

**EXALTECH**<sup>®</sup>  
a CH Hanson brand



## Step Up/Step Down Transformer

Models 9685001, 9685002, 9685004 and 9685005



**PLEASE READ AND SAVE  
THESE INSTRUCTIONS.  
READ CAREFULLY  
BEFORE ATTEMPTING  
TO ASSEMBLE, INSTALL,  
OPERATE OR MAINTAIN THE  
PRODUCT DESCRIBED.**

**PROTECT YOURSELF AND  
OTHERS BY OBSERVING ALL  
SAFETY INFORMATION. FAILURE  
TO COMPLY WITH INSTRUCTIONS  
COULD RESULT IN PERSONAL  
INJURY AND/OR PROPERTY  
DAMAGE! RETAIN INSTRUCTIONS  
FOR FUTURE REFERENCE.**

**PLEASE REFER TO BACK COVER  
FOR INFORMATION REGARDING  
PALMGREN'S WARRANTY  
AND OTHER IMPORTANT  
INFORMATION.**

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**Model #:** \_\_\_\_\_

**Serial #:** \_\_\_\_\_

**Purch. Date:** \_\_\_\_\_

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## GETTING STARTED

### Save this manual

You will need this manual for the safety warnings and precautions, operating and maintenance procedures, and diagrams. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this manual and invoice in a safe and dry place for future reference.

### Structural requirements



Make sure all supporting structures and load-attaching devices are strong enough to hold your intended loads. If in doubt, consult a qualified structural engineer.

### 9685001 Electrical Requirements

- Requires 230V at 60 Hz, with a standard deviation of 10%
- A cable, rated for 230V, 5.5A, and 2.2 kW, is required to be wired. Ensure the ground wire (yellow+green) is correctly wired to the ground of the plug. It does not matter which side of the plug the two black wires are wired to.

### 9685002 Electrical Requirements

- Requires 460V at 60 Hz, with a standard deviation of 10%
- A cable, rated for 460V, 4.6A, and 3.7 kW, is required to be wired. Ensure the ground wire (yellow+green) is correctly wired to the ground of the plug. The two black wires can be attached to either side of the plug.

### 9685004 Electrical Requirements

- Requires 460V at 60 Hz, with a standard deviation of 10%
- A cable, rated for 460V, 7A, and 5.6 kW, is required to be wired. Ensure the ground wire (yellow+green) is correctly wired to the ground of the plug. The two black wires can be attached to either side of the plug.

### 9685005 Electrical Requirements

- Requires 460V at 60 Hz, with a standard deviation of 10%
- A cable, rated for 460V, 9.2A, and 7.5 kW, is required to be wired. Ensure the ground wire (yellow+green) is correctly wired to the ground of the plug. The two black wires can be attached to either side of the plug.

### Tools needed

Standard professional electrician's hand tool set (i.e. wire stripper, screwdrivers, connector crimper, pliers, etc.).

## UNPACKING

### Contents

The unit ships fully assembled and arrives ready to be installed. If there are any loose parts, check for damage. If the unit was damaged in transit, all shipping damages must be documented and claims filed with the carrier.

### Unpack



Remove all overpacking. Do not discard packing materials until after the unit has been inspected for damage and completeness. Locate loose parts and set aside.

### Inspect



After unpacking the unit, carefully inspect for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with the carrier.

## SAFETY RULES

**▲ WARNING** *Completely read and understand this owner's manual before assembly or operation. Read and understand the warnings shown on the unit and in this manual. Failure to comply with all of these warnings may cause serious injury or death.*

**▲ WARNING** *Do not use in a damp environment with water, rain or snow.*

**▲ WARNING** *Do not use in an environment where dust or metal dust can affect the transformer.*

**▲ WARNING** *Observe the environmental specifications set forth in "SPECIFICATIONS"*

**▲ WARNING** *Use of attachments not sold or recommended by manufacturer may result in a risk of fire, electric shock or injury to persons.*

**▲ WARNING** *Do not operate transformer with damaged cord or plug. Replace the cord and/or plug immediately.*

**▲ WARNING** *Do not operate transformer if it has received a sharp blow, been dropped or otherwise damaged in any way; take it to a qualified serviceperson.*

**▲ WARNING** *Do not disassemble transformer; take it to a qualified serviceperson if repair is required. Incorrect reassembly may result in a risk of electric shock or fire.*

**▲ WARNING** *An extension cord should not be used unless absolutely necessary. Use of improper extension cords could result in a risk of fire and electric shock.*

**▲ WARNING** *Always follow proper operating procedures as defined in this manual, even if you are familiar with the use of this or similar tools. Remember that being careless for even a fraction of a second can result in severe personal injury.*

