

TOUCH TERMINALS

HMx700 Series Instruction Manual



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1. Introduction

This instruction manual contains information about the installation, transportation, storage, assembly, use and maintenance of touch terminals of the HMx700 series.

The following models are available:

- HMx705: Touch terminal with 5" TFT color widescreen, multi-touch capacitive touchscreen
- HMx707: Touch terminal with 7" TFT color widescreen, multi-touch capacitive touchscreen
- HMx710: Touch terminal with 10.1" TFT color widescreen, multi-touch capacitive touchscreen
- HMx715: Touch terminal with 15.6" TFT color widescreen, multi-touch capacitive touchscreen
- HMx721: Touch terminal with 21.5" TFT color widescreen, multi-touch capacitive touchscreen

2. Important symbols

One or more of the following symbols may be used in this documentation to indicate the type of hazard.

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in serious or moderate injury.

Notice

Indicates a property damage message.

3. Special instructions for use

- The product shall only be used in an area of not more than pollution degree 2, as defined in IEC/EN 60664-1.
- The product shall be installed in an enclosure that provides a degree of protection not less than IP54 in accordance with IEC/EN 60079-15.
- Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the product.
- Install the product according to the accompanying installation instructions.
- Ground the product according to the accompanying installation instructions.
- Only qualified personnel may install or repair the product.
- Ensure that the ventilation holes are not covered.
- Care shall be taken to avoid that layers of dust form on the touch terminals in a way that might cause the accumulation of static charges.
- Keep the faceplate of the product clean. The product must be cleaned only with a soft cloth and neutral soap product. Do not use solvents.
- This product should not be used for purposes and methods other than indicated in this document and in the documentation accompanying the product.

4. Standards and approvals

The products have been designed for use in an industrial environment in compliance with the 2014/30/EU EMC Directive.

The products have been designed in compliance with:

EN 61000-6-4 CISPR 22 Class A
 CISPR 16-2-3

EN 61000-6-2 EN 61000-4-2
 EN 61000-4-3
 EN 61000-4-4
 EN 61000-4-5
 EN 61000-4-6
 EN 61000-4-8
 EN 61000-4-11
 EN 61000-4-29

EN 60945

The installation of these products into the residential, commercial and light-industrial environments is allowed only in the case that special measures are taken in order to ensure conformity to EN 61000-6-3.

The products are in compliance with the Restrictions on Certain Hazardous Substances (RoHS) Directive 2011/65/EU.

In compliance with the above regulations the products are CE marked.

5. Product overview

The HMx700 series touch terminals combine state-of-the-art connectivity features and top performance with an outstanding design.

The products have been designed as IoT edge devices. They combine a powerful controller with networking capability (up to 3 Ethernet networks) and outstanding communication options including client/server OPC UA. They are the ideal choice for all demanding IoT edge applications including factory, marine and building automation.

The glass projected capacitive touchscreen with a brilliant display up to 21.5" and a resolution of 1920x1080 guarantees great optical performance. With the support of multi-touch gesture programming the HMx700 series touch terminals can provide the most natural human interfaces.

The HMx700 series touch terminals have been designed to run the HMWIN software for powerful HMI applications.

- OPC UA server / client gateway
- Secure connectivity with Corvina Cloud and full network separation
- Powerful browser with industry standard web engines
- Optional plug-in modules

6. Product identification

The product may be identified through a plate attached to the rear cover. You will have to know the product type you are using for correct usage of the information contained in the guide.

The following information is provided by the plate:

- Product model name
- Product part number
- Year/week of production
- Version ID of the product
- Serial number

7. Technical data common to all models

7.1 Hardware specifications

Touchscreen technology	Projected capacitive
Real-time clock back-up battery	3V, 50mAh lithium, rechargeable, not user-replaceable, model VL2330
Fuse	Automatic
Serial port	RS232, RS485, RS422 software configurable
Flash	4GB (HMx705, HMx707, HMx710) 8GB (HMx715, HMx721)
RAM	512MB (HMx705) 1GB (HMx707, HMx710) 2GB (HMx715, HMx721)
Hardware clock	Clock/calendar with back-up battery
Accuracy real-time clock (at 25°C)	<100ppm

7.2 Environmental conditions

Operating temperature (surrounding air temperature)	-20 to +60°C (vertical installation) Plug-in modules and USB devices may limit max. temperature to +50°C	EN 60068-2-14
Storage temperature	-20 to +70°C	EN 60068-2-1 EN 60068-2-2 EN 60068-2-14
Operating and storage humidity	5–85% RH not-condensing	EN 60068-2-30
Vibrations	5–9Hz, 7mm _{p-p} 9–150Hz, 1g	EN 60068-2-6
Shock	±50g, 11ms, 3 pulses per axis	EN 60068-2-27
Degree of protection	IP66 (front) IP20 (rear)	EN 60529

7.3 Electromagnetic compatibility (EMC)

Radiated disturbance test	Class A	CISPR 22 CISPR 16-2-3
Electrostatic discharge immunity test	8kV (air electrostatic discharge) 4kV (contact electrostatic discharge)	EN 61000-4-2
Radiated, radio frequency, electromagnetic field immunity test	80MHz–1GHz, 10V/m 1.4–2GHz, 3V/m 2–2.7GHz, 1V/m	EN 61000-4-3
Burst immunity test	±2KV DC power port ±1KV signal line	EN 61000-4-4
Surge immunity test	±0.5KV DC power port (line to earth) ±0.5KV DC power port (line to line) ±1KV signal line (line to earth)	EN 61000-4-5
Immunity to conducted disturbances induced by radio frequency field	0.15–80MHz, 10V	EN 61000-4-6
Power frequency magnetic field immunity test	Enclosure, 50/60Hz, 30A/m	EN 61000-4-8

7.4 Durability information

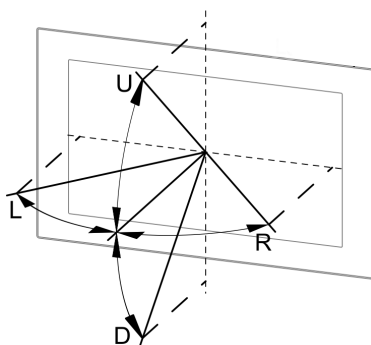
Backlight service life (LED type)	40000 hours or more (Time of continuous operation until the brightness of the backlight reaches 50% of the rated value when the surrounding air temperature is 25°C, see note*)
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* Extended use in environments where the surrounding air temperature is 40°C or higher may degrade backlight quality, reliability or durability.

