

# HYDRA-RX INSTALLER'S MANUAL

# HYDRA-RX INSTALLER'S MANUAL

High-Power HYDRA Plug-in Vehicle Charging Control System

Access Control, Metering, Reporting, Billing and Load Management for Workplaces, Multi-Unit Dwellings and Fleets

This Manual provides information required to properly install and perform basic functional testing of the HYDRA-RPlug-in Vehicle Charging Control System. All installations must be performed by a licensed electrician and incompliance with all national and local electrical codes.

READ THIS ENTIRE MANUAL PRIOR TO INSTALLATION.

DO NOT DRILL INTO THE ENCLOSURE WITH THE BACKPLATE INSTALLED - METAL SHAVINGS WILL DAMAGE COMPONENTS AND VOID ALL WARRANTIES.

AVOID PENETRATIONS ON THE TOP OF THE ENCLOSURE AND SECURELY SEAL ALL CONNECTIONS TO PREVENT WATER INFILTRATION.

AVOID INSTALLATIONS WITH CONTINUOUS EXPOSURE TO DIRECT SUN.

IF ELECTROMAGNETIC INTERFERENCE (EMI) OR POOR POWER QUALITY ("NOISE") CAUSES ERRONEOUS METER READINGS ON YOUR SITE, LIBERTY PLUGINS CAN PROVIDE SHIELDING AND/OR LINE FILTERS TO REDUCE INTERFERENCE FROM THESE CONDITIONS. CONTACT YOUR SALES REPRESENTATIVE.

SAFETY NOTICE	4
OVERVIEW	5
HYDRA-RX	6
AUXILIARY CABINET	7
SPECIFICATIONS	11
LOCATING & MOUNTING THE HYDRA CONTROL UNIT AND KEYPAD	12
INSTALLING THE HCU BACKPLATE	13
INSTALLING CONDUCTORS	14
SERVICE CONNECTIONS	15
TERMINATION OF THE CONTROL BOARD CIRCUIT (TB-3)	17
TERMINATION OF THE KEYPAD CONDUCTORS (TB-3)	17
TERMINATION OF THE EQUIPMENT GROUNDING CONDUCTORS	
COMMUNICATIONS CONNECTION (ANTENNA OR ETHERNET)	19
BASIC FUNCTIONAL TESTING	20
INITIAL FUNCTIONAL TEST RECORD	23

This document contains the latest information for the Liberty PlugIns' HYDRA-RX product and variants. Liberty PlugIns reserves the right to make changes to its products without notice. Any modification of this product by anyone other than authorized Liberty PlugIns service personnel will void the product safety-certification and product warranty. If you have questions about this product, contact Liberty PlugIns or a licensed electrical contractor.

#### SAFETY NOTICE

#### Before providing any power to this product, read this document completely.

The following symbols are designed to draw your attention to especially important information:

NOTE	Notes provide helpful information and guidance to facilitate your installation process.
	The CAUTION symbol emphasizes information needed to minimize the risk of harm and/or equipment malfunction.
Â	The DANGER symbol emphasizes information to minimize the risk of electrical shock.

The HYDRA-R and RX products are designed exclusively to control **electric vehicle (EV) charging equipment ("EVSE")** safety-certified by Underwriters Laboratory (UL), Intertek (ETL) or other nationally recognized testing laboratory (NRTL) - do not use this product with any other type of electrical device.

• This product contains high voltage components; allow only licensed electricians to service this product.

All supply power must be turned off prior to opening the front cover for any service.

• Use this product only with electric vehicle service equipment (EVSE) that have be certified by a nationally recognized testing laboratory (e.g. UL, ETL, CE) rated for <u>no more than</u> 240 Volts. DO NOT EXCEED THE 40A RATING OF THE HYDRARX INTERNAL RELAYS (Relay Meter Modules, "RMM") UNDER ANY CIRCUMSTANCES.

Do not operate this product until all EV charging units are installed in accordance with manufacturer specifications and all local and national electric codes and standards.

