

Operating & Installation Manual



**Variable Speed DC Motors,
Under 1/3 to 1 hp (746 watts)
115/230 VAC, 50/60 Hz, Single-Phase**

**Models: 711-2111 & 711-2112
711-2211 & 711-2212**

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1.0 Safety Considerations

	WARNING	
Disconnect power at source before opening door of <i>impac</i> 100 Conveyor Controller.		



— 1.1 Grounding

	WARNING	
Both control enclosure and motor must be securely mounted and properly grounded. Failure to properly ground either device may cause injury to personnel.		



— 1.2 Fusing

	WARNING	
If fuses need to be replaced, they must always conform to the values and ratings specified on the controls labels.		

— 1.3 Power Wiring to Controller

	WARNING	
The branch circuit, which provides power to this control, must be protected. The circuit protection must be properly sized to meet the current requirements and must comply with all applicable codes.		

2.0 Introduction

	WARNING	
Read this Manual completely and carefully. Pay special attention to the Warnings, Precautions, and Safety Rules listed. Failure to follow the instructions could produce Safety Hazards to personnel or lead to damage of the Conveyor Controller and/or the optional Accessory Kits. Due to the wide variety of setups & applications, guarding is the responsibility of the end user.		

This manual contains the information needed to install, operate, and troubleshoot the Dorner *impac* 100 Conveyor Controller. It is organized in a step-by-step fashion so that the Conveyor Controller may be safely set-up, in the shortest possible time.

3.0 Product Description

The *impac* 100 Conveyor Controller is a low-cost Industrial Multi-Purpose Application Controller that can be used to control a Conveyor motor on/off operation as well as vary the speed of the motor. The Conveyor Controller is user-installable with control options that allow it to meet the needs of a wide range of Conveyor control applications (indexing, jogging, accumulation, variable speed, automatic end-stop, emergency-stop, clutch-brake, merging of Conveyors, linking multiple Conveyors, ...etc.). The Conveyor Controller can be ordered for Conveyors with fixed or variable speed AC or DC motors.

The *impac* 100 Conveyor Controller's motor control circuit is designed to support electrical interconnections to a variety of accessory kits (photo-eyes, E-stops, jog buttons, foot switches, E-stop pull cord units, process machine/PLC/PC dry contact interface, and more). Each kit includes brackets for mounting the unit to a Dorner 2100/3100 conveyor, cabling to wire the unit to an *impac* 100 Conveyor Controller, and instructions for mounting/wiring/operating the unit. The kits are connected to the *impac* 100 Conveyor Controller using convenient terminal point connections, inside the Controller. This allows the user to configure the kits to fit specific application needs and to re-configure the kits to perform new functions.

The *impac* 100 Conveyor Controller comes with mounting hardware to allow mounting to a Dorner 2100 or 3100 Conveyor side rail (or Conveyor stand). The unit is housed in an NEMA 12/IP54 enclosure with Power "ON" and Motor "RUNNING" LED's, a locking "ON/OFF" switch, a 24 volts D.C. power supply, adjustable motor overloads with manual reset, and pre-wired motor and AC line cords. The Conveyor Controller supports both fixed and variable speed AC motors using 120/230/460 volts A.C., 50/60Hz, 1-3 Phase, and variable speed 90/180 volts D.C. motors (with 120/230 volts A.C. input).

Overall Conveyor system reliability is enhanced by the *impac* 100 design features. Components meet applicable ANSI/NEC/IEC machine safety standards. Local on/off control and built-in motor & circuit overload protection enhance operator and application safety. Low voltage (24 volts D.C.) control circuits reduce installation and maintenance time as well as increase safety. A complete Conveyor Controller wiring schematic and troubleshooting guide are attached to the inside of the Conveyor Controller cover.

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4.0 Product Specifications

<i>impac</i> 100	711-2111	711-2112	711-2211	711-2212
Input Voltage	115 volts A.C. \pm 10% 50/60 Hz		230 volts A.C. \pm 10% 50/60 Hz	
Input Line Fuse	(1) 10 Ampere	(1) 15 Ampere	(2) 10 Ampere	(2) 15 Ampere
Input Current	5 Amperes	9 Amperes	5 Amperes	9 Amperes
Output Voltage	130 volts D.C.		180 volts D.C.	
Trim Potentiometer Adjustments	Minimum Speed (0 to 30 %), Maximum Speed (40 to 100 %), Current Limit (to 150 %) Adjustable IR Compensation for Improved Speed Regulation			
Motor Fuse	4 Amperes	7 Amperes	4 Amperes	7 Amperes
Motor Range	Below 1/3 HP 1 to 246 Watts	1/3 to 1/2 HP 247 to 373 Watts	Below 3/4 HP 1 to 558 Watts	3/4 to 1 HP 559 to 746 Watts
Operating Temperature	0 to 40° C to 95% Humidity (Non-condensing)			
A.C. Line Cord	8 Ft (2.4 m) Pre-Wired with molded NEMA 5-15P Plug		8 Ft (2.4 m) Pre-Wired with molded NEMA 6-15P Plug	
Motor Cord	5 Ft (1.5 m) Pre-Wired with molded NEMA 5-15R Receptacle		5 Ft (1.5 m) Pre-Wired with molded NEMA 6-15R Receptacle	
Enclosure	NEMA Type 12 / IP54 Continuous Hinge, Weight: 23 lb (10.5 kg) Dimensions: 12" (305 mm) High x 10" (254 mm) Wide x 5" (127 mm) Deep			
Internal Power Supply	24 volts D.C. 1.1 Ampere Over-current and Short-circuit Protected			
Standard Features	<ul style="list-style-type: none"> ● Lockable Disconnect Switch ● Line Fuses(s) ● Angled Terminal Block for Easy Field Connections ● 24 volt D.C. Power Supply Rated @ 1.1 Amperes for Field Devices ● Power "ON" and Motor "RUNNING" Indicator Lights ● Mounting Brackets and Hardware ● Pre-wired Motor and AC Line Cords ● Schematic Diagram Inside of Door ● Four (4) 1/2" NPT Knockouts at Bottom of Enclosure with NEMA 12 Plugs ● Motor Dynamic Braking ● Speed Potentiometer Mounted on Enclosure Door ● Reversing Switch Mounted on Enclosure Door 			

