Honeywell | CIU 888

Trouble shooting & Maintenance Guide

Release R210

PREFACE

General

The overall health of the CIU 888 and of the connected tank gauges should be monitored to ensure that the system continues to work. When problems occur, these should be resolved in an appropriate manner as soon as possible to limit any potential downtime as much as possible.

Purpose of this manual

The purpose of this manual is to provide information about:

- Monitoring the health of the CIU 888 and the connected tank gauges using the diagnostic features of the CIU 888
- Troubleshooting software-related problems and errors users may encounter when working with the CIU 888
- Troubleshooting hardware-related problems users may encounter when working with the CIU 888
- Performing service on the CIU 888

Target group of this manual

This manual is primarily intended for service technicians who are responsible for:

- Diagnosing and troubleshooting problems and errors users may encounter when working with the CIU 888
- Performing service and maintenance on the CIU 888

Additionally, this manual may be of interest to operators who are responsible for monitoring the health of the CIU 888 and of the connected tank gauges.

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CHAPTER 1 DIAGNOSTICS

The CIU 888 has a number of diagnostics features enabling users to monitor the health of the CIU 888 and the connection status of the gauges connected to the CIU 888:

◼ Ring of light, see section 1.1

◼ CIU 888 display, see section 1.2

◼ CIU 888 Web interface, see section 1.3

1.1 Ring of light

The ring of light located at the front of the CIU 888 indicates high level statuses of the CIU 888 (see FIGURE 1-1).
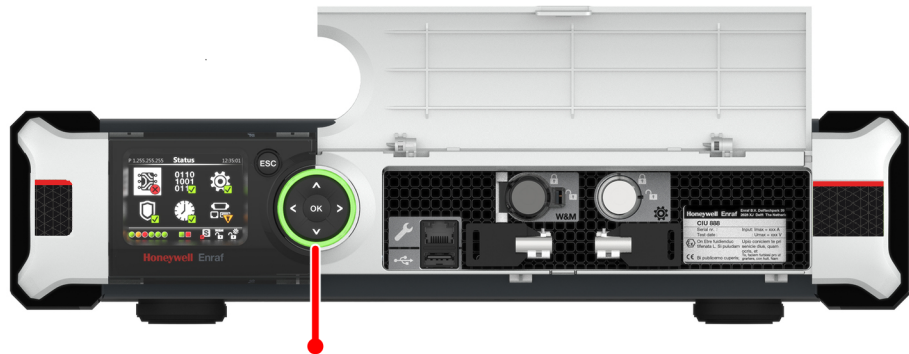
FIGURE 1-1   CIU 888: Ring of light

The behavior of the ring of light is specified by color and movement (and speed of movement) as described in TABLE 1-1.

Ring of light directly reflects the CIU System status. It is the same as the CIU system status in Web interface.

For more details on how CIU System status is determined, please see section 1.3.2.

TABLE 1-1   Ring of light statuses

Status	Color	Movement
Starting up	Blue	Continuously
Normal, running	Green	Continuously
Critical error/failure	Red	Continuously
Warning	Orange	Continuously

1.2 CIU 888 display

The CIU 888 display located at the front of the CIU 888 gives users access to various screens for monitoring and diagnosing the health of the CIU 888 and the connection status of the gauges connected to the CIU 888. Users can scroll through the various screens and confirm or cancel actions using the display keys (see FIGURE 1-2).
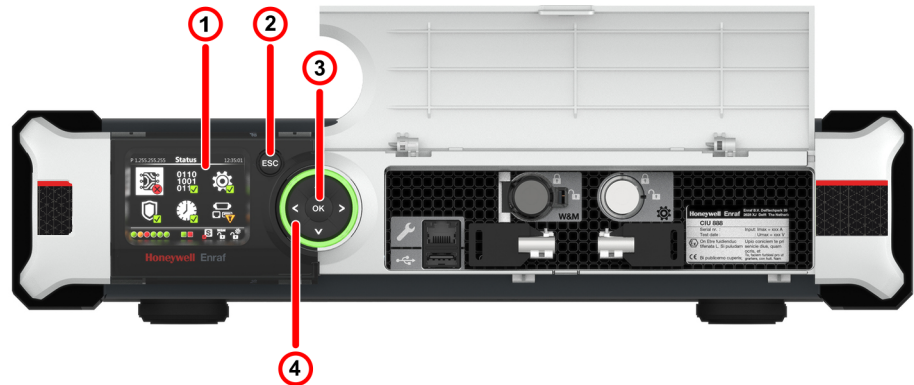
1. CIU 888 Display
2. ESC key
3. OK key
4. Navigation keys (◀, ▶, ▲ and ▼)

FIGURE 1-2   CIU 888: Display and display keys

1.2.1 Status Dashboard

The Status Dashboard is the main display screen for monitoring the overall health of the CIU 888 and the connected gauges, and for accessing the various CIU 888 display screens (see FIGURE 1-3).

FIGURE 1-3   CIU 888 display: Status Dashboard

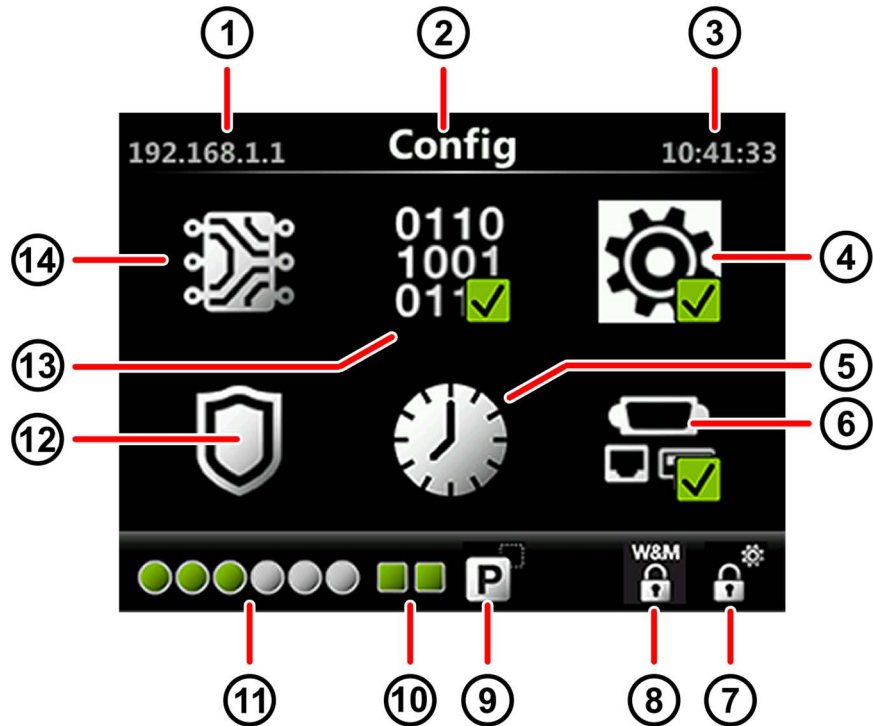| No.	Item	Description
1	IP address	Displays the IP address of the service port of the CIU 888. Note: The IP address before commissioning CIU 888 will be 0.0.0.0.
2	Display name	Displays the name of the option currently selected in the Status Dashboard.
3	Time	Displays the local system time, taking into account the time zones and daylight savings. The time is displayed in the format 'hh:mm:ss', where 'hh' is hours, 'mm' is minutes and 'ss' is seconds. The time can be configured during commissioning/configuration of the CIU 888 using Ensite Pro. See the *Configuration Manual CIU 888 (Part No. 4417593)* for more information.
4	Configuration option	Gives access to display screens enabling users to reset the CIU 888 to the factory defaults, and to setup redundancy. See section 1.4 for more information.
5	Clock option	Not supported currently.
6	Ports option	Gives access to detailed information for the communication ports, i.e. serial Host ports and option slots. See section 1.2.2 for more information.

No.	Item	Description
7	Configuration lock key switch status	Indicates whether the configuration settings (non-W&M and W&M relevant) of the CIU 888 are locked or unlocked.
		The configuration settings are unlocked and can be changed if necessary.
		The configuration settings are locked and cannot be changed.
8	W&M lock key switch status	Indicates whether the W&M relevant configuration settings of the CIU 888 are locked or unlocked.
		The W&M relevant configuration settings are unlocked and can be changed if necessary.
		The W&M relevant configuration settings are locked and cannot be changed.
9	Redundancy status	Indicates the current role of the CIU 888, which CIU 888 is currently scanning and if one the CIU 888s is in critical state.
		This is the primary CIU 888. Redundancy is not available.
		This is the primary CIU 888. Redundant system setup is operational. The primary CIU 888 is scanning.
		This is the primary CIU 888. Redundant system setup is operational. The secondary CIU 888 is scanning
		This is the secondary CIU 888. Redundant system setup is operational. The primary CIU 888 is scanning.
		This is the secondary CIU 888. Redundant system setup is operational. The secondary CIU 888 is scanning.
10	Host port status	Not supported currently.

