



ERT™ Wiring and Control

Installation, Programming & Parts Manual



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Record Conveyor Serial Number Here

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IMPORTANT

<i>Some illustrations may show guards removed. DO NOT operate equipment without guards.</i>

Upon receipt of shipment:

- Compare shipment with packing slip. Contact factory regarding discrepancies.
- Inspect packages for shipping damage. Contact carrier regarding damage.
- Accessories may be shipped loose. See accessory instructions for installation.

Dorner's Limited Warranty applies.

Dorner has convenient, pre-configured kits of Key Service Parts for all conveyor products. These time saving kits are easy to order, designed for fast installation, and guarantee you will have what you need when you need it. Key Parts and Kits are marked in the Service Parts section of this manual with the Performance Parts Kits logo .

Dorner reserves the right to make changes at any time without notice or obligation.

Warnings – General Safety

⚠ WARNING

The safety alert symbol, black triangle with white exclamation, is used to alert you to potential personal injury hazards.

⚠ DANGER



Climbing, sitting, walking or riding on conveyor will cause severe injury. **KEEP OFF CONVEYORS.**

⚠ DANGER



DO NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.

⚠ WARNING



Exposed moving parts can cause severe injury. **LOCK OUT POWER** before removing guards or performing maintenance.

⚠ WARNING



Gearmotors may be **HOT**. **DO NOT TOUCH** Gearmotors.

⚠ WARNING



Dorner cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user.

When conveyors are used in conjunction with other equipment or as part of a multiple conveyor system, **CHECK FOR POTENTIAL PINCH POINTS** and other mechanical hazards before system start-up.

⚠ WARNING



Loosening stand height or angle adjustment screws may cause conveyor sections to drop down, causing severe injury.

SUPPORT CONVEYOR SECTIONS PRIOR TO LOOSENING STAND HEIGHT OR ANGLE ADJUSTMENT SCREWS.

Torque Specifications

	Flat Head		Socket Head		Button/Low Head		Set Screw	
	Size	Torque	Size	Torque	Size	Torque	Size	Torque
M4 x 0.7	2.5 mm	3.4 Nm (30 in lbs)	3 mm	5.9 Nm (52 in lbs)	2.5 mm	2.9 Nm (26 in lbs)	2 mm	2.1 Nm (19 in lbs)
M5 x 0.8	3 mm	6.9 Nm (61 in lbs)	4 mm	12.0 Nm (106 in lbs)	3 mm	5.9 Nm (52 in lbs)	2.5 mm	4.7 Nm (42 in lbs)
M6 x 1.0	4 mm	12.0 Nm (106 in lbs)	5 mm	20.3 Nm (180 in lbs)	4 mm	10.0 Nm (89 in lbs)	3 mm	7.7 Nm (68 in lbs)
M8 x 1.25	5 mm	28.0 Nm (248 in lbs)	6 mm	48.8 Nm (432 in lbs)	5 mm	24.0 Nm (212 in lbs)	4 mm	17.8 Nm (158 in lbs)
M10 x 1.5	6 mm	56.0 Nm (496 in lbs)	8 mm	97.5 Nm (863 in lbs)	6 mm	48.0 Nm (425 in lbs)	5 mm	35.0 Nm (310 in lbs)

Installation

Required Tools

- 3 mm Hex Wrench
- 5 mm Hex Wrench
- 13 mm Wrench
- Wire Strippers
- Terminal Engagement Tool
- Saw
- Drill
- 5/16" Drill Bit

Low Voltage Power Distribution

NOTE

Motor control enclosures can mount to the stands or the mounting assembly.

1. Determine motor control enclosure (**Figure 1, item 1**) location.

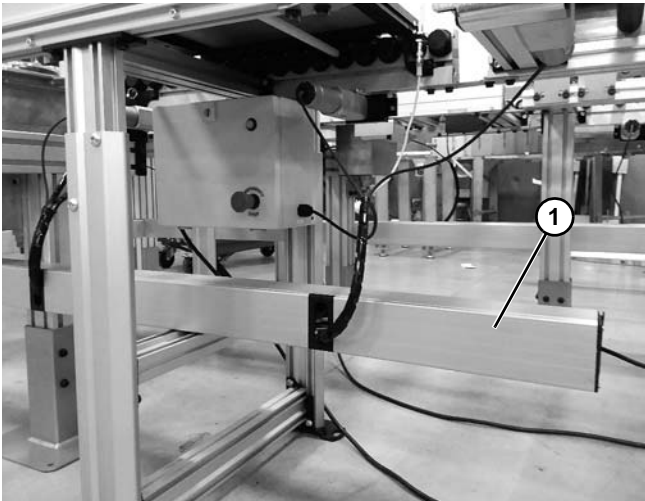


Figure 1

2. Cut enclosure to length.

3. Attach mounting components (**Figure 2, item 1**) to conveyor if applicable.

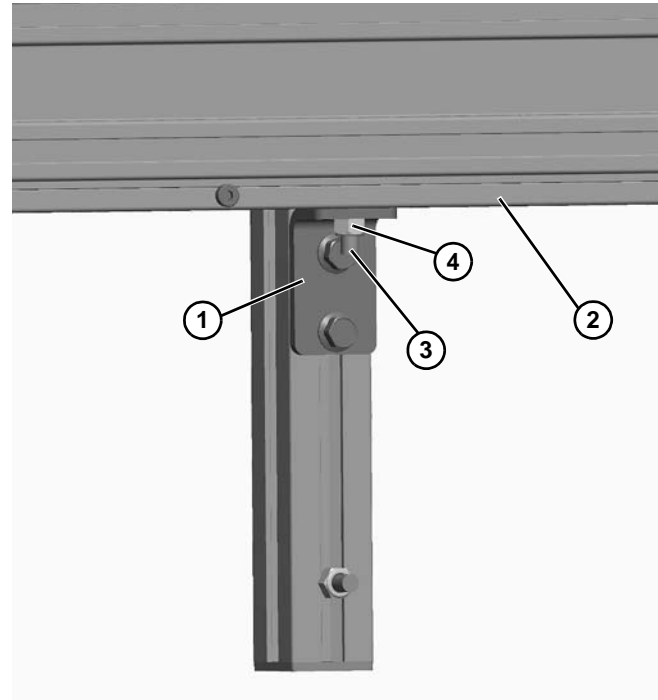


Figure 2

4. Insert T-bolt (**Figure 2, item 3**) into bottom of conveyor frame (**Figure 2, item 2**). Tighten nut (**Figure 2, item 4**) to secure.
5. Determine locations to drill holes in enclosure to mount to stand, crossmembers, side rails (**Figure 3, item 1**), or automation module beams.

