Honeywell | CIU 888

Firmware Upgrade Manual

Release R210

PREFACE

General

The features of the CIU 888 are enabled through the CIU 888 license. This license stipulates that the CIU 888, for example, can be used in a redundant system setup, supports a certain number of tanks, and can be sealed by a legal Weights and Measures authority (e.g. NMi). To expand the initial features of the CIU 888, the CIU 888 needs to be updated with a new license.

While license updates are usually customer-specific, firmware upgrades are intended for a wider audience. By releasing firmware upgrades, Honeywell continues to introduce new features and enhancements to further extend the capabilities of the CIU 888, and to increase performance, reliability and efficiency.

Purpose of this manual

The purpose of this manual is to provide information about:

- Installing firmware upgrades on the CIU 888
- Updating the CIU 888 with a new license

Target audience of this manual

This manual is primarily intended for service technicians who are responsible for commissioning and configuring the CIU 888, and for performing firmware upgrades and license updates.

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CHAPTER 1 FIRMWARE UPGRADES

Honeywell releases firmware upgrades to:

- Introduce new features and enhancements to further extend the capabilities of the CIU 888, and to increase performance, reliability and efficiency
- Update the operating system to address security vulnerabilities that have been discovered or not have been previously disclosed

1.1 Distribution of firmware upgrades

Firmware upgrades are distributed to customers by Honeywell. Customers receive a CD/DVD with the new firmware or can download the firmware from Honeywell's service website.

1.2 Migration paths
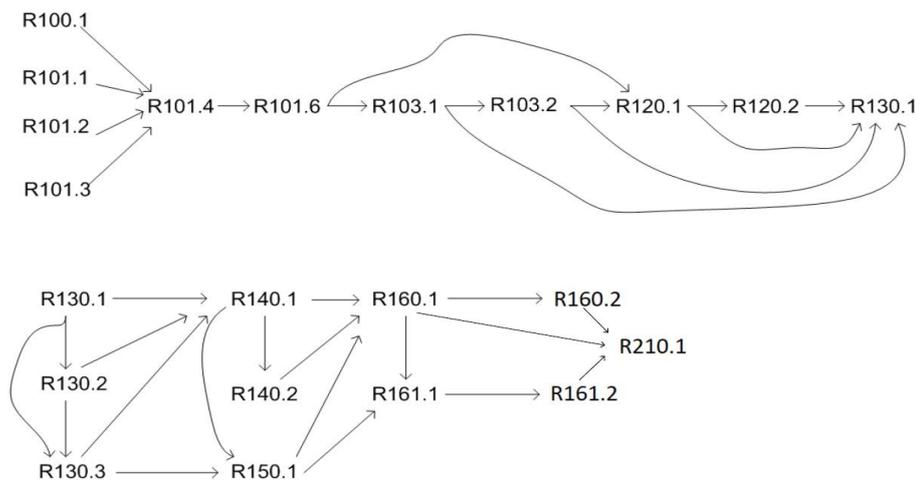
FIGURE 1-1   CIU888 Migration Path

Example: If CIU 888 R101.4 needs to be migrated to R120.1, then follow the path: R101.4 -> R101.6 -> R120.1

NOTE: 1. For CIU 888 releases till R101.6, Ensite Pro + Migration Tool needs to be used for configuration.

2. Starting with CIU 888 R103.1, CIU 888 Service Tool R101.1 can be used for configuration. However, when migrated to CIU 888 R103.1 or further releases, still Ensite Pro + Migration Tool needs to be used in case of CIU 880 migration unless a new configuration is done using CIU 888 Service Tool.

3. Users in R162.1 can directly upgrade to R210.1.

1.3 Preparing for the installation of a firmware upgrade

NOTE: *Two separate firmware upgrade files are provided with R210.1. Both the files are to be used one after the other to upgrade CIU888 with supported releases as shown in Figure 1-1.*

To install a firmware upgrade, either on a standalone or a redundant CIU 888 system setup, a PC/laptop with a browser (i.e. Internet Explorer 10 or 11 or Google Chrome (version 66 and later)) is needed. Furthermore, the following preparations must be made:

1. Copy the firmware upgrade file(s) to the root/base folder of a USB flash drive. The root/base folder can be accessed by inserting the USB flash drive in the PC/laptop, and then selecting the device in the navigation pane (left pane) of Windows Explorer.

2. Make sure you implement the required changes in the settings of Internet Explorer 10 and 11, and Google Chrome (version 66 and later). Refer to sections 1.4.1 or 1.4.2 as applicable in the Configuration Manual CIU 888 (Part No. 4417584) for more information.

CAUTION

For some upgrades, multiple upgrade steps may be involved, please follow the firmware upgrade paths mentioned in chapter 1.2 "Migration paths".

1.4 Installing a firmware upgrade on a standalone system setup

CAUTION

The installation of a firmware upgrade may be irreversible! Therefore, ensure that the correct firmware is selected for the firmware upgrade.

Perform the following steps to install a firmware upgrade on a standalone CIU 888 system setup:

1. Connect the PC/laptop to the Service port of the CIU 888 using a Cat. 5 Ethernet cable. The service port is located at the front of the CIU 888 (see FIGURE 1-2).

FIGURE 1-2   CIU 888: Service port

2. Unlock the CIU 888 to enable changes in the configuration using the key switches located at the front of the CIU 888 (see FIGURE 1-3).

FIGURE 1-3   CIU 888: W&M lock key switch (left) and Configuration lock key switch (right)

CAUTION

If the W&M lock key switch has been sealed, the hardware seal (wire) must be removed first in order to unlock the key switch. By breaking the hardware seal, the CIU 888 will no longer be W&M approved.

a) Insert the key for unlocking in the key switch, and turn the key clockwise.

b) Remove the key from the key switch and store it.

On the CIU 888 display, the status of the key switches changes from 'Locked' to 'Unlocked' (see FIGURE 1-4).

FIGURE 1-4   CIU 888 display: Configuration settings are unlocked

3. On the PC/laptop connected to the CIU 888, launch the browser.

4. Enter the IP address of the CIU 888 in the address bar of the browser. The IP address is **192.168.1.1**. Next, press the **Enter** key.

The *CIU 888 Login* window is displayed (see FIGURE 1-5).
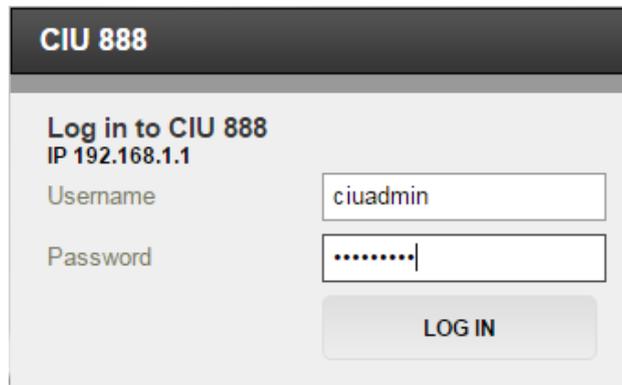
FIGURE 1-5   *CIU 888 Login* window

5. Enter the username and password to log into the CIU 888. The username is **ciuadmin**. Next, click **LOG IN**.
After entering a valid username and password, the CIU 888 Web interface is displayed.

