Harmony GTU Open Box Reference Manual

(Windows 10 IoT Enterprise Model)

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Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About This Manual

Document Scope

This manual describes how to use the Windows® 10 IoT Enterprise edition of the Harmony GTU Open Box (hereafter referred to as “this product”).

Validity Note

This documentation is valid for this product.

The characteristics of the products described in this document are intended to match the characteristics that are available on www.se.com. As part of our corporate strategy for constant improvement, we may revise the content over time to enhance clarity and accuracy. If you see a difference between the characteristics in this document and the characteristics on www.se.com, consider www.se.com to contain the latest information.

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Related Documents

You can download these technical publications and other technical information from our website at www.se.com.

Product Related Information

NOTICE
EQUIPMENT DAMAGE Regardless of the Write Filter setting, do not turn off the power immediately after turning on the product. **Failure to follow these instructions can result in equipment damage.**

Cybersecurity

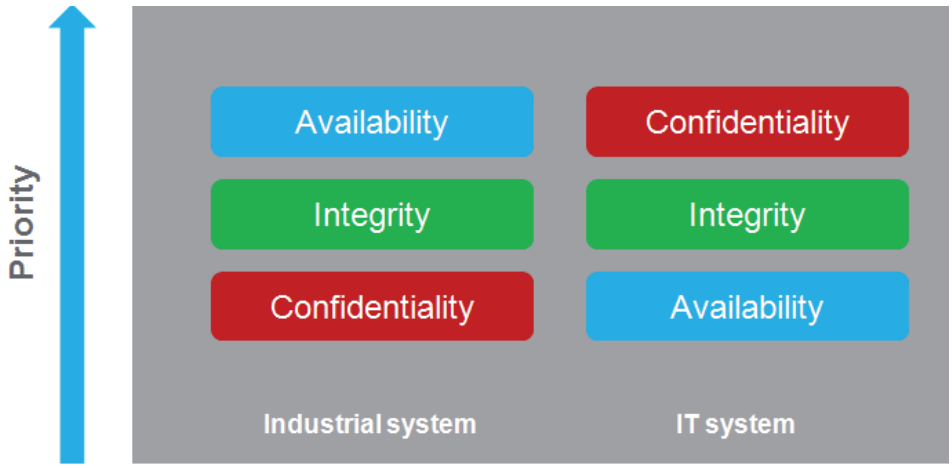
It is a fact that Industrial and control systems are more and more vulnerable to cyber attacks due to their modern design:

- They use commercial technologies.
- They are more and more connected.
- They can be remotely accessible.
- Their strategic location in the industrial processes is a point of interest for hackers.

Industrial systems have also different cyber security objectives compared to typical IT systems. To secure properly the industrial installation, it is important to understand these differences. Three fundamental characteristics have to be considered:

- Availability of the system: how to ensure that the system remains operational?
- Integrity of the data: how to maintain the integrity of information?
- Confidentiality: how to avoid information disclosure?

The priorities between an industrial system and a typical IT system are not the same as described on the following diagrams:



A good recommendation to address these security objectives is to adopt a defense-in-depth approach matching these priorities.

To help keep your Schneider Electric products secure and protected, we recommend that you implement the cybersecurity best practices. Following the recommendations may help significantly reduce your company's cybersecurity risk. For the recommendations, refer to the following URL.
https://www.se.com/en/download/document/7EN52-0390/

When running this product connected to a network environment, keep the entire internal network structure secure by using a network security device such as a firewall. For information, talk to your equipment network administrator.

Operating System Security Updates

- By factory default, [Windows Update] is disabled in the policy settings. If automatic updates are required, change the setting.
- Even after installing this product, apply the security update (QFE) to keep the operating system up to date.

  NOTE: If Write Filter is enabled, first disable the Write Filter and update the operating system.

User Account

- Use the account appropriate for your situation. In normal operation, use a local account set to [Standard User] in [Account type]. Only during system development and maintenance, use an account with administrator privileges.

Phase	**Account type (authority)**
System development	Administrator
Operation	Standard User
Maintenance	Administrator

- This product requires the sign-in password to be set in order to reduce the risks of unauthorized access, intrusion and infection of malicious software. The password must meet the following requirements:

Number of characters	8 or more
Usable characters	Use 3 or more from the following types of characters: ◦ Uppercase letters of European languages (A through Z, with diacritic marks, Greek and Cyrillic characters) ◦ Lowercase letters of European languages (a through z, sharp-s, with diacritic marks, Greek and Cyrillic characters) ◦ Base 10 digits (0 through 9) ◦ Non-alphanumeric characters (special characters): (~!@#$%^&*_-+=`|\() {}[]:;'"<>,.?/) ◦ Any Unicode character that is categorized as an alphabetic character but is not uppercase or lowercase. This includes Unicode characters from Asian languages.