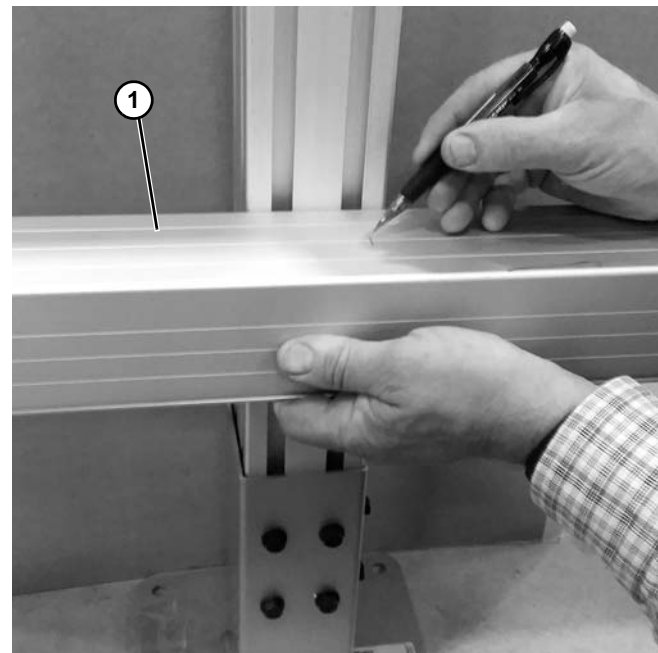


Figure 3

Installation

6. Drill holes (**Figure 4, item 1**) in enclosure.

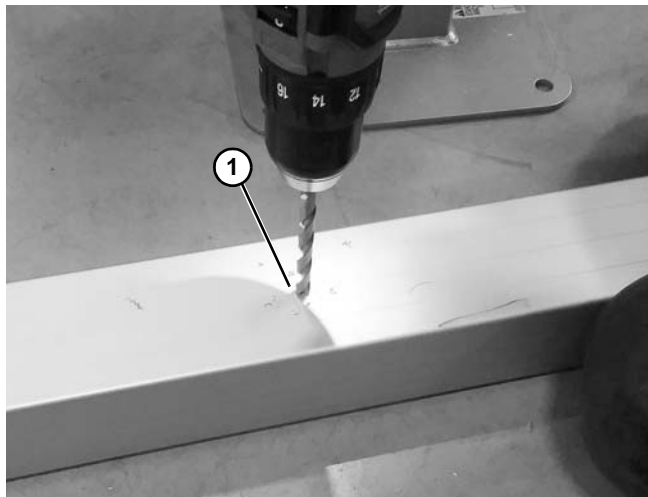


Figure 4

7. Mount with t-nuts (**Figure 5, item 1**) and lock nut (**Figure 6, item 1**) (not provided).

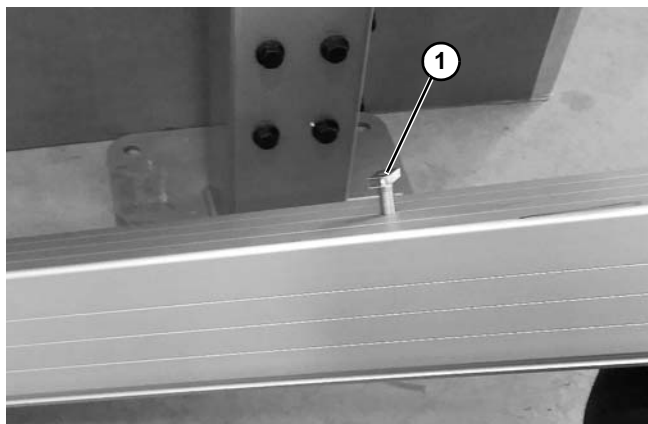


Figure 5

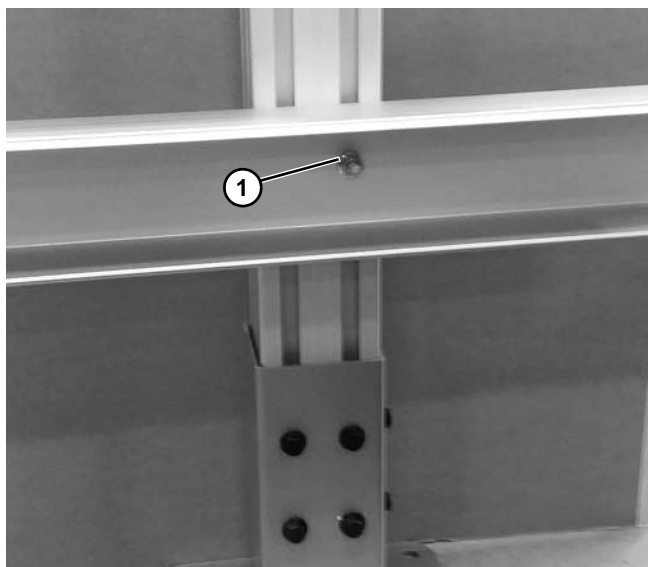


Figure 6

8. Locate positions of controller(s) (**Figure 7, item 1**) in motor control enclosure. Mark holes (**Figure 7, item 2**) needed for drilling.

