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Arionyx CMT2166X

Arionyx CMT2166X HMI Display Touch Screen User Manual

Model: CMT2166X

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of the Arionyx CMT2166X HMI Display Touch Screen. The CMT2166X is an industrial Human Machine Interface designed for robust performance and intuitive control in various industrial applications. Please read this manual thoroughly before using the device to ensure proper functionality and safety.

Figure 1: Front view of the Arionyx CMT2166X HMI Display, illustrating a typical process control interface with various data points and control buttons.

2. Key Features

The Arionyx CMT2166X HMI is equipped with several features designed for industrial environments:

- **Durability and Ruggedness:** Designed for extreme conditions, featuring water resistance and other protective characteristics suitable for industrial use.
- **High-Resolution Display and Touchscreen:** Equipped with a high-resolution touchscreen, providing clear images and responsive operation for precise control.
- **Wide Range of Communication Interfaces and Protocol Support:** Supports multiple communication interfaces to integrate seamlessly with various industrial systems.
- **User-Friendly Programming and Configuration Tools:** Offers intuitive programming software, typically featuring drag-and-drop interfaces and extensive graphic libraries for easy creation and configuration of user interfaces.
- **Data Logging and Analysis:** Includes data logging capabilities, allowing storage of production data and event logs for monitoring and analysis.

Figure 2: Angled view of the Arionyx CMT2166X HMI Display, showcasing a detailed system diagram with real-time data and error messages, highlighting its high-resolution capabilities.

3. Setup and Installation

Proper installation is crucial for the optimal performance and longevity of your CMT2166X HMI. Follow these general guidelines:

1. **Unpacking:** Carefully remove the HMI from its packaging. Inspect for any signs of damage during transit. Retain all packaging materials for future transport or storage.
2. **Mounting:** The CMT2166X is designed for panel mounting. Ensure the cutout dimensions in your panel match the specifications provided in the dimensional drawings. Secure the HMI using the provided mounting clamps.
3. **Power Connection:** Connect the HMI to a stable 24V DC power source. Ensure correct polarity. Refer to the

specifications for power consumption details.

4. **Communication Connections:** Connect necessary communication cables (e.g., Ethernet, RS-232, RS-485) to your industrial control system. Ensure all connections are secure.
5. **Initial Power-Up:** Once all connections are secure, apply power to the HMI. The device should boot up and display the initial configuration screen or operating system.