NOTE:

For additional information, refer to the following Dorner Publications:

- *impac* 100 Catalog (Dorner Publication # 851-151)
- *impac* 100 Accessory Kits Setup & Installation Guides (Dorner Publication # 851-108 through # 851-123)
- *impac* 100 Application Guide (Dorner Publication # 851-124)

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5.0 Conveyor Controller Installation

5.1 Inspecting the Controller

Carefully examine your Controller (and any option kits, if ordered), for shipping damage. Check to be certain that the controller you ordered is the one you received. Also check any optional accessory kits which you received.

5.2 Mounting the Controller

Select the desired location and mount the *impac* 100 enclosure to the conveyor T-slot channel (Figure 2) or an aluminum support stand leg (Figure 3) or steel support stand leg (Figure 4), using the hardware provided.

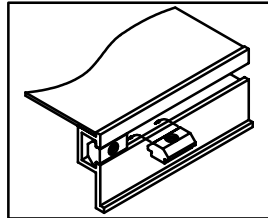
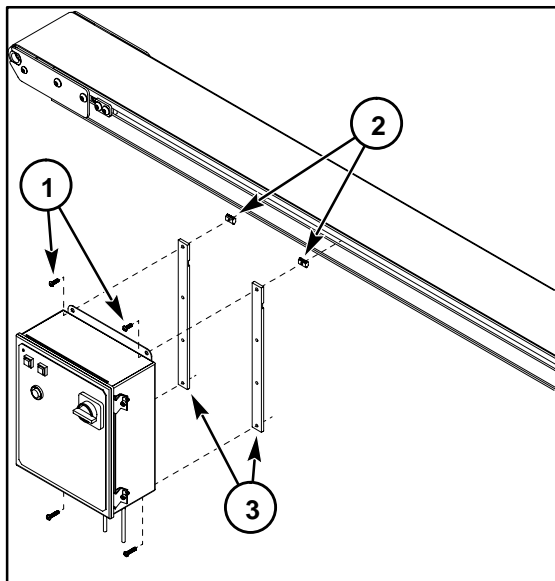


Figure 1: Drop-in T-bar Installation Detail

Mounting in Conveyor T-slot

- Insert the two Single Drop-in T-bars into conveyor T-slot by rolling each one into position (Figure 1).
- Select the desired location and attach the *impac* 100 enclosure (in the same way it was packaged, when shipped) to the conveyor T-slot in the manner shown in Figure 2 using the two (2) M6 x 8 mm Button Head Cap Screws through the clearance hole in each Mounting Bar. Tighten the Screws with a 4 mm Hex Key Wrench.

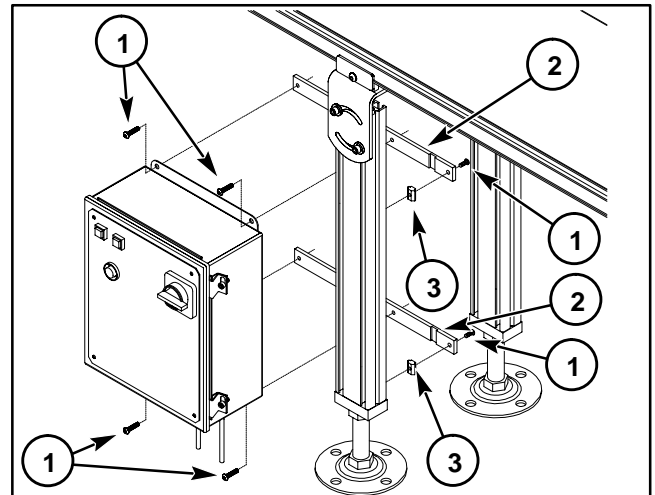


- 1- M6 x 8 mm Button Head Cap Screws (2 each)
- 2- Single Drop-in T-bars (2 each)
- 3- Mounting Bars (2 each)

Figure 2: Conveyor T-slot Attachment Detail

Mounting to Aluminum Support Stand Leg

- For an Aluminum Support Stand Leg, refer to Figure 3 and detach, rotate and re-attach the Mounting Bars to the *impac* 100 enclosure in the horizontal position.
- Select the desired mounting location and insert the two Single Drop-in T-bars into Leg channel by rolling each of them into position (see Figure 1).
- Then, attach the *impac* 100 enclosure to the two Single Drop-in T-bars, using the M6 x 8 mm Button Head Cap Screws. Tighten Screws with a 4 mm Hex Key Wrench.

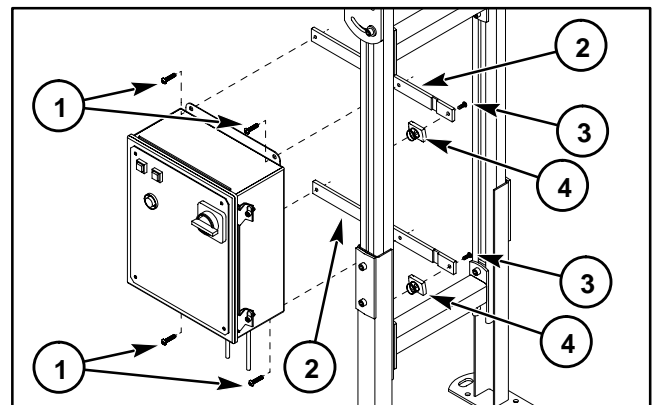


- 1- M6 x 8 mm Button Head Cap Screws (6 each)
- 2- Mounting Bars (2 each)
- 3- Single Drop-in T-bars (2 each)

Figure 3: Aluminum Leg Attachment Detail

Mounting to Steel Support Stand Leg

- For the Steel Support Stand Leg, refer to Figure 4 and detach, rotate and re-attach the Mounting Bars to the *impac* 100 enclosure in the horizontal position.
- Then, attach the *impac* 100 enclosure to the M6 Spring Nuts, using the M6 x 18 mm Button Head Cap Screws through the clearance hole in each Mounting Bar. Tighten the Screws with a 4 mm Hex Key Wrench.



