



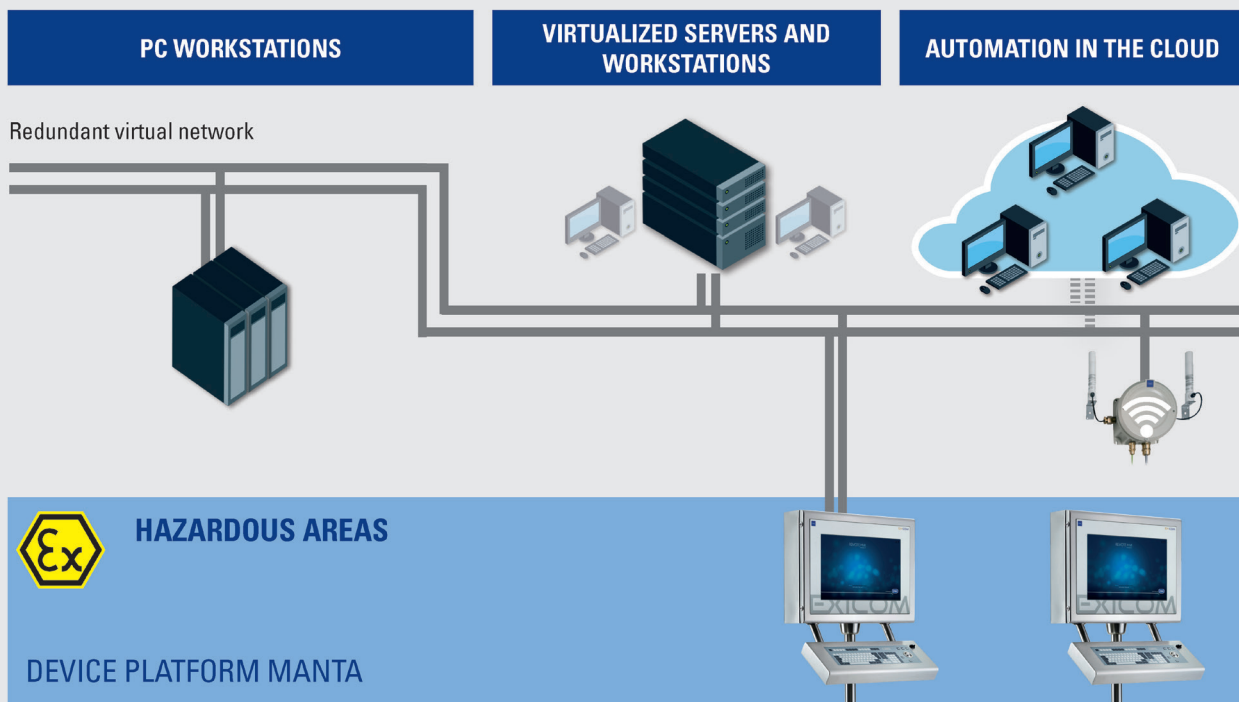
- Panel PC for panel mounting, quad core ATOM E3845, 24"WU display, 1920 x 1200
- Zone 1, 2, 21, 22, can be installed in hazardous areas without additional enclosure
- Optional resistive glass or foil touch screen
- Data is transmitted via 2x Ethernet as 10/100Base-TX via CAT5 up to 100 m

### MY R. STAHL ET487A



The PM ET-487 HMI series includes Panel PCs for panel mounting in hazardous zones 1, 2, 21, 22 and Division 2. 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 2x Ethernet as 10/100Base-TX via CAT5 cable up to 100 m.

## PANEL PC INTEGRATION



## Technical Data

### General

|                     |                                             |
|---------------------|---------------------------------------------|
| Series              | Panel mount device PM ET-487 (discontinued) |
| Product description | 24" Panel PC                                |
| HMI type            | Panel mount device                          |
| Technology          | Panel PC                                    |
| WebCode             | ET487A                                      |

### Explosion Protection

|                                 |                                                                              |
|---------------------------------|------------------------------------------------------------------------------|
| Application range (zones)       | 1<br>2<br>21<br>22                                                           |
| Application range (divisions)   | Class I, Division 2                                                          |
| Certifications                  | ATEX, IECEx, EAC, NEC, CEC, PESO, KGS, RCM                                   |
| IECEx certification             | IECEx BVS 11.0075X                                                           |
| ATEX certification              | BVS 11 ATEX E 102 X                                                          |
| NEC certification               | 70011698                                                                     |
| CE-Code certification           | 70011698                                                                     |
| KCS certification               | 12-GA4BO-0617X                                                               |
| 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                                       |
| CE-Code explosion protection    | Ex e q [ia] IIC T4 Gb<br>Class I, Division 2                                 |
| 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 |

### 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 with O30 / max. 150 W (typ. 170 BTU / 341 BTU with 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 MLC<br>128 GB MLC                                                                  |
| Graphics controller          | integrated Intel Gen. 7 HD Graphics                                                      |

# Operating and monitoring systems

## Panel PC SERIES 400

### Device platform MANTA

#### PM ET-487-2TX

#### Electrical Data

|                                   |                                                                                                                                                                                                                             |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Memory technology                 | SSD solid state flash drive M.2                                                                                                                                                                                             |
| Operating system                  | Windows Embedded Standard 7 (64-Bit)<br>Windows 7 Ultimate (64-Bit)<br>Windows 10 IoT Enterprise 2016 LTSC (64 bit) (included in standard delivery)<br>Windows 10 IoT Enterprise 2016 LTSC (32 bit) (optional on USB stick) |
| Language support                  | via Windows operating system                                                                                                                                                                                                |
| Ethernet / Data                   | 10/100Base-TX (Ex e)                                                                                                                                                                                                        |
| Data cable                        | CAT5 installation cable AWG22                                                                                                                                                                                               |
| Data cable length                 | max. 100 m                                                                                                                                                                                                                  |
| Interface medium                  | CAT5 data transmission                                                                                                                                                                                                      |
| Frequency range                   | 50 – 60 Hz                                                                                                                                                                                                                  |
| 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 audio                   | 1 x Audio line out (Ex e)                                                                                                                                                                                                   |
| WLAN                              | optional via USB                                                                                                                                                                                                            |
| Connection compartment            | Power supply direct in integrated Ex e connection box                                                                                                                                                                       |
| Connections                       | via screw 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)                                                                                                                             |
| Max. input voltage U <sub>m</sub> | 250 VAC                                                                                                                                                                                                                     |
| Audio sound                       | optional: Audio amplifier (mono amplifier) 3.5 W, for 2x loudspeaker connection (Ex e)                                                                                                                                      |
| 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                                                                                            |

# Operating and monitoring systems

## Panel PC SERIES 400

### Device platform MANTA

#### PM ET-487-2TX

#### Display

|                                                   |                                                                                                                                                                                                       |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |
| 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 ... +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 version 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:<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. |
| 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) | 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       |
| Material front     | Aluminium                    |

# Operating and monitoring systems

Panel PC SERIES 400

Device platform MANTA

PM ET-487-2TX

STAHL

## Mechanical Data

|                                  |                                                           |
|----------------------------------|-----------------------------------------------------------|
| Material back                    | Steel                                                     |
| Ingress protection               | IP66                                                      |
| IP enclosure front               | IP66                                                      |
| IP enclosure back                | IP65                                                      |
| Weight                           | 32 kg                                                     |
| 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                   |

## Mounting / Installation

|                 |             |
|-----------------|-------------|
| Mounting option | Panel mount |
|-----------------|-------------|

## Components

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

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