Panasonic®

TOUCH TERMINALS

HMs700 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 HMs700 series.

The following models are available:

- HMs705:
  Touch terminal with 5" TFT color widescreen, multi-touch capacitive touchscreen, Ethernet port PoE

- HMs707:
  Touch terminal with 7" TFT color widescreen, multi-touch capacitive touchscreen, Ethernet port PoE

- HMs710:
  Touch terminal with 10.1" TFT color widescreen, multi-touch capacitive touchscreen, Ethernet port PoE

- HMs715:
  Touch terminal with 15.6" TFT color widescreen, multi-touch capacitive touchscreen, Ethernet port PoE

- HMs721:
  Touch terminal with 21.5" TFT color widescreen, multi-touch capacitive touchscreen, Ethernet port PoE

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 minor 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.

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

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

4.1 HMs705

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

The product complies with the following standards:

EN 61000-6-4	EN 61000-4-2
EN 61000-6-3	EN 61000-4-3
EN 61000-6-2	EN 61000-4-4
EN 61000-6-1	EN 61000-4-5
	EN 61000-4-6
	EN 61000-4-8

4.2 HMs707, HMs710, HMs715, HMs721

The products have been designed for use in an industrial environment in compliance with the 2014/53/EU EMC Directive.

The products comply with the following standards:

EN 61000-6-4

EN 61000-6-2

EN 61000-6-3

EN 61000-6-1

ETSI EN 301 489-1

ETSI EN 301 489-17

ETSI EN 300 328

EN 62311

EN 61010-1

EN 61010-2-201

Standard radio signal: Wi-Fi 2,4 GHz (calculated according to EN 62311)

Minimum distance form the body: 2 cm (calculated according to EN 62311)

The Wi-Fi antenna is positioned behind the black band above the display.

5. Product overview

The HMs700 series touch terminals are ideal for field installation in critical areas. They are equipped with a high resolution display and a multi-touch capacitive touchscreen with a robust glass front.

Power over Ethernet (PoE) technology is available for maximum connectivity through standard CAT5 wiring. The HMs700 series can be installed under difficult environmental conditions (IP67 protection) and can be mounted to all standardized support arm systems. The product features environment and motion sensors and has been designed as IIoT edge device for Industry 4.0 applications.

The HMs700 series touch terminals have been optimized to run the HMWIN software for powerful HMI applications.

- Open platform for Linux applications
- OPC UA server / client gateway
- Integrated sensors (temperature and acceleration)
- Powerful browser with industry standard web engines
- Wi-Fi (HMs707, HMs710, HMs715, HMs721)

6. Technical data common to all models

6.1 Hardware specifications

Touchscreen technology	Projected capacitive, multi-touch
Real-time clock back-up battery	3V, 7mAh lithium, rechargeable, not user-replaceable, model VL1220
Flash	4GB (HMs705, HMs707, HMs710) 8GB (HMs715, HMs721)
RAM	1GB (HMs705, HMs707, HMs710) 2GB (HMs715, HMs721)
Hardware clock	Clock/calendar with back-up battery
Accuracy real-time clock (at 25°C)	<100ppm

6.2 Environmental conditions

Operating temperature (surrounding air temperature)	-20 to +55°C (vertical installation)	EN 60068-2-14
Storage temperature	-30 to +80°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	IP67 (requires appropriate accessories and cables)	EN 60529

6.3 Electromagnetic compatibility (EMC)

Radiated disturbance test	Class A (HMs707, HMs710, HMs715, HMs721) Class B (HMs705)	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 inducted 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

## 6.4 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*)

*   Extended use in environments where the surrounding air temperature is 40°C or higher may degrade backlight quality, reliability or durability.

6.5 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.
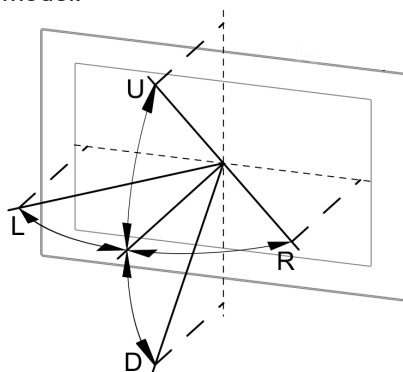
U: From top   D: From bottom

L: From left   R: From right

6.6 Surface resistance

The HMs700 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

6.7 Touchscreen properties

- Multi-touch operation: up to 5 fingers simultaneously
- Glove operation: supported
  Projected capacitive touchscreens (PCAP) are suitable for operation with or without gloves. A large number of gloves (rubber gloves, light/heavy leather gloves, disposable latex gloves, etc.) are supported. However, due to the variety of commercially available gloves, we cannot guarantee the operation with all glove types.
- Passive stylus pens: supported
- Active stylus pens: not supported
- Hardened front glass: yes