No.	Item	Description
11	Option slot status	Indicates the overall health of the option slots and the gauges connected to it. The first four icons represent field cards and the last two icons can represent a field card, a host port card or a CIU emulation card.
		Running
		The health state of the option slot and the state of all connected gauges is optimal.
		Service
		The state of one or more of the connected gauges is set to service and the option slot and all connected gauges are not in error state. This state is also used when option slot is present but not configured.
		Error
		The health state of the option slot or one of the connected gauges is set to error.
		Available
		The option slot is empty.
		The last two option slots can have the following states:
		Running
		An option card is present and configured.
		Service
		An option card is present but not configured.
		Available
		The option slot is empty.
		Note: For passive CIU, Option Slot status for configured field ports is always indicated as 'Running'.
12	Security option	Not supported currently.
13	Software option	Gives access to information about the software version. See section 1.2.3 for more information.
14	Hardware option	Not supported currently.

1.2.1.1 Status Dashboard option states

The options in the Status Dashboard are accompanied by a status indication (see TABLE 1-2).

TABLE 1-2   Status indication for Status Dashboard options

Symbol	State	Description
✅	Running	All of the underlying options are correctly operating.
❌	Error	One or more of the underlying options are in error state.
🔧	Service advised	All of the underlying options are not in error state and one or more options are in service advised state.

1.2.2 Viewing the status of the CIU 888 ports

The *Ports* option in the Status Dashboard provides access to detailed information for all physically available ports.

REMARK: In the current release, detailed information is only provided for the option slots.

Perform the following steps to view the health status of an option slot and of the gauges connected to the option slot:

1. Highlight the **Ports** option in the Status Dashboard using the display keys. Next, press the **OK** display key.
   The *Option Slots* screen is displayed (see FIGURE 1-4).

FIGURE 1-4   CIU 888 display: *Option Slots* screen

The *Option Slots* display screen provides a list of all physically available option slots and provides quick feedback on the overall health of the individual option slots by means of an icon next to the option slot name.

Symbol	Description
✅	The health state of the option slot and all connected gauges is optimal.
❌	The health state of the option slot or one of the connected gauges is set to error
⚠	The health state of one or more of the connected gauges is set to service. The option slot and all connected gauges are not in error.

2. Highlight the option slot for which you want to view the status using the display navigation keys. Next, press the **OK** display key.
The *Option Slot* screen is displayed (see FIGURE 1-5). The name of the selected option slot is shown at the top of the screen preceded by the health state of the option slot.
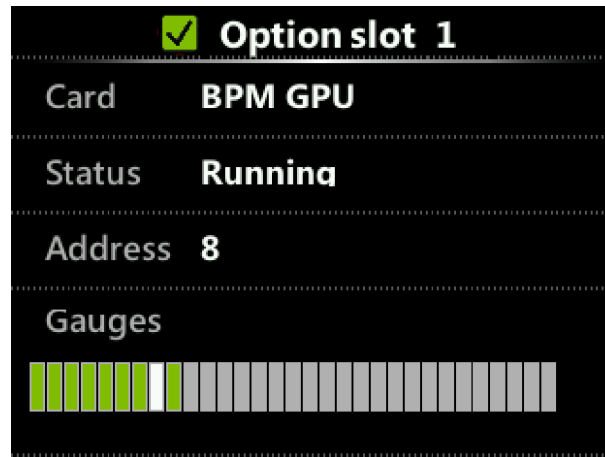
FIGURE 1-5   CIU 888 display: *Option Slot* screen

The *Option Slot* screen displays the following information (see TABLE 1-3):

TABLE 1-3   Information shown for option slot

Field	Description
Card	Displays the type of card installed in the option slot: • BPM GPU (= Enraf field bus) • CIU GPU (= RS communication)
Status	Displays the status of the option slot: • Scanning • Running • Error • Service advised
Address	Displays the address of the gauge connected to the option slot.

The colored bar can display 1 to 30 gauges. The order of gauges is determined by the configured scan list. The white cursor represents the gauge currently being scanned and will jump from gauge to gauge accordingly.

TABLE 1-4

Symbol	Color	Description
	Green	Gauge request is replied successfully
	Red	Gauge request is timed out - No reply

1.2.3 Viewing the version of the CIU 888 display software

The *Software* option in the Status Dashboard provides access to information about the version of the CIU 888 display software.

Perform the following steps to view the version of the CIU 888 display software:

1. Highlight the **Software** option in the Status Dashboard using the display keys. Next, press the **OK** display key.

The *Software* screen is displayed, showing the version of the CIU 888 display software (see FIGURE 1-6).
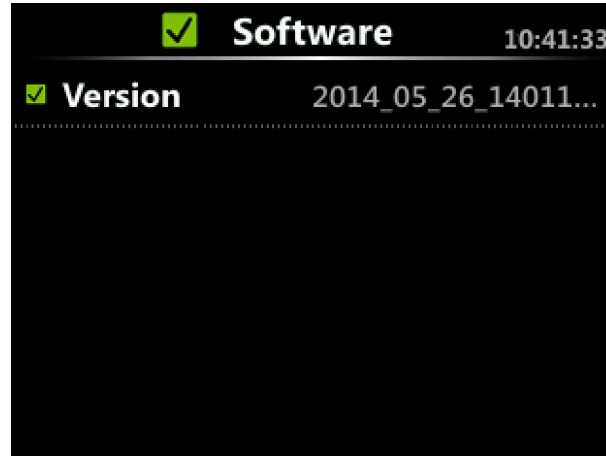
FIGURE 1-6   CIU 888 display: *Software* screen

1.3 CIU 888 Web interface

1.3.1 Diagnostics

The diagnostics function of the CIU 888 Web interface enables users to monitor the CIU 888.

REMARK: To perform the following procedure, a PC or laptop with Internet Explorer 10 or higher Web browser installed is needed. Furthermore, a Cat. 5 Ethernet cable is required and it is recommended to have a PC screen resolution of 1280 x 1024 or higher.

Perform the following steps to view the data provided by the CIU 888:
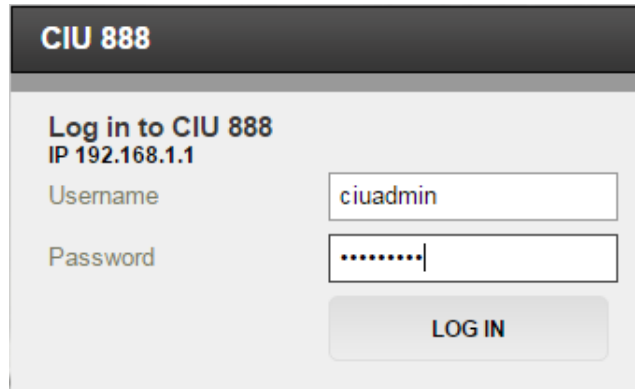
1. Connect the PC or laptop to the Service port of the CIU 888 using the Ethernet cable. The Service port is located at the front of the CIU 888 (see FIGURE 1-7).

FIGURE 1-7   CIU 888: Service port

2. Launch Internet Explorer 10 or 11.

3. Enter the IP address of the CIU 888 in the address bar of Internet Explorer. The IP address is: **192.168.1.1**. Next, press the **Enter** key. The *CIU 888 Login* window is displayed.

FIGURE 1-8   *CIU 888 Login* window

4. Enter the username and password to log on to CIU 888. The username is: **ciuadmin**. Click **LOG IN**.

Diagnostics

The CIU 888 Web interface is displayed. By default, the *Diagnostics* window is displayed (see FIGURE 1-9).

FIGURE 1-9   CIU 888 Web interface: *Diagnostics* window

The **Diagnostics** tab displays the diagnostics parameter of CIU 888.

To interpret the data correctly, remember:

All the healthy parameters are signified by a green dot and the respective parameter remains collapsed.

All the failed parameters are signified by a red dot. The failed parameter is displayed in an expanded state and the corresponding sub-parameters are listed. The diagnostic data provided by the CIU 888 is described in TABLE 1-5.

TABLE 1-5   Description of CIU 888 diagnostic data

Item	Description
CIU System Status	Displays the overall system status of CIU 888. See section "1.3.2" for more information.