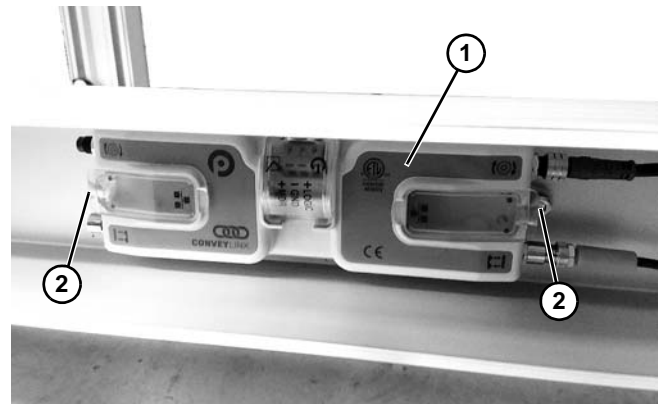


Figure 7

9. Drill holes (**Figure 8, item 1**) to mount controller to enclosure.

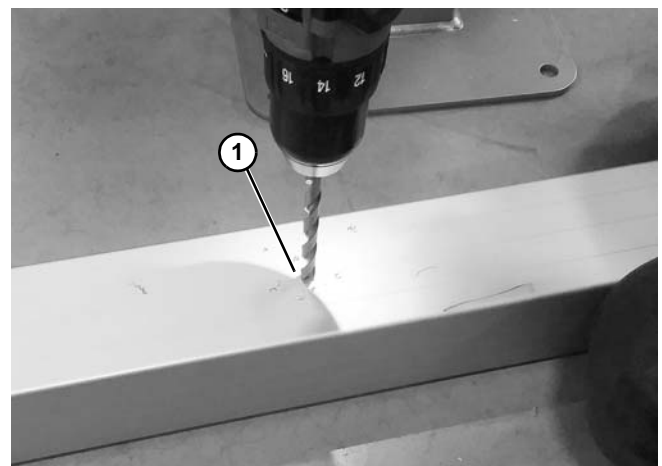


Figure 8

10. Determine location for DC power supply (**Figure 9, item 1**).

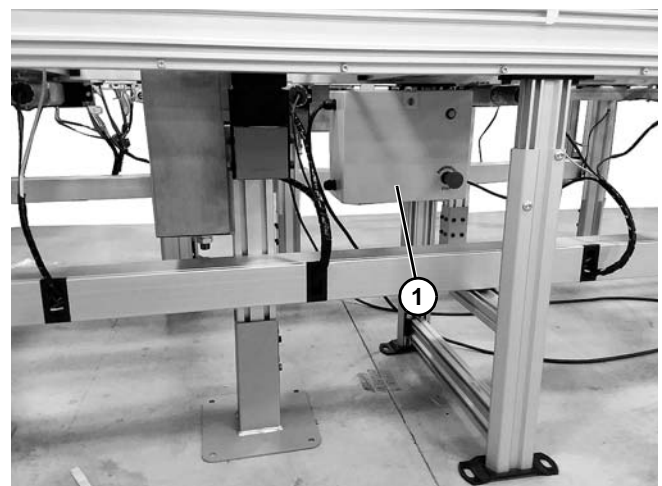


Figure 9

Installation

NOTE

One DC power supply can supply up to four motor controllers / 8 motors.

11. Mount DC power supply to support stand.
12. Connect the DC power supply to motor control.

- (Figure 10, item 1) 120V AC in
- (Figure 10, item 2) 24 V DC out

See wiring (Figure 11) and (Figure 12), and wiring diagram (Figure 13).

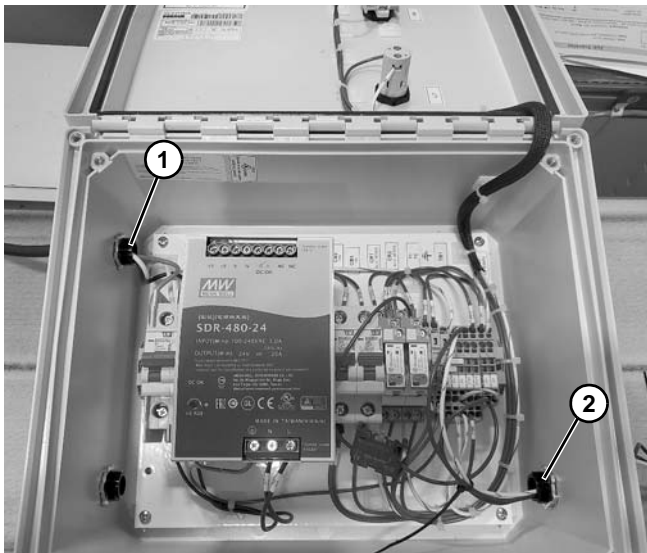


Figure 10

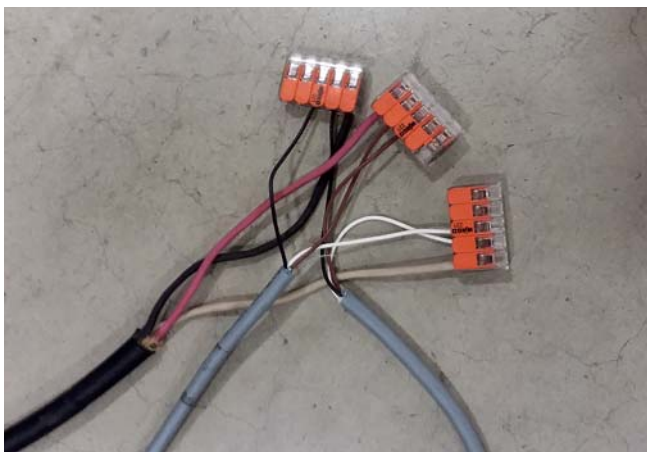


Figure 11



Figure 12

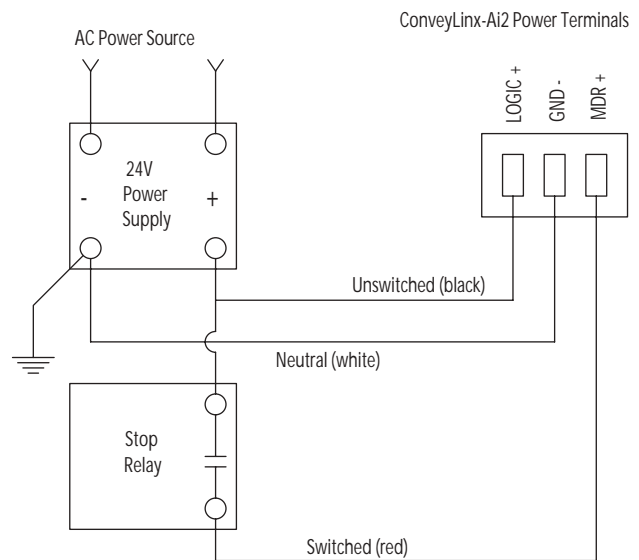


Figure 13

NOTE

You can connect up to four motor controllers in parallel.

