

# **RANCHHAND**

## **Battery Availability System**

### **Installation and Operating Instructions**



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## FEATURES

The RANCHHAND Battery Availability System is designed to indicate to the fork truck operator which battery has been in the charge complete stage for the longest period of time and should be taken to replace the discharged battery in the fork truck.

- The RANCHHAND SYSTEM consists of the Control Module(s) and the Display Module.
- Each charger will be identified by a number, based on the position its remote cable is plugged into the Control Module's inputs. This number also refers to the battery plugged into that charger.
- Each control module is capable of monitoring up to 16 chargers. The control module is scalable so that the charger monitoring circuits can be added up in groups of 16 to a maximum of 6 modules (96 chargers).
- The Display Module can be connected to any of the control modules.
- A delay of 0 to 9 hours can also be selected to extend the time before the battery is identified as ready.
- If the charger is in Refresh Mode, the battery will not be available during that refresh cycle. The next battery in line will be identified as ready until the refresh cycle ends.

## SYSTEM REQUIREMENTS

This system is to be installed with the chargers that have the same Amp-Hour rating and are equipped with AES branded controls (except WorkHorse Series 1 and Colt).

## POWER REQUIREMENTS

Display Module: 120 V 60 Hz.

Control Module(s): 120 V 60 Hz to each module.

## INSTALLATION

### MOUNTING

Install the Display Module in a highly visible location.

Install each of the Control Module(s) as close to each other as possible (4 feet maximum) and within 15 feet of the Display Module.

### CHARGER IDENTIFICATION NUMBER

Use supplied number labels to assign an ID number to each charger based on the position its remote cable is plugged into the Control Module(s).

### DISPLAY-to-CONTROL MODULE(S)

Connect 9-pin D-sub cable from the Display Module to the display connector on any of the Control Modules.

### CONTROL MODULE(S)-to-CHARGERS

- Eight-position keyed-modular plugs, modular cable and crimping tool are supplied. The user/installer will cut the cable to the required length and install the modular plugs on both ends of each cable. Refer to Figure. 1 for details.  
NOTE: KEYED modular plugs must be used
- The cable from the charger must exit at the bottom left corner of the door (Fig. 2).
- First connect the cable to the J1 header on the charger main control board. Secure the cable to the yellow control harness near the top left side of the charger, with the cable tie provided. Continue routing the cable down to the output cable. Secure the cable to the output cable with the cable tie.
- The other end of the cable will be connected to the Control Module at the modular jack that has the same number as the ID number on the charger.

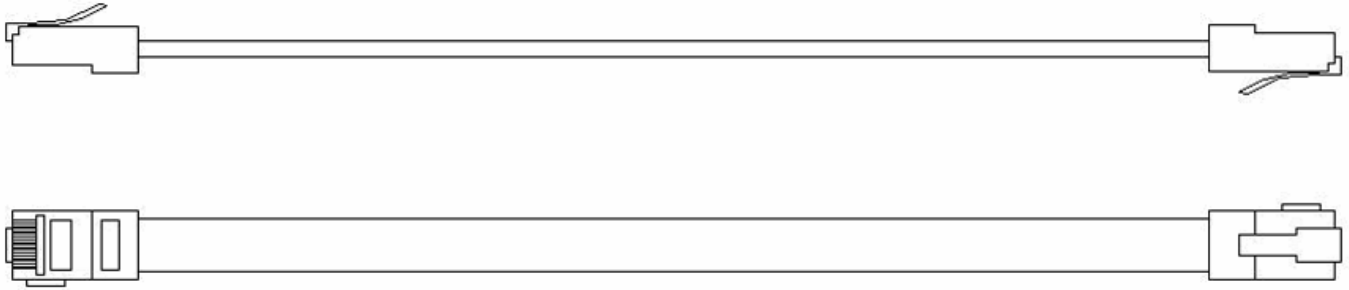


Fig. 1 Control Module to Charger Cable Assembly

TIE WRAP LOCATION



TIE WRAP LOCATION

Fig. 2 Control cable connection inside the charger

### CONTROL MODULE-to-CONTROL MODULE

- In the case where more than 16 circuits are required, Control Modules can be connected together using the supplied non-keyed modular cable and modular plugs. The user/installer will make up cable to the required length and install the modular plugs on both ends of each cable. The length of the cable must be less than 4 feet.

