

The following procedure is a supplement to other documentation supplied with this equipment and will guide the user in properly wiring the E7 and motor. It will also show the user how to configure the E7 for Hand and Auto operation.

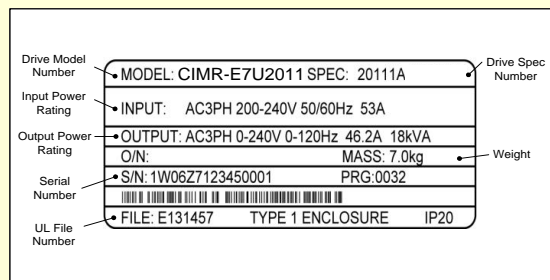
Danger: Improper wiring can and will cause bodily harm as well as damage to the equipment.

When installing the system, be sure to follow good wiring practices and all applicable codes. Ensure that the mounting of the various components are secure and that the environment, such as extreme dampness, poor ventilation etc. will not cause system degradation.

Please read this cheat sheet and the E7 User Manual (TM.E7.01) provided with the E7 thoroughly before attempting any installation.

Step 1 E7 Model Identification and Mounting

To make sure you received the correct model, it is essential to verify the E7 nameplate with your order and make sure that the E7 has the correct rating so it can be used with your motor. Please check the nameplate information as shown in the example below.



- Check that the available power meets the **input power** requirements.
- Ensure that the **output power** from the VFD is compatible with the motor requirements.
- In the case of systems with multiple VFDs follow the above procedure for each VFD and the motor it will control.

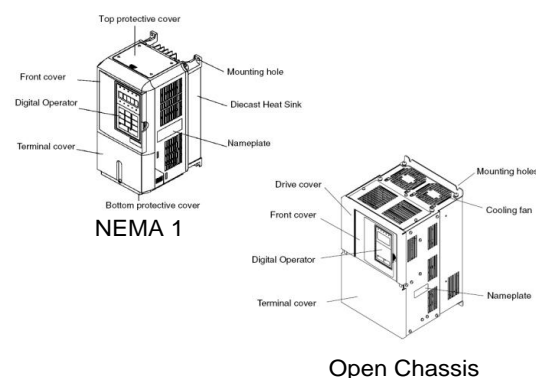
Mounting the E7

The mounting of the E7 is extremely important regarding environment and accessibility. Depending on your system, there are various models available and the mounting dimensions (footprint) may be different. Because the mounting procedure is fairly extensive, it is beyond the scope of this document, the user is referred to the E7 User Manual (Document No. TM.E7.01) received with the E7, **Section 1 Physical Installation**. Match the model that you received and follow the procedure described in the manual to ensure a safe and functional installation. In cases where the system has more than one E7, refer to the proper clearances required for adequate ventilation. Please pay particular attention to:

- The clearances to be maintained around the enclosure for adequate ventilation.
- The environmental specifications such as avoiding excessive dampness, extreme temperatures, chemical exposure, corrosive areas etc. to avoid damage to the equipment and to maintain safety.

Removing and Attaching the Terminal Cover

Improper removal of the E7 terminal cover as well as front cover can cause extensive damage to the E7. To avoid damage to these items, please pay particular attention to the E7 User Manual, Document No. TM.E7.01, Section 1.7, **Removing and Attaching the Terminal Cover**.



Step 2 E7 Motor and Line Power

Fig.1 & 2 below show the electrical connections for the input power and motor terminals for various E7 models. Select the proper diagram for the model you are installing (see Step 1). **WITH POWER OFF** make the appropriate connections. **Make sure to follow good wiring practices and all applicable codes. Ensure that the equipment is grounded properly as shown.**

! DANGER, LETHAL VOLTAGES ARE PRESENT- Before applying power to the E7, ensure that the terminal cover is fastened and all wiring connections are secure. After the power has been turned OFF, wait at least five minutes until the charge indicator extinguishes completely before touching any wiring, circuit boards or components.