Installation

13. Attach motor plug to motor controller. An extension cord (Figure 14, item 1) for motor plugs are available.

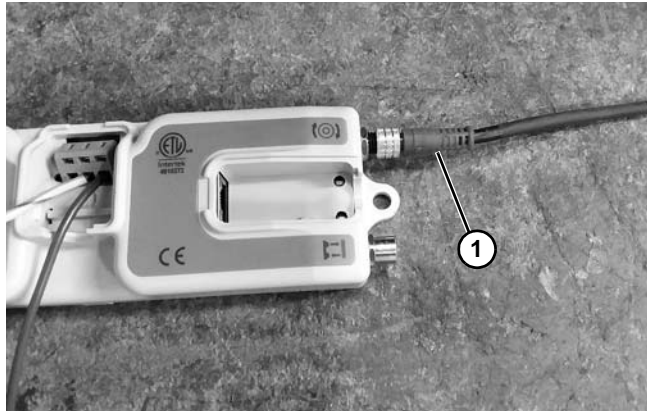


Figure 14

CAUTION

Make sure to line up small pins (Figure 15, item 1) inside motor plug. Excess force could break pins.

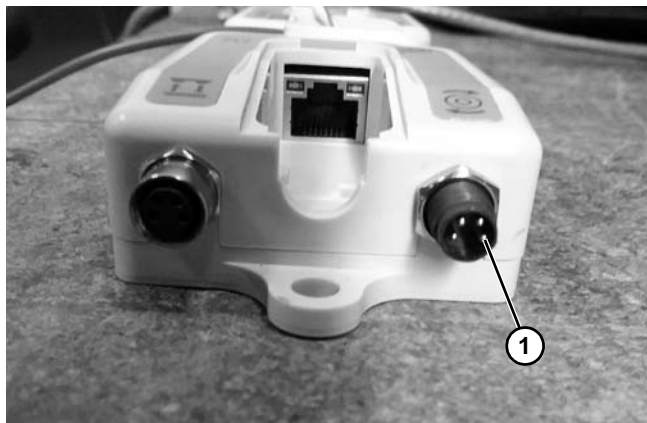


Figure 15

14. Connect sensor wires (Figure 16, item 1) to motor controllers.



Figure 16

15. Connect Ethernet cable (Figure 17, item 1) from main logic system to first motor controller.

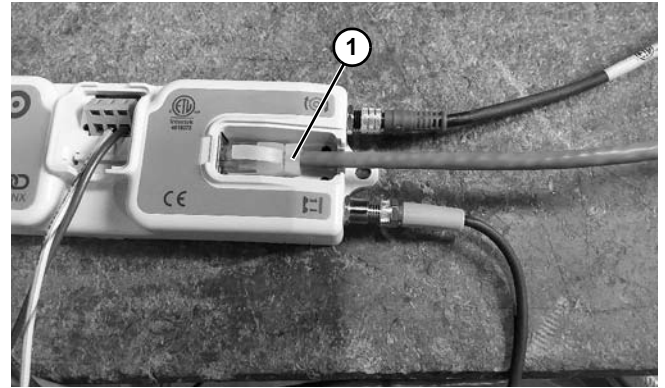


Figure 17

NOTE

Ethernet cable must be a shielded cable.

16. Connect remaining motor controllers (Figure 18, item 1) in series.



Figure 18

NOTE

First controller must be first to handle product.

17. Mount motor controller to enclosure with fasteners (Figure 19, item 1).



Figure 19

Installation

18. Insert cable entry protection covers (**Figure 20, item 1**) at the point where the cable enters the enclosure.

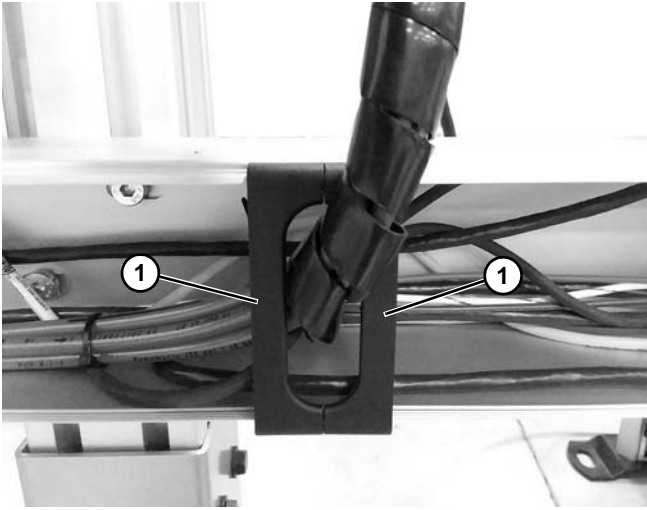


Figure 20

19. Measure and cut enclosure covers (**Figure 21, item 1**) to length.

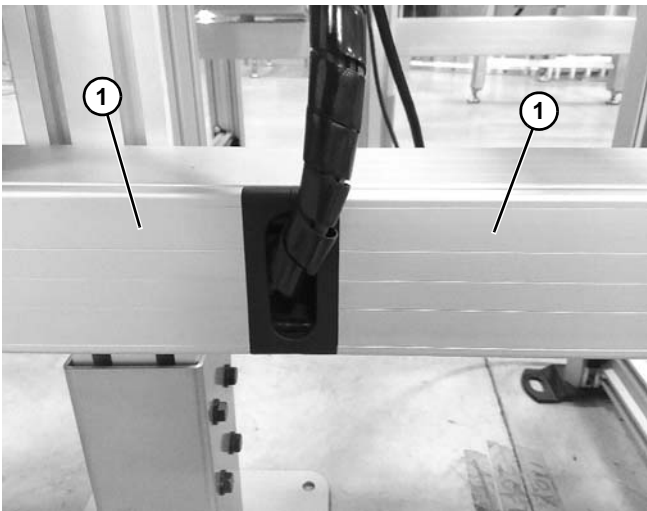


Figure 21

20. Insert enclosure end caps. If wiring from enclosure to enclosure, use end caps with hole (**Figure 22, item 1**).

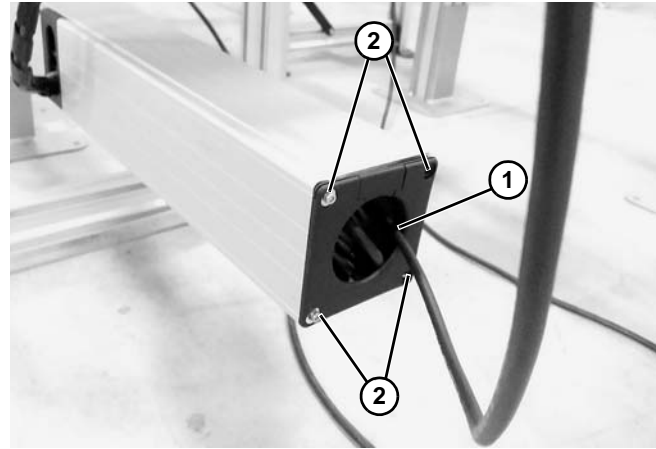


Figure 22

21. Fasten end caps with four screws (**Figure 22, item 2**).

Required Tools

- PC
- Shielded Ethernet Cable

Programming Gearmotor Controllers

1. Refer to ConveyLinX-Ai2 User's Guide, publication ERSC-1006, section Auto-Configuration of Linear Conveyor.
- Manual link: https://www.pulseroller.com/downloads/#files-Control+Literature+_+Drawings-ConveyLinX+Ai2-Users_Manual_and_Specifications