# 7. Technical data by model

7.1 HMs705, HMs707, HMs710

Model	HMs705	HMs707	HMs710
Display / Backlight	TFT Color / LED		
Colors	16M		
Resolution	800 x 480	1024 x 600	1280 x 800
Display size (inch)	5" widescreen	7" widescreen	10.1" widescreen
Dimming	yes (to 0%)		
Brightness	300cd/m² typ.	400cd/m² typ.	
Horizontal viewing angle	L/R: typ. 70°	L/R: typ. 75°	L/R: typ. 85°
Vertical viewing angle	U: typ. 50° D: typ. 70°	U/D: typ. 75°	U/D: typ. 85°
User memory flash	4GB		
RAM	1GB		
Operating system	Linux RT		
CPU	ARM Cortex-A9 dual core, 800MHz		
Ethernet port	10/100Mbit PoE		
USB port	1 host interface, version 2.0, max. 500mA (available with special cable)		
Sensors	temperature, 3-axis accelerometer		
Degree of protection	IP67 (requires appropriate accessories and cables)		
Battery	rechargeable		
Real-time clock	yes		
Wi-Fi	not available	IEEE 802.11a/b/g	
Current consumtion	6W	9W	12W
Power supply	802.3af		
Weight	0.5kg	0.7kg	1.2kg

7.2 HMs715, HMs721

Model	HMs715	HMs721
Display / Backlight	TFT Color / LED	
Colors	16M	
Resolution	1366 x 768	1920 x 1080
Display size (inch)	15.6" widescreen	21.5" widescreen
Dimming	yes	
Brightness	400cd/m² typ.	
Horizontal viewing angle	L/R: typ. 80°	L/R: typ. 89°
Vertical viewing angle	U/D: typ. 80°	L/R: typ. 89°
User memory flash	8GB	
RAM	2GB	
Operating system	Linux RT	
CPU	ARM Cortex-A9 quad core, 800 MHz	
Ethernet port	10/100Mbit PoE	
USB port	1 host interface, version 2.0, max. 500mA (available with special cable)	
Sensors	temperature, 3-axis accelerometer	
Degree of protection	IP67 (requires appropriate accessories and cables)	
Battery	rechargeable	
Real-time clock	yes	
Wi-Fi	IEEE 802.11a/b/g	
Current consumption	19W	32W
Power supply	802.3at	802.3bt
Weight	4.0kg	6.0kg

