

## LYNK Communication Gateway User Manual



950-0015

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## 1. Safety

### 1.1 Warnings, Cautions and Notes

▲ WARNING
Death or Injury

▲ CAUTION
Equipment Damage

▲ NOTE
Additional Information

### 1.2 General Warnings

▲ WARNING
<p><b>HAZARD OF ELECTRICAL SHOCK AND FIRE</b></p> <ul style="list-style-type: none"><li>• Connect only to Safety Extra Low Voltage (SELV) circuits and power sources.</li><li>• All wiring must be completed by qualified personnel to ensure compliance with applicable installation codes and regulations.</li></ul> <p><b>Failure to follow these instructions will result in death or serious injury.</b></p>

▲ CAUTION
<p><b>HAZARD OF EQUIPMENT DAMAGE</b></p> <ul style="list-style-type: none"><li>• Do not install LYNK outdoors.</li><li>• Do not connect any port of the LYNK to a network with power over Ethernet (POE) or to a public telecommunication network.</li><li>• Do not run CAT5 cables or other cables connected to LYNK through conduit that could be exposed to lightning strikes.</li></ul> <p><b>Failure to follow these instructions will damage equipment.</b></p>

## 2. Overview

LYNK communication gateway unlocks the full potential of a Discover AES LiFePO<sub>4</sub> Battery by enabling the internal Battery Management System (BMS) to optimize the charge and discharge configurations of the world's best residential inverter chargers and solar charge controller systems.

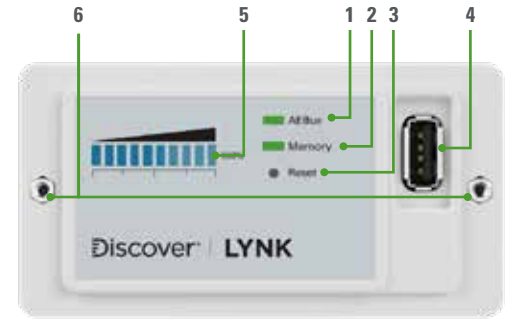
LYNK provides closed-loop communications for adaptive interaction between the Discover AES battery and power conversion electronics turning a good system into a great one with up to 25% improvement in 0% to 100% SoC recharge time.

LYNK enables remote display and reporting of battery system-level status through supported third party web portal and cloud monitoring services.

## 2.1 Physical Features

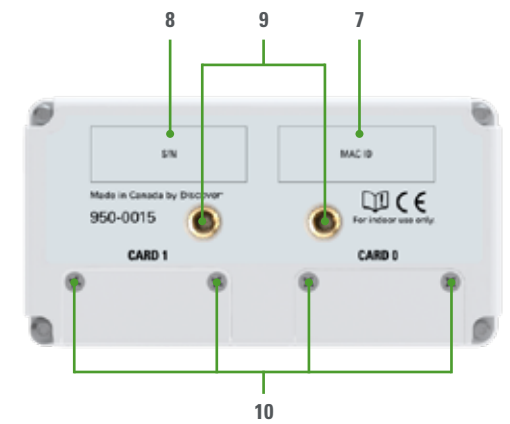
### LYNK Front Face

<b>1</b>	<b>AEbus</b>	Solid Green LED: Communicating with Devices on AEbus.
<b>2</b>	<b>Memory</b>	Default: OFF, Flashing Green LED: Communicating with USB Thumb Drive, Solid Green LED: Safe to remove USB Thumb Drive.
<b>3</b>	<b>Reset</b>	Pinhole used to power cycle LYNK.
<b>4</b>	<b>USB</b>	USB Host used for thumb drive to load Firmware into LYNK.
<b>5</b>	<b>SOC</b>	10 Blue LEDs: Battery bank state of charge, Single LED Race Sequence: Power, but no AEbus detected.
<b>6</b>	<b>Mounting Screws</b>	M3 screws used to mount LYNK to Wall or Gang Mount plate (Included).