7.5 Viewing angles

The viewing angles for the horizontal (L, R) and vertical (U, D) axes are specified in reference to the vertical axis of the display. The viewing angles always refer to the standard mounting orientation.

For the viewing angle values (U, D, R, L), refer to the technical data of the respective touch terminal model.



U: From top D: From bottom
L: From left R: From right

7.6 Surface resistance

The HMx700 series front glass is resistant (no visible changes) to the following chemicals after an application time of 24 hours:

- Betadine (10% povidone solution)
- Cola
- Electrode gel/paste
- Hydrogen peroxide (3% solution)
- NaCl (0.9% solution)
- Coffee
- Dextrose (5% glucose solution)
- Hydrogen chloride (0.5% solution pH=1)
- Isopropyl alcohol
- Sodium hypochlorite
- Ethyl alcohol (70–90%)
- Quaternary ammonium compound

8. Technical data by model

8.1 HMx705, HMx707, HMx710

Model	HMx705	HMx707	HMx710
Display / Backlight	TFT Color / LED		
Colors	64K	16M	
Resolution	800x480		1280x800
Display size (inch)	5" widescreen	7" widescreen	10.1" widescreen
Dimming	yes (to 0%)		
Brightness	300cd/m ² typ.	500cd/m ² typ.	
Horizontal viewing angle	L/R: typ. 70°		L/R: typ. 85°
Vertical viewing angle	U: typ. 50°, D: typ. 70°	U: typ. 50°, D: typ. 60°	U/D: typ. 85°
User memory flash	4GB		
SD card slot	yes		
RAM	512MB	1GB	
Operating system	Linux RT		
CPU	ARM Cortex-A8, 1GHz	ARM Cortex-A9 dual core, 800MHz	
Serial port	1 (RS232, RS485, RS422 software configurable)		
Ethernet port	2x 10/100Mbit	2x 10/100Mbit 1x 10/100/1000Mbit	
USB port	1 host interface version 2.0, max. 500mA	2 host interfaces version 2.0, max. 500mA	
Expansion slot	1 optional plug-in	2 optional plug-ins	
Battery	rechargeable		
Real-time clock	yes		
Voltage	24V DC (see note*)		
Current rating (at 24V DC)	0.6A	0.7A	1A
Weight	1kg	1.3kg	1.7kg

* 10–32V DC

For applications requiring compliance with EN 61131-2 and specifically in reference to 10ms voltage dips (according to EN 61000-4-29), the lower power supply voltage limit is 20.4V DC.

8.2 HMx715, HMx721

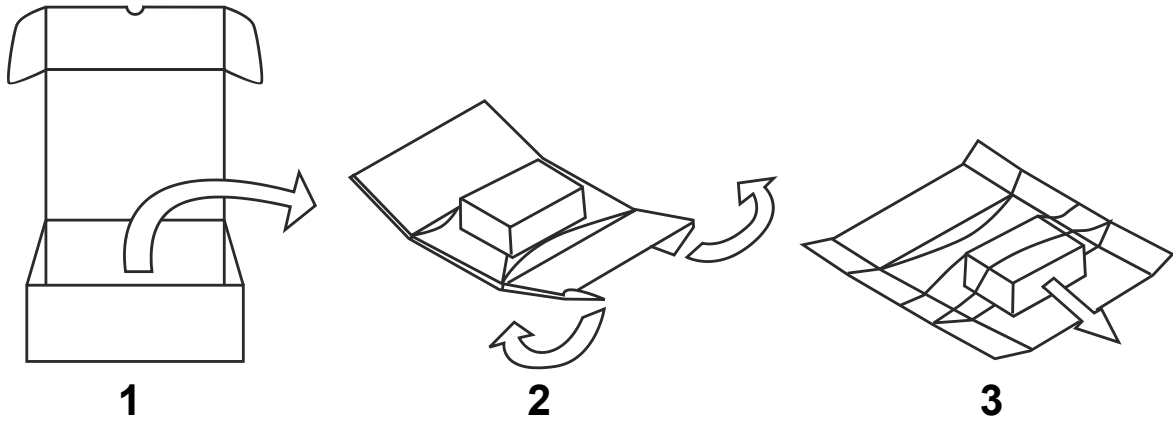
Model	HMx715	HMx721
Display / Backlight	TFT Color / LED	
Colors	16M	
Resolution	1366x768	1920x1080
Display size (inch)	15.6" widescreen	21.5" widescreen
Dimming	yes (to 0%)	
Brightness	400cd/m ² typ.	300cd/m ² typ.
Horizontal viewing angle	L/R: typ. 80°	L/R: typ. 89°
Vertical viewing angle	U/D: typ. 75°	U/D: typ. 89°
User memory flash	8GB	
SD card slot	yes	
RAM	2MB	
Operating system	Linux RT	
CPU	ARM Cortex-A9 quad core, 800 MHz	
Serial port	1 (RS232, RS485, RS422 software configurable)	
Ethernet port	2x 10/100Mbit 1x 10/100/1000Mbit	2x 10/100Mbit with integrated switch 1x 10/100/1000Mbit
USB port	2 host interfaces version 2.0, max. 500mA	
Expansion slot	2 optional plug-ins	
Battery	rechargeable	
Real-time clock	yes	
Voltage	24V DC (see note*)	
Current rating (at 24V DC)	1.2A	1.7A
Weight	4.1kg	6.1kg