- 1- M6 x 8 mm Button Head Cap Screws (4 each)
- 2- Mounting Bars (2 each)
- 3- M6 x 18 mm Button Head Cap Screws (2 each)
- 4- M6 Spring Nuts (2 each)

Figure 4: Steel Leg Attachment Detail

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5.3 Power Connections to Controller

Each Conveyor Controller has a pre-wired plug for power. The type of plug is dependent on the Controller voltage.

WARNING

Disconnect power, at power source, before opening the door of the *impac* 100 Conveyor Controller and attempting to make any electrical connections. Connections to the power source should always be the very last connections made.

5.4 Conveyor Controller Power-up Testing

Test the Conveyor Controller before the motor is connected and before any *impac* accessory kits are installed. Plug the Controller into the appropriate power source and turn the Controller disconnect switch ON. The Power “ON” and the Motor “RUNNING” indicator lights, on the front of the *impac* Conveyor Controller, should illuminate.

WARNING

Remove power, from the *impac* 100 Conveyor Controller, by unplugging it from the power source, before opening the door and attempting to make or disconnect any electrical connections.

5.5 Motor Connections to Conveyor Controller

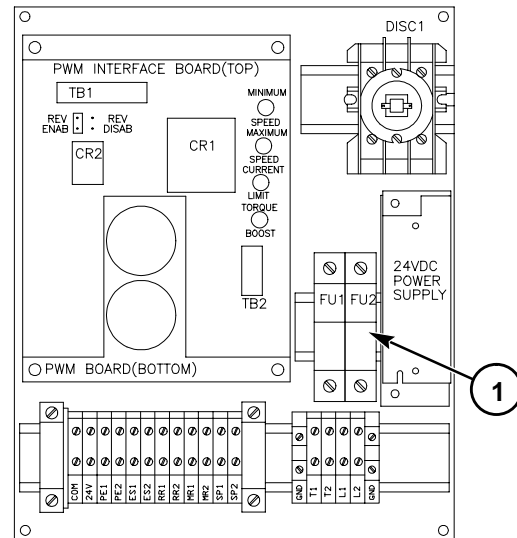
Plug the motor cord into the *impac* 100 Conveyor Controller receptacle cord.

Each Conveyor Controller has a pre-wired receptacle for a motor. The type of receptacle is dependent on the Controller voltage. If a motor was ordered along with the Controller, then the motor was pre-wired with a mating power plug. The motor can also be hard-wired to the Controller by first removing the receptacle and wiring directly to the terminals “T1”, “T2”, and “GND”, inside the Controller. See the Controller panel layout (Figure 5) and the schematic diagrams (Figures 6 & 7) for more information.

5.6 Motor and Conveyor Controller Power-up Testing

WARNING

When power is supplied to the *impac* 100 Conveyor Controller and the disconnect switch is turned “ON”, the Conveyor belt will begin to move.



1– 230 VAC unit only

Figure 5: Sample Control Panel Layout

After connections are made to the *impac* controller, move the main speed potentiometer, located on the front panel of the enclosure, to zero and the FORWARD-STOP-REVERSE switch to the “STOP” position (see picture on cover of this manual). Plug the controller into the appropriate power source and turn the controller disconnect switch ON. The Power “ON” indicator light, on the front on the controller, should illuminate. Move the FORWARD-STOP-REVERSE switch to “FORWARD”, the Motor “RUNNING” indicator light, on the front on the controller, should illuminate. Slowly advance the main speed potentiometer until you reach the desired speed. The motor should run and the conveyor belt will move. If the motor runs in the opposite direction, the armature leads will have to be reversed.

If the conveyor being controlled is a DORNER Horizontal Center Drive, then the DC *impac* 100 is shipped with the reversing switch disabled.

WARNING

Remove power, from the *impac* 100 Conveyor Controller, by unplugging it from the power source, before opening the door and attempting to make or disconnect any electrical connections.

Once the power has been removed, open the *impac* Conveyor Controller door and reverse the armature leads at the terminals, at the bottom of the controller, labelled “T1” and “T2”.