8.   Unpacking and packing instructions

HMs705, HMs707, HMs710
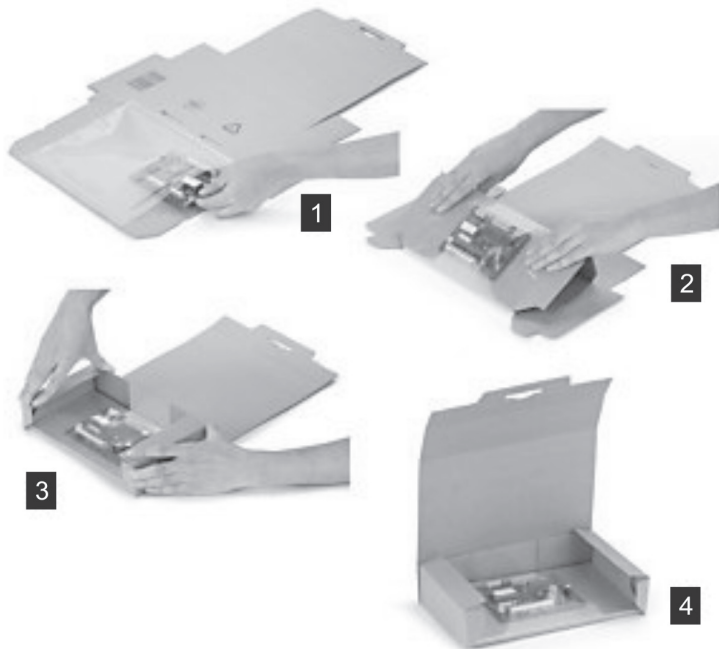
HMs715, HMs721
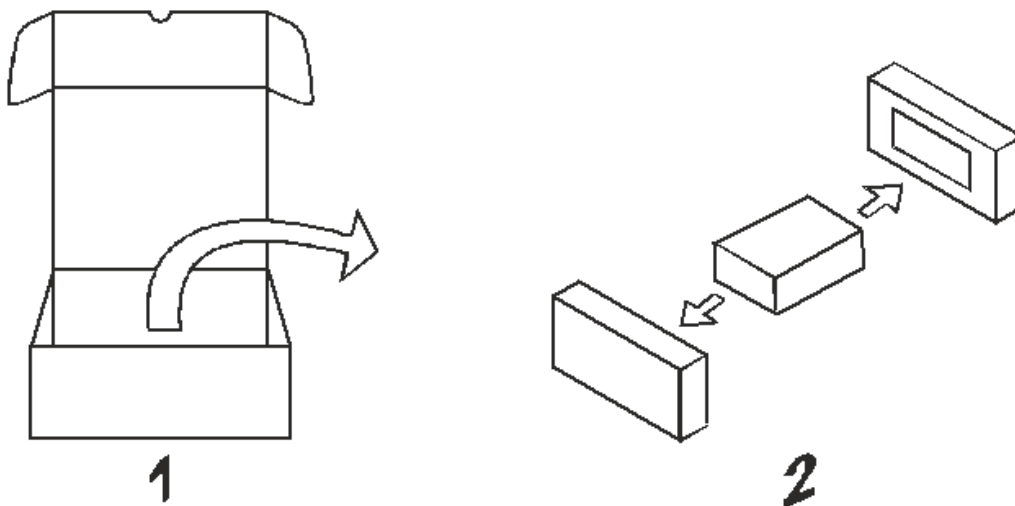
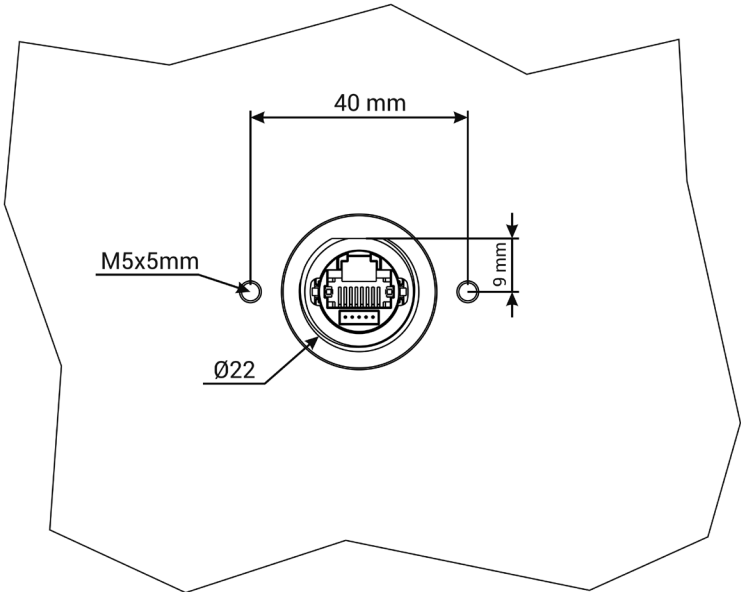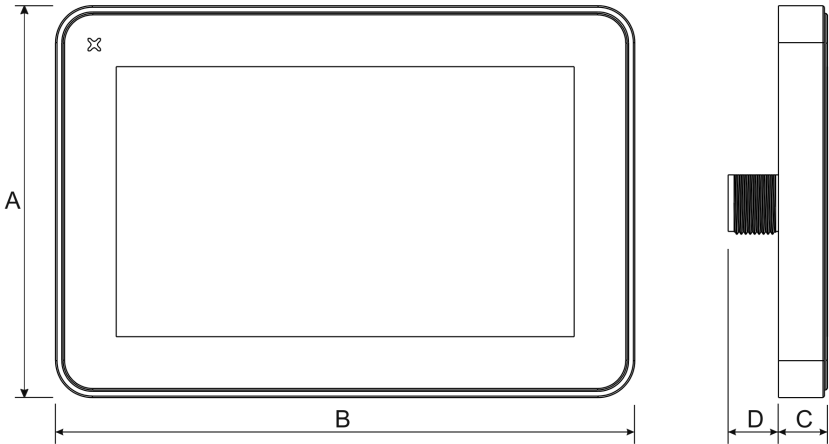To repack the product, please follow the instructions backwards.

9. Product dimensions

HMs705
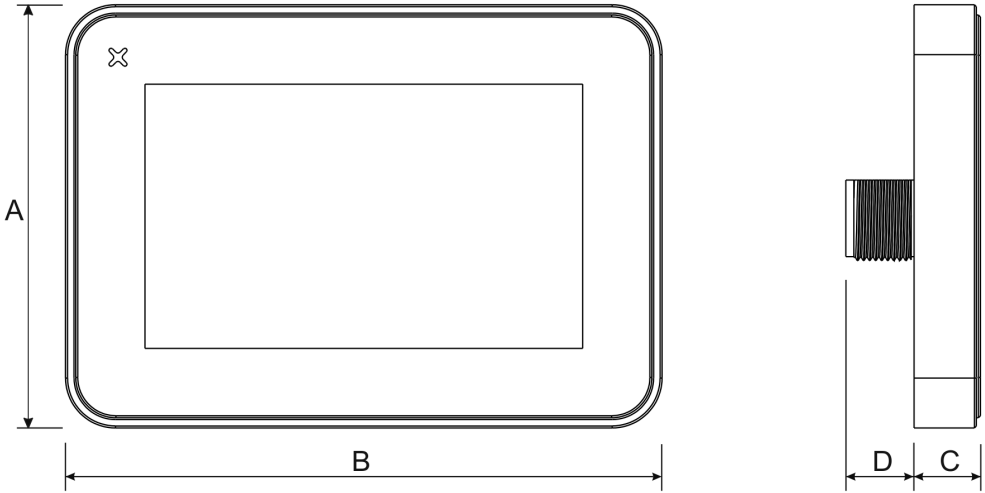
A	B	C	D
105.1mm	148.3mm	16.5mm	17mm

