VERTIV™

Unit to Unit (U2U) Communication Setup

Installer/User Guide

Liebert® iCOM™ 3 - V1A Network and Liebert® iCOM™ 3 - V1A/Backwards Compatibility to PA, V1A/Backwards Compatibility to A9H

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

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1 Vertiv™ Liebert® iCOM™ 3 Unit to Unit Communication

The Liebert® iCOM™ controller shall provide the capability of networking up to (32) Liebert units within a single network group. The networking capability shall provide access to standby/lead-lag and Teamwork Mode functionality. Vertiv recommends that all thermal units be connected to the same LAN (local area network) on the same IP subnet mask separate from any non-Liebert equipment.

1.1 Setting the IP Address

NOTE: When multiple Liebert thermal units arrive on site, they will all have the same default network credentials. These network settings will need to be configured on all thermal units. Do not connect them into the network, but treat them as isolated single units for the next steps.

Figure 1.1   Network Setup/Unit IP Settings

NOTE: The Vertiv™ Liebert® iCOM™ network settings will need to be changed from their default settings on all units separately.

Table 1.1   Default IP Addresses

Liebert® iCOM™ 3 boards	192.168.254.12
Liebert® iCOM™ 3 HMI	192.168.254.33
Liebert® iCOM™ 1/2 large	192.168.254.1
Liebert® iCOM™ 1 medium	192.168.254.2
Liebert® iCOM™ CDL	192.168.254.3
Liebert® iCOM™ 9-inch HMI	192.168.254.033
Liebert® iCOM™ CDS	192.168.254.4

IP Address is the IP address of the control board.

NOTE: The IP addresses of all units belonging to the same system must be in the same IP subnet. This means that the first three sets (octets) of digits of the IP address must be equal on all units in the same system, while the last digit must be unique.

Netmask is typically set to 255 - 255 - 255 - 0. This setting must be the same on all devices of the network.

Gateway and DNS (Domain Name System) typically have all digits set to 0.

After configuring all parameters, the settings need to be saved by pressing 'Save'.

NOTE: If the board's IP address was changed from the default IP address, the display will lose the connection, and needs to be adapted to this new IP address.

The IP address of the display needs to be changed accordingly (i.e., the first three sets (octets) equal to the boards IP, the last set (octet) unique).

The Homepage IP needs to be changed to point to the new board's IP Address.

Press and hold the upper-left corner of the display (minimum five seconds), log in and select:

- In Web Browser: 'Edit' and change the homepage IP (i.e., the board where the display shall point to), finish with 'Save'.
- Menu/Network/Network Interfaces: 'Edit' and change the Display's IP Address, Netmask, and Gateway accordingly, finish with 'Save'.

Once all devices have their unique IP address, the network can be established by connecting the Ethernet cables.

1.2 Setting Up the Network

Figure 1.2   Network Setup

NOTE: These settings are only required on unit #1. They will be copied later to the other units. (See **Network Setup, Copy Configuration** on page 4 .)

Number of Connected Units defines the number of control boards in the team.

Backwards Compatibility Mode must be set to 'None' for Vertiv™ Liebert® iCOM™ 3 only systems, to 'PA' for mixed systems with Vertiv™ Liebert® iCOM™ 2 units with PA software, to 'A9H' or 'PH' if backwards compatibility is required with these applications.

NOTE: Even if backwards compatibility (mixed network) is required, it is suggested first setting up the system as a pure Liebert® iCOM™ 3 V1A network, and once everything is connected and working, adding the backwards compatibility. See Backwards Compatibility Vertiv™ Liebert® iCOM™ 3 - V1A to Vertiv™ Liebert® iCOM™ 2 - PA on page 7 .

U2U Address is the unit identification number within the system. It must be assigned sequentially, starting at '1'.

After configuring all parameters, the settings need to be saved by setting 'Apply Network Settings' to 'Yes' and touching 'Save'.

1.3 Setting the IP Addresses Belonging to the System

Figure 1.3   Addresses 1-16 (17-32)

NOTE: These settings need to be done only on unit #1 (See Network Setup, Copy Configuration on the next page .

These pages define the IP address of all units belonging to the system.

When setting 'Auto Configuration´ to ´Yes´, the control board will automatically configure these IP addresses starting from its local IP address; by setting the first three fields equal and increasing field 4 by one for all defined units (Number of connected units).

NOTE: After the auto-configuration process has completed, the IP addresses can be edited in case they are not sequential as the auto-configuration process assumes.

After configuring and/or verifying all parameters, the settings need to be saved by setting 'Apply Network Settings' to 'Yes' and then touching 'Save'.

NOTE: All units in the network need to have the same IP settings in that screen. In order to simplify the setup there is a Network Setup, Copy Configuration on the next page .

1.4 Network Setup, Copy Configuration

Figure 1.4 Network Setup, Copy Configuration
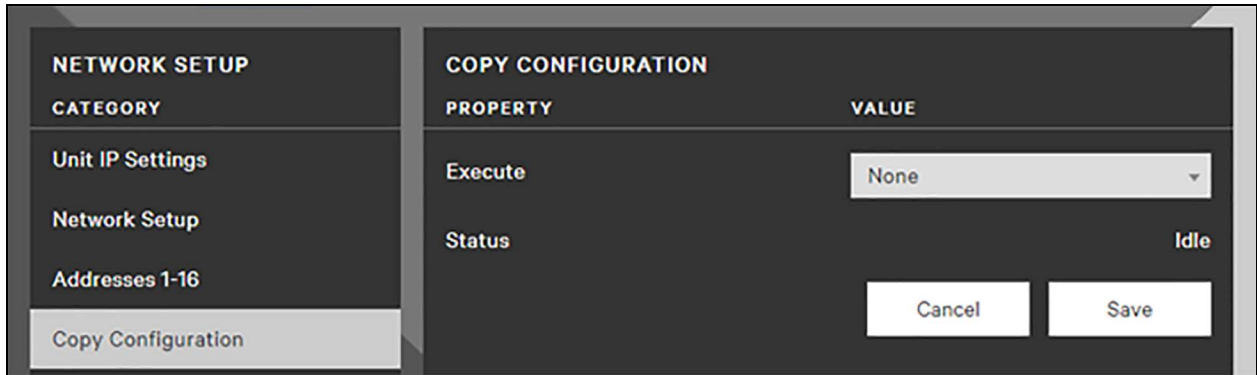
This page allows copying the U2U configuration to all other control boards in the system. Typically the copy process is started from unit #1.