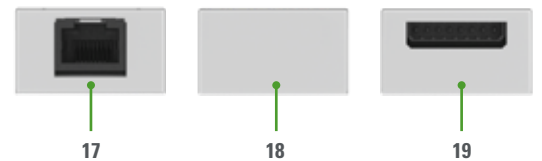
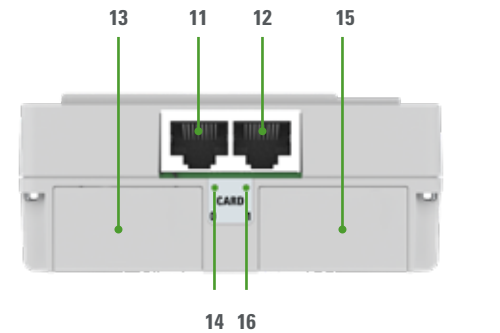
### LYNK Back Face

<b>7</b>	<b>MAC Address</b>	Unique MAC Address.
<b>8</b>	<b>Serial Number</b>	Unique serial number.
<b>9</b>	<b>DIN Rail Hardware Receptacles</b>	Threaded receptacles used to secure DIN Rail mounting hardware.
<b>10</b>	<b>Edge Card Cover Screws</b>	6-32 screws used to secure cover.

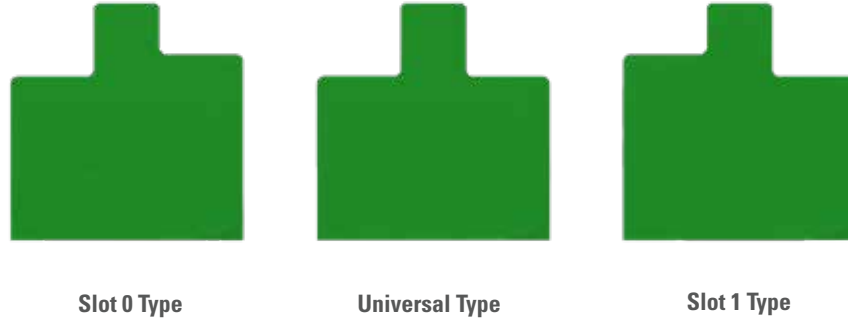


### LYNK Bottom Face

<b>11</b>	<b>AEbus</b>	RJ45 Port for CAT5 cable to connect to AEbus network. This is a terminated connection.
<b>12</b>	<b>Ethernet</b>	Future Functionality.
<b>13</b>	<b>Edge Card Slot 0</b>	Slot for universal or Slot 0 Edge Cards.
<b>14</b>	<b>Edge Card Slot 0 Communication Status</b>	Solid Green LED: Communication connection good.
<b>15</b>	<b>Edge Card Slot 1</b>	Slot for universal or Slot 1 Edge Cards.
<b>16</b>	<b>Edge Card Slot 1 Communication Status</b>	Solid Green LED: Communication connection good.
<b>17</b>	<b>Edge Card Cover RJ45</b>	Cover to be used with Edge Cards populated with RJ45 ports.
<b>18</b>	<b>Edge Card Cover Blank</b>	Cover to be used when no Edge Card is present.
<b>19</b>	<b>Edge Card Cover Phoenix</b>	Cover to be used with Edge Cards populated with Phoenix ports.
<b>20</b>	<b>DC-DC AEbus Power Converter</b>	Converts nominal DC voltage (24-48V) of AES Battery to nominal DC 12V to power LYNK,



## 2.2 LYNK Edge Cards



LYNK Edge Cards come in specific shapes and will only fit into the specified slot type.

- Slot 0 type will only work in LYNK Slot 0.
- Slot 1 type will only work in LYNK Slot 1.
- Universal type will work in either LYNK Slot 1 or 0.

### ▲ NOTE

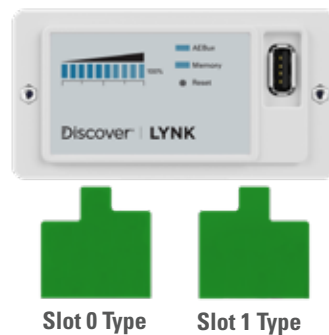
- The LYNK Edge Card type to be used is determined by the brand of power conversion equipment.
- LYNK Edge Cards are sold separately.

## 3. Installation

Choose a clean, dry, easily accessible indoor location. All the communication ports on the LYNK are accessible from the bottom of the device when mounted on a wall or DIN rail. Clearance of at least 50 mm (2 inches) below the device is needed to allow for the bend radius of cables connected to LYNK.

### 3.1 Edge Card Installation

With LYNK disconnected from all devices insert the LYNK Edge Card in the correct slot. Ensure it is firmly seated into the internal connecting slot. Replace covers after mounting LYNK Edge Card.



### ▲ NOTE

- If LYNK Edge Card is in the wrong slot, it will not function.
- If LYNK Edge Card is not firmly seated, it will not function.