Rear view

HMs707

A	B	C	D
131.6mm	195.2mm	16.5mm	17mm

HMs710
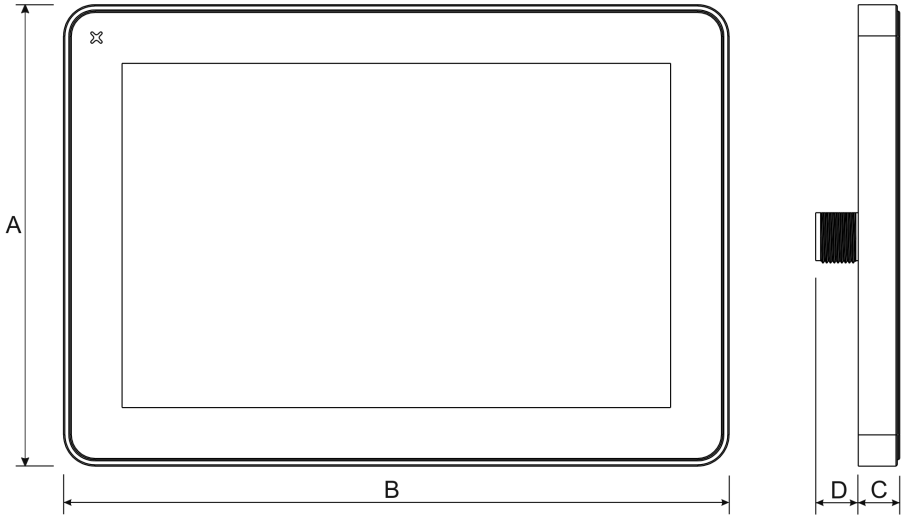
A	B	C	D
183.1mm	264.5mm	16.5mm	17mm

HMs715
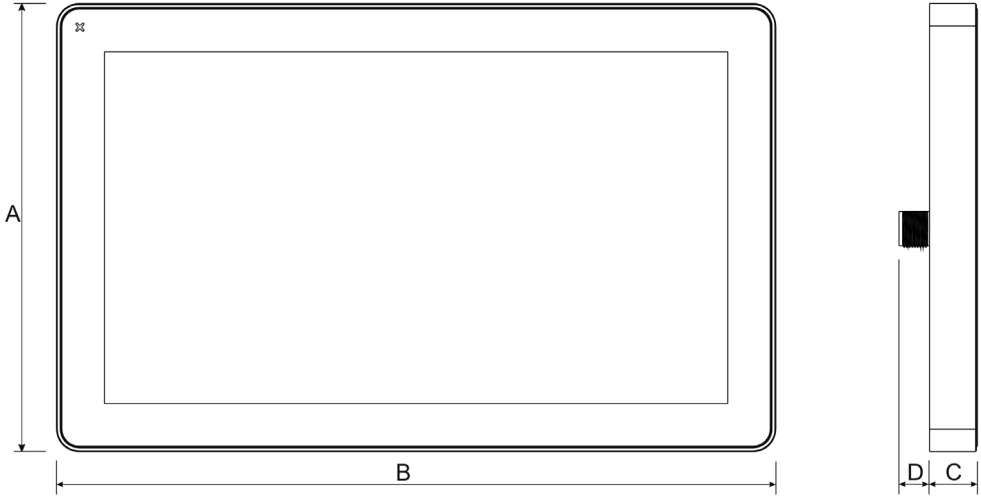
A	B	C	D
248mm	398.6mm	26.5mm	17mm