The prerequisites for this operation are:

- All control boards are reachable: the IP addresses are setup correctly, and network cables are connected.

The copy process can be started by setting 'Execute' to 'Start' and then touching 'Save'.

If the status changes back to 'Idle' the copy process is complete, all units (except the one which triggered the process) will reboot to save the configuration and this concludes the setup.

Carefully check if the copy process was successful in all units.

1.5 System Overview

The System Overview menu on the Vertiv™ Liebert® iCOM™ 3 display is showing the system values and the status of the units of the system.

Figure 1.5   System Overview
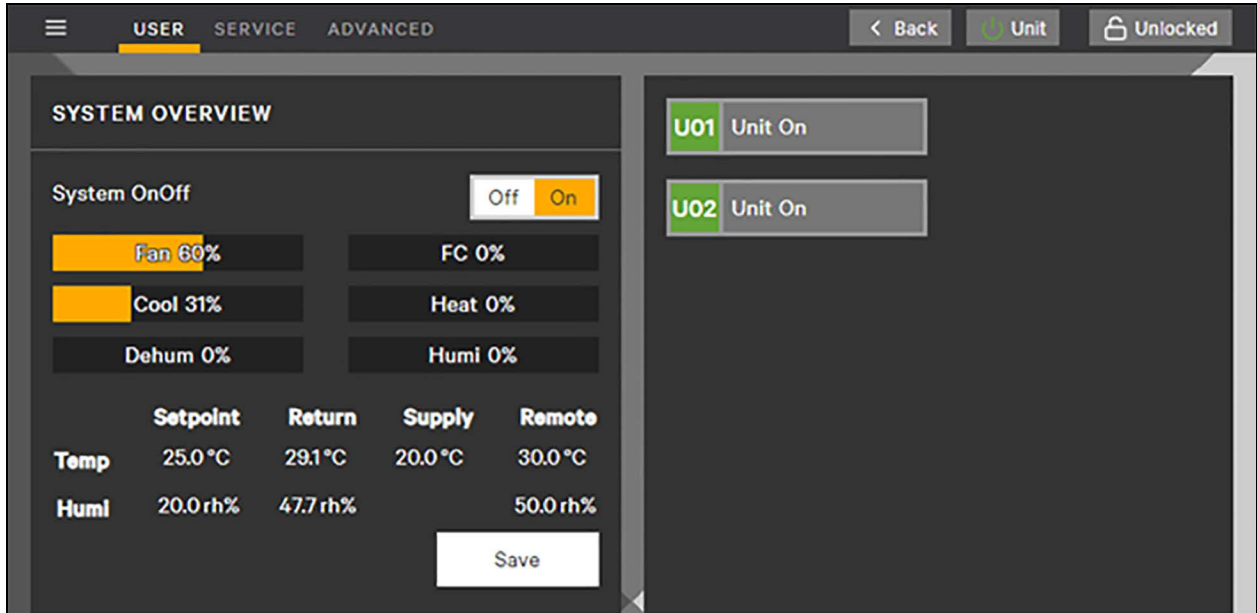
- Check the correct appearance of all.
- If units are missing:
    - Check/correct the settings of unit #1, and repeat the steps described in Network Setup, Copy Configuration on the previous page .

      or

    - Check/correct the individual unit settings.

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2 Backwards Compatibility Vertiv™ Liebert® iCOM™ 3 - V1A to Vertiv™ Liebert® iCOM™ 2 - PA

Mixed systems with PA are supported starting from Liebert® iCOM™ 3 V1A1.01.00R and Liebert® iCOM™ 2 PA2.06.57R.

NOTE: PA2.07.xxR versions are not yet supported.

Mixed systems require the PA Liebert® iCOM™ 2 units being set as the first units in the team (e.g., U2U Address #1 to #3), and the V1A Liebert® iCOM™ 3 units shall be appended after them (e.g., U2U Address #4 and #5).

The following instructions assume that the Liebert® iCOM™ 2 network has loaded (was updated with) the software version mentioned above, and is fully functional.

2.1 Vertiv™ Liebert® iCOM™ 2 - PA: Service/BMS and Teamwork/Teamwork/Standby/Teamwork Mode

**Figure 2.1   Teamwork/Standby/Teamwork Mode Control**

'Compatibility with iCOM3' enables the communication to Liebert® iCOM™ 3. This setting is synchronized (i.e., automatically set in all Liebert® iCOM™ 2 units).

Set to 'Enabled' and touch 'Save'.

