

# Operating and monitoring systems

Panel PC SERIES 400

Device platform MANTA

OS MT-487-SX

STAHL



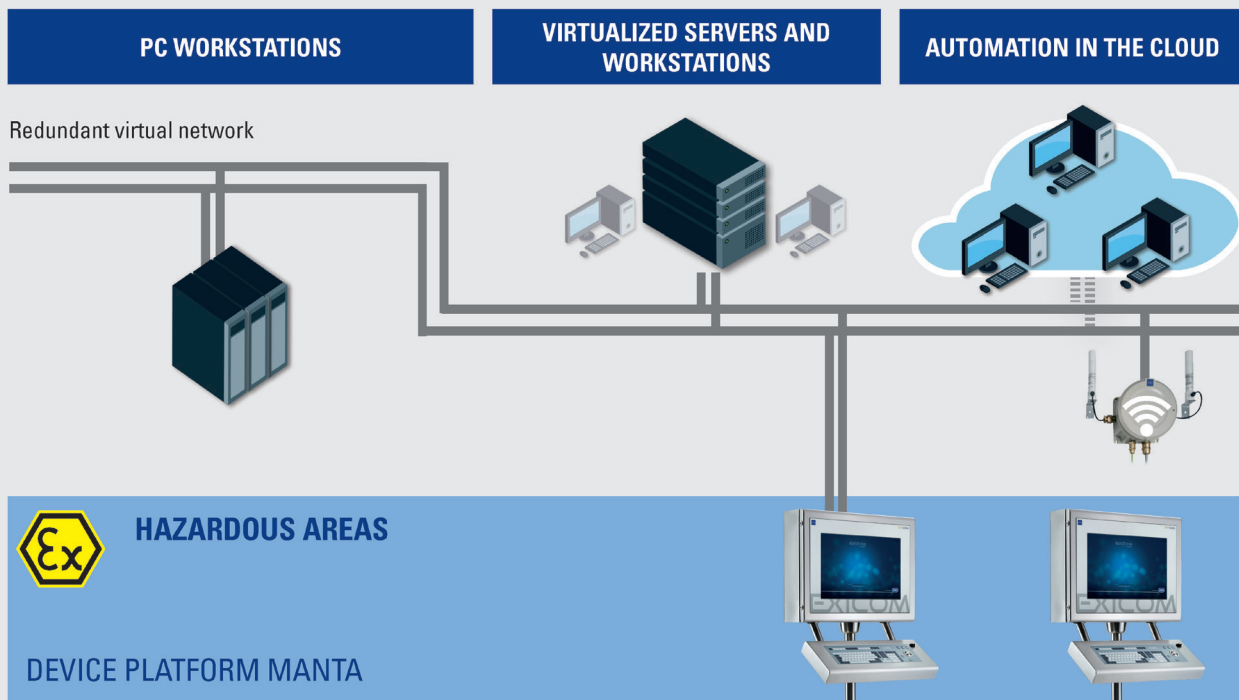
- Panel PC Operator Station, quad core ATOM E3845, 24"WU display, 1920 x 1200
- Zone 2, 22, stainless steel enclosure IP66, optional acc. to GMP
- Optional resistive glass or foil touch screen
- Data transmission as 1000Base-SX via multi-mode fibre optic up to 550 m and as 10/100Base-TX via CAT7 up to 100 m

MY R. STAHL MT487A



The OS MT-487 HMI series includes Panel PC Operator Stations for 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. The stainless steel enclosures (SS304 or SS316L) are available with a front opening or in cleanroom-compliant design and with different mounting options. Accessories include country-specific keyboards, pointer instruments and RFID and barcode readers, and different memory sizes and SSDs complement the quad core processors. Data is transmitted as 1000Base-SX via multi-mode fibre optic up to 550 m, as 10/100Base-TX via CAT7 up to 100 m or simultaneously via both interfaces.