WARNING DO NOT CONNECT ANY OF THE FOLLOWING TERMINALS TO EARTH GROUND

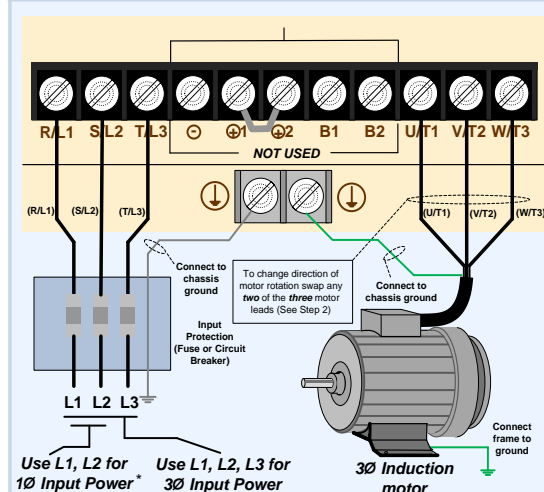
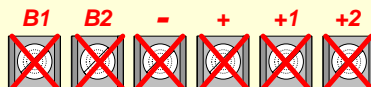


Fig. 1 Input Power and Output Motor Electrical Connections for Models: 20P4 to 2018 & 40P4 to 4018

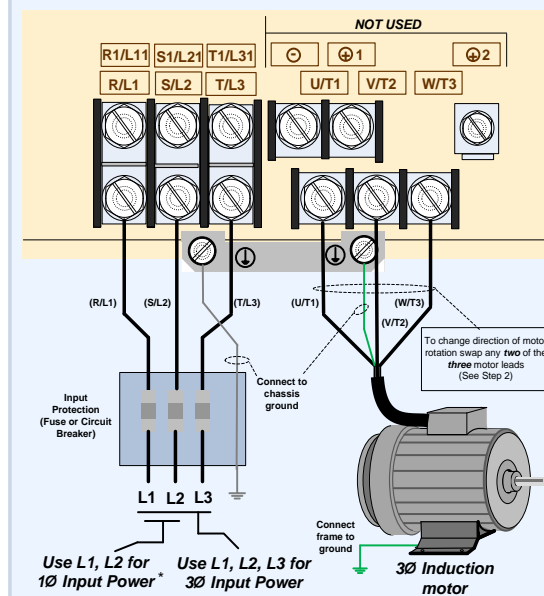


Fig. 2 Input Power and Output Motor Electrical Connections for Models: 2022 & Larger and 4030 & Larger

* Make sure the drive has been properly sized for single phase input power.

Step 3 E7 Control Wiring

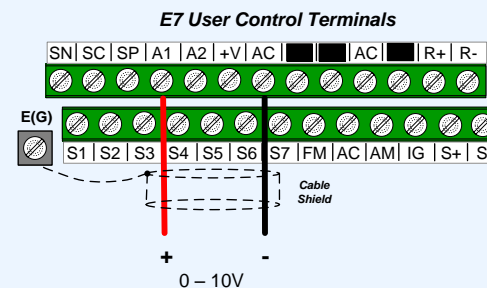
This step shows how to connect control wiring to the E7. Before making any control connections **MAKE SURE POWER TO THE E7 IS TURNED OFF!** Next remove the terminal cover to gain access to the control terminals (See Step 1).

SELECT SPEED COMMAND METHOD

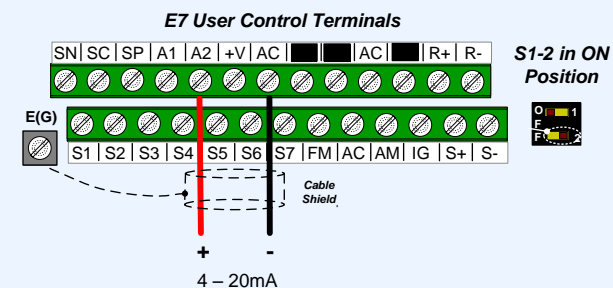
b1-01

The E7 is **DEFAULT SETUP FOR SPEED COMMAND SIGNAL FROM TERMINALS**. Please refer to the diagram below for wiring an external speed command signal. Program b1-01 to 0 to set speed command from the digital operator.