2.2 Vertiv™ Liebert® iCOM™ 2 - PA: Service/BMS and Teamwork/Teamwork/Standby/Vertiv™ Liebert® iCOM™ 3 Compatibility Setup

Figure 2.2   Teamwork/Standby, Liebert® iCOM™ 3 Compatibility Setup
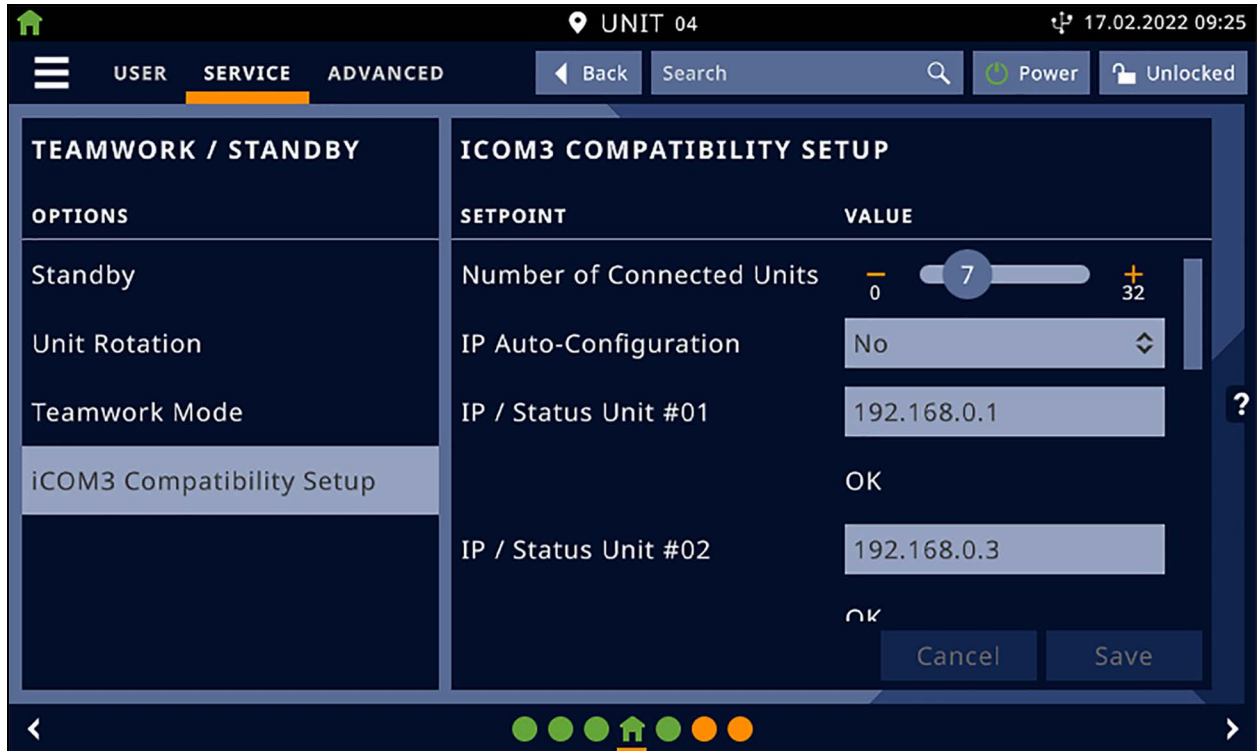
NOTE: These settings need to be done only on unit #1. These settings are synchronized (i.e., automatically set in all Liebert® iCOM™ 2 units).

The parameter 'Number of Connected Units' defines the team size.

NOTE: The number of connected units defines the total number of Liebert® iCOM™ 2 plus Liebert® iCOM™ 3 units in the system.

The parameter 'IP Auto-Configuration' operates as follows when set to 'Yes':

1. Assigns IP addresses within the range of the team consecutively according to the local IP address and unit ID.
2. Assigns IP address 0.0.0.0 to units outside the range of the team (e.g., starting from unit #6 in this example).
3. Does not reassign IP addresses when they are different from 0, i.e., they are (presumably) configured already.

Scroll down to check/set all IP addresses and states. If the IP addresses are not consecutive, make changes so that they match the actual units IP addresses on site.

After that, the Liebert® iCOM™ 3 settings need to be updated:

- In Liebert® iCOM™ 2, unit #1, set 'Copy to iCOM3' to 'Yes' and touch 'Save'.

NOTE: This is not yet implemented.

2.3 Copy Function

Figure 2.3   Teamwork/Standby, iCOM3 Compatibility Setup

'Copy MT Configuration' allows copying the IP configuration to Vertiv™ Liebert® iCOM™ 3 units.

Prerequisite: All units have their unique IP address, and their status shows 'OK'. Any other setting (like U2U Address, Number of Connected Units, etc.) for Liebert® iCOM™ 3 units will be automatically set by the copy process.

Start the copy process by setting 'Copy MT Configuration' to 'Start', followed by 'Save'.

With 'Copy to' set to Zero all Liebert® iCOM™ 3 units will receive the IP and System configuration.

Watch the 'Copy Status' for Error Messages.

The copy process will take several minutes - it is completed once the Liebert® iCOM™ 3 units have rebooted.

- Check the status of each unit, it should show 'OK' after the copy process.

If communication interruptions occur during the copy process, one or all units may return an error status, like 'Err CpyCfg'. In this case:

- Set 'Copy MT Configuration' to 'Reset', followed by 'Save'.
- Repeat the process (for just one unit, or for all units (use 'Copy to' to select if all units or just one should repeat the process) by setting 'Copy MT Configuration' again to 'Start', followed by 'Save'.

Once complete, it is required to set 'Backwards Compatibility Mode' to 'PA' in each Liebert® iCOM™ 3 unit (see **Figure 1.2**   on page 2).

2.4 System Overview Screens Vertiv™ Liebert® iCOM™ 3 and Vertiv™ Liebert® iCOM™ 2

The System Overview menus on Liebert® iCOM™ 3 and Liebert® iCOM™ 2 displays are showing the system values and the status of the units of the system. See **Figure 2.4**   below and **Figure 2.5**   below .