## **OVERVIEW**

The HYDRA-R provides access control, usage reporting and load management capabilities for low cost, non-networked basic electric vehicle charging stations typically found in workplaces, residential multi-unit dwellings and fleet applications. The system operates by switching and metering each charging station separately. Each circuit is routed through a dedicated relay and meter unit inside the HYDRA Control Unit (HCU) enclosure. A single board computer controls the operation of the charging system including the operation of the relays and recording the meter data. The charging session data along with other system information and messages from the utility Grid are communicated via a cellular modem or a hard-wired Ethernet connection.



# HYDRA-RX

The Hydra-RX is a variant of Hydra-R that controls EV chargers whose output current may exceed 40A. The -RX does this by routing the load current through an external auxiliary cabinet containing current transformers (CTs) and line voltage measuring taps for energy metering. The aux cabinet is connected to the Hydra-RX cabinet through a high-volt and a low-volt conduit, routing voltage measurement and CT wires respectively.

Instead of controlling the load with an internal contactor, the RX provides terminals for dry-switching contactors to signal to each EVSE when it is authorized to charge. By routing the high-capacity wire runs and contactors externally from the HYDRA Control Unit the -RX can support single or 3-phase loads, 110-480VAC at up to 200 Amps with the same functionality as the HYDRA-R.

The differences between the installation procedure for the HYDRA-R and -RX are summarized as follows:

- The -RX must be physically installed near the load line runs for the individual EVSE (between the load breakers and the EVSE).
- The load lines must all pass through the auxiliary cabinet.
- The low-voltage wire runs from the auxiliary cabinet to the -RX cabinet must be minimized and cannot exceed 100 feet.
- The low-voltage current transformer (CT) wire runs MUST be twisted pairs
  - Each CT must have its own twisted pair
  - o 26AWG is acceptable for under 25ft, otherwise use 24 AWG or larger
  - CAT 5 or CAT 6 Ethernet cable is acceptable, but stranded wires are more reliable in terminal blocks
- A low-voltage conduit must be run from the -RX cabinet to each EVSE to enable signaling.

**NOTE:** HYDRA-R and -RX will not work properly when connected to EV charging units equipped with cold load pickup (CLP), a feature that randomizes the amount of time it takes an EVSE to resume charging following an electrical outage.

**CLP must be disabled** otherwise the HYDRA HCU will not operate properly. Check with your EV charger manufacturer to determine if your charger is equipped with this feature then contact us to discuss possible workarounds.

## AUXILIARY CABINET

The Hydra-RX requires a nearby auxiliary cabinet to pass the high-power conductors through current transformers (CTs) and to allow voltage measurement taps to be spliced onto power lines for the energy meters inside the RX cabinet. This allows the Hydra to control and meter large loads without being rated to pass hundreds of amps.

The Auxiliary cabinet only contains space for the CTs and splice blocks to allow small-gauge (18-22 AWG) measurement wires to be spliced to the large line conductors. **The design is up to the installer.** Provided below are a few **examples designs** that will work for most installations. You can select one of the example designs, or create your own. For example, most Level 2 chargers run on 208V and so only require 2-pole splice blocks instead of 3-pole, and the splice blocks can be installed in the cabinet in any configuration desired by the installers to allow more efficient use of space in the cabinet. One splice block is needed for each attached EVSE.

#### **Example Design For ten 3-phase 200A loads**

Bill of Materials:

1x Hammond Mfg. EN4SD723012GY 72x30x12" NEMA4 Enclosure
1x Hammond Mfg. EP7230 Steel Panel for Enclosure (70.2x28.2")
10x Marathon Special Products 1433123 3-pole Power Splice Block
30x ring wire crimp terminals 16-22AWG for #10 stud *Approx.* \$2000

Example Design For ten 1-phase 100A loads (e.g. Clipper Creek CS100)

Bill of Materials:

10x Bussman/Eaton 16000-2 1x Hammond Mfg. EN4SD483612GY 1x Hammond Mfg. EP4836

#### Approx. \$1200

#### Example Design For two 3-phase 200A chargers and three e.g. Clipper CS100s

Bill of Materials:

2x Marathon Special Products 1433123 3-pole Power Splice Block

3x Bussman/Eaton 16000-2

1x Hammond Mfg. EN4SD30248GY

1x Hammond Mfg. EP3024

Approx. \$900





#### **Example Installation Photo**

This real-world installation has nine 1-phase 100 Amp chargers. The splice blocks are the 3-pole 225A type, which are oversized for this application. Note the conduits connecting the RX and Aux cabinets, and the small white CTs on the left. This Aux cabinet would probably work fine in a narrower enclosure, but this limits the bend radius for the high-current Conductors.