HMs721
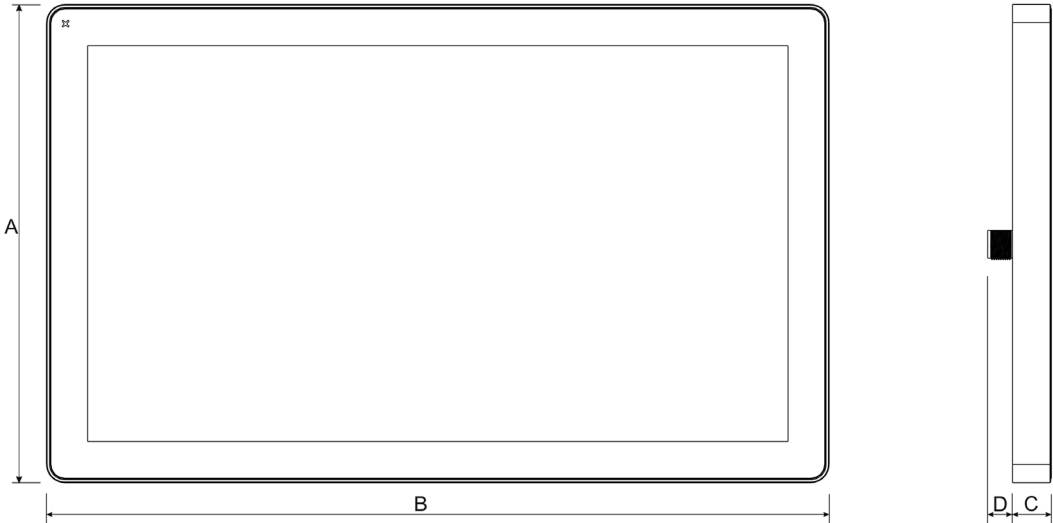
A	B	C	D
325.6mm	534.1mm	26.5mm	17mm

HMs707, HMs710, HMs715, HMs721 rear view
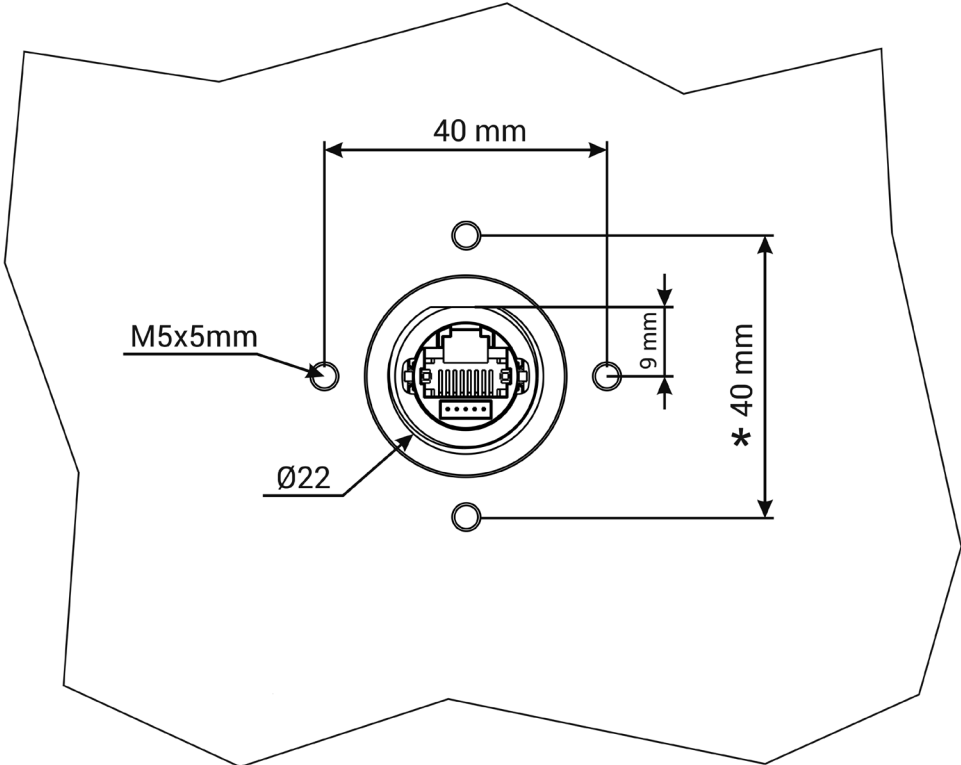
*   HMs715 and HMs721 only

10. Installation

10.1 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.

IP67 is guaranteed only if:

- An appropriate cable (JSCAxxxx) is used. The cables JSCAU001, JSCAU002, JSCAU003 and JS-CAU004 can be orderd as accessories.

- The max. deviation from the plane surface to the cutout is ≤0.5mm.

- The thickness of the case where the product is mounted is from 1.5mm to 3mm.

- The max. surface roughness where the gasket is applied is ≤120µm.

10.2 Installation procedure

For details on installation, refer to the Installation Guide provided with the product.

