

# Operating and monitoring systems

Panel PC SERIES 400  
Device platform EAGLE  
OS ET-406-FX



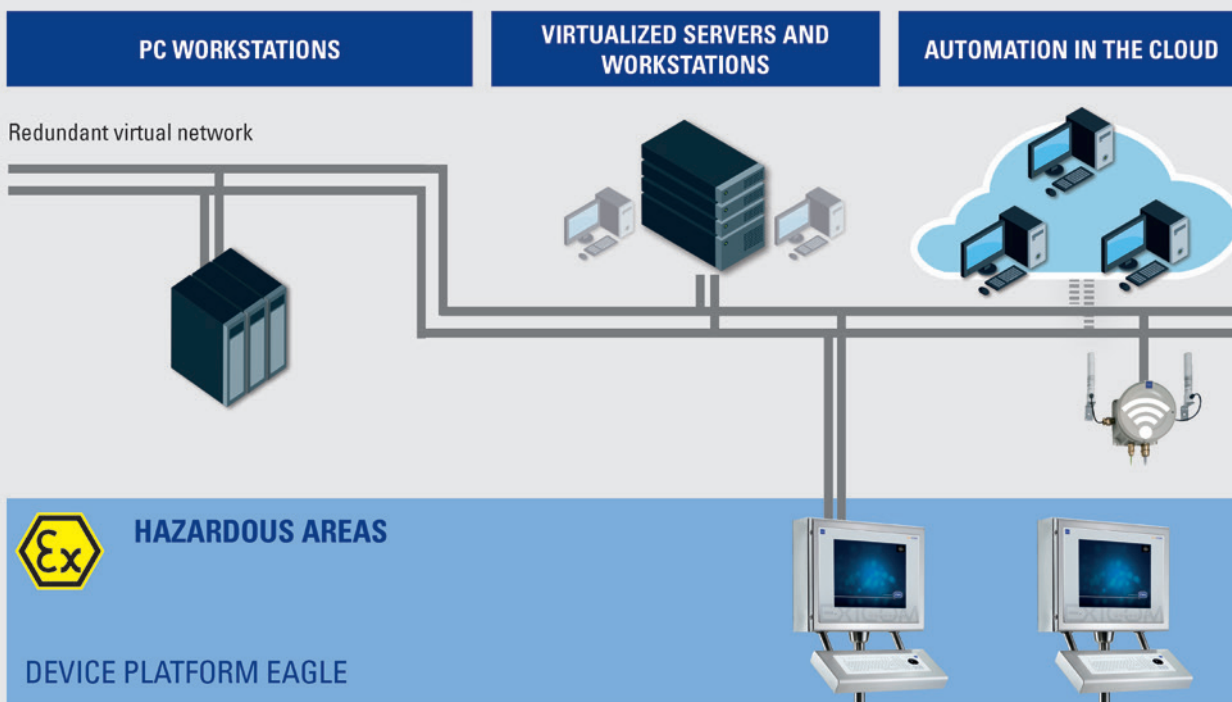
- Panel PC Operator Station, quad core ATOM E3845
- 10" display, 800 x 600 pixels with resistive foil touch screen
- 12 function keys, 10 soft keys, 30 additional keys
- Zone 1, 2, 21, 22 and Division 2, optional GMP-compliant enclosure
- Data transmission via Ethernet as 100Base-FX via multi-mode fibre optic up to 2 km

WebCode ET406AA



R. STAHL's OS ET-406 HMI systems are Panel PC Operator Stations for hazardous zones 1, 2, 21 and 22 as well as Division 2. Their brilliant 10" displays with analogue-resistive touch screen have a resolution of 800 x 600 pixels (format 4:3). The stainless steel enclosures (SS304 or SS316L) are available with a front opening or in cleanroom-compliant design and with different mounting options. Country-specific keyboards, pointer instruments and RFID and barcode readers are useful accessories. The state-of-the-art quad core processors can be complemented with various memory sizes and SSDs. Data is transmitted via Ethernet as 100Base-FX via multi-mode fibre optic up to 2 km.