* 10–32V DC

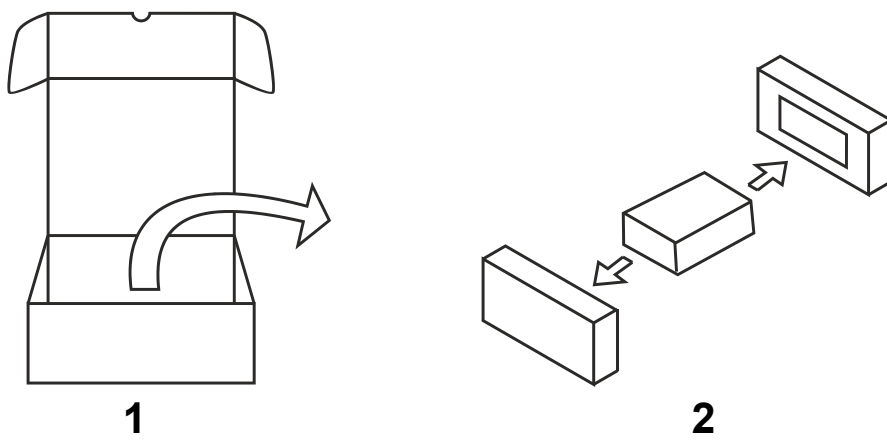
For applications requiring compliance with EN 61131-2 and specifically in reference to 10ms voltage dips (according to EN 61000-4-29), the lower power supply voltage limit is 20.4V DC.

9. Unpacking and packing instructions

HMx705, HMx707, HMx710



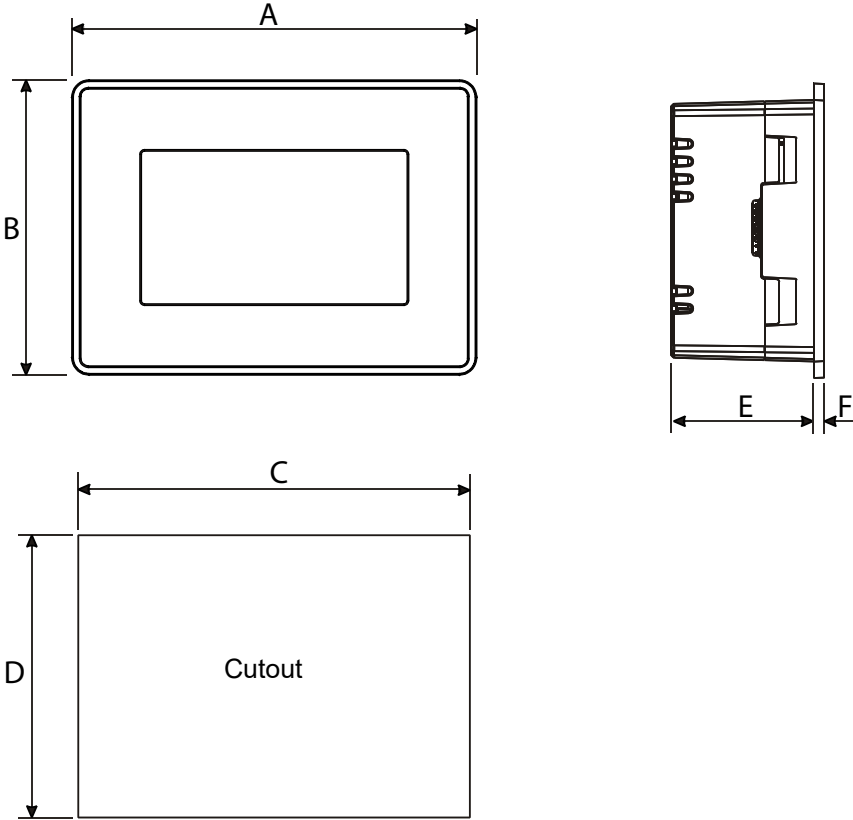
HMx715, HMx721



To repack the product, please follow the instructions backwards.