Item	Description
Field Port communication (Option 1-6) • Card type • Version • Hardware Version	Displays the field card type mismatch, if any.
SyncLink connection status	Displays the status of the Sync Link connection. The possible statuses are: • Connected • Disconnected
ServiceLink connection status	Displays the status of the Service port connection. The possible statuses are: • Connected • Disconnected
FTE A Status	Displays the status of the FTE A connection. The possible statuses are: Connected or Disconnected.
Active Modbus Clients count	Displays the number of active Modbus TCP/IP clients connected.
Modbus Tx packet count	Indicates the modbus transmit packet count.
Modbus Rx packet count	Indicates the modbus receive packet count.
Modbus Error packet count	Indicates the modbus error packet count.
FTE B Status	Displays the status of the FTE B connection. The possible statuses are: Connected or Disconnected.
Active Modbus Clients count	Displays the number of active Modbus TCP/IP clients connected.
Modbus Tx packet count	Indicates the modbus transmit packet count.
Modbus Rx packet count	Indicates the modbus receive packet count.
Modbus Error packet count	Indicates the modbus error packet count.
LAN Status	Displays the status of the LAN connection. The possible statuses are: Connected or Disconnected.
Active Modbus Clients count	Displays the number of active Modbus TCP/IP clients connected.
Modbus Tx packet count	Indicates the modbus transmit packet count.
Modbus Rx packet count	Indicates the modbus receive packet count.
Modbus Error packet count	Indicates the modbus error packet count.
Compact flash data free space	Displays the free space available on the data partition of the CompactFlash. The available free space is displayed in megabytes. The available free space on the data partition of the CompactFlash is checked during the first startup of the CIU 888. If the available space is less than 2 GB (2048 MB), then the CIU 888 will power down and an event record will be created.

Item	Description
RAM usage	Displays the percentage of RAM during operation. • Low threshold limit: If the percentage exceeds 90%, an event record will be created. • High treshold limit: If the percentage exceeds 95%, the RAM usage health status will be set to 'Not OK'.
Carrier board temperature 1-4	Displays the temperature detected by the carrier board sensor. The carrier board built into the CIU 888 has a total four temperature sensors. The temperature is checked immediately after startup and every 2 minutes under normal conditions. If the temperature exceeds the low threshold limit, the temperature is checked every 30 seconds. • Low threshold limit: If the detected temperature exceeds 80 °C, the carrier board temperature health status will be set to 'not OK'. For any temperature change of 1 °C or more an event record will be created. • High threshold limit: If the detected temperature exceeds 85 °C, the CIU 888 will be powered down.
CPU core temperature	Displays the CPU core temperature. The temperature is checked every 30 seconds. • Low threshold limit: If the detected temperature exceeds 85 °C and for any temperature change of 1 °C or more an event record will be created. • High threshold limit: If the detected temperature exceeds 90 °C, the CIU 888 will be powered down.
W&M key switch status	Displays the status of the W&M lock key switch: • Open: W&M lock key switch is in open position. W&M relevant configuration can be changed. • Closed: W&M lock key switch is in closed position. W&M relevant configuration settings cannot be changed.
Write protect key status	Write Protect Key status is obtained periodically from HAL. A check is made to see if the value is same as that of the previous key status. Only if there is a change from the previous value, a new value be written into database. 2.) Any change in Write protect key status is logged as an Audit log
Average CPU usage	Displays the percentage of the CPU that on average is used.
Operational hours since last startup	Displays the number of hours the CIU 888 has been operational since the last startup.
CIU version	Displays the version of the CIU 888.
CIU release number	Displays the release number of CIU 888.
CIU Checksum [*]	Displays the runtime CIU Checksum

Item	Description
Last power up time	Displays the date and time when the CIU 888 was last powered up. When the CIU 888 is powered up, and event record is created.
Last power down time	Displays the date and time when the CIU 888 was last powered down. When the CIU 888 is powered down, an event record is created.
Last power down reason	Displays the reason for the last power down of the CIU 888. Possible reasons are: • Power cycled (1) • Power cycled (2) • Power cycled (3) • Power cycled (4) • Power cycled (5) • Power cycled (6) • Internal FPGA failure • Overheated Core Processor • Restart by watchdog due to COMe issue • Restart by watchdog due to secondary controller issue • User initiated shutdown • Unknown
FPGA status	Displays the status of the FPGA built into the CIU 888. The FPGA status is checked immediately after startup of the CIU 888 and every 10 seconds during normal operation. If the FPGA status is 'TBD', an event record will be created and the CIU 888 will power down.
BIOS version	Displays the status of the BIOS built into the CIU 888.
Secondary micro controller version	Displays the version of the secondary micro controller.
LCD type	If the LCD type is not supported, a fatal failure may be initiated immediately.

NOTE: *Checksum is calculated periodically over a set of CIU files.*

1.3.2 CIU System Status

CIU System status in Web interface reflects the current status of the CIU. This status is also indicated by the Ring of light.

CIU system status when normal will not have any sub-parameters listed. However when in warning or fail state, the parameter will be expanded with contributing sub parameters.

1.3.2.1 Parameters responsible for determining the CIU system status:

Points to note:

■ If one or more conditions indicate "Fail", the CIU system status is set to "Fail".

■ If all the conditions do not indicate "Fail", and few of the conditions indicate a "Warning", the CIU system status is set to "Warning".

■ If none of the conditions indicate "Fail" and "Warning", the CIU system status is set to "Normal".

The conditions which contribute to CIU System status being Warning/ Fail are listed in the following tables:

Fail
Capacity of installed RAM < 1024 MB
Capacity of installed compact flash < 2048 MB
Free space in installed compact flash <100 MB
FPGA status is bad
Carrier board temperature > 85 ºC
CPU core temperature > 90 ºC
RAM usage > 95% Compact flash status is fail
Calculated checksum is not matching with the factory checksum. CIU Checksum Mismatch

Warning
BPM fuse status: Blown
Free space in installed compact flash <300 MB
Carrier board temperature > 80 ºC
CPU core temperature > 85 ºC
RAM usage >90%
Compact flash status is in warning state
Field card type mismatch (configuration of the field port does not match with the installed field card).
Power good status of TRL/2 field card goes bad

1.3.2.2 Range Legend

The **Range legend** displays the range limits for a few parameters. The range is further classified into 3 categories.

Normal: defines that the parameter is healthy (green dot)

Warning: defines that the parameter may partially be out of range (orange dot)

Fail: defines that the parameter is totally out of range (red dot)

FIGURE 1-10	Range Legend

1.3.3 Logs

The *Logs* function of the CIU 888 Web interface enables users to view audit and event records that were logged by the CIU 888.

Examples of records that are logged are:

■ Power on/off
■ User login/logout
■ User password change
■ Changes in the configuration settings and operational parameters (manual overwrites)
■ Changes in the status of the Configuration lock key switch
■ Changes in the status of the W&M lock key switch
■ Field port connection and disconnection
■ Ethernet port connection and disconnection

Perform the following steps to view audit and event records:

1. Select **Logs** in the *Section* menu bar.
   The *Logs* window is displayed (see FIGURE 1-11).
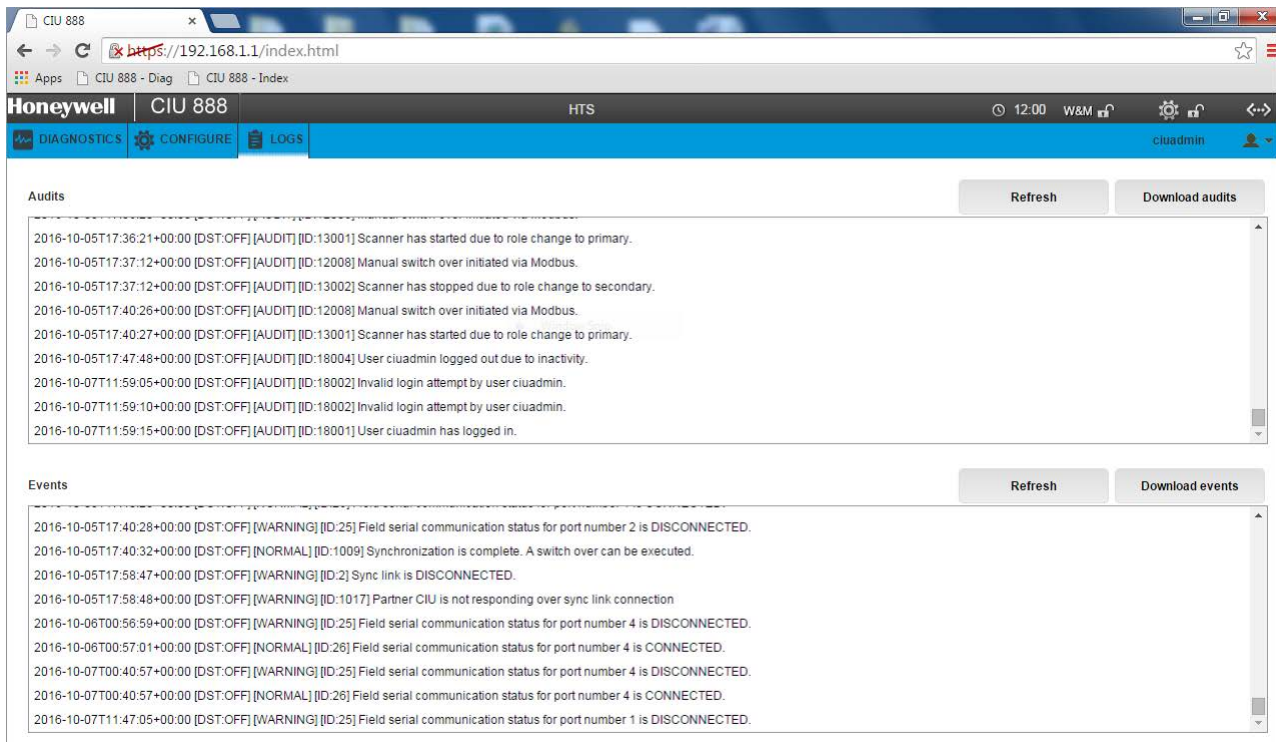
FIGURE 1-11   *Logs* window

