

# System Instructions

## CEDD AGL

## Preface



Please read carefully and understand the contents of this manual.

Failure to read the manual may result in serious injury or even death, or serious damage to equipment.

Make sure this manual is always accessible for all users and ensure you have read and understood the contents.

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The English version of this document is the original version; this language version is verified by the manufacturer. All other language versions are translations of the original English language version.

# Contents

<b>1 About this Manual.....</b>	<b>5</b>
1.1 Symbols Used.....	5
1.2 Storing the Manual.....	5
1.3 Limitations of the Document.....	5
1.4 Terms and Abbreviations.....	6
1.5 Trademarks.....	6
1.6 Liability and Warranty.....	6
1.7 Manufacturer Details.....	7
1.8 Document Information.....	7
<b>2 Safety.....</b>	<b>8</b>
2.1 Qualified Personnel.....	8
2.2 Intended Use.....	8
2.3 General Safety Rules.....	9
<b>3 About the Product.....</b>	<b>10</b>
3.1 About CEDD.....	10
3.2 About the CEDD AGL System.....	10
<b>4 Replacing a CEDD Fixture in Maintenance.....</b>	<b>11</b>
4.1 Requirements.....	11
4.2 Collect Information.....	11
4.3 Check Availability.....	11
4.4 Request Maintenance Authorization.....	12
4.5 Power Down the CEDD HPS Basestation.....	12
4.6 Remove Old Fixture.....	12
4.7 Install New Fixture.....	13
4.8 Power Up the CEDD HPS Basestation.....	13
4.9 Set System in Maintenance.....	13
4.10 Update Configuration.....	14
4.11 Set System in Idle.....	15
4.12 Validate.....	15
4.13 After-Service.....	16
<b>5 Replacing a CEDD Fixture during Operation (Live Swap).....</b>	<b>19</b>
5.1 Requirements.....	19
5.2 Collect Information.....	19
5.3 Check Availability.....	19
5.4 Request Maintenance Authorization.....	20
5.5 Set Basestation in Idle.....	20
5.6 Power Down the CEDD HPS Basestation.....	21
5.7 Remove Old Fixture.....	21
5.8 Install New Fixture.....	22
5.9 Power Up the CEDD HPS Basestation.....	22
5.10 Update Configuration.....	22
5.11 Set Basestation in Idle.....	24
5.12 Validate.....	24
5.13 After-Service.....	25

<b>6 Replacing a CEDD HPS Basestation in Maintenance.....</b>	<b>28</b>
6.1 Requirements.....	28
6.2 Collect Information.....	28
6.3 Check Availability.....	28
6.4 Request Maintenance Authorization.....	29
6.5 Power Down the CEDD HPS Basestation.....	29
6.6 Remove Old CEDD HPS Basestation.....	29
6.7 Install New CEDD HPS Basestation.....	29
6.8 Power Up the CEDD HPS Basestation.....	30
6.9 Set System in Maintenance.....	30
6.10 Update Configuration.....	30
6.11 Set System in Idle.....	31
6.12 Validate.....	32
6.13 After-Service.....	33
<b>7 Replacing a Basestation during Operation (Live Swap).....</b>	<b>35</b>
7.1 Requirements.....	35
7.2 Collect Information.....	35
7.3 Check Availability.....	36
7.4 Request Maintenance Authorization.....	36
7.5 Set Basestation in Idle.....	36
7.6 Power Down the CEDD HPS Basestation.....	37
7.7 Remove Old CEDD HPS Basestation.....	37
7.8 Install New CEDD HPS Basestation.....	38
7.9 Power Up the CEDD HPS Basestation.....	38
7.10 Update Configuration.....	38
7.11 Set Basestation in Idle.....	39
7.12 Validate.....	39
7.13 After-Service.....	41
<b>8 Appendix: Failure and Warning Messages.....</b>	<b>43</b>
8.1 Display Failure and Warning screen.....	43
8.2 Status screen.....	44
8.3 Switch group screen.....	45
8.4 Connection lost screen.....	45
8.5 Setting the control mode.....	45
8.6 Local control.....	46

# 1 About this Manual

This manual contains instructions for replacing CEDD fixtures and CEDD HPS Basestations in the CEDD AGL system.

## 1.1 Symbols Used

The following marking conventions are used in this manual to draw attention to specific topics or actions.



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



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



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

**NOTICE**

is used in this manual to indicate a situation that could result in damage to property or equipment.

The following symbols are used on equipment and in this manual to warn of potential hazards:



Danger of electrical shock or arc flash. Failure to observe this warning will result in serious injury or death.



Warning or Caution: where this symbol is used on the equipment, it is mandatory to consult the manual to find out the nature of potential hazards and any actions which have to be taken to avoid them.

## 1.2 Storing the Manual

This manual is a part of your product. Store the manual in a location that can be easily accessed by personnel working on the product.

It is the responsibility of the company operating this equipment to ensure that its personnel is provided with a copy of this manual.

## 1.3 Limitations of the Document

TKH Airport Solutions reserves the right to revise this document without notification.

The data provided in this document is based on the most recent information at the time of publication. TKH Airport Solutions is continually seeking to ensure that its products are developed to the latest technological standards. As a result, it is possible that there may be some differences between the product and the information in this manual.

For further information regarding adjustment, maintenance or repair which is not described in this document, please contact the Customer Service department of TKH Airport Solutions.

The information in this document concentrates solely on use of the products as intended by the manufacturer.

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## 1.4 Terms and Abbreviations

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This document may include the terms and abbreviations as listed below.

AGL	Airfield Ground Lighting
ALCMS	Airfield Lighting Control and Monitoring System
AM	Asset Management
BUID	Basestation Unique Identification
CEDD	Contactless Energy and Data Distribution
CMS	Control and Monitoring System
HPS	High Power System
JSON	JavaScript Object Notation
NUID	Node Unique Identification

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## 1.5 Trademarks

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CEDD<sup>®</sup> is a registered trademark of USE System Engineering Holding B.V. in the European Union. Other product names mentioned may be trademarks of TKH Airport Solutions B.V., USE System Engineering Holding B.V., or their affiliated companies.

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## 1.6 Liability and Warranty

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TKH Airport Solutions cannot be held responsible for injuries or damages resulting from non-standard, unintended use, faulty or improper installation of its equipment, or failure to follow the instructions and safety guidelines in this manual. The safety of any system incorporating the CEDD AGL is the responsibility of any site installation, commissioning, maintenance and operational personnel using the system.

**NOTICE** Disregarding the safety instructions in this manual will result in the loss of warranty in case of damage.

Refer to the general TKH Airport Solutions Terms and Conditions document supplied with your sales order contract for a complete liability and warranty description.

## 1.7 Manufacturer Details

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<http://www.tkh-airportsolutions.com>

For service requests, please contact the TKH Airport Solutions Customer Service department [service@tkh-airportsolutions.com](mailto:service@tkh-airportsolutions.com)

## 1.8 Document Information

Name : 05\_CEDD\_AGL\_System\_Instructions\_03-70079

Version : V1.1

Language : English (Original manual)



For the latest version of this document see <https://www.tkh-airportsolutions.com/airfield-products/> or scan

## 2 Safety

When performing installation, maintenance or service activities, always carry out these activities with the greatest caution to avoid injuries or damage to the CEDD AGL system. All activities may only be performed by qualified and authorized personnel (see below). It is the responsibility of those in charge of preparing and/or supervising such work to take the necessary actions to ensure safe working conditions.

Always work safely and comply with procedures, regulations and local standards. If any of the warnings or safety requirements in this document are in conflict with existing local regulations, then the strictest regulation must take precedence.

Thoroughly read and observe all safety instructions in this document.

**⚠ WARNING** Disregarding the safety instructions in this manual could result in serious injury or death.

### 2.1 Qualified Personnel

Only qualified and authorized personnel are allowed to install, operate or maintain this equipment.

The term "qualified personnel" is defined here as individuals who thoroughly understand the equipment and its safe installation, operation or maintenance. Qualified personnel are physically capable of performing the required tasks, are familiar with all relevant and local safety rules and regulations, and have been trained to safely install, operate or maintain the equipment. It is the responsibility of the company installing, operating or maintaining this equipment to ensure that its personnel meet these requirements.

### 2.2 Intended Use

The CEDD AGL system is designed and intended only for the purpose of Airfield Ground Lighting (AGL) at airfields and airports as described in this manual. It powers the devices (nodes, e.g. LED fixtures) connected to the CEDD cable and communicates with the nodes. Each node is connected contactless (no galvanic contact) to the CEDD Cable system. Intended use also includes the observance of all procedures, inspection and maintenance instructions described in this manual.

Any other usage that is not described in this manual is considered unintended use. Unintended use includes but is not limited to the following actions:

- allowing unskilled personnel to perform any task on or with the equipment
- making changes to the equipment that have not been recommended or described in this manual or using parts that are not approved by TKH Airport Solutions
- using materials or auxiliary equipment that are inappropriate or incompatible with TKH Airport Solutions equipment
- failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards, provided that they are not in violation of national regulations

**⚠ WARNING** Using this equipment in ways other than described in the manual could result in serious injury or death and/or material damage.

The CEDD AGL System may only be used with CEDD system components approved by TKH Airport Solutions:

- CEDD HPS Basestation
- CEDD HPS Terminator
- CEDD cable
- CEDD nodes, such as LED Fixtures
- CEDD Master CMS
- CEDD Master AM

**NOTICE** It is not allowed to connect the CEDD HPS Basestation to components other than approved CEDD components.

## 2.3 General Safety Rules

Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.

- Make this manual available to personnel installing, operating, or maintaining this equipment.
- Only qualified personnel are allowed to install, operate or maintain this equipment (see *Qualified Personnel*).
- Always use the required personal protective equipment (PPE).
- Never look directly in the light source while the power is ON.
- Always follow safe electrical work practices.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you to operate the system safely and efficiently.
- Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects.
- Protect equipment with safety devices as specified by applicable safety regulations.
- Use this equipment only in the environments for which it is rated.
- Do not operate this equipment in open air or humid, wet, flammable or explosive environments.
- Keep the surfaces of the equipment clean and dry.
- Never operate equipment with a known malfunction. If a malfunction occurs, turn the equipment OFF immediately.
- In any of the following cases the equipment must be taken out of service and locked away from unauthorized use. This is necessary:
  - if the housing or the electrical wiring is visibly damaged
  - if the housing or the electrical wiring has loose parts
  - if the equipment malfunctions
  - after storage under unfavorable circumstances (for example outdoors or in moist environments)
  - after excessive transportation stress (for example in damaged or defective packaging)

## 3 About the Product

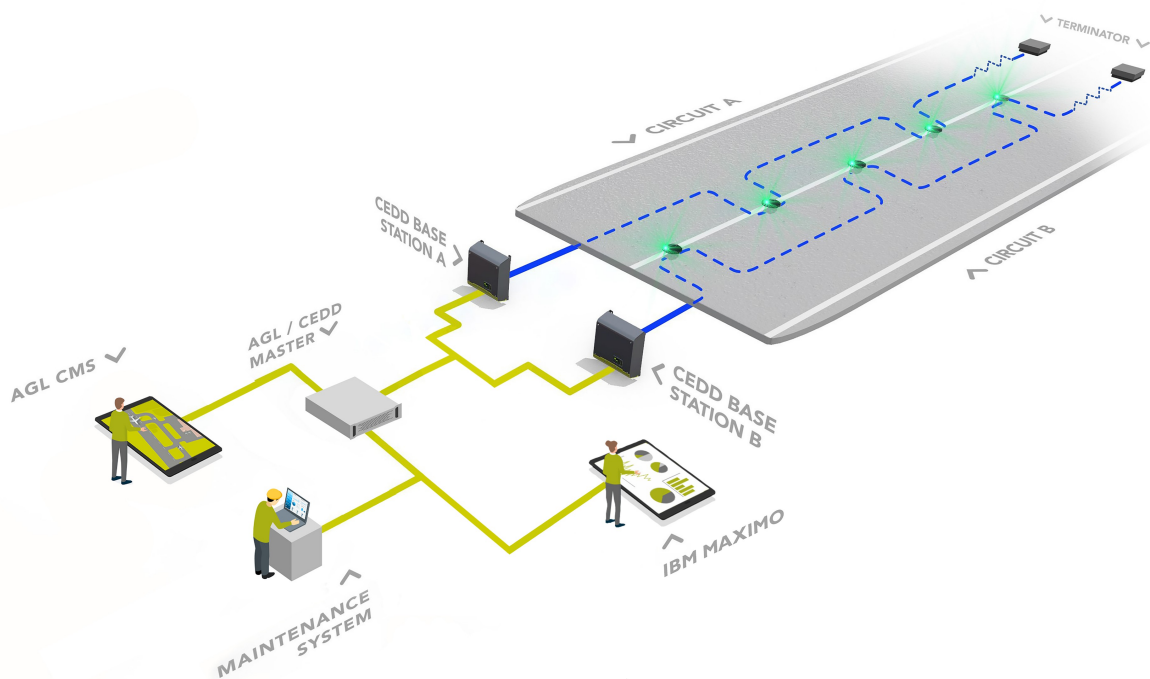
### 3.1 About CEDD

CEDD is an innovative contactless energy and communication technology. Energy and data transport are combined in a two-wire cable system, a basestation, and contactless user points. With this structured cable concept, lighting on airfields can easily be installed or replaced without making electrical contact with the power or data cable.