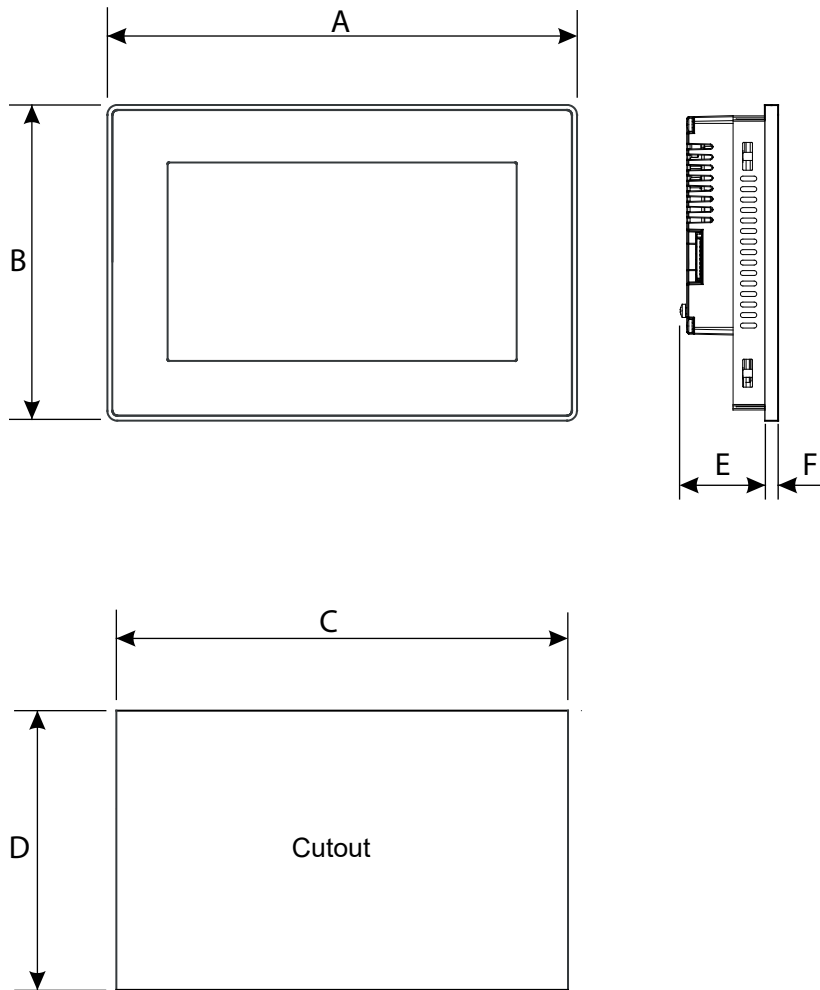
10. Product dimensions

10.1 HMx705



Model	A	B	C	D	E	F
HMx705	147mm	107mm	136mm	96mm	56mm	8mm

10.2 HMx707, HMx710, HMx715, HMx721



Model	A	B	C	D	E	F
HMx707	187mm	147mm	176mm	136mm	47mm	8mm
HMx710	282mm	197mm	271mm	186mm	56mm	8mm
HMx715	422mm	267mm	411mm	256mm	56mm	8mm
HMx721	552mm	347mm	541mm	336mm	56mm	8mm

11. Installation

11.1 Installation environment

The product is not intended for continuous exposure to direct sunlight. There is a risk that the product might be overheating.

The product is not intended for installation in contact with corrosive chemical compounds. Check the resistance of the front panel film to a specific compound before installation.

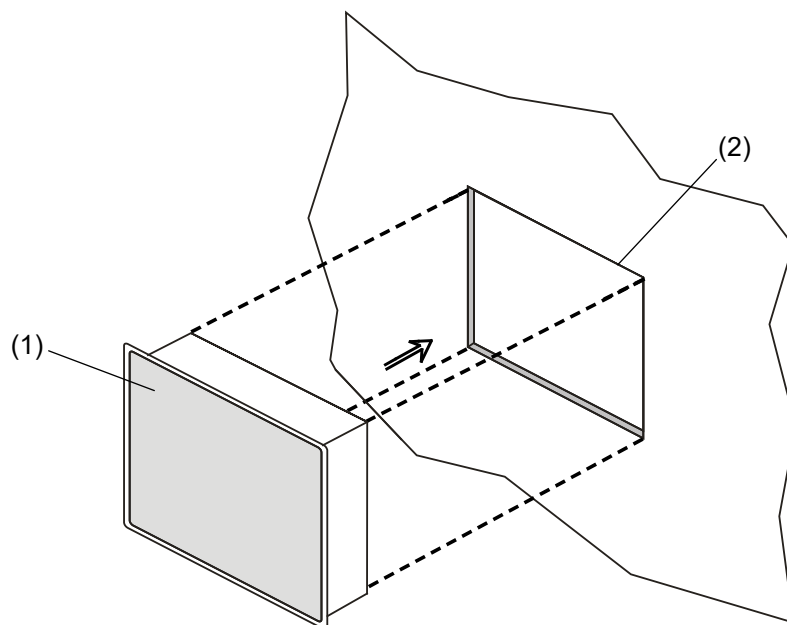
Do not use tools of any kind (screwdrivers, etc.) to operate the touchscreen of the product.

In order to meet the front panel protection classifications, proper installation procedure must be followed:

- The borders of the cutout must be flat.
- Each fixing screw must be tightened until the plastic bezel corner get in contact with the panel.
- The cutout for the panel must be of the dimensions indicated in this manual.

IP66 is guaranteed only if:

- The max. deviation from the plane surface to the cutout is $\leq 0.5\text{mm}$.
- The thickness of the case where the product is mounted is from 1.5mm to 6mm.
- The max. surface roughness where the gasket is applied is $\leq 120\mu\text{m}$.

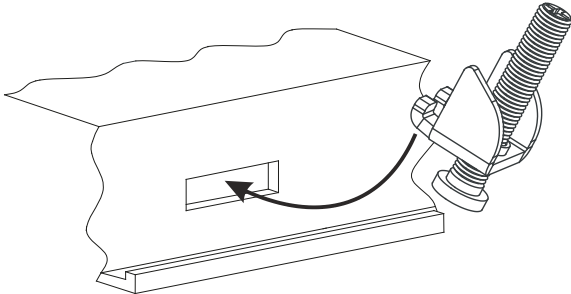


(1) HMX700 series touch terminal

(2) Installation cutout

11.2 Installation procedure

For details on installation, please refer to the Installation Guide provided with the product. Place the fixing brackets contained in the fixing kit as shown in the following figure.



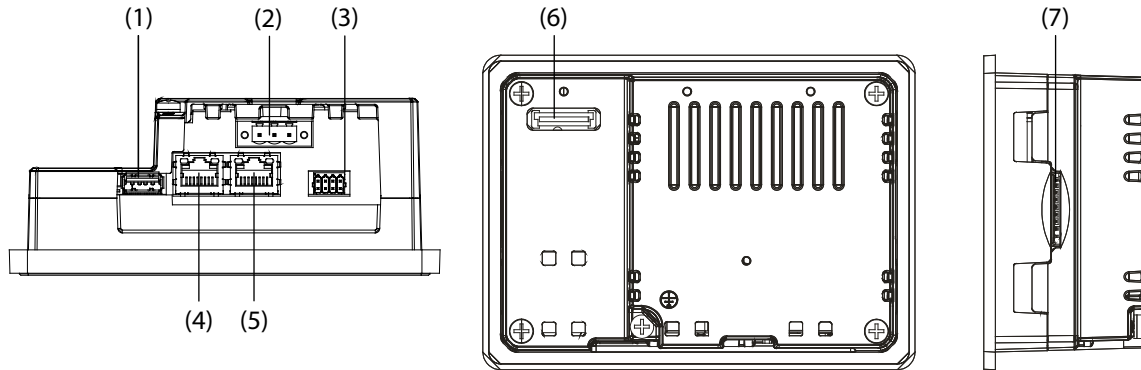
! Notice

Make sure to screw each fixing screw until the bezel corner gets in contact with the product.