NOTE:

- The sign-in password should not contain the character strings used in the account name.
- Currency symbols such as the Euro or British Pound are not counted as special characters.

Overview

Main Features

Multilanguage Support

This product's operating system supports English, French, German, Spanish, Italian, Simplified Chinese, Traditional Chinese, Portuguese, Swedish, and Russian.

Write Filter

This function prevents write operations to the CFast system card. Refer to Write Filter, page 15.

HORM (Hibernate Once/Resume Many)

By restoring the system to the same state as before a shutdown, this function reduces the amount of time required for startup. Refer to HORM, page 15.

HMI Runtime

HMIG5U22 is pre-installed with the application runtime for operating screen data authored in the screen editing software.

Operating System and Applications

Performance Specifications

Operating system	Windows® 10 IoT Enterprise 2019 LTSC 32 bit
CPU	Intel Atom Processor E3825 1.33 GHz (Dual core Dual thread)
L2 cache memory	1 MB
Main memory	DDR3L SDRAM 4 GB
Video memory	Maximum 256 MB (UMA main memory)

NOTE: Windows® Update is disabled by default.

Installed Applications

The following applications are installed on this product.

- Microsoft® Edge
- Windows® Internet Explorer
- Windows® Media Player
- Microsoft® .NET Framework 4
- HMI Runtime*1

*1 This refers to a Schneider Electric application. Screen data created in the screen editing software is executed on the product with this application.

Special Utilities

The following is a list of Schneider Electric utilities. For information about their functions, refer to Environment Settings, page 12.

Utility	Description
Backlight Brightness Setting	Adjusts the Display Module brightness.
Front USB Setting	Enables/disables the front USB port.
UART Setting	Defines the serial interface communication settings.
Calibration Setting	Calibrates the touch coordinates.
Write Filter	Enables/disables the Write Filter.
HORM	Enables/disables HORM (Hibernate Once/Resume Many).
System Version Information	Displays the version of the product firmware, BIOS, and operating system.
TPC Firmware Update	Updates the firmware so you can use multi-touch on the Premium Display.

Development Workflow

NOTICE
LOSS OF DATA Do not turn off the power during initial setup. **Failure to follow these instructions can result in equipment damage.**

HMIG5U22 Setup Process

NOTE:

- The first time you start the product, the default settings for the operating system are required. We recommend connecting a keyboard and mouse to the product before powering on. Set the default settings following the on-screen instructions.
- For user account password setup requirements, refer to User Account, page 8.
- To turn off the power on this product, perform a shutdown.

1. Connect the power to the product, and start up.
2. Perform the initial Windows® set up, such as select language, license agreement, and user accounts. When setup is complete, the desktop is displayed.
3. The initial transfer screen for the HMI Runtime is displayed. Click the [Exit] button to exit HMI Runtime.
4. Configure the network settings.
5. Create a user account.*1
6. Change the language and other preferences as required.
7. Install applications that are required.

8. Start the HMI Runtime (Vijeo Designer Runtime) by double-clicking the icon on the desktop or by selecting from the Start menu.

   Start > Schneider Electric > Vijeo Designer Runtime

9. Transfer the project data from the screen editing software.
10. Exit runtime.
11. Enable the Write Filter. The operating system is automatically restarted.
12. Enable HORM as required. The operating system is automatically shutdown (enters hibernation state).
13. Cycle the power and begin operation.

*1 Depending on your screen editing software, account rights may have been specified.

HMIG5U21 Setup Process

NOTE:

- The first time you start the product, the default settings for the operating system are required. We recommend connecting a keyboard and mouse to the product before powering on. Set the default settings following the on-screen instructions.
- For user account password setup requirements, refer to User Account, page 8.
- To turn off the power on this product, perform a shutdown.

1. Connect the power to the product, and start up.
2. Perform the initial Windows® set up, such as select language, license agreement, and user accounts. When setup is complete, the desktop is displayed.
3. Configure the network settings.
4. Create a user account.
5. Change the language and other preferences as required.
6. Install applications that are required.
7. Enable the Write Filter. The operating system is automatically restarted.
8. Enable HORM as required. The operating system is automatically shutdown (enters hibernation state).
9. Cycle the power and begin operation.

