

# Operating and Monitoring Systems Dummys Discontinued

## Panel PC SERIES 400

### Device platform SHARK

#### MT-498-1TX



- Panel PC, AMD GX or Core i7 / i5, 21.5" display, sunlight-readable 1000 cd/m<sup>2</sup>
- Rugged design: IP66, shock, vibration and seawater-proof, temperature range -40 °C to +65 °C
- Full HD resolution (1920 x 1080)
- Optional integrated RFID reader
- Data is transmitted via dual Ethernet as 10/100/1000Base-TX via CAT7 up to 100 m and WLAN (2.4 GHz / optional 5 GHz)

## MY R. STAHL



R. STAHL's operating devices with the SHARK device platform are explosion-protected. Their rugged design with degree of protection IP66 makes them shock, vibration and seawater-proof and suitable for temperatures ranging from -40 °C to +65 °C. A chemically hardened, glare-free glass screen protects the display and the function keys, a projected-capacitive multi-touch touch screen, camera and Bluetooth antenna. The MT-498-2FX is a Panel PC for Zones 2, 22 with a 21.5" display (resolution 1920 x 1080), and sunlight-readable (1000 cd/m<sup>2</sup>). Data is transmitted via dual Ethernet as 10/100/1000Base-TX via CAT7 up to 100 m and WLAN (2.4 GHz / optional 5 GHz) Configuration options include processors (Intel Core i7 / i5, AMD GX), memory sizes and SSDs.

## Technical Data

### General

Series	SHARK Panel PCs / Thin Clients Operator Stations (discontinued)
Product description	21.5" Panel PC
Technology	Panel PC
HMI type	Rugged Panel

### Explosion Protection

Application range (zones)	2 22
Application range (divisions)	Class I, Zone 2 Class I, Division 2 Class II, Division 2 Class III
Scope	Australia (RCM) Canada (CEC) China (CCC / CNEx) EU (CE / ATEX) India (PESO) International (IECEX) Marine / ship certification ABS Marine / ship certification DNV-GL Russia (EAC) USA (NEC)
IECEX certification	IECEX BVS 14.0116X
ATEX certification	BVS 14 ATEX E 134 X
NEC certification	FM 16 US 0278 X
CEC certification	FM 16 CA 0141 X

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PESO certification	A/P/HQ/TN/104/5750 (P436574) P436574/1
CCC certification	2020312309000280
CNEX certification	CNEX17.2233X
DNV certification	TAA00001E6
ABS certification	17-HG1687000-PDA
IECEx gas explosion protection	Ex tc [ia op is Da] IIIC T115°C Dc
IECEx dust explosion protection	Ex tc [ia op is Da] IIIC T115°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 [ia op is Da] IIIC T115°C Dc
NEC gas explosion protection	Ex nA nR [ia Ga] IIC T4 Gc Class I, Div. 2 Groups A, B, C, D, T4
NEC dust explosion protection	Zone 22, AEx tc [ia op is Da] IIIC T115°C Dc Class II, Div. 2 Groups F, G T4 Class III
CEC gas explosion protection	Ex nA nR [ia Ga] IIC T4 Gc Class I, Div. 2 Groups A, B, C, D, T4
CEC dust explosion protection	Zone 22, Ex tc [ia Da] IIIC T115°C Dc Class II, Div. 2 Groups E, F, G T4 Class III
PESO explosion protection	Ex ec nR [ia op is Ga] IIC T4 Gc
CNEX gas explosion protection	Ex ec nR [ia op is Ga] IIC T4 Gc
CNEX dust explosion protection	Ex tc [ia op is Da] IIIC T115°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
Frequency range	50 – 60 Hz
Power consumption DC	4.6 A at 24 VDC (6.9 A with heater)
Power consumption AC 1	0.6 A at 230 VAC (0.8 A with heater)
Power consumption AC 2	1.1 A at 110 VAC (1.7 A with heater)
Protection fuse DC	12 A
Protection fuse AC	5 A
Rated operational power	typically 100 W / max. 150 W (typically 340 BTU / max. 510 BTU)
Processor type	AMD GX-222GC Intel® Core™ i7-3517UE Intel® Core™ i7-3517UE with TPM Intel® Core™ i5-6442EQ Intel® Core™ i5-6442EQ with TPM
Processor details	AMD: 2.2 GHz; Dual Core, 10W TDP Intel i7: 1.7 GHz; Dual Core, 4 threads, 3. Generation Ivy Bridge, 17W TDP Intel i5: 1.9 GHz (2.7 GHz); Quad Core, 4 threads, 6 MB Cache, 25W TDP
Operating system	Windows Embedded Standard 7 Windows 7 Ultimate (64 Bit) Windows 10 IoT Enterprise (64 Bit)