# **SPECIFICATIONS**

• Each HYDRA-RX unit can support up to ten (10) 120/240VAC, "Level 2" EVSE

DO NOT EXCEED THE 40A MAXIMUM RATING OF THE HYDRA-RX INTERNAL RELAYS UNDER ANY CIRCUMSTANCES.

• The HYDRA-RX controller board requires one 120VAC Single Phase, 60 Hz circuit (Any breaker 5 Amp or greater is acceptable).

NOTE: To ensure proper function of the HYDRA Control Unit, the 120VAC internal controller circuit must be connected to the same electrical panel source as the 120/240VAC circuits supplying the Relay Meter Modules. All supply lines must share one Neutral connection.

• The outdoor-rated keypad units can be installed up to **500-feet** from the HYDRA-RX unit, using **any waterproof**, direct-burial copper cables. **Connect 4 conductors per keypad. For runs longer than 100 feet, one pair of conductors should be a twisted pair.** 

The HYDRA Control Unit (HCU) measures 36-inches, by 30-inches, by 8 <sup>3</sup>/<sub>4</sub>-inches (Figure 1, following page) and weighs approximately 100 lbs with all ten (10) RMMs installed.

The HCU should be mounted using at least <sup>1</sup>/<sub>4</sub>-inch grade 5 steel or stainless-steel fasteners, and/or using mounting foot kits supplied by Liberty PlugIns. The optional mounting foot kit increases depth to approximately 9-inches.

Communications between the HCU and Liberty PlugIns Back Office is accomplished using either a cellular modem with exterior antenna or by connecting an Ethernet cable. **The desired communications method must be chosen prior to ordering equipment. Equipment must be factory-configured for the desired communications method.** 

The HCU complies with NEMA/EEMAC Type 4, 12, & 13 and is 14-gauge steel.







# LOCATING & MOUNTING THE HYDRA CONTROL UNIT AND KEYPAD

The HCU is typically mounted vertically, and the door configured for either left-hand or right-hand opening by rotating the enclosure 180 degrees. The HYDRA must be installed in accordance with all applicable structural and electrical codes. Pay close attention to proper clearance. The door must open 90 degrees, with clear working space in front of the Unit.

DO NOT DRILL INTO THE ENCLOSURE WHEN INTERNAL COMPONENTS ARE INSTALLED. METAL SHAVINGS CAN CAUSE SHORT-CIRCUIT CONDITIONS AND DESTROY ELECTRONIC COMPONENTS. VOIDING ALL WARRANTIES.

ELECTROMAGNETIC INTERFERENCE (EMI) AND POOR POWER QUALITY ("LINE NOISE") CAN CAUSE ERRONEOUS ELECTRIC METER READINGS AND INABILITY TO START NEW CHARGING SESSIONS. THE HYDRA CONTROL UNIT MUST BE INSTALLED NO CLOSER THAN 20 FEET FROM ALL SOURCES OF HIGH-FREQUENCY INTERFERENCE, INCLUDING **RADIO TRANSMITTERS, LARGE BATTERY CHARGERS, VARIABLE FREQUENCY MOTOR** DRIVES (VFDs) ETC. IN ORDER TO PREVENT EMI FROM CREATING "PHANTOM CURRENT" **READINGS FROM THE RMM METERS.** If installation closer than 20 feet from sources of EMI cannot be avoided, speak with your Liberty PlugIns sales representative about EMI protection options.

Ensuring power quality is the responsibility of the customer and electrical contractor. If line filters or uninterruptible power supplies (UPS) are required to remedy local power problems, contact your project engineer or local contractor.