The *Diagnostics* window is displayed by default (see FIGURE 1-6).
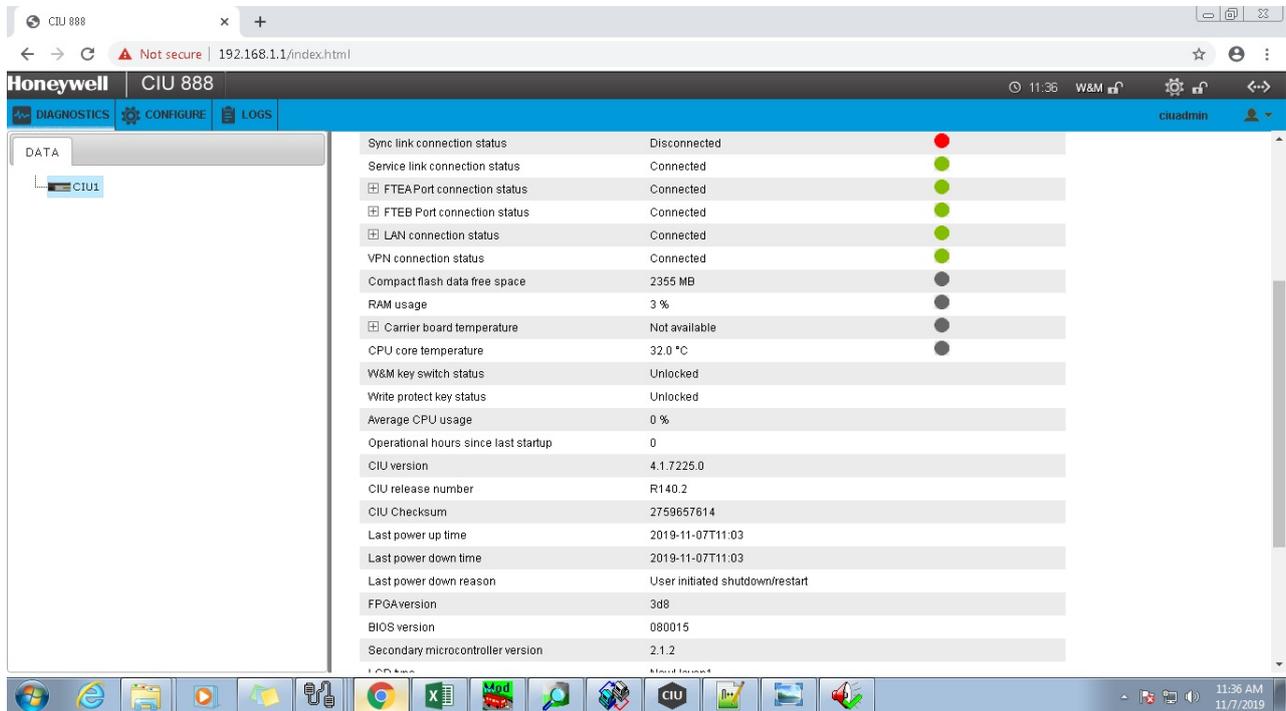
FIGURE 1-6   CIU 888 Web interface: *Diagnostics* window

6. From the CIU 888 menu in the CIU 888 Web interface, select **Enter Safe Mode** (see FIGURE 1-7).
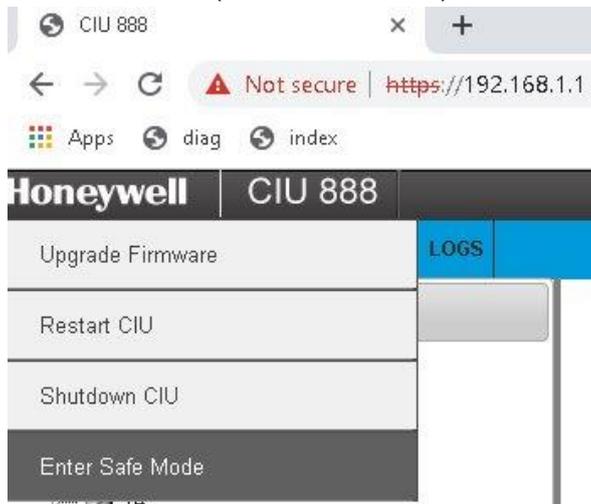
FIGURE 1-7   CIU 888 Web interface: Enter Safe Mode

7. Click **Yes** to restart the CIU 888 in Safe Mode.

8. After restarting CIU 888, perform steps 4 and 5 again to log in CIU888. The CIU 888 Safe Mode Web interface is displayed. (see FIGURE 1-8).

CIU is running in safe mode and CIU operations are disabled!!
To resume normal CIU operations, select Exit Safe Mode from the Main Menu.

FIGURE 1-8   CIU 888 Web interface: Safe Mode

9. From the CIU 888 menu, select Upgrade Firmware. (see FIGURE 1-9).
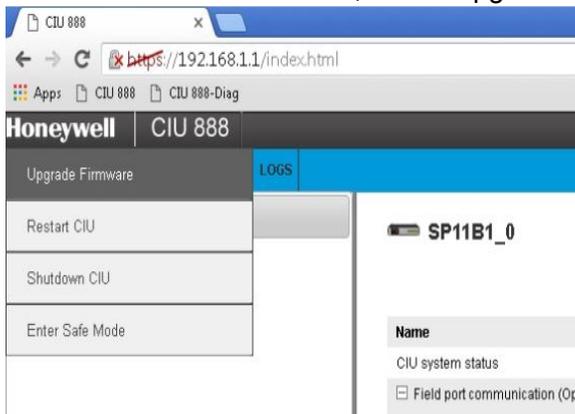
FIGURE 1-9   CIU 888 Web interface: *Upgrade Firmware* option in CIU 888 menu

The *Upgrade firmware* window is displayed (see FIGURE 1-10).
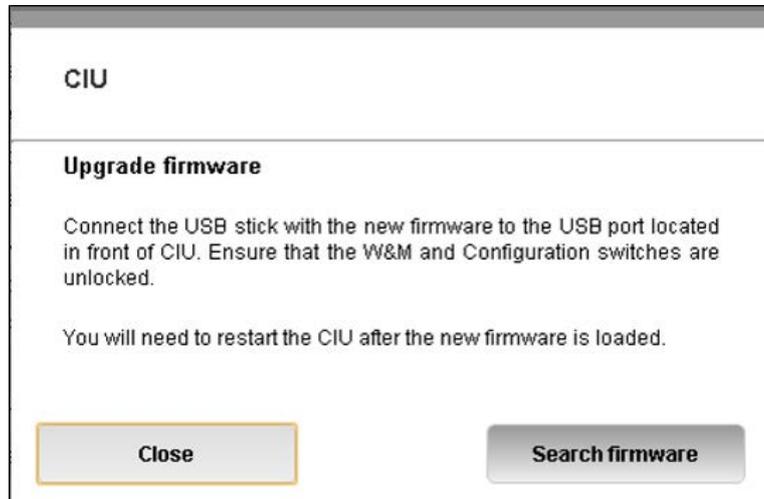
FIGURE 1-10   *CIU 888 Web interface: Upgrade Firmware* window

CAUTION

For some upgrades, multiple upgrade steps may be involved, please refer chapter 1.2 "Migration paths" for details on the firmware upgrade paths before proceeding with the firmware upgrade.