2. Download software.

- Software link: https://www.pulseroller.com/downloads/#files-Software+_+Firmware+Downloads-Software-EasyRoll-EasyRoll-Latest_EasyRoll

3. Start EasyRoll program.

4. Choose a mode: ZPA Mode or PLC Mode.

ZPA Mode: In this mode, the modules communicate with each other to provide motor control for zero pressure accumulation (a PLC can still interact with the module if in ZPA mode). No external controller is required for the conveyor to function and operate as described in ConveyLinX-Ai2 User's Guide.

Image shown when system recognizes controller (**Figure 23, item 1**).

NOTE

Wire system completely.

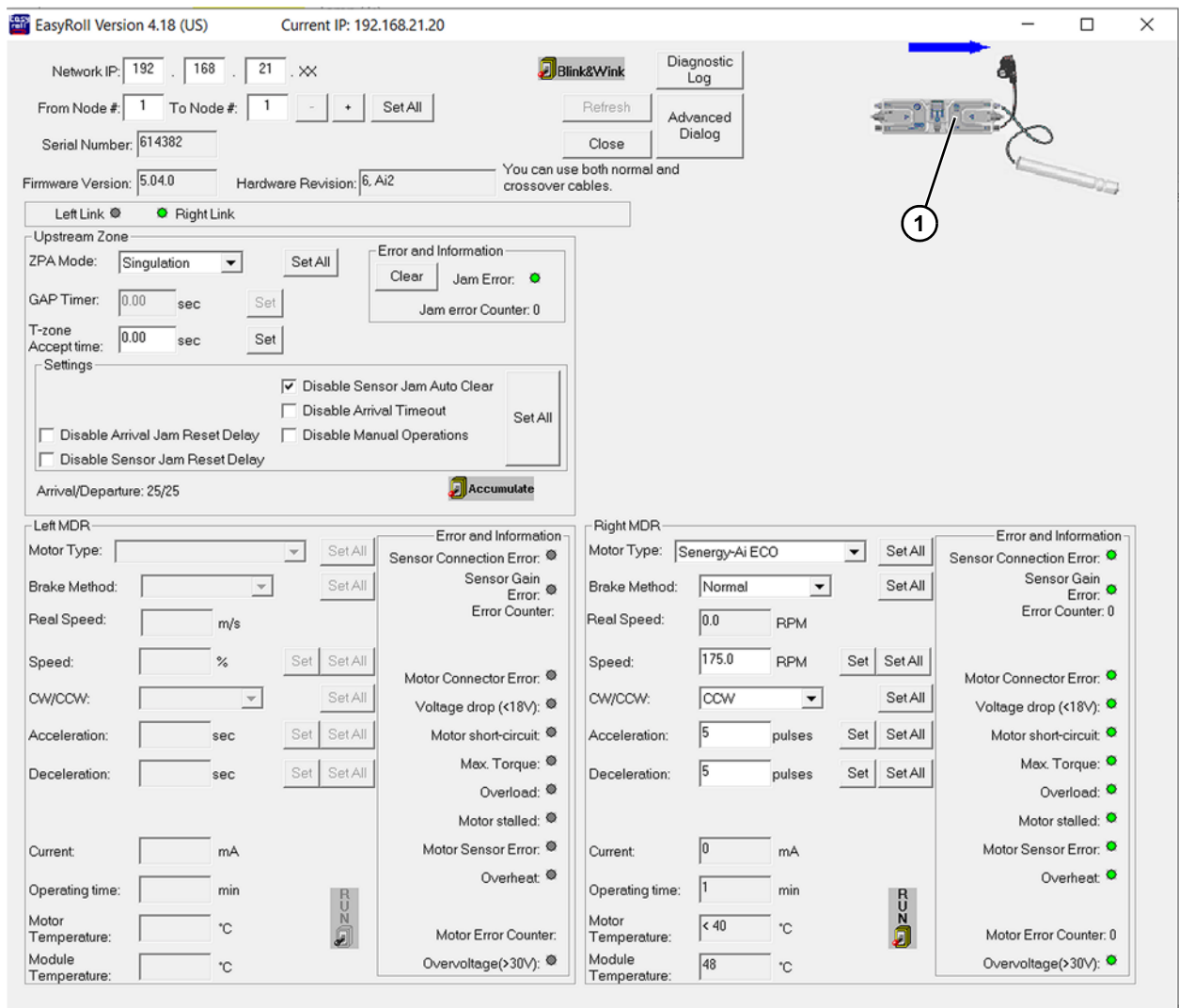


Figure 23

Programming

- **PLC Mode:** In PLC I/O Mode, the ConveyLinx-Ai2 suspends all automatic ZPA functionality and its input, output, and motor control functions are explicitly controlled by a networked external logic controller. The external controller reads-from and writes-to the module's internal data registers over the Ethernet network using Ethernet I/P, Modbus TCP, or Profinet I/O protocol in order to initiate all ConveyLinx-Ai2 functionality.
- To utilize this feature, you should:
 - Have an intermediate to advanced level of understanding of PLC logic and network structures. Familiarity with at least one of Modbus TCP, Ethernet I/P, or Profinet I/O protocols is also essential.
 - Have a basic understanding of electrical circuitry and familiarity with relay logic, conveyor equipment, photoelectric sensors, etc. in order to follow example scenarios and sample programs included herein. If you do not, obtain the proper training before using this product.
 - Read and understand Conveylinx-Ai2 Developers Guide, publication ERSC-1506.

NOTE

Modules can be placed in PLC I/O Mode by either using the EasyRoll software tool after they have been through an Auto-Configuration Procedure OR by having no sensor devices connected prior to running the Auto-Configuration Procedure.