## PANEL PC INTEGRATION



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## Technical Data

### General

Series	Operator Station OS ET-406
Product description	10.4" Panel PC
Technology	Panel PC
HMI type	Operator Station
WebCode	ET406AA

### Explosion Protection

Application range (zones)	1 2 21 22
Application range (divisions)	Class I, Division 2 Class II, Division 1 and 2 Class III
Certifications	ATEX, IECEx, NEC, CEC, EAC, INMETRO, CNEX, KGS, PESO
Ship certificates	DNV, LR, ABS
IECEx certification	IECEx TUR 11.0006X
ATEX certification	TÜV 11 ATEX 7041 X
NEC certification	20130611-E202379
CEC certification	2512677
INMETRO certification	UL-BR 12.0265X
CNEX certification	CNEx14.0065X
KCS certification	12-GA4BO-0215X 12-GA4BO-0317X
PESO certification	A/P/HQ/MH/104/5004(P391127) P391127/1
DNV certification	Certificate number: A-12989 File number: 899.60 Order number: 262.1-001689-6
LR certification	11/20032
ABS certification	15-HG1418766-1-PDA
Notice certification	The certificates and explosion protection markings apply to a standard device combination of display and enclosure. Any additional built-in or added components may have an impact on / change these.
IECEx gas explosion protection	ET-406-A-TX Ex db eb ia ib mb [ia ib] IIC T4 Gb ET-406-A-FX Ex db eb ia ib mb [ia ib op is] IIC T4 Gb
IECEx dust explosion protection	ET-406-A-TX Ex ia tb [ia ib] IIIC T80°C Db IP66 ET-406-A-FX Ex ia tb [ia ib op is] IIIC T80°C Db IP66
ATEX gas explosion protection	ET-406-A-TX II 2 (2) G Ex db eb ia ib mb [ia ib] IIC T4 Gb ET-406-A-FX II 2 (2) G Ex db eb ia ib mb [ia ib op is] IIC T4 Gb

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## Explosion Protection

ATEX dust explosion protection	ET-406-A-TX II 2 (2) D Ex ia tb [ja ib] IIIC T80°C Db IP66 ET-406-A-FX II 2 (2) D Ex ia tb [ja ib op is] IIIC T80°C Db IP66
NEC explosion protection	Class I, Division 2, Groups A, B, C, D Class II, Division 2, Groups F, G Class III Class I, Zone 2, Group IIC
CEC explosion protection	Ex d e ia ib mb [ja ib] IIC T4 Gb, Type 4X, IP66 Ex ia tb [ja ib] IIIC T80°C Db, IP66 Class II, Division 1, Groups E, F, G, T80°C
CNEX gas explosion protection	ET-406-A-TX Ex d e ia ib mb [ja ib] IIC T4 Gb ET-406-A-FX Ex d e ia ib mb [ja ib op is] IIC T4 Gb
CNEX dust explosion protection	ET-406-A-TX Ex ia tb [ja ib] IIIC T80°C Db IP66 ET-406-A-FX Ex ia tb [ja ib op is] IIIC T80°C Db IP66
KCS explosion protection	Ex d e ia ib mb [ja ib] IIC T4 Ex ia tb [ja ib] IIIC T80°C Db IP66
INMETRO gas explosion protection	ET-406-A-TX Ex d e ia ib mb [ja ib] IIC T4 Gb ET-406-A-FX Ex d e ia ib mb [ja ib op is] IIC T4 Gb
INMETRO dust explosion protection	ET-406-A-TX Ex ia tb [ja ib] IIIC T80°C Db IP66 ET-406-A-FX Ex ia tb [ja ib op is] IIIC T80°C Db IP66
PESO explosion protection	Ex d e ia ib mb [ja ib] IIC T4 Gb

## Electrical Data

Rated operational voltage DC	24 V
Voltage range DC	20.4 – 28.8 V
Rated operational voltage AC	optional, external power supply 230 V
Voltage range AC	90 – 253 V
Power consumption DC	1.2 A
Rated operational power	36 W
Processor type	ATOM E3845
Processor details	Intel Bay Trail (BT); 1.91 GHz; quad core
RAM	4 GB
Data memory	64 GB MLC 128 GB MLC
Graphics controller	integrated Intel Gen. 7 HD Graphics
Memory technology	SSD solid state flash drive M.2
Operating system	Windows Embedded Standard 7 (64-Bit) Windows 7 Ultimate (64-Bit) Windows 10 IoT Enterprise 2019 LTSC (64 bit) (included in standard delivery) Windows 10 IoT Enterprise 2019 LTSC (32 bit) (optional on USB stick)
Language support	via Windows operating system
Ethernet / Data	100Base-FX (Ex op is)