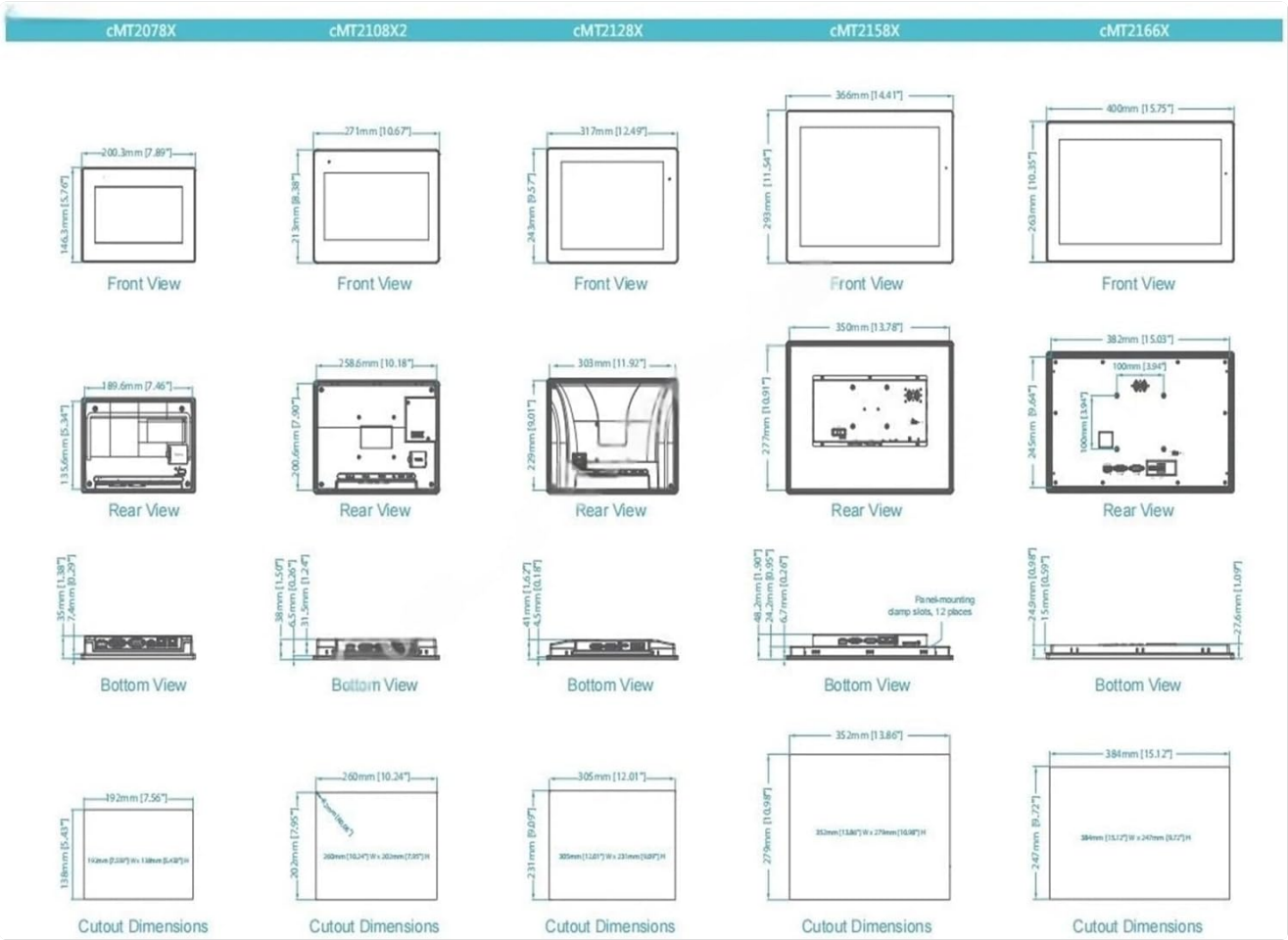


Figure 3: Dimensional drawings illustrating front, rear, bottom, and cutout views for various Arionyx CMT X series HMI models, including the CMT2166X. These diagrams are critical for precise panel mounting.

4. Operation

The Arionyx CMT2166X HMI operates via its integrated touchscreen. The specific interface and functionalities will depend on the application program loaded onto the device. General operational principles include:

- **Touch Interface:** Interact with the HMI by touching the screen. Use single taps for button presses and menu selections.
- **Navigation:** Navigate through different screens and menus as defined by the application program.
- **Data Entry:** Input numerical or textual data using the on-screen keyboard when prompted.
- **Monitoring:** Observe real-time data, alarms, and system status displayed on the screen.
- **Control:** Initiate or stop processes, adjust parameters, and acknowledge alarms through the touch interface.

For detailed operation specific to your application, refer to the documentation provided with your HMI project file.

5. Maintenance

Regular maintenance ensures the longevity and reliable operation of your CMT2166X HMI:

- **Cleaning:** Clean the touchscreen and casing regularly with a soft, damp cloth. Avoid abrasive cleaners or solvents that could damage the display or housing. Ensure the device is powered off before cleaning.
- **Firmware Updates:** Periodically check the Arionyx website or contact support for available firmware updates. Apply updates as recommended to ensure optimal performance and security.
- **Backup Configuration:** Regularly back up your HMI project files and configurations to prevent data loss.
- **Environmental Checks:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent damage.
- **Connection Integrity:** Periodically inspect all power and communication cables for wear or loose connections.

6. Troubleshooting

This section provides solutions to common issues you might encounter with your CMT2166X HMI:

Problem	Possible Cause	Solution
HMI does not power on.	No power supply; incorrect wiring; faulty power supply.	Check power cable connection; verify 24V DC power supply; ensure correct polarity.
Touchscreen unresponsive.	Screen calibration issue; software freeze; physical damage.	Restart the HMI; recalibrate the touchscreen (if option available); inspect for damage.
Communication error with PLC/controller.	Incorrect communication settings; loose cable; incompatible protocol.	Verify communication parameters (baud rate, parity, etc.); check cable connections; ensure protocol compatibility.
Display is blank or distorted.	Backlight issue; cable connection; software error.	Restart the HMI; check display cable connections (if applicable); contact support if issue persists.