## PREPARING FOR YOUR JOB

- Wear proper apparel. Do not wear loose clothing, neckties, rings, bracelets or other jewelry which may get caught in moving parts of the unit. Do NOT wear gloves.
- Wear protective hair covering to contain long hair.
- Wear safety shoes with non-slip soles.
- Wear safety glasses complying with United States ANSI Z87.1. Everyday glasses have only impact resistant lenses. They are not safety glasses. Use guards and eye shields.
- Wear face mask or dust mask if operation is dusty.
- Wear ANSI approved ear protection for extended operation.
- Some coolants used for machining contain chemicals that may be hazardous to your health if not used properly. Read and understand all information on the coolant container and protect yourself accordingly.

- Be alert and think clearly. Never operate power tools when tired, intoxicated or when taking medications that cause drowsiness.
- Focus your attention completely on your work. Distractions and carelessness can result in serious injury.

**Preparing the work area for your job**

- Do not use this unit in dangerous environments. Do not use it in damp or wet locations. Do not expose it to rain.
- Keep the work area clean. Cluttered work areas and work benches invite accidents. Keep the area around the unit clean of scrap metal, oil and grease.
- Keep visitors at a safe distance from work area.
- Keep children out of workplace. Make workshop childproof. Use padlocks and master switches or remove switch keys to prevent any unintentional use of power tools.
- Provide adequate space around the workplace and light the area properly with non-glare, overhead lighting.
- Before use, make certain the transformer wheel is locked to secure the unit in position.

**Maintaining your transformer**

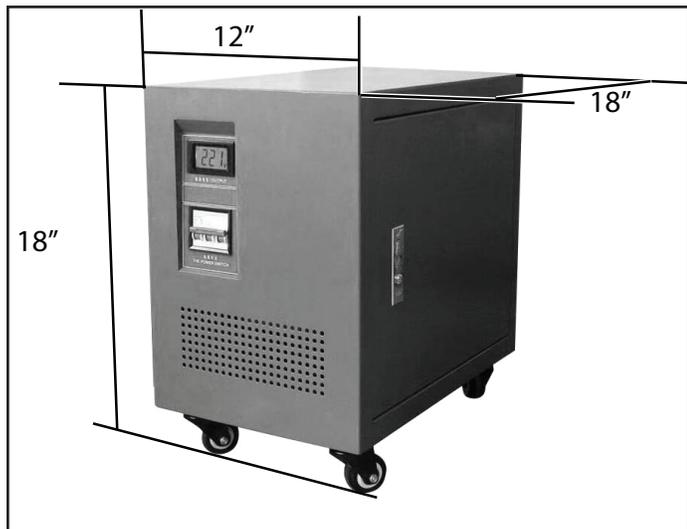
- Failure to follow the guidelines in this manual can result in serious injury.
- Disconnect the tool completely from its power supply before performing any service, maintenance, repair or adjustments.
- Follow OSHA lock-out, tag-out procedures to prevent accidental unit starts.
- Consult this manual for proper use, specific maintenance, and adjustment procedures.
- Read and understand warnings posted on the unit and in this manual. Replace the warning labels if they become obscured or removed. Failure to comply with all of these warnings can result in serious injury.

**SPECIFICATIONS**

	<b>9685001</b>	<b>9685002</b>	<b>9685004</b>	<b>9685005</b>
Dimension (inch)	18x12x18	18x12x18	18x12x18	18x12x18
Weight (lbs)	119	119	114.5	143
Input Amps	5.5	4.6	7	9.2
Voltage Input/Phase	230V/3Ph	460V/3Ph	460V/3Ph	460V/3Ph
Output Amps	19	9.2	14	18.5
Voltage Output/Phase	115V/1Ph	230V/3Ph	230V/3Ph	230V/3Ph
Matched Motor Horsepower	3	5	7.5	10
Watts	2205	3675	5512	7350
Operating temperature °F (°C)	-13 to 104 (-25-40)			
Humidity	Below 95%			

## INSTALLATION

Ensure that you provide enough room for the unit as shown in the following figure.