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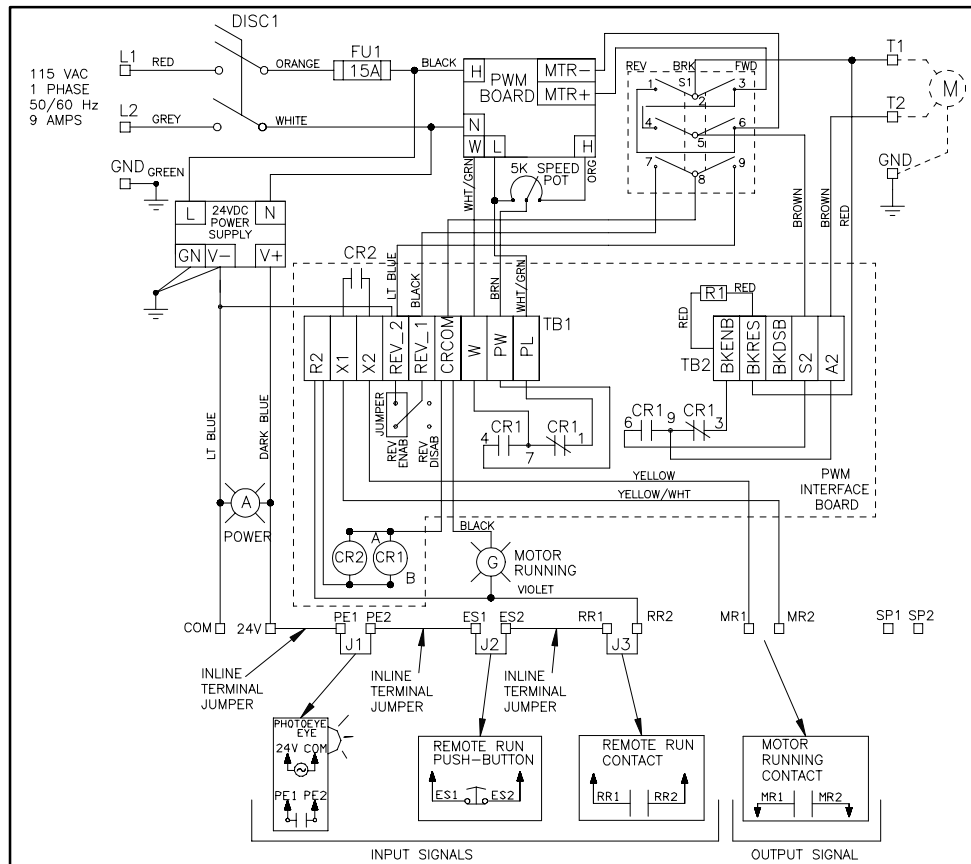


Figure 6: Schematic Diagram for 115 volts D.C. Controller

5.7 Internal Adjustments

1. General

The printed circuit board has four factory preset adjustments: Minimum Speed, Maximum Speed, Current Limit, and Torque Boost (speed regulation). The adjustment potentiometers are located on the PWM circuit board near the main terminal block. See Figure 5.

If adjustments are made under power, insulated adjusting tools must be used and eye protection must be worn.

2. Minimum Speed

Minimum motor speed can be changed by adjusting the "MINIMUM SPEED" potentiometer. With the main speed potentiometer, located on the front panel of the enclosure, at the zero setting, turn the "MINIMUM SPEED" adjustment potentiometer clockwise, until the desired speed is reached. Full counter clockwise adjustment yields zero speed.

3. Maximum Speed

The maximum motor speed can be changed by adjusting the "MAXIMUM SPEED" potentiometer. With the

main speed potentiometer set at highest speed, turn the maximum speed potentiometer, until the desired maximum speed is reached. Clockwise rotation of the potentiometer increases the motor speed.

NOTE:

Do not adjust the motor speed above its base rating.

4. Torque Boost (Speed Regulation)

The controller has been factory preset for optimum performance, over the entire speed range, and should require no further readjustment. If improved speed regulation is desired at a given speed, it may be necessary to readjust the "TORQUE BOOST" potentiometer. A tachometer is useful in making this adjustment. At several speed settings, vary the motor load and observe the speed change. If a noticeable drop in speed occurs as the load is increased, advance the "TORQUE BOOST" potentiometer clockwise.

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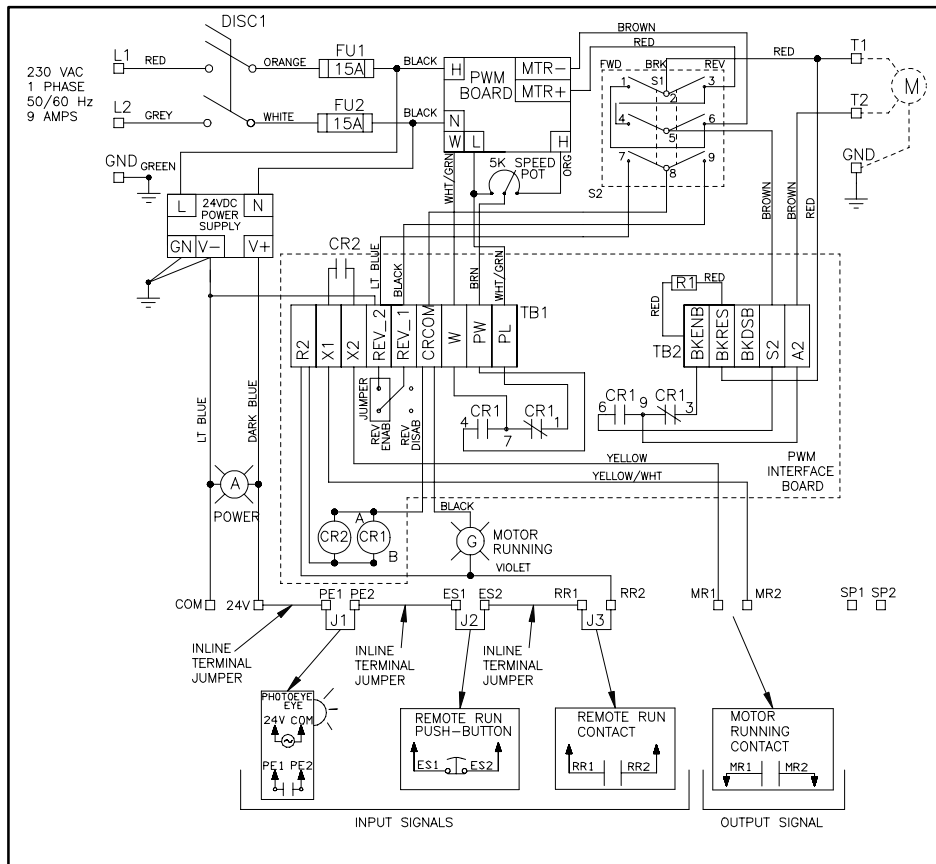


Figure 7: Schematic Diagram for 230 volts D.C. Controller

Recheck the regulation while repeating the load variations. Repeat this process, until the desired speed regulation is achieved. Pulsing (rapid speed variation) of the motor may result if the regulation is adjusted too high, especially when operated at low speeds. Leave the “TORQUE BOOST” potentiometer at a setting which will give optimum performance throughout the required speed range.