## PANEL PC INTEGRATION



## Technical Data

### General

|                     |                                           |
|---------------------|-------------------------------------------|
| Series              | Operator Station OS MT-487 (discontinued) |
| Product description | 24" Panel PC                              |
| HMI type            | Operator Station                          |
| Technology          | Panel PC                                  |
| WebCode             | MT487A                                    |

### Explosion Protection

|                                 |                                                                                                                                                                                                                   |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application range (zones)       | 2<br>22                                                                                                                                                                                                           |
| Certifications                  | ATEX, IECEx, EAC, CNEX                                                                                                                                                                                            |
| IECEx certification             | IECEx BVS 14.0034X                                                                                                                                                                                                |
| ATEX certification              | BVS 12 ATEX E 033 X                                                                                                                                                                                               |
| CNEX certification              | CNEX14.2205X                                                                                                                                                                                                      |
| Notice certification            | The certificates and explosion protection markings apply to a standard device combination with display, keyboard and enclosure. Any additional built-in or added components may have an impact on / change these. |
| 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

|                              |                                                                                                                                                                                                                             |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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<br>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)<br>Windows 7 Ultimate (64-Bit)<br>Windows 10 IoT Enterprise 2016 LTSP (64 bit) (included in standard delivery)<br>Windows 10 IoT Enterprise 2016 LTSP (32 bit) (optional on USB stick) |
| Language support             | via Windows operating system                                                                                                                                                                                                |
| Ethernet / Data              | 1x 1000Base-SX (Ex op is)<br>1x 10/100Base-TX (Ex e)                                                                                                                                                                        |

# Operating and monitoring systems

## Panel PC SERIES 400

### Device platform MANTA

### OS MT-487-SX

#### Electrical Data

|                                   |                                                                                                 |
|-----------------------------------|-------------------------------------------------------------------------------------------------|
| Data cable                        | SX: 50/125 µm FO cable<br>TX: CAT7 installation cable AWG23                                     |
| Data cable length                 | SX: max. 550 m, for 50 µm FO cable<br>TX: max. 100 m                                            |
| Interface medium                  | SX: Multi-mode optical fibre cable<br>TX: CAT7 data transmission                                |
| Frequency range                   | 50 – 60 Hz                                                                                      |
| Interface USB                     | 2 x USB (Ex ia)<br>1 x USB (Ex nA)<br>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)<br>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)<br>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.<br>Glass touch: Quite good, but with high pressure force the spacer dots could be damaged. |

# Operating and monitoring systems

## Panel PC SERIES 400

### Device platform MANTA

### OS MT-487-SX

#### Display

|                                                   |                                                                                                |
|---------------------------------------------------|------------------------------------------------------------------------------------------------|
| Touch screen scratch hardness MoHS                | Foil touch: -<br>Glass touch: >5                                                               |
| Touchscreen scratch hardness pencil test ISO15184 | Foil touch: 3H<br>Glass touch: 9H                                                              |
| Touchscreen transmissivity / optic                | Foil touch: small milky effect due to the foil<br>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 |
| Backlight                                         | LED Technology                                                                                 |
| Backlight service life                            | 50 000 h at +20 °C                                                                             |
| Front plate (display)                             | Aluminium                                                                                      |

#### Ambient Conditions

|                                 |                                                                                                                                                                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature operation   | -20 °C ... +55 °C                                                                                                                                                                                                                                                      |
| Ambient temperature operation 1 | -30 °C ... +55 °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 +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 take up to 3 hours. |
| Temperature note general        | The temperature details apply to a standard device combination with display, keyboard and enclosure. Any additional built-in or added components may have an impact on / change these.                                                                                 |
| 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<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    |
| Material front     | Aluminium / stainless steel |
| Material back      | Stainless steel             |
| Ingress protection | IP66                        |
| Weight             | 48.5 kg                     |
| Breather           | optional                    |

Operating and monitoring systems  
Panel PC SERIES 400  
Device platform MANTA  
OS MT-487-SX



Mechanical Data

|                      |                                                                                                                                                                                            |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Keyboard note        | With a keyboard with trackball, the operator station's ingress protection is reduced to IP54, when the trackball is moved.                                                                 |
| Mechanical data note | The mechanical data apply to an FR enclosure with display and keyboard. Other enclosure types as well as any additional built-in or added components may have an impact on / change these. |

Mounting / Installation

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

Components

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

We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.