10. Insert the USB flash drive with the firmware upgrade in the USB port located at the front of the CIU 888 (see FIGURE 1-11). Next, click **Search firmware**.

FIGURE 1-11   CIU 888: USB port located at the front

The USB flash drive will be mounted onto the CIU 888. The *New firmware found* window is displayed showing a list of available firmware upgrades.

11. Select **CIU888_Upgrade-R210.1_Base-10.0.8359.0.tar.gz** option and click **Install firmware**.

The selected firmware upgrade will be installed on the CIU 888

(see FIGURE 1-12).
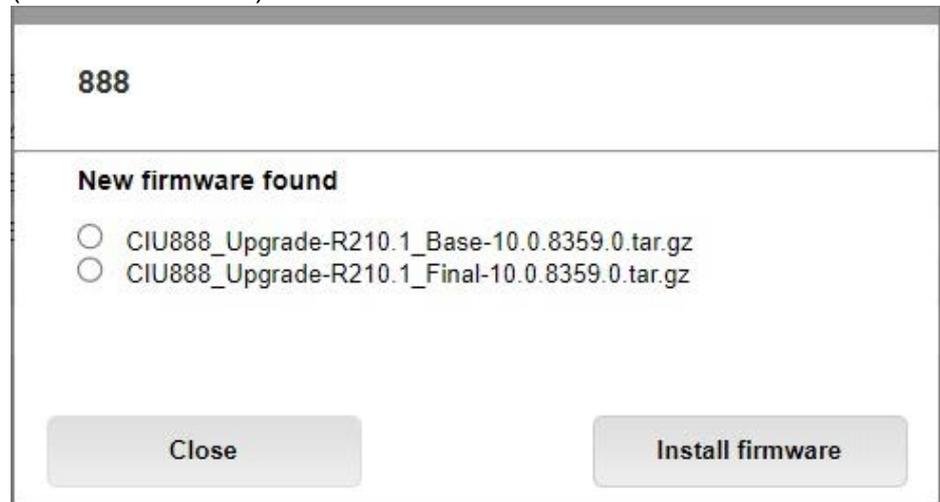
FIGURE 1-12   CIU888 Web Interface : List of Firmwares

NOTE: A progress bar is displayed to indicate the current status of the firmware upgrade.

12. If the installation is successful, the **Firmware installation done** window is displayed. You will be prompted to restart your system.

13. Click **Restart** to restart the system for the firmware to become active.

NOTE: Repeat the above steps 8-11 for another firmware upgrade. make sure to use the file CIU888_Upgrade-R210.1_Final-10.0.8359.0.tar.gz in step 11.

14. If Entis pro is used as a HOST, perform following steps, otherwise skip this step.

    a) Install the R210.1 Service tool. **File → open → import →** navigate to the last used service tool database folder "C:\Users\Public\Documents\Honeywell\CIU 888 Service Tool (R160.1/R160.2/R162.1)\SiteDatabase/<name>/<name.mdb>".

    b) It will take few mins to build the database in Service tool R210.1, as it involves creation of product database for the first import. Products are automatically created and associated to tanks.

    c) Ensure all tanks are associated with correct products. Click **Tank → Under product tab**, see **product name**. Navigate to that product under products and verify its properties.

    d) New features/configuration modifications can be done and then update the configuration to CIU888. Even if no configuration

change is expected, it is recommended to update the configuration to CIU888, as it will download the newly created product configuration to CIU888.

e) Now right click on CIU → **Send configuration to CIU888** → click **Generate INI Files**.

f) If you had skipped **step d**, following popup will show. Click yes in popup. Ini files will be downloaded successfully in folder "C:\Users\Public\Documents\Honeywell\CIU 888 Service Tool 210.1\SiteDatabase/INI/" (see FIGURE 1-13).

FIGURE 1-13   CIU888 Service tool: Warning message before generating INI files

g) In CIU Plus links, use **alternate folder option** and browse the R210.1 INI Folder. Reload the INI files in Entis pro and acknowledge the alarms.(see FIGURE 1-14).
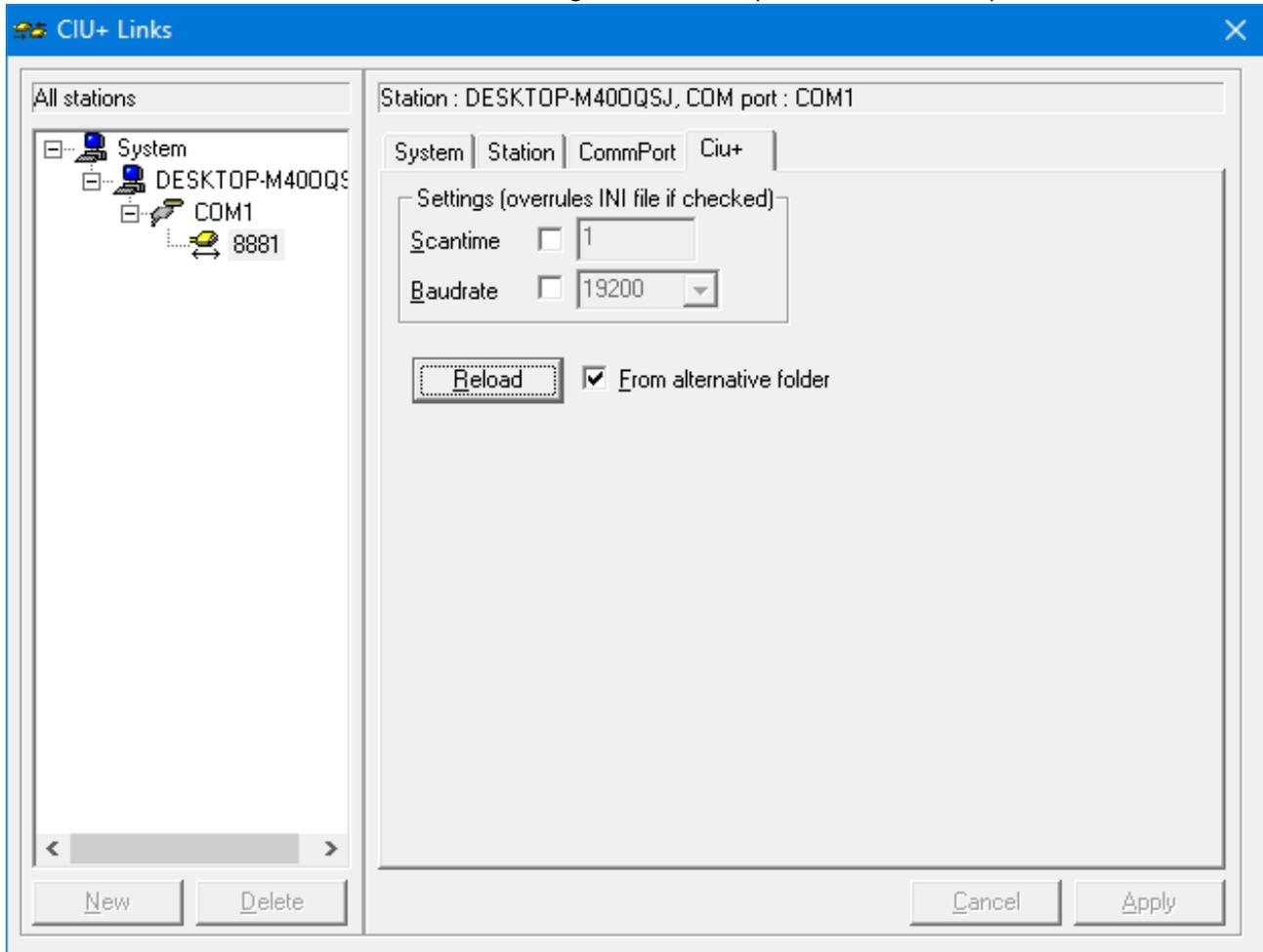
FIGURE 1-14   Entis Pro - CIU plus Links: Reload INI from alternate folder