The CEDD system has been specifically designed for the operation of Airfield Ground Lighting (AGL) systems on airports, with the highest possible reliability.

### 3.2 About the CEDD AGL System

The CEDD HPS Basestation distributes energy to the CEDD AGL LED fixtures and communicates bidirectionally by means of the CEDD cable. Bidirectionally means that the CEDD HPS Basestation sends assignments to the fixtures and the fixtures send information about their status back to the CEDD HPS Basestation. Each fixture is connected to the CEDD cable without galvanic contact.



A CEDD AGL System consists of a CEDD Master, and multiple CEDD HPS Basestations powering the fixtures. The CEDD Master includes 2 functional units: the CEDD Master CMS controls the CEDD AGL System and the CEDD Master AM is used to configure the system.

The CEDD Master provides the ALCMS with a single interface for controlling each aerodrome lighting section. The CEDD Master instructs the CEDD HPS Basestations to activate the lights as required. The CEDD Master also indicates status, warnings or errors in the aerodrome lighting section to the ALCMS.

Refer to our website <http://www.tkh-airportsolutions.com> to find installation and maintenance manuals for all the available CEDD products.

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## 4 Replacing a CEDD Fixture in Maintenance

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### NOTICE

The instructions in this section apply to the replacement of a CEDD inset fixture, or a CEDD elevated fixture mounted on a CEDD Elevated Base.

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### 4.1 Requirements

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1. For detailed instructions for the safe replacement and installation of your CEDD fixtures or CEDD Elevated Base, make sure you have the latest Installation and Maintenance Manual:
  - 05\_CEDD\_Inset\_Fixtures\_Installation\_and\_Maintenance\_Manual\_03-70025
  - 05\_CEDD\_Elevated\_Fixture\_HIRE\_Installation\_and\_Maintenance\_Manual\_03-70036
  - 05\_CEDD\_HPS\_Basestation\_Installation\_and\_Maintenance\_Manual\_03-70092
2. Before you start the replacement process, make sure you have access to the required software from your Client or service laptop:
  - a. CEDD Master AM:
    - Ask your system administrator for the IP address of CEDD Master AM and configure your laptop settings.
  - b. CEDD Master CMS with CEDD Control:
    - Ask your system administrator for the IP address of CEDD Master CMS.
3. When you validate the replacement, you will need a second person on the airfield who can verify that the fixtures respond correctly while you test different functions.

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### 4.2 Collect Information

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Collect the following information about the CEDD fixture:

- Location of fixture
- The name of the CEDD HPS Basestation that the fixture is connected to
- Aeronautical name of the fixture
- NUID
- Details of the fixture and its status

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### 4.3 Check Availability

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1. Check that there is a suitable replacement product in stock. If not, order a replacement product.
2. Inspect the quality of the replacement product. See the relevant Installation and Maintenance Manual for the product type, Chapter 4 Inspection.

## 4.4 Request Maintenance Authorization

If the maintenance will be executed during operations, request Tower Control to give maintenance authorization for the affected AGL functions or sections, according to local safety regulations and protocols.

## 4.5 Power Down the CEDD HPS Basestation

- ⚠ WARNING**
- The CEDD® AGL system includes high voltage, internal capacitors which must be discharged before working on the system components.
  - Use appropriate personal protective equipment during the de-energizing procedure.

1. Switch off the CEDD HPS Basestation according to local regulations or switching protocol.
2. High voltage may still be present in the system after switching off. Wait for at least 15 minutes before working on the circuit or fixtures.
3. Do not assume that a capacitor is adequately discharged until it has been tested. Use a suitable voltmeter to measure the voltage on the CEDD cable connector screws is less than  $1 V_{RMS}/V_{DC}$ .

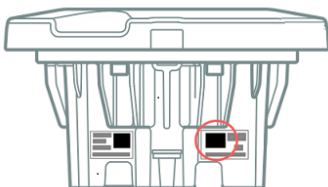
## 4.6 Remove Old Fixture

- ⚠ WARNING** Before touching the cable, use a current clamp to verify that the circuit is de-energized.

1. Record the alignment of the A/B sides of the existing fixture (if applicable) before removing the fixture.
2. De-install the old fixture. For instructions, see the relevant Installation and Maintenance Manual for the fixture, Chapter 7 Maintenance: De-installing a fixture.
3. Check the condition of the fixture and cable. If there is visible damage, take photos.
  - a. If there is visible damage to the cable, then repair the cable (refer to the relevant Installation and Maintenance manual).
  - b. If there is a visible cause of the malfunction in the fixture, for example, the inductive clamp in the inset fixture or elevated base is not properly closed, then correct the problem; for details see the relevant Installation and Maintenance manual for the fixture, Chapter 8 Troubleshooting.

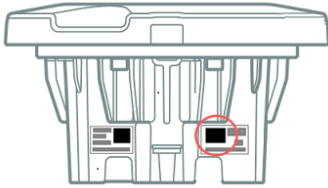
If you can solve the problem, and you do not need to install a new fixture, switch on the CEDD HPS Basestation and follow the validation checks in *Validate* on page 15 to confirm that the light is working again.

4. If you need to replace the fixture, record the NUID of the old fixture (see the QR-code on the sticker on the fixture or elevated base).



## 4.7 Install New Fixture

1. Record the NUID of the new fixture (see the QR-code on the sticker on the CEDD fixture).



2. Check that the directional alignment of is identical to the old fixture.
3. Install the new fixture. For installation instructions see the relevant Installation and Maintenance manual for the fixture, Chapter 5 Installation.

## 4.8 Power Up the CEDD HPS Basestation

**⚠ WARNING** • Always work safely and comply with project-specific requirements, guidelines, procedures, regulations and local standards to switch on a CEDD HPS Basestation.

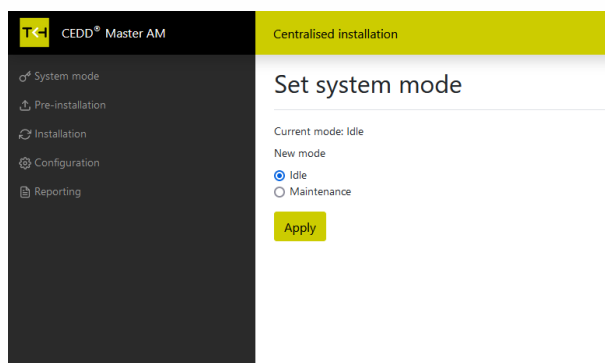
1. Switch the CEDD HPS Basestation 'On' according to local regulations and switching protocol.
2. Check for any failure error messages on the CEDD® HPS Basestation front panel display.

**NOTICE** You can ignore warning messages at this stage; they will be resolved when the system is reconfigured.

Common installation problems are described in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 8 Troubleshooting.

## 4.9 Set System in Maintenance

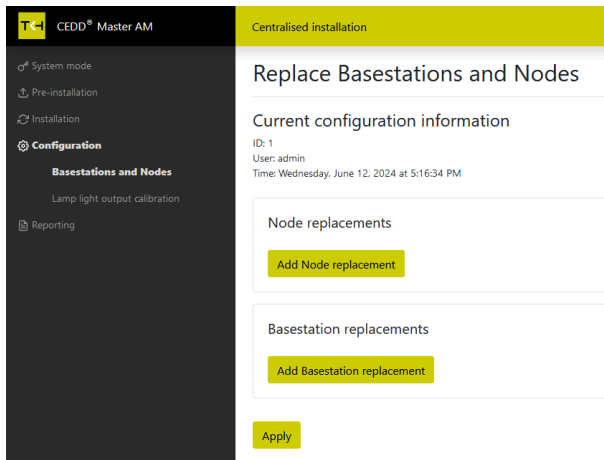
1. On the Client or service laptop, log in to CEDD Master AM.
2. Request Tower Control to hand over operational control (the system is set in IDLE).
3. CEDD Master AM menu: select **System mode** and check that mode is **Idle**.



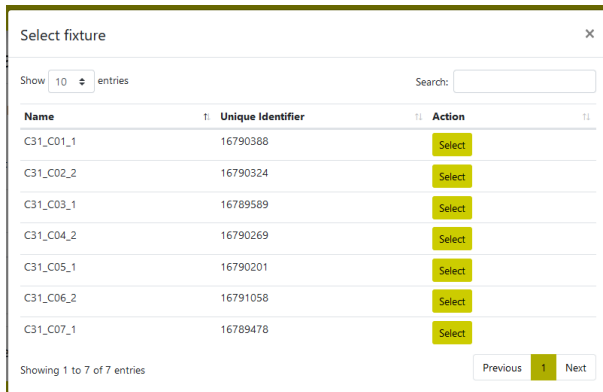
4. Change System mode to **Maintenance** and click **Apply**.

## 4.10 Update Configuration

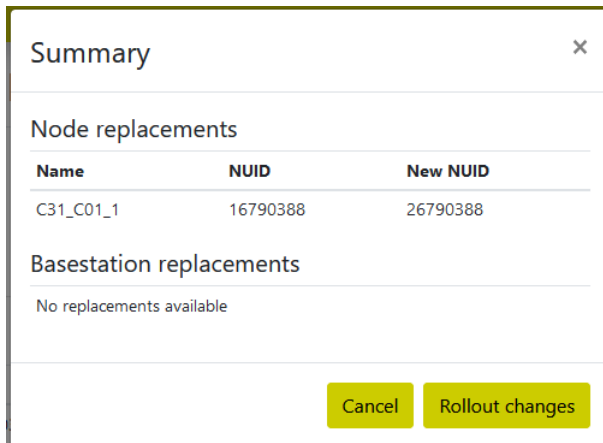
1. CEDD Master AM menu: **Configuration > Replace Basestations and Nodes.**
2. Click **Add Node replacement.**



3. Find the old fixture by name or NUID and click **Select.**



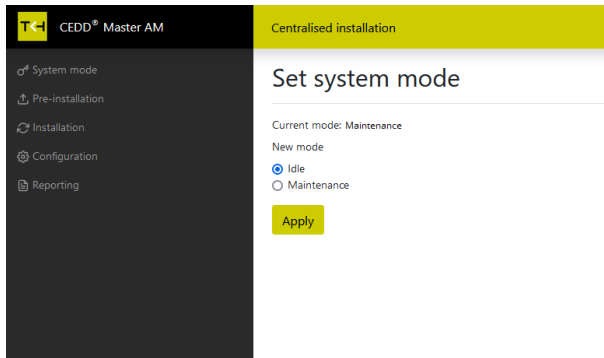
4. Enter the new NUID and click **Apply.**



5. Check that the details are correct and click **Rollout changes.**
6. Wait approximately 1 minute to give the system time to roll out the configuration.