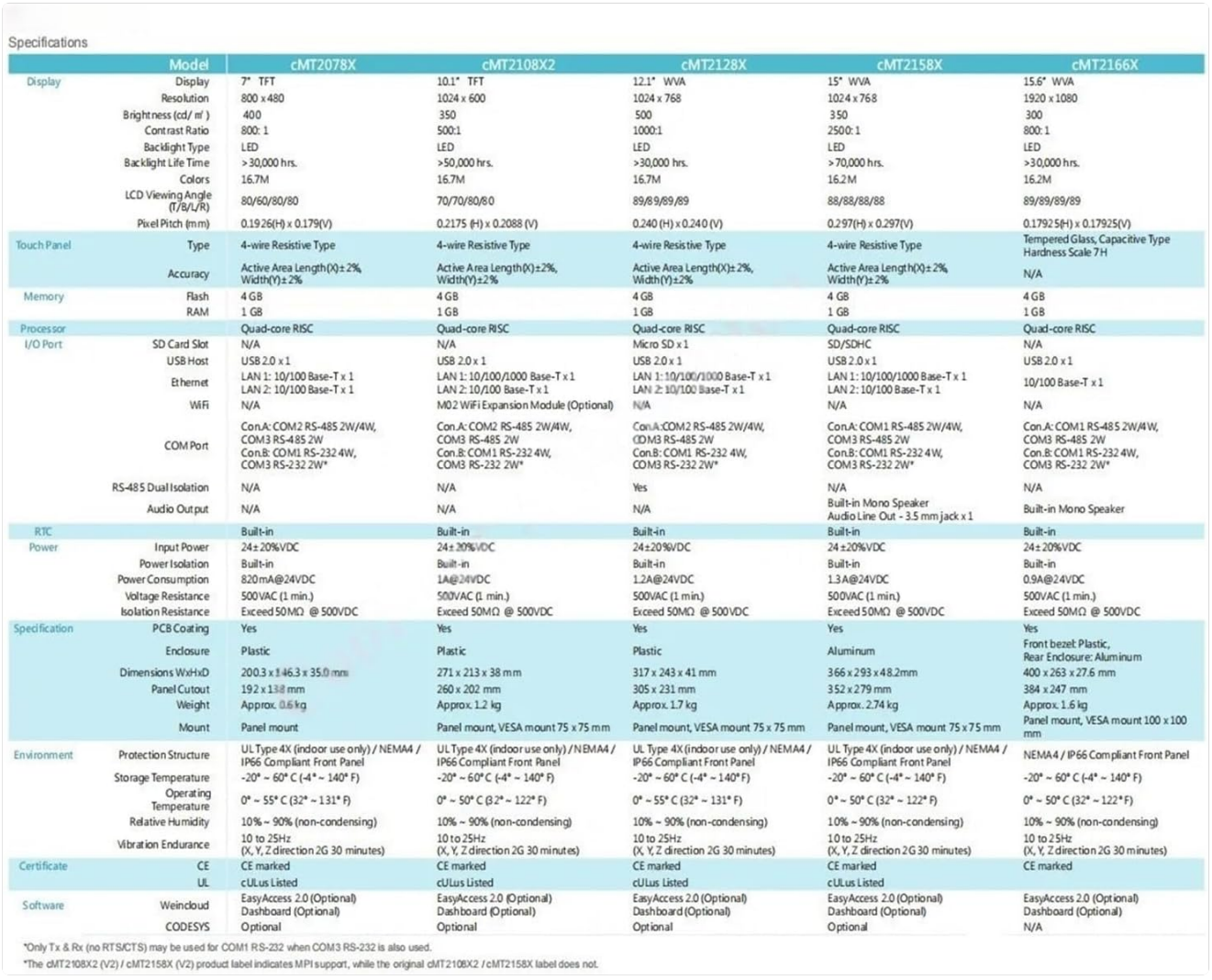
If the problem persists after attempting these solutions, please contact Arionyx technical support.

7. Specifications

The following table outlines the key technical specifications for the Arionyx CMT2166X HMI. For a comprehensive list and comparison with other models, refer to the detailed specifications image.

