

# Operating and Monitoring Systems

## Operator Interface SERIES 300

### Device platform EAGLE

#### PM MT-316-FX



- Operator Interface for panel mounting
- 10" display, 800 x 600 pixels with resistive foil touch screen
- 12 function keys
- Zone 2, 22 und Division 2, can be installed in hazardous areas without additional enclosure
- Data transmission via Ethernet as 100Base-FX via multi-mode fibre optic up to 2 km

### MY R. STAHL EAGLERAP-TORPMA



R. STAHL's PM MT-316 HMI systems are Operator Interfaces for panel mounting in hazardous zones 2 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). Country-specific keyboards, pointer instruments and RFID and barcode scanners are useful accessories making work easier and extending functionality. For visualisation, you can choose either Movicon CE or SPSPlus RT from our software portfolio. Data is transmitted via Ethernet as 100Base-FX via multi-mode fibre optic up to 2 km.

## Technical Data

### General

Series	EAGLE and RAPTOR Operator Interfaces panel-mount devices
Product description	10.4" Operator Interface
HMI type	Panel-mount device
Technology	Operator Interface

### Explosion Protection

Application range (zones)	2 22
Application range (divisions)	Class I, Division 2 Class II, Division 2 Class III
Scope	EU (CE / ATEX) Global (IECEX) USA (NEC) Canada (CE-Code) China (CCC / CNEx) Australia (RCM) Marine / ship certification ABS Marine / ship certification DNV Marine / ship certification LR
IECEX certification	IECEX TUR 11.0015X
ATEX certification	TÜV 11 ATEX 7103 X
NEC certification	20130611-E202379
CE-Code certification	2512677
CCC certification	2020312309000283
CNEx certification	CNEx19.0701X
DNV certification	TAA00000WA

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LR certification	LR21402888TA
ABS certification	19-HG1895092-PDA
IECEx gas explosion protection	Ex db eb ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc
IECEx dust explosion protection	Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
ATEX gas explosion protection	II 3 (2/3) G Ex db eb ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc
ATEX dust explosion protection	II 3 (2/3) D Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
NEC gas explosion protection	Class I, Division 2, Groups A, B, C, D
NEC dust explosion protection	Class II, Division 2, Groups F, G Class III Hazardous Locations Class I, Zone 2, Group IIC
CE-Code gas explosion protection	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc, Type 4X, IP66
CE-Code dust explosion protection	Ex ia tc [ib ic] IIIC T80°C Dc, IP66 Class II, Division 2, Groups E, F, G, T80°C
CNEx gas explosion protection	Ex d e ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc
CNEx dust explosion protection	Ex ia td A22 [ibD op is] [ic] IP66 T80°C

#### Electrical Data

Power supply	24 VDC
Rated operational voltage DC	24 V
Voltage range DC	20.4 ... 28.8 V
Power consumption DC	1.2 A
Rated operational power	36 W
Processor type	ATOM E3815
Processor details	Intel Bay Trail (BT), 1.46 GHz, single core
RAM	2 GB
Data memory	16 GB
Graphics controller	integrated Intel Gen. 7 HD graphics
Memory technology	Flash drive M.2
Operating system	Windows Embedded Compact 7
Language support	global, multilingual language support
Image	via - SPSPPlusWIN project file (SPSPPlus RT) - Movicon project file (Movicon CE 4096 I/O)
Additional software	SPSPPlusWIN V 6 Progea Movicon11
Ethernet / Data	100Base-FX (Ex op is)
Data cable	62.5/125 µm FO cable
Data cable length	max. 2000 m
Interface medium	multi-mode optical fibre cable
Interface USB	2 x USB (Ex ib) 2 x USB (Ex nA)
Interface serial	1 x RS-232 / RS-422 / RS-485 (Ex nA)
Interface PS/2	for external keyboard (Ex ia)
Optional interface 2 reader	optional, reader interface (Ex ib)
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
Interface audio	1 x Audio line out (Ex nA)

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#### Electrical Data

Connection compartment	Power supply direct in integrated connection box
Connections	via screw terminals, 2.5 mm <sup>2</sup> green (AWG14) (Ex nA)
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 socket
Plug version USB	1x USB connector type A
Max. input voltage U <sub>m</sub>	30 V DC
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 Color display
Display version 2	16.7 million colours
Display size inch	10.4
Display size centimetres	26
Display resolution	800 x 600
Total pixels	800 x 600
Display dimensions	4:3
Display brightness	400 cd/m <sup>2</sup>
Display contrast	700:1
Touchscreen	resistive foil touchscreen
Touchscreen technology	5-wire foil touch
Touchscreen activation	Foil touch: low activation pressure (0.1 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
Touchscreen transmissivity / optic	slightly milky effect due to foil
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	70000 h at +25 °C 35000 h at +55 °C
Front plate (display)	Polyester foil on aluminium
Function keys	12

#### Software

Number of protocol drivers	a maximum of 4 simultaneously
Number of process images	>1000 dynamic

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#### Software

Number of text messages	dynamically limited by main memory
Number of variables	255 per image
Number of messages	4096 fault messages 4096 operation messages
Font sets	4 independent Windows uncondensed fonts

#### Ambient Conditions

Ambient temperature operation	-20 °C ... +55 °C
Storage temperature	-30 °C ... +60 °C
Heat dissipation	about 50% via the front plate and 50% via the enclosure
Relative humidity	90% at +40 °C [+104 °F], 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 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 Schocks 20 g/11 ms
EMC Immunity	Acc. to IEC 61000-6-2 (01/2005) and DIN EN 61323-1 (10/2006) for industrial areas
EMC Emission	Acc. to 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

#### Mechanical Data

Dimensions (WxHxD)	372 mm x 270 mm 150 mm
Cut-out (WxH)	359.5 mm x 257.5 mm
Wall thickness	≤ 8 mm
Depth of cut-out	150 mm
Mounting position	vertical or horizontal
Material front	Polyester on aluminium
Material back	Stainless steel
Ingress protection	IP66
IP enclosure front	IP66
IP enclosure back	IP66
Weight	13.2 kg
Fixing frame	yes
Cable gland type	8161 (Ex e)
Cable gland number	6 x M16, 3 x M20
Cable gland thread size	M16 x 1.5 / M20 x 1.5

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## Mechanical Data

Cable gland cable diameter range	M16 = 5 ... 9 mm / M20 = 7 ... 13 mm
Cable gland wrench size	M16 = SW 20 / M20 = SW 24
Breather	yes, part of the enclosure and device approval

## Mounting / Installation

Mounting option	Front installation
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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.