Tightening torque: 130Ncm

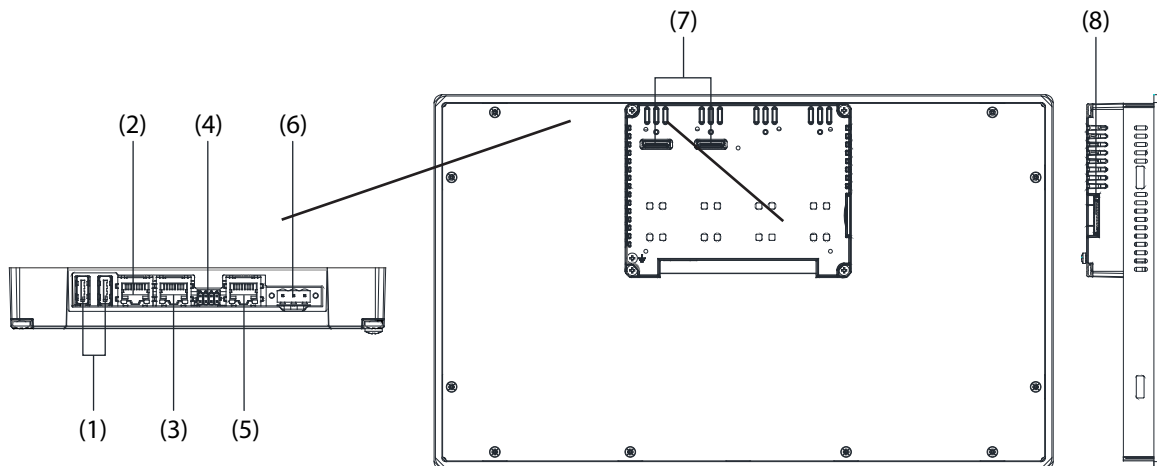
12. Connections

12.1 HMx705



- (1) USB port (V2.0, max. 500mA, for maintenance only)
- (2) Power supply
- (3) Serial port
- (4) Ethernet port 0 (10/100Mbit)
- (5) Ethernet port 1 (10/100Mbit)
- (6) Expansion slot for plug-in module
- (7) SD card slot

12.2 HMx707, HMx710, HMx715, HMx721



- (1) USB port (V2.0, max. 500mA, for maintenance only)
- (2) Ethernet port 2 (10/100Mbit)
- (3) Ethernet port 1 (10/100Mbit)
- (4) Serial port
- (5) Ethernet port 0 (10/100/1000Mbit)
- (6) Power supply
- (7) 2x expansion slot for plug-in module
- (8) SD card slot

12.3 Serial port

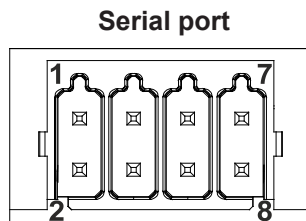
The serial port is used to communicate with the PLC or with another type of controller.

Standards available for the signals in the PLC port connector are: RS232, RS422, RS485. Use the corresponding communication cable for the connection.

The serial port is software programmable. Make sure you select the appropriate interface in the programming software.

RS232

Pin	Description
1	RX
2	TX
3	CTS
4	RTS
5	+5V output
6	GND
7	
8	SHIELD



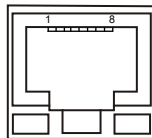
RS422, RS485

Pin	Description
1	CHB-
2	CHA-
3	CHB+
4	CHA+
5	+5V output
6	GND
7	
8	SHIELD

For RS485, pins 1-2 and 3-4 must be connected externally.

12.4 Ethernet port

The Ethernet port has two LED status indicators. They work as shown in the following figure.