## 4.11 Set System in Idle

1. CEDD Master AM menu: select **System mode**.
2. Change System mode to **Idle** and click **Apply**.



3. Wait 2 minutes until the system reboot is complete.

**NOTICE** This involves a system reboot of the CEDD HPS Basestation.

4. Log out of CEDD Master AM.

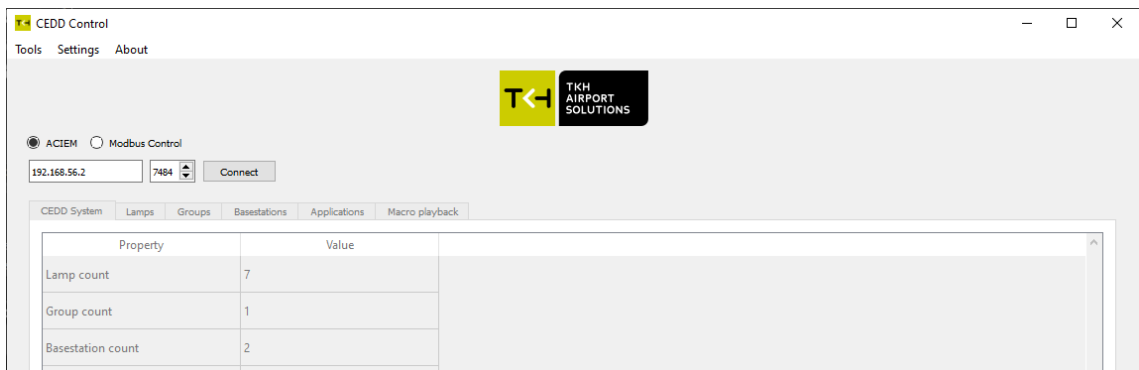
## 4.12 Validate

1. You can perform validation using either the ALCMS or the TKH Airport Solutions application (CEDD Control).

**NOTICE** Whichever application you use, you must briefly set the intensity of the lamp to 100%. This will verify whether the inductive clamp on the fixture is properly closed

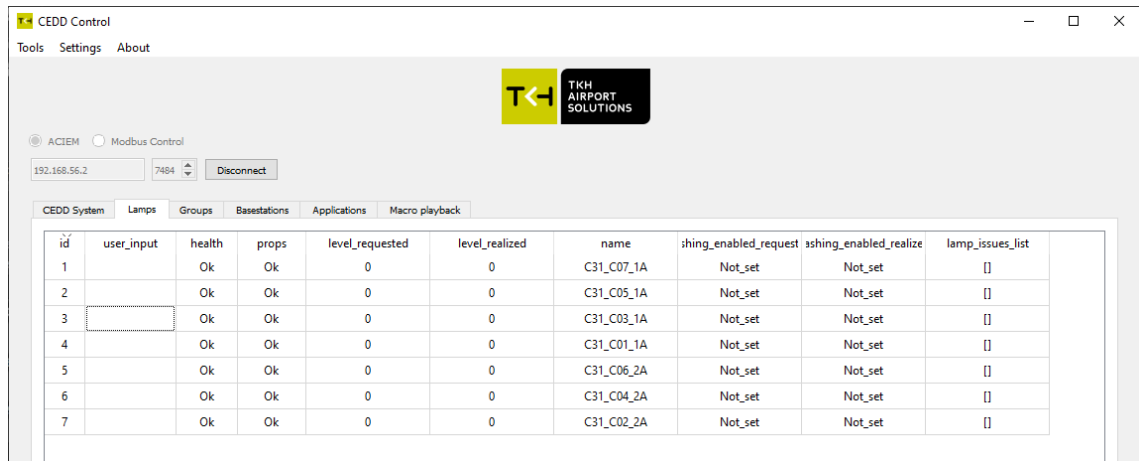
**WARNING** Never look directly into the light source while the power is at full intensity.

2. Verify the health of the new fixture in CEDD Master CMS using CEDD Control:
  - a. Start CEDD Control.
  - b. Select the correct interface, CEDD Master CMS IP address, and port number. In most cases the correct interface is ACIEM with port number 7484.



- c. Click **Connect**.

- d. Click the **Lamps** tab, find the NUID of the new fixture, and check that the Health status of the fixture is OK.



3. Test the correct functioning of the new fixture. You will need a second person on the airfield who can verify that the new fixture responds correctly while you test different functions. For example, to switch the intensity levels for the new fixture:
  - a. Click the **CEDD System** tab and set the system mode to **Operational**.
  - b. Switch all intensity levels for the lamps of the new fixture. To do this:
    - Click the **Lamps** tab and find the correct lamp.
    - Type the desired intensity level (1, 2, 3, ...) in the **Level** column.
    - Click **Enter**.
    - To verify that the change has occurred, scroll right to the **Level realized** column.
    - Ask a second person on the airfield to verify that the intensity level change has occurred.
  - c. Click the **CEDD System** tab and set system mode to **Idle**.
4. Inform Tower Control that they can start using the system again.

## 4.13 After-Service

Follow the procedures in the service level agreement or warranty statement, as applicable. Some common procedures are described below.

### Reporting

Report to TKH Airport Solutions with details of quality issues and any problems with the old fixture. In the report include:

- downloaded data
- downloaded configuration history
- any relevant photos

### Downloading data

If you need to download data about the fixture, for example to help with fault analysis:

1. Log in to CEDD Master AM.
2. Click **Reporting > Data Download**.
3. Select the data dump for the relevant time period, and click **Download**.

**CEED® Master AM** Centralised installation

## Data Download

### Database backup and log files

Click any of the files below to download the file.

Show 10 entries Search:

File	Size
<input type="checkbox"/> db.dump	15.74 MB
<input type="checkbox"/> db_agent_event_202403.csv.gz	104 B
<input type="checkbox"/> db_agent_event_202404.csv.gz	104 B
<input type="checkbox"/> db_agent_event_202405.csv.gz	6.02 MB
<input type="checkbox"/> db_agent_event_202406.csv.gz	2.22 MB
<input type="checkbox"/> db_agent_event_202407.csv.gz	104 B
<input type="checkbox"/> db_agent_monitoring_202403.csv.gz	74 B
<input type="checkbox"/> db_agent_monitoring_202404.csv.gz	74 B
<input type="checkbox"/> db_agent_monitoring_202405.csv.gz	23.98 GB
<input type="checkbox"/> db_agent_monitoring_202406.csv.gz	1.95 GB

Showing 1 to 10 of 11 entries

Previous 1 2 Next

Select all Deselect all Download

## Downloading configuration history

1. Download the latest version of JSON: CEED Master AM: Reporting > Configuration history.

**CEED® Master AM** Centralised installation

## Configuration history

Show 25 entries Search:

Id	Time	User	Details	View
41	6/12/24, 8:59:25 AM	pentester	Details	View
40	6/12/24, 8:57:32 AM	pentester	Details	View
39	6/12/24, 8:56:16 AM	pentester	Details	View
38	6/12/24, 8:54:54 AM	pentester	Details	View
37	6/12/24, 8:48:02 AM	pentester	Details	View
34	6/7/24, 12:38:50 PM	pentester	Details	View
33	5/16/24, 12:03 PM	admin	Details	View
32	5/16/24, 12:51:25 PM	admin	Details	View
31	5/16/24, 12:14:07 PM	admin	Details	View
30	4/26/24, 7:37:31 AM	admin	Details	View
29	4/26/24, 7:34:46 AM	admin	Details	View
28	4/23/24, 12:42:06 PM	admin	Details	View
27	4/23/24, 12:09:00 PM	admin	Details	View
26	4/23/24, 11:59:25 AM	admin	Details	View
25	4/23/24, 11:53:17 AM	admin	Details	View
24	4/23/24, 11:45:06 AM	admin	Details	View
23	4/23/24, 11:37:48 AM	admin	Details	View

2. Right click on View.
3. Select **Save link as...** and type a file name, for example "*Airport-code\_circuit-name*".json

## Returning products

Refer to the relevant Installation and Maintenance manual for the fixture for instructions on what to do with the old product.:

- Chapter 7 Corrective Maintenance
- Chapter 9 Taking out of Service,

1. For CEDD inset fixtures and CEDD elevated bases that require repair or disposal, return to TKH Airport Solutions in the original packaging (Contact TKH Airport Solutions Customer Service for the correct address.)
2. For CEDD elevated fixtures see the relevant Installation and and Maintenance manual for maintenance instructions that can be performed in the airfield workshop.

### **Check spares stocks**

Check that you have enough replacement products, allowing for local conditions, and refill stocks as needed.

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## 5 Replacing a CEDD Fixture during Operation (Live Swap)

---

### NOTICE

The instructions in this section apply to the replacement of a CEDD inset fixture, or a CEDD elevated fixture mounted on a CEDD Elevated Base.

From software version Maxwell 3 onwards, it is possible to replace a fixture while the CEDD AGL system is still operational. Only the affected basestation has to be switched to maintenance mode.

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### 5.1 Requirements

---

1. For detailed instructions for the safe replacement and installation of your CEDD fixtures or CEDD Elevated Base, make sure you have the latest Installation and Maintenance Manual:
  - 05\_CEDD\_Inset\_Fixtures\_Installation\_and\_Maintenance\_Manual\_03-70025
  - 05\_CEDD\_Elevated\_Fixture\_HIRE\_Installation\_and\_Maintenance\_Manual\_03-70036
  - 05\_CEDD\_HPS\_Basestation\_Installation\_and\_Maintenance\_Manual\_03-70092
2. Before you start the replacement process, make sure you have access to the required software from your Client or service laptop:
  - a. CEDD Master AM:
    - Ask your system administrator for the IP address of CEDD Master AM and configure your laptop settings.
  - b. CEDD Master CMS with CEDD Control:
    - Ask your system administrator for the IP address of CEDD Master CMS.
3. When you validate the replacement, you will need a second person on the airfield who can verify that the fixtures respond correctly while you test different functions.

---

### 5.2 Collect Information

---

Collect the following information about the CEDD fixture:

- Location of fixture
- The name of the CEDD HPS Basestation that the fixture is connected to
- Aeronautical name of the fixture
- NUID
- Details of the fixture and its status

---

### 5.3 Check Availability

---

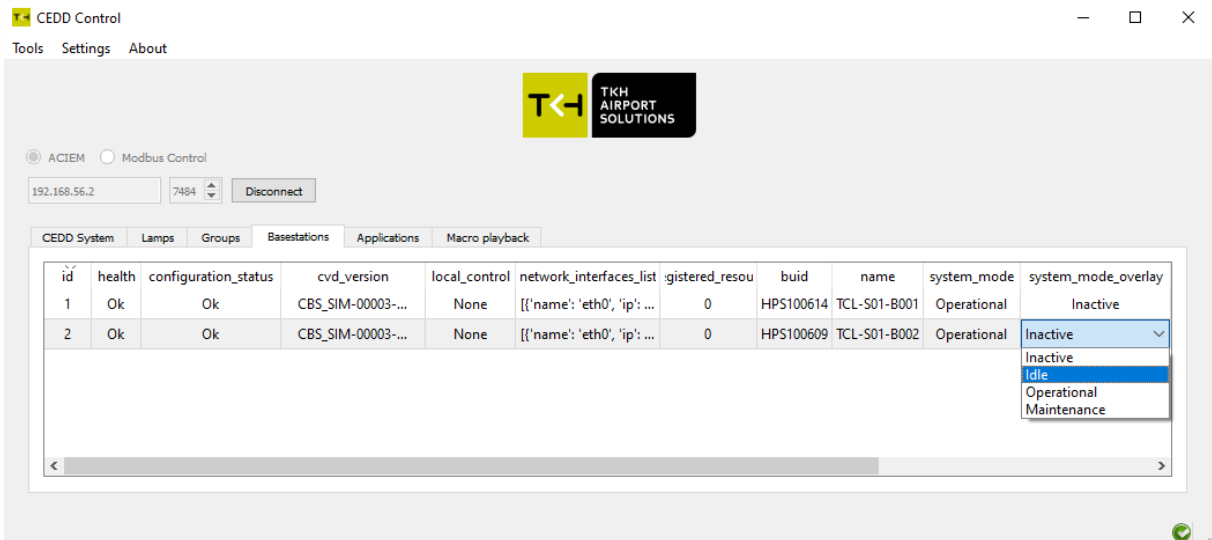
1. Check that there is a suitable replacement product in stock. If not, order a replacement product.
2. Inspect the quality of the replacement product. See the relevant Installation and Maintenance Manual for the product type, Chapter 4 Inspection.

## 5.4 Request Maintenance Authorization

If the maintenance will be executed during operations, request Tower Control to give maintenance authorization for the affected AGL functions or sections, according to local safety regulations and protocols.