15. If ENTIS is used as a HOST, perform following steps, otherwise skip this step.

a) Refer to section 4 in Installation of ENTIS.

NOTE: *In ENTIS R130.1 has changed entities and ways of communication with CIU. ENTIS R130.1 is only compatible with CIU R210.1. New OPCUA enabled license in CIU is required for interaction with ENTIS.*

16. If the CIU 888 includes the sealing option and is intended to be sealed, have it sealed by a representative of the W&M authorities or by a W&M accredited user. Refer to the *Sealing Guide CIU 888* (Part No. 4417595) for more information.

17. Verify that the system setup is working properly. Refer to section 2.10 in the *Configuration Manual CIU 888* (Part No. 4417584) for more information.

NOTE: *Before migration, if ambient temperature was configured to be not scanned and not manually over written, after migration, the ambient temperature value is shown as 20 deg C. In this scenario please reset to the appropriate ambient temperature value. After restart, verify the latest release and build version on web.*

1.5 Installing a firmware upgrade on a redundant system setup

CAUTION

The installation of a firmware upgrade may be irreversible! Therefore, ensure that the correct firmware is selected for the firmware upgrade.

In case of a fully commissioned redundant system setup, a firmware upgrade must be installed on **both** the primary CIU 888 and the secondary CIU 888.

REMARKS: 1. In the following procedure, it is assumed that the primary CIU 888 normally has the active role and the secondary CIU 888 the passive role.

2. The primary CIU 888 and the secondary CIU 888 must be fully synchronized before installing a firmware upgrade.

Perform the following steps to install a firmware upgrade on a redundant CIU 888 system setup:

1. Shut down every Entis Pro system connected to the CIU 888s in the redundant system setup. For example, if in the system setup each CIU 888 is connected to a separate Entis Pro system, both Entis Pro systems need to be shut down.

2. Shut down the primary CIU 888:

a) Connect the PC/laptop to the Service port of the CIU 888 using a Cat. 5 Ethernet cable. The service port is located at the front of the CIU 888 (see FIGURE 1-15).

FIGURE 1-15   CIU 888: Service port

b) Unlock both the primary CIU 888 and secondary CIU 888 to enable changes in the configuration using the key switches located at the front of the CIU 888 (see FIGURE 1-3).

FIGURE 1-16   CIU 888: W&M lock key switch (left) and Configuration lock key switch (right)

CAUTION

If the W&M lock key switch has been sealed, the hardware seal (wire) must be removed first in order to unlock the key switch. By breaking the hardware seal, the CIU 888 will no longer be W&M approved.

– Insert the key for unlocking in the key switch, and turn the key clockwise.

– Remove the key from the key switch and store it.

On the CIU 888 display, the status of the key switches changes from 'Locked' to 'Unlocked' (see FIGURE 1-4).

FIGURE 1-17   CIU 888 display: Configuration settings are unlocked

c) power down the CIU888 using the power supply switch located in the rear side of CIU.

FIGURE 1-18   CIU888 On-Off switch image

3. Install the firmware upgrade on the secondary CIU 888, see section 1.4 for more information.

NOTE: *Perform steps of the procedure described in section 1.4.*

After installation of the firmware upgrade, the secondary CIU 888 needs to be restarted (part of the procedure). Once the secondary CIU 888 is restarted, the new firmware will be effective.

4. Shut down the secondary CIU 888, see step 2.

5. Start the primary CIU 888 by switching the on/switch to the 'ON' position.
   The primary CIU 888 will assume the active role.

6. Install the firmware upgrade on the primary CIU 888, see section 1.4 for more information.

7. Start the secondary CIU 888 by switching the on/off switch to the 'ON' position.
   Once the secondary CIU 888 is started, it assumes the passive role.

NOTE: *Signature alarms may be generated from Entis Pro after the firmware upgrade. Refer to section 1.4 (Installing a firmware upgrade on a standalone system setup) steps 14 and 15.*

8. If Migration tool + Ensite Pro is used to configure CIU88, perform step *14.* in *section 1.4*. If Service tool is used to configure CIU88, then ignore this step and continue from next step.

9. If the CIU 888s include the sealing option and are intended to be sealed, have them sealed by a representative of the W&M authorities or by a W&M accredited user. Refer to the *Sealing Guide CIU 888* (Part No. 4417595) for more information.

10. Verify that the system setup is working properly. Refer to section 2.10 in the *Configuration Manual CIU 888* (Part No. 4417593) for more information.

1.6 Troubleshooting during the installation of a firmware upgrade

For more information about problems or errors that may be encountered during the installation of a firmware upgrade, refer to the *Troubleshooting & Maintenance Guide CIU 888 (Part No. 4417594).*

CHAPTER 2 LICENSE UPDATES

The features of the CIU 888 are enabled through the CIU 888 license. This license is based on the site name and the CIU 888 configuration, and it is related to the purchased options as defined in the *Model Selection Guide* (see APPENDIX A). The features of the CIU 888 can be expanded by updating the CIU 888 with a new license.