Environmental Settings

General Preferences

Language Preferences

You can change the language of the operating system, as per your requirements. You can also install additional languages.

Start > Settings > Time & Language > Region and Language

Clock Settings

Start > Settings > Time & Language > Date & Time

NOTE: As the RTC installed on this product is an external RTC, after to enable changes to clock settings either restart the operating system or perform a shutdown.

Network Settings

Consult with your network administrator to configure the network settings.

Start > Settings > Network & Internet > Windows Firewall

Start > Settings > Network & Internet > Network and Sharing Center

Account Settings

The account set up when initializing Windows® has Administrator rights.

For operating this product, we recommend setting up user accounts with appropriate access rights. For details, refer to User Account, page 8.

Start > Settings > Accounts

NOTE: On systems that use the HMI Runtime, depending on your screen editing software, required account rights may have already been specified. For information, refer to documentation for your software.

To reduce the risk of unauthorized access or infection from malicious software, setting up a sign-in password is required. For the password requirements, refer to User Account, page 8.

Display Settings

Start > Settings > System > Display

You can follow the steps below to set the display resolution to VGA (640 x 480).

1. Touch **Advanced display settings**.
2. Touch **Display adapter properties for Display 1**.
3. From the **Adapter** tab, touch **List All Modes**.
4. Select the VGA (640 x 480) mode.
5. Touch **OK**.

Audio/Speaker Settings

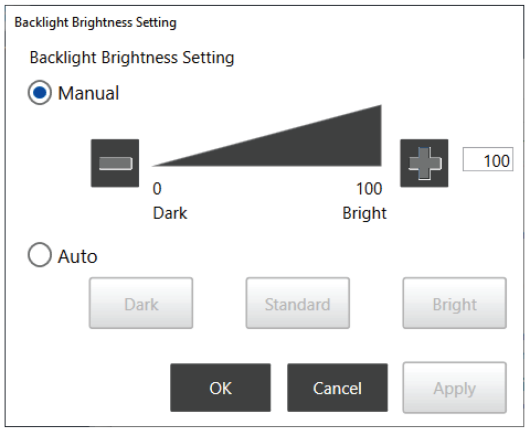
Start > Settings > System > Sound

Brightness

Adjusts the backlight brightness.

Setup process

Control Panel > Hardware and Sound > Backlight Brightness Setting



Manual: Sets the brightness from 0 to 100.

Auto: Automatically adjusts the brightness to the selected level using a brightness sensor.

NOTE:

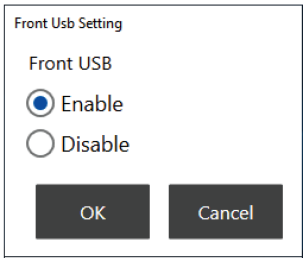
- This setting is disabled when the DC Power Adapter for Box Module is installed.
- You cannot change the backlight brightness from the following locations:
  - **Start > Settings > System > Display > Change brightness**
  - **Control Panel > Hardware and Sound > Power Options > Adjust Screen Brightness**

Front USB

Enables/disables the front USB port.

Setup process

Control Panel > Hardware and Sound > Front USB Setting



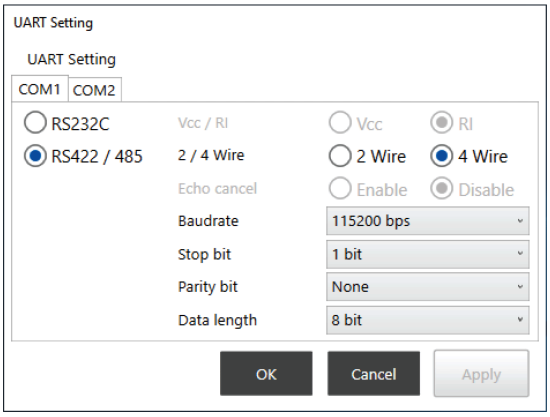
NOTE: This setting is disabled if the Display Module is not equipped with a front USB port.

UART

Sets the COM1/COM2 communication settings.