5. Current Limit

The “Current Limit” or torque limit control is factory set to approximately 150% of the maximum full load motor armature current for the nameplate rating of the control. The current limit should not need readjusting for different HP motors. If the current limit potentiometer is set too low, the PWM control may not reach full speed.

— 5.8 Adjusting Maximum Output Voltage (Maximum Speed)

The DC controller is configured to output 130 volts D.C. with a 120 volts A.C. input, or output 180 volts D.C. with 230 volts A.C. input. This maximum output voltage can be adjusted to limit the maximum speed of the motor. To change the maximum speed, locate the “MAXIMUM SPEED” potentiometer located at the right hand corner on the DC drive. Use a small screwdriver (through the access hole on the top circuit board) and turn the pot to the desired maximum speed.

The range is 40% to 100% of maximum output voltage. Running the motor above the nameplate voltage can lead to excess brush wear. See Figure 5 to locate the “MAXIMUM SPEED” potentiometer.

— 5.9 Controller Setup

1. Reversing

If the conveyor being controlled is a DORNER Horizontal Center Drive, then the DC *impac* 100 is shipped with the reversing switch disabled. Damage may occur to the conveyor belt if operated in the reverse direction. If a Center Drive is not being used, then the controller is shipped with the reversing switch enabled. Reversing can be enabled as follows:

- c. Open the cover of the *impac* 100. Locate the jumper toward the upper left corner of the drive circuit board (just below TB1). The jumper is set across two adjacent pins labeled “REV DISABLE”.
- d. Remove the jumper and replace it over the pins labeled “REV ENABLE”. Reversing of the motor with the “FORWARD-STOP-REVERSE” switch on the door of the enclosure is now possible. See Figure 5 to locate jumper.

2. Dynamic Braking

“Dynamic Braking” is a means of slowing down a motor after the controller is turned off.

This function is accomplished by attaching a resistor across the armature of the motor to help dissipate the

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energy being generated by the motor while the motor coasting to a stop. The *impac* 100 control is shipped with the “Dynamic Braking” function enabled. The dynamic braking function can be disabled as follows:

Locate the small terminal block (TB2) on the right side of the DC drive. Remove the red wire from the terminal labeled “BRK-ENBL” (top terminal). Re-attach that wire to the terminal label “BRK-DSBL” (3rd terminal from the top). This jumper switch removes the Dynamic Braking resistor from the circuit. See *Figure 5* to locate TB2.

3. Acceleration & Deceleration

The PWM drive has a fixed value for the acceleration and deceleration.

5.10 Controlling the Speed with an External Reference Signal

! **WARNING** !

Any external signal or equipment connected to the control must be electronically (e.g., optically) isolated. Using signals which are not isolated can damage the drive control board and/or any external equipment.

The *impac* 100 control is shipped with the speed pot on the front of the control as the only method to vary the speed of the motor. Some applications may require that the speed of the motor be controlled by another machine or controller. A 0 to 10 Volt *isolated* speed signal may be used to control the speed of the motor in place of the speed potentiometer on the front of the controller. To connect an external speed reference:

- Locate the terminal block (TB1) at the upper left hand side of the DC drive.
- Remove the white wire with the green stripe from the terminal labeled “PW”.
- Tape the end of the exposed wire to avoid shorting to adjacent devices.
- Remove the brown wire at the terminal labeled “PL” that goes to the speed pot. This is the brown wire that enters the bundle of wires going to the left side of the controller. Be sure that the other brown wire remains connected to the terminal block.
- Tape the end of the exposed wire to avoid shorting to adjacent devices.
- Connect the external signal V+ to the terminal labeled “PW”.
- Connect the external signal V- to the terminal labeled “PL”.

The speed pot on the door of the *impac* controller is now disabled.