NOTE: *The initial license of the CIU 888 is installed in the factory. The procedure described in this chapter is primarily intended for updating the initial license in order to change the licensed features when required.*

2.1 Distribution of a new CIU 888 license

A new CIU 888 license is distributed to customers by Honeywell. Customers receive a CD with the new license that enables the new ordered functionality, and a DVD with the latest version of the CIU 888 software. A CIU 888 license always consists of two files: the actual license file and a signature file.

2.2 Preparing for a CIU 888 license update

CAUTION Starting from R120.1 release, there is a change in the Signature verification of License files. If CIU 888 is being upgraded from R103.2 or earlier releases to R120.1 or later releases, then the signature file associated with the License file is automatically updated within the CIU 888 box, so no action is explicitly required for CIU 888 license files. However, the stored offline License files for the CIU 888 releases prior to R120.1 will no longer work if you perform "Update License" on CIU 888 R120.1 or later with these files.

To update the CIU 888 license, either on a standalone or a redundant CIU 888 system setup, a PC/laptop with a browser (i.e. Internet Explorer 10 or 11) is needed. Furthermore, the following preparations must be made:

1. Copy the new license to the PC/laptop.

2.3 Updating the CIU 888 license on a standalone system setup

Perform the following steps to update the CIU 888 license on a standalone CIU 888 system setup:

1. Connect the PC/laptop to the Service port of the CIU 888 using a Cat. 5 Ethernet cable. The service port is located at the front of the CIU 888 (see FIGURE 2-1).
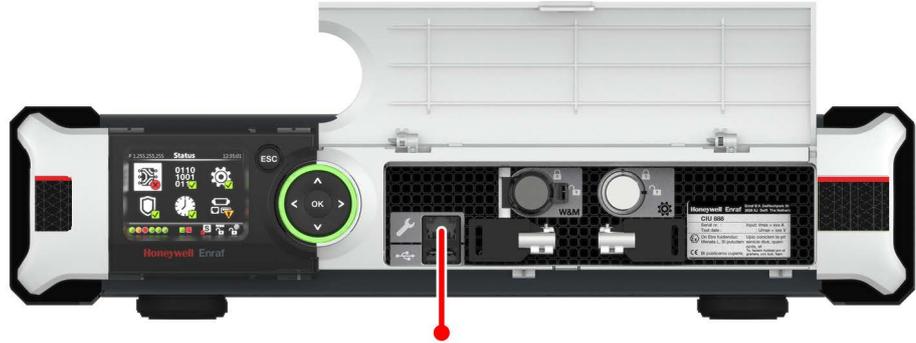
FIGURE 2-1   CIU 888: Service port

2. Unlock the CIU 888 to enable changes in the configuration using the key switches located at the front of the CIU 888 (see FIGURE 2-2).

FIGURE 2-2   CIU 888: W&M lock key switch (left) and Configuration lock key switch (right)

CAUTION

If the W&M lock key switch has been sealed, the hardware seal (wire) must be removed first in order to unlock the key switch. By breaking the hardware seal, the CIU 888 will no longer be W&M approved.

a) Insert the key for unlocking in the key switch, and turn the key clockwise.
b) Remove the key from the key switch and store it.

On the CIU 888 display, the status of the key switches changes from 'Locked' to 'Unlocked' (see FIGURE 2-3).

FIGURE 2-3   CIU 888 display: Configuration settings are unlocked

3. On the PC/laptop connected to the CIU 888, launch the browser.
4. Enter the IP address of the CIU 888 in the address bar of the browser. The IP address is **192.168.1.1**. Next, press the **Enter** key. The *CIU 888 Login* window is displayed (see FIGURE 2-4).
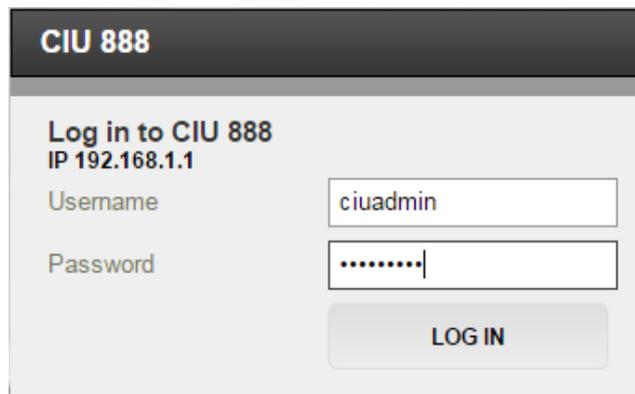
FIGURE 2-4   *CIU 888 Login* window

5. Enter the username and password to log into the CIU 888. The username is **ciuadmin**. Next, click **LOG IN**.
    After entering a valid username and password, the CIU 888 Web

interface is displayed. The *Diagnostics* window is displayed by default (see FIGURE 2-5).

FIGURE 2-5   CIU 888 Web interface: *Diagnostics* window

6. Click **CONFIGURE** in the section menu bar.
The *Configure* window is displayed (see FIGURE 2-6).

FIGURE 2-6   CIU 888 Web interface - *Configure* window

7. If required, click **View License** to view the details of the license that is currently installed.
The *View License* window is displayed (see FIGURE 2-7).

FIGURE 2-7   CIU 888 Web interface - *View License* window

The *View License* window provides the following information (see TABLE 2-1):

TABLE 2-1   Description of license details

Field	Description
Customer Name	Displays the name of the customer/company to whom the license was issued.
License creation date	Displays the date (year-month-day) and time (hours:minutes:seconds) when the license was created.
Site name	Displays the name of the site as configured during commissioning of the CIU 888. See the *CIU 888 Configuration Manual* (Part No. 4417593) for more information.
Software MSG	Displays the software license code as defined according to the *Model Selection Guide* for the CIU 888 (see APPENDIX A).
Hardware MSG	Displays the hardware license code as defined according to the *Model Selection Guide* for the CIU 888 (see APPENDIX A).
Calculations enabled	Displays whether the Volume Calculation module is enabled (true) or not (false).
Redundancy enabled	Displays whether redundancy is enabled (true) or not (false).
Number of tanks	Displays the maximum number of tanks supported by the CIU 888.

Field	Description
LM enabled	Displays whether the CIU 888 is Legal Metrology approved (true) or not (false).
Modbus TCP/IP enabled	Displays whether Modbus TCP/IP is enabled (true) or not (false).
Temperature Profiles enabled	Displays whether Temperature Profiles are enabled (true) or not (false)
Density Profiles enabled	Displays whether Density Profiles are enabled (true) or not (false).
OPCUA enabled	Displays whether OPCUA is enabled (true) or not (false)
RIC enabled	Displays whether Roof Immersion Compensation is enabled (true) or not (false)
Additional Calculations enabled	All – all additional calculations enabled. Or Specific names of calculations enabled (Ammonia, Chemicals Group, Ethanaol/Alcohol, Hydrogenated Vegetable Oil)

License status	Displays the status of the license:
	• LICENSE_OK
	  A valid CIU 888 license has been installed.
	• LICENSE_UNAVAILABLE
	  No CIU 888 license has been installed. Contact Honeywell.
	• LICENSE_INVALID_FILE
	  Internal error. Contact Honeywell.
	• LICENSE STATUS NOT AVAILABLE
	  Internal error. Contact Honeywell.