## 5.5 Set Basestation in Idle

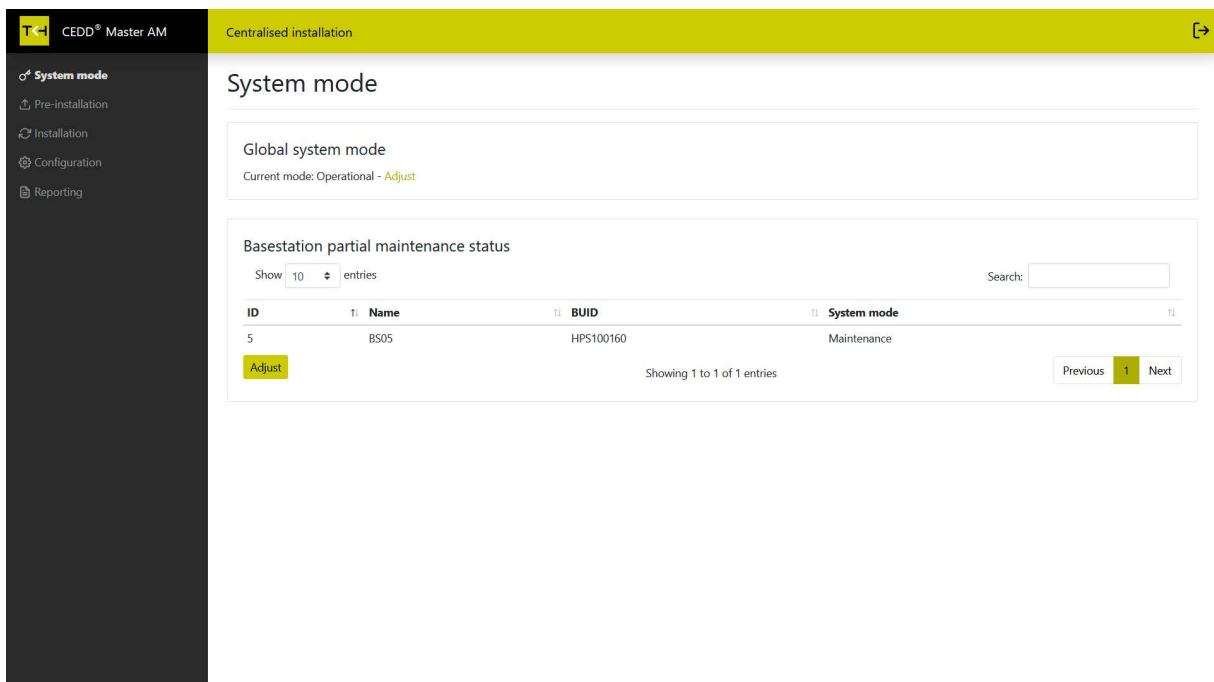
1. Ensure the CEDD AGL system is up and running and in operational mode
2. Via the ALCMS/CEDD Control, switch the basestation(s) you want to replace fixtures from in 'idle' mode. Check if **System mode** is set to **Idle**.



The screenshot shows the 'CEDD Control' application window. At the top, there's a logo for TKH AIRPORT SOLUTIONS. Below it, there are control options for 'ACIEM' (selected) and 'Modbus Control'. A 'Disconnect' button is visible. The main area has tabs for 'CEDD System', 'Lamps', 'Groups', 'Basestations', 'Applications', and 'Macro playback'. The 'Basestations' tab is active, displaying a table with columns: id, health, configuration\_status, cvd\_version, local\_control, network\_interfaces\_list, registered\_resou, buid, name, system\_mode, and system\_mode\_overlay. Two basestations are listed. The second one (ID 2) has a dropdown menu open over its 'system\_mode' cell, showing options: Inactive, Idle (highlighted), Operational, and Maintenance.

id	health	configuration_status	cvd_version	local_control	network_interfaces_list	registered_resou	buid	name	system_mode	system_mode_overlay
1	Ok	Ok	CBS_SIM-00003-...	None	{{'name': 'eth0', 'ip': ...	0	HPS100614	TCL-S01-B001	Operational	Inactive
2	Ok	Ok	CBS_SIM-00003-...	None	{{'name': 'eth0', 'ip': ...	0	HPS100609	TCL-S01-B002	Operational	Inactive

3. Check in the CEDD Master AM web interface if the basestation(s) you want to replace the fixture(s) from is in the 'Basestation partial maintenance status' list



The screenshot shows the 'CEDD Master AM' web interface. The page title is 'System mode'. Under 'Global system mode', it says 'Current mode: Operational - Adjust'. The 'Basestation partial maintenance status' section has a search bar and a table with columns: ID, Name, BUID, and System mode. One entry is shown with ID 5, Name BS05, BUID HPS100160, and System mode Maintenance. There is an 'Adjust' button below the table.

ID	Name	BUID	System mode
5	BS05	HPS100160	Maintenance

4. In case the System mode of the basestation is set to **Idle**, click **Adjust**, select the basestation you want to put in maintenance mode and click **Set to maintenance**

---

## 5.6 Power Down the CEDD HPS Basestation

---

- ⚠ WARNING**
- The CEDD® AGL system includes high voltage, internal capacitors which must be discharged before working on the system components.
  - Use appropriate personal protective equipment during the de-energizing procedure.
1. Switch off the CEDD HPS Basestation the fixture you want to replace is connected to, according to local regulations or switching protocol.
  2. High voltage may still be present in the system after switching off. Wait for at least 15 minutes before working on the circuit or fixtures.
  3. Do not assume that a capacitor is adequately discharged until it has been tested. Use a suitable voltmeter to measure the voltage on the CEDD cable connector screws is less than  $1 V_{RMS}/V_{DC}$ .

---

## 5.7 Remove Old Fixture

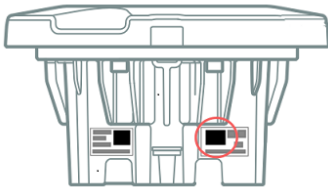
---

- ⚠ WARNING** Before touching the cable, use a current clamp to verify that the circuit is de-energized.

1. Record the alignment of the A/B sides of the existing fixture (if applicable) before removing the fixture.
2. De-install the old fixture. For instructions, see the relevant Installation and Maintenance Manual for the fixture, Chapter 7 Maintenance: De-installing a fixture.
3. Check the condition of the fixture and cable. If there is visible damage, take photos.
  - a. If there is visible damage to the cable, then repair the cable (refer to the relevant Installation and Maintenance manual).
  - b. If there is a visible cause of the malfunction in the fixture, for example, the inductive clamp in the inset fixture or elevated base is not properly closed, then correct the problem; for details see the relevant Installation and Maintenance manual for the fixture, Chapter 8 Troubleshooting.

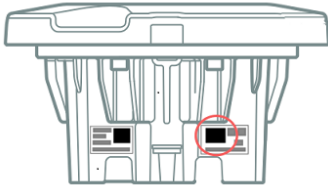
If you can solve the problem, and you do not need to install a new fixture, switch on the CEDD HPS Basestation and follow the validation checks in *Validate* on page 15 to confirm that the light is working again.

4. If you need to replace the fixture, record the NUID of the old fixture (see the QR-code on the sticker on the fixture or elevated base).



## 5.8 Install New Fixture

1. Record the NUID of the new fixture (see the QR-code on the sticker on the CEDD fixture).



2. Check that the directional alignment of is identical to the old fixture.
3. Install the new fixture. For installation instructions see the relevant Installation and Maintenance manual for the fixture, Chapter 5 Installation.

## 5.9 Power Up the CEDD HPS Basestation

**⚠ WARNING** • Always work safely and comply with project-specific requirements, guidelines, procedures, regulations and local standards to switch on a CEDD HPS Basestation.

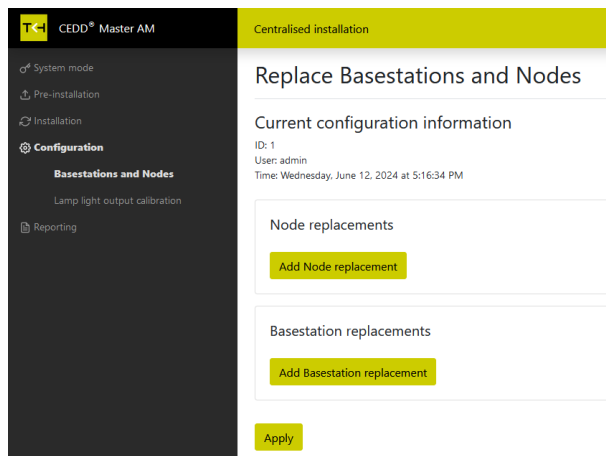
1. Switch the CEDD HPS Basestation 'On' according to local regulations and switching protocol.
2. Check for any failure error messages on the CEDD HPS Basestation front panel display.

**NOTICE** You can ignore warning messages at this stage; they will be resolved when the system is reconfigured.

Common installation problems are described in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 8 Troubleshooting.

## 5.10 Update Configuration

1. On the Client or service laptop, log in to CEDD Master AM web interface.
2. Navigate to the menu: **Configuration > Replace Basestations and Nodes.**
3. Click **Add Fixture replacement.**



- Find the old fixture by name or NUID and click **Select**.

Name	Unique Identifier	Action
C31_C01_1	16790388	Select
C31_C02_2	16790324	Select
C31_C03_1	16789589	Select
C31_C04_2	16790269	Select
C31_C05_1	16790201	Select
C31_C06_2	16791058	Select
C31_C07_1	16789478	Select

- Enter the new NUID and click **Apply**.

Name	NUID	New NUID
C31_C01_1	16790388	26790388

- If you want to replace more than one fixture at once, click **Add Fixture replacement** again. Repeat this process for every basestation you want to replace.
- Click **Apply**.
- Check the list. If all BUID are filled in correctly, click **Rollout changes**.

## 5.11 Set Basestation in Idle

1. Navigate to the **System mode** page. In the **Basestation partial maintenance status** panel, click **Adjust**.

The screenshot shows the CEDD Master AM interface. The top navigation bar includes 'TKH CEDD® Master AM' and 'Centralised installation'. The left sidebar lists navigation options: 'System mode', 'Pre-installation', 'Installation', 'Configuration', and 'Reporting'. The main content area is titled 'System mode'. It features a 'Global system mode' section with 'Current mode: Operational - Adjust'. Below this is the 'Basestation partial maintenance status' section, which includes a search bar and a table. The table has columns for ID, Name, BUID, and System mode. The table contains one entry with ID 5, Name BS05, BUID HPS100160, and System mode Maintenance. There is an 'Adjust' button next to the entry. The interface also shows a search bar and pagination controls.

2. Select the basestation you want to put back in operational mode and click **Set to idle**. The affected basestations will be rebooted.
3. Remove the system mode overlay via the ALCMS/CEDD Control.  
The system should be fully back operational.

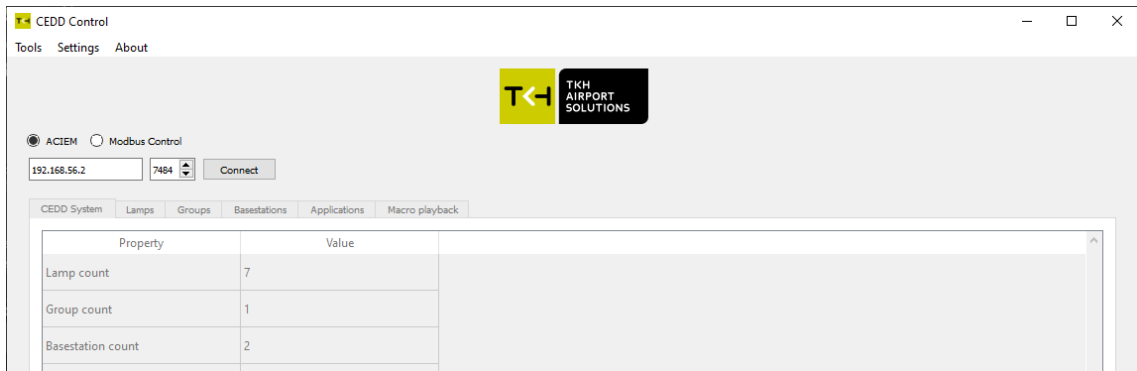
## 5.12 Validate

1. You can perform validation using either the ALCMS or the TKH Airport Solutions application (CEDD Control).

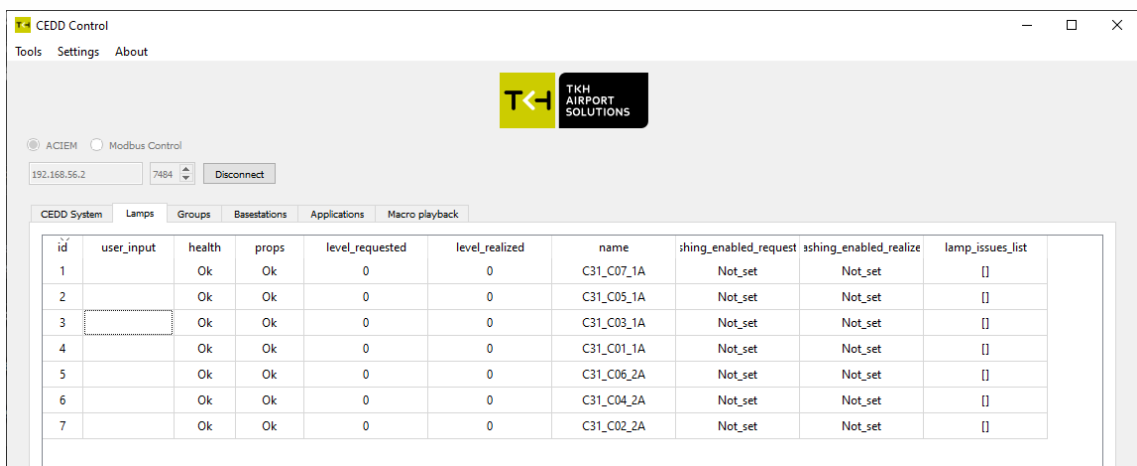
**NOTICE** Whichever application you use, you must briefly set the intensity of the lamp to 100%. This will verify whether the inductive clamp on the fixture is properly closed

**WARNING** Never look directly into the light source while the power is at full intensity.

2. Verify the health of the new fixture in CEDD Master CMS using CEDD Control:
  - a. Start CEDD Control.
  - b. Select the correct interface, CEDD Master CMS IP address, and port number. In most cases the correct interface is ACIEM with port number 7484.