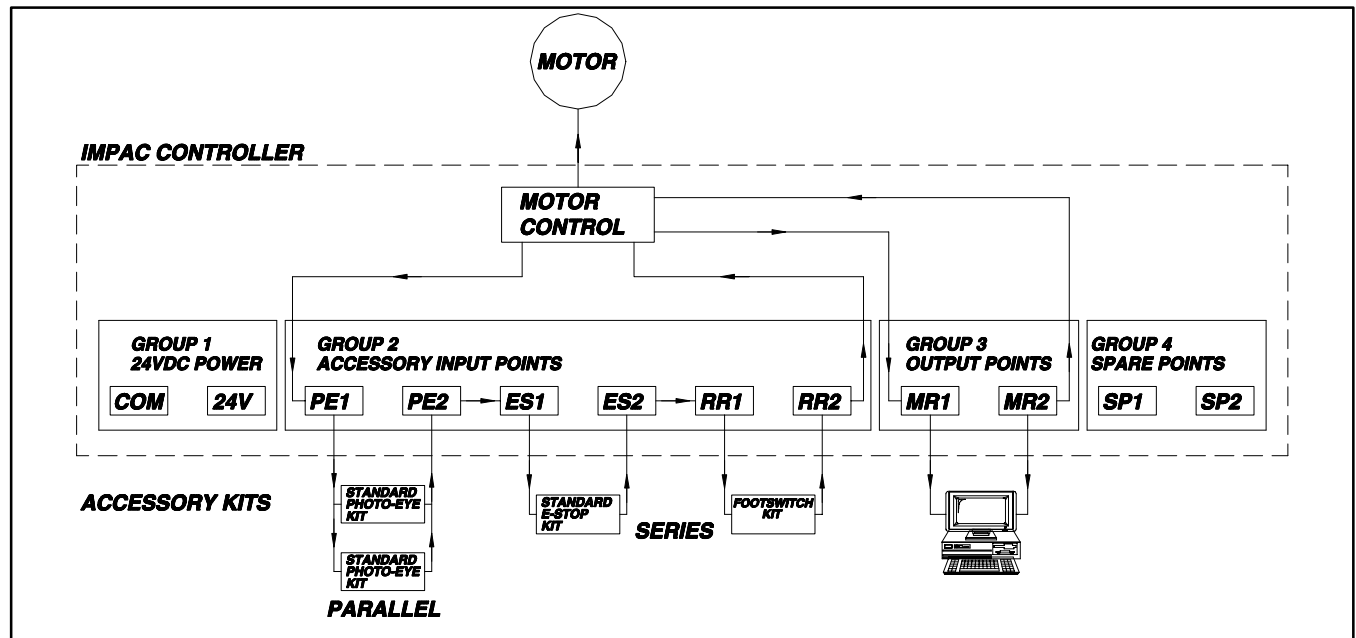


Figure 8: Simplified *impac* 100 Control Circuit

6.0 Implementing Conveyor Control Applications

The *impac* 100 control circuit is designed to support electrical interconnections to a variety of accessory kits (photo-eyes, E-stops, jog buttons, foot switches, E-stop pull cord units,

process machine/PLC/PC dry contact interface, and more). The kits are connected to the *impac* 100 using convenient terminal point connections inside the controller. This allows the user to interconnect the kits to fit specific application control needs.

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A simplified version of the *impac* 100 control circuit is shown in figure 4. Four groupings of terminal point connections have been provided for connecting all *impac* accessory kits.

1. The first group (**COM-24V**) provides 24 volts D.C. power for any accessory kits that need power (photo-eyes, illuminated pushbuttons, etc.).
2. The next group (**PE1-PE2**, **ES1-ES2**, and **RR1-RR2**) provide three sets of control points for wiring accessory kits into the *impac* 100 control circuit. Each group is configured with a jumper when the *impac* 100 controller is shipped. When an accessory kit is to be installed the jumper is removed and the kit connected. Each set of control points represents a “series” connection to the *impac* 100 control circuit. When accessory kits are wired in “series” it means that all connected accessories must be “on” for the conveyor to run. For example, if an accessory kit is wired to **PE1-PE2** and another accessory kit is wired to **ES1-ES2**, then both accessories must be “on” for the conveyor to run.

The *impac* 100 controller also supports wiring *impac* accessory kits in “parallel”. When an accessory kit is wired in “parallel” it means “if either” accessory kit is “on” then run the conveyor. Accessories connected in parallel are connected to the same *impac* 100 terminal points.

For example, if two accessory kits are wired to **PE1-PE2** then when either kit is “on” the conveyor will run. Any number of *impac* accessories can be configured in any of the above series and parallel combinations.

3. The third group of terminals (**MR1-MR2**) provide an output contact (dry contact) that is closed when the conveyor is running. This can be used to link multiple conveyor operations together or to provide status back to a host controller.
4. The last group of terminals (**SP1-SP2**) are two spare terminal points that the user can use for extra termination points for accessory kit wiring.

To select, configure, and implement a conveyor control application using the *impac* 100 Conveyor Controller and *impac* Accessory Kits the user should use the following steps.

1. **Remove power to the *impac* Conveyor Controller.**
Before installing and wiring any accessory kits, Remove power to the *impac* controller by unplugging the *impac* controller from the power source.
2. **Select Desired Control Application from the Dorner *impac* 100 Application Guide.**
Included with the *impac* 100 Application Guide are a list of conveyor control application examples that detail the



following for many different conveyor control applications:

- A description of the conveyor application control requirements
- An illustration of the conveyor with the *impac* 100 controller and *impac* accessory kits mounted
- A list of hardware required to implement the control application described
- A description of the conveyor operation
- Detailed conveyor control setup instructions
- Illustration that shows how all accessory devices are connected to the *impac* 100 controller

Based on review of the Dorner *impac* 100 Application Guide select the application example that meets the needs of the end-user application. If required, make any final adjustments to the application accessory kit control connections needed by your particular application.

3. Install all required *impac* accessory kits

Install all accessory kits required for the application. The selected Application Example in the Dorner *impac* 100 Application Guide will show the general area of where the kits are to be located on the conveyor. Follow the *impac* Accessory kit Setup & Installation Guide for mounting and cable routing details.

	WARNING	
Before installing and wiring any accessory kits, remove power to the <i>impac</i> 100 Conveyor Controller by unplugging the <i>impac</i> Conveyor Controller from the power source.		

Each *impac* accessory kit includes: Setup & Installation Guide; brackets for mounting; cabling to wire the unit to an *impac* 100 controller; and instructions for mounting/wiring/operating the unit. There are two 1/2” NPT knockouts available for accessory kit installation at the bottom on the controller. Remove the rubber seal, and install the accessory kit cable using the cord grip provided with the kit. The only wiring that is required will be at the accessory terminal block inside the controller. A 1/8” (3 mm) flat blade screwdriver is shipped with the controller for wiring to the terminal block.

4. Connect the *impac* accessory kits to the *impac* 100 Conveyor Controller

From the selected Application Example in the Dorner *impac* 100 Application Guide Connect the *impac* accessory kit cables to the *impac* controller terminal block as detailed in the application “Setup” description.

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5. Verify proper conveyor operation

Test and operate the application based on the information detailed in the selected application “Operation & Test” description.

6. File copy of the Control Application Documentation

Place a copy of the Conveyor Control Application Example, that was used in step 4, inside *impac* 100 controller.

7.0 Operating the Conveyor Controller

— 7.1 Starting the Controller

The conveyor will be “ready to run” when the *impac* ON/OFF disconnect switch is turned ON. The Power “ON” light will be illuminated whenever power is applied to the Conveyor Controller and the ON/OFF disconnect switch is turned ON.

If there are no *impac* accessory kits installed, the conveyor will run. If there is(are) any installed accessory kit(s), the conveyor may run, depending on the “ON/OFF” state of the accessory kits. When an accessory kit or kits allow the conveyor to run, the Motor “RUNNING” light will be ON and the motor will run.