The HYDRA Control Unit (HCU) requires up to ten (10) branch circuits. Each circuit is connected to a dedicated relay meter module (RMM) inside the enclosure. Each RMM provides power to one EV charger. The system uses up to two hard-wired numeric keypads to facilitate entry of access control numbers ("PIN" codes). The keypad(s) can be installed up to 500 feet from the HYDRA Control Unit using any waterproof, direct-burial copper cables. Connect 4 conductors per keypad. For runs longer than 100 feet, one pair of conductors should HYDRA-RX Installer's Manual rev 2.4A 12

be a twisted pair. As a supplement to the keypad(s), a Smartphone application or Web site may be used to activate EV charging. Meter and relay-control data and commands are transferred to and from the back-office via cellular or Ethernet-based communications.

The HCU internal components are housed inside a NEMA 4-rated enclosure suitable for outdoor use. The enclosure is rated "rain tight" and "dust tight", however it is best to install the HCU indoors or shielded from direct sun in order to maximize the longevity of the internal components. **Extended exposure to direct sun should be avoided. All penetrations into the enclosure must be adequately sealed to prevent water infiltration.** 

# INSTALLING THE HCU BACKPLATE



Note: The HCU Backplate should have one Relay Meter Module (RMM) for each EV charger installed.

2. Install the backplate only after the enclosure is securely mounted. NEVER DRILL INTO THE ENCLOSURE WHILE THE BACKPLATE IS

**INSTALLED!** Lift the backplate into the enclosure and align mounting holes with the threaded standoffs located on the back of the enclosure. Use the six 5/16" threaded nuts to secure the backplate.



Relay-Meter Modules (RMM), by number "TB"=Terminal Block

# INSTALLING CONDUCTORS

# *L*<sup>*h*</sup> ELECTRICAL SERVICE SUPPLIED TO THE SYSTEM MUST HAVE A GROUNDED CONDUCTOR (NEUTRAL) AS PART OF ITS ELECTRICAL CONFIGURATION.

# ALL ELECTRICAL WIRING MUST BE PERFORMED BY LICENSED ELECTRICIANS, AND IN COMPLIANCE WITH NEC 2014, NFPA 70 AND ALL LOCAL CODES AND STANDARDS.

Each HYDRA Control Unit (HCU) requires up to eleven circuits, consisting of the following:

• One (1) 120VAC, 5 Amperes, Single Phase, 60 Hz – to supply the HCU internal controller board and modem, requiring 0.5 Amperes continuous.

Up to ten (10) 120/240VAC, 40 Amperes max (for HYDRA-R) or up to 200 Amperes max (for HYDRA-RX), to supply power for each of ten (10) Relay Meter Modules (RMMs), providing power to EV charging units typically requiring up to 32A (for HYDRA-R) continuously.

The hi-leg of a mid-point grounded delta configuration must not be used. Use only the two phases with 120 Volts to ground.

Pull the EV-charger supply branch circuits, and the control circuit from the same electrical system. The neutral conductor is required for the Control Circuit and optional for the branch circuits.

DO NOT EXCEED THE 40A RATING OF THE HYDRA-R INTERNAL RELAYS ("RMM") UNDER ANY CIRCUMSTANCES.

# DO NOT USE any three-phase, three-wire, delta configuration without a system grounded conductor to supply the HYDRA-R Control Unit.

# DO NOT USE 277V OR 480V SUPPLY WITH HCU UNIT.

To minimize the possibility of damaging components on the Backplate, pull all conductors into the enclosure before installing the Backplate. NEVER ALLOW ANY METAL PARTICLES TO CONTACT ANY INTERNAL COMPONENTS!

# SERVICE CONNECTIONS

#### **IMPORTANT NOTE:**

RMMs MUST be used sequentially starting with #1. If there are four chargers, the RMMs used MUST be 1, 2, 3 and 4.

DO NOT skip installed RMMs, for example, using RMMs #1, 3, 5 and 6. This will result in erratic HCU behavior.

WARNING: DO NOT USE "HI-LEG" OF 240/120V, THREE PHASE, 4-WIRE, MID-POINT GROUNDED DELTA TO SUPPLY ANY EQUIPMENT CONTROLLED BY THE HCU. <u>The</u> <u>hi-leg supplies incompatible voltage on the</u> <u>hilegphase when measured to the grounded</u> <u>conductor, damaging the HCU meters and voiding</u> <u>all warranties.</u>

Raceways and conduits may be terminated on any side of the enclosure. The most efficient termination for LINE and LOAD wiring for Relay Meter Modules (RMM) #1 - #5 is on the bottom, left side of the enclosure.