- c. Click **Connect**.
- d. Click the **Lamps** tab, find the NUID of the new fixture, and check that the Health status of the fixture is OK.



3. Test the correct functioning of the new fixture. You will need a second person on the airfield who can verify that the new fixture responds correctly while you test different functions.  
For example, to switch the intensity levels for the new fixture:
  - a. Click the **CEDD System** tab and set the system mode to **Operational**.
  - b. Switch all intensity levels for the lamps of the new fixture. To do this:
    - Click the **Lamps** tab and find the correct lamp.
    - Type the desired intensity level (1, 2, 3, ...) in the **Level** column.
    - Click **Enter**.
    - To verify that the change has occurred, scroll right to the **Level realized** column.
    - Ask a second person on the airfield to verify that the intensity level change has occurred.
  - c. Click the **CEDD System** tab and set system mode to **Idle**.
4. Inform Tower Control that they can start using the system again.

## 5.13 After-Service

Follow the procedures in the service level agreement or warranty statement, as applicable. Some common procedures are described below.

### Reporting

Report to TKH Airport Solutions with details of quality issues and any problems with the old fixture. In the report include:

- downloaded data
- downloaded configuration history
- any relevant photos

### Downloading data

If you need to download data about the fixture, for example to help with fault analysis:

1. Log in to CEDD Master AM.
2. Click **Reporting > Data Download**.
3. Select the data dump for the relevant time period, and click **Download**.

The screenshot shows the 'Data Download' page in the CEDD Master AM interface. The page title is 'Data Download' and the subtitle is 'Database backup and log files'. Below the subtitle, there is a message: 'Click any of the files below to download the file.' There is a search bar and a 'Show 10 entries' dropdown. A table lists 11 files with their names and sizes. At the bottom of the table, there are navigation buttons: 'Previous', '1', '2', and 'Next'. Below the table, there are three buttons: 'Select all', 'Deselect all', and 'Download'.

File	Size
<input type="checkbox"/> db.dump	15.74 MB
<input type="checkbox"/> db_agent_event_202403.csv.gz	104 B
<input type="checkbox"/> db_agent_event_202404.csv.gz	104 B
<input type="checkbox"/> db_agent_event_202405.csv.gz	6.02 MB
<input type="checkbox"/> db_agent_event_202406.csv.gz	2.22 MB
<input type="checkbox"/> db_agent_event_202407.csv.gz	104 B
<input type="checkbox"/> db_agent_monitoring_202403.csv.gz	74 B
<input type="checkbox"/> db_agent_monitoring_202404.csv.gz	74 B
<input type="checkbox"/> db_agent_monitoring_202405.csv.gz	23.98 GB
<input type="checkbox"/> db_agent_monitoring_202406.csv.gz	1.95 GB

## Downloading configuration history

1. Download the latest version of JSON: CEDD Master AM: **Reporting > Configuration history**.

The screenshot shows the 'Configuration history' page in the CEDD Master AM interface. The page title is 'Centralised installation'. The left sidebar shows the navigation menu with 'Reporting' selected. The main content area displays a table of configuration events. A right-click context menu is open over the 'View' link of the first row, showing options like 'Open Link in New Tab', 'Open Link in New Window', 'Open Link in New Private Window', 'Bookmark Link...', 'Save Link As...', 'Save Link to Pocket', 'Copy Link', 'Search DuckDuckGo for "View"', 'LastPass', and 'Block element...'. The table has the following data:

Id	Time	User	Details	View
41	6/12/24, 8:59:25 AM	pentester	Details	View
40	6/12/24, 8:57:32 AM	pentester	Details	View
39	6/12/24, 8:56:16 AM	pentester	Details	View
38	6/12/24, 8:54:54 AM	pentester	Details	View
37	6/12/24, 8:48:02 AM	pentester	Details	View
34	6/7/24, 12:38:50 PM	pentester	Details	View
33	5/16/24, 12:26:03 PM	admin	Details	View
32	5/16/24, 12:51:25 PM	admin	Details	View
31	5/16/24, 12:14:07 PM	admin	Details	View
30	4/26/24, 7:37:31 AM	admin	Details	View
29	4/26/24, 7:34:46 AM	admin	Details	View
28	4/23/24, 12:42:06 PM	admin	Details	View
27	4/23/24, 12:09:00 PM	admin	Details	View
26	4/23/24, 11:59:25 AM	admin	Details	View
25	4/23/24, 11:53:17 AM	admin	Details	View
24	4/23/24, 11:45:06 AM	admin	Details	View
23	4/23/24, 11:37:48 AM	admin	Details	View

2. Right click on **View**.
3. Select **Save link as...** and type a file name, for example "*Airport-code\_circuit-name*".json

## Returning products

Refer to the relevant Installation and Maintenance manual for the fixture for instructions on what to do with the old product.:

- Chapter 7 Corrective Maintenance
  - Chapter 9 Taking out of Service,
1. For CEDD inset fixtures and CEDD elevated bases that require repair or disposal, return to TKH Airport Solutions in the original packaging (Contact TKH Airport Solutions Customer Service for the correct address.)
  2. For CEDD elevated fixtures see the relevant Installation and Maintenance manual for maintenance instructions that can be performed in the airfield workshop.

## Check spares stocks

Check that you have enough replacement products, allowing for local conditions, and refill stocks as needed.

---

## 6 Replacing a CEDD HPS Basestation in Maintenance

---

Before replacing the product, check for error messages on the CEDD HPS Basestation front panel display (for explanation, see *Appendix: Failure and Warning Messages* on page 43).

Some common failures and solutions are described in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 8 Troubleshooting.

**⚠ CAUTION** Replacing a CEDD HPS Basestation requires a reboot of the CEDD Master CMS. Make sure you have sufficient time available to complete this task.

---

### 6.1 Requirements

---

1. For detailed instructions for the safe replacement and installation of your CEDD HPS Basestation, make sure you have the latest Installation and Maintenance Manual:
  - 05\_CEDD\_HPS\_Basestation\_Installation\_and\_Maintenance\_Manual\_03-70092
2. Before you start the replacement process, make sure you have access to the required software from your Client or service laptop:
  - a. CEDD Master AM:
    - Ask your system administrator for the IP address of CEDD Master AM and configure your laptop settings.
  - b. CEDD Master CMS with CEDD Control:
    - Ask your system administrator for the IP address of CEDD Master CMS.
3. When you validate the replacement, you will need a second person on the airfield who can verify that the fixtures respond correctly while you test different functions.

---

### 6.2 Collect Information

---

Collect the following information about the CEDD HPS Basestation that is to be replaced:

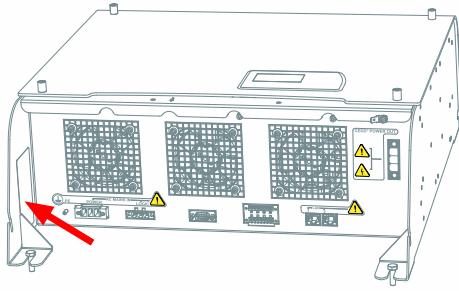
- Location of the CEDD HPS Basestation
- Circuit name
- Maintenance area and switch groups controlled by the CEDD HPS Basestation
- BUID of the CEDD HPS Basestation

---

### 6.3 Check Availability

---

1. Check that there is a suitable replacement product in stock. The replacement CEDD HPS Basestation should be configured for your CEDD AGL system. If not, order a replacement product.
2. Inspect the quality of the replacement product. See the CEDD HPS Basestation Installation and Maintenance Manual, Chapter 4 Inspection.
3. Record the IP address and BUID of the replacement CEDD HPS Basestation. The BUID can be found on the type plate on the underside of the product, behind the bottom panel.



---

## 6.4 Request Maintenance Authorization

---

If the maintenance will be executed during operations, request Tower Control to give maintenance authorization for the affected AGL functions or sections, according to local safety regulations and protocols.

---

## 6.5 Power Down the CEDD HPS Basestation

---

- ⚠ WARNING**
- The CEDD® AGL system includes high voltage, internal capacitors which must be discharged before working on the system components.
  - Use appropriate personal protective equipment during the de-energizing procedure.

1. Switch off the CEDD HPS Basestation according to local regulations or switching protocol.
2. High voltage may still be present in the system after switching off. Wait for at least 15 minutes before working on the circuit or fixtures.
3. Do not assume that a capacitor is adequately discharged until it has been tested. Use a suitable voltmeter to measure the voltage on the CEDD cable connector screws is less than  $1 V_{RMS}/V_{DC}$ .

---

## 6.6 Remove Old CEDD HPS Basestation

---

1. De-install the old CEDD HPS Basestation. Follow the instructions for replacing a CEDD HPS Basestation in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 7.
2. Check the condition of the CEDD HPS Basestation.
3. Report the state of the product; if there is visible damage, take photos.

---

## 6.7 Install New CEDD HPS Basestation

---

Install the new CEDD HPS Basestation. Follow the instructions for installing and connecting in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 5 Installation.

Connect the wires in this order:

1. Earth wire
2. Cable connectors to Power AC mains in and Logic AC mains in
3. Network cables
4. CEDD cables

## 6.8 Power Up the CEDD HPS Basestation

**⚠ WARNING** • Always work safely and comply with project-specific requirements, guidelines, procedures, regulations and local standards to switch on a CEDD HPS Basestation.

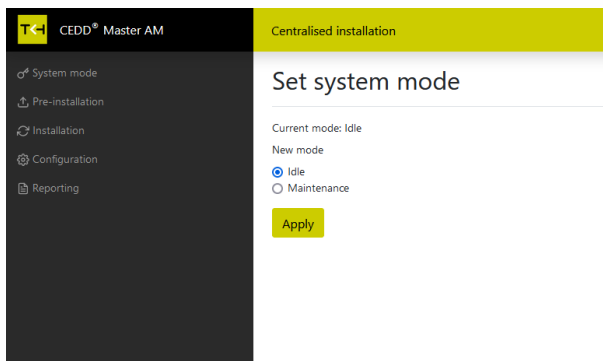
1. Switch the CEDD HPS Basestation 'On' according to local regulations and switching protocol.
2. Check for any failure error messages on the CEDD® HPS Basestation front panel display.

**NOTICE** You can ignore warning messages at this stage; they will be resolved when the system is reconfigured.

Common installation problems are described in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 8 Troubleshooting.

## 6.9 Set System in Maintenance

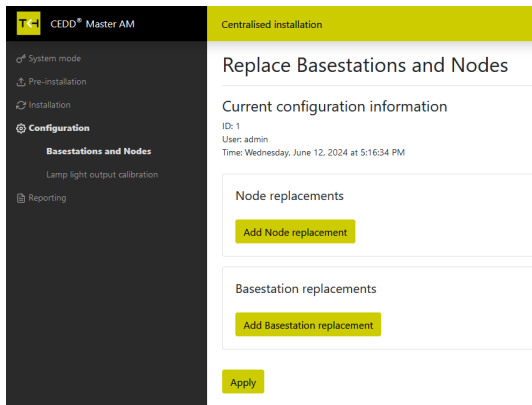
1. On the Client or service laptop, log in to CEDD Master AM.
2. Request Tower Control to hand over operational control (the system is set in IDLE).
3. CEDD Master AM menu: select **System mode** and check that mode is **Idle**.