8. Click **Close** to close the *View License* window.
   The *Configure* window is displayed again.

9. Click **Update License**.
The *Update License* window is displayed (see FIGURE 2-8).
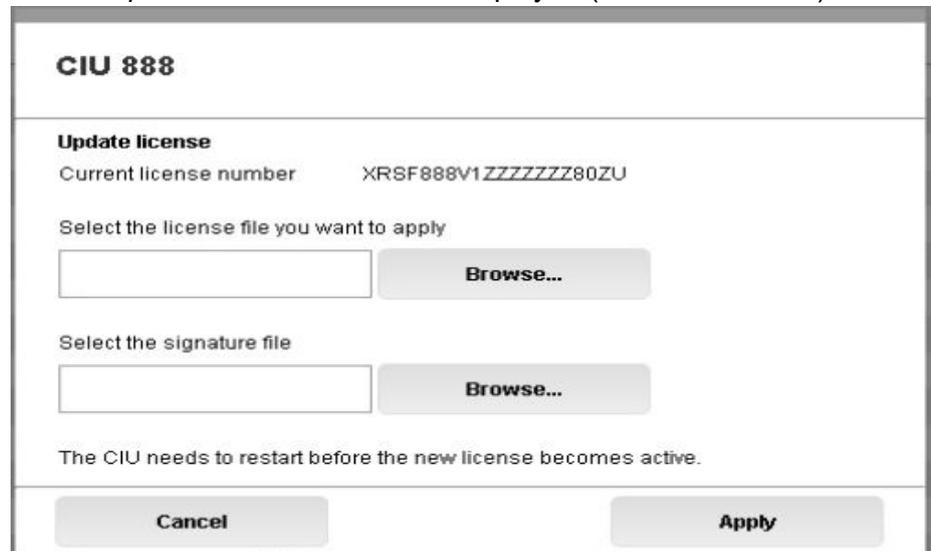
FIGURE 2-8   *Update License* window

10. Select the license file that must be installed on the CIU 888. Click **Browse...** to browse to the license file on the PC/laptop, and then select the file.
After the license file has been selected, the name of the license file is displayed in the text box.

11. Select the signature file corresponding to the license file. Click **Browse...** to browse to the signature file on the PC/laptop, and then select the file.
After the signature file has been selected, the name of the signature file is displayed in the text box.

12. Click **Apply**.
The CIU 888 is updated with the new license. If the update is successful, the following dialogue box is displayed (see FIGURE 2-9).
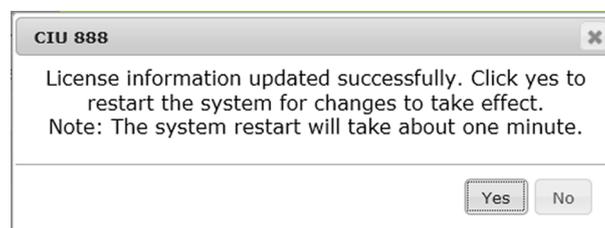
FIGURE 2-9   *CIU 888 Web interface: License information updated successfully* dialogue box

13. Click **Yes** to close the dialogue box and to restart the CIU 888.
The CIU 888 restarts. Once the CIU 888 is restarted, the new license

will be effective. This can be confirmed using the *View License* option described in step 7.

14. If required, change the CIU 888 system setup. For example, if the new license, as opposed to the previous license, enables redundancy, the site configuration of the CIU 888 needs to be modified. Refer to the *Configuration Manual CIU 888* (Part No. 4417593) for more information.

15. If the CIU 888 includes the sealing option and is intended to be sealed, have it sealed by a representative of the W&M authorities or by a W&M accredited user. Refer to the *Sealing Guide CIU 888* (Part No. 4417595) for more information.

16. Verify that the system setup is working properly. Refer to Section 2.10 in the *Configuration Manual CIU 888* (Part No. 4417593) for more information.

2.4 Updating the CIU 888 license on a redundant system setup

In case of a fully commissioned redundant system setup, a new CIU 888 license must be installed on **both** the primary CIU 888 and the secondary CIU 888.

REMARKS: 1. In the following procedure, it is assumed that the primary CIU 888 normally has the active role and the secondary CIU 888 the passive role.

2. The primary CIU 888 and the secondary CIU 888 must be fully synchronized before updating the CIU 888 license.

Perform the following steps to update the CIU 888 license on a redundant CIU 888 system setup:

1. Shut down every Entis Pro system connected to the CIU 888s in the redundant system setup. For example, if in the system setup each CIU 888 is connected to a separate Entis Pro system, both Entis Pro systems need to be shut down.

2. Shut down the primary CIU 888:

a) Connect the PC/laptop to the Service port of the CIU 888 using a Cat. 5 Ethernet cable. The service port is located at the front of the CIU 888 (see FIGURE 2-10).
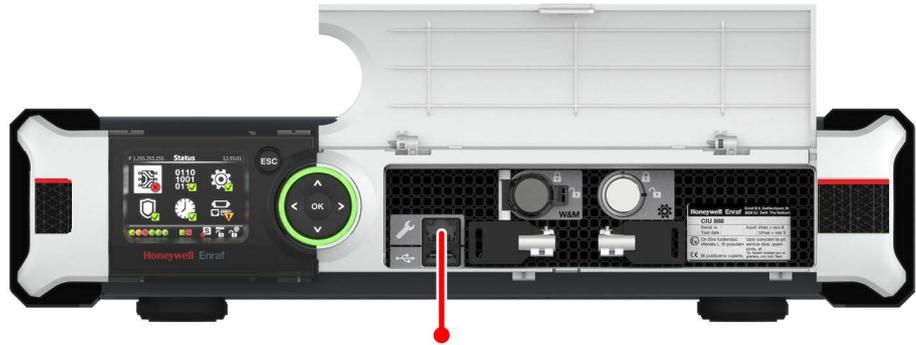
FIGURE 2-10   CIU 888: Service port

b) Unlock both the primary CIU 888 and secondary CIU 888 to enable changes in the configuration using the key switches located at the front of the CIU 888 (see FIGURE 2-2).

FIGURE 2-11   CIU 888: W&M lock key switch (left) and Configuration lock key switch (right)

CAUTION

If the W&M lock key switch has been sealed, the hardware seal (wire) must be removed first in order to unlock the key switch. By breaking the hardware seal, the CIU 888 will no longer be W&M approved.