### 3.2 LYNK Mounting Options

The Gang Box and Wall Mounts are included. Place the LYNK behind the mount, insert M3 screws through the holes into threaded inserts on the face of LYNK and secure. Secure all cables to prevent them from becoming damaged. Two threaded inserts on the back of LYNK can be used to attach a DIN Rail mounting clip. DIN Rail hardware is not included.



Gang Box Mount



Wall Mount



DIN Rail Mount

### 3.3 Connecting LYNK to AEBus

**▲ CAUTION**

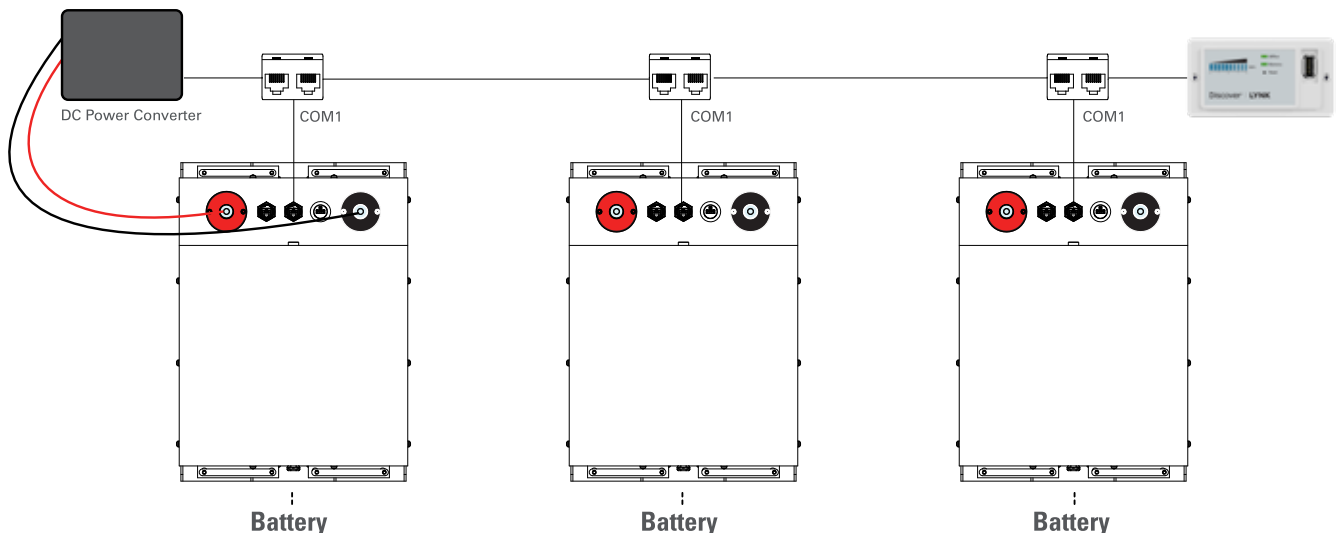
**HAZARD OF EQUIPMENT DAMAGE**

- Do not connect a CAT5 cable from the AEBus network to the WAN or MODEM port of a network router.
- Turn OFF all devices before connecting cables or inserting an Edge Card.
- Do not reverse the polarity of the DC power converter.

**Failure to follow these instructions can damage equipment.**

Using a CAT5 cable insert one end into the AEBus RJ45 port located on the bottom of LYNK. Insert the other end of the CAT5 cable into the AEBus port located on the battery. If there are multiple AES LiFePO<sub>4</sub> batteries, series network them together and insert the end of the CAT5 from LYNK into the AEBus Y-Connector at the end of series network, as shown below.

LYNK requires a 12 volt power source. Connect the fly leads of the included DC-DC AEBus power converter to the positive and negative battery terminals of a AES LiFePO<sub>4</sub> battery. Insert one end of a CAT5 cable into the RJ45 port of the DC-DC AEBus power converter and then insert the other end into the last AEBus Y-Connector, as shown below.



**▲ NOTE**

Both LYNK and the DC-DC AEBus power converter are internally terminated.

### 3.4 Connecting LYNK to Power Conversion Electronics

Instructions on networking with specific power electronics are found in the relevant LYNK Edge Card Manual. Refer also to the specific power electronics guides for system configuration information.