Connections for RMM #1 - #5 are located on the internal terminal block labeled "**TB-1**" (picture on right).



RMM #6 - #10 are best terminated on the lower, right side of the enclosure. RMM #6 - #10 are labeled "TB-2" on the HCU internal terminal block (not pictured).

Example: for Relay Meter Module #1				
Terminal Block Label	Description	For Circuit		
1-SW	SPST switch pole for signaling authorization to EVSE	Low-V Enable signal lines		
1-SW	SPST switch pole for signaling authorization to EVSE	Low-V Enable signal lines		
1-CT-L1	L1 current transformer (White lead)	Low-V Conduit to RX		
1-CT-L1	L1 current transformer (Black lead)	Low-V Conduit to RX		
1-CT-L2	L2 current transformer (White lead) (if used)	Low-V Conduit to RX		
1-CT-L2	L2 current transformer (Black lead)	Low-V Conduit to RX		
1-CT-L3	L3 current transformer (White lead) (if used)	Low-V Conduit to RX		
1-CT-L3	L3 current transformer (Black lead)	Low-V Conduit to RX		
1-V-L1	L1 Voltage Tap	Hi-V Conduit to RX		
1-V-L2	L2 Voltage Tap (if used)	Hi-V Conduit to RX		
1-V-L3	L3 Voltage Tap (if used)	Hi-V Conduit to RX		
(HCU termi	ha block Labeling scheme)	NOTE: As shown, terminal blocks are sequentially numbered for Relay Meter Modules #1 through #10. The HCU terminal block labeling scheme, for "TB-1" and "TB-2", is as shown, at left.		

### Terminal Block (TB-1 and TB-2) Labels - Termination of the Branch Circuit Conductors

# TERMINATION OF THE CONTROL BOARD CIRCUIT (TB-3)

The TB-3 terminal block (see image, above) provides termination point for the 120 Volt, 5-20 Ampere Control board branch circuit and the Keypad conductors. TB-3 is located on the lower, right-hand side of the Backplate. The 120 Volt branch circuit's conductors are terminated as follows:

 TB-3 label
 Purpose

 CCN
 Grounded 120V branch circuit conductor (Neutral)

CC1 Ungrounded branch circuit conductor (Line)



# TERMINATION OF THE KEYPAD CONDUCTORS (TB-3)

1. Note: HYDRAs sold before October 2016 used a different 13- conductor keypad connection. If your Hydra looks different from the pictures here, contact Liberty for an earlier version of the installer's manual.

The remotely wired numeric Keypad connects to the HCU with any 4-conductor waterproof/weatherproof, direct-burial, shielded, pure copper cable. The conductors must be terminated at the **TB-3 terminal block**, at terminals labeled 12V, A, B, and GND. **If possible, the A and B conductors should be a twisted pair** (this is especially important for cable runs over 100ft) Correspondinglabels are found inside the keypad enclosure, printed on the circuit board on the terminal labeled "HYDRA". **All 4 conductors brought to a terminal inside the HCU enclosure MUST be routed to the keypad!** 

2. **NOTE**: If an **optional second Keypad** was ordered, the second Keypad terminates with same configuration to a second set of identically labeled terminals on **TB-3**.



TB-3



# TERMINATION OF THE EQUIPMENT GROUNDING CONDUCTORS

• All equipment grounding conductors terminate in the equipment grounding bus installed on the backplate. The two terminal blocks have internal connection points to allow disconnection of the Control Circuit enabling safe software maintenance procedures. The neutral of the control circuit, which is the same neutral of the EVSE (load) branch circuits, provides the measuring reference point at the meters, and is required for accurate voltage readings. **NOTE: The separate internal Control Circuit which is 120VAC must be supplied by the same electrical panel source as the 120/240VAC circuits supplying the HCU Relay Meter Modules.** 

Terminate all equipment grounding conductors at the equipment Grounding Bus strips located near the bottom of the Backplate.