4. Change System mode to **Maintenance** and click **Apply**.

## 6.10 Update Configuration

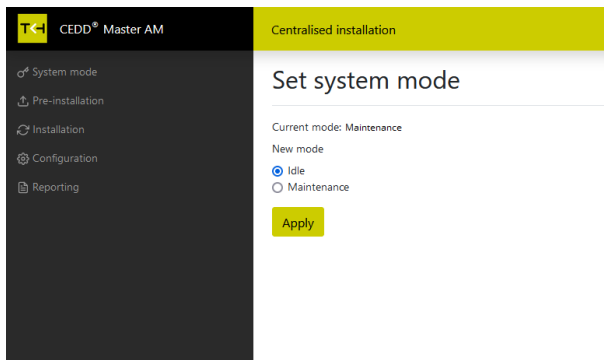
1. CEDD Master AM menu: **Configuration > Replace Basestations and Nodes**.
2. Click **Add Basestation replacement**.



3. Find the old CEDD HPS Basestation by name or BUID and click **Select**.
4. Enter the new BUID and click **Apply**
5. Check that the details are correct and click **Rollout changes**.
6. Wait approximately 1 minute to give the system time to roll out the configuration.

## 6.11 Set System in Idle

1. CEDD Master AM menu: select **System mode**.
2. Change System mode to **Idle** and click **Apply**.



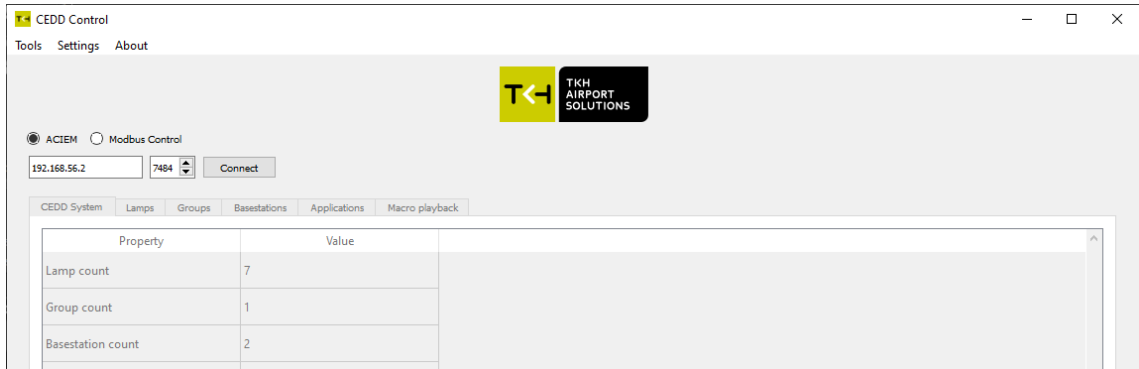
3. Wait 2 minutes until the system reboot is complete.

**NOTICE** This involves a system reboot of the CEDD Master CMS and CEDD HPS Basestation.

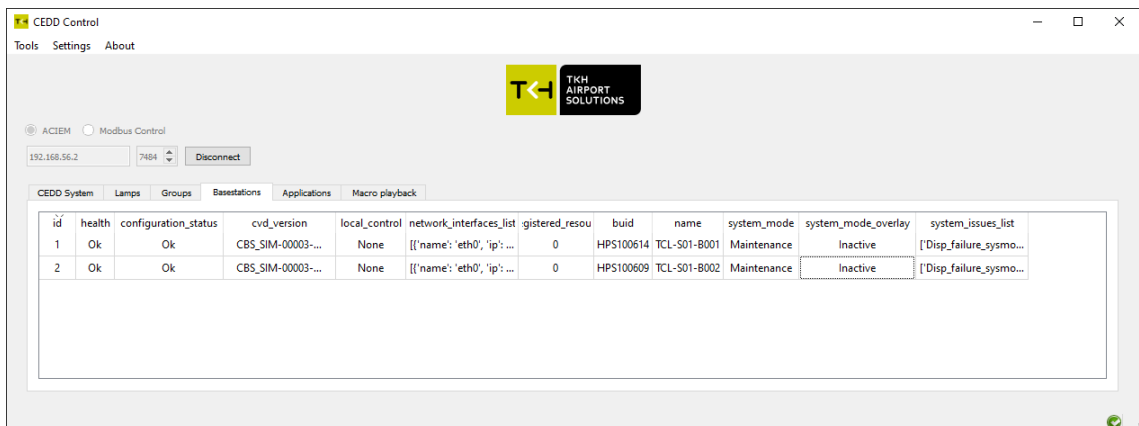
4. Log out of CEDD Master AM.

## 6.12 Validate

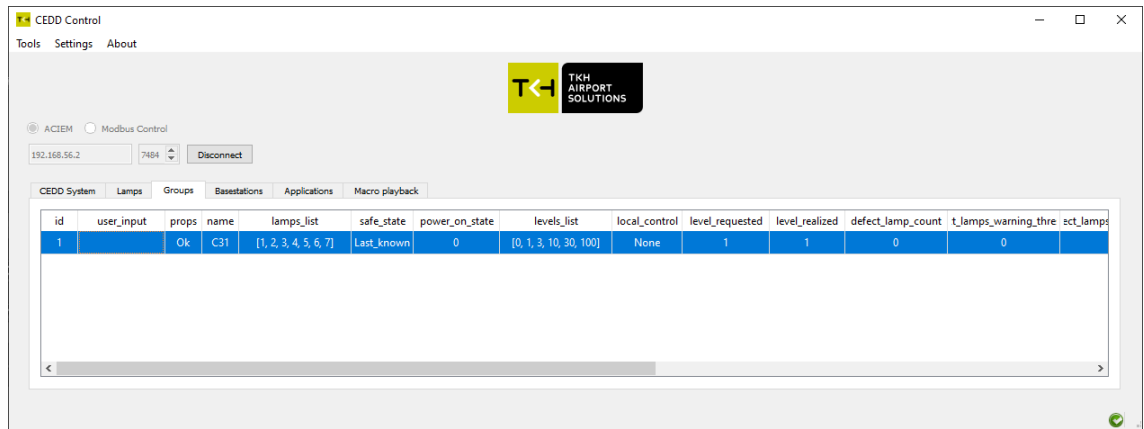
1. You can perform validation using either the ALCMS or the TKH Airport Solutions application (CEDD Control).
2. Verify the status of the CEDD HPS Basestation in CEDD Master CMS using CEDD Control:
  - a. Start CEDD Control.
  - b. Select the correct interface, CEDD Master CMS IP address, and port number. In most cases the correct interface is ACIEM with port number 7484.



- c. Click **Connect**.
- d. Click the **Basestations** tab, find the BUID of the new CEDD HPS Basestation, and check that the Health status of the CEDD HPS Basestation is OK.



3. Test the correct functioning of the new CEDD HPS Basestation. You will need a second person on the airfield who can verify that the fixtures respond correctly while you test different functions. For example, switch the intensity levels for all the fixtures in the circuit:
  - a. Click the **CEDD System** tab and set the system mode to **Operational**.
  - b. Switch all intensity levels for the lamps of the replaced CEDD HPS Basestation. To do this:
    - Click the **Groups** tab and find the correct switch group.
    - Type the desired intensity level (1, 2, 3, ...) in the **Level** column.
    - Click **Enter**.
    - To verify that the change has occurred, scroll right to the **Level realized** column.



- Ask a second person on the airfield to verify that the intensity level change has occurred.
- c. Click the **CEDD System** tab and set system mode to **Idle**.
4. Inform Tower Control that they can start using the system again.

## 6.13 After-Service

Follow the procedures in the service level agreement or warranty statement, as applicable. Some common procedures are described below.

### Reporting

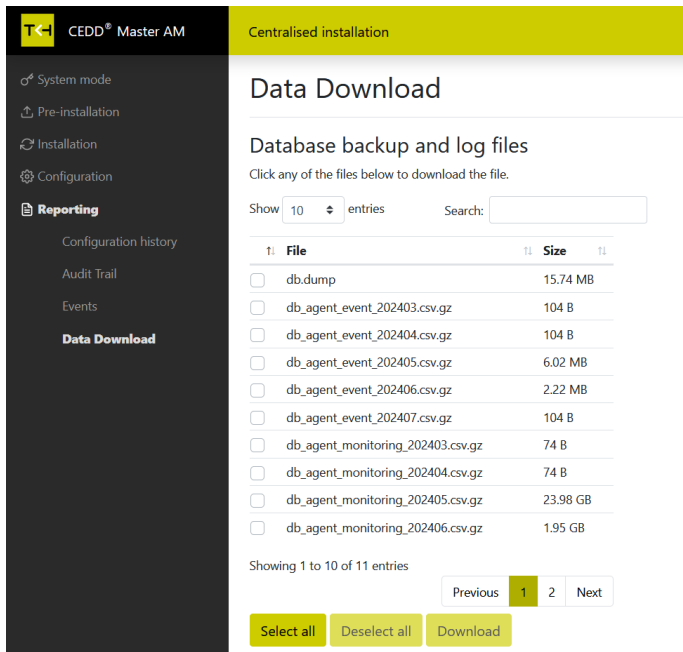
Report to TKH Airport Solutions with details of quality issues and any problems with the old CEDD HPS Basestation. In the report include:

- downloaded data
- downloaded configuration history
- any relevant photos

### Downloading data

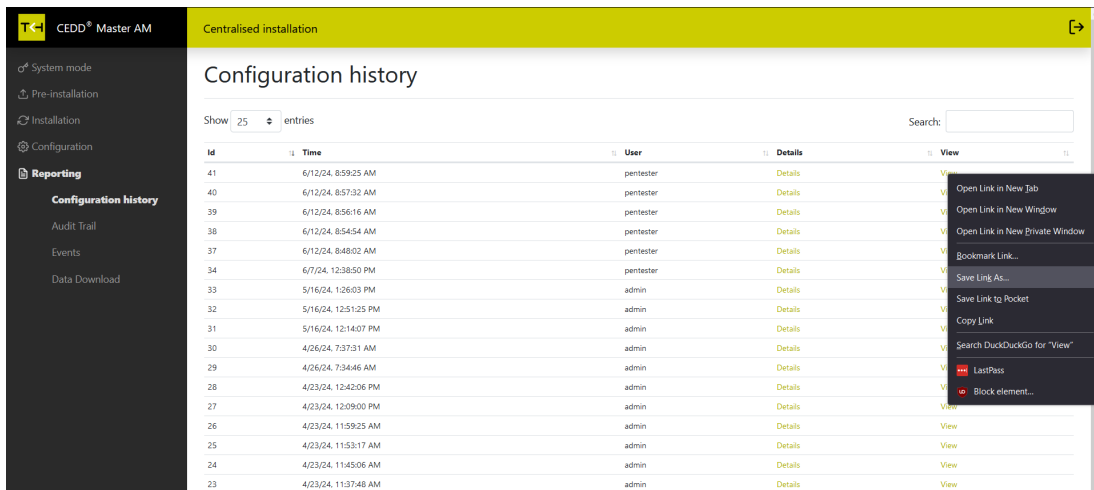
If you need to download data about the CEDD HPS Basestation, for example to help with fault analysis:

1. Log in to CEDD Master AM.
2. Click **Reporting > Data Download**.
3. Select the data dump for the relevant time period, and click **Download**.



## Downloading configuration history

1. Download the latest version of JSON: CEDD Master AM: Reporting > Configuration history.



2. Right click on **View**.
3. Select **Save link as...** and type a file name, for example in the format "*Airport-code\_circuit-name*".json

## Returning products

1. Refer to the CEDD HPS Basestation Installation and Maintenance manual for instructions on what to do with the old product:
  - Chapter 7 Corrective Maintenance
  - Chapter 9 Taking out of Service
2. For a CEDD HPS Basestation that requires repair or disposal, pack it and return to TKH Airport Solutions. (Contact TKH Airport Solutions Customer Service for the correct address.)

## Check spares stocks

Check that you have enough replacement products for local conditions, and refill stocks as needed.

---

## 7 Replacing a Basestation during Operation (Live Swap)

---

Before replacing the product, check for error messages on the CEDD HPS Basestation front panel display (for explanation, see *Appendix: Failure and Warning Messages* on page 43).

Some common failures and solutions are described in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 8 Troubleshooting.

**⚠ CAUTION** Replacing a CEDD HPS Basestation requires a reboot of the CEDD Master CMS. Make sure you have sufficient time available to complete this task.

From software version Maxwell 3 onwards, it is possible to replace a basestation while the rest of the CEDD AGL system remains operational. Only the affected basestation(s) have to be switched to maintenance mode.

The steps to replace a basestation while the CEDD AGL system is in operational mode are as follows. Please follow these steps carefully!