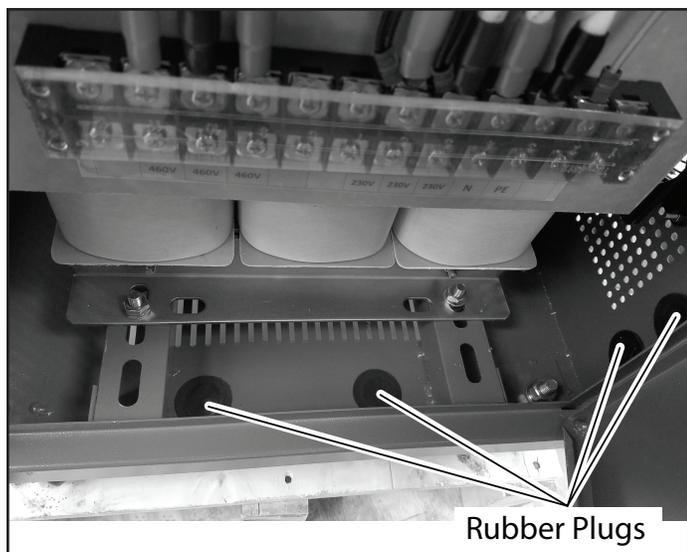


When wiring, consider the unit's positioning such that enough cable is provided for the required movement with adequate service loop.

Have a qualified electrician perform the following steps:

Note: Wiring diagrams for each transformer are provided in "Maintenance/Repair"

1. Open the door on the side, and remove the clear plastic cover on the wiring block.
2. Rubber plugs are located on the door side of the bottom and rear of the transformer, as shown in the following figure. Pierce the plugs as required to feed the wires through.



3. For safety, first wire the output. Feed the machine's wires through the pierced port(s).

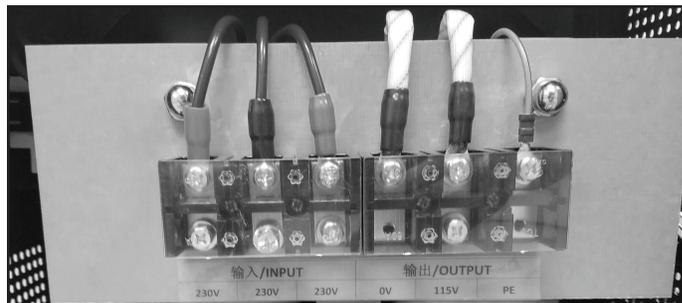
Note: The ground wire is the green/yellow wire. The terminal for ground is identified by PE (protective earth).

4. Match the wires from the machine to their corresponding places on the transformer output terminals.

**WARNING** Before wiring the input side, make sure mains power to the transformer's circuit is off, to eliminate the risk of electric shock.

5. Feed the wires from the power source through the pierced ports.
6. Match the mains supply wires to their corresponding places on the input terminals.

### 9685001 Terminal Block



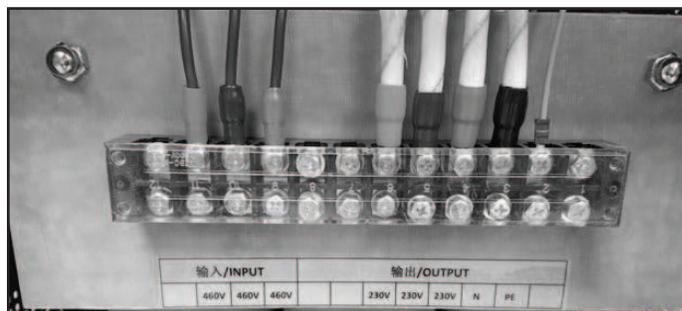
### 9685002 Terminal Block



### 9685004 Terminal Block

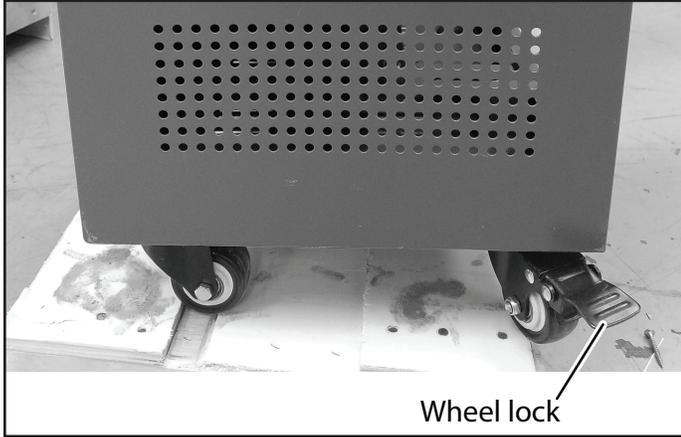


### 9685005 Terminal Block



**OPERATION**

1. Wheels allow for mobility in any direction and positioning. Place transformer where it will not be in the way. Also position so that the input and output wires are not strained.
2. A single wheel has a lock and will prevent the transformer from moving when brake is set. Shown below.



3. When properly positioned and ready to use, flip the POWER switch to the ON position to activate the transformer to provide power to the connected machine.