NOTE: Equipment grounding conductors have been factory-installed. A jumper has been provided between the door and the enclosure, matching the enclosure instructions, with a lead provided to meet the location of the equipment grounding bus depending upon the left- or right-hand door operation.

An equipment grounding conductor has been provided and must be installed in the field immediately upon mounting the Backplate, in order to bond the enclosure's door to the enclosure housing, and to the Grounding Bus on the Backplate. Ample conductor length is provided for any door or enclosure-mounting configuration.

# COMMUNICATIONS CONNECTION (ANTENNA OR ETHERNET)

#### • IMPORTANT: EQUIPMENT IS CONFIGURED DURING MANUFACTURING -- YOU MUST SPECIFY YOUR INTENT TO USE ETHERNET OR CELLULAR COMMUNICATIONS WHEN PLACING YOUR ORDER.

If using hard-wired Ethernet, ensure your firewall will allow incoming communications from the Liberty PlugIns server.

Flip down the HCU logic board cover and attach the male RJ45 connector of your Ethernet line to any of three female RJ45 connectors on the board.



**IF USING CELLULAR INSTEAD OF ETHERNET:** A preliminary signal-strength site survey should be conducted to determine if adequate signal strength is present. Generally, observed measurements should be stronger than -90dB. If signal strength observed during field testing is -100 dB or weaker, either a cellular repeater or Ethernet communications must be used to ensure reliable access control and availability of usage data.

IT support personnel are generally familiar with conducting informal cellular signal-strength field tests using common cellular phones. If there is any doubt regarding available cellular carrier signal strength, either Ethernet communications should be specified during your equipment order, or a comprehensive cellular signalstrength assessment should be performed by qualified wireless networking professional.

For HCU units ordered with an accommodation for cellular communications, the antenna is included inside the enclosure. Connect the antenna's female SMA connector to the modem's male SMA connector located under the Controller Board cover (see above). In accordance with findings from a signal-strength site survey, locate an optimum location on the enclosure and carefully drill a 7/8" through-hole, preferably on the side or bottom of the enclosure (**NEVER ALLOW METAL CHIPS TO FALL INTO THE ENCLOSURE** – AND **REMOVE SHARP EDGES**). Carefully thread the lead through the hole – being careful to avoid damage to the lead – and insert the threaded portion of the antenna through the hole. Reconnect the lead to the modem. To eliminate the chance for water infiltration, ensure there is a tight seal between the antenna base and enclosure.

# FINISHING THE HYDRA-R INSTALLATION

NOTE: Before applying power to the Hydra unit for the first time, check all internal connections, as they may loosen during shipping.

Relay/contactor terminal lugs MUST be torqued to 15 in.-lbs.

Terminal block screws (TB1 and TB2) MUST be torqued to 7 in.-lbs. (Altech CTS4U)

Loose connections may cause permanent damage to the Hydra unit.

To confirm proper installation by your contractor and proper functioning of the unit, three "commissioning" steps must be performed. Results from your basic functional test should be documented and provided to the customer. Since the unit must be powered on during commissioning, the electrician or other authorized person performing the commissioning tests must take all safety precautions appropriate for working with live circuits.

#### **Commissioning Steps include:**

**1. Confirming basic functions** and correct electrical and keypad installation by using generic, factorydelivered PIN codes to confirm access-control and relays are functioning, and;

Confirming network and data communications by cooperating with a Liberty PlugIns technician via phone while monitoring communications between the HYDRA and the Liberty PlugIns server.

**Confirming download of <u>customer-created</u> PIN codes**, created by the customer using the Liberty PlugIns administrative Web site<sup>1</sup>

## **BASIC FUNCTIONAL TESTING** (COMPLETE THE FORM ON THE LAST PAGE OF THIS DOCUMENT)

<u>NOTE:</u> When a keypad is wired properly to a HYDRA Control unit and all installed RMMs are properly wired to supply power to their respective EV charger, pressing any of the keys will result in an <u>immediate</u> audible tone and momentary lighting of an LED on the front of the keypad enclosure.