For each audit and event record listed in the *Logs* window, the following information is displayed:

– The date (in YYYY/MM/DD format) on which the audit or event record was logged

– The time (in hh:mm:ss format) on which the audit or event record was logged

– The type of the audit or event record that was logged

– The ID of the audit or event record that was logged

– A description of the audit or event record that was logged

2. Click the **Refresh** button to refresh the list of audit records or event records.

3. Click the **Download Audits** button to download and save the logged audit records on your PC. By default, the logged audit records are saved in a text file (*.txt format).

4. Click the **Download Events** button to download and save the logged event records on your PC. By default, the logged event records are saved in a text file (*.txt format).

1.4 Reset to factory defaults

The *Configuration* option in the Status Dashboard provides access to a display screen to reset the CIU 888 to the factory defaults. A *Reset to factory defaults* operation sets the CIU 888 back to the default database, and resets the password to the default password (i.e. CIU888@Enraf).

1.4.1 For CIU 888 primary system:

Perform the following steps to reset the CIU 888 to the factory defaults:

1. Highlight the **Configuration** option in the Status Dashboard using the display keys. Next, press the **OK** display key.
   The *Configuration* screen is displayed (see FIGURE 1-12).
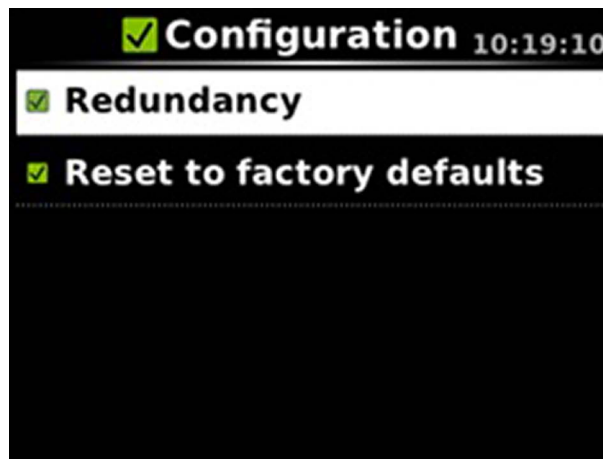
FIGURE 1-12	CIU 888 display: *Configuration* screen

2. Highlight the **Reset to factory defaults** option using the displays keys. Next, press the **OK** display key.
   The *Confirm Changes* screen is displayed (see FIGURE 1-13).

FIGURE 1-13   CIU 888 display: *Confirm Changes* screen (Reset to factory defaults)

3. Highlight the **OK** option using the display keys. Next, press the **OK** display key.
   The CIU 888 is reset to the factory defaults.

1.4.2 For CIU 888 redundant system:

Perform the following steps to reset the redundant CIU 888 to factory defaults:

1. Disconnect the synchronization link cable between the redundant pair.
2. Factory reset the CIU 888 device(s) that are required to be reset using the LCD display and keyboard.
3. Restart the device.
4. Reconnect the synchronization link cable between the redundant pair.
5. Setup redundancy between the devices.

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CHAPTER 2   SOFTWARE TROUBLESHOOTING AND ERROR MESSAGES

This chapter provides troubleshooting scenarios for software-related problems users may encounter when working with the CIU 888. Furthermore, this chapter provides an overview of error messages that may be displayed when working with the Ensite Pro to CIU 888 Migration Tool or the CIU 888 Web interface.

2.1 Troubleshooting scenarios

TABLE 2-1 provides a list of troubleshooting scenarios for software-related problems users may encounter.

TABLE 2-1   CIU 888 troubleshooting scenarios

Problem	Cause	Solution
While resetting the factory settings, the **Change Password** option does not appear in a few rare instances.	Power disruption during factory reset.	Factory reset must be re-done. Ensure that the **Change Password** option is displayed.
CIU 888 that has been configured as secondary CIU in redundant system setup does not assume secondary role when connected to running primary CIU 888 or when both CIUs are started together.conn	Mismatch between firmware of primary CIU 888 and firmware of secondary CIU 888.	On secondary CIU 888, install same version of firmware installed on primary CIU 888. When firmware has been successfully installed, user is prompted to restart secondary CIU 888. After restart, CIU 888 assumes secondary role. Note: See *Firmware Upgrade Manual CIU 888* (Part No. 4417596).
	Mismatch between license installed on primary CIU 888 and license installed on secondary CIU 888.	On secondary CIU 888, install same version of license installed on primary CIU 888. When license has been successfully installed, user is prompted to restart secondary CIU 888. After restart, CIU 888 assumes secondary role. Note: See *Firmware Upgrade Manual CIU 888* (Part No. 4417596).
Both CIU 888s in redundant system setup assume active role.	Sync Link cable between CIU 888s is disconnected. (Can be observed in Logs window and Diagnostics window of CIU 888 Web interface)	1. Reconnect Sync Link cable between the CIU 888s. 2. Restart secondary CIU 888.

Problem	Cause	Solution
During commissioning of redundant system setup secondary CIU 888 does not assume secondary role.	Sync Link cable between CIU 888s is disconnected during commissioning of redundant system setup. (Can be observed in *Logs* window and *Diagnostics* window of CIU 888 Web interface)	Reconnect Sync Link cable between CIU 888s.
	Configuration lock key switch and/or W&M lock key switch of primary and/or secondary CIU 888 in redundant system setup is/are in 'closed' position.	1. Open Configuration lock key switch and W&M lock key switch of both primary CIU 888 and secondary CIU 888. 2. Perform procedure for commissioning of redundant system setup. Note: See *Configuration Manual CIU 888* (Part No. 4417593).
Secondary CIU 888 in redundant system setup is not able to assume primary or secondary role after restart.	Sync Link cable between CIU 888s is disconnected.	1. Reconnect Sync Link cable between CIU 888s. 2. Restart secondary CIU 888.
In Hot Standby status of Entis Pro, CIU 888 status is striked out.	Serial cable between Entis Pro system and CIU 888 is disconnected or malfunctioning.	1. Reconnect serial cable between Entis Pro system and CIU 888. 2. If serial cable is malfunctioning, replace cable.
	Mismatch between Tank and CIU 888 CRCs within CIU 888 due to database corruption. (Can be observed in *Logs* window of CIU 888 Web interface and ring of light is red.)	1. Perform Reset to Factory Settings operation via CIU 888 display. 2. Upload new site configuration to CIU 888 using Service tool/Migration tool. Note: See the *Configuration Manual CIU 888* (Part No. 4417584).
Unable to log in to CIU 888 Web interface of secondary CIU 888 with configured password after commissioning of redundant system setup.	During commissioning of redundant system setup Reset to Factory settings operation is performed. During this operation password is reset to factory default password.	1. Log in to CIU 888 Web interface using factory default password. 2. Change password when prompted by system.
Unable to perform manual switchover via Entis Pro.	Sync Link cable between CIU 888s is disconnected.	1. Reconnect Sync Link cable between CIU 888s. 2. Wait for initial synchronization to be complete. 3. Check CIU 888 Web interface for event log indicating that system is ready for switchover. 4. Perform manual switchover via Entis Pro.
	CIU 888s in redundant system setup are not fully synchronized.	Restart Secondary CIU 888.