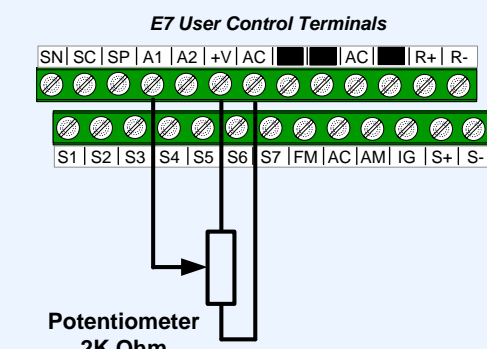
For use with 0 – 10V Speed Command Signal



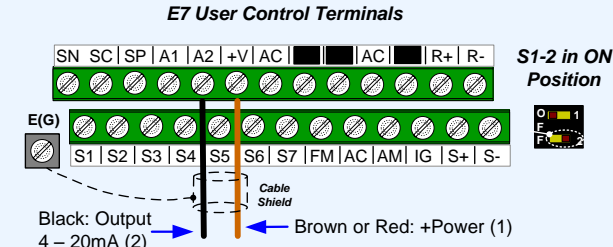
For use with 4 – 20mA Speed Command Signal



For use with Potentiometer



For use with 2-Wire, 4 – 20mA Transducer



Note: Only for use with PI Mode (Refer to TM.E7.01 section 5-17)

Used also used in Hand Mode when b1-12 set to '1'

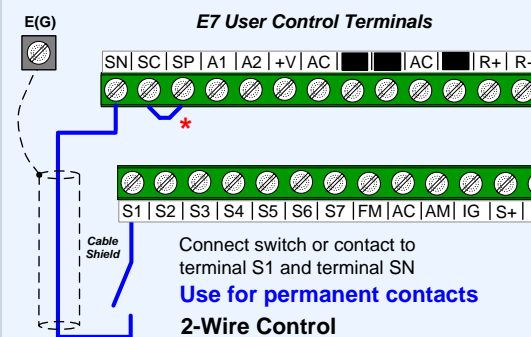
SELECT RUN COMMAND METHOD

b1-02

The E7 is **DEFAULT SETUP TO START/STOP FROM TERMINALS**. Please refer to the diagram below for wiring an external run command switch or contact. Program b1-02 to 0 to start/stop the E7 from the digital operator using the AUTO button.

Use for permanent contacts (Factory Default)

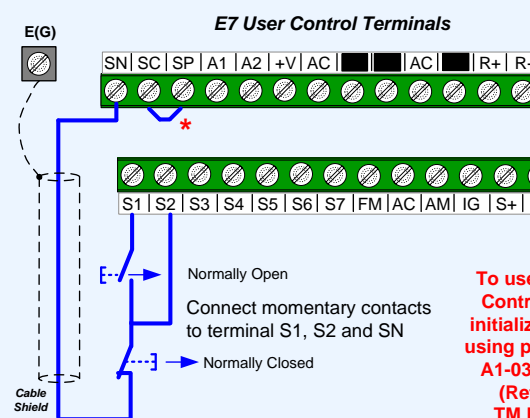
2-Wire Control



* Factory Supplied

Use for momentary contacts

3-Wire Control



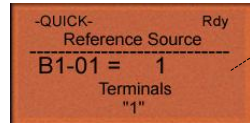
Step 4

E7 Quick Setup

This step shows how to set up the most important parameters using the E7 Quick Setup function. Apply power to the E7 after all the electrical connections have been made and the terminal cover has been re-attached. At this point **DO NOT RUN THE MOTOR**. The Digital Operator should be reading as shown in Fig. 3 (See Step 5).