5. Follow the instructions in the User's Guide for "Automatic Configuration" and configure the modules.

Example using Rockwell PLC

- Requires using Compactlogix or Contrologix platforms.
- Read and understand the Conveylinx document, Connecting Conveylinx to Rockwell, ERSC-1521.
- The use of an Ethernet switch to communicate to each module is not recommended. Connect only an end module to a switch or directly to the PLC and "daisy-chain" the rest of the modules.
- Configure mods in Easyroll for "PLC I/O".
 - IP addresses will be automatically assigned. You can use Easyroll to change the IP addresses to match the PLC network addressing.

- Download EDS file(s) from Pulseroller.com
 - Add modules to network (**Figure 24, item 1**)

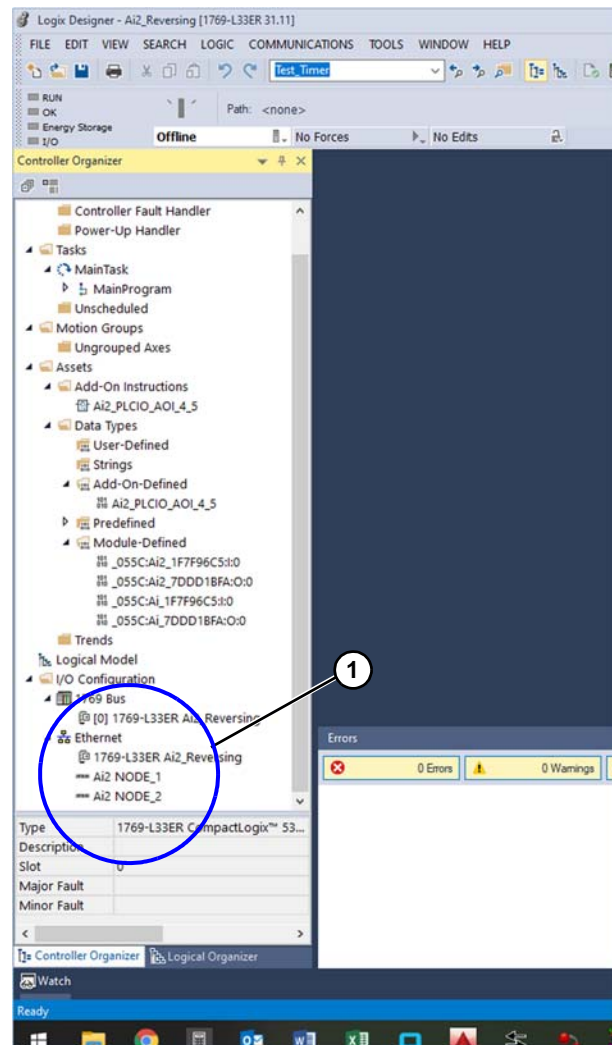


Figure 24

- Download AOI file(s) from Pulseroller.com
 - Import them into the project (**Figure 25, item 1**)