Flip the POWER switch to the OFF position to remove power from the connected machine.



## TROUBLESHOOTING GUIDE

Symptom	Possible Cause(s)	Corrective Actions
Output voltage not in range	<ul style="list-style-type: none"> <li>• Connections are incorrect</li> <li>• Input power not within specification</li> </ul>	<ul style="list-style-type: none"> <li>• Remove power from unit and connect as shown in "Maintenance/Repair"</li> <li>• Correct input power problem</li> </ul>

**MAINTENANCE/REPAIR**

**⚠ WARNING** *Before performing any maintenance on the transformer, make sure mains power to the transformer's circuit is off, to eliminate the risk of electric shock.*

Daily:

- General visual inspection-check for any visible damage or missing parts
- Check that all labels are clearly visible- must be legible as well

Weekly:

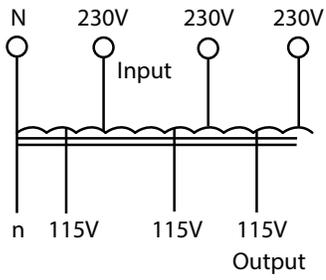
- General cleaning

**Parts List**

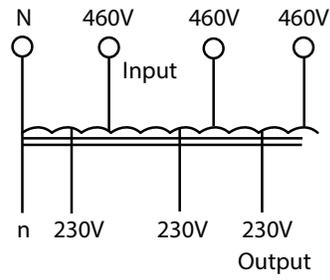
Ref. Num.	Description	9685001	9685002	9685004	9685005	Qty
		Part number	Part number	Part number	Part number	
1	Clamping kits	9644169.01	9644169.01	9644169.01	9644169.01	2
2	Connector	9644170.01	9644170.01	9644170.01	9644170.01	1
3	Air switch	9644171.01	9644171.01	9644171.01	9644171.01	1
4	Display	9644172.01	9644172.01	9644172.01	9644172.01	1
5	Universal wheel with brake	9644173.01	9644173.01	9644173.01	9644173.01	4
6	Axial flow fan	9644174.01	9644174.01	9644174.01	9644174.01	1
7	Gate lock	9644175.01	9644175.01	9644175.01	9644175.01	1

**MAINTENANCE/REPAIR**

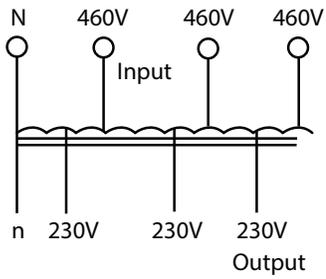
**9685001 Schematic**



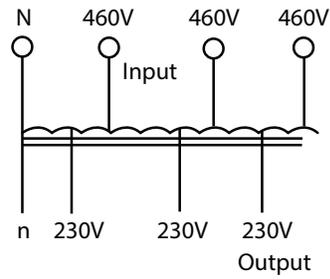
**9685004 Schematic**



**9685002 Schematic**



**9685005 Schematic**



## **PALMGREN WARRANTY**

C.H. Hanson / Palmgren warrants their products to be free of defects in material or workmanship. This warranty does not cover defects due directly or indirectly to misuse, abuse, normal wear and tear, failure to properly maintain the product, heated, ground or otherwise altered, or used for a purpose other than that for which is was intended.

The warranty does not cover expendable and/or wear part (i.e. v-belts, screws, abrasives, jaws), damage to tools arising from alteration, abuse or use other than their intended purpose, packing and freight. The duration of this warranty is expressly limited to the terms noted below beginning from the date of delivery to the original user.

**The Palmgren branded items carry the following warranties on parts:**

**All vises, clamps, positioning tables, tombstones, jack screws and vise accessories - LIFETIME.**

**All bench grinders, drill presses, tapping machines, band saws, lathes, milling machines, arbor presses, abrasive finishing machines and work stands - 3 YEARS.**

The obligation of C.H. Hanson / Palmgren is limited solely to the repair or replacement, at our option, at its factory or authorized repair agent of any part that should prove inoperable. Purchaser must lubricate and maintain the product under normal operating conditions at all times. Prior to operation become familiar with product and the included materials, i.e. warnings, cautions and manuals.

**Failure to follow these instructions will void the warranty.**

This warranty is the purchaser's exclusive remedy against C.H. Hanson for any inoperable parts in its product. Under no circumstances is C.H. Hanson liable for any direct, indirect, incidental, special or consequential damages including loss of profits in any way elated to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.



**Palmgren - a C.H. Hanson Company**  
**2000 N. Aurora Rd., Naperville, IL 60563 U.S.A.**  
or call **1-800-827-3398**