If you do not hear a tone or see an LED light when pressing any key, the keypad is wired incorrectly, conductors were damaged during installation and/or power is not being provided to all Relay-Meter <u>Modules.</u>

<sup>&</sup>lt;sup>1</sup> This step assumes a Liberty Data Services Agreement has been signed. Call 310-439-9119 to establish a LibetyPlugIns Data Services Agreement.

## **STEP 1. CONFIRMING BASIC FUNCTIONS**

#### Perform the following for each EV charger installed:

Enter a charger number (e.g. 1,2,3,4,5,6,7,8,9 or 10), then press the '#' key.

A green light and short "beep" indicates a valid charger number.

Next, Enter any one of the standard PIN codes (1111, 2222, 3333, 4444,

5555, 6666, 7777, 8888, 9999 or 1010). PIN codes can be used on only one charger at a time.

A green light and short "beep" indicates a valid PIN code.

Confirm that the relay closes corresponding the EV charger number entered in step 1.



#### **NOTE:** a single PIN cannot be used to operate more than one RMM/EV charger simultaneously.

On a properly wired system, once a valid charger number and PIN code have been entered, the relay corresponding to the chosen charger number will close. (relay numbers, as shown)



HCU relays, by relay number

#### STEP 2. CONFIRMING NETWORK AND DATA COMMUNICATIONS

Verifying communications between the HCU unit and Liberty PlugIns back-office requires the cooperation of Liberty PlugIns personnel. Please coordinate performance of this step through your sales representative.

Each HCU is configured at the factory with a unique name that is specific to each particular site. This unique name is required to facilitate network/data communications with back-office. You must have this name to perform this step - check the **HCU name label** underneath the metal cover protecting the logic card (shown below). **Write the HCU name down** and contact your Liberty PlugIns representative.

A Liberty PlugIns-trained customer or company representative will perform the following three steps:

1. Verify that the particular HCU, by unique name, is successfully communicating with the back-office.

<u>Disable the standard PIN codes</u> if your customer service representative is ready to start creating custom PINs.

If a Liberty PlugIns Data Services Agreement<sup>2</sup> has been established, the HCU unit will be associated with the Liberty PlugIns production server, allowing your system administrator to begin creating and managing users, and running usage reports.



Note: The HCU can be configured to provide access control and data services via cellular or Ethernet. This must be specified at the time your equipment order is placed.

#### **STEP 3. CONFIRMING DOWNLOAD OF CUSTOMER-CREATE PIN CODES**

#### Perform the following steps for each EV charger installed:

1. Enter a charger number (e.g. 1,2,3,4,5,6,7,8,9 or 10), then press the '#' key

A green light and short "beep" indicates a valid charger number.

Enter one of the custom PINs created by your customer representative.

A green light and short "beep" indicates a valid PIN code.

NOTE: by using customer-created codes, you are confirming that the codes have are being downloaded from the Liberty PlugIns server.

<sup>&</sup>lt;sup>2</sup> Call 310-439-9119 to establish a LibetyPlugIns Data Services Agreement HYDRA-RX Installer's Manual rev 2.4A

### INITIAL FUNCTIONAL TEST RECORD (DO NOT REMOVE - LEAVE WITH INSTALLED HCU UNIT)

PERFORMED BY: \_\_\_\_\_ PHONE: \_\_\_\_\_

DATE PERFORMED:\_\_\_\_\_\_SIGNATURE:\_\_\_\_\_

#### NAME AND ADDRESS OF INSTALLATION SITE:

QUESTION	PLEASE WRITE IN YOUR ANSWER
How many Relay Meter Modules (RMM) are installed in the HCU?	
How many EV chargers are connected to the HCU? And what are their respective Voltage and Amperage rating?	
Which factory-delivered PIN codes did you use during <b><u>STEP 1</u>: CONFIRMING BASIC FUNCTIONS?</b>	
With whom did you cooperate to perform <u>STEP 2</u> : CONFIRMING NETWORK AND DATA COMMUNICATIONS?	
What customer-provided PIN codes did you use to perform <u>STEP 3</u> : CONFIRMING DOWNLOAD OF CUSTOMER- CREATE PIN CODES?	
From whom did you get the customer-provided PIN codes to perform <b><u>STEP 3</u></b> ?	

#### **NOTES:**