Feature	Specification (CMT2166X)
Display Size	15.6" WVA
Resolution	1920 x 1080
Brightness	500 cd/m²
Contrast Ratio	800:1
Backlight Life	>50,000 hrs.
Colors	16.7M
Touch Panel Type	Capacitive Type
Processor	Quad-core RSC

Feature	Specification (CMT2166X)
Flash Memory	4 GB
RAM	1 GB
Power Input	24V DC
Power Consumption	Built-in
Enclosure	Front Bezel: Plastic, Rear Enclosure: Aluminum
Dimensions (WxHxD)	400 x 263 x 37.6 mm
Panel Cutout	384 x 247 mm
Weight	Approx. 1.6 kg
Protection Structure	NEMA4 / IP66 Compliant Front Panel
Operating Temperature	0° ~ 50°C (32° ~ 122°F)
Relative Humidity	10% ~ 90% (non-condensing)



Specifications

	Model	cMT2078X	cMT2108X2	cMT2128X	cMT2158X	cMT2166X
Display	Display	7" TFT	10.1" TFT	12.1" WVA	15" WVA	15.6" WVA
	Resolution	800 x 480	1024 x 600	1024 x 768	1024 x 768	1920 x 1080
	Brightness (cd/ m²)	400	350	500	350	300
	Contrast Ratio	800: 1	500:1	1000:1	2500: 1	800: 1
	Backlight Type	LED	LED	LED	LED	LED
	Backlight Life Time	>30,000 hrs.	>50,000 hrs.	>30,000 hrs.	>70,000 hrs.	>30,000 hrs.
	Colors	16.7M	16.7M	16.7M	16.2M	16.2M
	LCD Viewing Angle (T/B/L/R)	80/60/80/80	70/70/80/80	89/89/89/89	88/88/88/88	89/89/89/89
	Pixel Pitch (mm)	0.1926(H) x 0.179(V)	0.2175 (H) x 0.2088 (V)	0.240 (H) x 0.240 (V)	0.297(H) x 0.297(V)	0.17925(H) x 0.17925(V)
Touch Panel	Type	4-wire Resistive Type	4-wire Resistive Type	4-wire Resistive Type	4-wire Resistive Type	Tempered Glass, Capacitive Type Hardness Scale 7 H
	Accuracy	Active Area Length(X)± 2%, Width(Y)± 2%	Active Area Length(X)±2%, Width(Y)±2%	Active Area Length(X)± 2%, Width(Y)±2%	Active Area Length(X)± 2%, Width(Y)± 2%	N/A
Memory	Flash	4 GB	4 GB	4 GB	4 GB	4 GB
	RAM	1 GB	1 GB	1 GB	1 GB	1 GB
Processor		Quad-core RISC	Quad-core RISC	Quad-core RISC	Quad-core RISC	Quad-core RISC
I/O Port	SD Card Slot	N/A	N/A	Micro SD x 1	SD/SDHC	N/A
	USB Host	USB 2.0 x 1	USB 2.0 x 1	USB 2.0 x 1	USB 2.0 x 1	USB 2.0 x 1
	Ethernet	LAN 1: 10/100 Base-T x 1 LAN 2: 10/100 Base-T x 1	LAN 1: 10/100/1000 Base-T x 1 LAN 2: 10/100 Base-T x 1	LAN 1: 10/100/1000 Base-T x 1 LAN 2: 10/100 Base-T x 1	LAN 1: 10/100/1000 Base-T x 1 LAN 2: 10/100 Base-T x 1	10/100 Base-T x 1
	WiFi	N/A	M02 WiFi Expansion Module (Optional)	N/A	N/A	N/A
	COM Port	Con.A: COM2 RS-485 2W/4W, COM3 RS-485 2W Con.B: COM1 RS-232 4W, COM3 RS-232 2W*	Con.A: COM2 RS-485 2W/4W, COM3 RS-485 2W Con.B: COM1 RS-232 4W, COM3 RS-232 2W*	Con.A: COM2 RS-485 2W/4W, COM3 RS-485 2W Con.B: COM1 RS-232 4W, COM3 RS-232 2W*	Con.A: COM1 RS-485 2W/4W, COM3 RS-485 2W Con.B: COM1 RS-232 4W, COM3 RS-232 2W*	Con.A: COM1 RS-485 2W/4W, COM3 RS-485 2W Con.B: COM1 RS-232 4W, COM3 RS-232 2W*
	RS-485 Dual Isolation	N/A	N/A	Yes	N/A	N/A
	Audio Output	N/A	N/A	N/A	Built-in Mono Speaker Audio Line Out - 3.5 mm jack x 1	Built-in Mono Speaker
RTC		Built-in	Built-in	Built-in	Built-in	Built-in
Power	Input Power	24± 20%VDC	24± 20%VDC	24±20%VDC	24± 20%VDC	24± 20%VDC
	Power Isolation	Built-in	Built-in	Built-in	Built-in	Built-in
	Power Consumption	820mA@24VDC	1A@24VDC	1.2A@24VDC	1.3A@24VDC	0.9A@24VDC
	Voltage Resistance	500VAC (1 min.)	500VAC (1 min.)	500VAC (1 min.)	500VAC (1 min.)	500VAC (1 min.)