Setup process

Control Panel > Hardware and Sound > UART Setting



NOTE:

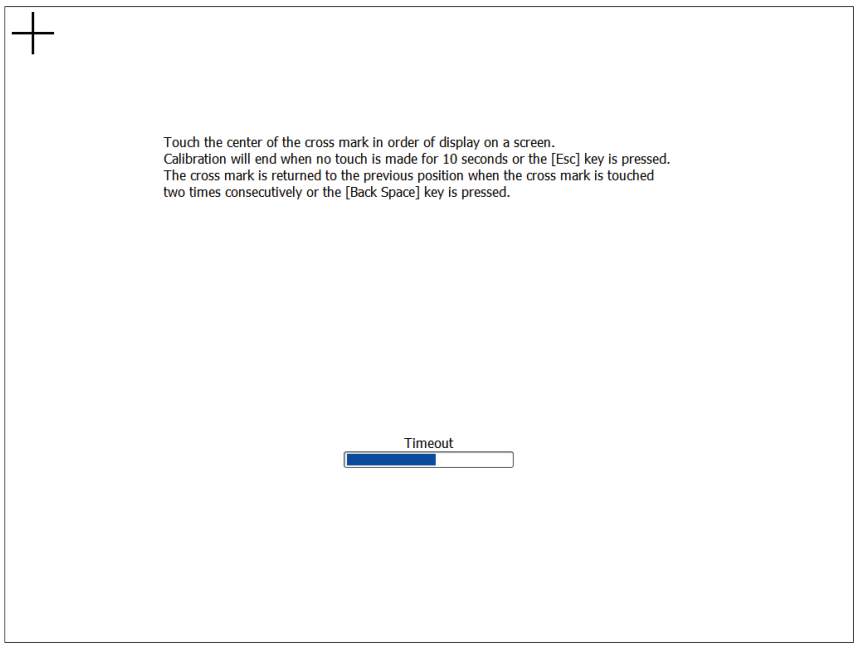
- The communication settings must match the application communication settings.
- UART setting is not supported on COM1 (RS-232).

Calibration

Calibrates the touch panel.

Setup process

Control Panel > Hardware and Sound > Display Module Calibration



NOTE: Do not calibrate using **Control Panel > Hardware and Sound > Tablet PC Settings**. You will not be able to properly calibrate the touch coordinates.

Write Filter

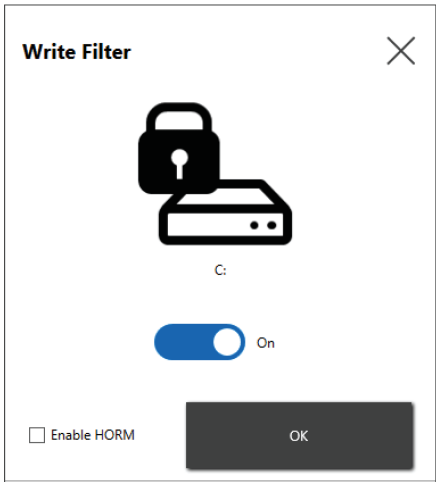
This function prevents writing to the CFast system card.

By enabling the Write Filter, you can prevent excessive writes that damage the CFast system card and cause a shortened life. To use the system safely, we recommend enabling this function during normal operation.

Setup process

Execute UwfChangeTool.exe, available in the following location.

C:\Program File\Schneider Electric\Utilities\UwfChangeTool



NOTE:

- By default the Write Filter is disabled (Off). After making required changes or adjustments to environment settings or installing applications, enable (On) the Write Filter.
- Setting the Write Filter from disabled to enabled automatically restarts the operating system.
- While the Write Filter is enabled, all changes –such as application installation or changes to environment settings– are discarded when the product is restarted.
- You can also enable the Write Filter for the CFast storage card. This setting is unavailable for other storage devices, such as SD card or USB memory.

NOTICE
LOSS OF DATA Do not turn off the power while writing to a storage device that is not protected by the Write Filter. **Failure to follow these instructions can result in equipment damage.**

HORM

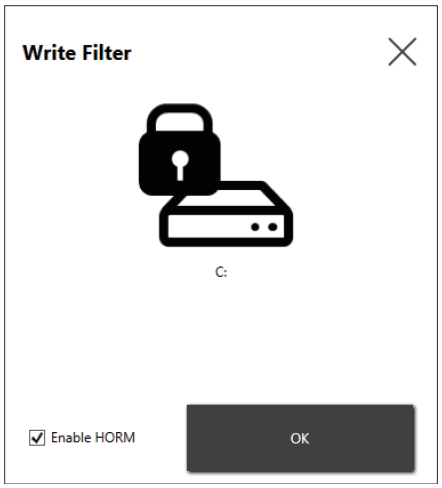
HORM is a function that reduces the startup time for this product.