Problem	Cause	Solution
Entis Pro *Tank Detail* window displays nothing (i.e. blank)	INI files have not been updated.	1. Update INI files using Migration tool. Note: See the *Configuration Manual CIU 888* (Part No. 4417584). 2. Reload INI files in Entis Pro using Entis Pro CIU+ Links application. Note: See *Configuration Manual Entis Pro version 2.701* (Part No. 4416381).
	Mismatch between Tank and CIU 888 CRCs within CIU 888 due to database corruption. (Can be observed in *Logs* window of CIU 888 Web interface and ring of light is red.)	1. Perform Reset to Factory Settings operation via CIU 888 display. 2. Upload new site configuration to CIU 888 using the Service tool/ Migration tool. Note: See *Configuration Manual CIU 888* (Part No. 4417584).
	Entis Pro is not functioning properly.	1. Shut down Entis Pro. 2. Start Entis Pro. OR 1. Shutdown Entis Pro 2. Replace Entis Pro default database 3. Start Entis Pro and assign the INI
When new tank has been added during update of site configuration, CIU 888 status switches continuously between normal and striked out in Hot Standby status of Entis Pro.	New tank information is not linked to host port.	1. On *CIU Prime* tab of *Link* window in Ensite Pro, remove CIU Plus to CIU Prime link, click **Apply**, and relink again. 2. Update new site configuration to CIU 888 using the Migration tool. Note: See *Configuration Manual CIU 888* (Part No. 4417584).
In *Tank Detail* window of Entis Pro for one or more parameters status "xc980" is displayed.	Corresponding gauge or gauges are not able to provide response within configured timeout.	1. Increase timeout for field port used for connecting gauge. 2. Update new site configuration to CIU 888 using the Migration tool/ Service tool. Note: See *Configuration Manual CIU 888* (Part No. 4417584).
	Communication between CIU 888 and gauge failed.	Ensure that communication between CIU 888 and gauge is OK.
When uploading site configuration to CIU 888 using Service tool/Migration tool following message is displayed: "Active session exists."	User is already logged on to CIU 888.	Close any existing session with CIU 888 before uploading site configuration to CIU 888.
When uploading site configuration to CIU 888 using Service tool/Migration tool the following message is displayed: "Cannot connect to remote server."	Cable used for connecting PC/laptop running Migration tool/Service tool to Service port/VPN port of CIU 888 is not connected properly.	Connect cable properly to Service/VPN port of CIU 888.

Problem	Cause	Solution
When updating INI files using Service tool/Migration tool following message is displayed: "CIU 888 should be configured before updating INI files."	CIU 888 has not been fully configured, and may be in factory reset condition.	1. Re-upload site configuration to CIU 888 using Migration tool. 2. Update INI files using Migration tool. Note: See *Configuration Manual CIU 888* (Part No. 4417584).
Site scan from Engauge is getting timed out.	CIU888 is not able to complete the site scan within the Engauge time limits.	1. Increase Engauge timeout from 1500- 9999 ms based on CIU 888 configuration. 2. Configure CIU888's field port retries to 1 (minimum supported in Ensite Pro). 3. Disable downlink CIU scan in Engauge. Create the downlink CIUs and its associated gauges manually in Engauge (as we do in case of CIU880). 4. Configure CIU888's **Field port timeout** as 1500 ms (as we do in case of CIU880).
Board scan or FlexConn diagrams for radar gauges from Engauge get timeout error.	FlexConn address is not configured for radar gauges in CIU 888.	Configure the FlexConn address for all radar gauges in CIU 888 using the CIU 888 Web interface.
The Flexconn commands sent by engauge is not responding for flexline TRL/2 gauge	FlexConn address is wrongly configured for radar gauges in CIU 888.	Configure the FlexConn address for all radar TRL/2 gauges in CIU 888 using the CIU 888 service tool.
After NOVRam reset, on the flexline radar gauges the flexconn commands are not working for that particular gauge	FlexConn address is wrongly configured for radar gauges in CIU 888.	1. Change the flexconn address using smartview. 2. If the configuration has 8xx gauge type, change the gauge type to 990 and assign non used flexconn address. Revert gauge type to 8xx gauge type.
NOVRam reset command fails for gauge.	There may be some unresponding gauges periodically scanned by CIU 888.	Disable tank scan for unresponding gauges.
Latest audits/events are not displayed in web interface properly.	Log rotation happened for audits and events.	Wait for a few seconds to load the latest audit/event files. OR Download the audit/event files and view in any text editor.
Non-configured gauge is not scanned from CIU 888 part of site scan from Engauge.	Field port and gauge are not configured.	Configure the field port to which the gauge is connected.
Level value in mm and Pressure value in Kgf/cm^2 are scaled up and shown incorrectly from CIU 888.	The Modbus scaling factor for these parameters is increased during database configuration activity.	Reset the scaling factors for these entities on the host ports using Ensite Pro.

Problem	Cause	Solution
CIU System Status/ Ring of light turned to Orange color indicating a Warning: Compact flash data free space is less than the required limit.	Compact flash data free space is less than the Low limit of 300MBs.	Clear the log files. Go to https://192.168.1.1 enter credentials, click clear logs and restart CIU 888.
CIU System Status/ Ring of light turned to Red color indicating a Fatal failure: Compact flash data free space is less than the required limit. CIU 888 stopped functioning including field and host communication.	Compact flash data free space is less than the Critical limit of 100MBs.	
Density dip does not work, when Field port has default timeout configured (250ms).	Density dip command is aborted due to timeouts on 1200 baud rate BPM lines.	Increase the field port timeout to 300-350 ms.
After sending configuration to CIU 888 using Ensite Pro, scanner does not start and CIU System Status/Ring of light turned to Red colour indicating a Fatal failure.	Orphan gauge for example. a gauge not linked to a Tank (among linked Tanks/gauges) and Field port is available in the configuration.	Check for the orphan gauge and delete the orphan gauge in the Ensite pro before sending the configuration to CIU 888.
While migrating from R103.2 to R120.1, the verify configuration from CIU 888 service tool reports "mismatch in the configuration"	CRCs are updated within CIU 888 as part of upgrade. However service tool is not updated with these new CRCs.	Ignore the message and perform update configuration.
Diagnostics difference in LCD and Web Interface for TRL/2 Field port.	Improper configuration of TRL/2 data input.	Check device ID is configured in TRL/2 data input under the Field port and configure it properly.
Deletion of tank fails in Service tool when user defined modbus map is configured and then changed the host port protocol from Modbus RTU to CIU - GPU.		1. Change the protocol type back to modbus RTU. 2. Change the modbus mapping to user specified. 3. Remove the tank which needs to be deleted from Service tool and add it to available list in user defined modbus map. 4. Delete the tank from the Service tool.
Modbus TCP/IP open port failure message in events.	IP address not configured properly for modbus TCP/IP ports.	When modbus server is enabled for modbus TCP/IP port, do IP configuration properly.
CIU 888 ring of light goes to red indicating fatal failure during operation.	During update configurations CRC values are not getting updated.	Perform factory reset via LCD and send the configuration to CIU again.
In redundant CIU configuration, one of the CIUs goes to factory reset status after configuration update.	CIUs site topology has dual primary host systems (2 systems issuing switchover command. Example: Entis Pro and Experion). During configuration update multiple switchovers are initiated and CIU goes to factory reset status.	If CIU went to this state then reset both CIUs and perform set up redundancy to recover back. Ensure that site topology has only one primary system (one host system controls CIU redundancy and issues switchover command) so that this issue would not happen.

Problem	Cause	Solution
In redundant CIU configuration, when tanks are deleted and configuration update is performed CIU goes to dual passive if the reload INI is not performed in Entis Pro.	Entis Pro encounters communication failures for tank record requests for the deleted tanks and gives multiple switchover commands to CIU which result in a dual passive scenario.	1. Reload INI files in Entis Pro 2. Power off secondary CIU 3. Power on Secondary CIU. It takes Secondary role and LCD also shows that the Primary CIU is scanning. 4. Power off Primary CIU 5. Secondary CIU becomes the Primary and it starts scanning. 6. Power on Primary CIU. It takes Secondary CIU role
Unable to install previous version of Service Tool (R120.2, R130.1, R130.2, R130.3) when newer version is already installed.	Installer issue	1. Uninstall the latest versions of service tool. 2. Install the required version. Newer versions of service tools can now be re-installed.
In Modbus TCP/IP host communication, time out error is observed for temperature profile enable /disable command and interface density profile upper and lower level limit overwrites.	Since in Modbus host, configured timeout is lesser than the response time	Configure response time out around 1500 ms.
In Channel Sequencing, temperature profile scan period is allowed even if it is invalid.	UI validation is not handled in service tool for channel sequencing for Temperature Profile Scan Period.	See section *3.2.7.1 in the Configuration Manual* (Part No. 4417584) for more information.
User not able to download the logs form diag.html and audit & events.	The popup window might be blocked or missing redirection.	1. Unblock the popup windows. 2. Use 192.168.1.1/index.html to download audit & events.
In temperature profile record, element Position values are zero in Modbus host for TRL2 990 with VITO.	Improper configuration in the guage.	Properly configure the guage.
Frequent timeouts/transaction id error occurring in the Modbus host system when connected with CIU888.	Configured Timeout is not sufficient in Modbus host system.	Increase timeout in Modbus host system.
Unable to download Audits/Events in CIU web interface.	URL to access CIU web interface in not complete.	Access CIU web interface using http://192.168.1.1/index.html if connecting via service port. If connecting via VPN, access via http://VPN_IP/index.html where VPN_IP is the configured VPN IP address.
User gets login failed, despite entering correct credentials.	Due to incorrect attempts, user gets locked out for 10 mins.	User gets unlocked after 10 mins. So Retry after 10 mins.

