db   |
| NEC explosion protection        | Class I, Zone 1 AEx e q [ia] IIC T4 Gb<br>Class I, Division 2, Groups A, B, C, D  |
| CEC gas explosion protection    | Ex e q [ia] IIC T4 Gb<br>Class I, Division 2, Groups A, B, C, D   |
| PESO explosion protection       | Ex eb q [ia op is Ga] IIC T4 Gb   |
| KCS explosion protection        | Ex e q IIC T4<br>Ex tb IIIC IP64 T110°C<br>Ex ia IIC T4<br>Ex ia IIIB T110°C  |
| CNEX gas explosion protection   | Ex e q [ia op is Ga] IIC T4 Gb  |
| CNEX dust explosion protection  | Ex tD [iaD op is] A21 IP65 T110°C   |

#### 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  |
| 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<br>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)<br>Windows 10 IoT Enterprise (32 bit) (optional on USB stick) |
| Language support             | via Windows operating system   |
| Ethernet / Data              | 1x 1000Base-SX (Ex op is)<br>1x 10/100/1000Base-TX (Ex e)  |
| Data cable                   | SX: 50/125 µm or 62,5/125 µm FO cable<br>TX: CAT7 installation cable AWG23   |
| Data cable length            | SX: Max. 550 m for 50 µm or max. 275 m for 62,5 µm FO cable<br>TX: Max. 100 m  |

# Operating and Monitoring Systems

## Panel PC SERIES 400

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### OS ET-477-SX



#### Electrical Data

|                                   |  |
|-----------------------------------|--|
| Data cable notice                 | Minimum requirement CAT5e, recommended CAT7  |
| Interface medium                  | SX: multi-mode optical cable<br>TX: CAT7 data transmission   |
| Interface USB                     | 2 x USB (Ex ia)<br>1 x USB (Ex e)<br>2 x USB (Ex ia) (keyboard, pointing device)   |
| Interface serial                  | 1 x RS-232 (Ex e)  |
| 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<br>1D/2D Barcode scanner: support of all common 1D/2D codes, wired or Bluetooth |
| Interface audio                   | 1 x Audio line out (Ex e)  |
| WLAN                              | optional via USB   |
| Connection compartment            | Power supply direct in integrated Ex e terminal box  |
| Connections                       | via screw terminals, green   |
| Voltage output                    | 12 VDC, max. 500 mA  |
| Wiring                            | flexible cable up to 2.5 mm <sup>2</sup> (AWG14)<br>fixed cable up to 4 mm <sup>2</sup> (AWG12)  |
| Plug version FO                   | LC duplex socket   |
| Max. input voltage U <sub>m</sub> | 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 resolution                 | 1920 x 1080, 1680 x 1080, 1280 x 1024  |
| Total pixels                       | 1920 x 1080  |
| Display dimensions                 | 16:9   |
| Display brightness                 | 300 cd/m <sup>2</sup>  |
| 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)<br>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<br>Glass touch: Satisfactory, but glass is not hardened, with high pressure the spacer dots could be damaged |
| Touch screen scratch hardness MoHS | Foil touch: -<br>Glass touch: >5   |

# Operating and Monitoring Systems

## Panel PC SERIES 400

### Device platform MANTA

### OS ET-477-SX



#### Display

|   |  |
|---|--|
| Touchscreen scratch hardness pencil test ISO15184 | Foil touch: 3H<br>Glass touch: 9H  |
| Touchscreen transmissivity / optic                | Foil touch: slightly milky effect due to foil<br>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<br>no touchscreen: glass<br>foil touchscreen: polyester<br>glass touchscreen: thin glass |
| Function keys                                     | optional via keyboard with integrated trackball, joystick or touchpad                                  |
| Softkeys  | optional via keyboard with integrated trackball, joystick or touchpad                                  |
| Cursor keys                                       | optional via keyboard with integrated trackball, joystick or touchpad                                  |
| Alphanumeric keys                                 | optional via keyboard with integrated trackball, joystick or touchpad                                  |
| System keys                                       | optional via keyboard with integrated trackball, joystick or touchpad                                  |

#### Ambient Conditions

|                               |  |
|-------------------------------|--|
| Ambient temperature operation | -20 °C ... +55 °C  |
| Storage temperature           | -30 °C ... +70 °C  |
| Cold start temperature        | -10 °C   |
| Temperature note 2            | Operating temperature +55 °C for a maximum of 5 h, for constant operation (24/7) +50 °C.   |
| Temperature note 3            | Cold start temperature:<br>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. |
| Temperature note general      | The temperature details apply to a standard device combination with display, keyboard and enclosure. They may change accordingly with any additional built-in or added components.   |
| 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<br>13.2 to 100 Hz: ±0.7 g<br>Change cycle 1 oct/min<br>Axis X, Y, Z  |
| Vibration sinus 1             | 71.7 to 79.2 Hz: ±0.7 g<br>120 min.<br>Change cycle 1 oct/min<br>Axis X  |
| Vibration sinus 2             | 30 Hz: ±0.7 g<br>90 min.<br>Change cycle 1 oct/min<br>Axis Y, Z  |

#### Mechanical Data

|                    |                          |
|--------------------|--------------------------|
| Dimensions (WxHxD) | 740 mm x 872 mm x 400 mm |
| Weight             | 64.5 kg                  |

# Operating and Monitoring Systems

Panel PC SERIES 400

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OS ET-477-SX



## Mechanical Data

|                      |  |
|----------------------|--|
| Material front       | Aluminium / stainless steel  |
| Material back        | Stainless steel  |
| Ingress protection   | IP66   |
| Breather             | optional   |
| Keyboard note        | Only for KBDi:<br>For keyboards with a trackball, the IP protection of the operator station is reduced to IP54 when the trackball is being moved.                                      |
| Mechanical data note | The mechanical data apply to an FR enclosure with display and keyboard. They may change accordingly with other enclosure types as well as any additional built-in or added components. |
| Weight               | -  |

## Mounting / Installation

|                 |   |
|-----------------|---|
| Enclosure type  | Stainless steel enclosure (FR)<br>optional clean room (CFR) |
| Mounting option | Wall, elbow, stand  |

## Components

|          |   |
|----------|---|
| Keyboard | optional, 105 keys with trackball / joystick / touchpad (Ex ia) |
|----------|---|

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