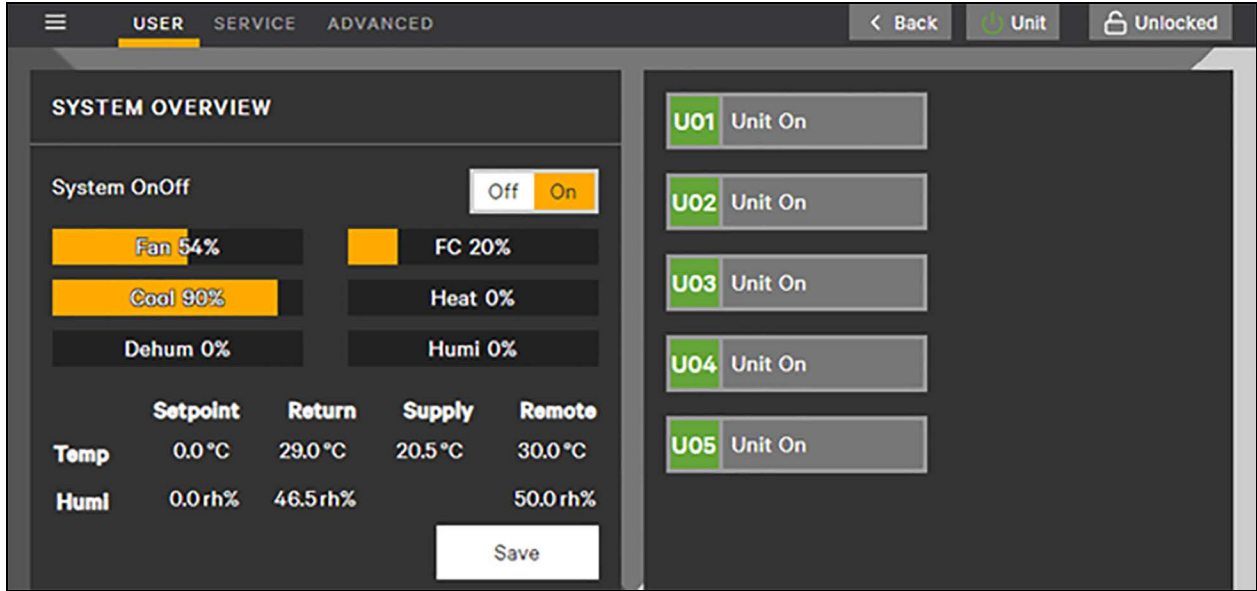Figure 2.4   System Overview Liebert® iCOM™ 3

Figure 2.5   System Overview Liebert® iCOM™ 2

- Check the correct appearance of all units.
- If units are missing:
    - Check/correct the settings of unit #1, and repeat the steps described in this chapter.

      or

    - Check/correct the individual unit settings.

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3 Backwards Compatibility Vertiv™ Liebert® iCOM™ 3 - V1A to Vertiv™ Liebert® iCOM™ 1 - A9H

Mixed systems with A9H are supported starting from Liebert® iCOM™ 3 V1A1.01.000R and Liebert® iCOM™ 1 A9H_1_04_52R_MT.

The following instructions assume that the Liebert® iCOM™ 1-A9H network has loaded (was updated with) the software version mentioned above, and is fully functional.

3.1 Service/S800 System/Network Setup

Figure 3.1   S800 System/Network Setup
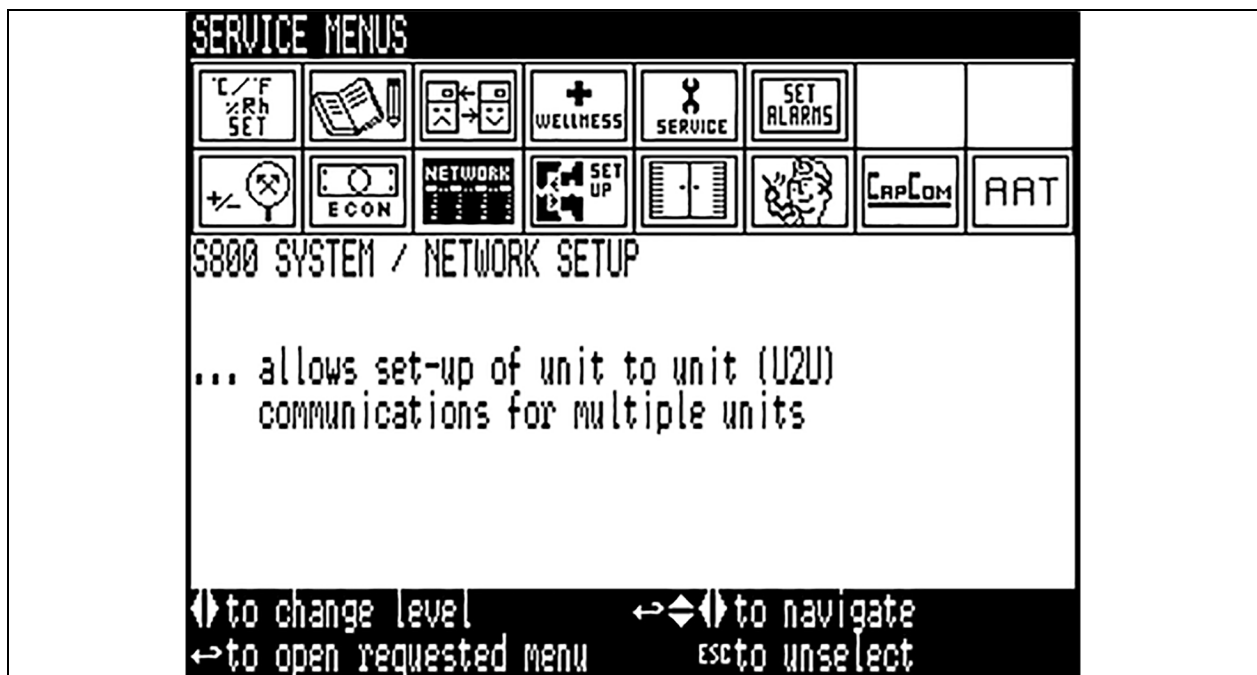
System/Network Setup is where the system on Liebert® iCOM™ 1 side gets configured.