D	Cable
Max. 3mm	JSCAxxxx (IP67)
Max. 10mm	Standard Ethernet
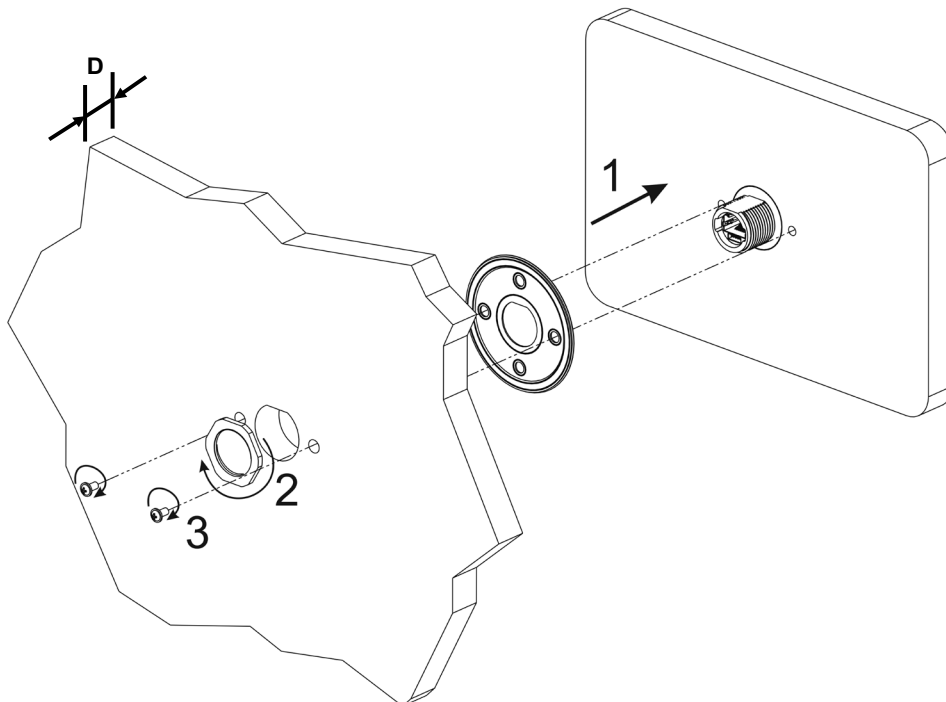
! Notice

Tightening torque: 1000Ncm (nut),130Ncm (screw)
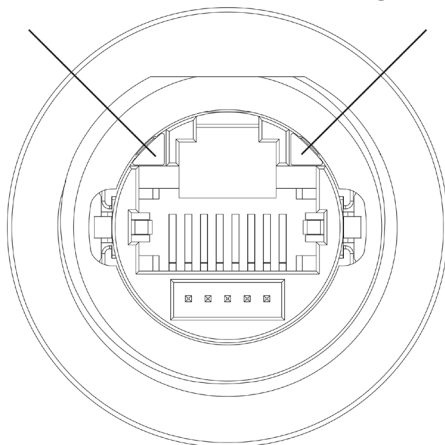
11. Connections

11.1 Ethernet port
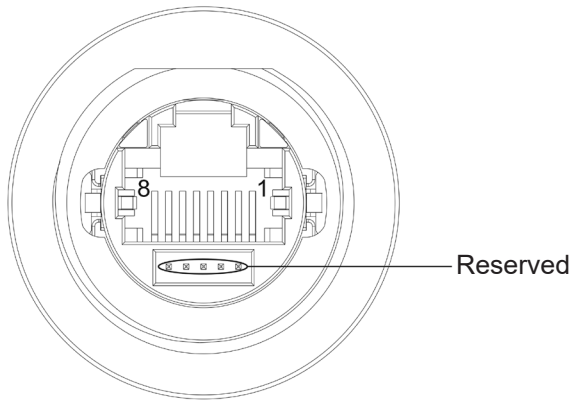
Pin	Description
1	TX+
2	TX-
3	RX+
4	n/c
5	n/c
6	RX-
7	n/c
8	n/c

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

Red LED

- Off: Valid link has not been detected
- On: Valid link has been detected

Green LED

- On: No activity
- Blinking: Activity

11.2 Power supply, grounding, and shielding

The power is transmitted over a network cable (PoE).

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 with a shielded network cable (CAT5 or higher). Grounding helps limit the effects of noise due to electromagnetic interference on the control system.

Earth connection can also be done using the screw located near the connector. A label identifies the ground connection.