NOTE: NON-KEYED modular plugs must be used

- Connect the modular jack J18 of the module #1 to the modular jack J17 of the module #2.
- Connect the modular jack J18 of the module #2 to the modular jack J17 of the next Control Module. Continue this step until the last Control Module.
- Connect the modular jack J18 of the last Control Module to the modular jack J17 of the Control Module #1.

**NOTE: ALL CONTROL CABLES CARRY 12VDC OR LESS AND CANNOT BE CLOSE TO / OR IN CONTACT WITH ANY HIGH VOLTAGE PARTS OR CONNECTIONS INSIDE OR OUTSIDE THE CHARGERS. FAILURE TO KEEP ADEQUATE CLEARANCE COULD CAUSE A SAFETY HAZARD.**

### AC POWER CONNECTION

Connect Display and Control Module's line cord to the same AC 120V source. Use the same AC source for each module.

### MULTIPLE SYSTEMS

In the case where the battery room has multiple size batteries, each group of batteries will require a separate system. To distinguish between systems, a three-digit display will be used. The first digit is to identify the system; the last two digits identify the battery location. To set the first display digit (0-9) to match with the system number use the rotary switch on the display module.

## SWITCH SETTING

### DELAY SETTING

Thumbwheel S1 will set the delay of the display from 0 (no delay) up to 9 hours, in one-hour increments. This allows the user to set the “cool down” time before a battery is identified as ready.

### OPERATION MODE SETTING

S2 selects the number of the control units. S2 is three switches that are labeled 1, 2 and 3 on the switch body.

Table 1 Operation Mode DIP Switch Setting

Operation Mode	Control Module #	S2-1	S2-2	S2-3
Up to 16 circuits	1	ON	ON	ON
Up to 32 circuits	1	OFF	OFF	OFF
	2	ON	OFF	OFF
Up to 48 circuits	1	OFF	OFF	OFF
	2	ON	OFF	OFF
	3	OFF	ON	OFF
Up to 64 circuits	1	OFF	OFF	OFF
	2	ON	OFF	OFF
	3	OFF	ON	OFF
	4	ON	ON	OFF
Up to 80 circuits	1	OFF	OFF	OFF
	2	ON	OFF	OFF
	3	OFF	ON	OFF
	4	ON	ON	OFF
	5	OFF	OFF	ON
Up to 96 circuits	1	OFF	OFF	OFF
	2	ON	OFF	OFF
	3	OFF	ON	OFF
	4	ON	ON	OFF
	5	OFF	OFF	ON
	6	ON	OFF	ON