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### 7.1 Requirements

---

1. For detailed instructions for the safe replacement and installation of your CEDD HPS Basestation, make sure you have the latest Installation and Maintenance Manual:
  - 05\_CEDD\_HPS\_Basestation\_Installation\_and\_Maintenance\_Manual\_03-70092
2. Before you start the replacement process, make sure you have access to the required software from your Client or service laptop:
  - a. CEDD Master AM:
    - Ask your system administrator for the IP address of CEDD Master AM and configure your laptop settings.
  - b. CEDD Master CMS with CEDD Control:
    - Ask your system administrator for the IP address of CEDD Master CMS.
3. When you validate the replacement, you will need a second person on the airfield who can verify that the fixtures respond correctly while you test different functions.
4. **!IMPORTANT! ENSURE THE BASESTATION YOU WANT TO PUT IN THE CEDD AGL SYSTEM DOES NOT HAVE AN OLD CONFIGURATION ANYMORE. USING A BASESTATION WITH AN OLD CONFIGURATION WILL CONFLICT WITH THE CURRENT SYSTEM AND WILL RESULT IN ERRORS IN OTHER, POSSIBLY OPERATIONAL, PARTS OF THE CEDD AGL SYSTEM.** If you are not sure if the Basestation was used in a CEDD AGL system before, please load the current Single Source Configuration for the CEDD AGL system via the Basestation web interface.

---

### 7.2 Collect Information

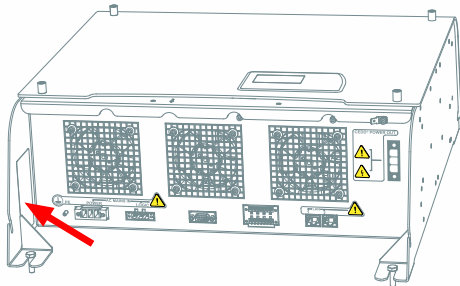
---

Collect the following information about the CEDD HPS Basestation that is to be replaced:

- Location of the CEDD HPS Basestation
- Circuit name
- Maintenance area and switch groups controlled by the CEDD HPS Basestation
- BUID of the CEDD HPS Basestation

## 7.3 Check Availability

1. Check that there is a suitable replacement product in stock. The replacement CEDD HPS Basestation should be configured for your CEDD AGL system. If not, order a replacement product.
2. Inspect the quality of the replacement product. See the CEDD HPS Basestation Installation and Maintenance Manual, Chapter 4 Inspection.
3. Record the IP address and BUID of the replacement CEDD HPS Basestation.  
The BUID can be found on the type plate on the underside of the product, behind the bottom panel.



## 7.4 Request Maintenance Authorization

If the maintenance will be executed during operations, request Tower Control to give maintenance authorization for the affected AGL functions or sections, according to local safety regulations and protocols.

## 7.5 Set Basestation in Idle

1. Ensure the CEDD AGL system is up and running and in operational mode
2. Via the ALCMS/CEDD Control, switch the basestation(s) you want to replace in **Maintenance** mode or in **Idle** mode.

The screenshot shows the UWISE Control Lite software interface. At the top, there are menu options: Tools, Settings, About. Below that, there are control options for ACIEM and Modbus Control, with a selected IP address of 192.168.56.2 and a port of 7494. A Disconnect button is also visible. The main area contains a table with columns for CEDD System, Lamps, Groups, Basestations, Applications, and Macro playback. The table lists five basestations (id 1-5) with their respective health, configuration status, CID version, local control, network interfaces, registered resources, BUID, name, system mode, and system mode overlay. A dropdown menu is open for the 'system\_mode\_overlay' column of the fifth row, showing options: Inactive, Idle, Operational, and Maintenance.

id	health	configuration_status	cid_version	local_control	network_interfaces_1	registered_resourc	buid	name	system_mode	system_mode_overlay
1	Ok	Ok	CBS_SIM-00003-v15.1.0	None	{{'name': 'eth0', ...	0	HPS100057	BS01	Operational	Inactive
2	Ok	Ok	CBS_SIM-00003-v15.1.0	None	{{'name': 'eth0', ...	0	HPS100055	BS02	Operational	Inactive
3	Ok	Ok	CBS_SIM-00003-v15.1.0	None	{{'name': 'eth0', ...	0	HPS100053	BS03	Operational	Inactive
4	Ok	Ok	CBS_SIM-00003-v15.1.0	None	{{'name': 'eth0', ...	0	HPS100051	BS04	Operational	Inactive
5	Ok	Ok	CBS_SIM-00003-v15.1.0	None	{{'name': 'eth0', ...	0	HPS100159	BS05	Operational	Inactive

3. Log in on the CEDD Master AM web interface.
4. Check in the CEDD Master AM web interface if the basestation(s) you want to replace is in the 'Basestation partial maintenance status' list

The screenshot shows the 'System mode' configuration page in the CEDD Master AM interface. The page is titled 'System mode' and has a navigation menu on the left with options: System mode, Pre-installation, Installation, Configuration, and Reporting. The main content area is divided into two sections. The first section, 'Global system mode', shows the current mode as 'Operational' with an 'Adjust' link. The second section, 'Basestation partial maintenance status', features a table with columns for ID, Name, BUID, and System mode. A single entry is shown: ID 5, Name BS05, BUID HPS100160, and System mode Maintenance. An 'Adjust' button is located below the ID 5. The table also includes search and pagination controls.

5. In case the System mode of the basestation is set to **Idle**, click **Adjust**, select the basestation you want to put in maintenance mode and click **Set to maintenance**

## 7.6 Power Down the CEDD HPS Basestation



### WARNING

- The CEDD® AGL system includes high voltage, internal capacitors which must be discharged before working on the system components.
- Use appropriate personal protective equipment during the de-energizing procedure.

1. Switch off the CEDD HPS Basestation the fixture you want to replace is connected to, according to local regulations or switching protocol.
2. High voltage may still be present in the system after switching off. Wait for at least 15 minutes before working on the circuit or fixtures.
3. Do not assume that a capacitor is adequately discharged until it has been tested. Use a suitable voltmeter to measure the voltage on the CEDD cable connector screws is less than  $1 V_{RMS}/V_{DC}$ .

## 7.7 Remove Old CEDD HPS Basestation

1. De-install the old CEDD HPS Basestation. Follow the instructions for replacing a CEDD HPS Basestation in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 7.
2. Check the condition of the CEDD HPS Basestation.
3. Report the state of the product; if there is visible damage, take photos.

## 7.8 Install New CEDD HPS Basestation

Install the new CEDD HPS Basestation. Follow the instructions for installing and connecting in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 5 Installation.

Connect the wires in this order:

1. Earth wire
2. Cable connectors to Power AC mains in and Logic AC mains in
3. Network cables
4. CEDD cables

## 7.9 Power Up the CEDD HPS Basestation

**⚠ WARNING** • Always work safely and comply with project-specific requirements, guidelines, procedures, regulations and local standards to switch on a CEDD HPS Basestation.

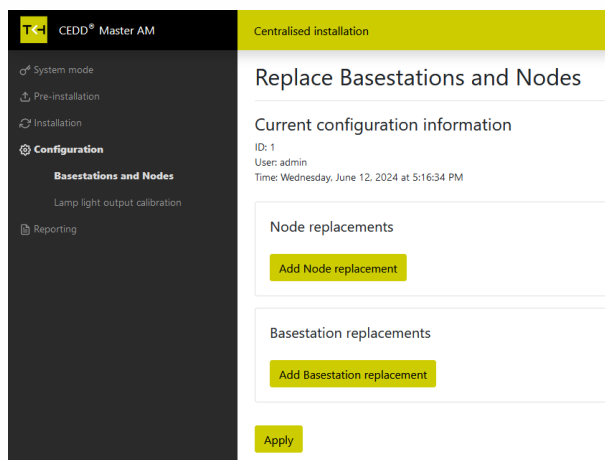
1. Switch the CEDD HPS Basestation 'On' according to local regulations and switching protocol.
2. Check for any failure error messages on the CEDD HPS Basestation front panel display.

**NOTICE** You can ignore warning messages at this stage; they will be resolved when the system is reconfigured.

Common installation problems are described in the CEDD HPS Basestation Installation & Maintenance Manual, Chapter 8 Troubleshooting.

## 7.10 Update Configuration

1. On the Client or service laptop, log in to CEDD Master AM web interface.
2. Navigate to the menu: **Configuration > Replace Basestations and Nodes**.
3. Click **Add Basestation replacement**.



4. Search for the Basestation you want to replace and click **Select**.
5. Enter the new BUID.

6. If you want to replace more than one basestation at once, click **Add Basestation replacement** again. Repeat this process for every basestation you want to replace.
7. Click **Apply**.
8. Check the list. If all BUID are filled in correctly, click **Rollout changes**.

## 7.11 Set Basestation in Idle

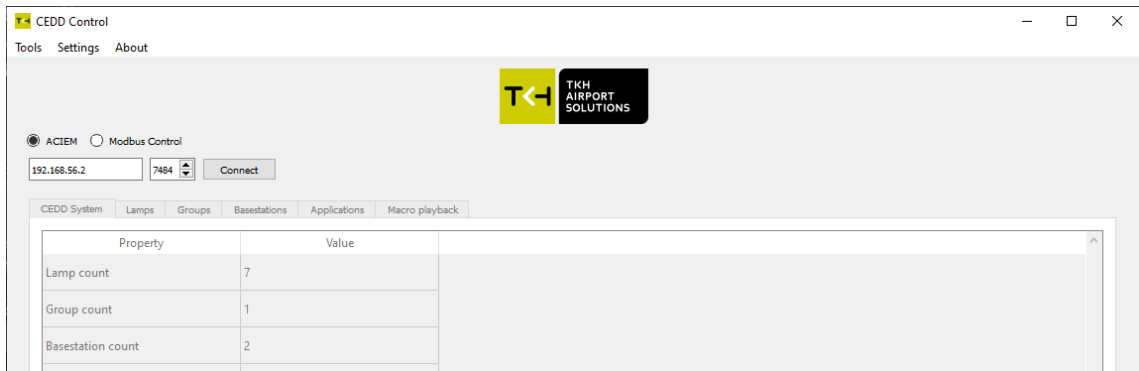
1. Navigate to the **System mode** page and click **Adjust**
2. Select the Basestation you want to put back in operational mode and click **Set to idle**. The affected basestations will be rebooted.

The screenshot shows the 'System mode' page in the CEDD Master AM interface. The page title is 'System mode'. Under 'Global system mode', it shows 'Current mode: Operational - Adjust'. Below that is a section for 'Basestation partial maintenance status' with a table. The table has columns for ID, Name, BUID, and System mode. One entry is visible: ID 5, Name BS05, BUID HPS100160, System mode Maintenance. There is an 'Adjust' button below the table. The interface also shows a sidebar with navigation options like Pre-installation, Installation, Configuration, and Reporting.

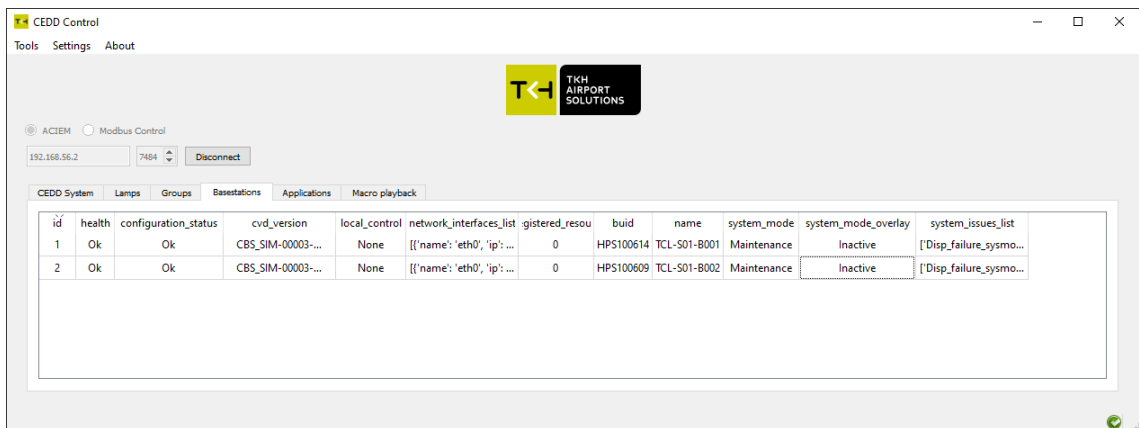
3. Remove the system mode overlay via the ALCMS/CEDD Control  
The system should be fully back operational.