Yellow LED

Off: Valid link has not been detected

On: Valid link has been detected

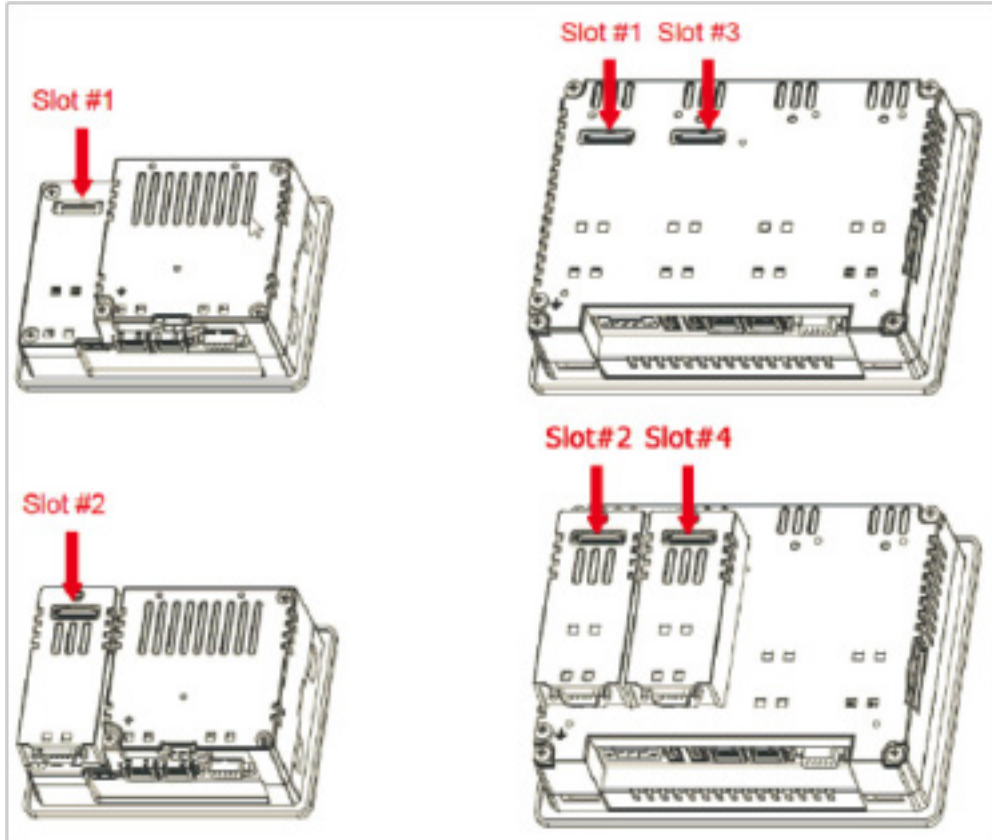
Green LED

On: No activity

Blinking: Activity

12.5 Optional plug-ins

There are two communication cassettes available for the HMx700 series. Depending on the touch terminal type, there are one or two expansion slots.



Slot #2 and slot #4 are available only if the plug-in module is equipped with the bus extension connector.

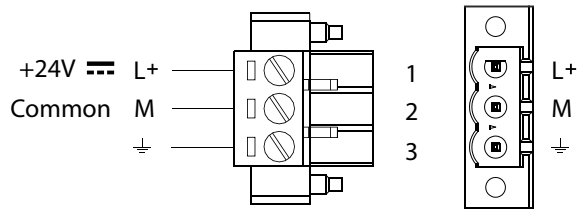
Module	Application	Max. No. of plug-ins	Bus extension connector
PLCM03	Serial RS232	2	Yes
PLCM04	Serial RS485	2	Yes

If you are planning to use PLCM03 and PLCM04 (additional serial ports), the COM port numbers will be assigned as follows:

- A module plugged in slot #1 or slot #2 will be COM2.
- A module plugged in slot #3 or slot #4 will be COM3.

12.6 Power supply, grounding, and shielding

The power supply terminal block is shown in the following figure.



3 conductors, minimum 1.5mm² wire diameter, minimum temperature conductor rating 105°C

NOTE

Make sure that the power supply has sufficient power capacity for the operation of the product.

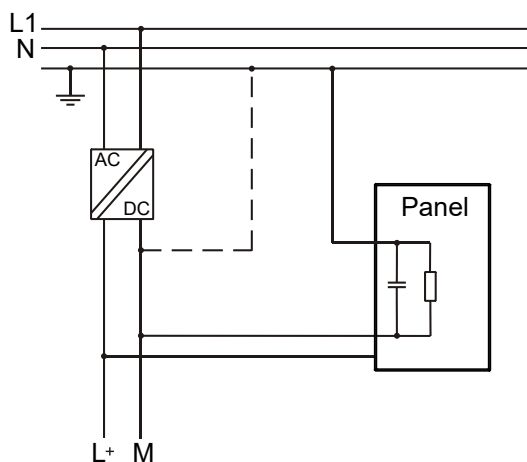
The product must always be grounded to earth using a wire with a minimum diameter of 1.5mm². Grounding helps limit the effects of noise due to electromagnetic interference on the control system.

Earth connection will have to be done using either the screw or the faston terminal located near the power supply terminal block. A label identifies the ground connection. Also ground the terminal 3 on the power supply terminal block.

The power supply circuit may be floating or grounded. In the latter case, the power source common is connected as indicated with a dashed line in the following figure.

When using the floating power scheme, note that internally the power common is connected to the ground with a 1MΩ resistor in parallel with a 4.7nF capacitor.

The power supply must have double or reinforced insulation. The suggested wiring for the power supply is shown in the following figure.

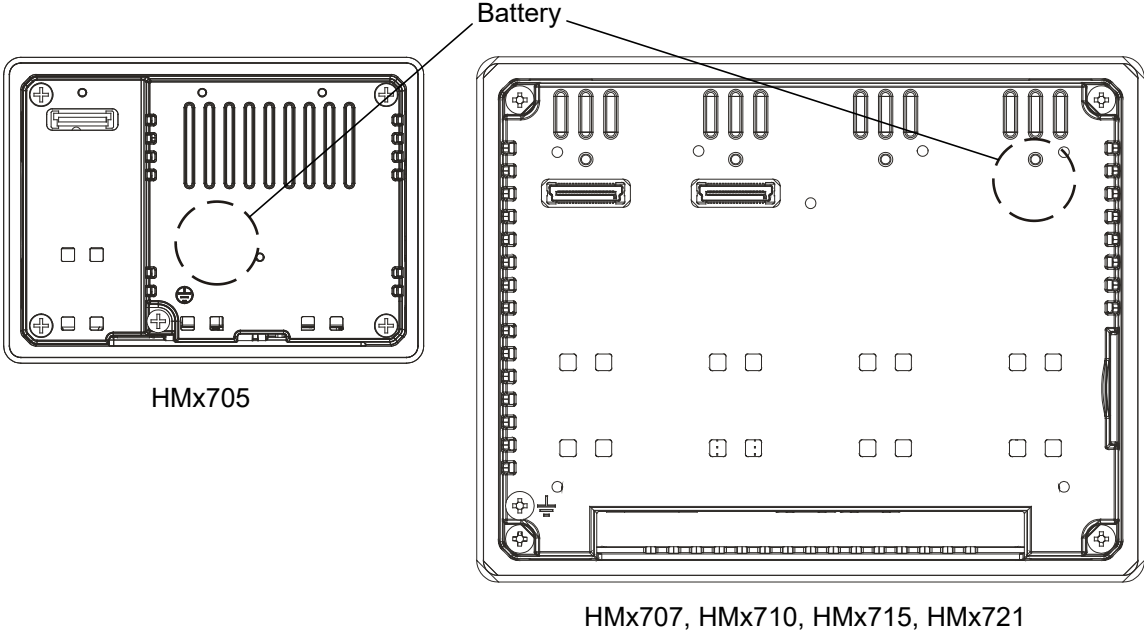


All the electronic devices in the control system must be properly grounded. Grounding must be performed according to applicable regulations.