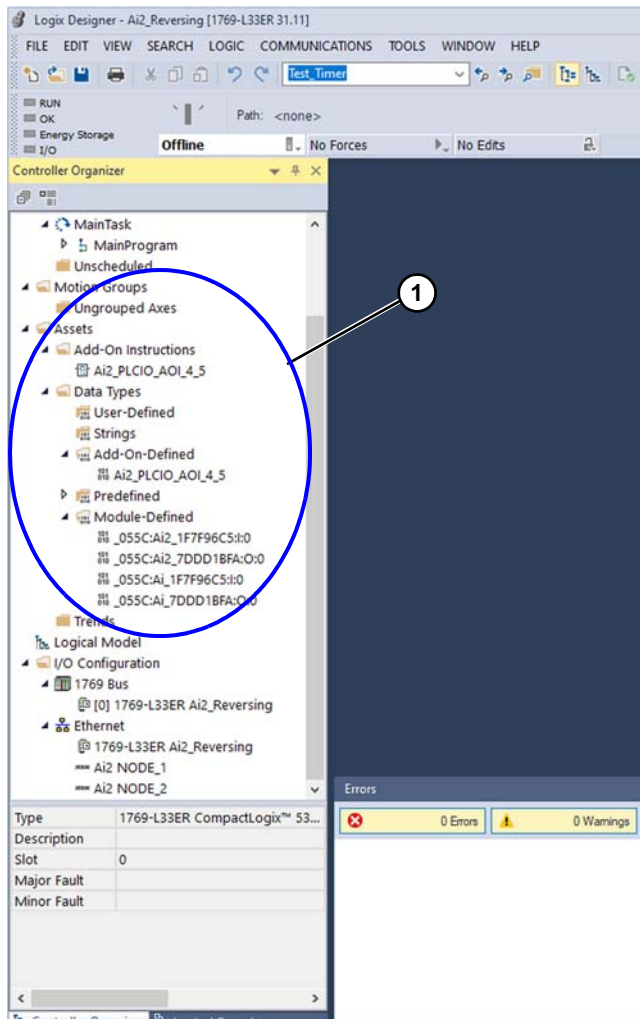



Figure 25

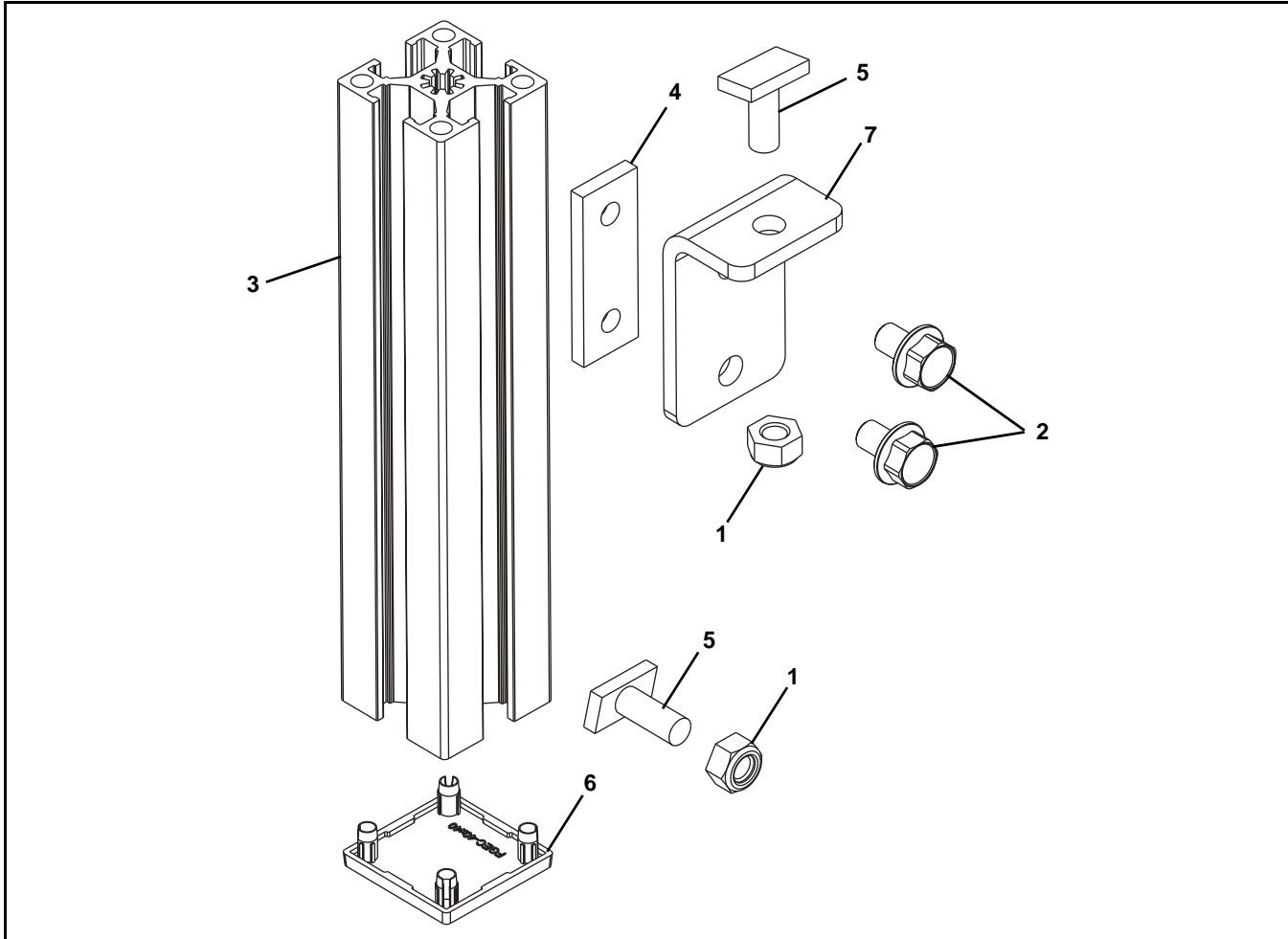
- Motor control, inputs, and outputs can all now be integrated seamlessly with the PLC program.

Service Parts

NOTE

For replacement parts other than those shown in this section, contact an authorized Dorner Service Center or the factory. Key Service Parts and Kits are identified by the Performance Parts Kits logo . Dorner recommends keeping these parts on hand.

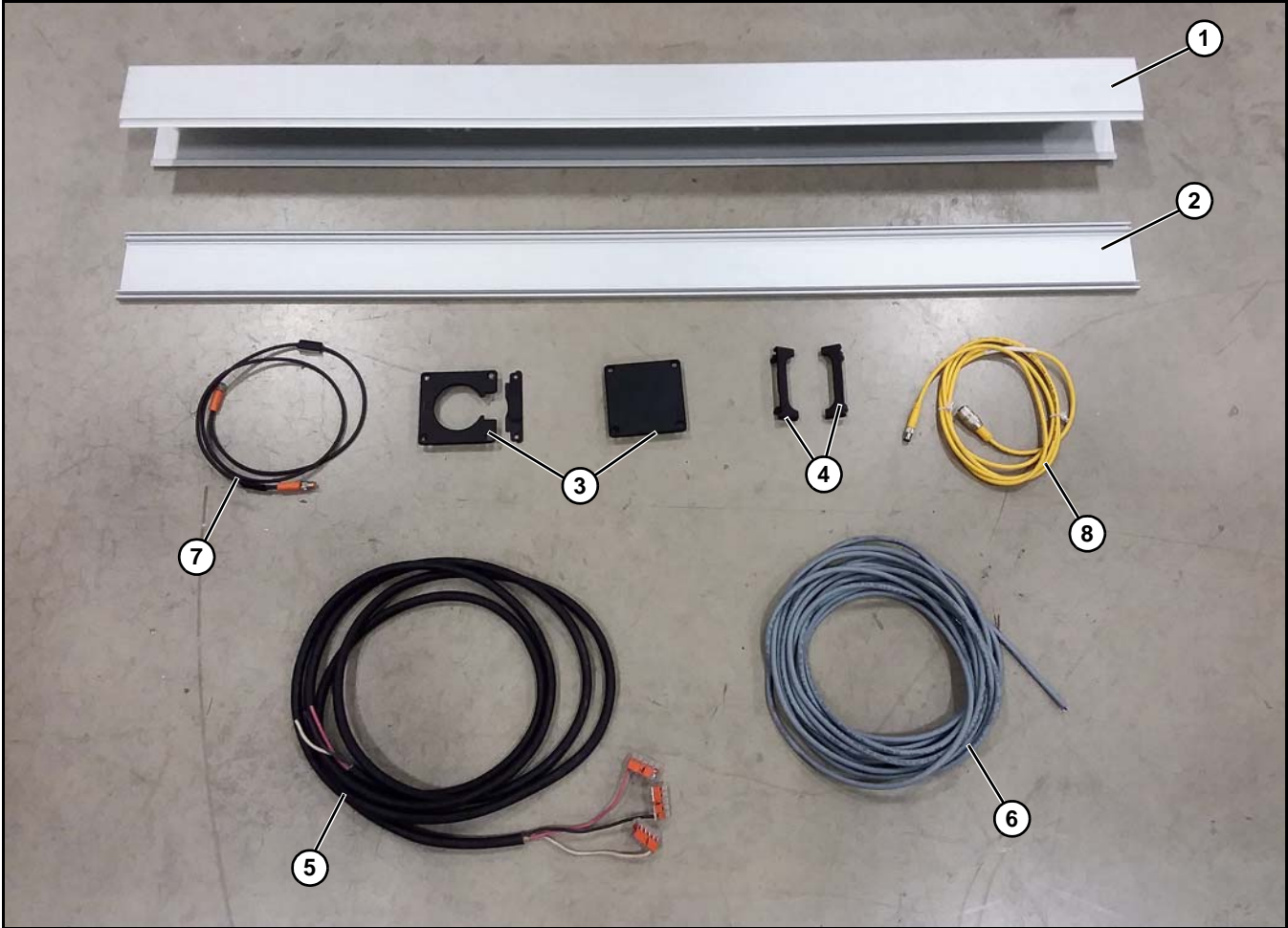
Mounting Components



Item	Part Number	Description
1	FALN-M8	Lock Nut
2	960882M	Flanged Hex Head Cap Screw, M8x12 mm
3	FBSB-40x40-LLLLL-M	Beam
4	FBCS-20x55	Connecting Strip (10 pack)
5	FATB-20	T-Bolt, M8x20 mm (50 pack)
6	FBEC-40	End Cap
7	400265	Mounting Bracket