Problem	Cause	Solution
Firmware upgrade from R161.2 to R210.1 After importing the service tool project to R210.1, it will create products automatically and associate them with existing tanks. When a new product is created, it now associates with an existing tank and updates the configuration.	After updating the configuration, the tank sample density comes with an uninitialized status in the case of a redundant CIU.	Power off and power on both CIUs at the same time.
Firmware upgrade from R162.1 to R210.1 1. CIU888 reboots after a firmware upgrade, which results in a timeout when trying to connect to the ENTIS Modbus Map via Modbus/TCP. 2. After upgrading to R210.1, manually overwritten sample density and temperature will become zero.	1. After importing the service tool project to R210.1, it will create products and associate them with existing tanks. If the user modifies or adds configuration, he will download the configuration. Even if the user does not want to change or add configuration, it is recommended that the configuration be downloaded so that the products can be downloaded to CIU888. 2. Sample density and temperature will reflect zero on the tank details page.	1. After downloading the configuration, user will be able to connect. 2. User has to overwrite the same value again to sample density and temperature for tanks where it was overwritten.
After upgrading to R210.1 and establishing communication with ENTIS R130.1, when overwriting a different product to a tank via OPCUA, The Tank Monitor of the CIU888 Web interface displays an old product.	It works properly and shows a proper tank in Entis. But in CIU888 Web Interface, under the "Tank Monitor" page, it still shows an old product associated.	Proper values can be found on the Entis Tank detail page.
After performing a firmware upgrade to R210.1 in the secondary CIU. It will not play any role.	Since role has not been taken, CIU functions will not start.	After Secondary CIU is upgraded, it will be powered down and Primary CIU will be upgraded. The primary CIU will assume its proper role once upgraded. Secondary CIU will be powered on; now it will take on a secondary role.
FAS fatal failure is observed when performing a flex-conn board scan via Engauge for a non-configured gauge.		Configure the gauge in service tool and download the configuration.

Problem	Cause	Solution
If user has a tank configured with any one of the following product. • ASTM D1250-80 T5/6 • ASTM D1250-80 T23/24 • ASTM-IP-52 T23/24 • ASTM-IP-52 T53/54 • ASTM D1250-80 T59/60 • ASTM D1250-80 T53/54 • API MPMS Ch. 11.1 (2004) °API @ 60 °F (T5/6) • API MPMS Ch. 11.2.4 (2007) (GPA TP-27-07) T23/24 • API MPMS Ch. 11.1 (2004) RD60 @ 60 °F (T23/24) • API MPMS Ch. 11.1(2004) kg/m3 @ 15 °C (T53/54) • API MPMS Ch. 11.1 (2004) kg/m3 @ 30 °C (T59/60) • API MPMS CH. 11.2.4 (2007) (GPA TP-27-07) T53/54 • API MPMS CH. 11.2.4 (2007) (GPA TP-27-07) T59/60 • ASTM D4311-04 T2 • ASTM D4311-04 T1 Now, when the user overwrites any other product apart from those mentioned above, It works, and it does the calculation as per that product. Now when he overwrites the reference density, it gets an internal error.		Reboot the CIU. Now the user can manually overwrite the reference density.
After downloading a fresh configuration, GSVCalcType for a few tanks shows "Undefined" in the tank detail page of Entis Pro.	In CIU888 Web Interface, tank monitor, it shows the proper gsvCalcType, but in the tank detail page of Entis Pro, it shows "Undefined."	Following a restart, the correct GSV-CalcType appears in the tank detail of Entis Pro.
The what-if calculation fails when the product level is near the bottom of the tank and the target values (GOV, GSV, etc.) are used.		Configure a dummy strap point below the lowest point in the strap file.

2.2 Error Messages

2.2.1 Ensite Pro to CIU 888 Migration Tool error messages

Error messages that may be displayed when uploading a site configuration to the CIU 888 using the Migration tool are divided in:

■ Error messages that may be displayed when the "Create New Configuration" option or the "Update Configuration" option is selected, see section 2.2.2

■ Error messages that may be displayed when the "Update Configuration" option is selected, see section 2.2.3

2.2.2 "Create New Configuration" or Update Configuration" option selected

TABLE 2-2 lists the error messages that may occur when uploading a site configuration to the CIU 888 using the Migration tool, with the "Create New Configuration" option or "Update Configuration" option selected.

TABLE 2-2   Migration tool error messages: "Create New Configuration" or "Update Configuration"

Error message	Possible cause	Solution
Send Configuration Failed - Current Role of CIU is not primary Send Configuration Failed - Failed to perform migration since connected CIU is in secondary role	No change of data is allowed on secondary CIU 888.	1. Connect Ethernet cable to Service port of primary CIU 888. 2. Retry operation.
Send Configuration Failed - Primary and secondary CIU are not in sync	Sync Link cable between CIU 888s in redundant system setup is disconnected.	1. Reconnect Sync Link cable between CIU 888s. 2. Restart secondary CIU 888. 3. Retry operation.
Send Configuration Failed - Site element is not calibrated	Trying to update W&M relevant configuration settings of calibrated tank.	1. Uncalibrate tank 2. Perform "Update Configuration" operation.
Send Configuration Failed - Exception occurred when reading the status of Configuration and W&M switch	Problem with firmware.	1. Restart CIU 888. 2. Repeat operation. 3. Contact Honeywell Enraf if problem persists.
Send Configuration Failed - Invalid Arguments supplied to Hardware Access Layer		
Send Configuration Failed - Hardware Access Layer return failure		

Error message	Possible cause	Solution
Send Configuration Failed - License Mismatch Error - License supports xx tanks Configuration Downloaded contains yy tanks	Trying to upload site configuration to CIU 888 with number of tanks exceeding number of tanks supported in license.	Possible solutions: • Install license with more number of tanks supported. • Change site configuration as supported by license.
Send Configuration Failed - Valid License does not exist	License was not installed, site configuration was uploaded to CIU 888.	1. Install valid license. 2. Perform procedure for uploading site configuration to CIU 888.
Send Configuration Failed - Failed in creating license instance - too low memory	Insufficient memory available in CIU 888.	Contact Honeywell Enraf.
Send Configuration Failed - Failed to parse XML and read Data	Problem with Ensite Pro database.	Contact Honeywell Enraf.
	Migration tool is providing corrupt data to CIU 888.	1. Close Migration tool. 2. Restart Migration tool. 3. Repeat procedure for uploading site configuration to CIU 888. 4. Contact Honeywell Enraf if problem persists.
Send Configuration Failed - Received Data is not of valid XML format	CIU 888 is receiving corrupt data probably due to communication issues or Migration tool issues	1. Close Migration tool. 2. Restart Migration tool. 3. Repeat procedure for uploading site configuration to CIU 888. 4. Contact Honeywell Enraf if problem persists.
Send Configuration Failed - Failed in parsing download type - empty input data received		
Send Configuration Failed - Download Type value not matching		
Send Configuration Failed - failed while parsing download type - exception caught		
Send Configuration Failed - Parsing site name - input data empty		
Send Configuration Failed - parsing site name - exception caught		
Send Configuration Failed - Failed in preprocess XML data		
Send Configuration Failed - Failed in preprocess XML data - exception caught		
Send Configuration Failed - Strap validation failed	Strap files are not in standard format	1. The strap file must be in capital letters, [STRAPS]. 2. The strap file must end with [EOF].

2.2.3 Migration tool error messages: "Update Configuration"

TABLE 2-3 lists the error messages that may occur when uploading a site configuration to the CIU 888 using the Ensite Pro to CIU 888 Migration Tool and the "Update Configuration" option selected.

TABLE 2-3   Migration tool error messages: "Update Configuration"

Error Message	Possible Cause	Solution
Send Configuration Failed - Project used for Create New Configuration and Update Configuration are not matching	Ensite Pro site database file used for "Update Configuration" operation is not same as database file used for "Create New Configuration" operation.	1. Start Web interface. 2. Go to *Configuration* window. 3. Select CIU 888 in site tree. 4. Check Migrated site name configuration setting. 5. Repeat operation using Ensite Pro site database with same name.