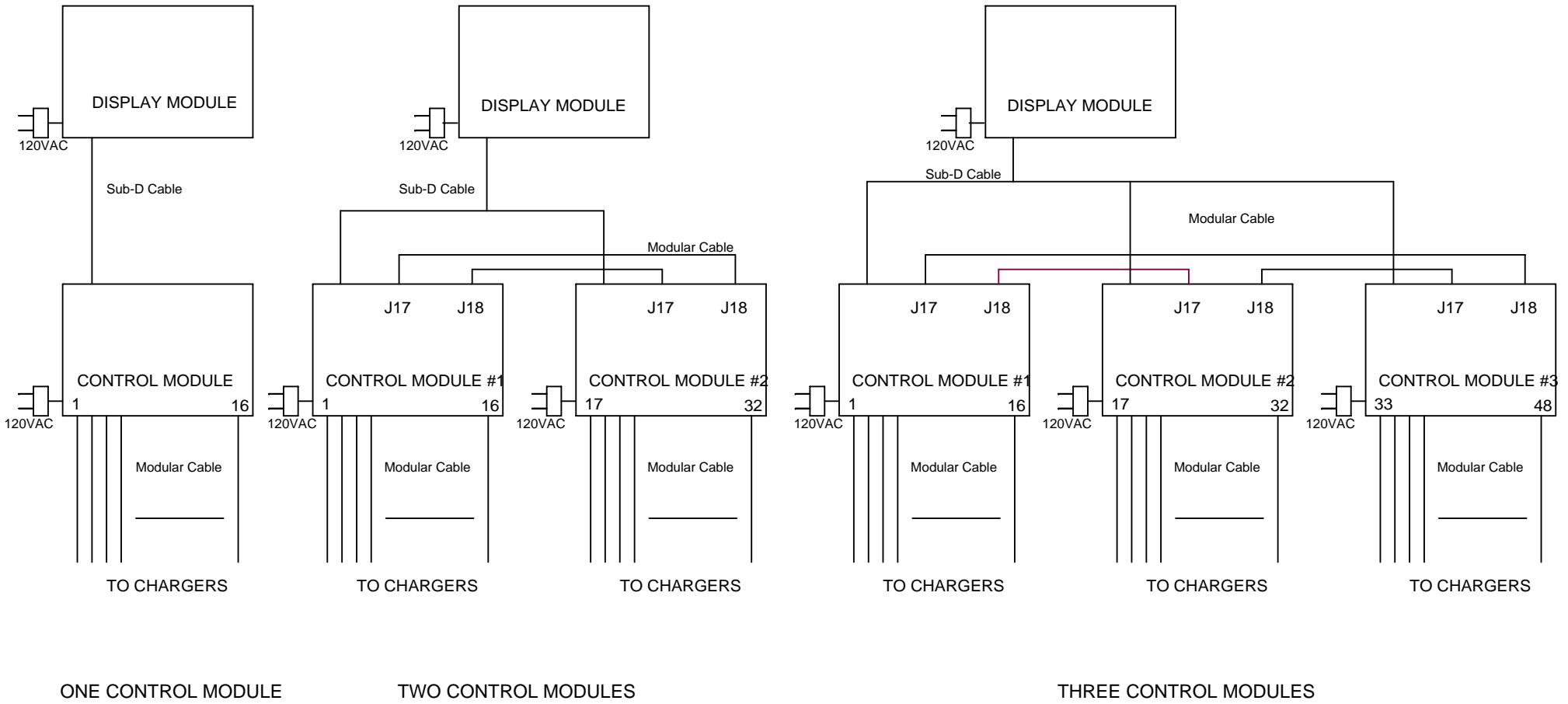


Fig. 3a System diagram for one, two or three Control Modules

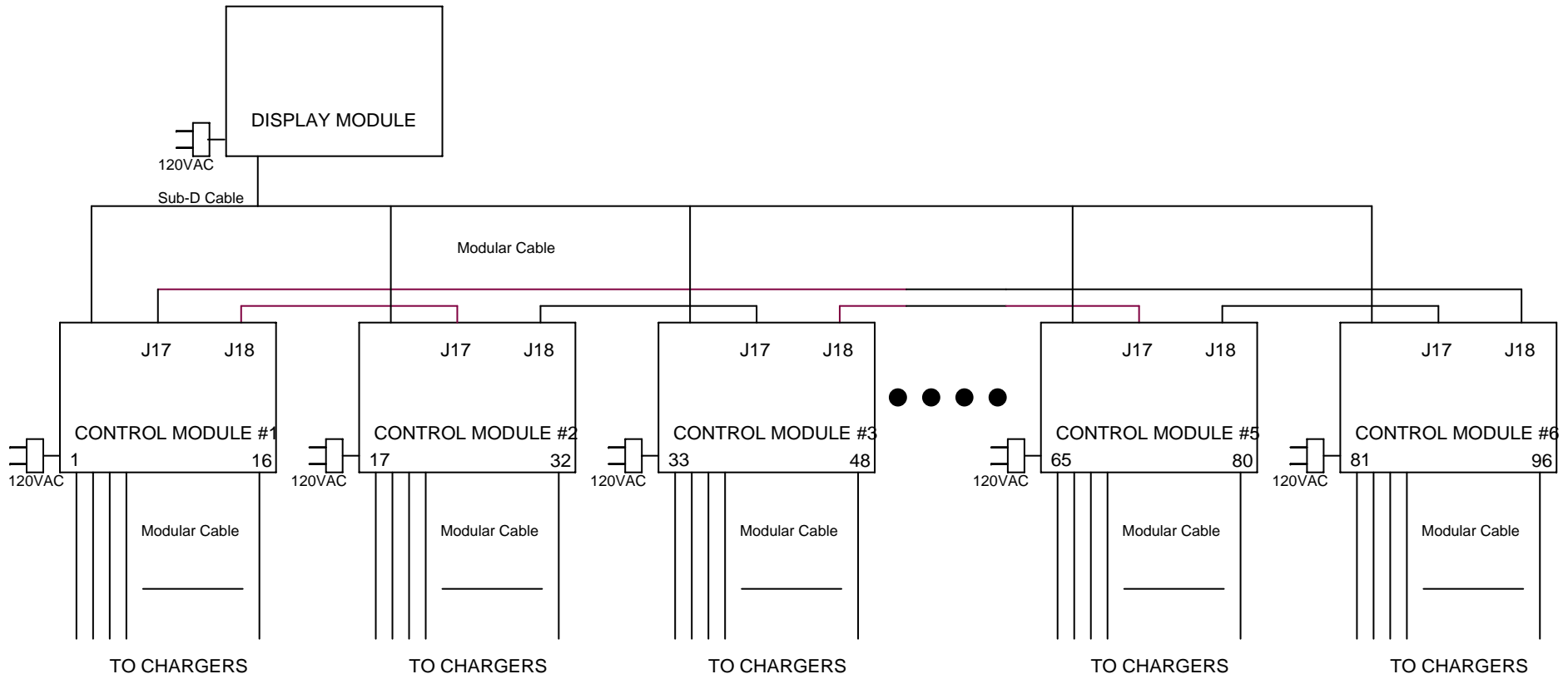


Fig. 3b System diagram for more than three control modules

# CHARGER WARRANTY

APPLIED ENERGY SOLUTIONS warrants that each new and unused battery charger manufactured and supplied with good workmanship is free from any known mechanical defect, provided that (A) the product is installed and operated in accordance with the accepted industrial standards and in accordance with the printed instructions furnished by APPLIED ENERGY SOLUTIONS, (B) the product is used under normal conditions for which designed, (C) the product is not used in a corrosive, abnormally dusty or high humidity moisture condensing environment, and (D) the product is not subjected to misuse or negligence, and the product receives proper care, protection and maintenance under supervision of competent personnel.

## Warranty Terms and Conditions

APPLIED ENERGY SOLUTIONS RanchHand Industrial Battery Chargers are warranted for 1 Year<sup>(1)</sup>, which begins on the date of shipment from APPLIED ENERGY SOLUTIONS.

NOTES: <sup>(1)</sup>Warranty covers parts and labor

AC fuses and DC fuses are not warranted unless they are found to be defective prior to use.

NON-TRANSFERABLE WARRANTY. This warranty is extended by APPLIED ENERGY SOLUTIONS only to the original user (purchaser) of new equipment from APPLIED ENERGY SOLUTIONS or one of its authorized agents. The product purchased under this agreement shall be used exclusively by the buyer. There shall be no third party beneficiary of this warranty.

REPAIR LIMITATIONS. APPLIED ENERGY SOLUTIONS has the right to site inspection and judgment of the claimed defects in any product covered by this warranty. APPLIED ENERGY SOLUTIONS' liability is limited to the repair of any defects found to exist by APPLIED ENERGY SOLUTIONS or, at APPLIED ENERGY SOLUTIONS' option, the replacement of the defective product.