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

12. 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).
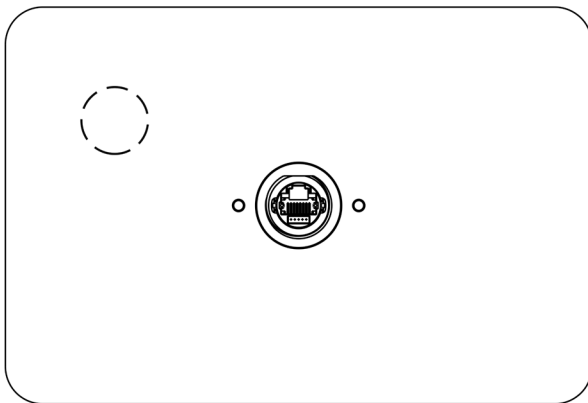
When the touch terminal is installed for the first time, the battery must be charged for 48 hours. When the battery is fully charged, data backup at 25°C is guaranteed for 3 months.

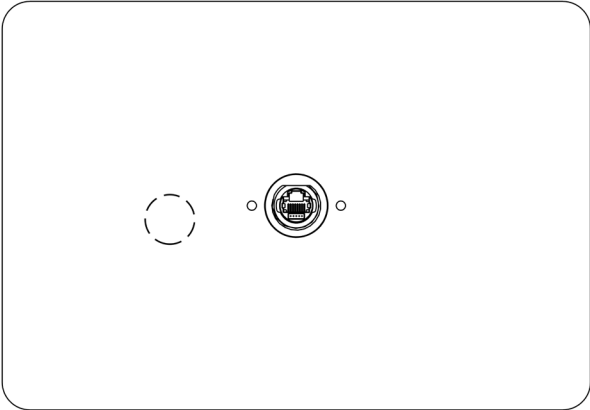This symbol indicates the battery location.

HMs705
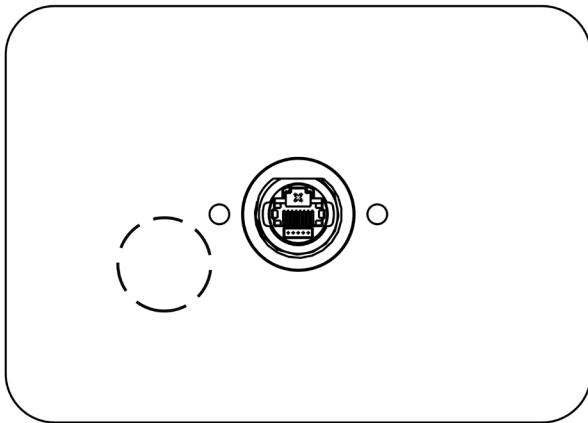
HMs707

HMs710

HMs715
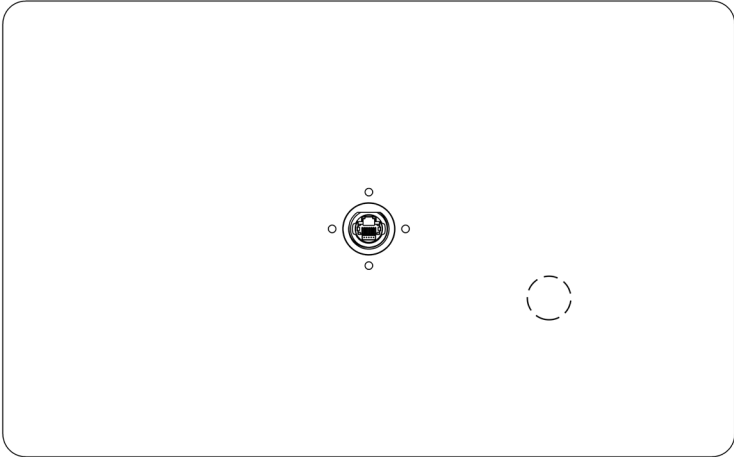
HMs721
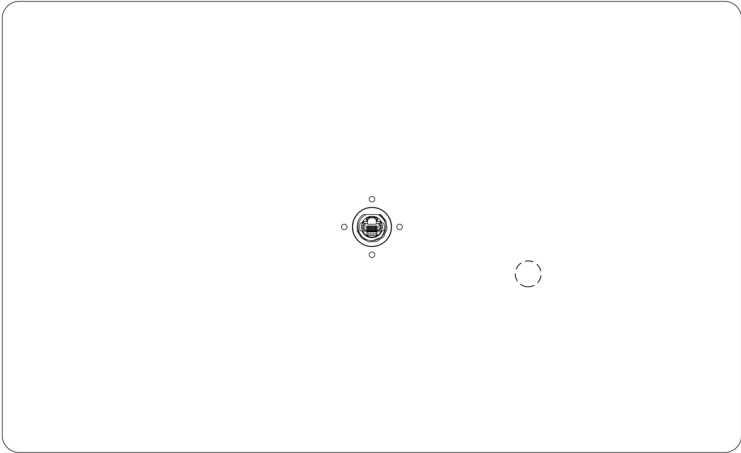
13. Getting started

The HMs700 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.
For USB transfer a dedicated accessory cable is required.