2.3 CIU 888 Web interface error messages

TABLE 2-4 lists the error messages that may occur when working with the CIU 888 Web interface.

TABLE 2-4   CIU 888 Web interface error message

Error Message	Possible cause	Solution
Username contains invalid characters	User entered special characters for username.	Enter **ciuadmin** as username.
Change password failed	New password does not meet requirements.	Enter password that meets following requirements: • Must not be same as previous password • Must not contain any dictionary words (e.g. password) • Must be at least eight characters long • Must contain at least one number and one special character • Must not contain special characters ! and "
Invalid old password	User entered incorrect old password.	Enter correct old password and retry.

Error Message	Possible cause	Solution
Change password failed - Invalid characters used in password	Invalid characters used while changing password.	Enter password that meets following requirements: • Must not be same as previous password • Must not contain any dictionary words (e.g. password) • Must be at least eight characters long • Must contain at least one number and one special character • Must not contain special characters ! and "
Change password failed - Not a strong password <some message>	New password does not meet requirements.	Enter password that meets following requirements: • Must not be same as previous password • Must not contain any dictionary words (e.g. password) • Must be at least eight characters long • Must contain at least one number and one special character • Must not contain special characters ! and "
Session expired.	Session used for processing has expired due to inactivity or login by other source (Either by Migration tool or some other Web interface)	Log in to CIU 888 again with username and password.
Unable to access local files due to browser security settings.To overcome this, go to Tools->Internet Options->Security->Custom Level.Find the setting for "Initialize and script ActiveX controls not marked as safe" and change it to "Enable" or "Prompt	ActiveX Controls are not enabled on browser (i.e. Internet Explorer 9 or 10).	Change settings of browser by following instructions provided in error message.
Unable to get actual file path due to browser security settings. To overcome this, go to Tools->Internet Options->Security->Custom Level. Find the setting for "miscellaneous->Include local directory path when uploading files to a server" and change it to "Enable"	Settings are not enabled on browser (i.e. Internet Explorer 9 or 10) to display local directory path.	Change settings of browser by following instructions provided in error message.
Failed to load file	Unable to load file.	1. Make sure file being uploaded has valid text content and is not empty file. 2. Retry operation.
Invalid license file	License file selected for installation is not valid.	1. Select proper license file. 2. Retry operation.

Error Message	Possible cause	Solution
Invalid signature file	Signature file selected for installation is not valid.	1. Select proper signature file 2. Retry operation.
License information not available	License information is not available in CIU 888.	1. Make sure that proper license file is installed on CIU 888. 2. Retry operation.
Invalid license information	License information contained in CIU 888 is not valid.	1. Make sure that proper license file is installed on CIU 888. 2. Retry operation.
No firmware found	No firmware file is found on USB flash drive.	1. Make sure that USB flash drive contains proper firmware files. 2. Make sure that USB flash drive is inserted into front USB port of CIU 888.
TRL/2 Fieldcard Firware version error	Firmware error	Restart the CIU 888
Login failed	User entered invalid username and/or password.	Enter valid username and password.
Invalid service requested - Request rejected	Request does not contain proper service name.	Contact Honeywell Enraf.
Invalid request received	Format of the request is not correct.	
Missing service information in request		
The server has exceeded the maximum number of allowed connections.	Web server has reached maximum number of supported connections.	Close sessions from other sources and retry.
There is an active session. Do you want to terminate the active session and continue?	• There is already active Web interface or Migration tool session, and now new connection is being attempted • User has not logged out while closing Web interface. • Web browser terminated abruptly without closing corresponding session in CIU 888	Select Yes / No appropriately.
Get all CRC values failed	Problem with database application	1. Restart CIU 888. 2. Repeat operation. 3. Contact Honeywell Enraf if problem persists.
Failed to retrieve site elements		
Failed to retrieve connections		
Failed to mount USB device, please connect USB stick with new firmware to the USB port located in front of CIU	Search firmware option was selected within firmware upgrade operation without inserting USB flash drive into front USB port of CIU 888.	1. Insert USB flash drive containing firmware into front USB port of CIU 888. 2. Retry operation. 3. Contact Honeywell Enraf if problem persists.

Error Message	Possible cause	Solution
No new firmwares found	USB flash drive inserted into front USB port of CIU 888 does not contain any firmware files to install.	1. Copy firmware files that need to be installed on CIU 888 to USB flash drive (not inside any folders). 2. Retry operation. Note: See the *Firmware Upgrade Manual CIU 888* (Part No. 4417596) for more information.
Not a valid firmware file	Firmware copied to USB flash drive is not firmware from Honeywell Enraf.	1. Copy firmware provided by Honeywell Enraf to USB flash drive. 2. Retry operation. Note: See the *Firmware Upgrade Manual CIU 888* (Part No. 4417596) for more information.
Failed to perform upgrade firmware from R101.6 to R103 and CIU System status/ Ring of light turns to RED indicating a Fatal failure.	Disturbance during upgrade firmware, for example, power failure.	Check whether the firmware version of CIU 888 after restart is R101.6. If yes, perform the firmware upgrade again. See *Firmware Upgrade Manual CIU 888* (Part No. 4417596) for more information.
No license is available	View license option was selected in Web interface without installing license.	1. Install license on CIU 888. 2. Repeat the operation. See *Firmware Upgrade Manual CIU 888* (Part No. 4417596) for more information.
Invalid license is available	License file within CIU 888 is corrupt.	1. Install license on CIU 888. 2. Repeat the operation. See *Firmware Upgrade Manual CIU 888* (Part No. 4417596) for more information.
Updating license failed	Failure while updating license to CIU 888.	1. Install valid license. 2. Repeat operation. SeeSee *Firmware Upgrade Manual CIU 888* (Part No. 4417596) for more information.
Operation failed. Retry after opening configuration and W&M key switches	Search firmware option was selected during firmware upgrade operation while Configuration lock and W&M lock key switches were in 'closed' position.	1. Open Configuration lock and W&M lock key switches. 2. Repeat operation.
	License was installing while Configuration lock and W&M lock key switches were in 'closed' position.	

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Error Message	Possible cause	Solution
Failed to get log levels	diag.html was invoked before performing "Create new configuration" using Migration tool.	1. Perform "Create new configuration" using Migration tool. 2. Invoke diag.html.

CHAPTER 3 HARDWARE TROUBLESHOOTING

This chapter provides troubleshooting scenarios for hardware-related problems users may encounter when working with the CIU 888. For each problem, the possible solution(s) are given.

WARNING! Disconnect supply before servicing.

AVERTISSEMENT! Couper l'alimentation avant l'entretien et le dépannage.

3.1 Nothing visible on CIU 888 display and CIU 888 is not responding

Problem

After switching the CIU 888 on nothing is shown on the CIU 888 display and the CIU 888 is not responding.

Solution

Perform the following steps:

1. Power off the device and remove the power cord before opening the device for any troubleshooting or maintenance activity.
2. Check the external power supply for any signs of damage. Replace a defective external power supply or have it replaced.
3. Make sure the power cable of the CIU 888 is securely connected the external power supply.
4. Check the power cable for any signs of damage. Replace a defective power cable or have it replaced.
5. Check the fuses of the CIU 888 for continuity. Replace a defective fuse or have it replaced.
6. Check the internal power supply module:
   a) Switch the CIU 888 off and remove the power cable from the external power supply.
   b) Remove the cover on top of the CIU 888.

c) Check if the cable connecting the internal 12V power supply and the carrier board is fine. If it's damaged, get it replaced.

FIGURE 3-1   CIU 888: Power Supply Cable

d) Replace a defective power supply module or have it replaced.

7. Check the power LEDs of the carrier board:

a) Connect the power cable to the external power supply and switch on the device.

NOTE: When the device is turned on, do not touch any of its internal components.

b) Check the start-up sequence. The correct start-up sequence is as follows:

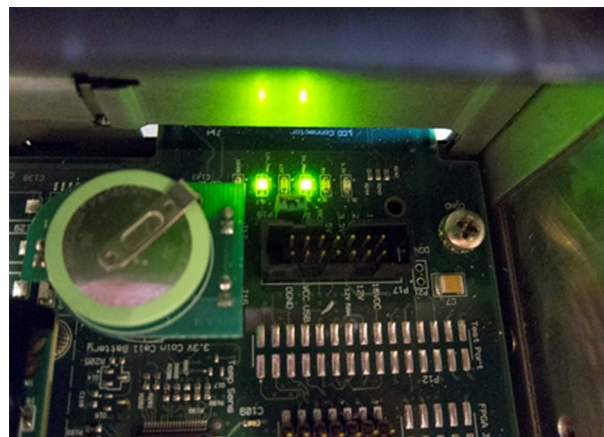i. The first two LEDs (12 Volts and 5 Volts) light up (see FIGURE 3-2).