3.2 Service/S800 System/Network Setup, Page 2

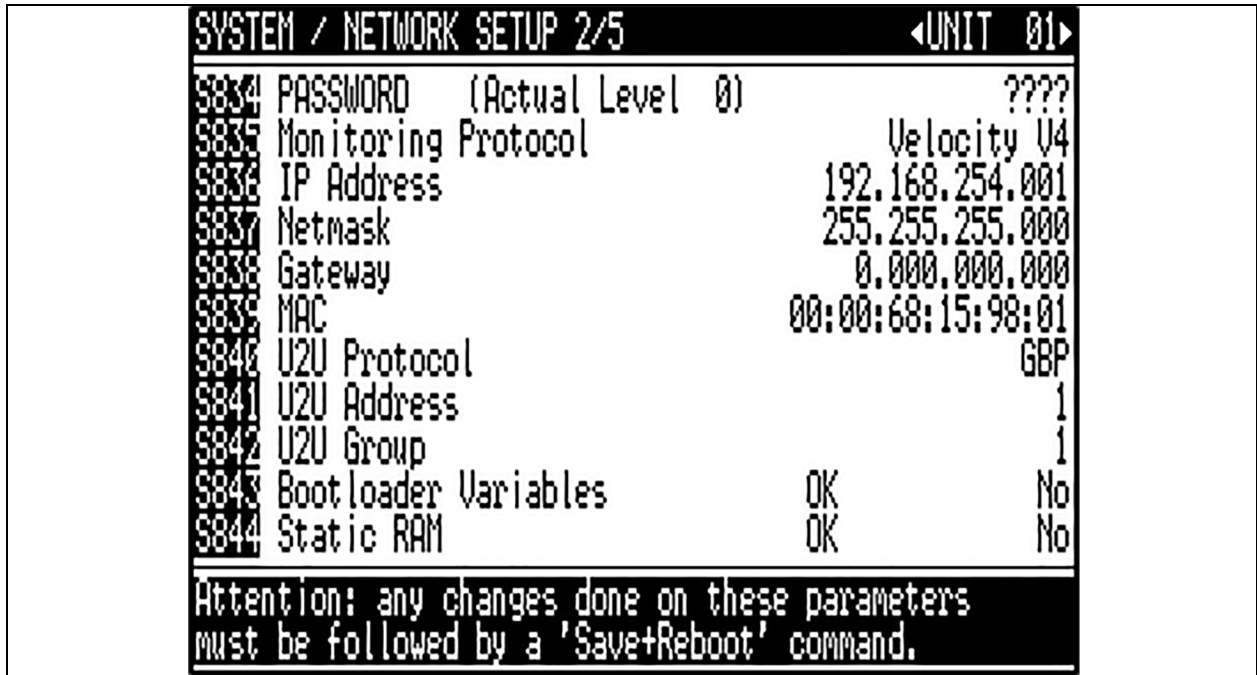**Figure 3.2 S800 System/Network Setup, Page 2**

```
SYSTEM / NETWORK SETUP 2/5              ◄UNIT  01►
S834  PASSWORD    (Actual Level  0)                ????
S835  Monitoring Protocol                   Velocity V4
S836  IP Address                         192.168.254.001
S837  Netmask                            255.255.255.000
S838  Gateway                              0.000.000.000
S839  MAC                            00:00:68:15:98:01
S840  U2U Protocol                                  GBP
S841  U2U Address                                     1
S842  U2U Group                                       1
S843  Bootloader Variables              OK           No
S844  Static RAM                        OK           No
Attention: any changes done on these parameters
must be followed by a 'Save+Reboot' command.
```
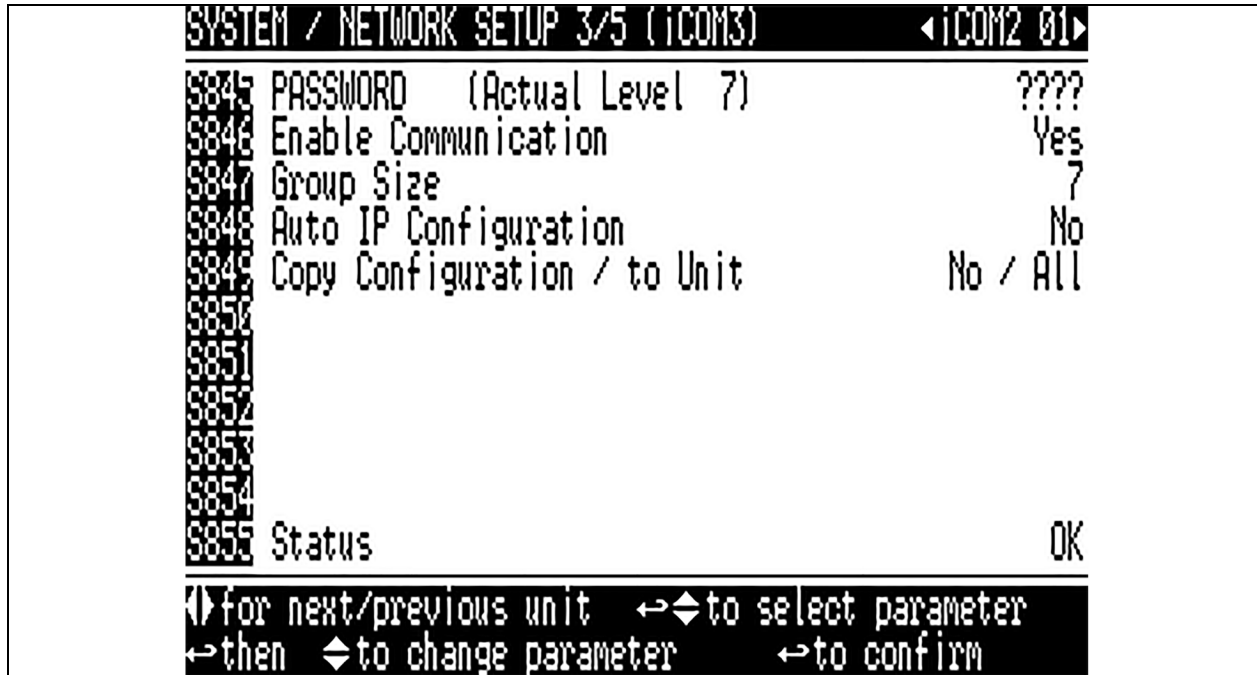
S836 is the IP address of the Liebert® iCOM™ 1 Board.