APPLIED ENERGY SOLUTIONS and its authorized agents shall not be liable for direct or indirect damages in excess of such repair or replacement. In no event shall the purchaser be entitled to recover for contingent expenses from, but not limited to, telephone calls, telegrams, travel expenses, lodging, duties and taxes, labor, rental or replacement equipment, loss of business or profit or other commercial losses.

CONTINUED USE OF DEFECTIVE PRODUCTS. The continued use of an APPLIED ENERGY SOLUTIONS Industrial Battery Charger that is known to be defective VOIDS ALL WARRANTIES.

REPAIR OF MODIFIED EQUIPMENT. Except as authorized in writing the warranty specified does not cover any equipment that has been repaired by any party other than APPLIED ENERGY SOLUTIONS or its authorized agents. Except as authorized in writing the warranty specified does not cover any equipment that has been modified, mechanically or electrically, by any party other than APPLIED ENERGY SOLUTIONS.

WARRANTY EXPENSE LIMITATIONS. APPLIED ENERGY SOLUTIONS will limit the warranty expense of all chargers to be paid at a maximum of the original purchase price of the charger.

The provisions of this warranty shall not apply to product in use outside of the continental USA.

Except as stated above, all other warranties and conditions, either expressed or implied, including implied warranties of merchantability and fitness for a particular purpose, are excluded and buyer assumes all risk and liability resulting from the use of the goods. APPLIED ENERGY SOLUTIONS neither assumes or authorizes any persons to assume for APPLIED ENERGY SOLUTIONS any other liability in connection with the sale or use of the goods sold and there are no oral agreements or warranties collateral to or affecting this written warranty.

When installing, servicing or operating these products, safe practices should be used by skilled and qualified technical persons.