▲ CAUTION
<b>HAZARD OF EQUIPMENT DAMAGE</b>
<ul style="list-style-type: none"> <li>• Do not plug an AEBus RJ-45 cable terminator into the 10/100 Ethernet port of the LYNK.</li> <li>• Do not connect a CAT5 cable from the 10/100 Ethernet port of the LYNK to the WAN or MODEM port of a network router.</li> <li>• Turn OFF all devices before connecting cables or inserting an Edge Card.</li> </ul>
<b>Failure to follow these instructions will damage equipment.</b>

▲ NOTE
Power electronics are not AEBus devices and should not be connected directly to AEBus.

## 4. Operation

### 4.1 Turning Power to LYNK ON and OFF

To power up LYNK switch the AES LiFePO<sub>4</sub> battery to ON. To turn off power to LYNK switch the AES LiFePO<sub>4</sub> battery to OFF.

### 4.3 Power Cycling LYNK

Use a pin to press and briefly hold the reset button on the front face of LYNK.

### 4.4 Firmware Update

Consult the Discover website for the latest firmware. If an firmware update is require, ensure this is done by a qualified installer.

## 5. Troubleshooting

<b>Symptom</b>	AEBus LED is not on and SOC LEDs are scrolling
<b>Description</b>	Power is detected but there are no AEBus devices communicating
<b>Action</b>	Check that other AEBus Devices are powered on and that the network is properly terminated

## 6. Specifications

### Technical Specifications

<b>DEVICE NAME</b>	<b>LYNK Communication Gateway</b>
<b>Part Number</b>	950-0015
<b>COMMUNICATION INTERFACE</b>	
<b>AEBus</b>	Connector: 1x RJ45 Supported Products: Up to 20 AEBus enabled Discover AES Lithium Batteries
<b>Ethernet</b>	Future functionality
<b>Edge Card Slot x 2</b>	Connector: Inverter Charger and Solar Charge Controller Specific Protocol: Inverter Charger and Solar Charge Controller Specific (RS232, RS485, CAN)
<b>DATA INTERFACE</b>	
<b>USB 2.0 Host</b>	Connector: USB-A Protocols: Mass Storage Device (firmware upgrade, configuration, data download)
<b>POWER SUPPLY (INCLUDED)</b>	
<b>DC Output</b>	12V DC 500 mA Max (6 Watt Continuous): RJ45 (AE Bus)
<b>DC Input</b>	16 - 60V DC 375 mA Max: (+) Red, (-) Black

### General Specifications

<b>Weight</b>	110 g
<b>Dimensions (L x W x H)</b>	95 x 50.5 x 40 mm (3.7 x 2.0 x 1.6 in)
<b>IP Rating</b>	IP20 (indoor use only)
<b>Temperature</b>	Operating: -20°C to 50°C (-4°F to 122°F) / Storage: -40°C to 85°C (-40°F to 185°F)
<b>Mounting</b>	Included: Double gang box faceplate, wall mount faceplate Optional: DIN Rail 35 mm
<b>Display Status LED</b>	10 x State of Charge LEDs, 1 x AEBus connection LED, 1 x USB Status LED
<b>Humidity</b>	Operating: < 95%, non-condensing / storage: < 95%
<b>FEATURES</b>	
<b>Firmware</b>	Updates over local USB port.
<b>Edge Card Slots</b>	Up to two cards per LYNK, one card per brand of compatible power conversion devices
<b>Data logger</b>	Future functionality
<b>Internal Memory</b>	1 GB flash
<b>Programmable</b>	Future functionality
<b>STANDARDS</b>	
<b>Marking</b>	Pending
<b>EMC</b>	Pending

\*Specifications are subject to change without notice.

### Compatibility and Available AES Edge Cards

#### **Victron Energy**

Color Control GX and Venus GX enabled devices.

Part # 950-0016-VCTRN  
Slot 0, Connector RJ45

#### **SMA**

Sunny Island 4.4M, 6.0H, 8.0H, 4548-US, 6048-US.

Part # 950-0016-SMA  
Slot 0, Connector RJ45

#### **Studer Innotec**

Xcom-CAN compatible devices.

Part # 950-0016-STDTR  
Slot 0, Connector RJ45

#### **Schneider Electric**

Xanbus enabled devices.

Part # 950-0016-XNBS  
Slot 0, Connector RJ45

#### **Morningstar - Pending**

TriStar MPPT 600V,  
TriStar MPPT 60V.  
Part # 950-0016-MGSTR  
Slot 0/1, Connector Phoenix

#### **MidNite - Pending**

Part # 950-0016-MDNT  
Slot 0/1, Connector RJ11

#### **Outback Power - Pending**

Skybox.  
Part # 950-0016-OBS  
Slot 0, Connector RJ45