NOTE: The IP addresses of all units belonging to the same system must be in the same IP subnet. In most cases (i.e., with an IP subnet mask of 255.255.255.0), this means that the first three digits of the IP address must be equal on all units in the same system, while the last digit must be unique.

3.3 Service/S800 System/Network Setup, Page 3

Figure 3.3   S800 System/Network Setup, Page 3


```
SYSTEM / NETWORK SETUP 3/5 (iCOM3)    ◄iCOM2 01►
S845 PASSWORD   (Actual Level  7)              ????
S846 Enable Communication                       Yes
S847 Group Size                                   7
S848 Auto IP Configuration                       No
S849 Copy Configuration / to Unit           No / All
S850
S851
S852
S853
S854
S855 Status                                      OK

◄►for next/previous unit   ↵♦to select parameter
↵then  ♦to change parameter      ↵to confirm
```

S846, Enable Communication to V1A: If set to 'Yes', enables communication to V1A. Leave at 'No' for now.

S847, Number of Connected Units defines the number of connected units; in our case seven units (the total number of Vertiv™ Liebert® iCOM™ 1 plus Vertiv™ Liebert® iCOM™ 3 units in the system).

S848, IP Auto-Configuration (the same as **Figure 3.4** on the next page) operates as follows:

- Yes:
1. Assigns IP addresses within the range of the local MT group consecutively according to the local IP address and unit ID.
2. Assigns IP address 0.0.0.0 to units outside the range of the local MT group.
3. Does not reassign IP addresses when they are different from 0, i.e., they are (presumably) configured already.
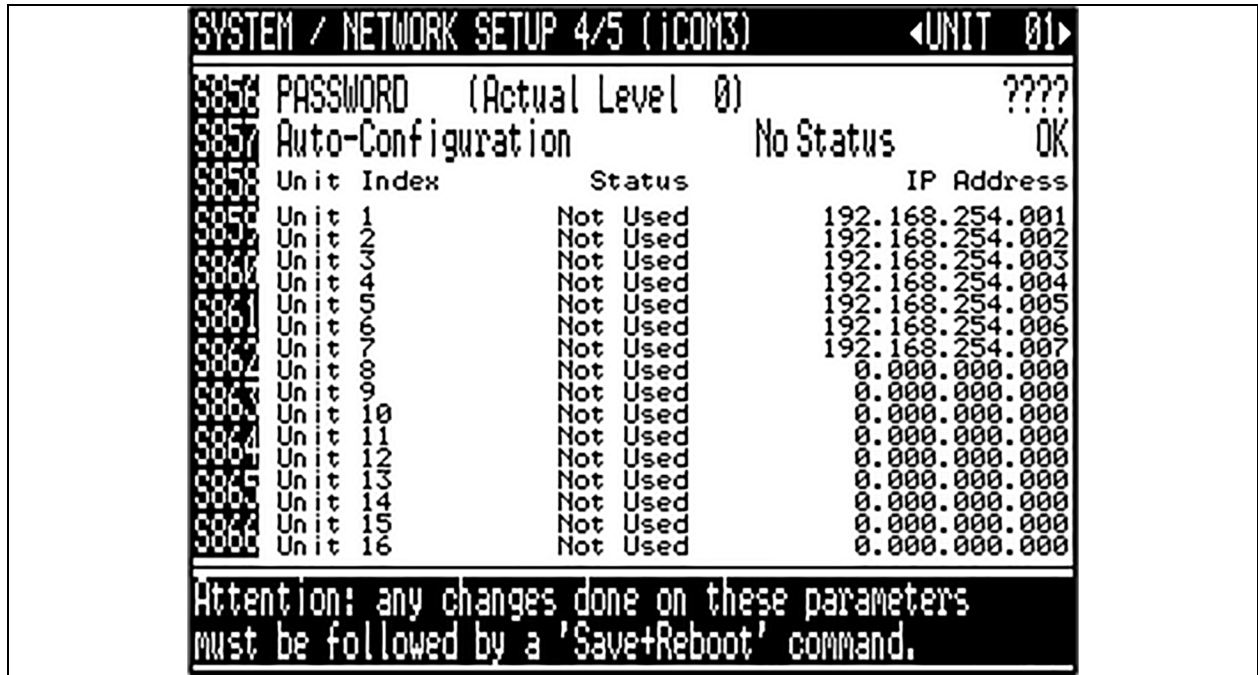   - All of Group:

      Same as 'Yes' except for point #3.

    - All:

      Assigns all 32 IP addresses consecutively according to the local IP address and unit ID.

NOTE: Group Size (= Number of Connected Units) defines the total number of Liebert® iCOM™ 1 plus Liebert® iCOM™ 3 units in the system.

3.4 Service/S800 System/Network Setup, Page 4

Figure 3.4 S800 System/Network Setup, Page 4

IP addresses of the seven units in our example. If the IP addresses are not consecutive, make changes so they match the actual units' IP addresses on site.

NOTE: These settings need to be done only on unit #1. These settings are synchronized (i.e., automatically set in all Liebert® iCOM™ 1 units).

NOTE: Liebert® iCOM™ 3 units need to have their U2U Addresses appended to the Liebert® iCOM™ 1 units; i.e., 1-4 = iCOM™ 1, 5-7 = iCOM™ 3. The settings must also be duplicated in the Liebert® iCOM™ 3 HMI (see Setting Up the Network on page 2 and Setting the IP Addresses Belonging to the System on page 3).