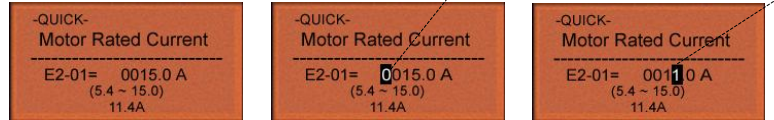
Next, push **MENU** 2 times on the Digital Operator until the Digital Operator shows the Quick Setting Menu. **** Main Menu ****
Quick Setting

Next press **DATA ENTER** to start the Quick Setup procedure.



The E7 Quick Setup consists of the most important parameters to setup your E7 Drive for use with your motor system.

Press **DATA ENTER** to access a parameter, and use **RESET** to select the digit and use **▲** **▼** to change the parameter value.



Press **▲** to go to the next parameter to continue the Quick Setup programming.

When Quick Setup is completed press **MONITOR** to exit the Quick Setting menu and go to operation.

Quick Setup Parameters

Parameter	Default Value	Description	Comments
b1-01	1	Speed Command Source Speed Control Method	0 = Digital Operator (Adjust Motor Speed from keypad) 1 = Terminals (Speed Pot. / 0 - 10V / 4 - 20mA)
b1-02	1	Run Command Source Start/Stop Control Method	0 = Digital Operator (Start/Stop motor from keypad) 1 = Terminals (Start/Stop using external contact / switch)
b1-03	0	Stop Method Selection	0 = Ramp to stop (Motor ramps down at stop command) 1 = Coast to stop (Motor freewheels at stop command)
b5-01	0	PI Mode Selection	0 = Disabled, 1 = Enabled, 3 = Fref + PI
b5-02	2.0	Proportional Gain Setting	Only active when b5-01 is set to value greater than 0
b5-03	5.0 sec.	Integral Time Setting	Only active when b5-01 is set to value greater than 0
b5-31	0	PI Unit Selection	Predefined Engineering Units, see TM.E7.01
C1-01	30.0 sec.	Acceleration Time	The time it takes to ramp up from 0 to maximum motor speed.
C1-02	30.0 sec.	Deceleration Time	The time it takes to ramp down from maximum motor speed to 0.
d2-01	100.0 %	Frequency Upper Limit	Maximum motor speed allowed (e.g. 100 % = Max rpm)
d2-02	0.0 %	Frequency Lower Limit	Minimum motor speed allowed (e.g. 0 % = Min rpm)
E1-01	*	Input Voltage Setting	Nominal voltage of incoming line
E2-01	*	Motor Rated Current	Motor nameplate current
H3-08	2	Terminal A2 Signal Level Selection	0 = 0 - 10V 2 = 4 - 20mA 3 = 0 - 20mA
H3-09	2	Auxiliary Terminal Input Selection	Predefined signals, see TM.E7.01
H3-13	0	Master Freq. Ref. Terminal Selection	0 = Main Fref is terminal A1 1 = Main Fref is terminal A2

Step 5

Check Motor Rotation and Direction

Check the motor for proper direction and operation. This test is to be performed solely from the digital operator. Apply power to the E7 after all the electrical connections have been made and protective covers have been re-attached. At this point **DO NOT RUN THE MOTOR**. The Digital Operator should display as shown below in Fig. 3.



Fig. 3 Digital Operator

Press **HAND** then press **DATA ENTER** to change the speed command.



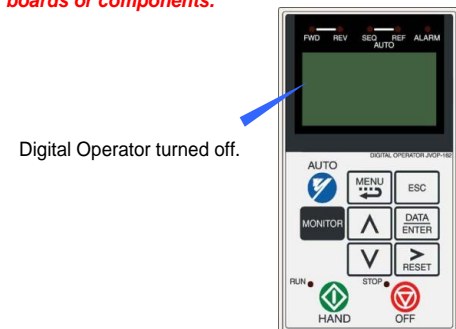
The motor should now be operating at low speed, e.g. 10.00 Hz, running in the correct forward direction.