If you save a system state with HORM enabled, it is possible to restore the system to this saved state even after power to this product is turned off.

Setup process

Execute UwfChangeTool.exe, available in the following location.

C:\Program File\Schneider Electric\Utilities\UwfChangeTool



NOTE:

- Before enabling HORM, detach storage devices from this product.
- To enable HORM, first enable the Writer Filter. After enabling the Writer Filter and restarting the product, enable HORM.
- Change to the user account that will be used when operating this product, and enable HORM.
- When HORM is enabled, this product automatically enters hibernation. After confirming the status LED is red, turn on the power again.
- Immediately after hibernation and when HORM is enabled, system backup and recovery will not run normally. For system backup and recovery, either shut down once or first disable HORM before proceeding.
- Do not use the CFast system card, with a system in either hibernation or with HORM enabled, on a different Open Box module.

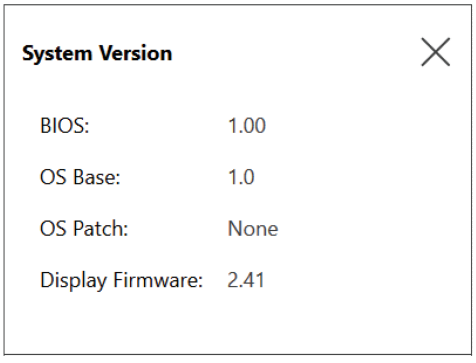
System Version

Displays the version of the product firmware, BIOS, and operating system.

Display method

Execute SystemVersion.exe, available in the following location.

C:\Program Files\Schneider Electric\Utilities\SystemVersion



TPC Firmware Update

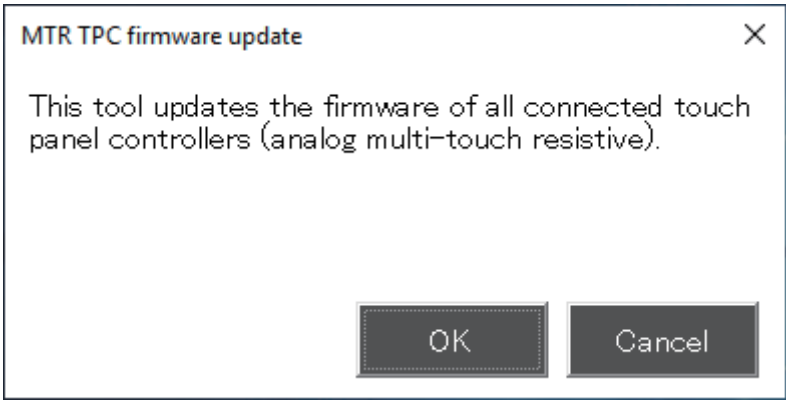
Updates the firmware so you can use multi-touch on the following Smart Displays which come equipped with analog resistive touch panels.

- HMIDT542
- HMIDT642
- HMIDT643
- HMIDT732

Update process

Run the following program to update the firmware.

C:\Program File\Schneider Electric\Utilities\MtrTpcFwUpdate\MtrTpcFwUpdate.exe



NOTE: Updating the firmware will take some time.

NOTICE
EQUIPMENT DAMAGE While updating the firmware, do not turn off the power, remove the Display Module or touch the screen. **Failure to follow these instructions can result in equipment damage.**

Limitations

- The default settings for this product are set up to optimize its performance as a HMI. Changing any of the settings may reduce the product's ability to optimize HMI.
- The following are product specific settings. Do not change from their default setting.
  - Services
  - Task Scheduler
- If you use the HMIDT351 or change the resolution to VGA, some standard Windows® dialog boxes may not display the OK/Cancel/Apply buttons, preventing the user from touching them. If that happens, connect a DVI monitor, extend the desktop, and display the dialog box on the DVI monitor to perform the operation.

  Start > Settings > System > Display

- If you want to set up so there are no touch panel operations for a determined period of time, set up one of the following. When both are set up, operation errors could occur when there are touch inputs while the display is off.

  Start > Settings > System > Power & sleep > Turn off screen after

  Start > Settings > Personalization > Lock screen > Screen saver settings

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