## 3.5 Service/S800 System/Network Setup, Page 3 - Enable Communication to V1A

Figure 3.5 System/Network Setup, Page 3


```
SYSTEM / NETWORK SETUP 3/5 (iCOM3)        ◄UNIT  01►
S845 PASSWORD    (Actual Level  3)                ????
S846 Enable Communication to V1A                   Yes
S847 Number of Connected Units                       7
S848 IP Auto-Configuration                          No
S849
S850
S851
S852
S853
S854
S855 Status                                         OK
◄►for next/previous unit    ↵♦to select parameter
↵then  ♦to change parameter      ↵to confirm
```

Set S846, 'Enable Communication to V1A' to 'Yes' and wait for the status to show OK. If the status shows Cfg Error, double check the IP addresses for conflicts.

3.6 Service/S800 System/Network Setup, Page 4 - Check Unit Status

**Figure 3.6   System/Network Setup, Page 4**
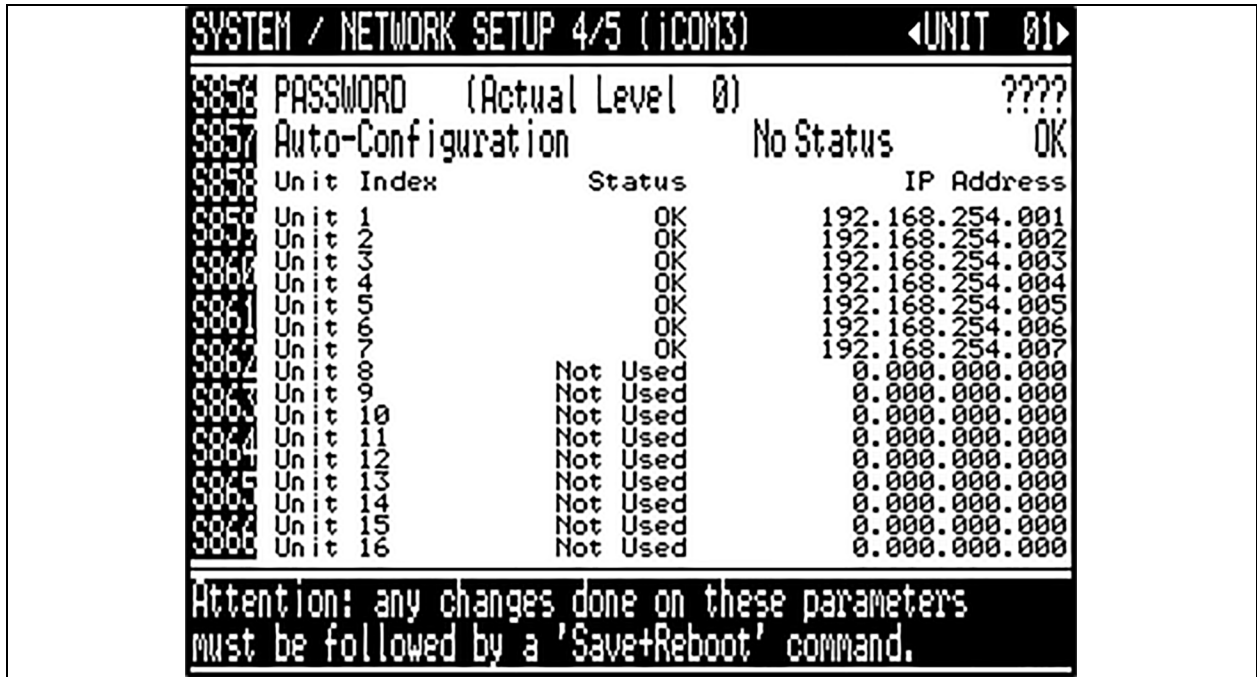
Check the status of each unit. The example is showing the states when all units are configured and connected.

NOTE: The status update can take some time.