## 7.12 Validate

1. You can perform validation using either the ALCMS or the TKH Airport Solutions application (CEDD Control).
2. In case you want to validate via CEDD Control: verify the status of the CEDD HPS Basestation in CEDD Master CMS using CEDD Control:
  - a. Start CEDD Control.
  - b. Select the correct interface, CEDD Master CMS IP address, and port number. In most cases the correct interface is ACIEM with port number 7484.

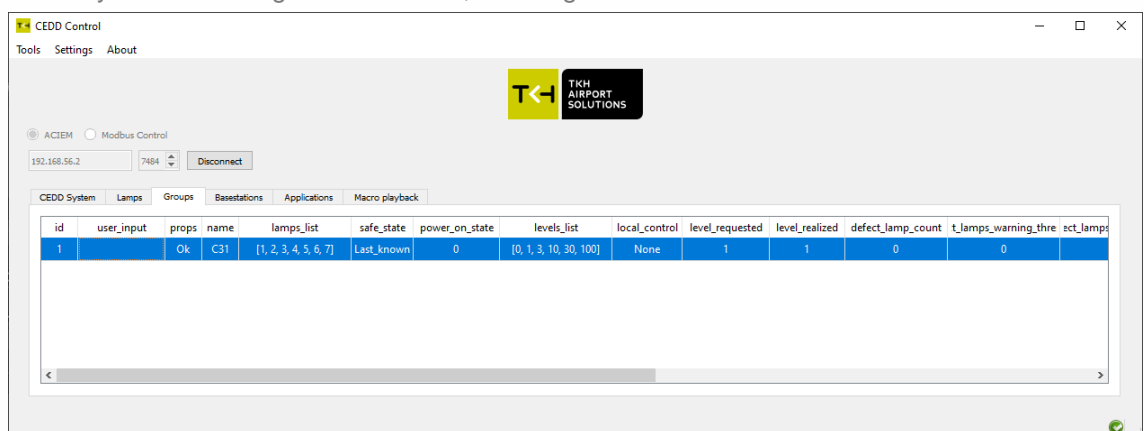


- c. Click **Connect**.
- d. Click the **Basestations** tab, find the BUID of the new CEDD HPS Basestation, and check that the Health status of the CEDD HPS Basestation is OK.



3. Test the correct functioning of the new CEDD HPS Basestation. You will need a second person on the airfield who can verify that the fixtures respond correctly while you test different functions. For example, switch the intensity levels for all the fixtures in the circuit:

- a. Click the **CEDD System** tab and set the system mode to **Operational**.
- b. Switch all intensity levels for the lamps of the replaced CEDD HPS Basestation. To do this:
  - Click the **Groups** tab and find the correct switch group.
  - Type the desired intensity level (1, 2, 3, ...) in the **Level** column.
  - Click **Enter**.
  - To verify that the change has occurred, scroll right to the **Level realized** column.



- Ask a second person on the airfield to verify that the intensity level change has occurred.
  - c. Click the **CEDD System** tab and set system mode to **Idle**.
4. Inform Tower Control that they can start using the system again.

## 7.13 After-Service

Follow the procedures in the service level agreement or warranty statement, as applicable. Some common procedures are described below.

### Reporting

Report to TKH Airport Solutions with details of quality issues and any problems with the old CEDD HPS Basestation. In the report include:

- downloaded data
- downloaded configuration history
- any relevant photos

### Downloading data

If you need to download data about the CEDD HPS Basestation, for example to help with fault analysis:

1. Log in to CEDD Master AM.
2. Click **Reporting > Data Download**.
3. Select the data dump for the relevant time period, and click **Download**.

The screenshot shows the 'Data Download' page in the CEDD Master AM interface. The page title is 'Data Download' and it lists database backup and log files for download. The interface includes a sidebar with navigation options like System mode, Pre-installation, Installation, Configuration, Reporting, Configuration history, Audit Trail, Events, and Data Download. The main content area shows a table of files with columns for File and Size, and a search bar. The table lists 11 entries, including db.dump (15.74 MB) and various db\_agent\_event and db\_agent\_monitoring files. The page also shows 'Showing 1 to 10 of 11 entries' and navigation buttons for Previous, 1, 2, and Next. At the bottom, there are buttons for Select all, Deselect all, and Download.

File	Size
<input type="checkbox"/> db.dump	15.74 MB
<input type="checkbox"/> db_agent_event_202403.csv.gz	104 B
<input type="checkbox"/> db_agent_event_202404.csv.gz	104 B
<input type="checkbox"/> db_agent_event_202405.csv.gz	6.02 MB
<input type="checkbox"/> db_agent_event_202406.csv.gz	2.22 MB
<input type="checkbox"/> db_agent_event_202407.csv.gz	104 B
<input type="checkbox"/> db_agent_monitoring_202403.csv.gz	74 B
<input type="checkbox"/> db_agent_monitoring_202404.csv.gz	74 B
<input type="checkbox"/> db_agent_monitoring_202405.csv.gz	23.98 GB
<input type="checkbox"/> db_agent_monitoring_202406.csv.gz	1.95 GB

### Downloading configuration history

1. Download the latest version of JSON: CEDD Master AM: **Reporting > Configuration history**.

Id	Time	User	Details	View
41	6/12/24, 8:59:25 AM	pentester	Details	View
40	6/12/24, 8:57:32 AM	pentester	Details	View
39	6/12/24, 8:56:16 AM	pentester	Details	View
38	6/12/24, 8:54:54 AM	pentester	Details	View
37	6/12/24, 8:48:02 AM	pentester	Details	View
34	6/7/24, 12:38:50 PM	pentester	Details	View
33	5/16/24, 1:26:03 PM	admin	Details	View
32	5/16/24, 12:51:25 PM	admin	Details	View
31	5/16/24, 12:14:07 PM	admin	Details	View
30	4/26/24, 7:37:31 AM	admin	Details	View
29	4/26/24, 7:34:46 AM	admin	Details	View
28	4/23/24, 12:42:06 PM	admin	Details	View
27	4/23/24, 12:09:00 PM	admin	Details	View
26	4/23/24, 11:59:25 AM	admin	Details	View
25	4/23/24, 11:53:17 AM	admin	Details	View
24	4/23/24, 11:45:06 AM	admin	Details	View
23	4/23/24, 11:37:48 AM	admin	Details	View

2. Right click on **View**.
3. Select **Save link as...** and type a file name, for example in the format "*Airport-code\_circuit-name*".json

### Returning products

1. Refer to the CEED HPS Basestation Installation and Maintenance manual for instructions on what to do with the old product:
  - Chapter 7 Corrective Maintenance
  - Chapter 9 Taking out of Service
2. For a CEED HPS Basestation that requires repair or disposal, pack it and return to TKH Airport Solutions. (Contact TKH Airport Solutions Customer Service for the correct address.)

### Check spares stocks

Check that you have enough replacement products for local conditions, and refill stocks as needed.

## 8 Appendix: Failure and Warning Messages

### 8.1 Display Failure and Warning screen

```
HEL0191 | 01:04
LOCAL   State: OFF
0 failures
0 warnings
Stat | Ctrl |
```

The name of the CEDD HPS Basestation

```
HEL0191 | 01:04
LOCAL   State: OFF
0 failures
0 warnings
Stat | Ctrl |
```

The operation status of the CEDD HPS Basestation: Local

```
HEL0191 | 01:04
REMOTE  State: OFF
0 failures
0 warnings
Stat | Ctrl |
```

The operation status of the CEDD HPS Basestation: Remote

```
HEL0191 | 01:04
REMOTE  State: OFF
0 failures
0 warnings
Stat | Ctrl |
```

The operation status of the CEDD HPS Basestation: Remote, but the communication with the controlling device is lost or disturbed.

```
HEL0191 | 01:04
REMOTE  State: ON
0 failures
0 warnings
Stat | Ctrl |
```

The system state is the combined status of all switch groups. If one or more switch groups is enabled the state is ON, if not, the state is OFF.

```
HEL0191 | 01:04
REMOTE  State: OFF
0 failures
0 warnings
Stat | Ctrl |
```

The number of failures and warnings are shown in the status part of the screen.

```
HEL0191 | 01:04
REMOTE  State: OFF
0 failures
0 warnings
Stat | Ctrl |
```

Use the soft keys to enter the status menu or the control menu.

## 8.2 Status screen



The first item in the status menu is failure screen.  
Press the **Back key** to return to the status overview.  
Press the **Down key** to view the Warning screen.  
Press the **Up key** to view the Switch group screen.  
Press the **Select key** to view the details of the failures.



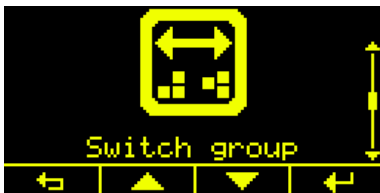
Details of the failures.  
Press the **Back key** to view the Failure screen.



The second item in the status menu is warning screen.  
Press the **Back key** to return to the status overview.  
Press the **Down key** to view the Switch group screen.  
Press the **Up key** to view the Failure screen  
Press the **Select key** to view the details of the warnings



Details of the warnings  
Press the **Back key** to view the Warning screen.



The third item in the status menu is Switch group screen.  
Press the **Back key** to return to the status overview.  
Press the **Down key** to view the Ethernet screen.  
Press the **Up key** to view the Warning screen.  
Press the **Select key** to view the details of the switch groups.



Details of the warnings.  
Press the **Back key** to view the Switch group screen.  
Press the **Up and the Down keys** to scroll through the list of switch groups.



The fourth item in the status menu is Ethernet screen.  
Press the **Back key** to return to the status overview.  
Press the **Down key** to view the Failure screen.  
Press the **Up key** to view the Switch group screen.  
Press the **Select key** to view the details of the Ethernet interfaces.



Details of the Ethernet interfaces.  
Press the **Back key** to view the Ethernet screen.  
Press the **Up and Down keys** to scroll through the list of Ethernet interfaces.

### 8.3 Switch group screen



The switch group screen shows:  
The name of the switch group: switch group 3



The number of bars is equal to the number of brightness levels adjusted.  
The bars are filled up to the brightness level adjusted.

The brightness level adjusted: B2



The associated intensity with brightness level 2: 20 %

### 8.4 Connection lost screen



If the connection of the front panel with the backplane is lost, this screen will be displayed.

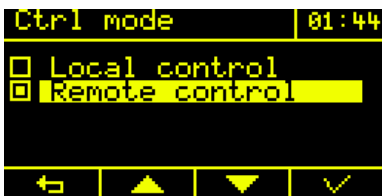
### 8.5 Setting the control mode



If the CEDD HPS Basestation is remotely controlled this screen will be shown.

Press the **Back key** to return to the main menu.

Press the **Select key** to view the control mode select screen.



Control mode select screen.

Press the **Back key** to view the Control mode screen.

Press the **Up and Down keys** to select the control mode.

Press the **Select key** ✓ to confirm the selection.

## 8.6 Local control

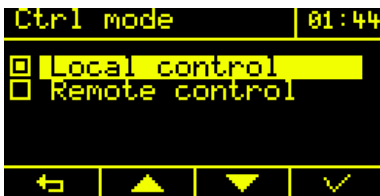


If the CEDD HPS Basestation is locally controlled this screen will be shown.

Press the **Back key** to return to the main menu.

Press the **Down key** to view the Switch group screen.

Press the **Select key** to view the control mode select screen.



Control mode select screen.

Press the **Back key** to view the Control mode screen.

Press the **Up and Down keys** to choose the control mode.

Press the **Select key** ✓ to confirm the choice.



Switch group screen.

Press the **Back key** to view the Control mode screen.

Press the **Down key** to view the Control mode screen.

Press the **Select key** to view the Switch group choice screen.



Switch group select screen.

The name of the switch groups are shown with their brightness level adjusted.

Press the **Back key** to view the Switch group screen.

Press the **Up and Down keys** to scroll through the list of the switch groups.

Press the **Select key** to:

- switch off all switch groups; or
- show the Brightness setting screen of the switch group selected.



Brightness setting screen.

Press the **Back key** to view the switch group choice screen.

Press the **- key** to decrease the brightness level within the switch group: the indicated intensity and the number of bars will decrease accordingly.

Press the **+ key** to increase the intensity of the lights within the switch group: the indicated intensity and the number of bars will increase accordingly.



### Company profile:

TKH Airport Solutions offers a complete range of LED-based airfield ground lighting products that are designed to be easy to install, operate, and maintain, and are compliant with international aviation standards. Our products meet the needs of our customers and contribute to a better future for the aviation industry. Being part of the TKH Group, our company can build on a history of more than 90 years in smart connectivity, energy distribution and AGL.

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