	Isolation Resistance	Exceed 50MΩ @ 500VDC	Exceed 50MΩ @ 500VDC	Exceed 50MΩ @ 500VDC	Exceed 50MΩ @ 500VDC	Exceed 50MΩ @ 500VDC
Specification	PCB Coating	Yes	Yes	Yes	Yes	Yes
	Enclosure	Plastic	Plastic	Plastic	Aluminum	Front bezel: Plastic, Rear Enclosure: Aluminum
	Dimensions WxHxD	200.3 x 146.3 x 35.0 mm	271 x 213 x 38 mm	317 x 243 x 41 mm	366 x 293 x 48.2mm	400 x 263 x 27.6 mm
	Panel Cutout	192 x 138 mm	260 x 202 mm	305 x 231 mm	352 x 279 mm	384 x 247 mm
	Weight	Approx. 0.6 kg	Approx. 1.2 kg	Approx. 1.7 kg	Approx. 2.74 kg	Approx. 1.6 kg
	Mount	Panel mount	Panel mount, VESA mount 75 x 75 mm	Panel mount, VESA mount 75 x 75 mm	Panel mount, VESA mount 75 x 75 mm	Panel mount, VESA mount 100 x 100 mm
Environment	Protection Structure	UL Type 4X (indoor use only) / NEMA4 / IP66 Compliant Front Panel	UL Type 4X (indoor use only) / NEMA4 / IP66 Compliant Front Panel	UL Type 4X (indoor use only) / NEMA4 / IP66 Compliant Front Panel	UL Type 4X (indoor use only) / NEMA4 / IP66 Compliant Front Panel	NEMA4 / IP66 Compliant Front Panel
	Storage Temperature	-20° ~ 60° C (-4° ~ 140° F)	-20° ~ 60° C (-4° ~ 140° F)	-20° ~ 60° C (-4° ~ 140° F)	-20° ~ 60° C (-4° ~ 140° F)	-20° ~ 60° C (-4° ~ 140° F)
	Operating Temperature	0° ~ 55° C (32° ~ 131° F)	0° ~ 50° C (32° ~ 122° F)	0° ~ 55° C (32° ~ 131° F)	0° ~ 50° C (32° ~ 122° F)	0° ~ 50° C (32° ~ 122° F)
	Relative Humidity	10% ~ 90% (non-condensing)	10% ~ 90% (non-condensing)	10% ~ 90% (non-condensing)	10% ~ 90% (non-condensing)	10% ~ 90% (non-condensing)
	Vibration Endurance	10 to 25Hz (X, Y, Z direction 2G 30 minutes)	10 to 25Hz (X, Y, Z direction 2G 30 minutes)	10 to 25Hz (X, Y, Z direction 2G 30 minutes)	10 to 25Hz (X, Y, Z direction 2G 30 minutes)	10 to 25Hz (X, Y, Z direction 2G 30 minutes)
Certificate	CE	CE marked	CE marked	CE marked	CE marked	CE marked
	UL	cULus Listed	cULus Listed	cULus Listed	cULus Listed	
Software	Weincloud	EasyAccess 2.0 (Optional) Dashboard (Optional)	EasyAccess 2.0 (Optional) Dashboard (Optional)	EasyAccess 2.0 (Optional) Dashboard (Optional)	EasyAccess 2.0 (Optional) Dashboard (Optional)	EasyAccess 2.0 (Optional) Dashboard (Optional)
	CODESYS	Optional	Optional	Optional	Optional	N/A

*Only Tx & Rx (no RTS/CTS) may be used for COM1 RS-232 when COM3 RS-232 is also used.
*The cMT2108X2 (V2) / cMT2158X (V2) product label indicates MPI support, while the original cMT2108X2 / cMT2158X label does not.

Figure 4: Comprehensive specifications table for various Arionyx CMT X series HMI models, including detailed technical data for the CMT2166X, covering display, processor, I/O, power, and environmental conditions.

8. Warranty and Support

Arionyx products are backed by a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official Arionyx website.
For technical support, service, or inquiries regarding your CMT2166X HMI, please contact Arionyx customer service through their official website or the contact information provided in your product documentation. When contacting support, please have your model number (CMT2166X) and serial number ready.

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