3.7 System and Network Overview

Menus on Vertiv™ Liebert® iCOM™ 1 and Vertiv™ Liebert® iCOM™ 3 are showing the system values and the status of the units of the system.
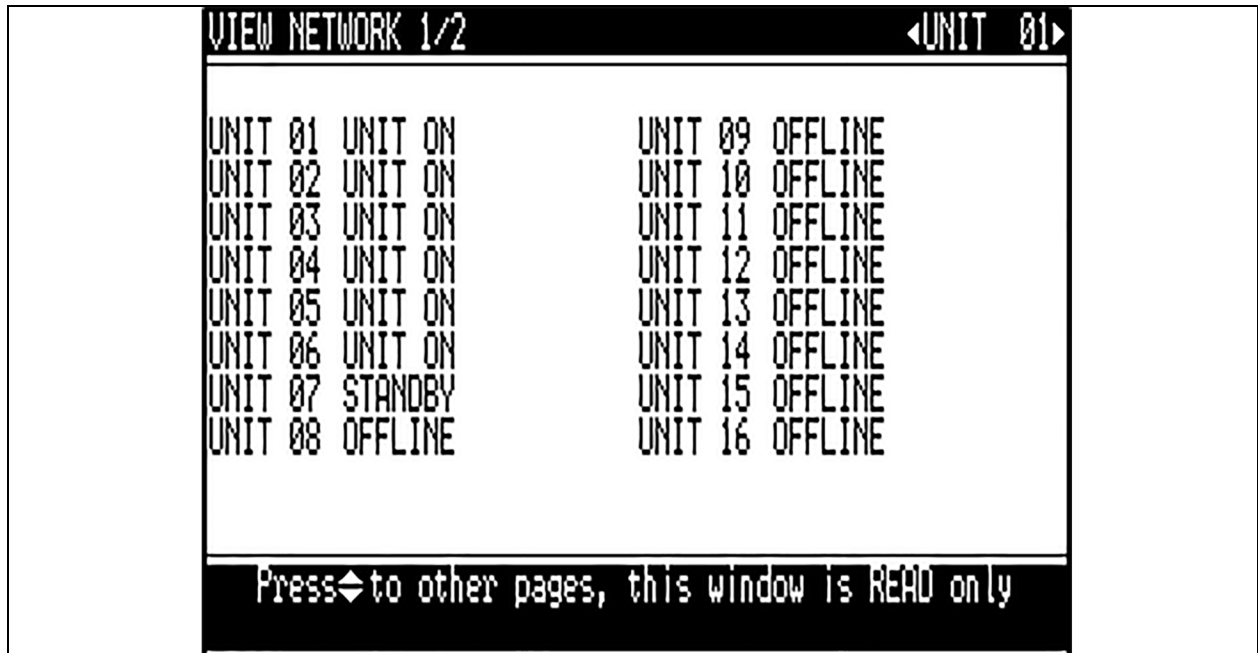
Figure 3.7   System Overview Liebert® iCOM™ 3
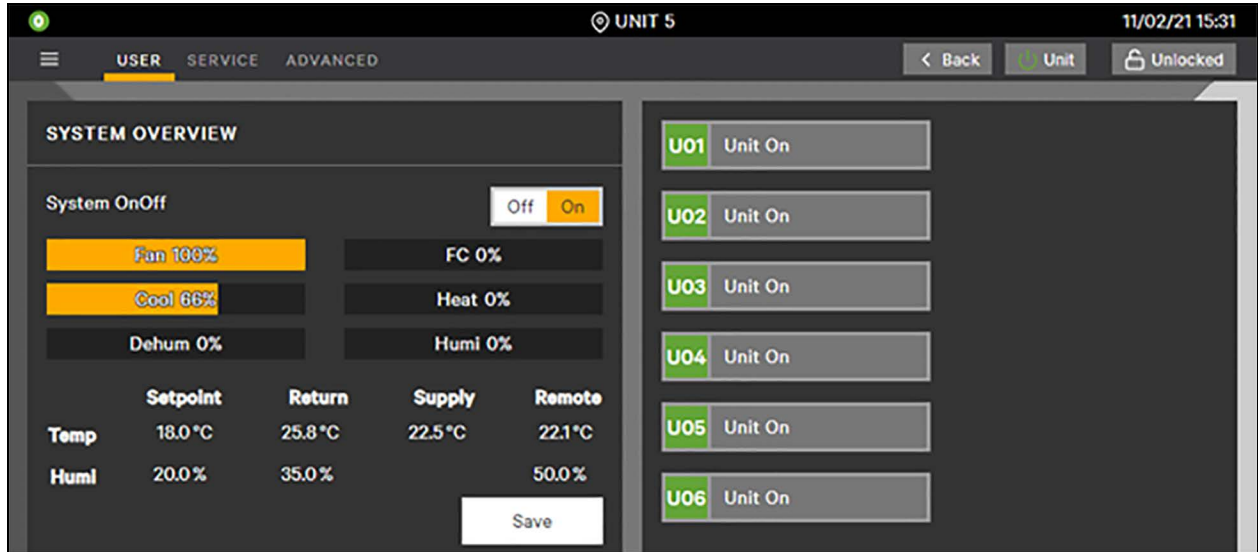
Scroll down for more units.

3.7.1 View Network Vertiv™ Liebert® iCOM™ 1

Enter menu User/View Network:

Figure 3.8   View Network

The status of units 17 - 32 are on View Network 2/2.

3.8 Copy Function

NOTE: These settings are only required on unit #1. These settings are synchronized (i.e., automatically set in all Vertiv™ Liebert® iCOM™ 1 units).

NOTE: Vertiv™ Liebert® iCOM™ 3 units need to have their U2U addresses appended to the Liebert® iCOM™ 1 units, i.e., 1-4 = iCOM™ 1, 5-7 = iCOM™ 3.

After that, the Liebert® iCOM™ 3 settings need to be updated.

'Copy Configuration' allows copying the IP configuration to Liebert® iCOM™ 3 units.

Prerequisite: All units have their unique IP address, and their status shows 'OK'. Any other setting (like U2U Address, Number of Connected Units, etc.) for iCOM™ 3 units will be automatically set by the copy process.

Start the copy process by setting 'Copy Configuration' to 'Start'.

With 'to Unit' set to 'All' all iCOM™ 3 units will receive the IP and System configuration.

Watch the 'Status' line for Error Messages.

The copy process will take several minutes - it is completed once the iCOM™ 3 units have rebooted.

- Check the status of each unit, it should show 'OK' after the copy process.

If communication interruptions occur during the copy process, one or all units may return an error status, like 'Err CpyCfg'. In this case:

- Set 'Copy Configuration' to 'Reset'.
- Repeat the process (for just one unit, or for all units (use 'to Unit' to select if all units or just one should repeat the process) by setting 'Copy Configuration' again to 'Start'.

Once complete, it is required to set 'Backwards Compatibility Mode' to 'A9H' in each iCOM™ 3 unit (**Figure 1.2** on page 2).

Appendices

Appendix A: Technical Support and Contacts

A.1 Technical Support/Service in the United States

Vertiv Group Corporation

24x7 dispatch of technicians for all products.

1-800-543-2378

Liebert® Thermal Management Products

1-800-543-2778

Liebert® Channel Products

1-800-222-5877

Liebert® AC and DC Power Products

1-800-543-2378

A.2 Locations

United States

Vertiv Headquarters

1050 Dearborn Drive

Columbus, OH, 43085, USA

Europe

Via Leonardo Da Vinci 8 Zona Industriale Tognana

35028 Piove Di Sacco (PD) Italy

Asia

7/F, Dah Sing Financial Centre

3108 Gloucester Road

Wanchai, Hong Kong

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