Next, press **OFF** on the Digital Operator.

If motor rotation is not correct, power down the E7 Drive.

! DANGER

After the power has been turned OFF, wait at least five minutes until the charge indicator extinguishes completely before touching any wiring, circuit boards or components.



Using Safety precaution, and referring to Fig.1 or 2, swap any **two** of the **three** output leads to the motor (U/T1, V/T2 and W/T3). After the wiring change, repeat **Step 3** to recheck motor direction.

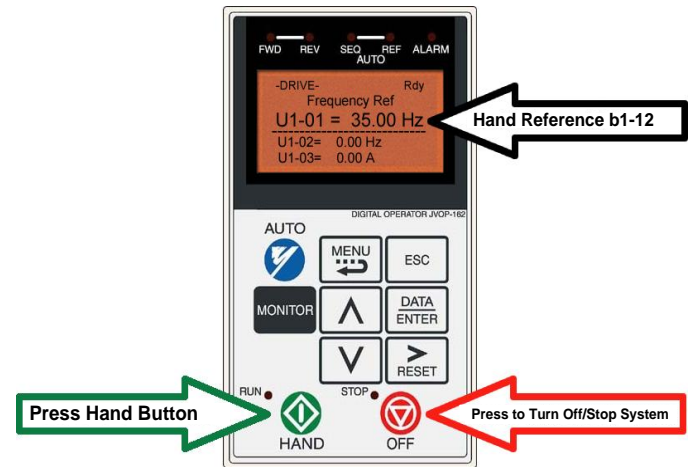
Step 6

Hand / Auto Mode Operation

HAND MODE

The E7 can be operated in HAND mode when the following actions have been performed:

- All parameters are programmed
- Motor direction is correct
- Hand Mode: Hand Reference source selected in parameter b1-12

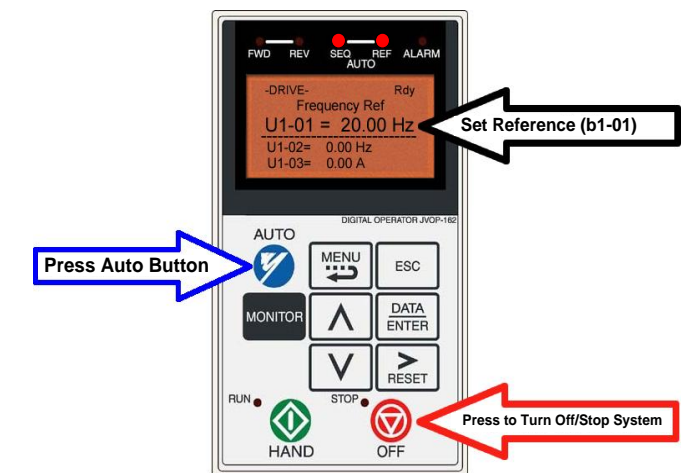


Hand Frequency Reference Selection: b1-12
 0: Use digital operator to enter Speed command (factory default)
 1: Use analog input terminal A1 or A2 depending on parameter H3-13 selection (See Step 3 for wiring instructions).

AUTO MODE

The E7 can be operated in AUTO mode when the following actions have been performed:

- All parameters are programmed
- Motor direction is correct
- Auto Mode: Reference source selected in parameter b1-01 (See Step 3)
- Auto Mode: Run source selected in parameter b1-02 (See Step 3)



Press the **AUTO** button to put the E7 into AUTO mode.

In AUTO mode the E7 is capable of starting or stopping based on the Run Command Selection setting parameter b1-02 (See Step 3 Select Run Command Method).

The Speed Command used in AUTO mode is based on the Speed Command Selection setting parameter b1-01 (See Step 3 Select Speed Command Method).