– Insert the key for unlocking in the key switch, and turn the key clockwise.
– Remove the key from the key switch and store it.

On the CIU 888 display, the status of the key switches changes from 'Locked' to 'Unlocked' (see FIGURE 2-3).

FIGURE 2-12   CIU 888 display: Configuration settings are unlocked

c) Launch the browser.

d) Enter the IP address of the CIU 888 in the address bar of the browser. The IP address is **192.168.1.1**. Next, press the **Enter** key.
The *CIU 888 Login* window is displayed (see FIGURE 2-13).
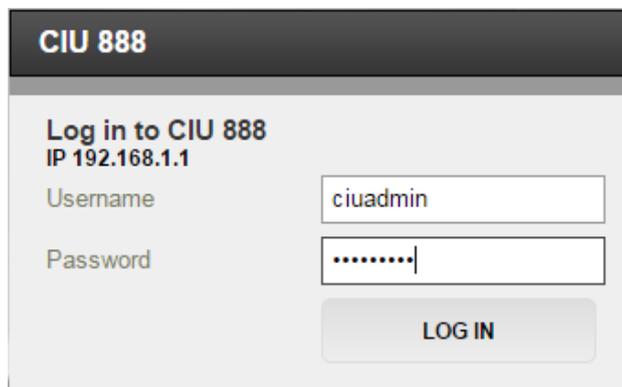
FIGURE 2-13   *CIU 888 Login* window

e) Enter the username and password to log into the CIU 888. The username is **ciuadmin**. Next, click **LOG IN**.
After entering a valid username and password, the CIU 888 Web

interface is displayed. The *Diagnostics* window is displayed by default (see FIGURE 2-14).

FIGURE 2-14   CIU 888 Web interface: *Diagnostics* window

f) From the CIU 888 menu in the CIU 888 Web interface, select **Shutdown CIU** (see FIGURE 2-15).
The primary CIU 888 shuts down.

FIGURE 2-15   CIU 888 Web interface: *Shutdown CIU* option in CIU 888 menu

3. Install the new CIU 888 license on the secondary CIU 888. See section 2.3 for more information.

NOTE: Perform steps 1 up to and including 13 of the procedure described in section 2.3.

After installation of the new CIU 888 license, the secondary CIU 888 needs to be restarted (part of the procedure). Once the secondary CIU 888 is restarted, the new license will be effective and the secondary CIU 888 assumes the active role.

4. Shut down the secondary CIU 888, see step 2.
5. Start the primary CIU 888 by switching the on/switch to the 'ON' position.
   The primary CIU 888 will assume the active role.
6. Install the new CIU 888 license on the primary CIU 888, see section 2.3 for more information.

NOTE: Perform steps 1 up to and including 13 of the procedure described in section 2.3.

After installation of the new CIU 888 license, the primary CIU 888 needs to be restarted (part of the procedure). Once the primary CIU 888 is restarted, the new license will be effective and the primary CIU 888 will continue in the active role.

7. Start the secondary CIU 888 by switching the on/off switch to the 'ON' position.
   Once the secondary CIU 888 is started, it assumes the passive role.
8. If required, change the CIU 888 system setup. Refer to the *Configuration Manual CIU 888* (Part No. 4417593) for more information.
9. If the CIU 888s include the sealing option and are intended to be sealed, have them sealed by a representative of the W&M authorities or by a W&M accredited user. Refer to the *Sealing Guide CIU 888* (Part No. 4417595) for more information.
10. Verify that the system setup is working properly. Refer to section 2.10 in the *Configuration Manual CIU 888* (Part No. 4417593) for more information.

2.5 Troubleshooting during the installation of a new CIU 888 license

For more information about problems and errors that may be encountered during the installation of a new CIU 888 license, refer to the *Troubleshooting & Maintenance Guide CIU 888 (Part No. 4417594)*.

APPENDIX A CIU 888 MODEL SELECTION GUIDE

A.1 Hardware

In FIGURE A-1 an example of the *Model Selection Guide* for the CIU 888 hardware configuration is displayed. The code is generated on the basis of the options presented in the table.

Pos 1	**Application**	***1)**
U	For Inventory Control of Bulk Storage Tanks	
X	Compliant with National W&M requirements (Available NMI; others contact sales office)	
	Pos 2	**Configuration**
	8	CIU for tank inventory management
	Pos 3	**Memory**
	A	4 GB Flash (temperature till 60 C)
	Pos 4	**Selection**
	H	CIU 888 Hardware config
	Pos 5, 6, 7	**Product designation**
	8 8 8	Communication Interface Unit
	Pos 8	**Field Card slot 1**
	Z	Not used
	B	Enraf Fieldbus input (BPM)
	G	Serial GPU input
	T	TRL2 Fieldbus
	M	Serial Modbus input (Master)
	Pos 9	**Field Card slot 2**
	Z	Not used
	B	Enraf Fieldbus input (BPM)
	G	Serial GPU input
	T	TRL2 Fieldbus
	M	Serial Modbus input (Master)
	Pos 10	**Field and Host Communication Card slot 3 *2)**
	Z	Not used
	B	Enraf Fieldbus input (BPM)
	G	Serial GPU input
	T	TRL2 Fieldbus
	M	Serial Modbus input (Master)
	H	Host Serial Modbus (slave)
	Pos 11	**Field and Host Communication Card slot 4 *2)**
	Z	Not used
	B	Enraf Fieldbus input (BPM)
	G	Serial GPU input
	T	TRL2 Fieldbus
	M	Serial Modbus input (Master)
	H	Host Serial Modbus (slave)
	Pos 12	**Field and Host Communication Card slot 5 *2)**
	Z	Not used
	B	Enraf Fieldbus input (BPM)
	G	Serial GPU input
	T	TRL2 Fieldbus
	M	Serial Modbus input (Master)
	H	Host Serial Modbus (slave)
	C	Host CIU emulation
	Pos 13	**Field and Host Communication Card slot 6 *2)**
	Z	Not used
	B	Enraf Fieldbus input (BPM)
	G	Serial GPU input
	T	TRL2 Fieldbus
	M	Serial Modbus input (Master)
	H	Host Serial Modbus (slave)
	C	Host CIU emulation
	Pos 14	**Extended memory**
	Z	Not available
	Pos 15	**Tag plate**
	Z	Not required
	T	Tag plate sticker added
	Pos 16	**Not used**
	Z	Not used

| U | 8 | A | H | 8 | 8 | 8 | B | Z | Z | Z | Z | Z | Z | Z | Z | **Typical Identification code** |
| * | 8 | A | H | 8 | 8 | 8 | | | | | Z | | Z | | Z | **Your Identification code** |

FIGURE A-1   Example of the *Model Selection Guide* for the CIU 888 hardware configuration

A.2 Software

In FIGURE A-2 an example of the *Model Selection Guide* for the CIU 888 software functionality is displayed. The code is generated on the basis of the options presented in the table.