LLLLL = Part Length in mm with one decimal place.
 Length Example: Length = 1000 mm LLLLL = 10000

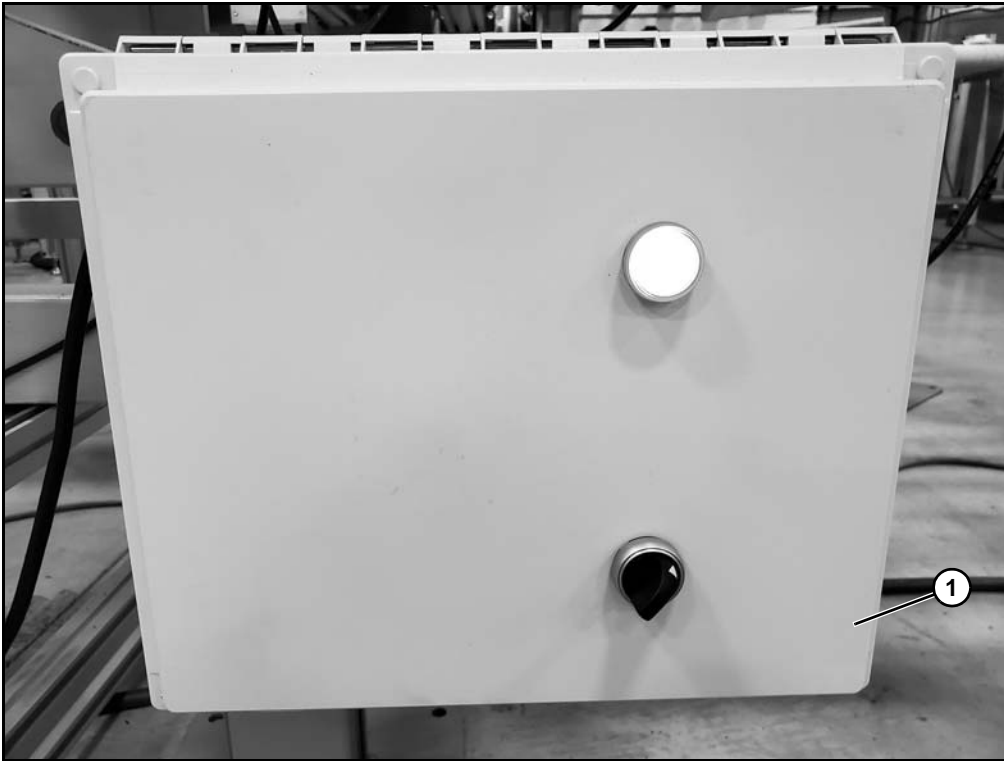
Wiring Kits and Accessories



Item	Part Number	Description
1	ERTW1-CE3000	Enclosure
2	ERTW1-CV3000	Enclosure Cover
3	ERTW1-EC1	End Cap, Closed
	ERTW1-EC2	End Cap, with Hole
4	ERTW1-CBE1	Cable Entry Protection Covers
5	ERTCB1-PCXXXX	DC Power Supply Cable, available in 1000, 2000, 3000, and 4000 mm lengths
6	ERTCB1-LCXXXX	Controller Linking Cable, available in 1000, 2000, 3000, and 4000 mm lengths
7	ERTCB1-MCXXXX	Motor Extension Cable, available in 2000 and 3000 mm lengths
8	ERTCB1-SCXXXX	Sensor Cable, available in 2000, 3000, and 4000 mm lengths
XXXX = 1000, 2000, 3000, or 4000 mm.		

Service Parts

DC Power Supply



Item	Part Number	Description
1	400354	DC Power Supply, 120/240 Volt
	400355	DC Power Supply, 480 Volt

Return Policy

Returns must have prior written factory authorization or they will not be accepted. Items that are returned to Dorner without authorization will not be credited nor returned to the original sender. 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. Dorner part number(s) of 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. Include part serial number if available.

A representative will discuss action to be taken on the returned items and provide a Returned Materials Authorization (RMA) number for reference. RMA will automatically close 30 days after being issued. To get credit, items must be new and undamaged. There will be a return charge on all items returned for credit, where Dorner was not at fault. It is the customer's responsibility to prevent damage during return shipping. Damaged or modified items will not be accepted. The customer is responsible for return freight.

Product Line	Product Type								Engineered to order parts
	Standard Products								
	Conveyors	Gearmotors & Mounting Packages	Support Stands	Accessories	Spare Parts (non-belt)	Spare Belts - Standard Flat Fabric	Spare Belts - Cleated & Spec. Fabric	Spare Belts - Plastic Chain	All equipment and parts
1100 Series	30% return fee for all products except: 50% return fee for conveyors with modular belt, cleated belt or speciality belts All Electrical items are assigned original manufacturers return policy.						non-returnable		case-by-case
2200 Series									
3200 Series									
Pallet Systems									
FlexMove/SmartFlex									
GAL Series									
All Electrical									
7100 Series	50% return fee for all products						non-returnable		case-by-case
7200/7300 Series									
AquaGard 7350 Series Version 2									
GES Series									
AquaGard 7350/7360 Series	non-returnable								
AquaPruf Series	non-returnable								

Returns will not be accepted after 60 days from original invoice date. The return charge covers inspection, cleaning, disassembly, disposal and reissuing of components 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. Contact Dorner for the name of your local representative. Our Customer Service Team will gladly help with your questions on Dorner products.

For a copy of Dorner's Warranty, contact Dorner, an authorized sales channel or visit our website: www.dorner.com.

For replacement parts, contact an authorized Dorner Service Center or the factory.

www.dorner.com



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851-927 Rev. B

Printed in U.S.A.

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