14. System settings

14.1 Introduction

The HMs700 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.
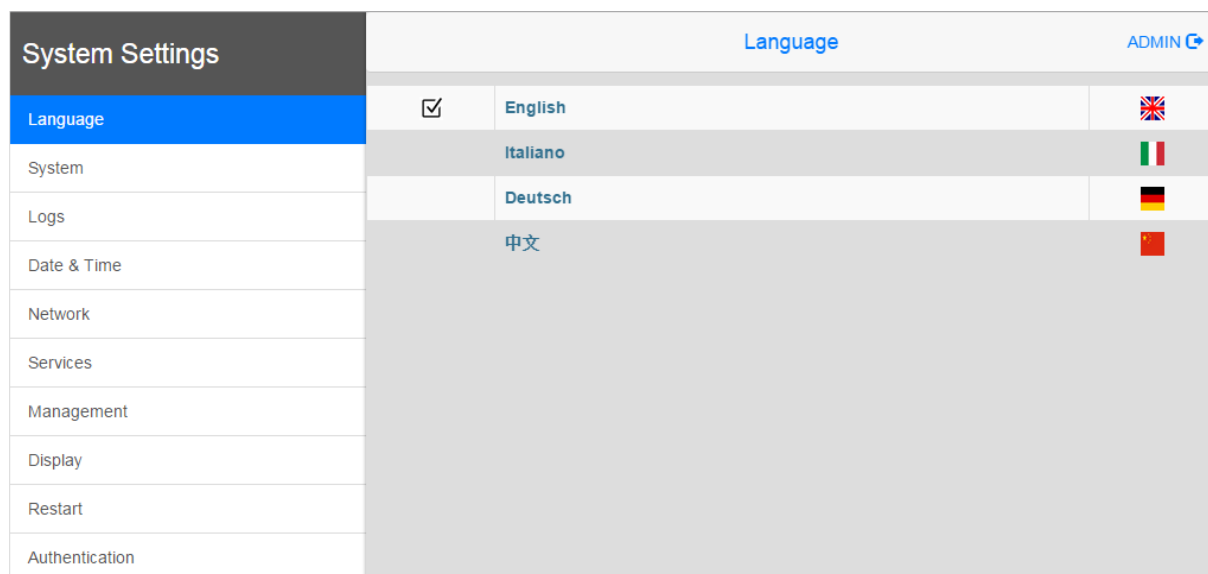
On the left side, the selected menu item is highlighted. The right side shows related information and settings. Depending on the size of the touch terminal, menu and content of the selected menu item may not be displayed next to each other on the screen.

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.

14.2 Activation of system settings in user mode

Factory default status	Touch the "System Setting" button on the touch terminal.
HMWIN runtime running	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 "System Setting" from the context menu.

14.3 Activation of system settings in system mode

Normal operation	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.
	If HMWIN runtime is running: 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 "System Setting" from the context menu. Select "Restart" > "Config OS" to reboot in system mode.
Recovery operation	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.

14.4 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 allow 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 turn-off and select panel 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 product 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

There are more options available in the system settings that are not described and not documented in this manual. For details, refer to the HMWIN User Manual.

15. 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.

16. Record of changes

Manual No.	Date	Description of changes
ACGM0198V2EN	February 2021	Second edition based on the JSmart700 Series Operating Instructions version 1.02 and JSmart705 Series Operating Instructions version 1.00 Added information about the appropriate cables (IP67) Added information about classification for HMs705
ACGM0198V1EN	December 2020	First edition based on JSmart700 Series Operating Instructions version 1.01 and JSmart705 Series Operating Instructions version 1.00

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Panasonic Electric Works

Please contact our Global Sales Companies in:

Europe

▸ **Headquarters** **Panasonic Electric Works Europe AG** — Caroline-Herschel-Strasse 100, 85521 Ottobrunn, Tel. +49 89 45354-1000, Fax +49 89 45354-1550, www.panasonic-electric-works.com

▸ **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

▸ **Nordic Countries** **Panasonic Electric Works Europe AG** — Filial Nordic, Knarrarnäsgatan 15, 164 40 Kista, Sweden, Tel. +46 859476680, Fax +46 859476690, www.panasonic-electric-works.se

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 Lódź, 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 6 LF, 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

Asia Pacific / China / Japan

▸ **China** **Panasonic Electric Works Sales (China) Co. Ltd.** — Tower C 3rd Floor, Office Park, NO.5 Jinghua South Street, Chaoyang District, Beijing 100020, Tel. +86-10-5925-5988, Fax +86-10-5925-5980

▸ **Hong Kong** **Panasonic Industrial Devices Sales (HK) Co., Ltd.** — Suite 301, 3/F, Chinachem Golden Plaza, 77 Mody Road, TST East, Kowloon, Hong Kong, Tel. +852-2529-3956, Fax +852-2528-6991

▸ **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

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