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Operating system note	For Windows 7 Ultimate and Windows 10 IoT the 64 Bit version is preinstalled on the device. Additionally, the 32 Bit version of each Windows version is installed on the recovery stick included in the delivery.
Language support	Multilanguage operating system: en, de, fr, es, it, br, ru, kr
Cameras	optional, 5 megapixels front
Ethernet / Data	1x 100/1000Base-TX (Ex e), Wi-Fi 2.4 / 5 GHz
Data cable	CAT7 installation cable AWG 23
Data cable length	Max. 100 m
Interface medium	CAT7 Data transmission
Interface USB	3 x USB (Ex ia) 1 x USB (Ex ec)
Interface serial	1 x RS-232 / RS-422 / RS-485 (Ex ec)
Interface reader	1 x reader / barcode reader interface (Ex i)
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 1D/2D Barcode scanner: support of all common 1D/2D codes, wired or Bluetooth
Interface audio	1 x Audio line out (Ex e)
WLAN	2.4 / 5 GHz (802.11 abgn)
Bluetooth	V. 2.1
Bluetooth frequency	2.4 GHz
Front camera	optional, 5 megapixels, in-built
Connection compartment	Power supply direct in integrated Ex e terminal box
Connections	Via plug-in screw terminals, green
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 USB	USB-A connector
Max. input voltage U <sub>m</sub>	250 VAC
Status LED	LEDs - on / off (green) - voltage applied to supply line / power supply OK (orange) - heater on (blue)

## Display

Display version	Sunlight readable display
Display version 2	16.7 million colours
Display size inch	21.5
Display size centimetres	55
Display resolution	1920 x 1080
Total pixels	1920 x 1080
Display dimensions	16:9
Display brightness	1000 cd/m <sup>2</sup>
Display contrast	1100:1
Touchscreen	projected capacitive (PCAP), multi-touch
Touchscreen technology	projected capacitive (PCAP), protected under glass
Touchscreen activation	capacitive, no activation pressure required
Touchscreen input method	Finger, thin gloved finger or special gloves, conductive stylus
Touchscreen durability	Very good
Touch screen scratch hardness MoHS	6

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## Display

Touchscreen scratch hardness pencil test ISO15184	9H
Touchscreen transmissivity / optic	very good
Touchscreen surface contaminants	unaffected (may however be affected by conductive fluids such as saltwater)
Touchscreen abrasive resistance	no abrasion by finger or rubber
Backlight	LED Technology
Backlight service life	70000 h at +25 °C
Front plate (display)	Hardened glass front in aluminium enclosure, powder-coated
Function keys	8

## Ambient Conditions

Heater operation	Automatic
Ambient temperature operation	-10 °C ... +65 °C
Ambient temperature operation 1	-40 °C ... +65 °C with heater
Storage temperature	-40 °C ... +70 °C
Cold start temperature	-10 °C or -40 °C
Temperature note 1	The cold-start temperature depends on the "outdoor installation" (with / without heater).
Temperature note 2	Cold-start temperature: If the HMI device is switched on at temperatures below -10 °C, the electronics and the display will need a certain warm-up time before everything works smoothly and the display starts to be legible. Depending on how low the temperature is, this process may last up to 3 hours.
Heat dissipation	Via heat pipes and cooling fins
Damp heat	+55 °C / 95 %
Damp heat cyclic	+55 °C ( $\pm 2$ °C) $\geq 95$ % Humidity location class B
Corrosion resistance	Salt water 5 % NaCl / +20 °C / 2 h 93 % r.H. / +40 °C / 168 h ISA-S71.04-1985, severity G3
Vibration sinus	5 to 13.2 Hz: $\pm 1$ mm 13.2 to 100 Hz: $\pm 0.7$ g Change cycle 1 oct/min Axis X, Y, Z
Vibration sinus 1	5 to 58 Hz: $\pm 0.075$ mm 58 to 500 Hz: $\pm 1$ g Change cycle 1 oct/min Axis X, Y, Z
Vibration sinus 2	5 to 1000 Hz 5 g
Shock	18 Shocks 25 g / 6 ms Axis X, Y, Z

## Mechanical Data

Enclosure / Design (1)	VESA 200 Standard
Dimensions (WxHxD) (1)	553 mm x 458 mm x 141 mm (+52 mm for cable entries)
Cable gland type (1)	HSK-MZ-Ex
Cable gland number (1)	3 x M16, 3 x M20, 2 x M25

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Cable gland thread size (1)	M16 x 1.5 / M20 x 1.5 / M25 x 1.5
Cable gland cable diameter range (1)	M16 = 4 ... 8 mm / M20 = 10 ... 14 mm / M25 = 14 ... 18 mm
Cable gland wrench size (1)	M16 = SW 19 / M20 = SW 22 / M25 = SW 30
Enclosure / Design (2)	VESA 200 Top Connect
Dimensions (WxHxD) (2)	553 mm x 458 mm x 216 mm
Cable gland type (2)	Screw plug
Cable gland number (2)	3 x M16, 3 x M20
Cable gland thread size (2)	M16 x 1.5 / M20 x 1.5
Mounting possibility	Panel mount with xx8 Mounting-Kit
Cut-out (WxH)	for xx8 Mounting-Kit: 360 mm x 418 mm ( $\pm 1$ mm)
Mounting position	any
Weight	25 kg
Material front	Seawater resistant and coated aluminium, hardened glass
Material back	Seawater-resistant powder coated aluminum
Ingress protection	IP66
IP enclosure front	IP66
IP enclosure back	IP66
Breather	yes, part of the enclosure and device approval
Weight	-

#### Mounting / Installation

Enclosure type	Rugged Panel Design (RP)
Enclosure design	VESA 200 Standard, VESA 200 Top Connect
Mounting option	Yoke and wall-mounting, handle and feet, sun protection roof, panel mount (with xx8 Mounting-Kit)
Mounting type	when switched on: a fixed device (stationary, non-portable equipment)

#### Components

Keyboard	optional, attached keyboard and pointing device (trackball or joystick(Ex ia))
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