Identification code			Software functionality	R101															Price in EUR
Pos 1			**Application**																
U			General purpose																10.00
X			Weights and Measures approved (NL, GE)																10.00
N			None (used in combination with Pos 20, in case Pos 1 doesn't need an upgrade)																
	Pos 2		**Base configuration**																
	S		Single CIU system																10.00
	R		Redundancy enabled per unit																1271.00
	N		None (used in combination with Pos 20, in case Pos 2 doesn't need an upgrade)																
		Pos 3	**Functionality**																
		S	According Standard																10.00
			Pos 4 CIU type																
			F	Tank Gauging Software Functionality															10.00
				Pos 5, 6, 7 Product designation															
			8	8	8	Communication Interface Unit														10.00
						Pos. 8, 9 Interfacing and Calculations													
						S	1	Scanning functionality											10.00
						V	1	Scanning with integrated Volume Calculation module											11083.00
						N	N	None (used in combination with Pos 20, in case Pos 8, 9 doesn't need an upgrade)											
								Pos. 10 Additional Inventory Calculations											
								Z	Not enabled										
								A	Ammonia										
								C	Chemicals Group1 *2)										
								E	Ethanol/Alcohol										
								H	Hydrogenated Vegetable Oil										
								I	Ammonia, Chemicals Group1, Ethanol/Alcohol, Hydrogenated Vegetable Oil Inventory Calculations										
									Pos. 11 Host communication OPCUA									
									Z	No OPCUA-server								
									S	Standard OPCUA server *3)								
										Pos. 12 Host Communication Modbus TCP/IP							
										Z	Not enabled							10.00
										S	Standard Ethernet (Modbus slave)							1390.00
											Pos. 13 Host Communication Ethernet Control						
											Z	Not enabled						10.00
												Pos. 14 Floating Roof Immersion Compensation					
												Z	Not enabled					10.00
												F	Floating Roof Immersion Compensation enabled					
													Pos. 15 Temperature Profiles				
													Z	Not enabled				10.00
													T	Temperature Profiles				#N/A
														Pos. 16 Density Profiles			
														Z	Not enabled			10.00
														D	Density Profiles			#N/A
															Pos. 17, 18 Number of tanks		
														0	5	tanks max		10.00
														1	0	tanks max		1541.00
														2	0	tanks max		12164.00
														3	0	tanks max		13247.00
														4	0	tanks max		14328.00
														5	0	tanks max		14870.00
														6	0	tanks max		16493.00
														7	0	tanks max		17575.00
														8	0	tanks max		18657.00
														U	0	Upgrade for 5 extra tanks (only if previous number of tanks was 5)		1450.00
														U	1	Upgrade for 10 extra tanks (till a maximum of 80 tanks / CIU) (Serial number and Licence required) only if Pos 20 = U		11,300.00
														U	2	Upgrade for 20 extra tanks (till a maximum of 80 tanks / CIU) (Serial number and Licence required) only if Pos 20 = U		12,500.00
														U	3	Upgrade for 30 extra tanks (till a maximum of 80 tanks / CIU) (Serial number and Licence required) only if Pos 20 = U		13,700.00
														U	4	Upgrade for 40 extra tanks (till a maximum of 80 tanks / CIU) (Serial number and Licence required) only if Pos 20 = U		14,900.00
														U	5	Upgrade for 50 extra tanks (till a maximum of 80 tanks / CIU) (Serial number and Licence required) only if Pos 20 = U		16,060.00
														U	6	Upgrade for 60 extra tanks (till a maximum of 80 tanks / CIU) (Serial number and Licence required) only if Pos 20 = U		17,150.00
														U	7	Upgrade for 70 extra tanks (till a maximum of 80 tanks / CIU) (Serial number and Licence required) only if Pos 20 = U		18,240.00
														N	N	None (used in combination with Pos 20, in case Pos 17, 18 do not need an upgrade)		
															Pos 19			
															Z	English		10.00
																Pos. 20 Upgrade		
																N	New CIU ordering		10.00
																U	Upgrade (Serial number and License required)		1456.00
U	**S**	**S**	**F**	**8**	**8**	**8**	**S**	**1**	**S**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Z**	**Typical indentification code**
		S	F	8	8	8		S	Z	Z	Z	Z	Z	Z	Z		Z		

FIGURE A-2   Example of the *Model Selection Guide* for the CIU 888 software functionality

NOTE: *2) Benzene, Cumene, Cyclohexane, Ethylbenzene, Styrene, Toluene, m-Xylene, o-Xylene, p-Xylene, Aromatic Hydrocarbons (Temperature range - 148.9-204.4°C).*

NOTE: *3) Standard OPCUA server option (S option in pos 11) is mandatory for ENTIS R130.1 or later versions.*

APPENDIX B **LIST OF ABBREVIATIONS**

Abbreviation	Meaning
CIU	Communication Interface Unit
MSG	Model Selection Guide
NMi	Nederlands Meetinstituut (Netherlands Measurement Institute)
TRL	Tank Radar Level
USB	Universal Serial Bus
W&M	Weights and Measures
LM	Legal Metrology

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APPENDIX C MISCELLANEOUS

C.1 Clearing cache in Chrome

1. In the browser bar, type:
   chrome://settings/clearBrowserData

2. Select the **Cached images and files** option.

3. Select a time duration from the **Obliterate the following items from**: drop-down menu option. You can choose the time period for which you want to clear the cached information. To clear your entire cache, select the beginning of time.

4. Click **Clear browsing data**.

5. Exit/quit all browser windows and re-open the browser.

C.2 Clearing cache in Internet Explorer 9 or higher versions

1. Select **Tools** (Alt+X) > **Safety** > **Delete browsing history** from the browser.

NOTE: If the menu bar is hidden, press Alt to make it visible.

2. Deselect the **Preserve Favorites website data** option and select **Cookies and website data**.

3. Click **Delete**.
   You will see a confirmation at the bottom of the window when the process is complete.

4. Exit/quit all browser windows and re-open the browser.

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For service-related questions, contact:

Technical Assistance Centre

Phone:

+1 800 423 9883 or

+1 215 641 3610

E-mail:

HFS-TAC-SUPPORT@honeywell.com

For More Information

To learn more about Honeywell Enraf's solutions, contact your Honeywell Enraf account manager or visit www.honeywellenraf.com.

Americas

Honeywell Enraf Americas, Inc.
1250 West Sam Houston Pkwy S.
Houston, TX 77042
USA
Phone: +1 (480) 293-2042
Email: enraf-us@honeywell.com

Europe, Middle East and Africa

Honeywell Enraf
Delftechpark 39
2628 XJ Delft the Netherlands
Phone: +31 (0)15 2701 100
Email: enraf-nl@honeywell.com

Asia Pacific

Honeywell Pte Ltd.
17 Changi Business Park Central 1
Singapore 486073
Phone: +65 6355 2828
Email: enraf-sg@honeywell.com

Honeywell