FIGURE 3-2   CIU 888: First two power LEDs of carrier board light up

ii. The COM express module starts.
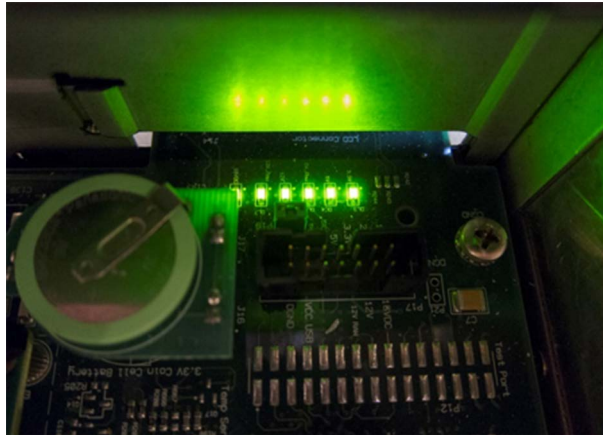
iii. All six LEDs light up (see FIGURE 3-3).

FIGURE 3-3   CIU 888: All six power LEDs of carrier board light up

c) If no LEDs light up, power off the device and check the cable between the power supply module and the carrier board is securely connected. Also check the cable for any signs of damage. Replace a defective cable or have it replaced.

d) If the first two LEDs light up but subsequently the COM express module does not start, perform a power cycle by switching the CIU888 off, wait for 1 second, and then turn it on.

e) Check the power regulators for any signs of damage. Replace a defective power regulator or have it replaced.

3.2 Boot failure

Problem

After switching the CIU 888 on, the error message 'Boot Failed' appears on the CIU 888 display (see FIGURE 3-4).

FIGURE 3-4   CIU 888: 'Boot Failed' error message

Solution

Perform the following steps:

1. Perform a power cycle by switching the CIU 888 off, wait for 1 second, and then power on and back on using the on/off switch at the back of the CIU 888.

2. Connect a VGA monitor to the VGA port at the back the CIU 888 to view the BIOS messages (memory module error, corrupted BIOS settings, et cetera.).

3. Install a new mSATA card with a working image or have it installed.

NOTE: *Apart from replacing the* mSATA card*, no field repairs are currently possible.*

3.3 FPGA load failure

Problem

After switching the CIU 888 on, the error message 'FPGA Load Failed' appears on the CIU 888 display.

Solution

Perform the following steps:

1. Perform a power cycle by switching the CIU 888 off and back on using the on/off switch at the back of the CIU 888.

2. Install a new mSATA card with a working image or have it installed.

NOTE: *Apart from replacing the* mSATA card*, no field repairs are currently possible.*

3.4 User interface failure during communication via Service port

Problem

Communication between the CIU 888 and a PC/laptop connected to the Service port of the CIU 888 has been established, but one of the following occurs:

- The CIU 888 display and the ring of light are inactive and the navigation keys do not respond
- Only the ring of light is activated
- Only the CIU 888 display is activated
- The navigation keys do not respond

Solution

Perform the following steps:

1. Check the display board:

   a) Power off the device.

   b) Remove the cover on top of the CIU 888.

   c) Check the display board for any signs of damage.

d) Replace a defective display board or have it replaced.

3.5 Fixed serial or Ethernet port is not working

Problem

A fixed serial or Ethernet port of the CIU 888 is not working (see FIGURE 3-5).
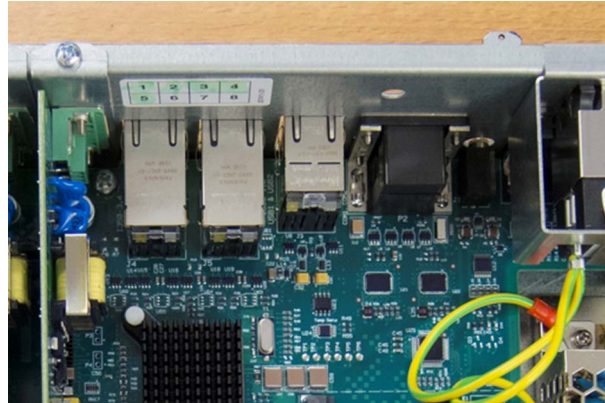

FIGURE 3-5   CIU 888: Fixed ports

NOTE: *All fixed ports are part of the carrier board.*

Solution

Perform the following steps:

1. Check if the fixed port is indeed not working.
2. If possible, use a different port.

NOTE: *Currently, no field repairs of the carrier board are possible*

3.6 Field interface card is not working

Problem

A field interface card installed in the CIU 888 is not working (see FIGURE 3-6).
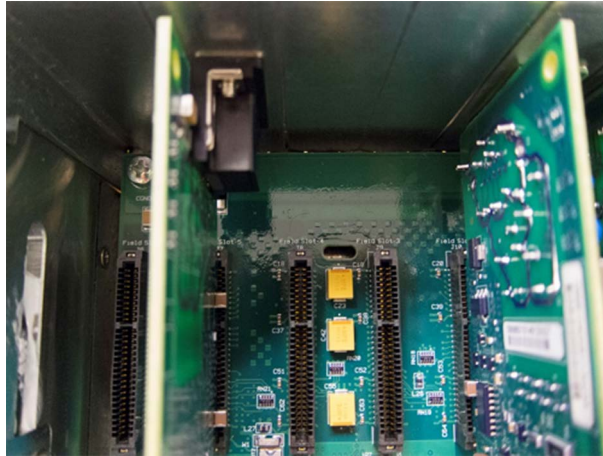
FIGURE 3-6   CIU 888: Field interface cards

Solution

Perform the following steps:

1. If none of the field interface cards are working, start by disconnecting fields cables from the CIU 888 and check if the remaining field interface cards come back up after one minute.

2. If only one field interface card is not working, disconnect the associated field cable from the CIU 888. Wait for one minute and retry.

3. Check the field interface card:

   a) Remove the cover on top of the CIU 888.

   b) Check the field interface card(s) for any signs of damage.

   c) Check the voltages of the field interface cards.

NOTE: *All field interface cards have an auto-resettable fuse for the 16 Volts power supply. In addition, there is an overall resettable fuse on the 16 Volts line.*

   d) Replace a defective field interface card or have it replaced.

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CHAPTER 4 MAINTENANCE

4.1 Hardware

4.1.1 Cooling

To prevent the CIU 888 from overheating, it is recommended to clean the heat sinks of the CIU 888 regularly to ensure a good air flow.

4.1.2 Lithium battery

The lithium battery built into the CIU 888 is used for powering the real-time clock during power-off situations. The battery life is approximately 10 years.

If CIU 888 is un-powered for 35 months after receiving it from factory, the battery would have drained. The battery piggyback board needs to be replaced for proper functioning of the device. See the *Introduction Manual CIU 888 (Part No. 4417591)* for spare parts details.
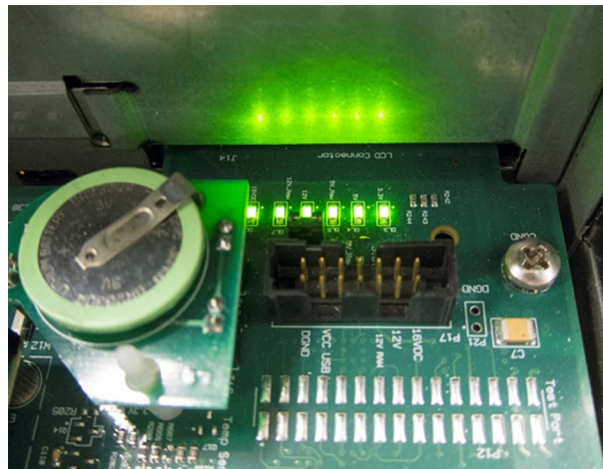

FIGURE 4-1   CIU 888: Lithium battery

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APPENDIX A LIST OF ABBREVIATIONS

BIOS	Basic Input/Output System
BPM	Bi-Phase Mark
CIU	Communication Interface Unit
CPU	Central Processing Unit
FPGA	Field-Programmable Gate Array
GPU	Gauge Processing Unit
IP	Internet Protocol
LCD	Liquid-Crystal Display
LED	Light-Emitting Diode
PC	Personal Computer
RAM	Random Access Memory
RS	Recommended Standard
VGA	Video Graphics Array
W&M	Weights and Measures

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For service-related questions, contact:

Technical Assistance Centre

Phone:

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