— 7.2 Stopping the Controller

The conveyor will be stopped when the *impac* ON/OFF disconnect switch is turned OFF. The Power “ON” light will be OFF whenever power is removed from the Conveyor Controller or the ON/OFF disconnect switch is turned OFF. If there are installed accessory kit(s), the conveyor may stop running, depending on the state of the accessory kits. When an accessory kit prohibits the conveyor from running, the Motor “RUNNING” light will turn OFF and the motor will stop.

8.0 Troubleshooting

PROBLEM	CAUSE	CORRECTION
Motor will not run and Motor “RUNNING” indicator is ON and “POWER” indicator is illuminated.	Open wiring connection between <i>impac</i> 100 & motor. Motor Cord is not connected to motor Defective motor	Remove any power and, using appropriate means, check continuity and integrity of wiring. Properly connect motor cord. Replace motor.
Motor will not run and Motor “RUNNING” indicator is OFF, “POWER” indicator is illuminated and Power Supply LED is ON.	One or more accessory kits are not working properly and thus causing an OPEN contact. One or more accessory kit jumpers, at <i>impac</i> 100 are removed and kit Devices are not installed, or incorrectly installed.	Check and properly install and wire accessory kits per the Setup & Installation Guide information provided with kit. Properly install and wire accessory kits per the Setup & Installation Guide information provided with kit.
Motor will not run and Motor “RUNNING” indicator is OFF, “POWER” indicator is illuminated and Power Supply LED is OFF.	Power supply fuse has blown. One or more accessory kits are incorrectly installed and thus shutting-down the power supply.	Replace with correct amperage and type of fuse. Properly install and wire accessory kits per the Setup & Installation Guide information provided with kit.
Motor will not run and Motor “RUNNING” indicator is OFF and “POWER” indicator is not illuminated.	No power to <i>impac</i> 100 or <i>impac</i> 100 is not plugged-in. Blown line fuse FU1 and/or FU2.	Check all related wiring and make sure <i>impac</i> 100 power cord is plugged-in. Replace with correct amperage and type of fuse.

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PROBLEM	CAUSE	CORRECTION
Motor runs unexpectedly and Motor "RUNNING" indicator is ON and "POWER" indicator is illuminated.	<p>One or more accessory kits are incorrectly installed.</p> <p>One or more accessory kit jumpers, at <i>impac</i> 100, is/are not correctly installed.</p>	<p>Properly install and wire accessory kits per the Setup & Installation Guide information provided with kit.</p> <p>Properly install and wire appropriate jumpers per the Setup & Installation Guide information provided with kit.</p>
Motor speed will not increase when SPEED Potentiometer is increased.	<p>+24 volts D.C. not present between TB1-1 (R2) and TB1-6 (CR COM) terminals.</p> <p>"FORWARD-STOP-REVERSE" switch is not in the STOP position.</p> <p>PWM circuit board is defective.</p> <p>SPEED potentiometer is shorted or defective.</p> <p>Wiring connections are loose.</p>	<p>Test for cause of no voltage and make necessary repairs.</p> <p>Move switch to STOP position.</p> <p>Replace PWM circuit board.</p> <p>Locate circuit short or replace potentiometer.</p> <p>Secure anchor all connections.</p>
Deceleration time is too long.	<p>+24 volts D.C. not present between TB1-1 (R2) and TB1-6 (CR COM) terminals.</p> <p>Brake resistor (R1) is open.</p> <p>"FORWARD-STOP-REVERSE" switch is defective.</p> <p>Relay (CR1) is defective.</p> <p>Relay (CR1) is not proper seated in mounting socket.</p>	<p>Test for cause of no voltage and make necessary repairs.</p> <p>Replace Brake resistor (R1).</p> <p>Replace defective "FORWARD-STOP-REVERSE" switch.</p> <p>Replace defective Relay (CR1).</p> <p>Securely and properly seat Relay (CR1) in its socket.</p>
Motor will not switch between FORWARD and REVERSE.	<p>+24 volts D.C. not present between TB1-1 (R2) and TB1-6 (CR COM) terminals.</p> <p>"FORWARD-STOP-REVERSE" switch is defective.</p> <p>Relay (CR1) is defective.</p> <p>Relay (CR1) is not proper seated in mounting socket.</p> <p>"REVERSE" Enable Jumper is in the REVERSE DISABLE position.</p> <p>Wiring connections are loose.</p>	<p>Test for cause of no voltage and make necessary repairs.</p> <p>Replace defective "FORWARD-STOP-REVERSE" switch.</p> <p>Replace defective Relay (CR1).</p> <p>Securely and properly seat Relay (CR1) in its socket.</p> <p>Move Jumper to ENABLE position.</p> <p>Secure anchor all connections.</p>

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Variable Speed DC Motors, Single-Phase

PROBLEM	CAUSE	CORRECTION
Motor "RUNNING" contact does not give indication.	+24 volts D.C. not present between TB1-1 (R2) and TB1-6 (CR COM) terminals. Relay (CR2) is defective. "FORWARD-STOP-REVERSE" (S2) switch is in STOP position. "FORWARD-STOP-REVERSE" (S2) switch is defective. Wiring connections are loose.	Test for cause of no voltage and make necessary repairs. Replace defective Relay (CR2). Move switch away from STOP position. Replace defective "FORWARD-STOP-REVERSE" (S2) switch. Secure anchor all connections.
DC Drive Fuse is blown.	PWM fuses F1 and/or F2 are improperly sized. Circuit wiring is grounding or shorting. Motor wiring is grounding or shorting. An overload condition exists.	Replace correctly-sized fuses. Check and correct circuit wiring problem. Check and correct motor wiring problem. Correct overload and reset circuit.
DC Drive Motor will not turn.	PWM fuses F1 and/or F2 are blown. Motor wiring is open. Current Limit is adjusted to ZERO. The SPEED potentiometer is open. Motor is defective. Circuit board is defective. Power circuit is defective.	Replace blown fuses. Check and correct open circuit. Set current Limit to a value greater than ZERO. Replace SPEED potentiometer. Replace defective motor. Replace defective circuit board. Check and correct power circuit wiring problem.
DC Drive Motor runs too slowly.	The MAXIMUM SPEED adjustment is set too low. The SPEED potentiometer is open. Motor is defective. An overload condition exists. Circuit board is defective.	Readjust MAXIMUM SPEED to a higher value. Replace SPEED potentiometer. Replace defective motor. Correct overload and reset circuit. Replace defective circuit board.