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### Electrical Data

Data cable	62.5 / 125 µm FO cable
Data cable length	max. 2000m
Interface medium	Multi-mode optical fibre cable
Frequency range	47 – 63 Hz
Interface USB	2 x USB (Ex ib) 2 x USB (Ex e)
Interface serial	1 x RS-232 / RS-422 / RS-485 (Ex e)
Interface PS/2	for external keyboard (Ex ia)
Optional interface 1	-
Optional interface 2 reader	optional, reader interface (Ex ib)
Interface audio	1 x Audio line out (Ex e)
Connection compartment	Power supply direct in integrated Ex e connection box
Connections	via screw terminals, green, 2.5 mm <sup>2</sup> (AWG14) (Ex e)
Wiring	Flexible conductors 0.2 to 2.5 mm <sup>2</sup> (AWG24 to AWG14) Rigid conductors 0.2 to 2.5 mm <sup>2</sup> (AWG24 to AWG14)
Plug version FO	SC duplex connector
Plug version USB	1x USB connector type A
Max. input voltage U <sub>m</sub>	30 VDC
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
Status LED	below the back lid: for activity on: - Solid state drive or HD - Ethernet Link - COM 1 and COM 2

### Display

Display version	TFT Colour display
Display version 2	16.7 million colours
Display size inch	10.4
Display size centimetres	26
Display resolution	VGA
Total pixels	800 x 600
Display dimensions	4:3
Display brightness	TFT 400 cd/m <sup>2</sup>
Display contrast	TFT 700:1
Touchscreen	analogue resistive
Touchscreen technology	5-wire
Touchscreen activation	Low activation pressure (0.1 up to max. 1 N)
Touchscreen input method	Finger, gloved finger or stylus
Touchscreen durability	Polyester foil is easily scratched, with high pressure force the spacer dots could be damaged.
Touch screen scratch hardness MoHS	-
Touchscreen scratch hardness pencil test ISO15184	3H

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## Display

Touchscreen transmissivity / optic	Small milky effect due to the foil
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	70000 h at +25 °C 35000 h at +55 °C
Front plate (display)	Polyester on aluminium
Function keys	12
Softkeys	10
Cursor keys	Yes
Alphanumeric keys	12
System keys	14

## Ambient Conditions

Ambient temperature operation	-20 °C ... +50 °C
Ambient temperature operation 1	-30 °C ... +50 °C with heater
Storage temperature	-30 °C ... +60 °C
Temperature note 2	The heater used must be of such a design that the temperature inside the HMI's enclosure does not fall below -20 °C (-30 °C at the front only).
Temperature note 3	The components integrated in the enclosure may only be operated when the temperatures inside the enclosure are within the permitted (certified) temperature range for these components. Further measures may be necessary.
Temperature note general	The temperature details apply to a standard device combination with display and enclosure. Any additional built-in or added components may have an impact on / change these.
Heat dissipation	about 50% via the front plate and 50% via the enclosure
Relative humidity	90% at +40 °C, without condensation
Damp heat	+55 °C / 95 %
Damp heat cyclic	+55 °C / 90-100 % +20 °C / 80-100 %
Corrosion resistance	ISA-S71.04-1985, severity level G3
Vibration sinus	5 to 13.2 Hz: ±1 mm 13.2 to 100 Hz: ±0.7 g Axis X, Y, Z
Vibration sinus 1	10 Hz, 1 g 450 Hz, 1 g Change cycle 1 oct/min Operating mode 1.2 Axis X, Y, Z
Vibration broadband random	10 Hz, 0.01 PSD[(m/s <sup>2</sup> ) <sup>2</sup> /Hz] 450 Hz, 0.01 PSD[(m/s <sup>2</sup> ) <sup>2</sup> /Hz] Grms 2.11 Axis X, Y, Z
Shock	20 Shocks 20 g/11 ms
EMC Immunity	According IEC 61000-6-2 (01/2005) and DIN EN 61323-1 (10/2006) for industrial areas
EMC Emission	According IEC 61000-6-4 (02/2011), DIN EN 55011 / CISPR 11 (03/2008) for industrial environments and DIN EN 55022 / CISPR 22 (05/2008) for Class A
Positive pressure operation	<= 20 mbar

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## Mechanical Data

Dimensions (WxHxD)	720 mm x 820 mm x 400 mm
Weight	45.6 kg
Material front	Polyester on aluminium / stainless steel
Material back	Stainless steel
Ingress protection	IP66
Breather	optional
Keyboard note	With a keyboard, the operator station's ingress protection is reduced to IP65 and with a trackball even further 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) optional CFR
Mounting option	Wall, elbow, stand

## Components

Keyboard	optional, 105 keys or 107 keys with integrated trackball / joystick
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