13. Battery

The touch terminals are equipped with rechargeable lithium batteries that are not user-replaceable. The battery is needed to keep the real-time clock running (date and time).

When the touch terminal is installed for the first time, the battery must be charged for 48 hours. When the battery is fully charged, data backup at 25°C is guaranteed for 3 months.



14. Getting started

The HMx700 series touch terminals must be programmed with the programming software HMWIN Studio (starting from v2.6), a Windows application.

There are two options to transfer a HMWIN application project to a touch terminal:

Ethernet Connect the touch terminal via the Ethernet interface to a personal computer running the HMWIN Studio software. Select “Run/Download to target” in HMWIN Studio.

Make sure that the firewall policy is configured in a way that allows HMWIN Studio to access the network.

USB Create an update package using the HMWIN Studio software and copy it to a USB flash drive.

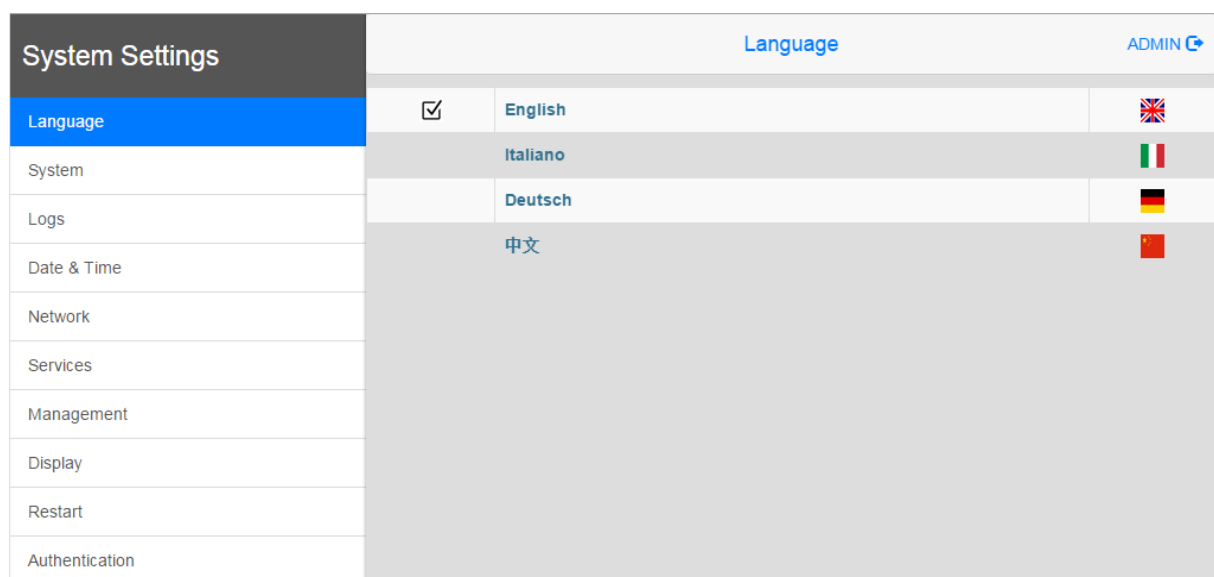
15. System settings tool

15.1 Introduction

The HMx700 series touch terminals have a system settings interface to allow the configuration of system options.

The user interface of “System Settings” is based on HTML pages accessible locally on the touch terminal or remotely using a web browser, e.g. Chrome v44 or higher on port 443. To connect, enter the address `https://IP/machine_config`. “IP” represents the address of the touch terminal. The default user name is “admin”, and the default password is “admin”.

Use the navigation menu on the left side of the screen to browse through the available options.



On the left side, the selected menu item is highlighted. The right side shows related information and settings. Depending on the size of the touch terminal, menu and content of the selected menu item may not be displayed next to each other on the screen.

The system settings interface has two operating modes:

- User mode** HMWIN runtime is running or the status of the touch terminal is set to “factory default”.
- System mode** HMWIN runtime is not running or there is a software failure. The system mode includes all options available in user mode. In addition, the system mode offers commands dedicated to system upgrade and recovery which are not available in user mode.

15.2 Activation of system settings in user mode

Factory default status Touch the “System Setting” button on the touch terminal.

HMWIN runtime running To activate the system settings in user mode, touch and hold any unused area of the touchscreen for a few seconds to access the context menu. The default holding time is 2 seconds.

15.3 Activation of system settings in system mode

Normal operation	<p>If HMWIN runtime is not running: Touch the “System Setting” button on the touch terminal to open the system settings in user mode. Select “Restart” > “Config OS” to reboot in system mode.</p> <p>If HMWIN runtime is running: To activate the system settings in user mode, touch and hold any unused area of the touchscreen for a few seconds to access the context menu. The default holding time is 2 seconds. Select “Restart” > “Config OS” to reboot in system mode.</p>
Recovery operation	<p>If the touch terminal is not responsive, tap on the surface of the touchscreen during the power-up phase. The tapping frequency must be high. Start tapping the touchscreen as soon as power has been supplied to the product. The message “TAP-TAP DETECTED” appears when the operating sequence has been recognized. Release the touchscreen to boot in user mode without running HMWIN runtime or touch and hold the touchscreen for a few seconds. Then select “Restart” > “Config OS” to boot in system mode.</p>

15.4 Options available in system settings

The following important basic setting options of the touch terminal are available:

Language	Configure the language used for the system setting menu only.
System	Shows information about platform, status and timers (e.g. system on time, backlight on time).
Logs	Enable continuous log for BSP and allows to export it.
Date & Time	Change the date and time of the product, including time zone and NTP server.
Network	Configure the IP address of the Ethernet interface and the other network settings, e.g. DNS, gateway, DHCP, hostname, routing and bridging.
Services	Enable/disable services, e.g. OpenSSH server, bridge, cloud services, router, SNMP and logging.
Management	Update BSP components (Main OS, Config OS, Boot loader, XLoader), check partition consistency, update the splash screen, show the usage and size of partitions. The update of “Main OS” is only available in system mode. The update of “Config OS” is only available in user mode.
Display	Adjust the display brightness, configure automatic backlight turnoff and select HMI orientation (90°, 180°, 270° and 360°).
Restart	Restart the product. Select “Main OS” to restart the product in user mode. Select “Config OS” to restart the panel in system mode and open the system settings.
Authentication	Configure the administrator (“admin”) and standard user (“user”) password. An administrator has full access to the “System Settings” (e.g. BSP updates and other system components). A standard user has some limitations.

NOTE

The system settings tool includes also other options that are not described and not documented in this manual. For details, please refer to the HMWIN User Manual.

16. Disposal



Used electrical and electronic products must not be placed in general household waste. For proper treatment, recovery and recycling of old products, take them to applicable collection points in accordance with your national legislation.



By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment.

For more information about collection and recycling, please contact your local municipality.



Dispose of batteries according to local regulations.

17. Record of changes

Manual No.	Date	Description of changes
ACGM0197V1EN	February 2019	First edition based on the eX700 Series Operating Instructions version 2.04
ACGM0197V2EN	February 2021	Second edition based on the eX700 Series Operating Instructions version 2.09 <ul style="list-style-type: none"> • Added information about the chemical resistance of the front glass • Corrected the product number • Corrected the reference standard regarding the power supply range (10–32V DC) • Added brightness, operating system and CPU information • Updated the back page • Corrected the PEWEU manual version number on front and back cover
ACGM0197V3EN	April 2021	Third edition <ul style="list-style-type: none"> • Added information about the viewing angles of the displays • Updated website URL

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▶ Austria	Panasonic Industry Austria GmbH	Josef Madersperger Str. 2, 2362 Biedermannsdorf, Tel. +43 (0) 2236-26846, Fax +43 (0) 2236-46133 www.panasonic-electric-works.at
	Panasonic Industrial Devices Materials Europe GmbH	Ennshafenstraße 30, 4470 Enns, Tel. +43 (0) 7223 883, Fax +43 (0) 7223 88333, www.panasonic-electronic-materials.com
▶ Benelux	Panasonic Electric Works Sales Western Europe B.V.	De Rijn 4, 5684 PJ Best, Netherlands, Tel. +31 (0) 499 372727, www.panasonic-electric-works.nl
▶ Czech Republic	Panasonic Electric Works Europe AG, organizační složka	Administrative centre PLATINIUM, Veveří 3163/111, 616 00 Brno, Tel. +420 541 217 001, Fax +420 541 217 101, www.panasonic-electric-works.cz
▶ France	Panasonic Electric Works Sales Western Europe B.V.	Succursale française, 10, rue des petits ruisseaux, 91370 Verrières Le Buisson, Tél. +33 (0) 1 6013 5757, Fax +33 (0) 1 6013 5758, www.panasonic-electric-works.fr
▶ Germany	Panasonic Electric Works Europe AG	Caroline-Herschel-Strasse 100, 85521 Ottobrunn, Tel. +49 89 45354-1000, Fax +49 89 45354-2111, www.panasonic-electric-works.de
▶ Hungary	Panasonic Electric Works Europe AG	Magyarországi Fióktelepe, 1117 Budapest, Alíz utca 4, Tel. +43 (0) 2236 26846 -25, Fax +43 (0) 2236 46133 www.panasonic-electric-works.hu
▶ Ireland	Panasonic Electric Works UK Ltd.	Irish Branch Office, Dublin, Tel. +353 (0) 14600969, Fax +353 (0) 14601131, www.panasonic-electric-works.co.uk
▶ Italy	Panasonic Industry Italia srl	Via del Commercio 3-5 (Z.I. Ferlina), 37012 Bussolengo (VR), Tel. +39 0456752711, Fax +39 0456700444, www.panasonic-electric-works.it
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	Panasonic Fire & Security Europe AB	Jungmansgatan 12, 21119 Malmö, Tel. +46 40 697 7000, Fax +46 40 697 7099, www.panasonic-fire-security.com
▶ Poland	Panasonic Industry Poland sp. z o.o.	Ul. Dowborczyków 25, 90-019 Łódź, Polska, Tel. +48 42 2309633, www.panasonic-electric-works.pl
▶ Spain	Panasonic Industry Iberia S.A.	Barajas Park, San Severo 20, 28042 Madrid, Tel. +34 913293875, Fax +34 913292976, www.panasonic-electric-works.es
▶ Switzerland	Panasonic Industry Switzerland AG	Grundstrasse 8, 6343 Rotkreuz, Tel. +41 (0) 41 7997050, Fax +41 (0) 41 7997055, www.panasonic-electric-works.ch
▶ United Kingdom	Panasonic Electric Works UK Ltd.	Sunrise Parkway, Linford Wood, Milton Keynes, MK14 6LF, Tel. +44 (0) 1908 231555, Fax +44 (0) 1908 231599, www.panasonic-electric-works.co.uk

North & South America

▶ USA	Panasonic Industrial Devices Sales Company of America	Two Riverfront Plaza, 7th Floor, Newark, NJ 07102-5490, Tel. 1-8003-442-112, www.pewa.panasonic.com
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▶ Japan	Panasonic Corporation	1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8501, Japan, Tel. +81-6-6908-1121, www.panasonic.net
▶ Singapore	Panasonic Industrial Devices Automation Controls Sales Asia Pacific	No.3 Bedok South Road, Singapore 469269, Tel. +65-6299-9181, Fax +65-6390-3953