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Variable Speed DC Motors, Single-Phase

PROBLEM	CAUSE	CORRECTION
DC Drive Motor runs too fast.	<p>The MAXIMUM SPEED adjustment is set too high.</p> <p>The SPEED potentiometer is defective.</p> <p>Motor is defective.</p> <p>Circuit board is defective.</p>	<p>Readjust MAXIMUM SPEED to a higher value.</p> <p>Replace defective SPEED potentiometer.</p> <p>Replace defective motor.</p> <p>Replace defective circuit board.</p>
DC Drive Motor runs too fast, regardless of SPEED setting.	<p>The SPEED potentiometer is defective.</p> <p>The POWER semiconductor is defective.</p> <p>Circuit board is defective.</p>	<p>Replace defective SPEED potentiometer.</p> <p>Replace defective POWER semiconductor.</p> <p>Replace defective circuit board.</p>
DC Drive Motor oscillates.	<p>TORQUE BOOST is adjusted too high.</p> <p>A cyclic overload condition exists.</p> <p>Motor is defective.</p> <p>Wiring connections are loose.</p> <p>Motor commutator is worn.</p> <p>Motor brushes are worn or not making proper connections with commutator.</p> <p>Circuit board is defective.</p>	<p>Readjust TORQUE BOOST to a lower value.</p> <p>Correct cyclic overload condition.</p> <p>Replace defective motor.</p> <p>Secure anchor all connections.</p> <p>Replace motor.</p> <p>Replace motor brushes.</p> <p>Replace defective circuit board.</p>
DC Drive Motor speed varies excessively with load applied.	<p>TORQUE BOOST is adjusted too low.</p> <p>CURRENT LIMIT is set too low.</p> <p>Motor brushes are worn or not making proper connections with commutator.</p> <p>Wiring connections are loose.</p> <p>Circuit board is defective.</p>	<p>Readjust TORQUE BOOST to a higher value.</p> <p>Readjust the CURRENT LIMIT to a higher value.</p> <p>Replace motor brushes.</p> <p>Secure anchor all connections.</p> <p>Replace defective circuit board.</p>

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9.0 Replacement Parts List

Item	Description	Dorner Part Number
1	Power Supply	831-110
2	Terminal Block Assembly	676266P
3	PWM DC Drive model 711-2111, model 711-2112	826-248
	model 711-2211, model 711-2212	826-247
4	Fuse Holder model 711-2111, model 711-2112	819-134
	model 711-2211, model 711-2212	819-133
5	Fuse model 711-2211, model 711-2212	819-103
	model 711-2111, model 711-2112	891-113
6	Disconnect Switch	805-724
7	Amber Pilot Light Assembly	830-133
8	Green Pilot Light Assembly	830-134

RETURN POLICY

No returns will be accepted without prior written factory authorization. When calling for authorization, please have the following information ready for the Dorner Factory representative or your local distributor:

1. Name and address of customer.
2. Item(s) being returned.
3. Reason for return.
4. Customer's original order number used when ordering the item(s).
5. Dorner or distributor invoice number.

A representative will discuss action to be taken on the Returned items and provide a Returned Goods Authorization Number to reference.

There will be a 15% restocking charge on all new items returned for credit where Dorner was not at fault. These will not be accepted after 60 days from original invoice date. The restocking charge covers inspection, cleaning, disassembly, and reissuing to inventory.

If a replacement is needed prior to evaluation of returned item, a purchase order must be issued. Credit (if any) is issued only after return and evaluation is complete.

- Dorner has representatives throughout the world. Feel free to contact Dorner for the name of your local representative. Our technical sales and service staff will gladly help with your questions on Dorner products.

Standard Available IMPAC Accessory Kits

- Standard Photo-Eye Kit, Fixed Mount (75-30)
- Standard Photo-Eye Kit, Adjustable Mount (75-31)
- Timing Photo-Eye Kit, Fixed Mount (75-32)
- Timing Photo-Eye Kit, Adjustable Mount (75-33)
- Emergency Stop Kit, Illuminated (75-40)
- Emergency Stop Kit, Non-Illuminated (75-41)
- Emergency Stop Kit, Pull Cord (75-42)
- Jog Kit (75-10)
- Foot Switch Kit (75-20)
- Start/Stop Kit (75-70)
- Electric Clutch/Brake Kit (75-60)
- Controller to Controller Linking Cable Kit (75-80)
- Wire Way Trough Kits
6-ft (1829 mm) (75-85-6)
12.5-ft (3810 mm) (75-85-12)
- T-slot Extension Kit (307000M)
- Light Duty End Stop Kits
2100 Series (215502M – 215524M)
3100 Series (315504M – 315540M)
- Adjustable Stop Kits
(307602M – 307640M)

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DORNER MFG. CORP.

580 Industrial Drive, PO Box 20
Hartland, WI 53029-0020 USA

USA
TEL 1-800-397-8664 (USA)
FAX 1-800-369-2440 (USA)

Outside the USA:
TEL 1-414-367-7600, FAX 1-414-367-5827

DORNER

Arnold-Sommerfeld-Ring 2
D-52499 Baesweiler

Germany
TEL (02401) 80 52 90
FAX (02401) 80 52 93